

Technical Master Glossary



English US – Context – Definition

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We hope that technical dictionary will help those who do not know enough English to read the manuals correctly.

The terms contained in the English column which are preceded by the abbreviation "[am.]" are used principally in the United States.

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English US	Context	Definition
"CAUTION"	The hazards are identified by the "Safety Alert Symbol" and followed by a "Signal Word" such as "DANGER", "WARNING" or "CAUTION".	
"Chomp marks"	The hazards are identified by the "Safety Alert Symbol" and followed by a "Signal Word" such as "DANGER", "WARNING" or "CAUTION".	"Chomp marks" is an expression used to describe marks made by a connecting rod cap on the back of an engine bearing as it escapes from the bore during a failure.
"DANGER"	The hazards are identified by the "Safety Alert Symbol" and followed by a "Signal Word" such as "DANGER", "WARNING" or "CAUTION".	"Smushed" is an expression used to describe a portion of fracture surface that has been damaged to the extent that no useful information can be obtained.
"Smushed"	The hazards are identified by the "Safety Alert Symbol" and followed by a "Signal Word" such as "DANGER", "WARNING" or "CAUTION".	
"WARNING"	Remote F-N-R (forward/neutral/reverse)	The amount of heat energy in Btu/h that will be absorbed by one square foot of surface for each degree of mean temperature difference through the surface material.
(forward/neutral/reverse)	(JIT) Production system that makes and delivers what is needed, when it is needed, in the amount needed. Relies on production leveling as a foundation and comprises three operating elements: the pull system, Takt time and continuous flow.	
(JIT) Production system		
"U" Factor	Temporarily disconnect the wire from one of the +Battery connections on the P1 ECM connector.[KPNR5342-05.rtf]	
+battery	The solenoid energizer circuit of the modulating valve is shorted to the +battery circuit.	Establishes the procedure for assuring the reliability of critical welds used in structures related to operator safety and whose failure may result in extensive damage to a major component or extensive downtime.
+battery circuit		
1E2111 Inspection-Weld Control-Special		

1st Pass Yield		The number of good units produced after the value added operation is complete. This metric is used to document the quality of parts and workmanship in assemblies at the end of line or ready to ship state. This can be applied at the cell, value stream, group or facility level. At the cell or value stream levels, this would be the results of a functional test on the work done in the area. At the facility level this would be based on the Plant Pre-Delivery Inspection report for ready to ship assemblies either to a dealer/customer or a higher level component (engine, transmission, ...) being shipped interplant. At the group level, Pre-Delivery Inspection data should be used when Pre-Delivery Inspections are required. This is a results based metric.
20-day Frozen Sequence		This period is measured from the date of the schedule to the date of production launch.
24 volt DC power supply	Connect plug 3 of the Portable Hydraulic Pump 212-6102 to the machine's 24 volt DC power supply.	A device to change the voltage of an electrical power source
24 Volt to 12 Volt Converter	24 Volt to 12 Volt Converter	
3 cylinder engine	Typical crankshaft for a 3 cylinder engine	
45 N10 lb pull test	Perform a 45 N10 lb pull test on each of the wires that are associated with the suspect sensor.	
45° tensile fracture		45° tensile fracture is a fracture on a 45° plane in a part due to torsional loading.
5S	Five related terms, beginning with an S sound, describing workplace practices conducive to visual control and lean production. The five S's are: sort, set, shine, standardize and sustain.	
6 Sigma	CPS enables the Enterprise Strategy built on the foundation of Our Values in Action and 6 Sigma—the Strategic Area of Improvement (SAI); Order-to-Delivery, and Critical Success Factors (CSFs); PEOPLE, QUALITY, VELOCITY, and TROUGH.	Business system for organizing and managing product development, operations, suppliers and customer relations that requires less human effort, less space, less capital, less material and less time to make products with fewer defects to precise customer desires when compared with the previous system of mass production.
6 Sigma Lean Transactional		
64 Pin Connector	Machine Harness to ECM Connector (64 Pin Connector)	

6SigmaLean		Application of lean production to non-production business processes such as information technology, accounting, human resources and administration. A group activity built around the 6 Sigma DMAIC process — commonly lasting five days — in which a team identifies and implements a significant improvement in a process. Workshops aim for the quick, focused discovery of root causes and quick, focused implementation of solutions.
8 Wastes		
A/F Dynamic Setting		The dynamic (engine running) setting of a device on the engine which limits the amount of fuel injected per stroke as a function of the boost.
abnormal contact	Check the valve and the valve seat for an abnormal contact pattern.	
abrasion	Check the harness for abrasions and for pinch points from the battery to the ECM.[KPNR5342-05.rtf]	a wearing, grinding, or rubbing away by friction
abrasion resistance property	This tempering will reduce the abrasion resistance properties.	
abrasion sleeve	Abrasion sleeves are manufactured of a bulk, continuous filament nylon, which is available in varying thicknesses.	
abrasive paper	Do not file the electrodes or use abrasive paper in order to clean the electrodes. These surfaces may also be damaged by contamination from other sources. An example of these sources would be chemicals or abrasive substances. Other airborne abrasive substances	
abrasive substance		
absolute humidity		Amount of moisture in the air, indicated in grains per cubic foot.
absolute temperature		The temperature measured using absolute zero as a reference. Absolute zero is -469.69° F (-273.16° C) and is the lowest point of temperature known.
AC meter key	The AC meter key controls the viewing of the AC parameters on the upper display.	
AC signal frequency	The AC signal frequency (Hz) varies as the condition changes.	
accel rate	acceleration rate	
acceleration ramp rate	electronically controlled acceleration ramp rates	
accelerometer measurement	indicate and record the compaction that is under the drum based on accelerometer measurements	
acceptable cylinder drift	Acceptable Cylinder Drift	

acceptable quality level	Acceptable Quality Level (AQL) is the maximum defective percentage in a sampling inspection that can be considered satisfactory as a process average.	
acceptable voltage drop	Maximum Acceptable Voltage Drop In The Starting Motor Circuit During Cranking	
acceptable water requirement	Caterpillar Minimum Acceptable Water Requirements	
access cover	Remove bolts 4 and the washers in order to remove access cover 3 that is under the main control valve.	
access level key	An error message will display if you attempt to delete the last master access level key.	
access ramp	A sloping surface is frequently used to build an access ramp.	
access restriction	Weld across the bore only if there are access restrictions to the bore.	
accessing configuration	Accessing Configurations	
accessory belt	Inspect the alternator belt and any accessory belts for wear and for cracking.	
accounting distribution number		The Accounting Distribution Number contains information on the department and division section of employees, and also their expense account numbers.
AccuGrade	Cat MineStar System Component	
AccuGrade Display	The Laser Receivers are 360 degree omni-directional receivers that detects the laser beam and send information about the elevation of the laser beam to the AccuGrade Display.	
AccuGrade for Compactors System	In order for the AccuGrade for Compactors System to provide accurate guidance and to display the drum position accurately, you must perform a Measure Up procedure.	
AccuGrade Grade Control System	A poor quality GPS site calibration will result in poor quality guidance information from the AccuGrade Grade Control System.	
AccuGrade Laser Reference System	If the AccuGrade Laser Reference System is enabled, the Laser Reference Sys mode will allow the operator to perform functions that are related to set up and use of the AccuGrade Laser Reference System for the Backhoe Loader (BHL).	

AccuGrade Laser System	Although a laser transmitter is not included with the AccuGrade Laser System, a laser transmitter is required if the AccuGrade Laser System is equipped with Laser receivers.	
AccuGrade Office Software	Terrain logging files are used in the AccuGrade Office Software.	
AccuGrade Site Reference System for Backhoe Loader	The AccuGrade Site Reference System for Backhoe Loaders uses a combination of internal cylinder position sensors, a swing sensor and inclinometer to determine bucket position relative to reference points on the work-site, such as grade stakes, string lines, or curb. The AccuGrade Site Reference System for Backhoe Loaders is earthmoving equipment that is high in technology.	
accumulated receipt		Total amount of material received against a purchase order.
accumulator	The pressure that is stored in the accumulator permits fully hydraulic braking even when the implement hydraulic system is not operating. Below many of the heat treat installations is a pit or basement that houses accumulators	
accuracy tolerance	When defining the acceptable accuracy limits, the calibration tolerances should not be larger than the accuracy tolerance for the site.	
ACERT technology	The 6.6-liter, 150-horsepower (net) Cat C6.6 engine uses ACERT technology to optimize power, fuel efficiency and emissions control.	
acid etch marking machine		Acid etch marking machines incise an image, code, or mark into the surface of the metal part using an acid. The acid eats the metal, leaving behind roughened areas, or if the surface exposed to the acid is very narrow, burning a line into the plate.
acid etching		Acid etching is the process of applying an acid to the surface of a metal to reveal some characteristic of the metal such as its microstructure, grain flow, or hardened depth.
action alarm	However, the action alarm does not sound when the transmission is shifted into the FORWARD direction or into the REVERSE direction. A Warning Category 3 also causes the action alarm to sound.	

action lamp	A Warning Category 2 causes both action lamp 4 and the alert indicator to flash. Do not operate the machine if the alert indicator and the action lamp continue to flash after investigating the cause.	
active engine fault	Also, the engine must be stopped with no active engine faults.	
active error	The ACTIVE ERROR menu displays active errors in the MID.	
active float	The float can be disabled in Advisor, but the default is for an active float.	
active inventory record		A production part for which current demand exists.
active operator profile	Within the SAVE SETTINGS option, the operator can save changes that are made in the MACHINE SETTINGS menu to the active operator profile.	
active power		The real power supplied by the generator set to the electrical load. Active power creates a load on the set's engine and is limited by the horsepower of the engine. Active power does the work of heating, turning motor shafts, etc., and is measured in watt
active problem	When the system detects an active problem, a diagnostic lamp is activated.	
active software	The active software that operates the reverse fan function will determine the actual response to the fan.	
active truck	The selected truck or the selected material will remain selected as the active truck or the active material until another truck or another material is selected.	
active warning indication	The active warning indications are marked with an X.	
active work tool	Verify the Active Work Tool	
activity point		Any location where material is awaiting a replenishment trigger to move the material to the next downstream operation.
actual capacity	Static Capacity indicates the condition where both Planned and Actual Capacity are at "Steady State" and at "Maximum Sustainable Capacity". MSC can be used to define either Planned Capacity or Actual Capacity.	
actuation	Two pump flow is used for work tools that require high flow rates for actuation.[RPNR7389-09.rtf]	the act or result of turning on; activation
actuation oil	The high pressure circuit provides actuation oil to the unit injector.; Actuation oil that is under high pressure flows from the unit injector hydraulic pump through the cylinder head to all of the injectors.	

actuation pressure	The switch is normally open below the actuation pressure. Maximum actuation pressure at -40° to +121°C-40° to +250°F	
actuator		a device or switch which causes something to happen, such as an air inlet shutoff actuator, electric actuator, or governor shutoff actuator
actuator housing	Align the tabs on actuator housing 15 with the slots in the case housing.; Install actuator housing 15 in the case housing.	
actuator linkage	The linkage for the parking brake actuator is not adjusted properly or the actuator linkage is adjusted for the manual disengagement of the parking brake.	
actuator piston	One sleeve is connected to an actuator piston.; Moving the actuator piston right or left causes the idler and sleeves to move the same distance to the right or to the left.	
actuator rod	Slowly apply air pressure to the wastegate so that the actuator rod moves 1,0 mm.	
actuator rotor assembly	Install actuator rotor assembly 62 into the actuator body assembly.	
actuator spool supply port	When the actuator valve is activated by a signal from the ECM, low pressure oil passes from the actuator spool supply port P to actuation port A.	
actuator vane	Install actuator vane 63 into the actuator body assembly, as shown.	
adapter cable	The Adapter Cable As 237-7547 is required to connect to the USB port on computers that are not equipped with a RS232 serial port.[KPNR5342-05.rtf]	
adapter plate	Install adapter plate 6 on both ends of the oil filter housing. Adapter Plate	
adapter sleeve	Withdraw the transducer 1,0 mm and hand tighten the nut on the adapter sleeve in order to secure the transducer.	
adaptive trim	Adaptive Trim	This is a software process that is performed in the ECM that optimizes engine performance by automatically compensating for degradation of injector components.
ADD COLD mark	On machines equipped with a dump body maintain the hydraulic oil level above the ADD COLD mark in upper sight gauge 2 when the dump body is fully lowered.	

add inclusive geographic fence	An electronic boundary within which machines are monitored (part of Equipment Manager and Product Link system).	To add an inclusive Geographic fence, use the following procedure.
addendum		The addendum is the portion of a gear tooth between the pitch line and the tip of the tooth.
additive		1. A compound which is added to improve fuel. 2. A substance added to oil to give it certain properties. For example, a material added to engine oil to lessen its tendency to congeal or thicken at low temperatures.
additive package	The elevated levels of soot may also deplete the additive package of the oil.	
adhesive indicator	Evenly space four of the adhesive indicators around the outer diameter of the damper.	
Adhesive wear		Adhesive wear is the removal or displacement of material from a surface by the welding together and subsequent shearing of minute areas of two surfaces that slide across each other under pressure.
adjustment control	To adjust the angle of the armrest, operate the adjustment control 6 for the armrest. Adjustment control 2	
adjustment plug	Turn adjustment plug 22 until the pressure gauge reading at pressure tap 2 is 26000 ± 1000 kPa 3750 ± 145 psi.	
adjustment procedure	This adjustment procedure is for tools which require two-way flow.[RPNR7389-09.rtf]	
adjustment screw	Turn the adjustment screw on the main relief valve for one half turn clockwise to 39000 kPa in order to ensure that the setting is above the setting for the line relief valve.[RPNR7389-09.rtf]	
advance ship notice	There will only be data here if the supplier has issued an Advance Ship Notice (ASN).	The electronic communication from the supplier that tells the receiver that material has been shipped.
Advanced Diesel Engine Management		The name for current generation of the electronic engine control system.
Advanced Materials Technology	HTE-AMT (Advanced Materials Technology) is a specialized HTE function that is not normally performed at the plant level, but at the Center of Excellence, within the Technology & Solutions Division (T&SD) AMT. It is also capable of providing plant-level su	
advanced modular cooling system	Some engines are equipped with an Advanced Modular Cooling System (AMOCS) for heat dissipation.	

Advanced Product Quality Planning	(APQP) A structured method of defining and establishing the steps necessary to assure that a product satisfies the customer. The APQP process mitigates and reduces risk.	APQP starts early in the product / process development cycle and provides. A structured method of defining and establishing the steps necessary to assure that a product satisfies the customer. The APQP process mitigates and reduces risk.
advanced signal passage	When the steering wheel is not turning, oil constantly flows from the metering pump back to the hydraulic tank through the advanced signal passage in the priority valve.	
advertised power	Electronically controlled engines are set at the factory at the advertised power corrected to standard ambient conditions. Advertised Power	
Advisor	The Advisor shows the time that is available for the data logger on the right side of the screen. (Caterpillar software)	
Advisor display module	The Advisor display module monitors the machine operations, diagnostic events, service intervals, and modes of operation.	
Advisor Monitoring System	Advisor Monitoring System Simplifies Operation	
Aeration		Aeration occurs when air is supplied to, or mixed with, a liquid.
Aerosol Starting Aid		Do not spray aerosol starting aids such as ether manually into the intake.
aftercooler	When the ambient temperature exceeds the capability of the cooling system or the aftercooler, operate the engine at a reduced load or operate the engine at a reduced speed.[KPNR5342-05.rtf]	a device for cooling air that has been heated by compression; usually by a turbocharger
Aftercooler Core	Plug both ends of the aftercooler core and pressurize the core to 205 kPa (30 psi).	Plug both ends of the aftercooler core and pressurize the core to 205 kPa (30 psi).
aftermarket product	Aftermarket products are just individual piece part replacements. Aftermarket Products and Caterpillar Engines	
aftertreatment disable lamp	The Aftertreatment Disable Lamp is illuminated whenever the disable switch is activated.Aftertreatment Disable Lamp	Lamp that shows that aftertreatment devices have been disabled.

Aftertreatment Regeneration Device A stationary regeneration is an active regeneration that is initiated by the operator via the ARD force switch.

aftertreatment regeneration force switch Aftertreatment Regeneration Force Switch

aggressiveness level Each Autodig mode allows different bucket loading characteristics and loading aggressiveness levels.

Agricultural Tractor Agricultural Tractor

Air Bleeder

During diesel engine operation, oxides of nitrogen and carbon particulates are produced as byproducts of combustion. These materials are subsequently collected by aftertreatment devices. As the oxides of nitrogen and carbon particulates accumulate within these aftertreatment devices, the aftertreatment devices must be regenerated. This is accomplished by reducing the oxides of nitrogen and oxidizing the carbon particulates held by these devices.

Switch to activate aftertreatment regeneration.

A device used to remove air from a hydraulic system. Types include a needle valve, capillary tubing to the reservoir, and a bleed plug.

air bubble Air bubbles will keep coolant away from the engine parts, which will prevent the transfer of heat to the coolant.[KPNR6741-05.rtf]

air cleaner Clean air from the air cleaners is pulled through the air inlet 10 of the compressor housing by the rotation of the turbocharger compressor wheel 5.[KPNR6741-05.rtf]

air cleaner differential pressure For optimum engine performance, replace the air cleaner elements when the air cleaner differential pressure reaches 4 kPa15 inches of H2O.

air cleaner housing Clean the inside of the air cleaner housing.

Air Compressor

A device used to increase air pressure.

air conditioner compressor pulley This measurement should be taken between the alternator pulley and the crankshaft pulley or this measurement should be taken between the crankshaft pulley and the air conditioner compressor pulley.

air conditioner condenser Machines that are not equipped with air conditioning will not have an air conditioner condenser.

Air Conditioner Flushing Unit Cart Air Conditioner Flushing Unit Cart

Air Conditioner Flushing Unit Portable Air Conditioner Flushing Unit Portable

air conditioner group This message is located on the heater and air conditioner group underneath the left hand access door.

air conditioning condenser	The air conditioning condenser core cools the refrigerant in the air conditioning system.	
Air Conditioning Condensing Unit		
air conditioning fitting	Air Conditioning Fittings	
air conditioning switch	When the air conditioning switch is activated inside the cab, the air conditioning switch supplies voltage to the on delay timer assembly through pin 4.	
air conditioning thermostat switch contact	When the air conditioning thermostat switch contacts are closed, 24 volt power is supplied to refrigerant pressure switch 6.	
Air Cooled Condenser		Heat of compression is transferred from condensing coils to surrounding air. This may be done either by convection or by a fan or blower.
Air Diffuser		Air distribution outlet designed to direct airflow into desired patterns.
air filter	Clean plugged air filters or replace plugged air filters.[KPNR5342-05.rtf]	
air filter change indicator group	Check the Air Filter Change Indicator Group on the air inlet for a reading of the restriction.	
air flow restriction device	If an air flow restriction device must be used, the device should have a permanent opening directly in line with the fan hub.	
air gap	Adjust torque converter speed sensor 8 in order to maintain an air gap of $0,71 \pm 0,18$ mm $0,028 \pm 0,007$ inch.; This will set air gap A to 0,71 mm.028 inch.	
Air Hammer	A key tool used in the Forging processs is an air hammer.	
air inlet elbow	Disconnect hose 4 from air inlet elbow 2.[KPNR8106-01.rtf]	
air inlet filter	Monitor the connector contacts of the differential pressure switch for the air inlet filter.	
air inlet heater	If necessary, remove the air inlet heater.[KPNR8106-01.rtf]	air inlet heater
air inlet pipe	If contamination is found in the air pipe from the turbocharger to the aftercooler, check all of the air inlet pipes upstream of the turbocharger for leaks.[KPNR5342-05.rtf]	

air inlet shutoff circuit	If there is a problem with the air inlet shutoff circuit, refer to TroubleshootingAir Inlet Shutoff Circuit - Test.	
air inlet system	There will be a reduction in the horsepower and in the efficiency of the engine if there is a restriction in the air inlet system or in the exhaust system.[KPNR6741-05.rtf]	
air intake	Air intake and exhaust system[KPNR5342-05.rtf]	
air intake shutoff detection installation status	Air Intake Shutoff Detection Installation Status	Status of detection device for intake shutoff.
Air Intake Systems Application and Installation Guide	Special PublicationLEBW4969Air Intake Systems Application and Installation Guide	
air lock		The presence of air in a pump or pipes which prevents the delivery of liquid.
air pipe	Check for contamination in the air pipe that connects the turbocharger to the aftercooler.[KPNR5342-05.rtf]	
air prelube pump	Air Prelube Pump	
air restriction	As the soot filter becomes dirty, the air restriction increases.	
Air Return		Air returned from conditioned or refrigerated space.
air ride suspension	If your machine is equipped with an air ride suspension, the seat will be equipped with a lever.	
Air Shut-off		Air Shut-off (Solenoid)
air supply temperature	Air Supply Temperature	
air suspension seat	The air suspension seat offers a safe, comfortable, stable ride that is less fatiguing for the operator. Ergonomically designed, fully adjustable Cat Comfort Air Suspension Seat with adjustable armrests provides optimal driving comfort.	
air system pressure	The operator can not push down the popup indicator in order to deactivate the parking brake until the air system pressure rises above 414 kPa60 psi.	
air temperature gauge	Caterpillar recommends a warning device for the inlet manifold temperature and/or the installation of an inlet air temperature gauge.	
air temperature sensor fault	Inlet Manifold Air Temperature Sensor Fault	
air wrench	Do not use an air wrench in order to tighten the filter housing.	
Air-Cooled Condenser		A heat exchanger which transfers heat to surrounding air.

aircraft navigation system	Java technology is not fault tolerant and is not designed, manufactured, or intended for use or resale as online control equipment in hazardous environments requiring fail-safe performance, such as in the operation of nuclear facilities, aircraft navigation or communication systems, air traffic control, direct life support machines, or weapons systems in which the failure of Java technology could lead directly to death, personal injury, or severe physical or environmental damage.	
airflow indicator group	Special InstructionSEHS8712Using the 8T-2700 Blowby/Airflow Indicator Group	
Air-Fuel Ratio Control		A feature on Cat engines which measures actual engine speed and boost pressure to reduce smoke and lower fuel consumption.
air-to-air aftercooler	An air-to-air aftercooler is a device that is used on turbocharged engines in order to cool inlet air that has undergone compression.	A means of cooling intake air after the turbocharger, using ambient air for cooling. The intake air is passed through an aftercooler (heat exchanger) mounted in front of the radiator before going to the intake manifold.
air-to-air aftercooler tester	Special InstructionSEHS8622Using FT1984 Air-to-Air Aftercooler Tester	
alarm driver	Alarm Driver	
alarm LED indicator	The Alarm LED indicator will flash.	
alarm mute key	The alarm mute key turns off the alarm.	
ALARM SILENCE position	The operator can silence the speaker by turning ALARM/FAULT CONTROL switch 3 to the ALARM SILENCE position.	
alarm silence switch	The alarm silence switch silences the horn.	
alarm status	The alarm status is updated.	
Aldehyde		A chemical compound formed by incomplete combustion.
alert indicator	An alert indicator is a red indicator lamp.	
alert symbol	The alert symbol 24 will be displayed in the center of the digital display.	
alignment pin	Ensure that the alignment pin in flange 8 is positioned between two of the bolt holes.	
All Wheel Steer mode	The All Wheel Steer mode consists of the following components:	
allen head bolt	Install the allen head bolts finger tight.	
allen head screw	Check the torque of the allen head screws for the ECM connectors.[KPNR5342-05.rtf]	

Allen socket	5 mm Allen Socket	
allowable tolerance	± 70 kPa10 psi allowable tolerance on nominal pressure	
Allowance		The difference between the minimum and the maximum dimensions of proper functioning.
allowed gear	Allowed Gear	
Allowed Hours Factor		A calculation that is utilized by the Manufacturing Process Engineer to derive a general time allowance for the personal needs of the operator. It is designed to compensate for the operator's mental and physical fatigue.
Alloy steel		An iron-based mixture is considered to be alloy steel when manganese is greater than 1.65%, silicon is over 0.5%, copper is above 0.6%, or other minimum quantity of alloying elements such as chromium, nickel, molybdenum, or tungsten.
Alloying elements		Alloying elements are the chemical elements constituting an alloy; usually limited to elements added to modify the properties of the base metal.
Alnico Magnet		A magnet composed of aluminum (Al), nickel (Ni), and cobalt (Co).
alternate antifreeze mixture	If the engine will be stored or operated at temperatures below -20 °C-4 °F, refer to Operation and Maintenance ManualGeneral Coolant Information for recommendations on alternate antifreeze mixtures.	
alternate base stock	Alternate base stocks for biodiesel may include animal tallow, waste cooking oils, or a variety of other feedstocks.	
alternate viscosity	Alternate Viscosity As the rotor assembly begins to turn between the field winding and the stator windings, a small amount of alternating current (AC) is produced in the stator windings.[KPNR6741-05.rtf]	
alternating current		alternating current
Alternating Current Metering Module		An apparatus which displays generator set volts, amps, and frequency.
alternator	Remove the alternator.[KPNR8106-01.rtf]	technical term
alternator b+ terminal	Measure the voltage between the alternator B+ terminal and the alternator case ground.	
alternator case ground	Check the voltage between the negative battery post and the alternator case ground.	
alternator drive belt	Inspect the condition of the alternator drive belts.[KPNR5342-05.rtf]	

alternator drive pulley	Check the condition of the alternator drive pulley.[KPNR5342-05.rtf]	
alternator pulley	This measurement should be taken between the alternator pulley and the crankshaft pulley or this measurement should be taken between the crankshaft pulley and the air conditioner compressor pulley.	
Altitude Adjustment		Adjusting refrigerator controls so unit will operate efficiently at altitude in which it is to be used.
aluminum complex thickener	The grease contains an aluminum complex thickener.	
aluminum hydroxide	The by-products are oxides, iron hydroxide, and aluminum hydroxide.	
aluminum skirt	The two-piece articulated piston consists of an alloy forged steel crown that is connected to an aluminum skirt by the piston pin.	
Amatrol		Amatrol, short for Automated Machine Controls, was founded in 1978 as a division and was formally incorporated as a separate company in 1981
ambient	Abnormally high ambient air temperature could cause the fuel temperature to reach the trip level.[KPNR5342-05.rtf]	surrounding, outside
American National Standards Institute	For additional information on the proper maintenance and on inspection of the cable, refer to American National Standards Institute ANSI/ASME B30.14.	
American Society of Testing Materials		
ammeter	Connect an ammeter between the disconnected battery ground cable and one of the negative battery terminals.	device for measuring amperage
ammonium hydroxide	Use a solution of ammonium hydroxide.	
Amperage		A measure of the current or number of electrons passing a given point per unit of time.
Ampere		A unit of measurement defined as the current that 1 V can send through 1Ω resistance.
Ampere-hour		
Ampere-hour Capacity		A measurement of the battery's capacity to deliver a specified current over a specified length of time.
Amphenol cable	Use a 10-pin quick disconnect to 6-pin Amphenol cable in order to connect the Sonic Tracer to the system harness, as shown in Illustration 1.	

analog sensor	Illustration shows the typical output voltage from an analog sensor.	
analog throttle demand sensor	Typical example of the P1 pin locations for the analog throttle demand sensor	
analyzer		QUANTITATIVE; provides data; a device for quantitative measurement, such as a fuel sulfur analyzer, exhaust analyzer, or hydrocarbon analyzer
Andon		The major wastes typically found in mass production: untapped creativity, overproduction, waiting, motion, processing, inventory, transportation and rework. – A visual signal / system used to notify others of workstation problems, either generated automatically by a A pressure-measuring device containing no liquid.
Andon systems		
Aneroid		
angle assembly	Install angle assembly 6 and bolts 5.; Remove bolts 1 and angle assembly 2.	
Angled lighting		Angled lighting is a technique for highlighting peaks and valleys on a surface by lighting the surface with the light at an angle other than perpendicular to the surface, or tilting the surface under a fixed light source. Having or being at an angle.
Angularity		
animal tallow	Alternate base stocks for biodiesel may include animal tallow, waste cooking oils, or a variety of other feedstocks.	
anneal, to		To toughen metals by heating and then cooling.
Annealing	Annealing is one of the most widely used heat treating process for iron and steel. Unlike carburizing and nitriding, it is a softening process.	Annealing is a heat treatment process used to soften a metal and consists of heating a component to a suitable temperature, holding at temperature, and cooling at a suitable rate.
Annual Rectification Assessment Audit	This type of audit is performed before the section's recertification due date.	
annunciator	Annunciators are devices that provide an audible signal. The annunciator module can be used to announce faults and/or status signals to the operator.	Electrically controlled signal board or indicator. An alarm which produces audible and/or visual signals to give warnings of shutdown or fault conditions. Annunciators are typically used in applications where the equipment monitored is not located in a portion of the facility that is normally attended. The workpiece is the anode in an electrolytic cell immersed in an acid bath, resulting in chemical adsorption of oxygen from the bath. Anodizing is an oxidation process in which the workpiece surfaces are converted to a hard and porous oxide layer that pr
Anodizing machine		

Anti Slip Paint	One of the rows on Existing safeguards table	Paint used to paint surfaces to give a better traction and prevent slippages
Anticipating Control		One which is artificially forced to cut in or cut out before it otherwise would, thus starting the cooling before needed or stopping the heating before control point is reached, to reduce the temperature fluctuation or override.
antifreeze	Do not add pure antifreeze to the cooling system in order to adjust the concentration of antifreeze.[KPNR6741-05.rtf]	a cooling system additive that lowers the freezing point of water
Antifriction Bearing		A bearing constructed with balls, rollers or the like between the journal and the bearing surface to provide rolling instead of sliding friction.
anti-reaction valve	Measuring the swing speed and the overswing of the machine will determine if there is a need to check the swing motor or the anti-reaction valve.	
Anti-Seize Compound	Anti-Seize Compound	
antistall feature	The antistall feature will be activated, if the speed of the engine decreases 250 rpm below the position of the dial in comparison to the setting of the engine speed dial.	
anti-static lens paper	an anti-static lens paper	
application firmware	In order to determine whether a device is connected, and whether the application firmware is current, note the application firmware number.	
Applied Failure Analysis		Applied Failure Analysis is the thoughtful review of product and environmental facts, which leads to identification of the root cause of a product problem.
appraisal cost	Appraisal costs are costs of all activities such as inspection, audit, tests, and measurement which are employed to find defects.	
Approximate Refill Capacities	Approximate Refill Capacities for the G3412C Engine Cooling System	
approximate sine wave signal	The sensors generate an approximate sine wave signal from the teeth gear of the transmission output gear as the gear teeth pass the sensors.	
arctic climate	There are 5 classes that are given to arctic climates and severe winter climates.	
arctic switch	Arctic Switch (If Equipped)	This a is switch for low ambient temperature conditions.
Arizona Proving Ground		

arm pad	Turn the knob 30 counterclockwise in order to adjust the arm pad.	
armature	The overrunning clutch transmits torque of the armature.[KPNR6741-05.rtf]	an inductor, for example a drive motor armature or a starting motor armature
aromatic fossil fuel	The lubricity has particular significance to the current low viscosity fuel, low sulfur fuel and low aromatic fossil fuel.	
articulated dump truck	This means that normal tires on the Cat 740 articulated dump trucks were unable to gain sufficient traction which resulted in the use, by some contractors, of 29.5R25 sand tires.”	
Articulated Dump Truck PC Articulated Truck	Articulated Truck	
articulation angle sensor	22Shifter, Brake Pedal Sensor, and Articulation Angle Sensor	
articulation cylinder	The bottom face includes both ends of the articulation cylinders.	
articulation hitch pin	Install Tooling M to upper articulation hitch pin 45. Pressure tap 7 is located on the loader frame near the articulation joint on the right side of the machine.; Pressure tap 6 is located at the articulation joint on the right side of the machine.	
articulation joint		
articulation lock valve	Turn the articulation lock valves 23 and 24 three times slowly.	
articulation pivot point	When you scroll to this option, the display will show the degree of the angle at the articulation pivot point.	
asbestos	Caterpillar equipment and replacement parts that are shipped from Caterpillar are asbestos free.	a mineral that readily separates into long flexible fibers suitable for use as an incombustible, nonconducting, or chemically resistant material
Asia Pacific Division Asia Pacific Division Marketing Asia Pacific Division Marketing PC ASIA TRAK ASIA TRAK - CORE COMPONENTS		
asphalt compactor	All Asphalt Compactors require synthetic gear and bearing lubricant.	
asphalt paver	Product name	

Aspirating Psychrometer		A device which draws a sample of air through it for humidity measurement purposes.
aspiration		The method used to move inlet air into the combustion chamber; e.g. Naturally Aspirated (NA), Turbocharged (T), and Turbocharged-Aftercooled (TA).
assemble	Assemble and install tee 4 to elbow 2.[RPNR7389-09.rtf]	to fit parts together to form a whole
Assemble to Order		An environment where a good or service can be assembled after receipt of a customer's order. Key components used in assembly or finishing are planned and usually stocked in anticipation of a customer order. Receipt of an order initiates assembly of the product.
Assembly		The process of joining components and sub-assemblies together to complete a product for shipment
Assembly Area	The process of joining components and subassemblies together to complet a completed product for shipment to the customer	
Assembly Documentation	Engineering input that could potentially result in inventory record error includes creating and maintaining the engineering drawings and Bills of Material. Error opportunities include Assembly Documentation as one of the errors.	
Asset Watch	One of the features of Asset Watch is the ability to be alerted when one of your machines is either inside or outside of a particular geographical area.	
Atmosphere		An atmosphere is the gaseous envelope surrounding a part.
Atmosphere Setpoint	It is one of the six pieces of information that the operators should monitor every time they load a new heat number on the FAMS screen. It is manually entred to achieve the desired carbon potential.	
Atmospheric Pressure		Also: Barometric Pressure. The pressure exerted by the atmosphere, averaging 14.7 psi at sea level with a decrease of approximately 1/2 lb per 1,000 ft of altitude gained.
attachment control	Hold the attachment controls in the BACKWARD position.[RPNR7389-09.rtf]	
Attachment Installation Guidelines	Special Publication SEHS6929 Inspection, Maintenance and Repair of ROPS and Attachment Installation Guidelines	

attachment pedal	The voltage measures approximately 1.2 DCV to 1.9 DCV when the left side attachment pedal is in the forward position.	
Attrition		Wearing down by rubbing or by friction: abrasion.
audible alarm feature	The audible alarm feature will activate.	
Austempering		A method of hardening steel by quenching from the austenitizing temperature into a heat extracting medium (usually salt) which is maintained at some constant temperature level between 400° F and 800° F (usually near the higher temperature) and holding the
Austenite		Austenite is an elevated-temperature parent phase in ferrous metals from which all other low-temperature structures are derived.
Austenitic stainless steel		Austenitic stainless steel is steel that, because of the presence of alloying elements, such as manganese, nickel, chromium, etc., shows stability of austenite at normal temperatures.
Austenitizing		Austenitizing is the process of heating steel to a temperature above the upper critical temperature to produce a microstructure of austenite.
auto blade pitch	Highlight the auto blade pitch.	
AUTO LUBE INTERVAL menu	Press the up key or the down key in order to highlight the AUTO LUBE INTERVAL menu.	
AutoCAD		CAD software application for 2D and 3D design and drafting, developed and sold by Autodesk, Inc.
Autodig System	Block Diagram for the Autodig System; The Autodig System is designed to perform the operations of a loading cycle in loose material with minimal effort by the operator.	
autolube system setting	Autolube System Setting	
automatic articulation centering control	Automatic Articulation Centering Control (5)	
automatic belt tensioner	If the engine is equipped with an automatic belt tensioner, check the automatic belt tensioner.[KPNR5342-05.rtf]	
Automatic Defrost		System of removing ice and frost from evaporators automatically.
Automatic Differential Lock	Automatic Differential Lock	
Automatic Engine Control		Automatic Engine Control
automatic engine speed control	The function of the automatic engine speed control (ECM) of the controller will use these switches to determine control of the engine speed and control of the pump.	

Automatic Expansion Valve		Pressure controlled valve which reduces high pressure liquid refrigerant to low pressure liquid refrigerant.
Automatic Line Stop		Ensuring that a production process stops whenever a problem or defect occurs.
Automatic Retarder Control	Automatic Retarder Control	Automatic Retarder Control (ARC) is a means of protecting truck brakes from warping and overheating when engine speed is below the ARC preset point.
Automatic retarder control switch	When the ARC switch is moved to the ON position, the signal from the ECM connects to machine ground.	
Automatic Synchronizer		A magnetic-type control relay which will automatically close the generator switch/circuit breaker when the conditions for paralleling are satisfied.
Automatic Transfer Switch		Automatically switches electrical load from the normal (or preferred) power source to an alternate supply, should normal voltage fail or be substantially reduced. It retransfers load to the normal source when voltage has been restored.
automatic travel speed change function	The Automatic travel speed change function allows the machine to adjust speeds without direct operator input.	
Automatic Valve		A valve assisted by a spring, which is opened by a difference of pressure acting in one direction and closed by a difference in pressure acting in the opposite direction.
Automatic Vibratory Control	Automatic Vibratory Control	Automatic Vibratory Control for compactor drum.
Autonomation		Automation able to distinguish abnormalities without the aid of an operator (automation with a human touch).
Auxiliary control lever	3 Auxiliary control lever.	
auxiliary control valve	When foot switch 12 is depressed, pilot oil flows to both auxiliary control valve 7 and to attachment control valve 8.[RPNR7389-09.rtf]	
Auxiliary Electrical Control	Activate the auxiliary electrical control for the diverter valve in order to direct flow to the angle cylinder until the desired angle is obtained.	
Auxiliary Function	If the machine is equipped with an auxiliary function and the auxiliary function is enabled, proceed to Calibration of the Auxiliary Function.; Calibration of the Auxiliary Function (Joystick Control)	
auxiliary pedal control	The auxiliary pedal control is the third pedal that controls the travel motors from one pilot control valve.	

auxiliary power panel	The tractor-mounted generator provides 25 kW of power at 60 Hz for the electric screed heat and the auxiliary power panel.	
auxiliary pump	Scavenge oil pump or auxiliary pump. Auxiliary pump 28 is mounted on machines that are equipped with System 14 in order to supply hydraulic oil to the medium pressure circuit for rotation of the work tool.[RPNR7389-09.rtf]	
auxiliary start receptacle	The auxiliary start receptacle is located on the right side of the machine, in the battery compartment.	
auxiliary tool mode	Set the auxiliary tool mode for TOOL#4.[RPNR7389-09.rtf]	
auxiliary valve	Maximum pilot pressure for the extension of auxiliary valve during multiple operations[RPNR7389-09.rtf]	
average incoming quality	Average Incoming Quality (AIQ) is the average quality level of products going to an inspection point.	
average outgoing quality	Average Outgoing Quality (AOQ) is the average quality level leaving a point of inspection after acceptance or rejection of samples.	
average outgoing quality limit	Average Outgoing Quality Limit (AOQL) is the maximum value of the average percentage of defects in the outgoing product.	
avoidance zone	The Avoidance Zone dialog allows you to configure the distance from an avoidance zone when you need to be warned.	No-entry zone.
Axial		Axial refers to the direction that is longitudinal, or parallel to the axis or centerline of a part. Usually refers to axial tension or compression.
axial eccentricity	These measurements are the maximum permissible face runout (axial eccentricity) of the flywheel housings.[KPNR6741-05.rtf]	
Axial Fan		A shaft mounted fan on some designs between bearing and revolving field assembly to provide additional air movement within the unit for cooling; also used for balancing.
Axial fatigue fracture		Axial fatigue fracture is a type of fatigue fracture where a load that is applied axially, that is in line with one of the primary axes of a part, results in failure of a part by fatigue; for example, a shaft that fails due to a tensile load.

Axial load		An axial load is a load on a part that is in the direction of its major axis.
axle breaker relief valve	Push the button on the top of each axle breaker relief valve in order to relieve any pressure.	
axle housing assembly	The pin will remain in the axle housing assembly.; Remove bolts 1 that secure axle housing assembly 2 to the differential housing.	
axle interlock valve	The interlock solenoid for the axle interlock valve is located on the axle propel pump.	
axle propel pump	The interlock solenoid for the axle interlock valve is located on the axle propel pump.	
azeotropic mixture		Example of azeotropic mixture — refrigerant R-502 is mixture consisting of 48.8% refrigerant R-22, and 51.2% R-115. The refrigerants do not combine chemically, yet azeotropic mixture provides refrigerant characteristics desired.
b+ terminal	Before starting the machine, connect a voltmeter between the B+ terminal and the case of the alternator.	
backfire		Ignition of the mixture in the intake manifold by flame from the cylinder such as might occur from a leaking inlet valve.
Backhoe Bucket	Slowly tap the boom control lever into the Boom Lower position in order to lower the backhoe bucket to the ground.	
Backhoe Loader	Backhoe Loader	
backlash	Install a dial indicator and rotate idler gear 2 back and forth in order to measure backlash.[KPNR8106-01.rtf]	The lost motion in moving parts, such as a screw in its nut or in the teeth of mating gears; end play, gear play, such as average backlash or ring gear backlash
Backpressure		A pressure exerted contrary to the pressure producing the main flow. Also called suction pressure or low side pressure.
backup alarm	The ECM applies power to the backup alarm whenever the ECM receives a signal from the reverse direction switch.; The possible causes for the backup alarm are listed:	
Back-Up Power		Electric energy available from or to an electric utility during an unscheduled outage to replace energy ordinarily generated by the facility or the utility. Frequently referred to as standby power.
backup ring	Lubricate the O-ring seals or the backup rings of the relief valve group 55 lightly with the lubricant that is being sealed.	

backup switch	Place the backup switch in the AUTO position.[RPNR7389-09.rtf]	
backup system	The backup system allows the operator to move the machine in case the electronic controller malfunctions. For more information concerning the backup system, refer to Operation and Maintenance ManualBackup Controls.	
BACKWARD position	To adjust the line relief valve pressure setting of the lower work tool, push the right joystick thumbwheel to the BACKWARD position.[RPNR7389-09.rtf]	
Bainite		The structure that is obtained when steel is quenched at a constant subcritical temperature.
Balance Chart		A bar chart illustrating work content. Operator balance charts are used to balance operators for flow. Machine balance charts are used to balance machines for flow.
Balanced Valve		A valve in which the fluid pressure is equal on both sides (i.e., the opening and closing directions).
Ball Check Valve	Ball check valve 12 opens and oil flows into the slug chamber at the left end of the modulation reduction valve.	A valve consisting of a ball held against a ground seat by a spring. It is used to check the flow or to limit the pressure.
ball joint	Ball joint 1 incorrectly mounted or threaded too low; Ball joint arm 1	
band clamp	Loosen band clamps 21 sufficiently in order to allow the housings to rotate. 1Torque for two band clamps	
Banded Structure		A segregated structure of nearly parallel bands which run in the direction of working.
Bar		The term "bars" includes rounds, squares, hexagons, etc.; small standard shapes (angles, channels, tees, etc.) under 3"; flats 6" or under in width and 13/64" or over in thickness.
bar knob	Bar Knob - A four-posted knob (typically attached to the end of a threaded rod) used for tightening/clamping by wedging a prying bar between the posts for leverage to impart rotation of the knob.	
bare quick coupler	315D Excavator with a 2,6 m8 ft 6 inch fore boom, a 2,5 m 8 ft 2 inch stub boom, a 1,85 m6 ft 1 inch stick, a bare quick coupler, and 600 mm24 inch triple grouser track shoes	

barrel assembly	It may be necessary to pull the barrel assembly and the piston shoe assemblies away from the cam plate slightly in order to release the string.	
base circle	This will ensure that the lifter roller seats against the camshaft's base circle.; Measure the base circle E.	
Base Criteria		A set standard accepted criteria
Base Load Unit		A power generating facility that is intended to run constantly at near capacity levels, as much of the time as possible.
Base Loading		Use of on-site generating equipment to supply a set amount of power for a specific time period — usually on a daily basis.
base stock	All DHD-1 oils must complete a full test program with the base stock and with the viscosity grade of the finished commercial oil.	
baseline dimension	Use the Caterpillar Electronic Technician ET service tool in order to record the value of the baseline dimension C.	
Baseline Forecast		A prediction of future energy needs which does not take into account the likely effects of new conservation programs that have not yet been started.
baseline value	The baseline value for dimension C must be recorded electronically on the machine's transmission ECM.; Use the ET software to record the baseline value for dimension C from the transmission ECM.	
battery box	The batteries sit in a built-in battery box and are accessible through a hinged door on the platform.	
battery cable	Fasten one lead of the multimeter to the connection (terminal) for the battery cable on the solenoid.[KPNR6741-05.rtf]	
battery circuit	The battery circuit is an electrical load on the charging unit.[KPNR6741-05.rtf]	
battery electrolyte	Do not allow battery electrolyte to make contact with the skin or with the eyes.	
Battery Element		A group of plates — negative and positive.
battery load tester	Use a suitable battery load tester.[KPNR5342-05.rtf]	
Battery powered unit	Battery powered units do not have a cord, which avoids the problems of a cord snagging on the assembly components or the cord scratching painted surfaces when the cord is dragged across them.	

battery saver and cleaner	Apply Battery Saver and Cleaner 1U-8267 on the cable clamps and the battery posts.
battery tester	Use the Coolant/Battery Tester Gp245-5829 in order to ensure adequate freeze protection.[KPNR6741-05.rtf]
battery voltage	The battery voltage must be above nine volts for two seconds.[KPNR5342-05.rtf]
BCP UK BCP UK PC	
Beach marks	
bearing	If the connecting rod or the bearing for the piston pin is replaced, a new piston must also be installed.[KPNR6741-05.rtf]
bearing bore	Make sure that the bearing bores for the sleeve bearings are free of paint and grease prior to the installation of the sleeve bearings.
bearing clearance	Subtract the diameter of the crankshaft journal from the inside diameter of the main bearing in order to determine the bearing clearance on the main journal.[KPNR6740-04.rtf]
bearing cone	Remove bearing cone 32 from the shaft.; Use Tooling C and a suitable press to remove bearing cone 54 from shaft 49.
bearing cup	Remove bearing cup 30.; Remove bearing cup 53 from pump body 27.
bearing housing	Ensure that the main bearing tab fits in the tab groove of the bearing housing of the cylinder block.[KPNR8106-01.rtf]
bearing journal	Use Tooling B to rotate the crankshaft until the bearing journals are at the bottom center.[KPNR8106-01.rtf]
bearing mount compound	Apply Bearing Mount Compound 4C-4032 to the wiper seal groove before assembly.
bearing puller Bearing Puller Adapter	Bearing Puller Gp[KPNR8106-01.rtf] Bearing Puller Adapter

Beach marks are marks that develop on the fracture face of a fatigue fracture as a result of significant changes in the applied load. Beach marks show the location of the crack tip at sometime during the failure.

a one-piece or two-piece sleeve-type bearing, bearings are metal-to-metal, with oil acting as a lubricant between the matched surfaces;DO NOT USE 'bearing' alone to mean a thrust bearing, such as a camshaft end bearing; a needle bearing, such as a universal joint bearing; a collar bearing, such as a cylinder end or rod end bearing; or a ball bearing

bearing race	Make a mark on the head of the bolt that is relative to the carbody or the bearing race.	
bearing sleeve	Install bearing cups 2 and 23, bearing sleeves 1 and 18, and two pins 24.	
bearing tab	Make sure that the bearing tab properly engages with the slot in the connecting rod.[KPNR8106-01.rtf]	
bed milling machine		Milling machine where the table is mounted directly on the bed, which replaces the knee, and can move only longitudinally.
Bell Housing (Clutch Housing) bellow	Remove bellows 19 from the pilot valve.	The metal covering around the clutch or torque converter assembly.
belt	Check the fan drive belt for proper belt tension.[KPNR6741-05.rtf]	DRIVE/CONVEYOR; a continuous band or chain for transferring motion or power or conveying materials from one wheel or shaft to another
Belt tension gauge	Check the tension of the alternator belt with a belt tension gauge. ABelt Tension Gauge144-0235	
bench grinder		Depending on the grade of the grinding wheel it may be used for sharpening cutting tools such as lathe tools or drill bits. Alternatively it may be used to roughly shape metal prior to welding or fitting.
bending fatigue fracture		Bending fatigue fracture is fatigue fracture of a part resulting from the application of a bending load.
Bending load		A bending load is a load that results in the flexure of a body creating tensile stress on the side being stretched apart and compressive stress on the side being squeezed together.
Bendix-Type Starter Drive (Inertia Starter Drive)		A type of starter drive that causes the gear to engage when the armature starts rotating and to automatically disengage when it stops.
Bernoulli's Principle		Given a fluid flowing through a tube, any constriction or narrowing of the tube will create an increase in that fluid's velocity and a decrease in pressure.
Bernoulli's Theorem		In a stream of liquid, the sum of elevation head, pressure head, and velocity remains constant along any line of flow provided no work is done by or upon the liquid in its course of flow, and decreases in proportion to energy lost in the flow.
Bessemer Process		A process for making steel by blowing air through molten pig iron contained in a suitable vessel. The process is one of rapid oxidation mainly of silicon and carbon.
Best Practice		A business idea, procedure or process which describes the method of improved efficiency and results.

bevel gear	The NoSPIN differential allows a wheel (axle) to turn faster than the speed of the bevel gear.; The outside wheel turns faster than the bevel gear.	
bevel gear generator		Machines used for cutting bevel gears. Bevel gear teeth may be straight, spiral or bevel.
bevel pinion	Bevel pinion 1 turns bevel gear 2.; The power enters the axle groups through bevel pinion 1.	
beveling machine		A machine used for producing bevels. A bevel is a slant or angle on a surface. Two adjoining surfaces, if not at right angles are beveled. Bevel also has many industry-specific uses.
bias spring	This will compensate for any internal friction inside the valve that would oppose the setting of the bias spring.; Bias spring 6 causes swashplate 2 to move.	
bidirectional shift function	The bidirectional shift function can be selected with the switch 17.	Change function to mode. Setting of forward/reverse shift pattern. Example: The top line of the "Advisor" panel displays the specific bidirectional shift mode ("1F-2R" or "2F-2R").
Bill of Material		A list of parts, sub-assemblies and raw materials used to make a product. Defines type, number, quantity, and relationships of parts and assemblies.
billet		The process is carried out using a Hydraulic Shearing machine. The machine has sensors that measure the length that needs to be cut. The bars are cut into the required length .These cut (sheared) pieces are called billets
Billing Demand		The demand upon which billing to a customer is based, as specified in a rate schedule or contract. It may be based on the contract year, a contract minimum, or a previous maximum and, therefore, does not necessarily equal the demand actually measured duri
Bimetal Strip		Temperature regulating or indication device which works on the principle that two dissimilar metals with unequal expansion rates, welded together, will bend as temperatures change.
Binder		A binder is something that produces or promotes cohesion in loosely assembled substances such as sand used to make molds for castings.
Biological Hazard		Bloodborne pathogens, bacteria, mold, allergens, etc. that present a risk to humans.
Black acid etching		Black acid etching is a type of corrosion resulting from the prolonged presence of an electrolyte in a bearing lubricant and is characterized by black stains and pitting on the affected surface.

Black Belt		The 6-Sigma team leader for process improvement.
Black oxide scale		Black oxide scale is an oxidation product that can form on the outside surface of a ferrous part when it is exposed to oxygen at high temperatures.
Black Smoke		A soot-like substance emitted by engines resulting from incomplete combustion.
Black Start		Refers to the starting of a power system with its own power sources, without assistance from external power supplies.
blade slope	Additionally, the Angle Sensor can be used to determine the blade slope for operation with a Single GPS Receiver or a Single Laser Receiver.	
Blast furnace		In ferrous metallurgy, a blast furnace is a shaft furnace supplied with a hot air blast and used for producing pig iron by smelting iron ore in a continuous operation.
blast zone	Normally, blast zone disconnect switches are not required.; Local mine regulations typically require a safe blast zone operating distance that exceeds those specified for Product Link.	
blasting		Blasting is the removal of sand or oxide scale from castings by impact of sand and metal shots A mixture of residual fuel and a lighter fuel. This fuel type tends to create more combustion chamber deposit formations which can cause increased cylinder and ring wear, especially in smaller, higher- speed engines.
Blended or Heavy Fuel		A defect in metal produced by gas bubbles either on the surface or formed beneath the surface.
Blister		
Block Handler	Block Handler	
Block Rate Schedules		Utility rate schedules that charge different rates for certain increments of energy consumed. For example: 3 cents for the first 1000 kW-hr, 4 cents for the next 1000 kW-hr, 5 cents for the next 1000 kW-hr, etc.
Block Wall		A concrete structure which is sometimes used to muffle the noise from an operating generator set.
blow		Blows are defects, caused by gases that form or escape due to factors such as high moisture in sand. Combustion gas leakage into the engine crankcase. The leakage is normally from the combustion chamber past the piston rings or through the valve guides. Specific blowby is the volume of blowby at atmospheric pressure divided by the engine power.
blowby		

blower		a ventilator fan for moving air in the cabin of a machine, as in blower fan switch, blower motor, or cab blower
blower		a high pressure or very high speed fan for cleaning or providing draft in a kerosene heater
blower motor	Install the blower motor for the heater and air conditioner.; Remove blower motor 13.	
Blue Brittleness		Brittleness occurring in steel when worked in the temperature range of 300-700° F or when cold after being worked within this temperature range.
body position sensor	The body position sensor will calibrate automatically if the following conditions are met:	
body support pad	Check for uneven wear of the body support pads.	
bolt	Tighten bolts 2 to a torque of 83 ± 5 N·m 61 ± 4 lb ft.[KPNR8106-01.rtf] These readings are applicable when you are using a 203 mm 8,0 inch torque wrench to rotate housing 9 at the bolt circle.; A is the bolt circle radius of pinion housing 9 in meters.	a rodlike fastener having a head at one end and a threaded body
bolt circle		
bolt hole	Ensure that the alignment pin in flange 8 is positioned between two of the bolt holes.	
bolt lock	Remove bolt 3 and bolt lock 4.; Remove bolt lock 18 and bolt 17.	
Bond layer		A bond layer is a layer of metal that facilitates bonding between two otherwise incompatible metal layers such as a copper layer between the LTO and aluminum in an engine bearing.
Bond separation		Bond separation is separation between two metal layers, such as the aluminum and steel layers in an engine bearing, due to a manufacturing process error or operational problems.
boom assembly		The Boom Assembly carries the Work Implements used on a variety of products
boom control valve	Remove the pilot control line and remove the fitting from the bottom of the boom control valve.	
boom cylinder	Perform the following steps in order to test the operating speed of the boom cylinders.	
boom drift reduction valve	The oil delivery from the drive pump in parallel feeder passage 17 flows through load check valve 14, passage 31, passage 34 and port 30 to boom drift reduction valve 5.	
Boom Lifting	Boom Lifting	

boom lock hook	Make sure that the boom lock hook engages over the locking pin in order to secure the boom into the LOCK position.	
boom lowering check valve	Perform the following steps in order to calibrate the boom lowering check valve:	
boom-stick-bucket combination	Table shows various compatible boom-stick-bucket combinations.	
boost pressure sensor	Remove boost pressure sensor 1 and the O-ring seal.[KPNR8106-01.rtf]	
bore	Measure the inside diameters of the bores of the shafts in the cover 7 and the oil pump housing 6.[KPNR6741-05.rtf]	a hole made by drilling
Bore Runout	Bore Runout (Radial Eccentricity) of the Flywheel; Bore Runout (Radial Eccentricity) of the Flywheel Housing	
bore, to	Bore the cylinder to the specified oversize dimension if the inside diameter reaches the repair limit but the inside diameter does not reach the service limit.[KPNR6740-04.rtf]	to drill a hole
Boring Bar		Boring Bar (Cylinder). A tool used to machine the cylinders to a specific size.
boring machine	Align the boring machine with the center of the bottom of the cylinder liner with the less worn area.[KPNR8106-01.rtf]	
Bosch Metering System		A metering system with a helical groove in the plunger which covers or uncovers ports in the pump barrel.
Bottom Dead Center		The lowest point a piston reaches in its movement within a cylinder.
bottom line relief valve	The pressure setting for the top line relief valve and for the bottom line relief valve for the attachment control valve is 36800 ± 1500 kPa 5340 ± 220 psi.[RPNR7389-09.rtf]	
Bottoming Cycle		A means to increase the thermal efficiency of a steam electric generating system by converting some waste heat from the condenser into electricity rather than discharging all of it into the environment.
Boyle's Law of Physics		The absolute pressure which a given quantity of gas at constant temperature exerts against the walls of the containing vessel is inversely proportional to the volume occupied. Examples: If pressure is doubled on the quantity of gas, volume becomes one-half.

bracket assembly	Place refrigerant condenser 21 and the bracket assembly to the side.	
brake accumulator	Only use dry nitrogen gas to recharge the brake accumulators. The brake accumulator oil pressure drops below the preset value.	
Brake application	Use of the retarder slows the machine without the need of continuous service brake application. A Brake Application	
Brake Control Valve	Brake Control Valve (Service); Brake Control Valve (Parking)	
Brake Mean Effective Pressure		Mean effective pressure acting on the piston which would result in the given brake horsepower output, if there were no losses due to friction, cooling, and exhaust. Equal to mean indicated pressure times mechanical efficiency.
Brake Specific Fuel Consumption		The quantity of fuel burned to produce one horsepower for one hour.
Brake Thermal Efficiency		Ratio of power output in the form of brake horsepower to equivalent power input in the form of heat from fuel.
brass		Brass is a family of alloys consisting essentially of copper and tin in varying proportions.
Brazing machinery		Brazing is a joining process in which filler metal is placed at or between the surfaces to be joined, and then heated to melting temperature (above 450°C / 800 °F). The solidification of the filler then creates a strong joint.
breaker relief valve	Push the button on the top of breaker relief valve 1 in order to relieve any tank pressure.. Push the button on the breaker relief valve.	
break-in		The process of wearing in to a desirable fit between the surfaces of two new or reconditioned parts.
breakout force	Z-bar linkage generates powerful breakout forces and optimum loading angle.	
breakout harness	Always use a breakout harness for a voltmeter probe or a test light.; Remove the breakout harness.	
breather	Check for dirty crankcase breathers.[KPNR5342-05.rtf]	a gas connection allowing outgassing or intake of air, for example a crankcase breather, gear box breather, or air breather
breather outlet hose clamp	Install the hose and breather outlet hose clamps 1.	

Bridge Crane	Image Caption	Bridge crane is one of the materials handling equipment used to lift and transfer heavy objects on the shop floor. Major components of a bridge crane are – The guides, which is attached to the building structure, the hoist and the trolley and the bridge c
bridge milling machine		Bridge milling machines have a bridge over the fixed table and the crossbeam is fixed.
Brine		Water saturated with chemical such as salt.
Brinell Hardness		The surface hardness of a metal, alloy, or similar material according to J.A. Brinell's method of measurement. A metal's surface is struck at a given force by a rigid steel ball of given diameter, and the indentation is measured.
Brinelling		Brinelling is a wear term used to describe surface damage of solids by repeated local impact or by static overload. The term probably comes from a hardness testing procedure such as the Brinell hardness test that indents the surface being checked.
Brittle fracture		Brittle fracture is separation of a solid accompanied by little or no macroscopic plastic deformation. Typically, brittle fracture occurs by rapid crack propagation with less expenditure of energy than for ductile fracture.
Broad Voltage		A term used to denote 12-lead unit, which allows low and high voltage connections by customer.
Bronze		Bronze is an alloy of copper and tin and sometimes other elements, or any of various copper-base alloys with little or no tin.
Brownout		A controlled power reduction in which the utility decreases the voltage on the power lines, so customers receive weaker electric current.
brush		The pieces of carbon or copper that make a sliding contact against the commutator or slip rings.
Brushless		A synchronous machine having a brushless exciter with its rotating armature and semiconductor devices on a common shaft with the field of the main machine.
bucket		a standard loading bucket, such as an apron bucket or wheel loader bucket
bucket digging force	With these features and a bucket digging force of 44 kN, the 307B is a performing machine able to work efficiently.	
bucket lift lever	Bucket dig force	
bucket linkage	Push the bucket lift lever forward through the detent. Position the bucket linkage and install pin assembly 4.	

bucket pivot bearing	Apply lubricant through one fitting on each of the bucket pivot bearings (2 points).	
BUCYRUS BUCYRUS INTERNATIONAL BUCYRUS INTERNATIONAL PCTR BUCYRUS PCTR		
Buffer Stock		Finished goods available within the value stream to meet Takt time due to variations in customer demand.
Building Construction Products		
Building Construction Products PC		
Build-to-Order	Build-to-Order is possible when the Supply Chain Response Time plus Caterpillar's internal processing time are equal to or less than the desired Sustainable Product Availability goal.	A situation in which production lead time and order lead time are less than the time the customer is prepared to wait for the product, and the producer builds products entirely to confirmed orders rather than to forecast.
build-to-plan sequence	Hundred percent sustainable build-to-plan sequence	
bulkhead nut	When you assemble the fluid connection, do not use the bulkhead nut 1A as leverage for a backup wrench.	
bulldozer blade	The customer's order for the D11 requires the 11SU Bulldozer blade, air conditioning, and a single shank ripper.	
bulldozer blade control lever	Move the thumb lever 9H on the bulldozer blade control lever to the left in order to pitch the blade backward.	
bulldozer blade pitch	Adjustment of Bulldozer Blade Pitch	
Bulldozer Power Angling Tilt Hinge Pin	Operation and Maintenance ManualBulldozer Power Angling Tilt Hinge Pins - Lubricate	
bunching	Bunching grapples are designed for harvesting mid-to-large diameter trees, usually felled by a mechanical feller buncher.	
Buoyancy		The upward or lifting force exerted on a body by a fluid.
Burden Hours	PMCT standards define the acceptable day's work for an employee using correct methods and working at a normal pace with necessary allowances. These hours provide a basis for the planners to set standards for reviewing time and equipment use (burden hours)	
Burned forging		A burned forging is one that contains a forging burn defect.
Burning		The heating of a metal to temperatures sufficiently close to the melting point to cause permanent damage to the metal.

burnishing machine		Burnishing machines improve the surface finish of parts through a cold-working broaching process. Burnishing removes no metal, instead it compresses and smoothes out fine surface irregularities and is used for soft, ductile materials.
burr	The casting is manually ground and chipped to remove burrs and irregularities that could not be removed by the machine.	
burst		Ruptures made in forging or rolling.
Bus		An electrical conductor that serves as a common connection for two or more electrical circuits. Refers to the devices that connect the generators and loads in a paralleling system, or any point fed by multiple sources and/or supplying multiple loads.
bus bar	Inspect the battery disconnect switch, bus bars, battery posts, and battery cables for loose connections and corrosion.	
Bus Capacity		The maximum load that can be carried on a system without causing degradation of the generator frequency. In other words, the full load capacity of the system.
bushing	Use Tooling A and a suitable press in order to install a new bushing 7 (not shown), if the bushing was removed.[KPNR8106-01.rtf]	a lining for a cylinder or hole
bushing bore		This refers to the inside diameter of a bushing.
bypass check valve	A portion of the return oil from the main control valves flows through the bypass check valve and flows through line 28, and inlet 29 to hydraulic oil cooler 18.	
bypass valve	Tighten engine oil bypass valve 1 to a torque of 69 ± 5 N·m 51 ± 4 lb ft.[KPNR8106-01.rtf]	
C4.2 engine	The C4.2 engines are in-line four cylinder arrangements.[KPNR6741-05.rtf]	
cab	The work tool is operated by foot switch 12 that is located in the cab.[RPNR7389-09.rtf]	an enclosed compartment for the driver in a truck or other vehicle
Cab Dome Light		cab interior light (on the ceiling)
cable assembly	Connect cable assembly 69 to the electrical starting motor.	
cable strap	Install the cable straps which hold the harness assembly in place.; Cut the cable straps which hold the harness assembly in place.	

cable ties	If you choose to permanently install the harness, fasten the harness to the existing engine wiring harness with cable ties.	
Cage		A housing in which a valve operates and seats.
cage bolt	Use two cage bolts 2 in order to install bearing cage assembly 3.; The cage bolts are separated by 180 degrees.	
Calcium Sulfate		Chemical compound (CaSO ₄) which is used as a drying agent or desiccant in liquid line driers.
calibrate	Calibrate the extension solenoid valve for auxiliary stem 1.[RPNR7389-09.rtf]	to check, adjust, or systematically standardize the gradations of a quantitative measuring instrument
calibration	This calibration procedure is used in order to record the calibration data from the proportional solenoid valve for the negative flow control.[RPNR7389-09.rtf]	the act of bringing a gauge or other measuring device into conformity with a standard
calibration value	When you adjust the calibration value and the open rate of the load valve on the flow meter 34, always return the tool to the neutral position and repeat the calibration.[RPNR7389-09.rtf]	
California Air Resources Board	CARB California Air Resources Board	
caliper		A tool for measuring diameter, usually having curved legs and resembling a pair of compasses.
Calorie		Heat required to raise temperature of one gram of water one degree centigrade.
Calorific Value		The amount of heat produced by burning one pound of fuel. (See Heating Value.)
Calorimeter		Device used to measure quantities of heat or determine specific heats.
cam	There is a cam for each piston and each cam has three lobes.[KPNR6741-05.rtf]	a rotating, sliding or projecting piece of machinery
Cam Nose		That portion of the cam that holds the valve wide open. It is the high point of the cam.
cam plate	Apply clean hydraulic oil on the sliding surfaces of the cam plate, on the piston shoe assemblies and on the splined shaft of the travel motor.	
Cam ring ripple		Cam ring ripple is a type of wear on the inner surface of a vane pump cam ring that results in alternating high and low areas. Also called a "chopped" surface.
Cam-Ground Piston		A piston ground to a slightly oval shape which under the heat of operation becomes round.

camshaft	Dirty lubrication oil may also be a possible cause of rapid wear of the camshaft and tappets.[KPNR6741-05.rtf]	an engine shaft fitted with a cam or cams
camshaft bearing	Use Tooling A in order to remove the camshaft bearings from the cylinder block.[KPNR8106-01.rtf]	
camshaft gear	In order to install the camshaft gear, refer to Disassembly and AssemblyCamshaft - Install.[KPNR8106-01.rtf]	
camshaft journal	Subtract the diameter of the camshaft journal in order to give bearing clearances.[KPNR6740-04.rtf]	
camshaft lobe	As the camshaft turns, the camshaft lobes move the valve system components.[KPNR6741-05.rtf]	
CAN data link	Disconnect the P1 connector and measure the resistance between terminals P1-20 (CAN data link +) and P1-21 (CAN data link -).[KPNR5342-05.rtf]	
Cantilever Crane		A cantilever gantry crane is a gantry or semi-gantry crane in which the bridge girders or trusses extend transversely beyond the crane runway on one or both sides.
cap bolt	Put clean engine oil on the threads of main bearing cap bolts 6.[KPNR8106-01.rtf]	
Capacitor		An arrangement of insulated conductors and dielectrics for the accumulation of an electric charge with small voltage output.
Capacity (electric utility)		Capacity (electric utility). The maximum amount of electricity that a generating unit, power plant, or utility can produce under specified conditions. Capacity is measured in megawatts and is also referred to as the nameplate rating.
Capacity Credits		The value incorporated into the utility's rate for purchasing energy, based upon the savings due to the reduction or postponement of new generation capacity resulting from the purchase of power from cogenerators.
Capacity Factor		The ratio of the actual annual plant electricity output to the rated plant output.
Capacity-Net Cooling		The cooling capacity of an air-conditioning system or heat pump on the cooling cycle is the amount of Sensible and Latent heat (total heat) removed from the inside air.
Captive O-ring (CORC) installation tool		A captive O-ring (CORC) installation tool is a tool used to insert an O-ring into the captive groove of a fitting.
carbody	Make a mark on the head of the bolt that is relative to the carbody or the bearing race.	the part of an excavator between the tracked undercarriage and the main body, as in the carbody leg or carbody frame

Carbon		Carbon is a nonmetallic element found native (as in the diamond and graphite) or as a constituent of coal, petroleum, and asphalt, of limestone and other carbonates, and of organic compounds or obtained artificially in varying degrees of purity especially
carbon alloy	One of the most common metals that can be forged is carbon alloys	
Carbon cutting		Carbon cutting is damage to the crown of a piston from carbon deposits on the cylinder liner surface above the top piston ring. A “greenhouse” gas produced as a result of combustion of any hydrocarbon fueled engine, including a human. The highest efficiency engines produce the least CO2.
Carbon Dioxide		
Carbon Monoxide		A poisonous gas formed by combustion taking place with a shortage of oxygen. Measured in parts per million by volume. CO Concentration (ppm) = 1034 x CO mass emissions (g/hr) / Exhaust mass flow (kg/hr)
Carbon Potential	This is the actual carbon potential inside the furnace. It is one of the six pieces of information that the operators should monitor every time they load a new heat number on the FAMS screen. It should match the setpoint in the operator's manual.	
Carbon Potential Setpoint		
Carbonitriding		Carbonitriding is a case hardening type of heat treatment process for carbon steel or alloy steel parts. Carbonitriding consists of heating the part above the upper critical temperature to simultaneously absorb carbon and nitrogen.
Carbonize		The process of carbon formation within an engine, such as on the spark plugs and within the combustion chamber.
carburetor		A device for automatically mixing gasoline fuel in the proper proportion with air to produce a combustible vapor.
Carburetor “Icing”		A term used to describe the formation of ice on a carburetor throttle plate during certain atmospheric conditions.
Carburizer Flowscope Panel	Image Caption	Flowscope panel indicated flow, pressure and temperature of carbon required in the carburizing heat treatment process.
Carburizing	Carburizing is ideally suited for heavily loaded parts that require toughness and strength.	Carburizing is a case hardening heat treatment process for low carbon steels that uses an environment with sufficient carbon potential and a temperature above the upper critical temperature.
Carburizing temperature		The carburizing temperature is the temperature at which carburizing heat treatment is carried out.
carrier	Install thrust washers 21 and planetary gear 23 in the carrier assembly.	BUILT IN HOLDER; an integral mechanical component; such as a bearing carrier, planetary carrier, ring carrier, or seal carrier

carrier	Excessive clearance on hooked forks may allow the forks to fall from the carrier.	TEMPORARY TRANSPORTER; a non-integral component for holding or moving a piece of equipment; such as a battery carrier. Does not participate in the system's operation
carrier assembly	3 Torque for the eight bolts that fasten the carrier assembly to the housing ; P3 torque converter inlet oil enters the torque converter through inlet port 4 in carrier assembly 10.	
cartridge valve	The cartridge valve in the diverter valve is faulty.	
Case		A case is a hardened surface layer on a part that results from a surface hardening heat treatment. The case is usually formed by diffusion of other atoms - such as carbon or nitrogen - into the metal, but may also be formed by localized heat treating of t
case and frame		The Case and Frame is a fabricated assembly that forms the main chassis of the tractor.
Case crushing		Case crushing is a type of fatigue cracking that originates below a hardened case in the core region of a part. Large pieces of metal may be removed from the surface because of very high compressive stresses, usually found on gear teeth.
Case depth		Case depth is the depth to a specified hardness value in a part that has been heat treated by case hardening.
case drain filter	Install high efficiency filters in place of the pilot filter, the case drain filter, and the return filter.	
case drain line	Disconnect case drain line 3 from manifold 2. 14 Case drain.	
case drain oil	The following values specify the maximum acceptable flow of case drain oil when the swing relief pressure is set at 26000 ± 1000 kPa 3770 ± 145 psi.	
Case hardening		Case hardening is a group of heat treatment processes that develop a thin, hard surface layer on a component and leave the core relatively soft, strong and tough.
Cast iron		Cast iron is a generic term for a family of high carbon-silicon-iron casting alloys.
Cast iron ring band		A cast iron ring band is a cast iron ring that is cast into one-piece aluminum pistons to provide sufficient strength and wear resistance to support the piston rings.
Cast metal		Cast metal is metal that has been formed into a desired shape by a casting process.

cast steel cross tube	The cast steel cross tube provides excellent resistance to torsion and impact loads, keeping pin bores aligned and extending component service life.	
casting		Casting is the process of forming molten metal into a particular shape, by pouring the molten into a precisely shaped mold or die.
Cat	Your Cat worldwide dealer network provides the best product support in the industry.	
Cat Arctic DEO SYN	Cat Arctic DEO SYN	Cat diesel engine oil, synthetic
Cat Arctic TDTO	Cat Arctic TDTO - SAE 0W-20.	Cat arctic transmission drive train oil
Cat Arctic TDTO SYN	Cat Arctic TDTO SYN	Cat arctic transmission drive train oil, synthetic
CAT Belgium		
CAT Belgium Gosselies		
CAT Belgium Gosselies PC		
Cat BIO HYDO (HEES)	Cat BIO HYDO (HEES)	Cat biological hydraulic oil (hydraulic environmental ester synthetic oil)
CAT Brasil		
CAT Brasil LTDA		
CAT Brasil LTDA PC		
Cat Certified Rebuild		
CAT CHINA		
CAT CHINA DIVISION		
CAT Connect		CAT connect is a supplier web based communication portal. The suppliers communicate/collaborate via MRC Connect by way of CAT Connect.
Cat data link	The Cat Data Link is the standard data link that is used by the ECM to communicate with Cat ET.[KPNR5342-05.rtf]	
CAT Data Link Cable	Connect the CAT Data Link Cable between the Communication Adapter and the ET.	
Cat Data Link Circuit	Schematic of the Cat Data Link Circuit; Cat Data Link Circuit - Test	
Cat Data Link communication	The adapter converts Cat Data Link communication to RS-232 communication.	
Cat dealer	By regularly taking samples from the ports provided, your Cat dealer tracks wear of components and parts, oil performance and oil condition and uses that data to predict wear-related problems before they happen.	
Cat DEO Multigrade	Cat DEO Multigrade	Cat diesel engine oil, multigrade

CAT Electronic Technician	CAT Electronic Technician; The components that are needed in order to use the Communication Adapter II and the CAT Electronic Technician in order to determine diagnostic codes are listed:	Caterpillar diagnostic software
Cat ET	Cat ET may require the entry of injector confirmation code during this process.[KPNR5342-05.rtf]	Caterpillar diagnostic software
Cat Financial Products Cat Financial Products PC Cat Financial Services CAT France CAT France S.A. CAT France S.A. PC Cat Global Mining		
Cat High Speed Ball Bearing Grease	Lubricate the grease fitting that is on the fan drive shaft with Cat High Speed Ball Bearing Grease or the equivalent.	
CAT Hungary CAT Hungary PC		
Cat HYDO Advanced 10	Cat HYDO Advanced 10 is the preferred oil for use in most Caterpillar machine hydraulic and hydrostatic transmission systems when ambient temperature is between -20 °C-4 °F and 40 °C104 °F.	
CAT INDIA CAT INDIA - LPSD CAT INDIA QUARRY AND SPECIALTY		
Cat Log Loading Grapple	Cat Log Loading Grapples combined with Cat Forest Machines make the 320D FM flexible, versatile and efficient, allowing you to maximize productivity on your forestry job.	
Cat Logistics Cat Logistics PC CAT Mexico CAT Mexico Components CAT Mexico Components PC Cat MineStar System Cat Paving Products Cat Paving Products PC CAT PAVING XUZHOU	Cat MineStar System Component	

CAT PAVING XUZHOU -
EXCAVATION
CAT Production System
CAT Production System Division
CAT Redistribution Service
CAT Redistribution Svc
CAT Redistribution Svc PC
Cat Reman
CAT Reman Product Group
CAT Reman Product Group PC
Cat Remanufacturing Services
Cat Rental Stores

Cat TDTO-TMS

Cat TDTO-TMS (Transmission Multi-Season) (synthetic blend that exceeds the TO-4M multigrade specification requirements).

Cat transmission drive train oil, transmission multi-season oil

Cat Tosno
Cat Tosno PC
CAT TUNNELING CANADA
CAT TUNNELING CANADA
COMPANY

cat underground loader buckets

Cat underground loader buckets are designed for optimal loadability and structural durability in tough mining conditions.

CAT Work Tools
CAT Work Tools & Service
CAT Work Tools & Service AM/AP
CAT Work Tools & Service AM/AP
PC
CAT Work Tools & Svc
CAT Work Tools & Svc AM/AP
CAT Work Tools & Svc AM/AP PC

Cat World Trade

catalytic converter

Excessive idling can cause the muffler, the catalytic converter/muffler, or the diesel particulate filter to plug. Table shows some of the approved Caterpillar work tools that are used.[RPNR7389-09.rtf]

Caterpillar

Leave in English.

Caterpillar Americas Company

Caterpillar Asia PTE. Ltd. Caterpillar Biodegradable Hydraulic Oil	Special Publication PEHP1021 Product Data Sheet for Caterpillar Biodegradable Hydraulic Oil (BIO HYDO) At a macro level, FDD is based on the Push replenishment strategy, while OSS and Fixed Quantity Kanban are based on the Pull replenishment strategy. All three replenishment methods are used by both external and internal suppliers to replenish material with	
Caterpillar Business Unit		
Caterpillar Communications Adapter II	If Caterpillar Communications Adapter II (Serial IP) is not an option for selection, the firmware for the communications adapter must be updated.[KPNR5342-05.rtf]	
Caterpillar confidential yellow		When we talk about the communication confidentiality level there are four levels. 1) Non-confidential, 2) Caterpillar Confidential Green, 3) Caterpillar Confidential Yellow, and 4) Caterpillar Confidential Red. For any of these cases we need a translation.
Caterpillar dealer	Contact your local Caterpillar dealer for the most up to date fluids recommendations.	
Caterpillar Dealer Information System		
Caterpillar Dealer Information System/Dealer Business System		
Caterpillar Desert Gold	Caterpillar Desert Gold	
Caterpillar Diesel Engine Oil	Special Publication PEHP5026 Product Data Sheet for Caterpillar Diesel Engine Oils (DEO), CG-4 engine oils and CF-4 engine oils (North America and selected International markets)	
Caterpillar Electronic Technician	Use the Caterpillar Electronic Technician in order to determine if the diagnostic code is present.; The diagnostic code is present with the Caterpillar Electronic Technician.	Caterpillar diagnostic software
Caterpillar Export Services		A Caterpillar business unit. Caterpillar Export Services (CES) was created in 1990 to administer Caterpillar's Export Parts Policy.
Caterpillar Extended Life Coolant	Caterpillar Extended Life Coolant (ELC)	
Caterpillar Financial Capital Solutions		

Caterpillar Financial Services Corporation

Caterpillar Global Change Management

Caterpillar Heat Treat facilities

Caterpillar Logistics Services

Caterpillar Machine

Caterpillar Machine Engine

Caterpillar Machine Engine Planned Capacity

Caterpillar Monitoring System

Caterpillar Natural Gas Engine Oil

Caterpillar of Australia Ltd.

Caterpillar On-highway Diesel Engine

Caterpillar Poland

Caterpillar Product Link System

Caterpillar Production System

Caterpillar heat treat facilities use Shot Peening and Shot Blasting processes to treat metals.

The operator may view the resettable counter on the Caterpillar Monitoring System display.

Caterpillar Natural Gas Engine Oil (NGEO)

Cat DEO-ULS is formulated with the correct amounts of detergents, dispersants, and alkalinity in order to provide superior performance in Caterpillar On-highway Diesel Engines.

This Special Instruction provides information on the operation of Caterpillar Product Link System (PL151/201).; The contents of the Special Instruction must be understood by the machine operator before a machine can be operated that is equipped with the Caterpillar Product Link System.

The Caterpillar Production System (CPS) is the way Caterpillar unites the Operating, Cultural, and Management sub-systems to pursue Order-to-Delivery excellence.

Process used within Caterpillar to mitigate the risks involved when changes are introduced within processes and organizations. Through the CGCM process, communication, learning and reinforcement plans are developed to address identified areas of resistance.

A Caterpillar prime product, like a 416D backhoe loader or a 312C excavator.

Engines that are assembled into Caterpillar machines and not sold commercially. "Caterpillar machine engine" is a phrase that replaces the phrases "captive engine" or "vehicle engine."

Engine data that is generated based on Caterpillar machine planned capacity.

Integrates the Caterpillar Management, Cultural and Operating systems. Provides standards and methodology for deployment and sustaining excellence in our journey to a world-class company.

Caterpillar Production System Division	In order to move products and lines to a Pull replenishment program, the Caterpillar Production System Division (CPSD) has established a process to assess facilities and provide expertise for business units to implement Pull activities.	
Caterpillar Production System Manual	Click the Caterpillar Production System Manual Tracto is holding to view and download it.	
Caterpillar S-O-S Services program	If the all wheel drive oil is not being monitored by the Caterpillar S-O-S Services program or an equivalent oil sampling program, change the all wheel drive oil at every 2000 service hour interval.	
Caterpillar Used Equipment Services Incorporated		
Caterpillar Yellow	Cat, Caterpillar, their respective logos, "Caterpillar Yellow" and the Power Edge trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.	Leave in English.
cause-and-effect diagram	What does the Cause-and-Effect Diagram help in doing?	
cavitation	The pressure type cooling system prevents cavitation in the water pump.[KPNR6741-05.rtf]	the sudden formation and collapse of low-pressure bubbles in liquids by means of mechanical forces Cavitation erosion is the degradation of a solid body resulting from its exposure to cavitation. This may include loss of material, surface deformation, or changes in properties or appearance.
Cavitation erosion		
CDL	20Cat data link (CDL) -[KPNR5342-05.rtf]	Cat Data Link
CE		CE is a symbol for EEC compliance
CE plate weight	Approximate CE plate weight	
Cell		The location of processing steps for a product immediately adjacent to each other so that parts and documents can be processed in a nearly continuous flow, either one at a time or in small-batch sizes that are maintained through the complete sequence of processing steps.
Cementite		A compound of iron and carbon always containing 6.68% carbon and 93.32% iron.
center bypass passage	Negative flow control pressure in the center bypass passage is blocked when the control valve spools shift DOWNWARD.[RPNR7389-09.rtf]	

Centerline cracking		Centerline cracking is cracks that occur in weld metal during solidification specifically in the mushy zone, where both solid and liquid trail the weld pool. Centerline cracks are normally found at the grain boundaries, starting and growing along the weld
Central Cooling		Same as central heating except that cooling (heat removal) is supplied instead of heating; usually a chilled water distribution system and return system for air conditioning.
Central Heating		Supply of thermal energy from a central plant to multiple points of end-use, usually by steam or hot water, for space and/or service water heating. Central heating may be large-scale as in plants serving central business districts, university campuses, me
Central Legal Entity Ctl Central Legal Entity Ctl PC		
Centrifugal force		Centrifugal force is the force that tends to impel an object or parts of an object thing outward from the center of rotation.
Cetane		Measure of ignition quality of diesel fuel — at what pressure and temperature the fuel will ignite and burn.
chamfer	The end of the rubber stopper should be even with the end of the chamfer.	a bevel on an edge
chamfering machine		A machine used for producing chamfers. A chamfer is a beveled edge connecting two surfaces. If the surfaces are at right angles, the chamfer will typically be symmetrical at 45 degrees. Chamfers may be both exterior (cutting off an external angle) and int
change button	Click on the Change button.[KPNR5342-05.rtf]	
Changeover		The process of switching from the production of one product or part number to another in a machine (e.g., a stamping press or molding machine) or a series of linked machines (e.g., an assembly line or cell) by changing parts, dies, molds and / or fixtures. Changeover time is measured as the time elapsed between the last piece in the run just completed and the first good piece from the process after the changeover.
change-over valve	Lubricant pressure switch 5 senses the fall of pressure after the change-over valve changes over.	
Changes and Modifications	Changes include removing (or adding) enclosures, barriers, dust or mist collectors, man cooler fans, etc.	
Channeling		Channeling is grooves cut into the sealing area of an engine valve due to the leakage or passage of hot gasses.

Chaplet		A chaplet is a metal support or spacer used in molds to maintain cores or parts of the mold that are not self-supporting in their proper position during the casting process. Chaplets become a permanent part of the casting.
charge air cooler	Removal of debris from the charge air cooler; Tap the charge air cooler in order to facilitate removal of debris.	
charging circuit	The charging circuit is in operation when the engine is running.[KPNR6741-05.rtf]	
charging current	The initial charging current should be equal to the minimum full load current or greater than the minimum full load current.[KPNR6741-05.rtf]	
charging unit	This high voltage can damage the charging unit, the regulator, and other electrical components.[KPNR6741-05.rtf]	
chase waste	Chase Waste: Drive for the continuous and relentless elimination of waste in all processes with priority on safety and quality-related wastes	Drive for the continuous and relentless elimination of waste in all processes with priority and on safety and quality-related wastes.
chassis	Measure the voltage between the wire for the supply voltage that was removed from the air inlet heater and the chassis ground.[KPNR5342-05.rtf]	the rectangular steel frame that holds the body and engine of a motor vehicle
check ball	The pilot oil pressure pushes check ball 23 and check ball 24 against port 19 and port 20.	
check engine lamp	The check engine lamp will illuminate while this event code is active.	
check piston	The oil then flows around the seated pin to the top of the check piston 16.; This allows the actuation oil on top of check piston 16 to flow to drain 21.	
check valve	Main control valve 12 contains numerous valve stems, passages, check valves, and orifices in order to carry out a single operation or a combined operation.	
Chemical Binder	Cores are the internal passages of castings. Usually sand is mixed with a chemical binder to form the core	
chemical cleaner		Chemical cleaners remove the oil and grease from surfaces and involve one or more of the following processes: solution, saponification, emulsification, dispersion, or aggregation.
Chemical Hazard		Liquid, gas, vapor and particulates like dust, fiber, mist. A substance that can cause harm to humans.

chemical inhibitor	This increases the concentration of the dissolved solids and the undissolved chemical inhibitors in the cooling system.	
chemical splash		When a chemical becomes airborne or is released into the air.
chevron		Chevrons are the ridges or steps on a brittle fracture surface that converge on the fracture initiation site.
chipping	The casting is manually ground and chipped to remove burrs and irregularities that could not be removed by the machine and that needed human visible check and intervention.	
chisel		Chisels are hand held tools that are used to chip out fins or remove any other metal deposits from castings
c-hook	The 344-9163 Lifting Bracket is a "C-Hook" style lifting device.	
Chordal fracture		Chordal fracture refers to fracture of an engine valve head between any two points on its circumference except the diameter.
CID-FMI code	Cross-Reference from CID-FMI Code to Flash Code to SPN-FMI Code to Functional Test or Procedure[KPNR5342-05.rtf]	
circuit	The ECM continuously outputs a pull-up voltage on the circuit for the sensor signal wire.[KPNR5342-05.rtf]	ELECTRICAL a configuration of electrically or electromagnetically connected components or devices; any closed path which electric current can follow
circuit		HYDRAULIC/PNEUMATIC the connected hoses and passages of a hydraulic system or a pneumatic system.
circuit breaker	The connections for the unswitched +Battery may be routed through a dedicated protection device (circuit breaker).[KPNR5342-05.rtf]	
circuit diagram	Install the following tools in accordance with the flow meter tool layout and the circuit diagram.	
circuit pressure	The line relief valves limit the circuit pressure to the specified pressure settings.	
cladding machine		Metals are bonded with a thin layer of corrosion-resistant metal by applying pressure with rolls or other means.
clam shell bucket		a clamshell bucket

clamp		a device other than a collar, used to temporarily hold something, to pick something up, or to hold things together, such as an alligator clamp, battery cable clamp, bale clamp or lifting clamp, a collar-like device used to hold hoses or other parts in place, such as a hose clamp, radiator hose clamp, or axle clamp. Note: DO NOT USE 'clamp' alone to mean 'a device used to hold something permanently in place', such as a stud clamp or rim clamp
clamping force	The torque-turn method is used when precise control over clamping force is required.	
Clean Air Act CLEANAIR CLEANAIR PCTR		
clearance	When the top piston ring is installed in a cylinder liner with a bore of 102 mm4,0 inch, the clearance between the ends of the top piston ring is the following distance.[KPNR6740-04.rtf]	
Cleavage		Cleavage is fracture of a crystal by crack propagation across a crystallographic plane of low index.
Cleavage fracture		Cleavage fracture is a type of fracture, usually of a polycrystalline metal, in which most of the grains have failed by cleavage, resulting in bright reflecting facets. It is one type of crystalline fracture and is associated with low energy brittle fract
Cleavage plane		A cleavage plane is a characteristic crystallographic plane or set of planes in a crystal on which cleavage fracture can occur easily.
Cleaved		A crystal is cleaved when it has fractured by crack propagation along definite crystallographic planes.
clench pressure	Machines that are equipped with System 14 can grip objects without crushing or dropping the objects when the clench pressure is set correctly.[RPNR7389-09.rtf]	
clench pressure circuit	When the clench pressure circuit is activated in order to grip an object, the hydraulic pressure for the work tool circuit increases to the line relief setting.[RPNR7389-09.rtf]	
close time	Close time for the number 1 attachment valve[RPNR7389-09.rtf]	
Closing Rating		The maximum fault current into which an automatic transfer switch of a generator set can close.

cloud point	A fuel heater will keep the fuel above the cloud point as the fuel flows through the fuel system.	
clutch	The clutch is used to disengage the electric motor from the drive when the preset torque value is reached.	
Clutch Plate Temper	Image Caption	Clutch Plate Temper is a heat treating method used to temper clutch plates. Tempering strengthens the metal by transforming brittle martensite into combination of ferrite and cementite, or bainite.
CO laser	One of the major types of LASERS.	
CO2 laser	One of the major types of LASERS.	
Coarse fatigue		See Low cycle fatigue.
Coastal protected		Coastal insulation protection (protects generators used in coastal areas against corrosion)
Coat or plate machine		Coating and plating machines apply plastic, organic, or metal finishes to a product, which improves the product's properties such as increasing durability or resisting corrosion.
cock	To drain the coolant from the tank, open drain cock 2.	
code of conduct	Caterpillar's Worldwide Code of Conduct is the most valued document at Caterpillar.	
Coefficient of Expansion		The change in length per unit length or the change in volume per unit volume per degree change in temperature.
Coefficient of friction		Coefficient of friction is a dimensionless number representing the ratio of the friction force to normal force. Coefficient of friction can vary significantly depending upon the materials tested and whether a lubricant has been used.
Coefficient of Performance		The ratio of the rate of heat removal to the rate of energy input in consistent units.
Coefficient of thermal expansion		The coefficient of thermal expansion is the increase in a dimension of a metal per unit dimension per unit degree rise in temperature or vice-versa.
Cogeneration		Utilizing a prime power generator set, this process involves harnessing "free" heat energy from engine cooling and exhaust systems for heating or steam generation, or to power air conditioning, absorption chillers, or other equipment.
Cohesive Strength		The strength property of a metal that resists the tensile, disruptive stress across a plane at right angles to the load applied.
coil		a tube wound in a serpentine fashion, often used as a heat exchanger, such as an evaporator coil or tube coil

coil	Installation torque 80 ± 5 N·m 59 ± 4 lb ft 3. Torque the coil assembly nut to 9 ± 0,5 N·m 79,7 ± 4,4 lb in 4 Torque for the five bolts (marked with an "X") 30 ± 4 N·m 22 ± 3.lb ft 5 Torque for the five bolts (marked with a "Y") 48 ± 4 N·m 35 ± 3 lb ft 6 Torque for the 14 bolts 30 ± 4 N·m 22 ± 3.lb ft	a device consisting of wire wrapped around a bobbin, typically used in solenoids, for example, an electrical coil, actuator solenoid coil, hold-in coil, or starter relay coil wire wrapped around the field armatures of the rotor in an electric motor or generator, as in a field coil or diode triode field coil a spiral or spring, as in a coil spring, spring coil, closed coil, end coil, or damper coil
coil		
coil		
coil assembly nut		
coil resistance	Installation torque 25 ± 5 N·m 18,4 ± 3,7 lb ft 2 Torque for the nut 9,5 ± 1,5 N·m 85 ± 14 lb in Flow of SAE 10W oil at 620 kPa 90 psi pressure drop and 85 °C 185 °F 57 L/min 15 US gpm. Operating pressure rating 20700 kPa 3000 psi. Nominal coil voltage 24 VDC Current draw at 25° ± 5°C 77° ± 9°F 0.75. Amperes Coil resistance at 25° ± 5°C 77° ± 9°F 32.6 ± 1.6 ohms	
Coil Wedge		A mechanical device which prevents coil bundle from coming out of rev. field slot passage during rotation of rev. field. Two types: expansion wedges — 360, 440, and 580, 680 frames; compression wedges — 800 frame.
Coincident Demand		The sum of two or more demands which occur in the same demand interval.
Coke		Coke is coal from which the volatiles have been driven off by heating in the absence of air.
cold cylinder cutout	The cold cylinder cutout automatically stops fuel injection to cylinders that are not firing.	
Cold Drawing		The process for finishing a hot rolled rod or bar at room temperature by pulling it through the hole of a die of the same shape but smaller in size.
Cold Finishing		The process of reducing the cross sectional area without heating by cold rolling, cold drawing, cold drawing and grinding, turning and polishing, or turning and grinding.

Cold Forging		Most forging is done as hot work, at temperatures up to 2300 F. However, a variation of impression die forging is cold forging. Cold forging encompasses many processes- bending, cold drawing, cold heating, coing, extrusions and more to yield a diverse ran
Cold forming		Cold forming is any process in which metal is shaped without prior heating.
Cold heading		Cold heading is axial compression of the end of a metal cylinder to enlarge the cross section. For example, the process used to form the heads on nails and bolts.
cold mode	Use Cat ET to verify that the engine has exited cold mode.[KPNR5342-05.rtf]	Engine cold mode is used to control fuel injection timing when the engine is cold.
Cold Planer	Cold Planer	
Cold Rolling		The cold working of hot rolled material by passing it between power-driven rolls. The process applies to flat bars of such a size that they cannot be pulled through a die.
Cold shut		A cold shut is a casting discontinuity that results when two streams of liquid metal in a solidifying casting meet but fail to unite.
cold starting aid	The cold starting aid advances the timing of the pump when the engine is cold.	
Cold testing equipment		Preliminary automated test designed to find and solve issues prior to running a hot test. Engine cold testing includes hooking an engine up to a dynamometer and turning the engine to check for issues.
Cold working		Cold working is a plastic deformation process performed below the recrystallization temperature that leads to work hardening.
cold-soaked start	Supplemental heat is recommended for cold-soaked starts below the minimum ambient temperature.	
Collapse		
Color-coded Electrical System	Color-coded Electrical System	
column-and-knee milling machine		General purpose milling machines where the milling cutter may be horizontal for slab milling or vertical for face and end milling, boring, and drilling operations. The knee supports the saddle and gives the table vertical movement.
Columnar strength combination puller	Resistance to failure caused by bending. Combination Puller[KPNR8106-01.rtf]	Columnar strength is resistance to failure by buckling.

combined function hydraulic system	The combined function hydraulic system that is present on excavators that are equipped with a System 14 combines the features of the one-way/two-way flow system with the features of the one pump/two pump flow system.[RPNR7389-09.rtf]	
combined pump oil	The combined pump oil flows through passage 12 and line 3 to the head end of boom cylinders 1.	
combiner valve	Steering check and combiner valve under the right side of the cab and inside of the hydraulic tank. Configuration of the number 1 combiner valve[RPNR7389-09.rtf]	
combustion	The components of the air inlet and the components of the exhaust system control the quality of available air for combustion.[KPNR6741-05.rtf]	the process or an instance of burning
combustion blower	Below many of the heat treat installations is a pit or basement that houses combustion blowers	
combustion chamber	Combining this with an advanced air system provides more cool air in the combustion chamber and controls the air volume required at various loads and speeds.	The chamber in reciprocating engines between the cylinder head and piston, in which combustion occurs.
combustion cycle	The electronically controlled fuel system allows for multiple injections of small amounts of fuel in each combustion cycle, allowing for more complete fuel burn and in turn reducing combustion temperatures.	A series of thermodynamic processes through which the working gas passes to produce one power stroke. The cycle is: intake, compression, power, and exhaust.
combustion gas	The most common causes of air in the cooling system are not filling the cooling system correctly and combustion gas leakage into the cooling system.[KPNR6741-05.rtf]	
Combustion-Chamber Volume		The volume of the combustion chamber (when the piston is at TDC) measured in cubic centimeters.
Comfort Air-Conditioning		A simultaneous control of all, or at least the first three, of the following factors affecting the physical and chemical conditions of the atmosphere within a structure of the purpose of human comfort; temperature, humidity, motion, distribution, dust, ba
Command	Cat MineStar System Component	

Command Control Steering	Command Control Steering. This is a load-sensing system that links the steering wheel and frame angle positions to provide the proper amount of steering control. The speed the machine turns is proportional to the steering wheel position. Check Valve (Steering Quad) (Command Control Steering); Steering Neutralizer Valve (Command Control Steering)	
Commercial Engine		Engines sold to non-Caterpillar entities and not assembled into Caterpillar machine products. These include truck, generator sets, marine and industrial.
commercial heavy-duty antifreeze	A commercial heavy-duty antifreeze that meets ASTM D4985 specifications	
commercial oil	Only use commercial oils that meet the following classifications:	
Common Service		Common Service- preventative maintenance parts or regularly serviced items.
common supply	On four cylinder engines, the two injectors that share a common supply indicate the same diagnostic code.[KPNR5342-05.rtf]	In the example it means a "common fuel supply", but the term does not make sense in isolation. Please delete.
Common Weld Quality Plan		An executed plan that dramatically reduces the number of defects produced during welding,
communication adapter	The communication adapter provides a communication link between the ECM and the ET.	
communication adapter display	Check the display screen or check the communication adapter display in order to determine if Cat ET has powered up.	
communication adapter tool	If the Communication Adapter Tool is not receiving power the display will be blank. Communication Adapter Tool	
Commutator		A number of copper bars connected to the armature windings but insulated from each other and from the armature. Rotation of the armature will, in conjunction with fixed brushes, result in unidirectional current output.
compact instrument cluster film	Compact Instrument Cluster Film	It is a protective film for an instrument cluster.
Compact Wheel Loader	The specifications for the 906 Compact Wheel Loader that are listed in the table below are based on the following conditions:	
compactor	Compactor[RPNR7389-09.rtf]	a machine for compacting asphalt
Competitive Parts Reports		Report that shows the competitive advantage of Caterpillar parts.

component	The Engine Control Module (ECM) monitors the components of the engine during operation.[KPNR6741-05.rtf]	a simple part, or a relatively complex entity regarded as a part, of a system
component identifier	Diagnostic codes consist of the Module Identifier (MID), the Component Identifier (CID), and the Failure Mode Identifier (FMI).[KPNR5342-05.rtf]	Full form of: cid
component life	Cat dealers can estimate component life, preventative maintenance cost and the true cost of lost production.	
component part number	Component type headings classify each component part number in accordance with the part's relationship to the engineering drawing.	
Composite structure		A composite structure is a solid material which is composed of two or more substances having different physical characteristics and in which each substance retains its identity while contributing desirable properties to the whole.
Compressed Air		Air that at any pressure in excess of atmospheric pressure is considered to be compressed.
compression		CYLINDER; the process by which the vapor mixture in the cylinder of an internal-combustion engine is compressed, or the engine cycle during which this process occurs
compression		SPRING/MECHANICAL; 'extreme compression can cause cracking'; the state of being compressed
compression brake	The Caterpillar compression brake is controlled by the engine control module.	
Compression Check		A measurement of the compression of each cylinder at cranking speed or as recommended by the manufacturer.
Compression Ignition		The ignition of fuel through the heat of compression.
compression load		A compression load is a force on a body or part of a body that tends to crush, or compress, the body.
Compression Ratio		Compares the minimum and maximum volumes between the piston crown and the cylinder head.
Compression Release		A device to prevent the intake or exhaust valves from closing completely, thereby permitting the engine to be turned over without compression.
compression ring	The pistons have two compression rings and an oil control ring.	
compression stroke	The piston starts to move up on the compression stroke.[KPNR6741-05.rtf]	

Compressive stress		A compressive stress is a stress that causes an elastic body to deform (shorten) in the direction of the applied load.
Compressive surface stress		A compressive surface stress is a compressive stress induced in the surface of a part by mechanical or thermal processing. Compressive surface stresses are beneficial for resisting cyclic loading and fatigue fracture.
compressor	Use Tooling A in order to remove retaining ring 7 from compressor housing 8.[KPNR8106-01.rtf]	one that compresses, especially a machine used to compress gases
Compressor Efficiency		A measure of the deviation of the actual compression from the perfect compression cycle. Is defined as the work done within the cylinders.
compressor housing	Use Tooling A in order to remove retaining ring 7 from compressor housing 8.[KPNR8106-01.rtf]	a case that surrounds a high speed rotor acting as a pump, such as a compressor housing, turbine housing, or compressor wheel housing
Compressor Outlet Pressure		Gauge pressure of the combustion air at the turbocharger compressor outlet of a spark ignited engine.
compressor wheel	The turbine wheel is connected to the shaft that drives the compressor wheel.; Check the compressor wheel and the turbine for evidence of an oil leak.	
Compressor-Brake Horsepower		A function of the power input to the ideal compressor and to the compression, mechanical, and volumetric efficiency of the compressor.
Computer Aided Design		
Conceptual Design		The specification of the major components of a system and their operating characteristics, layout, space needs, and operating and maintenance requirements.
Condensate Pump		Device used to remove fluid condensate that collects beneath an evaporator.
condensation		Liquid or droplets which form when a gas or vapor is cooled below its dew point.
Condensing Unit		The part of the refrigerating mechanism which pumps vaporized refrigerant from the evaporator, compresses it, liquifies it in the condenser, and returns the liquid refrigerant to refrigerant control.
Conduction		Thermal. The process of heat transfer through a material medium in which kinetic energy is transmitted by the particles of the material from particle to particle without gross displacement of the particles.
conductive helmet	Conductive Helmets provide no electrical protection, and should only be used for comfort and impact protection (not electrical hazards).	Device for head protection to reduce the force or impact of a falling object.

Conductivity	
cone roller assembly	Lubricate the cone roller assembly.
configuration parameter	System configuration parameters can affect the power rating or the emissions of the engine and may be changed with electronic service tools.[KPNR5342-05.rtf]
configuration screen	Caterpillar Electronic Technician (ET) is used to access the configuration screen .[KPNR5342-05.rtf]
Configured Interval text field	In the Configured Interval text field, enter the number of hours that represents the interval for each repair.
confirmation code	The injector serial number and the injector confirmation code are located on the injector.[KPNR5342-05.rtf]
conformance index	Advanced Product Quality Planning (APQP) Conformance Index is composed of the percentage of releases and changes that have been reviewed for APQP applicability and have completed the planned number of APQP steps.
connecting rod	Push the pistons and the connecting rods through the top of the cylinder block. Refer to Disassembly and AssemblyPistons and Connecting Rods - Remove.; Refer to Disassembly and AssemblyPistons and Connecting Rods - Install.
connecting rod bearing	Put clean engine oil on the piston rings and the connecting rod bearings.[KPNR8106-01.rtf]
connecting rod bolt	Use tape or rubber tubing on connecting rod bolts to protect the crankshaft journals.[KPNR8106-01.rtf]
connecting rod cap	Install the lower half of the connecting rod bearing in the correspondingly marked connecting rod cap.[KPNR8106-01.rtf]
connecting rod journal	The sharp edges of the connecting rod bolts could damage the surface of the connecting rod journal.[KPNR8106-01.rtf]
connecting rod nut	Remove connecting rod nuts 1 from the connecting rod.[KPNR8106-01.rtf]
connection	If a multimeter is being utilized for this test, use the 10 ampere connections in order to avoid damage.

Thermal. “k” factor — The time rate of heat flow through unit area of a homogeneous material under steady conditions when a unit temperature gradient is maintained in the direction perpendicular to the area. In English units its value is usually expressed in Btu p

connector		an electrical link, such as an accelerator harness connector or alarm connector
connector		a hydraulic link or line link, such as a fuel injection nozzle connector or an inverted flare connector
connector body	Ensure that the plug for the sensor has a seal inside the connector body.[KPNR5342-05.rtf]	
connector contact	Ensure that the connector contacts are clean and in good condition.	
Consignment		The process of a supplier placing goods at a customer location without receiving payment until after the goods are used.
constant torque hose clamp	A constant torque hose clamp can be used in place of any standard hose clamp.	
constant velocity joint	One or both of the constant velocity joints is binding. One or both of the constant velocity joints that are in the steering shaft are binding.	
Constant-pressure Combustion		Combustion which occurs without a change in pressure. In an engine, this is obtained by a slower rate of burning than with constant-volume combustion.
CONSTRUCTION INDUSTRIES GROWTH MARKETS		
consumables		Includes welding gun, nozzles and tips of the welding process.
consumption		The amount of each bill-of-material component or item used in the production process to make the parent.
Consumption Based Replenishment		Refers to a Kanban type process where as material is ordered from a location/buffer to point of use or material is consumed from the location/buffer causing a manual or mechanical request to replenish the location/buffer.
consumption record	FRACS communicates the shipping order status to MDS which updates the local shipping order system to update their records.	
Contact stress fatigue		Contact stress fatigue is cracking and subsequent break up of a surface subjected to alternating stresses such as those produced under rolling or sliding contact between two surfaces. Contact stress fatigue is most often encountered in rolling element bea
Contaminant		These contaminants include fuel and antifreeze. A substance (dirt, moisture, etc.) foreign to refrigerant or refrigerant oil in system.
contingency plan	Part number detail provides the MRP parameters that can be applied when planting a specific part. One of the parameters include Contingency plans	

continuity	A long extension wire may also be needed to check the continuity of some wiring harness circuits.[KPNR5342-05.rtf]	technical term;DO NOT USE 'continuity' to mean 'the state or quality of being continuous'
continuity check	The continuity check does not agree with Table .; The continuity check does not agree with the preceding table.	
Continuous casting		Continuous casting is a casting process that consists of pouring molten metal into a bottomless, water-cooled mold of simple cross section and continuously withdrawing solidified metal from the bottom of the mold.
Continuous Cycle Absorption System		System which has a continuous flow of energy input.
Continuous Emissions Monitoring		
Continuous Flow		Producing and moving one item at a time (or a small and consistent batch of items) through a series of processing steps as continuously as possible, with each step making just what is requested by the next step.
Continuous Furnace	One of the two types of furnaces at Caterpillar. It needs effective scheduling and are dedicated to running only one process and require long changeovers.	
Continuous furnaces and ovens		Parts to be heat treated continuously move through the furnace or oven on conveyors of various designs, using trays, belts, chains, and other mechanisms. The furnace or oven may have either a single set point or a programmable controller to adjust tempera
Continuous Improvement		Continuous improvement of an entire value stream or an individual process to create more value with less waste. Value-stream mapping is an excellent tool for determining where 6-Sigma Rapid Improvement Workshop and 6-Sigma projects are appropriate.
continuous improvement ideas process	Owning the Continuous Improvement Ideas process and making sure that new ideas are generated	
Continuous Power		Output available without varying load for an unlimited time. Continuous power in accordance with ISO8528, ISO3046/1, AS2789, DIN6271, and BS5514.
Continuous Process Improvement	Every facility requires annual re-certification, resulting in Continuous Improvement. Certification deployment at each section level provides quality control and accountability at the shop level.	

continuous product improvement	Severe or frequently recurring quality events are handled by either the Continuous Product Improvement (CPI) process or Supply and Production Quality (SPQ) process, as applicable.	
continuous reverse mode	First, the reverse fan function has a continuous reverse mode.	
contract		To reduce in mass or dimension; to make smaller.
control circuit	The control circuit of the swing lock system provides control for the swing motor, the swing brake, the fine swing function and the backup system of the machine.	
control device	The left joystick thumbwheel is the only control device that controls the medium pressure circuit.[RPNR7389-09.rtf]	
Control Manifold	Remove coupling 3 from the control manifold and plug the coupling.	
control mode	Control mode of the number 1 switch on the left joystick[RPNR7389-09.rtf]	
control pod	Pull up on the fore/aft lever 29 in order to move the control pod forward or backward.	Console with control elements, such as control levers.
Control port	12 Control port for right turns.; 17 Control port for left turns.	
control service tool	Refer to Illustration for the location of the connector for the control service tool.; In order to place the Caterpillar Monitoring System in service mode, press and hold the mode switch of the control service tool.	
Control Throttle Shifting	The M-Series motor graders use Control Throttle Shifting (CTS) to control downshift gear requests.	
control valve	The sealing surfaces of the tube assembly or hose assembly should be tightened to the serviced component (control valve, cylinder, hydraulic motor, etc).	
Control Voltage Terminal Strip		Strips provided to allow easy customer connections of generator sets to regulators, space heaters, or other devices.
Controlled Port Scavenging		Scavenging method using ports which are controlled by valves in addition to the power piston.
convection	In the third phase of quenching, the temperature of the piece falls below the boiling point of the quenchant liquid. Cooling in this phase is much slower and happens through convection.	Transfer of heat by means of movement or flow of a fluid or gas.

Converter		As used in connection with LP gas, a device which converts or changes LP gas from a liquid to a vapor for use by the engine.
conveyor	Conveyors and elevators are designed to exceed maximum planned load weight	
conveyor belt	You have been instructed to set a right-side clamp on a mounting jig that is coming your way on the conveyor belt.	
conveyor stop switch	3Right conveyor stop switch	
Convolution		One full turn of a screw.
coolant	In cold weather, the engine will not obtain operating temperature if even small amounts of coolant travel through the radiator.[KPNR6741-05.rtf]	a cooling agent, usually a fluid
coolant additive	Overconcentration of coolant additive (conditioner), mineral deposits from hard water, or cooling system contamination can accelerate the wear on the water pump seal.	
coolant conditioner	Refill the cooling system with the correct mixture of water, antifreeze, and coolant conditioner.; The mixture should be approximately 50 percent water and 50 percent antifreeze with 3 to 6 percent coolant conditioner.	an antifreeze additive, as in antifreeze conditioner
coolant flow	Air in the cooling system will cause a reduction in coolant flow and bubbles in the coolant.[KPNR6741-05.rtf]	
coolant level	If the coolant level is at the bottom of the sight gauge, more coolant is needed.	
coolant pump	Inspect the impeller of the coolant pump for damage and/or erosion.[KPNR5342-05.rtf]	
cooler	Remove bolts 2 and remove engine oil cooler 3.[KPNR8106-01.rtf]	a device that cools something or keeps something cool
cooling fan speed	The cooling fan speed is controlled by the machine ECM.	
Cooling Load		The rate of heat removed from the chilled water passing through the evaporator — measured in tons.
cooling system	Drain the coolant from the cooling system into a suitable container for storage or for disposal.[KPNR8106-01.rtf]	
cooling system drain valve	Open the cooling system drain valve (if equipped).	

cooling system filler cap	Loosen the cooling system filler cap slowly in order to relieve any pressure.	
cooling system pressure cap	Remove the cooling system pressure cap.	
Cooling Tower		Device which cools water by water evaporation in air. Water is cooled to wet bulb temperature of air.
Cooling Zone		Area where parts are allowed to cool after a heat treat process
Cooperative (electric utility)		A joint venture organized by consumers to make electric utility service available in their area.
Coproduction		The conversion of energy from a fuel (possibly including solid or other wastes) into shaft power (which may be used to generate electricity) and a second or additional useful form. The process may entail a series topping and bottoming arrangement for conv
core fin		A core fin is a depression in the casting caused by a fin on the core, which was not removed before the core was set.
Core Industry		
Core Industry Group		
Core Process		That unique capability that is central to a company's competitive edge.
Core sand		Core sand is sand used for making cores to which a binding material has been added to obtain good cohesion and permeability after drying.
Core Shift		Core shift occurs when a core is not set properly, causing a shift in its alignment.
Corporate costs		
Corporate Information Services		
Corporate Shared Services		
Corrective pitting		See Initial pitting..
corrosion	Check the impeller for wear, corrosion, and metal to metal contact.[KPNR8106-01.rtf]	the act or process of wearing away, especially of metals
Corrosion fatigue		Corrosion fatigue is cracking produced by the combined action of repeated or fluctuating stress and a corrosive environment at lower stress levels or fewer cycles than would normally be required in the absence of a corrosive environment.
corrosion inhibitor	Do not allow corrosion inhibitor to contact the skin for extended periods of time.	
corrosion-proof component	Corrosion-proof components provide long life and reliable operation.	

cost-per-ton	Developed specifically for high production mining and heavy-duty construction applications, our mining trucks keep material moving at a high volume to lower your cost-per-ton.	
count adjustment	When inventory counts and record adjustments cause on hands to change, a re- planning trigger is established by the Material Status System. It should be understood that a re-planning trigger may or may not cause MRP to change the order plan of the affec	
counterbalance valve	The oil delivery from the idler pump enters left travel motor 1 and flows through counterbalance valve 8 and passage 5 to motor rotary group 3.	
counterbore	Make sure that the lip seal contacts the counterbore in the body of the travel motor.	technical term
counterclockwise direction	Turn valve handle 14 on chuck 15 all the way in the counterclockwise direction.; Turn tee handle 14 on chuck 15 all the way in the counterclockwise direction.	
Counterelectromotive Force		The electromotive force (voltage) that opposes the applied voltage.
Countersink		To cut or shape a depression in an object so that the head of a screw may set flush or below the surface.
counterweight	Attach Tooling A and a suitable lifting device to counterweight 1.	to equip with a counterweight
coupler	This setup procedure must be complete prior to using a coupler.[RPNR7389-09.rtf]	technical term
coupling	Check the fuel transfer pump coupling.[KPNR5342-05.rtf]	MECHANICAL POWER; device for transmitting power through a mechanical drive, such as a drive coupling, governor drive coupling, or cushion hitch pump coupling
coupling		HYDRAULIC/PNEUEMATIC; a line fitting for joining two or more lines, such as an air line coupling, angle coupling, cutting ring coupling, hydraulic coupling, or line coupling
coverage map recording	Coverage map recording uses 1 x 1 m grid cells.	Mapping used for recording back ground maps of the site. Used for CAES (Computer Aided Earth Moving System)
CPS assessment score	They own and set the overall direction for the value stream(s) in a given area, with overall responsibility for performance of the value stream(s) including MQ12005 certification and CPS Assessment scores.	
CPS chase waste awareness	I am Tracto, your guide through this module on CPS Chase Waste Awareness.	One of the goals of Caterpillar Production System initiative is to eliminate wasteful activities that do not add value.

CPS Compliance Scoring System	It is a scoring system used by business processes to measure compliance.	
CPS Eight Wastes		Caterpillar's goal is to be recognized as
CPS Forging Process		Forging is one of the processes of producing components of desired shapes and sizes. During this process metal is pressed, pounded, or squeezed under great pressure. The metal is normally heated to a desired temperature before it is worked.
CPS Guiding Principles	CPS has identified 15 Guiding Principles that define how we should approach our work.	
CPS job instruction training	CPS Job Instruction Training teaches how to quickly train employees to do the job correctly, safely, and conscientiously.	
CPS Lean Manufacturing Strategy		Caterpillar's plan for lean manufacturing which is focused on getting the right things, to the right place, at the right time, in the right quantity to achieve perfect work flow while minimizing waste and being flexible and able to change.
CPS team member	Which of the following is a responsibility of all CPS Team Members?	
CPS tools	All CPS tools, standards, related materials and specifications are stored in an easy to use one-stop-shop. Any user from any business unit can easily and quickly find just the right tools, standards, contacts and methods for any CPS process.	
CPS yellow belt	These members must be a CPS Yellow Belt and could be a CPS Green Belt.	
crack arrest line		See Beach marks.
Crack propagation		Crack propagation is the movement of a crack through a part due to an applied or residual stress.
crane	Bucket Extend Pressure Switch (for crane)	a machine for hoisting and moving heavy objects by means of cables attached to a movable boom
crank	Crank the engine for 30 seconds.[KPNR6741-05.rtf]	Rotate an engine with a source of power external to the engine.
crank cycle	Crank cycle; If the operator attempts to start the engine before the end of the preheat cycle, the ECM will begin using the strategy for the crank cycle.	
Crank Throw		One crankpin with its two webs (the amount of offset of the rod journal).
Crank Web		The portion of the crank throw between the crankpin and main journal. This makes up the offset.

crankcase	Oil returns to the crankcase through holes in the groove of the oil control piston ring.[KPNR6741-05.rtf]	the metal case enclosing the crankshaft and associated parts in a reciprocating engine
crankcase blowby	Check for excessive crankcase blowby at the engine crankcase breather.	
Crankcase Breather	If the crankcase breathers are not maintained on a regular basis, the crankcase breathers will become plugged. Crankcase Breather	
Crankcase Dilution		When unburned fuel finds its way past the piston rings into the crankcase oil, where it dilutes or "thins" the engine lubricating oil.
Crankcase Scavenging		Scavenging method using the pumping action of the power piston in the crankcase to pump scavenging air.
Crankpin		The portion of the crank throw attached to the connecting rod.
crankshaft	When you are removing the wear sleeve, take extreme care not to damage the crankshaft.[KPNR8106-01.rtf]	a shaft driven by, or driving, a crank
Crankshaft Counter-Balance		A series of weights attached to or forged integrally with the crankshaft to offset the reciprocating weight of each piston and rod.
crankshaft front seal	Use Tooling A in order to remove crankshaft front seal 10 (not shown) from front housing 4, if necessary.[KPNR8106-01.rtf]	
crankshaft gear	Use care not to damage the pump idler gear and the crankshaft gear.[KPNR8106-01.rtf]	
crankshaft journal	Put clean engine oil on the crankshaft journals and on the inside of the cylinder bores.[KPNR8106-01.rtf]	
crankshaft position sensor	Remove bolt 3 and crankshaft position sensor 2.[KPNR8106-01.rtf]	
crankshaft pulley	If it is necessary to remove wear sleeve 4 from crankshaft pulley 3, use a suitable hammer and a suitable chisel.[KPNR8106-01.rtf]	
crankshaft rear seal	Drill three evenly spaced 3 mm 0,12 inch holes in crankshaft rear seal 1.[KPNR8106-01.rtf]	
crankshaft speed	The primary crankshaft speed/timing sensor is located on the right hand side of the cylinder block close to the flywheel housing.[KPNR5342-05.rtf]	
crankshaft vibration	If the vibration damper needs to be replaced, refer to Disassembly and AssemblyCrankshaft Vibration Damper and Pulley - Remove and Install.	
Creep		Creep is movement between a bearing race and the mating shaft or bore.

Crest Clearance		Defined on a screw form as the space between the top of a thread and the root of its mating thread.
crimp, to	Crimp a connector socket to one end of the jumper wire.[KPNR5342-05.rtf]	to press into small, regular folds, especially as a means of fastening together; technical term
crisscross pattern	Start in the lower left corner of the unit injector hydraulic pump and tighten tie bolts 4 to a torque of 28 ± 2 N·m 21 ± 1 lb ft in a crisscross pattern.; 8Tighten four nuts in a crisscross pattern to an intermediate torque of 120 ± 20 N·m 90 ± 15 lb ft.	
Critical Compression Ratio		Lowest compression ratio at which any particular fuel will ignite by compression under prescribed test procedure. The lower the critical compression ratio the better ignition qualities the fuel has. (Gasoline engine, 4:1; oil engine, 7:1; diesel engine, 1
Critical Customer Requirement		A CCR is a key measurable characteristic of a product or a process, whose performance standards are dictated by the customer.
critical part characteristic		The dimensions that have a significant impact on the functional performance of a part.
Critical Path		The series of consecutive activities that represents the longest time path through the process.
Critical Pressure		Condition of refrigerant at which liquid and gas have the same properties.
critical Speed		Speeds at which the frequency of the power strokes synchronize with the crankshaft's natural frequency or torsional damper. If the engine is operated at one of its critical speeds for any length of time, a broken crankshaft may result.
critical success factor	CPS enables the Enterprise Strategy built on the foundation of Our Values in Action and 6 Sigma—the Strategic Area of Improvement (SAI): Order-to-Delivery and Critical Success Factors (CSFs): PEOPLE, QUALITY, VELOCITY, and TROUGH (Cost).	
Critical temperature		The critical temperature is the temperature in any specific steel composition at which the austenitic phase change begins or is completed (for a specific rate of heating or cooling).
Crocus Cloth		A very fine abrasive polishing cloth.
cross	A cross is similar to a tee, except that it allows three components to connect to the same supply line.	

Cross Current Compensation		Method of controlling the reactive power supplied by generators in a paralleling system so that they equally share the total reactive load on the bus, without significant voltage droop.
Cross Section View	Illustration shows the Cross Section View of a road design, with the design surface selected as the working surface, and with no vertical offset applied.	
cross sensing control	In order to maintain the engine horsepower to the pumps at a constant rate, the pump regulators receive average delivery pressure of the drive pump and the idler pump through the cross sensing control.	
cross slope	Manually adjust the cross slope of the blade so that the cutting edge is parallel to the laser plane.	
cross slope guidance	To set up blade slope or cross slope guidance, complete the following steps:	
cross-hair	Use the arrow keys in order to move the cross-hairs around the screen.	
crossover relief valve	Oil is leaking from the steering crossover relief valve.; Location of the crossover relief valve	
Crowfoot Socket	Crowfoot Socket (3/8 inch)	
Crowfoot wrench		Crowfoot wrench is a wrench end, such as an open end or box end, that has a square hole to fit onto the square drive.
Crude Oil		Petroleum as it comes from the well (unrefined).
Crush		A deliberate distortion of an engine's bearing shell to hold it in place during operation.
Crush Hazard	Crush Hazard (6)	
Cryogenic Fluid		Substance which exits as a liquid or gas at ultra-low temperatures (-250° F or lower).
Cryogenics		Refrigeration which deals with producing temperatures at -250° F and lower.
Crystal planes		Crystal planes are planes along which atoms are arranged in crystals of metal.
Crystalline		Crystalline materials have the appearance of grains on their surface.
Cultural System		It makes change possible and improves the way we work.
cup plug	D Installation depth of the cup plug in the rocker arm shaft	
Current		A flow of electric charge and the rate of such a flow measured in amperes.
Current Transformer		
Custom Alarm Module		

Customer Communication Module		Apparatus which allows users of electronic engines to monitor up to eight Cat power systems remotely, perform system diagnostics, and receive parameter readouts in real time.
customer data box	Adding Customer Data Box containing demand by model or part	
Customer Interface Module		A device which decodes Cat electronic engine monitoring information and provides a link to remote alarms and annunciators.
Customer Support Agreement		
Cut-In Pressure	The compressor continues to idle until the pressure in the system falls below the cut-in pressure of the unloader valve. Brake Operation below Cut-In Pressure	
Cutoff Pressure	Charge the compressed air system until the unloader valve reaches the cutoff pressure. Cutoff Pressure	
cut-off shoe		(Also called cut-off plate) (for VIP screeds)
Cutoff spring	Pressure compensator spool 14 is forced to the right during normal operation by cutoff spring 15. 20 Cutoff spring.	
cutout pressure	Run the engine until the brake accumulators reach the cutout pressure (less than 30 seconds).; This is the cutout pressure of the brake accumulator charging valve.	
cutting blade		CUTTING BLADE: a chopper knife, as in a chopper blade; knife blade Note: DO NOT USE 'blade' alone to mean 'the rubber squeegee on a windshield wiper', for example windshield wiper blade or wiper blade
cutting edge	The cutting edges should be inspected for signs of wear and for signs of fatigue. The cutting edges at each cable strap 2 shall not be allowed.	
cutting machine		Cutting machines either cut pieces of material into individual pieces or cut out shapes and/or contours into a piece of material. the tool held in a machine tool that is used to cut material from the part being machined. Examples include drills, taps, carbide insert holders, and grinding wheels. They are commonly referred to as perishable tooling.
Cutting tool		Surface hardening by carbon and nitrogen absorption of an iron-base alloy article or portion of it by heating at a suitable temperature in contact with a cyanide salt, followed by quenching.
Cyaniding		

Cycle Efficiency		A measure of relative efficiency in a production system. Represents the percentage of value-added time (changing form, fit, function) of a product through the critical path versus total cycle time (TCT).
cycle time		The total time required to complete one complete cycle on a given production resource. How often a part or product is completed by a process, as timed by observation. This time includes operating time plus the time required to prepare, load and unload. Different cycle times can include machine cycle time, operator cycle time, order-to-cash time, processing time and production lead time.
Cycle Time Interval		The frequency that a particular item is made during a set period of time (typically in days).
Cycles Per Second		
Cyclic Irregularity		A nondimensional ratio describing the degree of crankshaft twist occurring between two successive firings of cylinders of an engine during steady-state operation. Cyclic Irregularity = rpm (maximum) -rpm (minimum) / rpm (average)
Cyclic loading		Cyclic loading is the repeated loading of various magnitudes that parts typically see in service.
Cyclic overload		Cyclic overload is repeated loading at a magnitude greater than the design stress for a part.
cylinder	If Cat ET indicates a problem, remove the electronic unit injector from the suspect cylinder and install a new electronic unit injector.[KPNR5342-05.rtf]	a long circular chamber containing a piston which is driven by exploding gases, as in a combustion cylinder;DO NOT USE 'cylinder' alone to mean 'a long circular chamber containing a piston which drives fluid', such as a pump cylinder or cylinder type pump; 'a long circular chamber which collects fluid', such as an accumulator cylinder, or 'a long bottle for holding gases or dry fire suppression chemicals under pressure, such as a nitrogen cylinder or an ether cylinder
cylinder barrel	The oil then flows through passage 13 in valve plate 19 and passes through passage 20 in cylinder barrel 24.	
cylinder block	Use Tooling A in order to remove idler shaft 8 (not shown) from the cylinder block.[KPNR8106-01.rtf]	
cylinder bore	Put clean engine oil on the crankshaft journals and on the inside of the cylinder bores.[KPNR8106-01.rtf]	
cylinder cutout test	Perform the Cylinder Cutout Test on Cat ET in order to identify any injectors that might be misfiring.[KPNR5342-05.rtf]	

cylinder head	Plug the apertures for the push rods in the cylinder head in order to prevent the entry of loose parts into the engine.[KPNR8106-01.rtf]	
cylinder head assembly	Remove nuts 1, the spacers, and the washers that secure exhaust manifold 2 to the cylinder head assembly.[KPNR8106-01.rtf]	
cylinder head bolt	Loosen cylinder head bolts 6 in the sequence that is shown in Illustration .[KPNR8106-01.rtf]	
cylinder head gasket	A cylinder head gasket is used between the plate and the head in order to seal combustion gases, water, and oil.[KPNR6741-05.rtf]	
cylinder head thickness	Cylinder Head Thickness Thickness of a new cylinder head 120,00 ± 0,15 mm 4,724 ± 0,006 inch Minimum thickness of a used cylinder head 119,50 mm 4,705 inch	
Cylinder Hone		A tool used to bring the diameter of a cylinder to specification and at the same time smooth its surface.
cylinder liner	Use the following procedure in order to remove the cylinder liners from the engine cylinder block.[KPNR8106-01.rtf]	a sleeve in a bore, such as a cylinder liner, bronze liner, or service liner; DO NOT USE 'liner' alone to mean 'the inner surface of a head (a head liner)'
cylinder liner bore	Clearance between the ends of the piston ring in a cylinder liner bore of 110 mm 4,3 inch ; Increase in the clearance between the ends of piston ring for each 0,03 mm 0,001 inch increase in the cylinder liner bore	
cylinder liner projection tool group	Use the Liner Projection Tool Group 8T-0455 in order to measure the piston height above the cylinder block.[KPNR6741-05.rtf]	
daily vibration exposure	The expected vibration levels can be estimated with the information in Table in order to calculate the daily vibration exposure.	
Dalton's Law		Vapor pressure exerted on container by a mixture of gasses is equal to sum of individual vapor pressures of gasses contained in mixture.
dampening function	A dampening function is built into the travel pilot control valve which allows the operational speed of the travel lever/pedal to correspond to the movement of the operator's foot.	
Damping capacity		Damping capacity is the rate at which a material dissipates energy of vibration.

dash	If the selected dash size and hose type is not a valid combination, the Invalid Dash Type screen is displayed.	a mark that is a short, horizontal line
dash light option loop receptacle	With the battery disconnect switch in the ON position, 24 volt power is supplied from the batteries via circuit breaker #1 and circuit breaker #2 to the head light switch and via circuit breaker #6 to the dash light option loop receptacle.	
dash number	Use the arrow keys to select hose size by dash number.	
dash panel	The service connector is located on the right side of the dash panel.; As an example, a dash panel light or an alarm will provide information to the operator of the vehicle.	
data acquisition system	Mapping and Productivity Data Acquisition System	
data card	Additionally, the configuration file can be placed on the root directory of the data card.	
data card slot	12Data card slot	
data event	Data events are logged by the ECM and data events are viewed by using a service tool.	
data link	If the diagnostic connector is on the engine, the positive data link signal will be from P2-21 to pin D of the diagnostic connector.[KPNR5342-05.rtf]	
data link connector	Connect the electronic service tool to the data link connector.	
data radio	Move away from obstructions and make sure that the data radio is working.	
data radio link	In order to view detailed diagnostics about the GPS receiver and data radio link, press the GPS soft key.	
DC	The alternating current passes through the diodes of the rectifier bridge and the alternating current is then converted into direct current (DC).[KPNR6741-05.rtf]	Direct Current
DC electric control system	The DC electric control system has the capability to record information from the torquing operations and links them to the actual part. This provides product traceability and is very useful in assuring product quality.	

DC electric tools		DC electric tools are electric drive torque tools that use an electronic controller to control applied torque. Because this tool is electronically controlled, the operator cannot over-torque or under-torque the fastener. DC Electric tools are the most acc
Dead Bus		The de-energized state of the power connections between outputs of paralleled generator sets.
Dead Center		Either of the two positions when the crank and connecting rod are in a straight line at the end of the stroke.
Dead Engine Lower	Use the dead engine lower switch and the hook control lever to lower the hook load line with a dead engine. Pilot Oil Accumulator (Dead Engine Lower) - Test and Charge; For additional information on testing the valve for the dead engine lower, refer to Testing and Adjusting Pilot Oil Accumulator (Dead Engine Lower) - Test and Charge.	
Dead Front		A term to used to describe the lack of accessibility of bare connections or apparatus on the panel face of controls or switchgear.
Dealer & Service Support Dealer & Service Support Group Dealer & Service Support Group President Admin		
Dealer Administrator	EquipmentManager will send an e-mail to the Dealer Administrator of your Dealer's Web site.	
dealer solution network	The Dealer Solution Network provides a process and tools to address unique events and restore machine functionality.	
deburr, to		Deburring is a manufacturing process to remove sharp metal slivers from the edges of a part.
Decarburization		Decarburization is the depletion of carbon from the steel surface as a result of heating in an atmosphere, which reacts with the carbon on the metal surface.
Deceleration		Opposite of acceleration; that is, implying a slowing down instead of a speeding up. Also called negative acceleration.
Decreased Reaction time	Effects of Fatigue is decreased reaction time	
Dedendum		The dedendum is the portion of a gear tooth between the pitch line and the root of the tooth.
Dedicated Dual Direction Control Kit	Your machine may be equipped with a Dedicated Dual Direction Control Kit.	

de-energise, to	The lubrication pump should stop and after a five second delay vent solenoid valve 10 will de-energise and the digital display on electronic control 9 will indicate a complete cycle.	
Defects per Million Defense & Federal Products Defense & Federal Products PC		$(\text{Defective mm}) / (\text{Total mm checked}) \times 1M$
Deferrable or Scheduled Loads		Loads which can be disconnected for extended periods of time and restarted later without a great effect on a facility's operation. Delaying energy use to a time of lower demand is effective in minimizing peak demand.
Deglazer		A tool used to remove the glaze from cylinder walls.
Degree-Day		Unit that represents one degree of difference from given point in average outdoor temperature of one day and is often used in estimating fuel requirements for a building. Degree-days are based on average temperature over a 24-hour period. As an example, i
Dehumidifier		Device used to remove moisture from air in enclosed space.
dehumidify, to		To remove water vapor from the atmosphere. To remove water or liquid from stored goods.
dehumidifying effect		The difference between the moisture contents, in pounds per hour, of the entering and leaving air, multiplied by 1.060.
dehydrate, to		To remove water in all forms from matter. Liquid water, hygroscopic water, and water of crystallization or water of hydration are included.
Dehydrated Oil		Lubricant which has had most of water content removed (a dry oil).
Dehydration		The removal of water vapor from air by the use of absorbing or absorbing materials; the removal of water from stored goods.
delay time	The delay time can be changed with the ride control equalization pressure time parameter of the Caterpillar Electronic Technician (ET).	
delay time sequence	The electronic control uses a signal from lubricant pressure switch 5 to switch between the pump on time sequence and the delay time sequence.	
delay time switch	8DSW1 delay time switches	
delay timer assembly	The engine start switch must be in the ON position, and the air conditioning switch must be activated in order to diagnose a faulty on delay timer assembly for the refrigerant compressor.	

Delayed Cracking	The chance of Delayed Cracking is minimized when a residual temperature is maintained.	See Hydrogen embrittlement.
delivery line	Install seal 42, half flanges 48 and blocking cover 17 to the end of delivery line 12 by using bolts 46 and washers 47.	
Delta Connection		The connection of the three windings of a generator into a triangular or delta configuration. Most commonly used by utility companies. Has no neutral point.
Delta-T		The temperature rise of the engine coolant from the jacket water pump inlet to the engine coolant outlet.
demand fan	Disconnect the solenoid for the demand fan before testing.; The demand fan solenoid is stuck.	
demolition application	Serrated edges on the stick provide improved material clamping for clearing and demolition applications.	
Dendrite		A dendrite is a crystal with a treelike branching pattern. Dendrites are most evident in cast metals slowly cooled through the solidification range.
Density		Density is the mass per unit volume of a material.
Deployment Champion		Individual at the business-unit level who is responsible for coordination of appropriate resources, removing barriers to the team's progress and championing overall CPS deployment within the unit.
Depth micrometer	8 Depth micrometer.	Measuring device
Depth of Engagement		The depth of a thread in contact with two mating parts measured radially. It is the radial distance by which their thread forms overlap each other.
Depth of field		Depth of field is the total depth that an image can be maintained in focus in a microscope.
derate, to	Maximum pressure of the derate of the F2 valve[RPNR7389-09.rtf]	to lower the horsepower of an engine; technical term
De-Scaling		The main finishing process is called de-scaling. In this process, the scale formed or deposited on a forged part is removed.
De-Scrambler		The de-scrambler destacks and loads the bars, one at a time inot the shearing process.
Descriptive Code	The Releasing System provides an assortment of information.This includes descriptive code.	

Descriptive Data	Using the engineering drawing and product specifications found in the notice releasing enters the part number, name, material code, source code, source of supply, make or buy, engineering change number into Releasing system. This information is establishe	
design review		A proactive process to prevent problems and misunderstandings.
Design Voltage		The nominal voltage for which a line or piece of equipment is designed. This is a reference level of voltage for identification and not necessarily the precise level at which it operates.
destroke position	Main pump regulator in the DESTROKE position	
Destruction Efficiency Detect	Cat MineStar System Component	
Detergent		A compound of a soap-like nature used in engine oil to remove engine deposits and hold them in suspension in the oil.
Deutsch socket	Install a jumper wire with Deutsch sockets on each end into P2-25.[KPNR5342-05.rtf]	
Dew Point		Temperature at which vapor (at 100 percent humidity) begins to condense and deposit as liquid.
Diagnosis		In engine service, the use of instruments to troubleshoot the engine parts to locate the cause of a failure.
diagnostic code	If an open circuit is detected in the solenoid circuit, a diagnostic code is generated.[KPNR5342-05.rtf]	
diagnostic connector	The Electronic Technician connects to the machine's diagnostic connector.[RPNR7389-09.rtf]	
diagnostic function	The following list contains some of the diagnostic functions and programming functions that are performed by the service tools.	
diagnostic service codes	There are NOT any other recorded diagnostic service codes.	
diagnostic service tool connector	Connect the communications adapter and the computer to the diagnostic service tool connector.; Diagnostic service tool connector 1 is located on the right side of the front dash.	
diagnostic test	Select the Wiggle Test from the diagnostic tests on Cat ET.[KPNR5342-05.rtf]	
dial bore gauge	Refer to Special InstructionGMG00981 for the instructions that are needed to use the dial bore gauge.[KPNR6741-05.rtf]	
Dial Bore Gauge Group	Dial Bore Gauge Group	

dial indicator	Install a dial indicator and rotate idler gear 2 back and forth in order to measure backlash.[KPNR8106-01.rtf]	
Diamond indenter		A diamond finished to a specific shape that is used in hardness testing. Typically, a diamond indenter of a specific shape, with a specific force is applied for a specific time to the test material and then the hardness value is determined by measuring th
Diaphragm		Any flexible dividing partition separating two compartments.
Die		A thread-cutting tool.
Die Code	Stamp Related Issues refers to a condition, when the stamped text is not clear enough for reading. The stamp conveys information on die code	Code of a tool for cutting or crimping.
Die Lube	Underfill refers to a condition, where there is not enough material formed in the right locations and contours of the part. This is caused by improper billet placement and puddling of die lube.	
Dielectric		A nonconductor of direct electric current.
Diesel Engine		A type of internal combustion engine that burns fuel oil; the ignition is brought about by heat resulting from air compression, instead of by an electric spark, as in a gasoline engine.
Diesel Engine Antifreeze/Coolant	If the Diesel Engine Antifreeze/Coolant (DEAC) is dirty or if you observe any foaming in the cooling system, drain the coolant before the recommended interval.	
Diesel Engine Oil	Special PublicationPEHP5026Product Data Sheet for Caterpillar Diesel Engine Oils (DEO), CG-4 engine oils and CF-4 engine oils (North America and selected International markets)	
Diesel Engine Oil-Ultra Low Sulfur	Cat DEO-ULS (Diesel Engine Oil-Ultra Low Sulfur)	
Diesel Index		A rating of fuel according to its ignition qualities. The higher the diesel index number, the better the ignition quality of the fuel.
differential bevel gear	differential bevel gear 4	
Differential case	8 Differential case.	
Differential Fuel Pressure		The gas pressure supplied to the carburetor of a spark ignited engine minus the carburetor inlet pressure.
differential lock control	Do not engage the differential lock control while a wheel is spinning.	
Differential Pressure Fuel Valve		A closed fuel valve with a needle or spindle valve which seats onto the inner side of the orifices. The valve is lifted by fuel pressure.

differential pressure sensor	95-3 Fuel Filter Differential Pressure Sensor :[KPNR5342-05.rtf]	
Differential Protection Line		Leads pass through current transformers for the purpose of sensing current imbalance between line-leads.
Diffusion		Diffusion is the process by which atoms can migrate as a result of their random thermal motion from regions of higher concentration to regions of lower concentration to homogenize a liquid, solid or gaseous solution.
Digital		A numeric value representing the value of an engine performance characteristic.
digital multimeter	Use a digital multimeter in order to check the continuity or the voltage.	
Digital Pressure Indicator	Digital Pressure Indicator	
Digital Voltage Regulator		A microprocessor-based unit which regulates voltage output of a generator.
dimensional check		These are checks done on the forged parts to verify the dimensions of the parts to maintain required symmetry.
Dimensional inspection	Surface hardness check is the most commonly inspection method. It involves the following steps: Dimensional inspection is performed on the samples to ensure that they conform to the blueprint specifications.	
Diode		A device which allows current to pass but only in one direction.
Diode Fault Detector		A device that detects a faulty diode.
diode laser	One of the major types of LASERS.	
Dip and Bake		The process of treating a wound electrical element with varnish to provide protection/insulation, and to secure the winding insulation in place.
Dipstick		A device to measure the quantity of oil in the reservoir.
direct current	The alternating current passes through the diodes of the rectifier bridge and the alternating current is then converted into direct current (DC).[KPNR6741-05.rtf]	
direct drive	The integral lock-up clutch allows the machine to operate in converter drive for greater rimpull, or direct drive for high efficiency hauling and faster travel speeds.	
Direct Expansion Evaporator		An evaporator coil using a pressure-reducing device to supply liquid refrigerant at the correct boiling point for heat absorption into the refrigerant.
Direct hardening		See Quenching and tempering.
direct injection fuel system	Direct injection fuel system	

direct injection piston	The direct injection piston uses a special shape on the top surface in order to help combustion efficiency.[KPNR6741-05.rtf]	
Direct Injection Series Turbocharged-Aftercooled Direct Injection Turbocharged Direct Injection Turbocharged-Aftercooled Direct Injection Turbocharged-Aftercooled — Jacket Water Direct-cooled Piston Disassembly and Assembly		Dual Turbo
disassembly and assembly manual	Service Manual	
disassembly procedure	Before you begin the disassembly procedure, the exterior of the components should be thoroughly cleaned.[KPNR8106-01.rtf]	
discrete-event simulation		A mathamatecialy based simulation designed to study the interaction of a series of statistically
DISENGAGED position	Move switch 42 to the DISENGAGED position.	
Dishing		Dishing is a type of engine valve damage where the head of the valve has become concave like a dish. In a single-acting engine, the volume swept by all pistons in making one stroke each. The displacement on one cylinder in cubic inches is the circular area (in square inches) times the stroke (in inches) times the number of cylinders.
displacement volume		
Display Area	Display Area Of Caterpillar Monitoring System	
display configuration file	Make sure that there is a Data Card inserted in the Display with a display configuration file.	
disposal	Obey environmental regulations for the disposal of asbestos.	the act or process of discarding or throwing away
Distilling Apparatus		Fluid reclaiming device used to reclaim used refrigerants. Reclaiming is usually done by vaporizing and then recondensing refrigerant.
distorter	Seal Distorter[KPNR8106-01.rtf]	technical term
Distortion		Distortion is a change in the shape of a part due to the action of mechanical forces.

distribution center	Supply Chain Management (SCM) can be defined as "the management of materials and information as they move in a process from supplier to manufacturer to other Caterpillar facilities, distribution centers, or dealers".	
Distribution Circuit Breaker		A device used for overload and short circuit protection of loads connected to a main distribution device. May include automatic transfer switches, circuit breakers, fusible switches, or molded case breakers. This equipment distributes utility or generator power to the site electrical loads.
Distribution Switchgear		
Distribution Time	Additional elements of lead time can be established at the part number level within MRP. Example of lead time is distributon time	
Ditch Cleaning Bucket	Ditch Cleaning Bucket	
Diversified Power Products		
Diversified Products Admin		
diverter valve	The diverter valve is a two-position, four-way directional valve. Refer to Disassembly and AssemblyDiverter Valve (Secondary Steering) - Remove.	
Division Plate		A diaphragm surrounding the piston rod of a crosshead-type engine, usually having a wiper ring to remove excess oil from the piston rod as it slides through. It separates the crankcase from the lower end of the cylinder.
Dog-Leg		A colloquialism applied to the shape of a torque curve which has been modified to provide a steep torque rise at a speed just above the full load point to prevent excessive shifting of transmissions.
Double Acting		An actuator producing work in both directions.
double acting cylinder	The screed uses one double acting cylinder to move each extender.	
Double Check question		The Double Check question is a question designed to prompt a review of the facts found in a failure analysis to determine whether there are any other events or possible root causes that may have been overlooked.
Double Flare		A flared end of the tubing having two wall thicknesses.
double-throw switch	The autodig trigger switch is a single-pole, double-throw switch that is connected to two inputs of the ECM.; Autodig trigger switch 1 is a single-pole, double-throw switch that is connected to two inputs of the ECM.	

dowel driver	Look at the floor, tools, machine guarding, electrical cords and outlets, ladders and steps to find things that you think are a hazard to your employees. These are the easiest observations to make. In the picture at the right, we see the mushroomed head o	tool used to push or move another object.
dowel hole	Make sure that the dowel is against the bottom of the dowel hole.; Peen the housing in order to close up half of the dowel hole.	
dowel pin	Remove dowel pin 8 and stand 9 from the rocker shaft.; Install stand 9 and dowel pin 8 on the rocker shaft.	
dowel rod	Tap the dowel rod with a plastic hammer in order to remove spring 9, poppet 8 and seat 7 from the head.	
down key	Within the CONTROL VALVE menu, press the down key 6 in order to highlight A2 VALVE EXTEND.[RPNR7389-09.rtf]	
Down-Draft		A type of carburetor in which the fuel-air mixture flows downward to the engine.
DOWNWARD position	The pilot oil will shift the spool in the auxiliary control valve to the DOWNWARD position.[RPNR7389-09.rtf]	
Dozer Blade Float Function	Dozer Blade Float Function	
drag out, to		MWF lost from a sump because it clings to chips & swarf and is dragged out of the sump when they are removed. Must be replaced with water and MWF concentrate. Note that evaporation, which also occurs, must be replaced with water but does NOT require add
drain plug	Remove the drain plug in the bottom of the output transfer gear case in order to drain the oil from the transmission.; 9Torque for the drain plug	
drain port	The case drain oil from the swing motors returns through drain port 12 of motor head 3 to the hydraulic tank.	
drain valve knob	After the oil has drained, turn the drain valve knob clockwise in order to close the drain valve.	
draw bar hitch	Draw Bar Hitch	
Drawbar Horsepower		Measure of the pulling power of a machine at the drawbar hitch point.

Draw-Out Relay		An AC protective relay that is door mounted, and can be removed from its case without disturbing the wiring to the case, or interrupting the connected circuits. This allows for easy testing and calibration of the relay.
Draw-Out Unit		A structure that holds a circuit breaker in an enclosure. It has a movable carriage and contact structures that permit the breaker to be removed from the enclosure without manually disconnecting power cables and control wires.
Dribbling		Unatomized fuel running from the fuel nozzle.
Drier		A substance or device used to remove moisture from a refrigeration system.
Drill Press		A fixed machine to drive a tool in rotary motion.
drip pan	Floors can get slippery and there are many low hanging pipes and drip pans that you can strike your head against	
drive belt	Inspect the drive belts for the fan.[KPNR6741-05.rtf]	
Drive Flange		Presses on shaft of revolving field rabbit pilot and mounting bolt pattern for mounting to engine drive discs.
drive gear	Align the 3 Mark on fuel injection pump drive gear 2 with the 33 Mark on idler gear 3 by rotating the engine.[KPNR8106-01.rtf]	
drive plate	18Eccentric drive plate; The variable piston pump uses an angled drive plate which rotates.	
drive pump	The average delivery pressure of the drive pump and the idler pump PM combines with the power shift pressure PS in order to control the movement of pilot piston 42 and spool 41.	
drive shaft	Drive shaft 21 of drive pump 13 is connected to the engine by a coupling.	
drive shaft yoke	Remove eight bolts 6 that hold brake drum 3 on to the drive shaft yoke.; Install eight bolts 6 that hold brake drum 3 on to the drive shaft yoke.	
drive slot	Be sure to align the drive tang of the fuel transfer pump to the drive slot in the end of the pump shaft.	
drive sprocket housing	The drive sprocket housing, ring gears, and the cover are supported by bearing 8.	
drive standard work	Refuse to implement the improvement as it goes against the Drive Standard Work guiding principle.	Standardize safety measures and tasks; utilize common safety measures as foundation for continually improving safety

drive tang	Be sure to align the drive tang of the fuel transfer pump to the drive slot in the end of the pump shaft.	
drive train stress	Built to withstand the forces of high torque and impact loads, double reduction final drives provide high torque multiplication (19.16:1) to further reduce drive train stress.	
Drive-fit		A fit between two components, whose tolerance is so small that the two parts must be pressed or driven together.
driven gear	Replace the drive gear and driven gear as an assembly.[KPNR6741-05.rtf]	
Droop		Also: Speed Droop. The decrease from no load speed to full load speed when full load is applied to a generator set, expressed as a percentage of the full load speed.
Droop Load Sharing		A method of making two or more parallel generator sets share a system kW load. This is accomplished by having each governor control adjusted so that the sets have the same droop (reduction of speed).
drop-forged		Formed by hammering or forced into shape by heat.
Drop-Zone		A resting area for material prior to being placed on the conveyance.
drum		The drum is the cylindrical member around which the cable is wound for raising or lowering the load.
drum edge	Visibility to the drum edges provides the operator with complete control when working near objects.	Vibratory Compactor.
drum interlock/brake valve	The interlock solenoid for the drum interlock/brake valve is located on the drum propel pump.	Vibratory Compactor.
drum slope sensor	In order to maintain the accuracy of the system, the drum slope sensor must be calibrated regularly.	Vibratory Compactor.
Dry Bulb Temperature		Air temperature as indicated by an ordinary thermometer.
Dry Bulb thermometer		
Dry Cell		Also: Dry Battery. A battery that uses no liquid electrolyte.
Dry Sleeve		A cylinder sleeve (liner) where the sleeve is supported over its entire length. The coolant does not touch the sleeve itself.
Dry-Charged Battery		A battery in a precharged state but without electrolyte. The electrolyte is added when the battery is to be placed in service.
Dual Amplitude	Dual Amplitude and Dual Frequency Vibratory System	
Dual Element		Number of elements in an assembly, especially filters.
Dual Frequency Vibratory System	Dual Frequency Vibratory System	

Dual Fuel		A term used to describe an engine which starts on one type of fuel and runs on another type.
Dual inlet single core		
Dual Mast System	Laser Transmitter Setup Information (Dual Mast System)	
Dual outlet single core		Refers to a radiator or aftercooler that has only one core, two inlets, and two outlets.
dual slope surface	The AccuGrade Laser System is designed for fine grading of sites with flat, single or dual slope surfaces.	
dual valve		Refers to cylinders having two valves performing one function, e.g. two intake valves, two exhaust valves.
dual voltage	Shown with an Electronic Modular Control Panel 3 (EMCP 3) control panel for dual voltage	The term used to denote 10-lead machine — 240/480, 300/600.
Ductile		A material is ductile if it is capable of permanent plastic deformation prior to eventual fracture.
Ductile cast iron		Ductile cast iron is cast iron that contains graphite in spheroidal form. Ductile cast iron may also be called nodular iron, spherulitic iron or S.G. iron.
Ductile fracture		Ductile fracture is a type of fracture characterized by tearing of metal accompanied by appreciable gross plastic deformation and expenditure of considerable energy.
Ductile material		A ductile material is one possessing the characteristic of ductility.
ductility	The process of annealing is used to increase the ductility of metals.	Ductility is the ability of a material to deform plastically without fracturing.
dump body	On machines equipped with a dump body maintain the hydraulic oil level above the ADD COLD mark in upper sight gauge 2 when the dump body is fully lowered.	
dump control lever	Dump Control Lever	
dump cycle	During load cycles, haul cycles and dump cycles, manual shifting is not recommended.	
dump height	Dump height at Full Lift	
dump position	When the tilt linkage is at the full dump position, the duty cycle should never be below 10 percent.	
dump rate control	Tilt kickouts, dump rate control, FRAC, and dump stop snubbing will not operate.; dump rate control	
Dump Stop Snubbing	Dump Stop Snubbing is a feature in the software that keeps the lift arms from being retracted by a dumping motion.; Dump Stop Snubbing is an option that is available to the operator.	

dump valve During the calibrations for the lower and the dump valve, a 30 second drift check will be performed.

Duo-Cone seal Use Tooling G in order to install Duo-Cone seal 29 in motor housing 28.

Duo-Cone Seal Installer Duo-Cone Seal Installer

dust seal Make sure that the grooves for the dust seal in the swing gear and bearing are thoroughly clean and dry prior to installation of the dust seals.

duty cycle This signal is a PWM signal (duty cycle) that has a variable width and a constant amplitude.

Duty Cycle Signal Duty Cycle Signal as a Function of Control Lever Position;
Duty Cycle Signal as a Function of the Joystick

Dynafluid

Dynafluid was an industrial automation systems manufacturer that designed systems for many Fortune 500 companies including Coca Cola, General Electric, Alcoa, Ford, Chrysler, and others
Condition when the weight mass of a revolving object is in the same plane as the centerline of the object.

Dynamic Balance

dynamic operator sound pressure level

The dynamic operator sound pressure level is 79 dB(A) when ISO 6394:1998 is used to measure the value for an enclosed cab.

Dynamic Pressure

The pressure of a fluid resulting from its motion, equal to one-half the fluid density times the fluid velocity squared. In incompressible flow, dynamic pressure is the difference between total pressure and static pressure.

Dynamic torque

Dynamic torque is the torque applied to the fastener as it is being tightened. It represents the torque necessary to keep the fastener in motion. It must overcome the thread friction and head friction and create the tension in the bolt that is required to

Dynamometer

A device for absorbing the power output of an engine and measuring torque or horsepower so that it can be computed into brake horsepower.

Dynamometer Test
EAME - PDOD Admn.
EAME - PDOD Admn. PC
EAME Marketing
EAME Marketing PC

Dynamometer Test

Earmuffs

Earmuffs are another type of hearing protection device.

A pair of pads connected to a band that cover the ears. Protection against noise.

Earthmoving Compactor	Earthmoving Compactor	
Ebullient Cooled Engine		An engine cooled by boiling water. The cooling is accomplished by turning water into steam. The latent heat of evaporation absorbed in this process cools the engine.
Ebullient System		A type of high temperature heat recovery system. Also known as solid water system.
eccentric weight housing	The oil level in the eccentric weight housing is too high. Refer to Machine Electronic ControlKENR5924 for more information on E-ceiling and E-fence.	
e-ceiling		reference to electronic boundary for operating height of boom on Excavators
ECM	The Engine Control Module (ECM) monitors the components of the engine during operation.[KPNR6741-05.rtf]	electronic control module
ECM connector	Perform a 45 N10 lb pull test on each of the wires in the sensor connector and the ECM connector that are associated with the active diagnostic code.[KPNR5342-05.rtf]	
ecology drain valve	Ecology drain valve for Engine	Drain valve for environmentally friendly oil changes.
Economizer		A device installed in a carburetor to control the amount of fuel used under certain conditions.
Edge Filter		A filter which passes liquid between narrowly separated disks or wires.
e-fence	Refer to Machine Electronic ControlKENR5924 for more information on E-ceiling and E-fence.	reference to electronic boundary for operating distance of boom for Excavators
Eight Steps of Applied Failure Analysis		"Eight Steps of Applied Failure Analysis" is a methodology based on finding facts, determining events and constructing a time line to determine the most probable root cause for a failure.
ejector blade	The clearance of the ejector blade should be checked periodically in order to prevent excessive wear.	
ejector body	Eject the ejector body and retract the ejector body.	
Elapsed Time Meter		Totals the hours of generator set operation.
Elastic deformation		Elastic deformation is deformation below the elastic limit so that no permanent strain remains after the load is removed.
Elastic Limit		The greatest stress which a material is capable of developing without a permanent deformation remaining upon complete release of the stress.
elbow	An elbow is used to connect a hose or tube to a machine component where a straight-in connection is not possible.	

Electric arc furnace		An electric arc furnace is a type of furnace used to melt metal where the scrap (or other ferrous material) is heated by passing an electric current through electrodes that form an arc with each other or with the metal in the furnace.
electric direct drive torque tool	An electric direct drive torque tool uses an electric motor to create the torque required to tighten a fastener. To prevent over-torquing, it contains a clutch that disengages the motor when its set torque value is reached. Electric direct drive tools can	
electric discharge machine		Electrical discharge machines (EDM) remove metal from a workpiece by using a series of electric sparks to erode material.
electric foot pedal	The procedure for machines that are equipped with an electric foot pedal is accomplished in the same manner.[RPNR7389-09.rtf]	
electric fuel priming pump	After 90 seconds of the electric fuel priming pump operation the fuel system will be primed and the electric fuel priming pump will turn off.	
electric hydraulic pump	Electric Hydraulic Pump 8S-8033230 Volt is available.	
electric mast	The following steps show the procedure for mounting a laser receiver to an electric mast on the left side of the blade.	
electric motor	Disconnect cable assemblies 1 and 5 from electric motor 6.; Disconnect harness assembly 2 from electric motor 6.	
electric power	The G3516C 50 Hz generator set equipped with the island mode control system generates power independently from the power grid with a high-efficiency, natural gas-fueled engine for commercial and institutional customers who require exceptionally reliable,	
Electric Power Generation Electric Power Generation Designer Electric Power Marketing		Producing energy through the use of a generator set. A Cat software program which guides Cat dealers and consulting engineers through "specing" and installing generator set packages.
electric rotational actuator	6Electronic rotational actuator	
electric starting motor	Remove nuts 7 and remove electric starting motor 8 and the O-ring seal.[KPNR8106-01.rtf]	
Electrical Condenser		An arrangement of insulated conductors and dielectrics for the accumulation of an electric charge.

electrical connector	Inspect the Electrical Connectors and the Harness[KPNR5342-05.rtf]	
Electrical Hazards	In many heat treat operation areas you will find high voltage cabinets. In some heat treat processes the operator must connect surfaces or terminals that will carry high voltage electricity for their operation	
electrical helmet	Provide electrical protection from high-voltage conductors and falling objects.	Device that is intended to reduce the force of impact from falling objects and to reduce the danger of contact with exposed high-voltage electrical conductors.
Electrical kilowatts with fan		
Electrical Operator		The electric motor-driven closing and tripping (opening) devices that permit remote control of a circuit breaker.
Electrical pitting		Electrical pitting occurs when pits form on the surface of a part as a result of an electric arc between two components.
electrical shock hazard	A strong electrical shock hazard is present if the power is not removed.[KPNR5342-05.rtf]	
Electrochemical		Electrochemical refers to reactions involving combined electrical and chemical action. Deterioration (corrosion) of a metal occurs when an electrical current flows between cathodic and anodic areas on a metal surface.
Electrochemical cleaners		Cleaning fluids are used in conjunction with electrochemical processes to clean parts. The cleaning fluids include, but are not limited to, alkaline solutions, emulsions, solvents, hot vapors, acids, salts, or organic compound mixtures.
Electrode		An electrode is an electrical conductor, usually of metal, that leads current into or out of a solution (electrolyte).
Electro-deposition		The process of immersing parts in a tank of liquid paint. The parts are charged with one polarity and
electro-hydraulic	If the machine is equipped with electro-hydraulic controls, turn the engine start switch key to the ON position before performing the next step.; If the machine is equipped with electro-hydraulic controls, turn the engine start switch key to the ON position before performing step and step .	
Electrolyte		An electrolyte is a liquid, most often a solution that can conduct an electrical current.

Electrolyte Solutions	When a person suffers from heat stroke make him drink water or electrolyte solutions. Electrolyte drinks are good for replacing both water and minerals lost through sweating. □	
electrolytic bath machine		Electrolytic bath machines plate the workpiece (cathode) with a different metal (anode), while both are suspended in a bath containing a water-base electrolyte solution. The metal ions from the anode are discharged under the potential from the external so
Electron beam welding		Electron beam welding is a welding process that uses an electron beam for the heat source. The electron beam is created when a filament of tungsten or tantalum is heated to a high temperature. The kinetic energy of the electrons is converted into heat as
Electronic & Electrical Systems		
Electronic Control Analyzer Programmer		An electronic service tool developed by Caterpillar used for programming and diagnosing a variety of Caterpillar electronic controls using a data link.
electronic control module	A machine Electronic Control Module (ECM) must be configured at the time of installation.[KPNR5342-05.rtf]	
electronic control system	The electronic control system uses a pressure sensor in order to monitor the hydraulic pressure in the head end of the work tool cylinders.[RPNR7389-09.rtf]	
Electronic Hydrostatic Control	The Electronic Hydrostatic Control (EHC) is self-diagnosing and the two separate hydraulic drive pumps are easy to access for serviceability.	
Electronic Ignition System		
electronic key	MSS may be programmed to read a standard Caterpillar key or an electronic key.	
Electronic Modular Control Panel	Shown with an Electronic Modular Control Panel 3 (EMCP 3) control panel for dual voltage	A microprocessor-based feature on all Cat generator sets which provides improved reliability through precise engine control.
Electronic Monitoring System	Electronic Monitoring System (EMS III) features easy-to-read displays for precise machine status information.	
electronic service tool	Use the electronic service tool in order to clear all logged diagnostic codes and then verify that the repair eliminates the fault.[KPNR5342-05.rtf]	
Electronic Speed Switch		
Electronic Technician	Caterpillar Electronic Technician (ET) is a software program that can be used on an IBM compatible personal computer.[RPNR7389-09.rtf]	

electronic unit injection	The Electronic Unit Injector (EUI) provides increased control of the timing and increased control of the fuel air mixture.[KPNR6741-05.rtf]	electronic unit injection
Electronic Unit Injection Fuel Priming Procedure	If the engine does not start after several attempts, refer to Special instruction SEHS95863500 Electronic Unit Injection (EUI) Fuel Priming Procedure or consult your Caterpillar dealer.	
electronic unit injector	The electronic unit injector is no longer capable of delivering the correct amount of fuel.[KPNR5342-05.rtf]	
elevation reference surface	The Sonic Tracer is centered directly over the elevation reference surface	
Elevation Select key	For independent applications, select the side of the blade that elevation will be controlled by pressing the Elevation Select key 3.	
Embedded Stator Temperature Detector		Thermocouple embedded in a generator's stator winding.
EMCC Coordinator	This local change control team provides the MCS releaser and EMCC coordinator and facility information and data to support the restructuring of engineering BOM to the MFG/Procurement BOM.	
emergency stop push button	Prior to restarting the set, the emergency stop push button must be released by turning the emergency stop push button clockwise.	
Emission Guidelines		The maximum amount of a pollutant legally permitted to be discharged from a single source.
Emission Standard		The gaseous products emitted in engine exhaust.
Emissions		Additive that promotes the formation of a stable mixture, or emulsion, of oil and water.
emulsifier		An impervious material to surround and protect an item from the environment.
Encapsulation		
end play	Measure the end play of idler gear 2 with a feeler gauge.[KPNR8106-01.rtf]	
End-Mounted Terminal Box		The latest design on very large generators; 580, 680, and 800 frames; for covering customer line lead connections (bus bars or circuit breakers) and regulator assemblies.
Endothermic	Safe and effective atmospheres and atmosphere control systems utilizes Endothermic	

Endothermic Gas	In some processes, enriching gases are added in the endothermic atmosphere to increase the concentration of desirable elements on the surface. Endothermic gas consists of 40% Hydrogen and 40% hydrogen and 20% carbon monoxide.	
Endotoxin	Endotoxins are produced when bacteria die. These toxins can be serious health hazards.	
end-to-end perspective	It provides end-to-end perspective on a product, service, or business process	
Endurance Limit		A limiting stress, below which metal will withstand without fracture an indefinitely large number of cycles of stress.
energize circuit	The energize circuit of the clutch is shorted to ground.	
Energize To Run		
energize, to	The machine ECM does not energize travel speed solenoid valve 48 and pilot system oil pressure does not flow through pilot line 27 to displacement change valve 12.	to put current through a solenoid or circuit
energized system		A system under load (supplying energy to load) or carrying rated voltage and frequency, but not supplying load.
Energy & Power Systems GP		
Energy & Power Systems GP		
Admin		
Energy Charge		That portion of the billed charge for electric service based upon the electric energy (kilowatt-hours) supplied, as contrasted with the demand charge.
Energy Consumption		The amount of energy consumed in the form in which it is acquired by the user (excluding electrical generation and distribution losses).
Energy Efficiency Ratio		The heat transfer ability of the refrigeration system, expressed in Btu/h, compared to watts of electrical energy necessary to accomplish the heat transfer. This comparison is expressed in Btu/h/Watt of electrical energy.
Engine aspiration		Suction of air into the engine.
engine block	Use the suitable lifting device in order to position cylinder head 5 on the engine block.[KPNR8106-01.rtf]	
engine blowby	Breather 27 allows engine blowby to escape from the crankcase.; The engine blowby is discharged through hose 28 into the atmosphere.	
Engine brake horsepower without fan		

Engine brake kilowatts without fan

engine compartment

Ensure that the filters, air conditioner, and similar items are not installed in a way that prevents the free flow of air through the engine compartment.[KPNR6741-05.rtf]

engine compartment shield

Push hose assembly 2 and hose 3 through the engine compartment shield 4.; Remove bolts 6 and engine compartment shield 4.

Engine Component Systems

engine control module

The Engine Control Module (ECM) monitors the components of the engine during operation.[KPNR6741-05.rtf]

engine coolant

When the engine is at operating temperature, the engine coolant is hot.

engine cooling fan

Make sure that the engine cooling fan is correctly installed.[KPNR5342-05.rtf]

Engine Crankcase Fluid specification

API CH-4, API CI-4, and API CI-4 PLUS oils are acceptable in the C15 Acert Diesel Engine if the requirements of Caterpillar's ECF-1 (Engine Crankcase Fluid specification - 1) are met.

Engine Data System

Engine Electronic Control Module

If these conditions exist for 20 seconds after the engine is started, VIMS will ask the Engine Electronic Control Module (Engine ECM) to stop the engine.

engine enclosure

Refer to Disassembly and Assembly Engine Enclosure (Hood) - Remove and Install.

Engine Forecast Information Center

A web-based tool that supports the creation and calculation of monthly

Engine Front Horizontal

Engine Front Vertical

engine ground

Short the jumper wire that is installed into the P2 ECM connector to engine ground.[KPNR5342-05.rtf]

engine ground stud

Verify that the connection at the engine ground stud is clean and tight and that the battery disconnect switch is functioning properly.[KPNR5342-05.rtf]

engine horsepower

In order to maintain the engine horsepower to the pumps at a constant rate, the pump regulators receive average delivery pressure of the drive pump and the idler pump through the cross sensing control.

Engine Hour Meter	Information From Engine Hour Meter	
Engine Hours	Engine Hours	
engine information plate	The Engine Serial Number must be programmed to match the engine serial number that is stamped on the engine information plate.	
engine lockout control	The lockout mode indicator on the dash panel will illuminate when the machine lockout control or the engine lockout control is activated.	
engine low idle speed	If the engine low idle speed is too low, the alternator may not be producing the required output.	
engine lubrication oil	The HEUI uses engine lubrication oil that is pressurized from 6 MPa875 psi to 28 MPa4050 psi in order to pump fuel from the injector.; The piston that is powered by engine lubrication oil under high pressure pushes on the plunger.	
engine monitoring system	The ECM will generate an event code if a specific engine parameter exceeds an acceptable range that is defined by the engine monitoring system.[KPNR5342-05.rtf]	
engine mounting bolt	Tighten engine mounting bolts 83 to a torque of 530 ± 70 N·m390 ± 51 lb ft.	
Engine Mounting Ring		A rabbet fit ring with mounting holes on end of the stator frame for engine mounting.
Engine News		
engine oil	Tighten engine oil bypass valve 1 to a torque of 69 ± 5 N·m51 ± 4 lb ft.[KPNR8106-01.rtf]	
engine oil bypass valve	Engine oil pressure will be high if the engine oil bypass valves become stuck in the closed position and the engine oil flow is restricted.	
engine oil filter	After the engine oil filter is replaced, a long time may be required before the engine oil pressure will reach the specified level.	
engine oil filter differential pressure	The engine oil filter differential pressure reaches 103 kPa15 psi.	
engine oil pressure	Refer to Disassembly and AssemblyEngine Oil Pressure Sensor - Remove and Install.	
engine oil pump	Tighten engine oil pump relief valve 1 to a torque of 59 ± 10 N·m44 ± 7 lb ft.[KPNR8106-01.rtf]	

engine oil relief valve	When the engine oil relief valve is installed, ensure that all components are clean.	
Engine Order Division Engine Reversing Fan	Engine Reversing Fan (If equipped) The electronic system consists of the ECM, the engine sensors and inputs from the parent machine.[KPNR5342-05.rtf]	
engine sensor		
engine speed dial	Move the engine speed dial to position 10.[RPNR7389-09.rtf]	
engine speed dial indicator	If the programmed value is higher than the engine speed dial indicator, the engine speed will not be raised.	
engine valve lash	In order to check the engine valve lash setting, the engine must be cold and the engine must be stopped.[KPNR6740-04.rtf]	ENGINE VALVES a poppet type valve, such as an intake or exhaust valves or a modulating valve
Engineering Change		A revision to a drawing or design released by engineering to modify or correct a part.
engineering change error		A form used for a revision to a drawing or design released by engineering to modify or correct a part.
Engineering Change File	At the Economic Lot Size/Order event, the order sizes are calculated using the entire list of information gathered so far.Using this information Engineering change data, MRP determines the economic lot size in case of worked parts, or economic order quant	
Engineering Model		A unique identifier used primarily to differentiate Caterpillar machines and engine models.
Engineer-to-order		Products with customer specifications that require unique engineering design, significant customization or new purchased materials. Each customer order results in a unique set of part numbers, bills of material and routings.
Enriching Atmosphere	In some processes, enriching gases are added in the endothermic atmosphere to increase the concentration of desirable lements on the surface.	
Enterprise Resource Planning		Business management system that integrates all facets of the business, including planning, manufacturing, sales and marketing. As ERP methodology has become more popular, software applications have emerged to help business managers implement ERP in business activities such as inventory control, order tracking, customer service, finance and human resources.

Enterprise Strategy	CPS enables the Enterprise Strategy built on the foundation of Our Values in Action and 6 Sigma—the Strategic Area of Improvement (SAI); Order-to-Delivery, and Critical Success Factors (CSFs); PEOPLE, QUALITY, VELOCITY, and TROUGH.	
Enterprise Velocity Council	The MRC Initiative is part of the Push-to-Pull initiative developed by the Caterpillar Production System Division (CPSD) to support Enterprise Velocity Council deliverables.	
Environment, Health and Safety		Environmental Health and Safety.
Environmental Hazards	Environmental hazards are the risks associated with the conditions you work in, such as high traffic zones, effects of temperature and general housekeeping	
Environmental Impact Statement		
Environmental Protection Agency	The Environmental Protection Agency has determined that a DPF that has a reduced volume may be installed in a vehicle if the DPF is cleaned more frequently.	A Federal agency.
Equipment Hazards	Equipment hazards are the risks arising from the equipment you use. These could be mechanical, electrical, physical (gas and fluid)	
equipment ID	Equipment ID is the identification of the equipment that is assigned by the customer.[KPNR5342-05.rtf]	
Equipment Monitoring System		Automatically and manually polls equipment and processes to communicate real-time
Equivalent Sound Pressure Level	The operator Equivalent Sound Pressure Level (Leq) is 79 dB(A) when ANSI/SAE J1166 OCT 98 is used to measure the value for an enclosed cab.	
ergonomic assessment	Performs Safety and Ergonomic Assessment	
Ergonomics	One of the rows on Existing safeguards table	Ergonomics is a discipline concerned with designing as per the needs and applies theory and principles to optimize designs from usability perspective. Ergonomics is derived from two Greek words: “ergon”, meaning work and “nomoi”, meaning natural laws. Erg
error-proofing	Error-proofing involves methods to help operators avoid mistakes such as choosing the wrong part, leaving out a part, or installing a part backwards.	Methods that help operators avoid mistakes such as choosing the wrong part, leaving out a part or
Etching		A process which determines the structure and defects in metals.
ether canister	Remove the ether canister from the ether valve.; The ether canister is not empty.	
Ether Starting Aid	Ether Starting Aid	

European Union	European Union Compliant, CE marked	
European Union Stage IIIa	The Cat C7 with ACERT Technology can meet or exceed all European Union Stage IIIa emissions control standards.	
Eutectoid		Nearly all iron contains some carbon. In annealed steel, iron carbide mixes with iron (ferrite) in alternate thin layers and is called pearlite. As the carbon content increases, it causes an increase in pearlite and a decrease in ferrite. At the point of
Evaporative Condenser		A condenser in which heat is absorbed from the surface by the evaporation of water sprayed or flooded over the surface.
Evaporative Cooling System		A cooling system in which the heat finally passes to the atmosphere by evaporation. This system may be either open or closed.
evaporator		Dry Type. An evaporator into which refrigerant is fed from a pressure reducing device. Little or no liquid refrigerant collects in the evaporator.
Evaporator Coil	Evaporator Coil and Heater Coil - Remove; Evaporator Coil and Heater Coil - Install	
Event		An event is something that happened during a failure as determined from facts found in a failure analysis.
event code	In the event of a component failure, the operator will be alerted to the condition by the use of a check engine light and an event code will be logged in the ECM.[KPNR6741-05.rtf]	
excavator	When you are installing a work tool on an excavator for the first time, the electronic portion of the electrohydraulic system must be properly set up, and the hydraulics must be properly set up:[RPNR7389-09.rtf]	something that excavates, esp. a steam shovel
excavator bucket		excavator bucket used for digging
Excellence		One of the four Values in Action as part of Caterpillar's Worldwide Code of Conduct. Excellence is the power of quality. The quality of Caterpillar products and services reflects the power and heritage of Caterpillar. Excellence is not only a value but
Excess Air		Air present in the cylinder over and above that which is theoretically necessary to burn the fuel.
Excess Oxygen		The amount of free oxygen in the products of combustion. It may be expressed as a percentage of either volume or mass.

excessive resistance	There is an open circuit or excessive resistance in the wiring or connections between the batteries and the ECM.[KPNR5342-05.rtf]	
excimer laser	One of the major types of LASERs.	
Excitation		The power required to energize the magnetic field of generators in an electric generating station.
excitation circuit	The excitation circuit is correct.	
executable build schedule	A key to avoiding inventory build-up due to scheduling and production problems is to always maintain an Executable Build Schedule.	Each facility is required to measure demonstrated production capability and provide this information to the Demand Management function. Build schedules supporting the demand plan in S&OP must be based on demonstrated capability.
exhaust	If an engine is started inside an enclosure, make sure that the engine's exhaust is properly vented.	the escape or removal of gas or vapor from an engine cylinder
Exhaust Analyzer		Also: Smoke Meter. A test instrument used to measure the density of the exhaust smoke to determine the combustion efficiency.
exhaust gas	The exhaust valve opens and the exhaust gases are pushed through the exhaust port into exhaust manifold 1.[KPNR6741-05.rtf]	
Exhaust Gas Analyzer		An instrument for determining the efficiency with which an engine is burning fuel.
exhaust manifold	Remove exhaust manifold 2 from the cylinder head assembly.[KPNR8106-01.rtf]	
Exhaust Port		The opening through which exhaust gas passes from the cylinder to the manifold.
exhaust stack	Exhaust gases from turbocharger 11 pass through the exhaust outlet, through muffler 9, and through the exhaust stack.; Exhaust gases from the turbocharger pass through exhaust outlet 7, a muffler and an exhaust stack.	
exhaust stroke	If the valves are slightly open, the No. 1 piston is on the exhaust stroke.[KPNR6741-05.rtf]	
exhaust system	The components of the air inlet and the components of the exhaust system also control the amount of available air for combustion.[KPNR6741-05.rtf]	
exhaust valve	Valve springs must be replaced in pairs for the inlet valve or the exhaust valve of each cylinder.[KPNR8106-01.rtf]	

exhaust valve lash	Adjust the exhaust valve lash to 0,400 mm0,0157 inch.[KPNR8106-01.rtf]	
exhaust ventilation		The installation of local exhaust ventilation systems helps reduce / eliminate gaseous and particulate hazards.
exhaust, to		to escape as exhaust;DO NOT USE 'exhaust' to mean 'to wear out completely; tire'
exits		The amount of work completed over a given period of time (weekly, daily). Can be expressed in dollars or units.
Expansion Ratio		Ratio of the total volume when the piston is at BDC to the clearance volume when the piston is at TCD. (Nominally equal to compression ratio.)
expansion tank	The shunt line must be submerged in the expansion tank.; The shunt line 9 extends from the top of the water pump to an expansion tank.	
Expansion Valve		A device in a refrigerating system which maintains a pressure difference between the high side and low side and is operating by pressure.
extend solenoid	When switch 37 is pressed, the machine ECM sends a signal to the extend solenoid for attachment control valve 16.[RPNR7389-09.rtf]	
extended life coolant	Add Caterpillar Extended Life Coolant (ELC) to the cooling system.	
extended life oils	Extended Life Oils	
Extendible Stick	Extendible Stick	
extension	The required time for full extension of the hoist cylinders is 11 seconds.	the act of stretching out or spreading to fullest length
extension solenoid valve	The extension solenoid valve for the attachment control valve is part of the clench pressure circuit.[RPNR7389-09.rtf]	
exterior sound pressure level	The average exterior sound pressure level is 79 dB(A) when the SAE J88Apr95 - Constant Speed Moving Test procedure is used to measure the value for the standard machine.	
external grinding machine		External grinders grind the external surfaces of the workpiece as the workpiece itself rotates.
External Input		External sources are mainly systems other than MRP that provide data for creating the MRP plan.

external material flow	Define Customer Requirements, Identify Process Steps, Gather Process Data, Gather Inventory Data, and Determine External Material Flow	
external non-conformance management	Internal/External Non-Conformance Management	
Extrusion		Extrusion is a metal working process where material is shaped by pushing it through a die.
fabricate, to	Fabricate a jumper wire that is long enough to short the terminals of the connector for the fuel rail pump solenoid.[KPNR5342-05.rtf]	to construct; build
fabrication		The process that encompasses the three sub-processes of Cutting, Forming and Welding.
facility		A location and associated buildings, machines, and equipment where Caterpillar engines or machines are manufactured and/ or assembled.
factory password	The parameters are stored in the ECM and factory passwords must be obtained in order to change some of the system configuration parameters.[KPNR5342-05.rtf]	
failure cost	Costs of non-conformance can be of two types: Internal Failure Costs and External Failure Costs.	
failure mode identifier	Diagnostic codes consist of the Module Identifier (MID), the Component Identifier (CID), and the Failure Mode Identifier (FMI).[KPNR5342-05.rtf]	Full form of: fmi
Failure Modes and Effect Analysis	Planners must make sure that the plant has the capacity and capability to manufacture the quantity and quality of parts as per customer specifications using FMEA and PFMEA.	
fall		A fall occurs when the loss of balance is not corrected. A slip or trip may or may not result in a fall. Falls can occur on the same level or from a different level.
Falling Material	The forge press operation and de-scaling can have debris, material chunks that have the potential to fly and cause injury. The SJPs and proper operating procedures should be followed to avoid any kind of injury.	

False Brinelling		False Brinelling is damage to a solid bearing surface characterized by indentations not caused by plastic deformation, resulting from overload but thought to be due to other causes such as fretting corrosion.
False ratchet marks		False ratchet marks are features on a fracture surface that have the appearance of ratchet marks but that actually result from something other than multiple crack initiation in a fatigue fracture.
fan	A loose fan drive belt will cause a reduction in the air flow across the radiator.[KPNR6741-05.rtf]	technical term
fan blade		FAN BLADE: a fan vane, as in a fan blade or engine fan blade Note: DO NOT USE 'blade' alone to mean 'the rubber squeegee on a windshield wiper', for example windshield wiper blade or wiper blade
fan pump	This changes the output of hydraulic oil from the fan pump to the cooling fan.; Hydraulic oil for the hydraulic fan motor is provided by the hydraulic fan pump.	
fan shroud	Fan shrouds that are loose or missing cause poor air flow for cooling.[KPNR6741-05.rtf]	
fast acting cooling system cleaner	Fill the cooling system with a mixture of clean water and Caterpillar Fast Acting Cooling System Cleaner.	
fast crack		A fast crack is a fracture that travels rapidly through a part, usually due to a shock load or an overload.
fast fill connector	This additional message identifies the location of the fast fill connector for the transmission oil.	
fast fill fuel adapter	This message is located on the fuel tank near the fast fill fuel adapter.	
fast fill port	If your machine is equipped with a service center, you may drain the coolant through the fast fill port or you may add the coolant through a fast fill port.	
fast fill service center method	This value is for the fast fill service center method of changing the oil.	
Fast Runner Nut Assembly	Fast Runner Nut Assembly	
fastener	The tightening sequence of the fasteners that attach a tube assembly or hose assembly to the machine is very critical to the proper function of the machine.	technical term
Fatigue		Fatigue is a fracture process wherein a part fails under repeated loading, often at load levels that are significantly below the load required to fail the part in a single load cycle.

Fatigue crack		A fatigue crack is a crack in a part that has resulted from a fatigue process.
Fatigue fracture		Fatigue fracture is the gradual propagation of a crack across a section due to cyclic stresses within the elastic limit.
Fatigue limit		The fatigue limit is the maximum stress that a metal can withstand without failure for a specified large number of cycles of stress. Fatigue limit is usually synonymous with endurance limit.
Fatigue strength		Fatigue strength is the maximum stress that a material can sustain, for a given number of stress cycles, without fracture.
fatigue striation		See Striations.
Fault		(1) The failure of an operating piece of equipment, and the specific reason for the failure, or (2) an electrical distribution system failure, where there is a line-to-ground or line-to-line short circuit.
fault indicator lamp	electronic control 1, pilot oil pressure switch 2, pilot oil solenoid valve 3, fault indicator lamp 4 and lubricant pressure switch 5.	
feather catch	Disabling the lift linkage position sensor will turn off the following features: lift kickout, lower kickout, tilt back kickout, dump kickout, lift snubbing, feather catch, dump rate control, dump stop snubbing, full rack angle control, and autodig system.	
feeler gauge	Measure the clearance between the oil pump gears and the oil pump housing with a feeler gauge.[KPNR6741-05.rtf]	
feller buncher	Thinning grapples are designed for harvesting small diameter trees, usually felled by a mechanical feller buncher.	
Ferrite		Ferrite is an essentially carbon-free solid solution (mixture of iron and other elements) in which iron is the solvent, and which is characterized by a BCC crystal structure.
Ferrite Ghost		A faint band of ferrite.
ferrous straight thread O-ring fitting	Ferrous Straight Thread O-Ring Fitting	
ferrule		a brass fitting on the end of a line, used to gain compression
ferrule		a metal fitting used to crimp the end of a cable together
Fibrous tearing		Fibrous tearing is a type of ductile fracture that can occur when a metal is sufficiently ductile for the crystals to elongate before fracture occurs.
Field Coil		An insulated wire wound around an (iron) pole piece.

field failure	If the product has a significant contribution to field failures, warranty costs, and/or has a commercial impact	
field winding	The remainder of the current is sent to the field windings (wires around an iron core).[KPNR6741-05.rtf]	
File hardness test		The file hardness test is a method for testing the hardness of metals by rubbing a file against the surface of the metal and estimating the degree of bite, which indicates hardness.
filler cap	The Pressurizing Pump9S-8140 is used to test the filler caps.[KPNR6741-05.rtf]	
filler material		The welding electrode used for the operation.
filler pipe	The level of the coolant should not be more than 13 mm0,5 inch from the bottom of the filler pipe.	
filler plug	Slowly loosen the filler plug on the hydraulic tank and release the pressure from the hydraulic tank.	
Fillet		A fillet is a concave junction formed where two surfaces meet (as at an angle).
film	Apply a light film of hydraulic oil to all components before assembly.	a thin protective coating, such as an oil film, oxide film, or epoxy film
film		a self-adhesive warning decal, such as a graphics film, lifting/tiedown film, or tipover warning film
Filter		Finter (Oil, Water, Gasoline, etc). A unit containing an element, such as a screen of varying degrees of fineness. The screen or filtering element is made of various materials depending upon the size of the foreign particles to be eliminated from the fluid being filtered.
filter cutter	Remove the hydraulic oil filter and cut the filter open with a filter cutter.	
filter element	If the pilot oil is extremely cold or if the flow of pilot oil through filter element 2 becomes restricted by contaminants, the oil bypasses filter element 2 through bypass relief valve 3.	
fin	Debris between the fins of the radiator core restricts air flow through the radiator core.[KPNR6741-05.rtf]	any of the projecting ribs on a radiator or an engine cylinder
Final Drive	Final Drives	
final drive drain plug	Rotate the wheels so that final drive drain plug 1 is in the lowest position on the rear wheel.	
final drive filler plug	Remove final drive filler plugs 2.	

final drive sprocket	Install the final drive sprocket if the sprocket was removed from the main housing.	
Final fracture		The final fracture is the area at the end location of a crack, the last of the material to fail.
Final fracture area		The final fracture area is the irregular surface produced when a part undergoing fatigue fracture is finally broken. The final fracture may be a small or large fraction of the overall fracture.
final installation torque	Final installation torque for the pressure sensor group[KPNR6740-04.rtf]	
Final machining		Final machining is the last machining processes applied to a part to bring it into conformance with print requirements.
Financial Reporting System		Computer system introduced with 6 Sigma deployment to track and record financial benefits associated with completion and control of 6 Sigma projects.
fine swing switch	The Machine ECM detects operation of the fine swing switch in order to release the swing brake.	
finger roller	Roll finger roller 22 forward in order to extend the implement cylinder.	
finger tight	The number of turns is for the turns after the nut is finger tight.	as securely as a human hand can secure something; fixed as firmly in place as a human hand can secure something
Fingernail test		The fingernail test is a method for determining whether a fatigue fracture is low cycle or high cycle fatigue. The test involves dragging a fingernail over a fracture surface to determine whether it is possible to feel the beach marks on the fracture surf
Finisher Sample	Calipers are used to check the relationship between a blocker and finisher sample	
Finishing Stone		A honing stone with a fine grid.
Finish-to-Order	The Finish-to-Order strategy is applied when the Supply Chain Response Time plus Caterpillar's internal processing time cannot meet the Sustainable Product Availability goal.	
Finning		Fins are thin projections of metal from the casting, formed as a result of imperfect mold or core joints. These fins are removed from the raw casting by way of the finning process
fire		Fire refers to the process of combustion of flammable materials producing heat and light and (often) smoke.
Fire Point		Lowest temperature at which an oil heated in standard apparatus will ignite and continue to burn.

fire safety	In fire safety they use a Fire Triangle to illustrate the 3 components needed for a fire: oxygen, fuel and heat.	
fire suppression control	The function of the fire suppression control is to cause a delayed engine shut down when the fire suppression system is activated.	
fire suppression hoods or hoses	The Caterpillar designed quench machines are designed for safety. Additionally, the oil quench stations have fire suppression hoods or hoses.	
firing order	Movement of rocker arm 19 causes the inlet and exhaust valves to open according to the firing order (injection sequence) of the engine.[KPNR6741-05.rtf]	
Firing Pressure		The highest pressure reached in the cylinder during combustion.
Firm Energy		Power supplies that are guaranteed to be delivered under terms defined by contract.
First In, First Out		Principle and practice of maintaining precise production and conveyance sequence by ensuring that the first part to enter a process or storage location is also the first part to exit. Ensures stored parts do not become obsolete and that quality problems are not buried in inventory. FIFO is a necessary condition for pull-system implementation.
First Operation-Idler	Image Caption	The heat treatment process applied to a part named idler. Usually a hardening process.
fishbone diagram	The Fishbone Diagram helps in organizing the application of the 5-Whys by narrowing the focus to test and identifying the most probable cause(s). The 5-Whys process helps drill down to the root cause.	
fitting		FLUID FITTINGS; a cylinder, grease (lube), hydraulic, bearing or valve connection, as in cylinder fitting, grease fitting, hydraulic fitting, bearing fitting, or valve fitting
fitting		PRESSURE FITTINGS; pressure taps, diagnostic fittings
fitting		PERMANENT CONNECTIONS; pipe fittings, electrical fittings
fitting assembly	Put the fitting assembly in the correct position. loosen fitting 2 until the correct assembly position is achieved.	
Five Whys		– “Why?” is asked a minimum of five times when trying to find the root cause of a problem. The so-called Five W’s and One H (who, what, where, when, why and how) as used in problem solving. “Why?” is asked a minimum of five times when trying to find the root cause of a problem.

Fixed Build Sequence	Replenishment of OSS material requires a fixed build sequence over the 20-day firm schedule. This helps stabilize the supply chain environment so that customer expectations can be met.	
Fixed Gauge Undercarriage	345D Excavator with a Reach Boom and a Fixed Gauge Undercarriage	
Fixed Quantity Kanban	The three replenishment methods used at Caterpillar are: Order Specific Sequenced (OSS) Fixed Quantity Kanban, and Material Replenishment Process (MRP).	
Fixed-Position Stop System		If a workforce member has a problem while working on line, he / she activates the Andon. The workforce leader immediately tries to correct the problem. If it cannot be fixed, the conveyor stops at the end of the process. This position is the fixed-position stop.
Flaking		Flaking is the generation of small metal particles from the surface of a part; may be due to applied loads or interaction with the environment. See also: Spalling.
flame Curtain	A furnace designed for safety includes doors equipped with Flame Curtains	
flame cutting machine		A device that focuses an intense flame causing high heat and used to cut metal.
Flame hardening		Flame hardening is a heat treatment process for hardening the surface of a part by heating it above the transformation range with a high-temperature flame followed by rapid cooling.
flammable fluid	Flammable fluids that are leaking or spilled onto hot surfaces or onto electrical components can cause a fire.	
flange		a protruding rib or edge used to attach a part, such as an adapter flange or case flange
flange		a protruding rib or edge used to ensure a fit, prevent movement, or give strength, such as a cylinder liner flange
Flank, Side or Thread		The straight part of the thread which connects the crest with the root.
flare fitting	The torques in Table x are for 37 degree flare fittings.	
Flaring Tool		A tool used to form a flare on a tubing.
flash code	The Shutdown lamp and the Warning lamp can also be used to indicate a diagnostic code by use of the Flash Code feature.[KPNR5342-05.rtf]	

flash file	Verify that the correct flash file is installed.[KPNR5342-05.rtf]	
Flash Point		The temperature at which a substance, usually a fluid, will give off a vapor that will flash or burn momentarily when ignited.
flash program, to	Caterpillar Electronic Technician (ET) is used to flash program a file into the memory of the engine's ECM.[KPNR5342-05.rtf]	program an e-prom
flash software	The part number of the Engine ECM flash software; The part number of the flash software for the Implement ECM	
Flat Crank		A crankshaft in which one of the bearing journals is not round.
flat-top hammer	Example of the silenced housing on the H35D S flat-top and H45D S flat-top hammer	
Flaw		A flaw is a discontinuity or irregularity in a part that does not necessarily render the part unsuitable for service, e.g. small centerline shrinkage in a casting.
Fleet	Cat MineStar System Component	
Flexed Budget		The budget is actually adjusted for volume fluctuations.For instance, the original budget was based on building 10 tractors a day, but the currentbuild is 20 tractors a day. The budget numbers would be adjusted to reflect the cost of building 20. Therefor
float control	Float control will not be disabled.; However, the float control will remain enabled.	
float feature	When the lift arms are lowered, the float feature may activate prematurely before the detent is reached .; The implement hydraulic service mode will not disable the float feature.	
float function	If the linkage is at the kickout setpoint or below the lower kickout setpoint, the forward detent will initiate the float function.	
Float Level		The height of the fuel in the carburetor bowl, usually regulated by means of a suitable valve or float.
float position	The lift valve stem remains in the float position until the bucket reaches the preset kickout position.	
Floating Piston Pin		A piston pin which is not locked in the connecting rod or the piston, but is free to turn or oscillate in both the connecting rod and the piston.
Flooded System		Type of refrigerating system in which liquid refrigerant fills the evaporator.
Flooding		Act of filling a space with a liquid.

flow	The valves and the valve system components control the flow of inlet air into the cylinder during engine operation.[KPNR6741-05.rtf]	NOUN: a stream; a continuous output or outpouring
flow control operation	For more information concerning the negative flow control operation at the main control valve, refer to Systems OperationNegative Flow Control System.	
Flow control orifice	5 Flow control orifice.	
flow control pressure	Negative flow control pressure in the center bypass passage is blocked when the control valve spools shift DOWNWARD.[RPNR7389-09.rtf]	
Flow Control Valve		A valve which is used to control the flow rate of fluid in a fluid power system.
flow limit valve	Make the desired selection from the Flow Limit Valve screen.	
flow lines		Flow lines are texture in a metal part showing the direction of metal flow during hot or cold working. Etching the surface or a section of a metal part often can reveal flow lines. Flow lines are sometimes visible on fracture surfaces.
flow meter	The less accurate method which uses only a pressure gauge is used only when a flow meter is not available.[RPNR7389-09.rtf]	
flow path	At Caterpillar, a part may be used in various facilities, so it may have multiple plans that define each flow path.	
flow rate	Two pump flow is used for work tools that require high flow rates for actuation.[RPNR7389-09.rtf]	
Flowability		Flowability is the ability of a liquid to flow at a reduced temperature.
Flowmeter		An instrument used to measure the quantity or flow rate of a fluid in motion.
FLS	Examples of these parameters are Full Load Setting (FLS) and Full Torque Setting (FTS).[KPNR5342-05.rtf]	The full load setting is a number that represents the adjustment to the fuel system that was made at the factory in order to fine tune the fuel system.
Flue Gas Recirculation		
Fluid analysis		An analysis that tests fluids against a known baseline to identify changes in chemical makeup, metal content, etc.
Fluid Flow		The stream or movement of a fluid; the rate of a fluid's movement.
fluid level check	If the fluid level check detects a low fluid level, the appropriate message will be displayed and a pictograph will be shown to indicate the fluid level that is low.	

fluid loss	This helps to prevent fluid loss and this helps to keep contaminants from entering the system.	
Fluid Power		Power transmitted and controlled through the use of fluids, either liquids or gases, under pressure.
flush with, to	Shaft assembly 3 and impeller 11 should be flush with each other.[KPNR8106-01.rtf]	directly abutting or immediately adjacent; arranged edge to edge so as to fit snugly
Flute		The grooves of a tap that provide the cutting rake and chip clearance.
Fluting		Fluting is a type of pitting in which cavities occur in a regular pattern, forming grooves or flutes. Fretting or electric arcing between parts can cause fluting.
Flutter or Bounce		In engine valves, refers to a condition where the valve is not held tightly on its seat during the time the cam is not lifting it. In metallurgy, a flux is any substance introduced in the smelting of ores to promote fluidity and to remove objectionable impurities in the form of slag. Examples are limestone (used in smelting iron ores), silica, dolomite, lime, borax, and fluorite. In soldering, a flux is used to remove oxide films, promote wetting, and prevent reoxidation of the surfaces during heating. Examples are rosin, or an aqueous solution of zinc chloride and ammonium chloride.
Flux		Magnetic force. Conventional type of centrifugal governor commonly called a mechanical governor.
Flux, Magnetic		
Flyball Governor		a heavy wheel for opposing and moderating by its inertia any fluctuation of speed in the machinery with which it revolves
flywheel	Perform the following procedure, if the ring gear was removed from the flywheel:[KPNR8106-01.rtf]	
flywheel face	Turn the flywheel at intervals of 25 mm1,00 inch along the outer circumference of the flywheel face, and record measurements at each point.[KPNR6741-05.rtf]	
flywheel face runout	The difference between two consecutive measurements must not be more than 0,03 mm0,001 inch, which is the maximum permissible flywheel face runout.[KPNR6741-05.rtf]	
flywheel housing	The engine speed sensor is located on the flywheel housing.[RPNR7389-09.rtf]	
Flywheel Power	Flywheel Power	
flywheel ring gear	Perform the following procedure in order to remove the flywheel ring gear.[KPNR8106-01.rtf]	

flywheel runout	Refer to Testing and Adjusting Flywheel Housing - Inspect for more information on flywheel runout.[KPNR8106-01.rtf]	
FMI	Diagnostic codes consist of the Module Identifier (MID), the Component Identifier (CID), and the Failure Mode Identifier (FMI).[KPNR5342-05.rtf]	failure mode identifier
foaming	If the Diesel Engine Antifreeze/Coolant (DEAC) is dirty or if you observe any foaming in the cooling system, drain the coolant before the recommended interval.	
foldable ROPS	Foldable ROPS (Optional)	
foot pedal	The foot pedal for the work tool will be located on the left side of the travel pedals if the machine is equipped with a straight travel pedal.[RPNR7389-09.rtf]	
foot switch	In order to adjust the line relief valve pressure setting of the upper work tool, push the foot switch.[RPNR7389-09.rtf]	
Footprint		Footprint is a synonym for clues or facts discovered during failure analysis - see Fact.
forage harvester	Engines in the C18 power range are used in a broad range of applications, including blast hole drill rigs, 4WD agriculture tractors, forage harvesters, pavers, construction and mining equipment, irrigation, petroleum drill rigs, chippers, shredders, and m	
Force		The action of one body on another tending to change the state of motion of the body acted upon. Force is usually expressed in pounds (kilograms).
Force Convection		Movement of fluid by mechanical force such as fans or pumps.
Forced Convection		Transfer of heat resulting from forced movement of liquid or gas by means of fan or pump.
Force-Feed Lubrication		A lubricating system in which oil is pumped to the desired points at a controlled rate by means of positive displacement pumps.
fore and aft lever	Pull up fore and aft lever 3.	
fore boom	315D Excavator with a 2,6 m8 ft 6 inch fore boom, a 2,5 m 8 ft 2 inch stub boom, a 1,85 m6 ft 1 inch stick, a bare quick coupler, and 600 mm24 inch triple grouser track shoes	
Forest Machine	A wide selection of Forest Machine configurations meet diverse forestry applications and improve your productivity.	

Forestry Products
Forestry Products PC

forge link

A Forge Link is a link that joins the two ends of the Track Assembly.

Forging

Forging is generally used to manufacture component parts. Caterpillar being a company that makes heavy machines uses Forging to manufacture several of its components.

Forging is the process of forming metal by heating and hammering, to form metal by a mechanical or hydraulic press with or without heat.

Forging burn

A forging burn is an internal flaw (grain boundary melting) that results from overheating steel during the forging process. Parts with forging burns usually cannot be salvaged.

Forging hammer

Forging hammers apply force by the impact of a large ram which may be a drop hammer, or weight falling under the force of gravity, or it may be a power hammer, driven by steam or compressed air. The hammer produces an instantaneous application of pressure

Forging hot spot

See Forging burn.

Forging lap

A forging lap is a surface irregularity caused by hot metal folding over and being pressed into the surface of a part.

forging machine

Forging machines shape the workpiece by compressive forces applied through various dies and tools.

Forging Press Operation

A 4000 ton Forging press is used to forge the links. The Forging process is performed in four stages. It is critical to have proper placement at each station. Starting with the billet placement on the buster station each consecutive station must be center

fork assembly

Fork assembly weight

Form

forming defect

Forming defects are irregularities in parts that result from the forming processes used to manufacture them and that make them unfit for their intended application.

FORWARD position

In order to adjust the line relief valve pressure setting of the upper work tool, push the right joystick thumbwheel to the FORWARD position.[RPNR7389-09.rtf]

forward travel

The description that follows is for forward travel.

forward/aft pitch

The Angle Sensors measures the forward/aft pitch of the blade in order to determine the position of the blade in Manual mode operation for Dual GPS systems.

forwarder	Caterpillar Forest Products recently unveiled major enhancements to the six-wheel Cat{1}@{2} and eight-wheel 574 forwarders, including a new Tier 3 engine that brings additional torque to an already proven powerhouse	
Fossil Fuel		Oil, coal, natural gas, or their by-products. Fuel that was formed in the earth in prehistoric times from remains of living-cell organisms.
four cylinder engine	On four cylinder engines, injectors 1 and 4 share a common injector driver circuit within the ECM and injectors 2 and 3 share a common injector driver circuit within the ECM.[KPNR5342-05.rtf]	
Four-cycle Engine		Also known as Otto cycle, where an explosion occurs every other revolution of the crankshaft, a cycle being considered as 1/2 revolution of the crankshaft. These strokes are (1) intake stroke, (2) compression stroke, (3) power stroke, (4) exhaust stroke.
Four-Stroke Cycle		Cycle of events which is completed in four strokes of the piston, or two crankshaft revolutions.
Fracture		A fracture is a break or separation of a part into two or more pieces; the irregular surface produced when a piece of metal is broken.
Fracture face		A fracture face is one of the irregular surfaces produced when a part is broken.
Fracture mechanics		Fracture mechanics is an advanced method for studying fractures in parts. Fracture mechanics is based on an analytical procedure that relates the magnitude of stress in the vicinity of the tip of a crack to the nominal stress applied to a structure, to th
Fracture surface morphology		Fracture surface morphology is the texture, or topography, of a fracture surface.
frame ground	To ensure that the engine and the engine electrical systems function correctly, an engine-to-frame ground strap with a direct path to the battery must be used.	
FRC	The Fuel Ratio Control (FRC) limit is based on intake manifold pressure and on engine rpm.[KPNR5342-05.rtf]	fuel ratio control
FRC fuel limit	If Fuel Position equals Rated Fuel Limit and Fuel Position is less than FRC Fuel Limit, the electronics are operating correctly.[KPNR5342-05.rtf]	
FRC limit	The FRC limit is used to control the air/fuel ratio in order to control the engine's exhaust emissions.[KPNR5342-05.rtf]	

Free carbon		Free carbon is carbon that is not combined with another element in a cast iron structure. See also Graphite particles.
Free graphite		Free graphite in cast irons is carbon that is present in the form of particles distributed through the metal. Free graphite shape may range from flakes to spheres.
Freewheel Stator	Torque Converter with Freewheel Stator; Without Freewheel Stator	
Frequency Meter		A unit which monitors a generator set's output frequency.
Frequency Relay		This relay can be configured to operate when the monitored frequency is above or below a given setpoint.
Fretting corrosion		Fretting corrosion is deterioration at the interface between contacting surfaces as a result of corrosion and slight oscillatory slip between the two surfaces.
Fretting corrosion deposit		A fretting corrosion deposit is material deposited on the surface of a part near an area of fretting wear damage. The color of the deposit varies depending on the material undergoing fretting wear. Iron base metals produce red to brown deposits while tin
friction disc	Operation of the transmission with an oil temperature that is too low can cause damage to the friction disc. Start with a friction disc.; Remove friction disc 13.	
friction material	Also replace the disc pack if the friction material is worn and areas of the friction discs are allowing steel to contact steel.; Using a friction disc with less than 7,65 mm 0,301 inch of friction material will result in accelerated wear.	
friction plate	When the separator plates and the friction plates are forced together, the rotation of drive shaft 3 in the travel motor gradually slows to a stop as the parking brake engages.	
Friction weld		Friction welding is a welding process in which a rapidly rotating piece of metal is forced onto another so that friction causes sufficient heat to melt the metals at the point of contact. Rotation then stops, and continued force consolidates the joint.
front axle assembly yoke	When the oscillation drive shaft is installed, it must be installed in phase with the front axle assembly yoke.	
front bumper	Refer to Disassembly and Assembly Front Bumper - Remove and Install.	
front carrier roller	Place a tight line over the grouser tips above the front carrier roller 1 and the front idler 2.	

Front Dash	When the joystick control is in the {1}AUTO RETURN{2} position, an indicator light will illuminate on the front dash.	
front differential filler plug	Remove the front differential filler plug.	
front drive shaft	Refer to Disassembly and AssemblyFront Drive Shaft - Remove and Install.	
front grill	The reach is measured from the front grill to the bucket edge. Rear axle centerline to front grill	
front housing	Use Tooling A in order to remove crankshaft front seal 10 (not shown) from front housing 4, if necessary.[KPNR8106-01.rtf]	
front idler	Use a pry bar and move the front idler 1 and the recoil spring partially out of the track roller frame.	
front idler wheel	Remove the front idler wheel.	
front journal	The camshaft uses only one bearing on the front journal.	
Front Linkage Sensor	Front Linkage Sensors (Angle Sensors)	
front oscillation bushing	Apply lubricant through remote mounted fitting 3 for the front oscillation bushing.	
front plate	Remove bolts 6 and the washers that mount front housing 4 to front plate 8 and the cylinder block.[KPNR8106-01.rtf]	
Front Retarder Control Solenoid	Front Retarder Control Solenoid	
Front Retarder Supply Solenoid	Front Retarder Supply Solenoid	
front shovel	The Linkage Positions window shows position information for Excavator and Front Shovel Linkage points.	
Front Wheel Spindle Bearing Housing	Front Wheel Spindle Bearing Housing	
Front Work Light	Front Work Lights (10 Amp)	
Frosted		A frosted area on a gear tooth surface is one where some of the tooth surface metal has pulled away leaving a matte gray appearance. Frosted areas are usually not harmful and wear away under normal operation.
FTS	Examples of these parameters are Full Load Setting (FLS) and Full Torque Setting (FTS).[KPNR5342-05.rtf]	full torque setting
fuel air ratio control	The electronic control system provides increased timing control and fuel air ratio control in comparison to conventional mechanical engines.	
fuel cap boot	Inspect the fuel cap boot(if equipped).	

Fuel Cell		A device or an electrochemical engine with no moving parts that converts the chemical energy of a fuel, such as hydrogen, and an oxidant, such as oxygen, directly into electricity. The principal components of a fuel cell are catalytically activated elect
fuel circuit	The low pressure fuel circuit supplies filtered fuel to the fuel injection pump at a constant rate.[KPNR6741-05.rtf]	
Fuel Density		The mass of fuel per unit volume. The units of density used in this specification are degrees API at 60 degrees Fahrenheit. (API = American Petroleum Institute)
fuel efficiency	Load sense steering maximizes machine performance by directing power through the steering system only when needed, maximizing available power for productive work and improving fuel efficiency.	
fuel filter	If fuel quality is determined to be the problem, drain the fuel system and replace the fuel filters.[KPNR6741-05.rtf]	
fuel filter base	Position fuel filter base 8 and install two bolts 3 (not shown).[KPNR8106-01.rtf]	
fuel filter element	Replace the fuel filter element.[KPNR5342-05.rtf]	
fuel gauge	Do not rely on the fuel gauge only.[KPNR5342-05.rtf]	
fuel injection	The engine oil must be kept at the proper level for fuel injection.; If the switch is in the ON position, fuel injection is disabled.	
fuel injection equipment	Concentrations above 5% will lead to reduced product service life and potential failure of the fuel injection equipment.	
fuel injection pump	The solenoid in the fuel injection pump controls a valve in the fuel injection pump.	
fuel injection pump drive gear	Align the 3 Mark on fuel injection pump drive gear 2 with the 33 Mark on idler gear 3 by rotating the engine.[KPNR8106-01.rtf]	
fuel injection pump gear	In order to install the fuel injection pump gear, refer to Disassembly and AssemblyFuel Injection Pump - Install.[KPNR8106-01.rtf]	
fuel injection pump timing tool	Fuel Injection Pump Timing Tool	
fuel injection system	The fuel injection system has the following mechanical components:[KPNR6741-05.rtf]	

fuel injector	The ECM determines the quantity, timing and pressure of the fuel in order to be injected into the fuel injector.[KPNR6741-05.rtf]	
fuel injector body	The solenoid is mounted on top of the fuel injector body.	
fuel injector E-Trim	Fuel Injector E-Trim	Fuel injector E-trim is a software processthat allows precise control of fuel injectors by parameters that are programmed into the ECM for each fuel injector.
fuel injector harness connector Fuel Injector Installer	Typical example of the fuel injector harness connector Fuel Injector Installer As	
fuel injector rocker arm	Oil flows to the bushings of the fuel injector rocker arm through holes in the rocker arm shaft 13.	
fuel injector terminal	Do not come in contact with the fuel injector terminals while the engine is running.	
fuel injector timing	The tool is for testing and adjusting the fuel injector timing and fuel dimension.	
Fuel Knock		See Detonation.
fuel level buffer	This configuration utilizes a fuel level buffer that helps to reduce the amount of indicator movement that is passed to the fuel gauge.	
fuel level indicator	The easy-to-understand instrument panel integrates a fuel level indicator, hour meter and light indicators for machine fuctions.	
fuel level sender	The fuel level sender is attached to a float in the fuel tank.	
fuel line	Use Tooling A after any fuel line has been disconnected.[KPNR8106-01.rtf]	
fuel line adapter	Leaking seals on the fuel line adapter for the cylinder head; Look for signs of damage to the seals on the fuel line adapter for the cylinder head.	
fuel manifold	Remove bolts 2 and remove fuel manifold 1.[KPNR8106-01.rtf]	
fuel position	Monitor the status of fuel position, Rated Fuel Limit, and FRC Fuel Limit on Cat ET while the engine is operating under full load.[KPNR5342-05.rtf]	
fuel pressure sensor	Remove fuel pressure sensor 1 and the O-ring seal.[KPNR8106-01.rtf]	
fuel priming pump	Remove bolts 6 and reposition fuel priming pump 7.[KPNR8106-01.rtf]	

fuel pump	The fuel pump assembly consists of a low pressure transfer pump and a high pressure fuel injection pump.[KPNR6741-05.rtf]	
fuel rail	The C6.6 uses an oil-lubricated high-pressure fuel pump to feed a common fuel rail.	
fuel rate		The mass of fuel burned by an engine in a specified time. Corrected fuel rate is the actual or observed fuel rate corrected for fuel density.
fuel ratio control	The Fuel Ratio Control (FRC) limit is based on intake manifold pressure and on engine rpm.[KPNR5342-05.rtf]	
fuel return line	Operate the fuel priming pump until the air in the fuel system has been pumped through the fuel return line back to the fuel tank. The following Steps are for removing the fuel return line, if necessary.[KPNR8106-01.rtf]	
fuel shutoff solenoid	Use a suitable digital multimeter to measure the current through the fuel shutoff solenoid.	
fuel supply circuit	The fuel supply circuit is a conventional design for engines with electronic unit injection. Service on the low pressure fuel supply circuit[KPNR5342-05.rtf]	
fuel system	Use Caterpillar Electronic Technician (ET) to verify that the fuel system pressure is at zero before opening the fuel system.[KPNR8106-01.rtf]	
Fuel System Verification Test	Use the electronic service tool in order to perform the Fuel System Verification Test.	
fuel tank	Ensure that the fuel level in the fuel tank is above the level of the suction pipe in the fuel tank.[KPNR6741-05.rtf]	
fuel tank cap	Remove the fuel tank cap from the fuel tank.[KPNR5342-05.rtf]	
fuel transfer pump	A line is connected to the rear of the cylinder head in order to return the leakoff fuel to the pressure side of the fuel transfer pump.[KPNR6741-05.rtf]	
Fuel Valve		A valve admitting fuel to the combustion chamber. In a more general sense, this term may also apply to any manual or automatic valve controlling flow of fuel.
full load setting	Examples of these parameters are Full Load Setting (FLS) and Full Torque Setting (FTS).[KPNR5342-05.rtf]	

full torque setting	Examples of these parameters are Full Load Setting (FLS) and Full Torque Setting (FTS).[KPNR5342-05.rtf]	
Full Turn Static Tipping Load	924H Rated Load for pallet forks for all North American conditions (SAE J1197 FEB 91) (Standard boom, 50% OF Full Turn Static Tipping Load)	
Full-Floating Piston Pin		A piston pin free to turn in the piston boss of the connecting-rod eye.
Full-Flow Oil Filter		All engine oil passes through this oil filter before entering the lubrication channels.
Fully killed steel		Fully killed steel is steel that is completely deoxidized by a deoxidizing agent such as aluminum.
functional test	The diagnostic codes are cross-referenced with the appropriate functional test or the procedure that can be used to troubleshoot the code.[KPNR5342-05.rtf]	
Furnace Atmosphere Management System	FAMS controls the process based on FIMS data.	
Furnace brazing machinery		Furnace brazing is when the parts are cleaned, loaded with brazing metal and placed into a furnace. The furnace then melts the filler metal to join the surfaces.
Furnace cycle movements	Furnace cycle movements are monitored and controlled by the Programmable Logic Controllers	
Furnace heat		In metal casting, a furnace heat is the batch or cast produced from a single melting operation.
Furnace soldering machinery		Furnace soldering is when the parts are cleaned, loaded with brazing metal and placed into a furnace. The furnace then melts the filler metal to join the surfaces.
fuse	Check that the fuses are not blown.[KPNR5342-05.rtf]	an electrical safety device consisting of or including a wire or strip of fusible metal that melts and interrupts the circuit when the current becomes too strong
fuse panel	The fuse panel is located on the left side of the interior storage box.	
G.E.T.	Ground Engaging Tools (G.E.T.) are secured by many types of bolts.	
Gallery		Passageway inside a wall or casting.
gallery plug	9Oil gallery plug; Install the Engine Pressure Group1U-5470 into oil gallery plug 1.	
Galvanic Action		When two dissimilar metals are immersed in certain solutions, particularly acid, electric current will flow from one to the other.

Galvanic corrosion		Galvanic corrosion is accelerated corrosion of a metal because of electrical contact with a more noble metal or nonmetallic conductor in a corrosive electrolyte.
Galvanic series		A galvanic series is a list of metals and alloys arranged according to their relative corrosive tendency in a given environment. The most common environment is seawater or other concentrations of salt in water.
Gang drilling machines		Drilling machines with multiple spindles that are capable of drilling as many as 50 holes of each varying size, depth, and location in a single step.
Gantry Crane		A gantry crane is a crane similar to an overhead crane except that the bridge for carrying the trolley or trolleys is rigidly supported on two or more legs running on fixed rails or other runway.
gap analysis	Gap analysis is done to measure the gap between what is targeted and the result.	
Garter spring	The garter spring is the part of the lip seal that pushes inward against the sealing element creating a uniform seal against the shaft.	
gas shutoff valve	The ECM supplies positive + battery voltage to the starting motor relay and the gas shutoff valve.	
gas strut	The foldable ROPS includes two gas struts that assist the operator when raising or lowering for transport.	
gasket	Remove exhaust manifold gasket 3 that is located between exhaust manifold 2 and the cylinder head assembly.[KPNR8106-01.rtf]	a piece which creates a seal between parts of a casing, for example a base gasket, carburetor gasket, cork gasket, or gear case gasket
gasket sealant	After applying the gasket sealant, tighten the inlet manifold to the cylinder head within ten minutes.	
Gassing		Hydrogen bubbles rising from the electrolyte when the battery is being charged.
Gate Valve		A common type of manually operated valve in which a sliding gate is used to obstruct the flow of fluid.
gauge		NON-PRECISION; All engine and machine gauges except for temperature;DO NOT USE this sense for thermometers.
gauge		THERMOMETER; temperature gauge; instrument for measuring temperature
gauge		PRECISION; dials on precision instruments; e.g. micrometer, dial indicator
gauge		used with a number, indicating the size according to some standard or system

gauge block	Ensure that the flame ring of the cylinder liner does not interfere with the gauge block or the dial indicator.[KPNR6741-05.rtf]	
Gauge Snubber		A device installed in the fuel line to the pressure gauge used to dampen pressure surges and thus provide a steady reading. This helps protect the gauge.
Gauge, High Pressure		Instrument for measuring pressures in range of 0 psig to 500 psig.
Gauge, Low Pressure		Instrument for measuring pressures in range of 0 psig and 50 psig.
gear chamfering machine		
gear deburring machine		
gear grinding machine		Gear grinding machines finish the gears by grinding them with grinding wheels in the exact shape of the tooth spacing of the gears.
gear hobbing machine		Gear hobbing machines use a gear-cutting hob to cut the teeth of a gear. A gear-cutting hob is basically a worm or screw, made into a gear-generating tool by machining a series of longitudinal slots or gashes into it to form cutting teeth.
gear honing machine		Gear honing machines use a plastic gear impregnated with fine abrasive particles. The process is faster than grinding and is used to improve the surface finish.
gear lapping machine		Gear lapping machines further improve the surface finish from honing machines. The ground gear teeth are lapped using abrasive compounds with either a gear-shaped lapping tool or a pair of mating gears that are run together.
gear motor	Remove the gear motor for the hydraulic fan.; Reposition the gear motor and use Tooling A to remove retaining ring 6.	
gear pin	Remove retaining ring 26, antirotation washer 27, planetary gear 25, eighteen needle bearings 28 and the gear washer from gear pin 29.	
gear shaping machine		Gear shaping machines use a pinion-shaped cutter to create a gear. The cutter has an axis parallel to that of the gear blank and rotates slowly with the blank at the same pitch-circle velocity with an axial reciprocating motion.
gear shaving machine		Gear shaving uses a cutter in the exact shape of the finished tooth profile and removes small amounts of metal from the gear teeth.
gear teeth	An AC voltage is produced as the gear teeth of the flywheel pass the tip of the sensor.	

Gear-type Pump		A pump which uses the spaces between the adjacent teeth of gears for moving the liquid.
General corrosion		General corrosion is a form of surface deterioration due to corrosion that is distributed more or less uniformly over a surface.
General Helmet	Provide protection against impact hazards and low voltage.	Device that is intended to reduce the force of impact from falling objects and to reduce the danger of contact with exposed low-voltage electrical conductors.
general purpose	General purpose bucket and extra duty teeth. With GP bucket, without teeth.	
General Tightening Specifications	General tightening specifications can be used because torque values are usually determined by the bolt size and not by the application.	
Generate Process Plan		The automatic creation of a process plan through input of variables into a predefined
Generating Company		
Generator Control Module		
Generator Power System		EPG power system that uses energy off an electric generator.
Generator Rear Axial		
Generator Rear Horizontal		
Generator Rear Vertical		
generator set	The G3500B Generator Set consists of an engine, a generator, and a control system.	
Generator, Cooling		A device used in absorption-type refrigeration systems to heat the absorbing liquid to drive off the refrigerant vapor for condensing to a liquid before entering the evaporator.
Generator, Electrical		An electromagnetic device used to generate electricity.
Genset Status Control		
Gland		A device to prevent the leakage of gas or liquid past a joint.
Glass bead cleaning		Glass bead cleaning is a surface cleaning process where small glass beads are propelled at high velocity against a surface to remove foreign material.
Glass beading		See Glass bead cleaning.
Glaze Breaker		A tool for removing the glossy surface finish in an engine cylinder.
Global Finance & Strategic Support		
Global Finance & Strategic Support Division		
Global Navigation Satellite System	Global Navigation Satellite System (GNSS)	

Global On-Highway Truck	MRC is driving major proces changes in Caterpillar Business Units, including Supply Chain, Global Purchasing, and with our External Suppliers	
Global Purchasing		
Global Purchasing Services		
Global Shared Services		
Global Supply Chain	One of the Lead Time Elements is Supply Chain Response Time. This is the total time from the supplier's receipt of a shipment authorization to the supplier's product arriving at the point of consumption. This time is developed through collaboration with t	
glow plug	The engines are equipped with a glow plug starting aid in each individual cylinder that heats the intake air in order to improve starting.	
Glow Plug Override Test	Use the electronic service tool to select the Glow Plug Override Test in order to turn on the power for the glow plugs.	
Glow Plug Start Aid Override Test	The electronic service tool includes the test Glow Plug Start Aid Override Test.	
glow plug start aid relay	While the glow plug start aid relay is energized the glow plug start aid relay will switch power to the glow plugs.	
glycol	Check the coolant frequently in cold weather for the proper glycol concentration.[KPNR6741-05.rtf]	any of a number of related alcohols
Governing Process	CPS Governing Processes are concerned with the governance of activities associated with tracking and measuring PQVC benefits.	
governor control pedal	Fully depress the governor control pedal.	
governor pedal	BMaximum travel of the governor pedal	
grade	Caterpillar uses grade 8 bolts and fasteners.	a classification
grade indicator	AGrade Indicators	
Grain		A grain is an individual crystal in a polycrystalline metal or alloy.
Grain boundary		A grain boundary is the interface between two metal grains. Grain boundary conditions can affect the behavior of a metal.
Grain flow		Grain flow is the distortion and/or movement of the metal grains in a part due to mechanical working.

Grain flow lines		Grain flow lines are fiber-like lines on ground or polished and etched sections of wrought metals caused by orientation of constituents in the metal in the direction working. Proper grain flow during working can improve the mechanical properties of a part
Grain Size		There are two types of grains in steel which affect the physical properties of steel; the austenite grain and the ferrite grain. The ferrite grain tends to remain stable in size at temperatures below the transformation range unless the steel is cold worked
Grain structure		Grain structure is the overall appearance of a section of metal that has been polished and etched to show its crystalline structure under magnification.
Graphite flakes		In gray cast irons, graphite flakes are a crystalline form of carbon that is present in the form of flakes distributed through the metal.
Graphite particles		Graphite particles are a crystalline form of carbon that is present in cast irons.
grapple arch	Push the grapple control lever forward in order to move the grapple arch inward.	Component that holds the grapple on a skidder.
Gravity, Specific		The specific gravity of a solid or liquid is the ratio of the mass of the body to the mass of an equal volume of water at some standard temperature. At the present time a temperature of a 4° C (39° F) is commonly used by physicists, but the engineer uses
Gray cast iron		Gray cast iron is a cast iron that has a relatively large percentage of the carbon present in the form of flake graphite. These castings exhibit a gray fracture when broken.
grease fitting	Assemble the linkage group on the machine and rotate the rod end of the bucket cylinder in order to position grease fitting away from the stick.	
grease gun	A grease gun uses pressure to force the ball to compress the spring allowing the grease past the ball check on the Grease Zerk and into the grease lines or bearings.	
Grease Lubricated Track	Heavy-Duty Grease Lubricated Track	
Grease Zerk fitting	A Grease Zerk fitting is used to insert lubricant into mechanical parts, lines, and assemblies. Grease Zerk fittings provide a passage for grease to get into the bearing areas and are found at points of wear such as loader linkages.	
Grid Interconnection		The intertie of a cogeneration plant to an electric utility's system to allow electricity flow in either direction.

Grid Locator	Image Caption	Geographical coordinates indicating address of a location
Grid, Battery		The lead frame to which the active material is affixed.
grind, to	If an undersized bearing is required, grind the crankshaft to a dimension listed in Table .[KPNR6740-04.rtf]	Remove metal from an object by means of a revolving abrasive wheel, disk, or belt.
grinder	Hand held grinders are used to grind castings in some stages of the process, including the finishing operations.	
grinder disc	Ensure that grinder discs are rated for the RPM of the tool in which they are used.	
Grinding Compound		Abrasive for resurfacing valves, etc.
Grinding crack		A grinding crack is a shallow, elongated surface crack resulting from an uncontrolled, abrupt heating and cooling cycle during a grinding operation.
Grinding machines		Grinders and grinding machines use an abrasive that is bonded to a wheel, belt or disc to remove material and improve surface finish.
grip	If any component is difficult to move due to the size, the grip, or any other difficulties, a hoist should be used.	a part designed to be grasped and held; a handle
Grit blasting		Grit blasting is a cleaning process that uses a chilled iron grit or non-metallic grit medium to remove scales and oxides from the surface of parts.
grommet		Grommets are rubber, plastic, or plastic coated metal rings that are inserted into a hole that has been cut through a sheet of metal. The smooth surface of the grommet protects hoses and wires passing through these holes from being abraded or cut. Grommets
groove	Ensure that the main bearing tab fits in the tab groove of the bearing housing of the cylinder block.[KPNR8106-01.rtf]	a linear channel cut into a piece (straight or spiral), such as a bearing tab groove, pin groove, lubricant groove, flare groove, grease groove, rail mounting groove, or wear groove")
groove		a channel forming a full circle around a round object (a ring groove), such as a piston ring groove, keystone designer ring groove, fire ring groove, pulley groove, or O-ring groove")
Gross Machine Operating Weight	Gross Machine Operating Weight	
Gross Power	Gross Power	
ground circuit	The ground circuit is open.; The ground circuit is correct.	
Ground Clearance	Ground Clearance	

Ground connection	When the transmission neutralizer override switch is activated, contact J2-31 will be connected to the Ground connection.	
ground engaging tools	Ground Engaging Tools (G.E.T.) are secured by many types of bolts.	
ground level	Ground level engine shutdown	
ground path	All of the ground paths must be capable of carrying any potential currents.	
ground source	The short is between the signal circuit (H718GY) and a ground source.; The short is between the signal circuit (C530BU) and a ground source.	
ground speed	The transmission control will be unable to determine ground speed.; The transmission control will be unable to determine the ground speed of the machine.	
ground strap	Disconnect ground strap 15.; Lower the cab onto the cab mounts and install bolts 16 and ground strap 15.	
Ground terminal	4 Ground terminal.	
ground wire	Ground wires should be combined at ground studs.[KPNR6741-05.rtf]	
Ground, Battery		The battery terminal that is connected to the engine of the framework.
grounded circuit	A grounded circuit is a connection of any electrical unit to any part of the machine.	
grounding bar		A copper or aluminum bar that electrically joins all the metal sections of the switchgear. This bar is connected to the earth or ground connection when the system is installed. The grounding or earthing protects personnel.
Grouser Shoes	Double Grouser Shoes	
GSC + Synchronizing		General Status Control plus Synchronizing
GT Nexus		A hosted visibility application used to integrate data from any Cat orders systems with carrier tracking information.
guidance screen	From any guidance screen, press Laser.	
guide bolt	Install the four guide bolts with 90 degree angles between the guide bolts.	
Guide Collar	Guide Collar	
guide pin	Applying guide pins is one of the common error-proofing techniques used at Caterpillar.	

gun drilling machine		Drilling machine used for long holes such as those found in gun bores. The length of the hole requires that coolant be delivered through the shaft of the gun drill to the cutting front.
Guttering		Guttering is erosion of an engine valve face that results when the valve is not in full contact with the seat due to deposits, seat distortion, insufficient use, or some other cause. If the valve does not seal locally, leakage will occur that can result i
half flange	Install seal 42, half flanges 48 and blocking cover 17 to the end of delivery line 12 by using bolts 46 and washers 47.	
Half-moon Key		A fastening device in a shape somewhat similar to a semicircle. (See Key.)
Halide Refrigerants		Family of refrigerants containing halogen chemicals.
hammer	The hammer turns ON when the foot switch is depressed.[RPNR7389-09.rtf]	a hand tool used to exert an impulsive force by striking, consisting of a rigid, often hard, head and a perpendicularly attached handle;DO NOT USE 'hammer' alone to mean 'a piece of equipment that exerts impulsive force'
handling crack		Handling cracks are cracks in parts arising from impact loads during manufacturing or subsequent handling.
Hard facing		Hard facing is the process of depositing hard surface filler metal on the surface of a part to increase its resistance to abrasive wear.
Hard Hat	Hard hats are made with a hard outer shell and a shock-absorbing lining.	Device for the head that reduces the force or impact of a falling object.
Hard line contact		Hard line contact is gear tooth surface damage that results when the tip of one gear tooth meshes with another tooth and, instead of rolling, penetrates the lubrication film and scuffs the surface (adhesive wear). Hard line contact is typically found belo
hard tool steel	One of the most common metals that can be forged is hard tool steel	
Hardenability		This relates to the ability of steel to harden deeply upon quenching and takes into consideration the size of the part and the method of quenching. In testing for hardenability, standards are established governing the method of quenching and the quenching
Hardening furnace		A hardening furnace is a heat treatment furnace designed to subject metal parts to a sequence of temperature changes, time of retention at specific temperature and rate of cooling to alter strength, hardness, ductility, malleability, and similar propertie

Hardness		Hardness is the property of a material that enables it to resist plastic deformation, usually by penetration. However, the term hardness may also refer to resistance to bending, scratching, abrasion or cutting. A hardness property value is the result of a
Hardness Testing		The determination of the ability of a metal to resist penetration; the hardness of the metal may be determined by several methods (i.e. Brinell, Rockwell, Superficial).
Harmonics		Waveforms whose frequencies are multiples of the fundamental (60 Hz) wave. The combination of harmonics and fundamental waves causes a non-sinusoidal, periodic wave. Harmonics in power systems are the result of non-linear effects. Typically, harmonics are
harness	Check the harness and the wiring for abrasion and for pinch points from each sensor back to the ECM.[KPNR5342-05.rtf]	a group of wires drawn together in a bundle, as in a wiring harness
harness connection	Inspect all harness connections that are related to the Cat Data Link.	
harness connector	Thoroughly inspect the harness connector P2/J2 and the solenoid connector.[KPNR5342-05.rtf]	
harness sleeves	Pull back the harness sleeves in order to check for a flattened portion of wire.	
harvester	Use the computerized bucking system CABSWin or the CABSDos for the wheel harvesters.	
haul-road	Designed to dissipate haul-road and loading impacts for longer frame life and a more comfortable ride.	
hazard		A hazard is defined as any existing or potential condition that, by itself or by interacting with other variables can result in personal damage, property damage, or other loss.
Hazard Recognition	Extend "hazard recognition" to unsafe acts as well as unsafe conditions in everything you do.	The ability to identify safety risks.
hazardous air pollutant		
Hazardous conditions	When correcting hazardous conditions, you must always identify the source. For example, cleaning up a fluid spill on the floor may just be a temporary fix unless you eliminate the source of the fluid. Always seek a permanent fix.	Something that places a person at risk of injury.
hazardous material approval	Providing or participating in Hazardous Material approval	
hazardous organic compound		

head		Static. Pressure of fluid expressed in terms of height of column of the fluid, such as water or mercury.
head		Velocity. In flowing fluid, heat of fluid equivalent to its velocity pressure.
Head burst		A head burst is a surface cavity in the head of a bolt that results from the action of the forming operation on a seam in the bolt material.
head end	The electronic control system uses a pressure sensor in order to monitor the hydraulic pressure in the head end of the work tool cylinders.[RPNR7389-09.rtf]	
head end pressure	When the head end pressure reaches the value of parameter F2 SQEZ START PRES, the electronic control system begins lowering the pilot pressure.[RPNR7389-09.rtf]	
Head Pressure		Pressure which exists in the condensing side of a refrigerating system.
Headcount Information		the number of people who work in a given work area, normally segregated by payroll type (hourly, salaried, management) and status (full-time or part-time)
Head-Pressure Control		Pressure operating control which opens electrical circuit if high side pressure becomes excessive.
Health	Cat MineStar System Component	
Health Watch	When purchasing subscriptions on machines that are equipped with Product Link Modules, Maintenance Watch and Health Watch cannot be purchased without a subscription to Asset Watch.	
Health Watch information	Health Watch information is dependent upon the machine model, the year of production, and the Product Link model that is installed.	
Hearing Conservation Plan	OSHA requires employers to have a Hearing Conservation plan for their facilities and are to provide the hearing protection required and training in the use of this protection.	
Heat checking		Heat checking is metal cracking due to alternating heating and cooling of the extreme surface of the metal.
Heat Coil		A heat transfer device which releases heat.

heat cramp		Heat cramps are caused by heavy sweating, especially when only water, and not salt and potassium, is replaced by drinking. Although heat cramps can be quite painful, they usually do not result in permanent damage.
heat exchanger	Check the radiator or the heat exchanger for a restriction to coolant flow.; If a pressure indication is shown on the indicator, push the release valve in order to relieve pressure before removing any hose from the heat exchanger.	
Heat of Compression		Mechanical energy of pressure transformed into energy of heat.
Heat of Fusion		The heat released in changing a substance from a liquid state to a solid state. The heat of fusion of ice is 144 Btu per pound.
Heat Pump		A name given to an air-conditioning system that is reversible so as to be able to remove heat from or add heat to a given space or material upon demand.
Heat Pump — Air Source		A device that transfers heat between two different air quantities, in either direction, upon demand.
Heat Pump — Water Source		A device that uses a water supply as a source of heat or for disposal of heat depending upon the operational demand.
Heat Rate		A measure of generating station thermal efficiency, generally expressed in Btu (per net kilowatt-hour).
Heat Recovery		The capture and utilization of heat energy which is normally wasted as a by-product of a diesel or gas engine.
heat shield	Remove heat shield	
heat shrink tubing	The switch terminal must be insulated with heat shrink tubing.	
Heat Transfer		Movement of heat from one body or substance to another. Heat may be transferred by radiation, conduction, convection, or a combination of these three methods.
heat treat		Altering the properties of a metal by subjecting it to a sequence of temperature changes for specified durations.
Heat treat crack		A heat treat crack is a crack in a metal part resulting from heating and/or cooling during a heat treatment process.
heat treat engineer	It is one of the job titles of the manufacturing engineer. To perform the responsibilities of an operator effectively, he needs to have a sound understanding of Heat Treat Equipments such as Heat Treat furnaces, quenching baths, etc.	
Heat Treat Furnace		

Heat Treat Hazards	When you discover a hazard or risk, not inherent to the job or task, it is your responsibility to bring it to management's attention.	Heat treat process hazards are the inherent risks that come with processing steel. These are usually related to: Heat treated product, Tooling for processing, Lifting - lifting devices, piece part weight, part shapes, part loading plans, sharp edges on pa
heat treatment	Heat treatment is essential for giving components the desired metallurgical properties.	
Heat, Sensible		A term used in heating and cooling to indicate any portion of heat which changes only the temperature of the substances involved.
Heat, Specific		The heat absorbed (or given up) by a unit mass of a substance when its temperature is increased (or decreased) by 1-degree Common Units: Btu per (pound) (Fahrenheit degree), calories per (gram) (Centigrade degree). For gasses, both specific heat at consta
heater	The radiator and all lines to the heaters or to the engine contain hot coolant.	an apparatus that heats or provides heat
Heater Coil	Evaporator Coil and Heater Coil - Remove; Evaporator Coil and Heater Coil - Install	
heater core	Remove heater core 16.	
Heating Bell Connector	Image Caption	Bell connector is clamp applied to prevent leakage in a joint. (The term should be Bell Connector and not heating bell connector)
Heating Zone		Furnace area where parts are heated to a specified temperature in a heat treat process
Heavy Construction & Mining		
heavy lift solenoid valve	This diagnostic code is associated with the Heavy Lift Solenoid Valve.	
heavy-duty boom	345D L Excavator with a 6,9 m22 ft 8 inch heavy-duty boom, a 2,9 m 9 ft 6 inch short stick, a 2,2 m 32,88 yd3 bucket, a 9000 kg 19840 lb counterweight, and 600 mm 24 inch triple grouser track shoes	
heavy-duty coolant	However, a commercial heavy-duty coolant/antifreeze that only meets the ASTM D4985 specification WILL require a treatment with an SCA at the initial fill.	
Heavy-Duty Idler Gear	Installation Procedure (Heavy-Duty Idler Gear)	
heavy-duty upper frame	345C Material Handler with a 9,9 m 32 ft 6 inch boom, a 7,4 m 24 ft 3 inch stick, a 12000 kg 26455 lb counterweight, a heavy-duty upper frame, an extra wide undercarriage, and 750 mm 2 ft 6 inch track shoes	
Helical Gear		A gear wheel of a spiraling shape. (The teeth are cut across the face at an angle with the axis.)

Hermetic Compressor

Compressor in which the driving motor is sealed in the same dome or housing that contains the compressor.

Hermetic Motor

Compressor drive motor sealed within same casing which contains compressor.

Hermetic System

Refrigeration system which has a compressor driven by a motor contained in compressor dome or housing.

Hermetically Sealed Unit

A sealed hermetic-type condensing unit is a mechanical condensing unit in which the compressor and compressor motor are enclosed in the same housing with no external shaft or shaft seal, the compressor motor operating in the refrigerant atmosphere. The co

HEX

hydraulic excavator;DO NOT USE 'hex' to mean 'a piece of hardware with a hexagonal shape' (use the full name of the tool; e.g. 'hex wrench')

hexagonal drive

Insert a 6mm hexagonal drive into the hole and rotate the hexagonal drive clockwise until resistance is felt.

High (rev/min) Oil Pressure Switch

high abrasion rock spade

High Abrasion Rock Spade with Teeth and Segments

high amplitude relief valve setting

The force that is needed to overcome the inertia of the weights causes the pressure in the vibration system to momentarily reach the high amplitude relief valve setting.

High carbon steel

High carbon steel is steel that contains more than 0.8% carbon. As carbon content in steel increases, steel loses formability and toughness.

high circuit resistance

NO - If the voltage in Step is more than 1 volt for 12 volt systems (2 volts for 24 volt systems) higher than the voltage in Step , there is high circuit resistance:

High cycle fatigue

High cycle fatigue is fatigue that occurs at relatively large numbers of cycles. The arbitrary, but commonly accepted, dividing line between high cycle and low cycle fatigue is considered to be about 10,000 to 100,000 cycles. In practice, this distinction

High Density Polyethylene

High Engine Coolant Temperature Moderate Severity

High Engine Coolant Temperature Moderate Severity

High Heat Value

The total energy content of a fuel available by complete combustion and all products of combustion at 60° F and water in a vapor state. Equals to the High Heat Value less the latent heat of vaporization.

High Lift Loader

High Lift Loader

High Load Factor

If the average fuel consumption of your 992G Wheel Loader or 854G Wheel Dozer exceeds 115,5 L30,5 US gal per hour, follow the High Load Factor recommendations in Table .

High Oil Temperature Switch
High Performance

High Pressure Cylinder

High Pressure Cylinder (Steering Accumulator) (Earlier Machines)

High pressure fuel manifold

7High pressure fuel manifold (rail)

high pressure oil

The high pressure oil flows from valve chamber 10 through passage 12 to return passage 8.

high speed oil change

If the machine is equipped with a high speed oil change, use a Nozzle126-7539.

high sulfur diesel fuel

API CH-4 oils are also acceptable for use in older diesel engines and in diesel engines that use high sulfur diesel fuel.

High temperature corrosion

High temperature corrosion is a form of corrosion that does not require the presence of a liquid electrolyte, sometimes called "dry corrosion" or "scaling". High temperature oxidation is the most important high temperature corrosion reaction.

High temperature range

AHigh Temperature Range

high traffic zone

Environmental hazards are the risks associatedwith the conditions you work in, such as high traffic zones

High Water Temperature Switch

high-capacity polyethylene water tank

A 300L (79 gal) high-capacity polyethylene water tank is enclosed within the machine frame, providing extended operation. the large water tank fill and drain allow the system to be filled or drained within minutes.

High-Level Value Stream

A visual representation of aggregated material and information flows within a company or business unit.

high-velocity order-fulfillment process

Integrating a diverse supply base to enable a lean, high-velocity order-fulfillment process

Hinge effect		In connecting rods, the hinge effect is the group of road signs that develop when one side of a connecting rod cap becomes unattached during engine operation. To hinge is to rotate around a fixed point.
hinge, to		
hinged engine enclosure doors	Large, hinged engine enclosure doors make regular maintenance as easy and fast as possible.	
hitch pin	Install upper hitch pin 19.	
hoist	If any component that weighs more than 23 kg50 lb is lifted, a hoist should be used. When the hoist control lever is in the RAISE position or in the LOWER position and the shift lever is in the REVERSE position the requested gear command is set to the NEUTRAL position. The gear is also limited until the hoist control position sensor tells the Power Train/Chassis ECM that the hoist control is in the FLOAT position.	a mechanical device for lifting heavy objects
hoist control lever		
hoist control position sensor		
Hoist Motor Rating Plate	Image Caption	The maximum amount of load hoist motor can support
Hoist Movement	One of the rows on the risks identified table	Movement of the hoist during materials handling
hold	HOLD 3	a position in which movement is prevented
HOLD position	The lever will return to the HOLD position when the lever is released.	
holdout ring	20 Notch in holdout ring.; Holdout ring 8 and holdout ring 9 are identical.	
home key	Press the home key 3 in order to exit the service mode, or back out using the cancel key 7, until the SERVICE screen appears.[RPNR7389-09.rtf]	
honoring machine		Honing machines improve the surface finish of parts by using a honing tool, which consists of a set of aluminum oxide or silicon carbide bonded abrasives called stones. Honing machines are used primarily for holes, but can used for external cylindrical or
hood actuator bolt	Hood Actuator Bolts	
hood actuator switch	15 Tilt Hood Actuator Switch	
hopper	The sand is poured into hoppers that will deliver the sand to forming process/machines.	
horizontal boring machine		A boring machine with the spindle of the machine is oriented in the horizontal direction.
horizontal guidance	Illustration shows the Cross-section View when the master alignment is selected for horizontal guidance.	

Horizontal Pin Work Tool Coupler	The Horizontal Pin Work Tool Coupler will use an extra valve that is located on the coupler in order to engage the pins.	
horn	The horn relay sends power to the horn.[RPNR7389-09.rtf]	an electrical device that makes a warning noise
Horsepower-hour		A unit of energy equivalent to that expended in 1 hp applied for 1 hour. Equal to approximately 2,545 Btu.
hose assembly	Put identification marks on all hoses, on all hose assemblies, on all harness assemblies, and on all tube assemblies for installation purposes.[KPNR8106-01.rtf]	
Hose clamps	Hose clamps are used to connect hoses to fittings, maintain correct hose orientation, and prevent motion of hoses once assembled. Fixed Quantity Kanban replenishment is used for non-OSS items. It consists of the following subsets:	
Hose Replenishment	<ul style="list-style-type: none"> • Small Parts Replenishment • Hose Replenishment • Other Replenishments 	
Hot crack		A hot crack is a crack that forms, usually at elevated temperature, because of the internal (shrinkage) stresses that develop during solidification of a metal casting or a weld.
Hot damp look		The hot damp look is the appearance of a gear or anti-friction bearing that has failed by adhesive wear with lubrication present including discoloration and burned on oil deposits.
Hot dry look		The hot dry look is the appearance of a gear or anti-friction bearing that has failed by adhesive wear without lubrication present including discoloration but without burned on oil deposits.
Hot Gas Bypass		Piping system in refrigerating unit which moves hot refrigerant gas from condenser into low pressure side.
Hot Gas Line		The line that carries the hot discharge gas from the compressor to the condenser.
Hot rolled steel		Hot rolled steel is a steel slab that has been rolled into flat-rolled steel products after having been reheated.

Hot rolling		Hot rolling is the reduction of steel ingot size by rollers rotating in opposite directions and spaced at a distance less than the steel entering them.
Hot Segment Tooling		Tooling used to handle hot parts
Hot Shortness		Brittleness in metal when hot.
Hot Spot		Refers to a comparatively thin section or area of the wall between the inlet and exhaust manifold of an engine, the purpose being to allow the hot exhaust gases to heat the comparatively cool incoming mixture.
hot tear		Hot tears are fracture that form during metal solidification due to hindered contraction. Hot tears are frequently open to the surface of the casting and thus exposed to the atmosphere. This may result in oxidation, decarburization or other metal-atmosphere
Hot testing		Test equipment that monitors the performance of devices including engines and transmissions. The device is hooked up to a test stand and all required fluids are supplied to start and run the device for an extended period of time. The performance is then measured
Hot Well	(expansion tank)	A system used when static head exceeds 17.4 m (57 ft), or a boost pump imposes excessive dynamic head.
Hot working		Hot working is controlled plastic deformation performed above the recrystallization temperature for the purpose of shaping a product.
hour meter	The calibration can be exited at any time by holding the mode switch until the display changes to the hour meter. Scroll to the next calibration or toggle the Mode switch to the hour meter in order to exit the calibration mode. The hour meter indicates the total number of hours of generator set operation to aid in maintenance.	Instrument used to measure machine hours.
housing	Check that the housing for the turbocharger is free of dirt and debris.[KPNR5342-05.rtf]	the layer of hardened metal at the surface of a case-hardened part (distinct from the core or body, which is the softer metal it covers or surrounds). When something is case hardened, heat is applied to toughen the metal. The tough layer so formed is the 'housing'
housing ramp	The slipping of the rubber toric ring on the housing ramp or on the seal ring ramp may result in uneven pressure on the seal face.	
housing retaining lip	Rubber toric ring 2 may twist during installation if the seal is not completely wet or if there are burrs or fins on housing retaining lip 3 that is part of seal ring housing 5.	
Human Services Division Humidifier		Device used to add to and control the humidity in a confined space.

Humidistat		An electrical control which is operated by changing humidity.
hump hose	Installation of additional hose clamps on the hump hoses is recommended in order to prevent the hoses from bulging while the aftercooler core is being pressurized.	Hose that has a bulge in it that is designed to allow the joint to flex.
Hybrid		An engine which combines the features of reciprocating and rotating engines.
hydraulic		operating by means of a fluid under pressure
hydraulic accumulator	The hydraulic accumulator is installed under the main control valve.	
hydraulic activation control lever	When hydraulic activation control lever 3 is shifted to the LOCKED position, the hydraulic activation solenoid is de-energized.[RPNR7389-09.rtf]	
hydraulic activation lever	When the hydraulic activation lever is moved to the UNLOCK position, pilot oil flows from pilot manifold 26 to solenoid valves:[RPNR7389-09.rtf]	
hydraulic cab riser switch	The hydraulic cab riser switch activates the controls in order to operate the hydraulic cab riser.	
hydraulic circuit	The release of hydraulic pressure in a hydraulic circuit is required before service is performed to that hydraulic circuit.	
hydraulic cylinder	When the stick is in the STICK IN position, the hydraulic cylinder that controls the stick will be fully extended.[RPNR7389-09.rtf]	
hydraulic drive winch gear case	Except for the hydraulic drive winch gear case.	
Hydraulic Excavator	Our Off-Highway Trucks are pass-matched with Cat Wheel Loaders and Hydraulic Excavators to speed cycle times and maximize productivity.	
hydraulic flow	Use the display monitor or ET in order to set the hydraulic flow to the work tool.[RPNR7389-09.rtf]	
hydraulic fluid	Hydraulic fluid and process air are needed for the power and movement of mechanical equipment	
Hydraulic Governor		A governor which uses a control valve to allow oil pressure to work directly on the terminal shaft through a power piston.
hydraulic hand control	When the hydraulic hand control is moved to the RAISE position, the spool 7 moves to the left.	
hydraulic horsepower	The hydraulic horsepower remains constant even though the delivery pressure and the flow rates change.	

hydraulic line	Install a 400 L80 US gal flow meter in the hydraulic line to the tool.[RPNR7389-09.rtf]	
hydraulic lock relay	The machine harness or the hydraulic lock relay has failed.	
hydraulic lock solenoid	The hydraulic lock solenoid is wired to the hydraulic activation control lever.[RPNR7389-09.rtf]	
hydraulic lockout lever	When the hydraulic lockout lever is in the UNLOCKED position, the oil delivery from pilot pump 23 flows through pilot oil manifold 20 to pilot control valve 15.	
hydraulic lockout switch	The hydraulic lockout switch is designed to deactivate the hydraulic controls.	
hydraulic modulation	Hydraulic modulation cushions transmission shifts and reduces stress on components.	
hydraulic oil	Warm the hydraulic oil to 50 °C122 °F.[RPNR7389-09.rtf]	
hydraulic oil cooler	Hydraulic oil cooler with thermal bypass	
hydraulic oil cooler assembly	Attach a suitable lifting device to hydraulic oil cooler assembly 3.	
hydraulic oil flow	The default parameter values for TOOL#1 and TOOL#3 are for one-way hydraulic oil flow from one main pump.[RPNR7389-09.rtf]	
hydraulic oil level	On machines equipped with a dump body maintain the hydraulic oil level above the ADD COLD mark in upper sight gauge 2 when the dump body is fully lowered.	
Hydraulic Oil Reservoir	Hydraulic Oil Flow	
Hydraulic Part Products Division		Division which deals extensively with hydraulic parts and components
hydraulic pedal	Hydraulic Pedal and Joysticks with Three Buttons[RPNR7389-09.rtf]	
Hydraulic Pin Grabber Quick Coupler	Hydraulic Pin Grabber Quick Coupler	
hydraulic press brake		Press brakes bend sheet metal or plate by utilizing long dies and a hydraulic press. Hydraulic presses operate at constant speeds and can transmit large amounts of energy to the workpiece by maintaining a constant load throughout the stroke.
hydraulic pressure	When the clench pressure circuit is activated in order to grip an object, the hydraulic pressure for the work tool circuit increases to the line relief setting.[RPNR7389-09.rtf]	

hydraulic pump	When BUCKET/NO TOOL is selected in the monitor, the hydraulic pumps produce maximum flow.[RPNR7389-09.rtf]	
Hydraulic Schematic	Hydraulic Schematic for Machines that have Secondary Steering and Command Control Steering; Hydraulic Schematic for Machines that use Command Control Steering	
hydraulic shuttle valve	The pilot oil flows from port 17 through hydraulic shuttle valve 4.	
hydraulic system	Hold the device for activation in the OPERATION position for a few seconds in order to allow the hydraulic system to stabilize before repeating the Steps.[RPNR7389-09.rtf]	
hydraulic tank	Return oil flows back through the main control valve to hydraulic tank 9.[RPNR7389-09.rtf]	
hydraulic tank breather	5Hydraulic tank breather	
hydraulic temperature	Threshold for the warning of high hydraulic temperature[RPNR7389-09.rtf]	
Hydraulic torque tools		Hydraulic torque tools use hydraulic pressure to turn a hydraulic motor that creates torque on a fastener. They are generally used in applications that require high torque values or when access for other tooling is limited.
hydraulically actuated electronic unit injection	Hydraulically Actuated Electronic Unit Injection (HEUI)	
Hydraulically Actuated Electronically Controlled Unit Injector		A Cat system which manages precise injection of fuel in an engine to achieve optimal efficiency and performance.
Hydraulics		That branch of mechanics or engineering which deals with the action or use of liquids forced through tubes and orifices under pressure to operate various mechanisms.
Hydraulics & Hydraulic Hydraulics & Hydraulic PC		
hydrocarbon		Emissions consisting of unburned fuel or lubricating oil, which cause eye irritation and unpleasant odors. Measured in parts per million by volume. HC concentration(ppm)=2067xHC mass emissions (g/hr) / Exhaust mass flow (kg/hr)
Hydrogen		One of the elements constituting fuel and lubricating oil.

Hydrogen flake

A hydrogen flake is a short, discontinuous internal crack in a ferrous metal attributed to stresses produced by localized transformation and hydrogen solubility effects during cooling after hot working. On fracture surfaces, hydrogen flakes appear as brig

Hydromechanical Governor

A governing system which uses engine lubricating oil pressure to support the action of a mechanical control — any mechanical governor assisted by a hydraulic servo valve.

Hydrometer

A test instrument for determining the specific gravities of liquids.

Hydrosolv Liquid Cleaner

Table lists the Hydrosolv Liquid Cleaners that are available from your Caterpillar dealer.

hydrostatic transmission system

Cat HYDO Advanced 10 is the preferred oil for use in most Caterpillar machine hydraulic and hydrostatic transmission systems when ambient temperature is between -20 °C-4 °F and 40 °C104 °F.

IAH

Inlet Air Heater

ID Code

ID Code 1 (Open); ID Code 2 (Ground)

identification mark

Put identification marks on all hoses, on all hose assemblies, on all harness assemblies, and on all tube assemblies for installation purposes.[KPNR8106-01.rtf]

idle speed

The harness code provides the characteristics of the machine such as the size of the engine, idle speed, tire size and attachments.

idler

The Idler(s) are the non-powered wheels that support the Track assembly

idler gear

Align the 3 Mark on fuel injection pump drive gear 2 with the 33 Mark on idler gear 3 by rotating the engine.[KPNR8106-01.rtf]

idler gear bolt

Remove idler gear bolt 5 and the washer from the idler gear shaft .[KPNR8106-01.rtf]

idler gear bushing

Measure the inside diameter of the idler gear bushing.[KPNR6741-05.rtf]

idler gear shaft

Remove idler gear bolt 5 and the washer from the idler gear shaft .[KPNR8106-01.rtf]

idler link

Some bucket control linkages are equipped with shims between the power link and the right hand idler link.

idler pulley

Position idler pulley assembly 2 onto a suitable press.[KPNR8106-01.rtf]

idler pulley assembly

Use Tooling A in order to remove retaining ring 1 from idler pulley assembly 2.[KPNR8106-01.rtf]

idler pump	This allows oil from drive pump 30 to flow through attachment control valve 21 and this allows oil from idler pump 29 to flow through auxiliary control valve 20.[RPNR7389-09.rtf]	
idler pump regulator	The following description is given for the idler pump regulator.	
idler shaft	Use Tooling A in order to remove idler shaft 8 (not shown) from the cylinder block.[KPNR8106-01.rtf]	
Idling		Refers to the engine operating at its slowest speed with a machine not in motion. An engine running without load.
ignition	Check the circuit of the ignition switch.[KPNR6741-05.rtf]	the system which controls the firing of cylinders, or components of that system, as in breakerless ignition, Caterpillar spark ignition engine, or defective ignition switch;DO NOT USE 'ignition' alone to mean 'the actual point when fuel is set on fire', as in fuel ignition
Ignition Key Reader	CID 1960 - Ignition Key Reader:	
Ignition Lag		The time between start of injection and ignition.
ignition switch	Turn the ignition switch to the OFF position.	
immersion heater	Oil pan immersion heaters are not recommended for heating the engine oil.	
Impact shear fracture		An impact shear fracture is a ductile fracture in which a crystal (or polycrystalline mass) has separated by sliding or tearing under the action of shear stresses generated by impact with another part.
Impact shearing		Impact shearing is a type of fracture that results when a part is caught between two other parts, one or both of which are moving, and scissored into pieces.
Impact Testing		Method to determine the tendency of a metal toward brittleness. Samples are mounted and struck with a single pendulum-type blow of such force as to fracture the specimen. The energy required is measured in foot-pounds and is affected by the striking veloc
impact type driver	Do not use an impact type driver to install the bearings.	
impact wrench	Do not use a impact wrench in order to remove piston 12.; Do not use a impact wrench in order to install piston 12.	
impeller		a pump impeller, such as a water pump impeller
impeller		turbine impeller; such as the turbocharger and torque converter impellers
Implement Cycle Time	Implement Cycle Time - Check	
implement cylinder	Roll finger roller 22 forward in order to extend the implement cylinder.	

Implement ECM	The Implement ECM cannot communicate with the Engine ECM or the ECM appears to work intermittently.; The part number for the configuration software of the Implement ECM	
implement/swing pressure switch	Implement/swing pressure switch 4 signals the machine electronic control module.[RPNR7389-09.rtf]	
Implode, to		Implode means to burst inward, such as in a collapsing cavity, or negative-pressure region during cavitation erosion. Requires varying generator set power output with site load to keep the amount of power "imported" from or "exported" to the utility near constant. The generator sets operate in parallel with the utility, and their output is raised and lowered to match cha
Import/Export Control		Impression die forging involves pounding or pressing metal between two dies. It is also known as tooling. It contains a precut profile of the desired part. Parts from a few ounces to 60,000 pounds can be forged using this process. Some of the smaller part
Impression Die Forging		Exciter components are physically inboard of ball bearing. This design is okay where shaft deflection between bearing center and engine drive flange mounting is not a problem.
Inboard Exciter		
Inbound Log Ctrs Profit Ctr		
inclusion		Particles of impurities, usually oxides, sulphides, silicates, and such, which are mechanically held during solidification or which are formed by subsequent reaction of the solid metal. These impurities are called nonmetallic inclusions and may or may not
Indentation		An indentation is a recess in a surface; often used in connection with hardness testing.
Indicated Thermal Efficiency		The ratio of indicated horsepower to equivalent power input in the form of heat from fuel.
indicator		a light which will be turned on or off in order to inform the operator of the status of the machine, as in 'indicator light' or 'accumulator indicator';DO NOT USE 'indicator' alone to mean 'a device which measures a condition on a calibrated gauge', such as a dial indicator, pressure indicator, or temperature indicator
indicator		a device which gives a relative value to indicate a condition, such as an air filter service indicator or a boom angle indicator;DO NOT USE 'indicator' alone to mean 'a device which measures a condition on a calibrated gauge', such as a dial indicator, pressure indicator, or temperature indicator

indicator lamp	The indicator lamps are activated by the Electronic Control Module (ECM) in order to inform the operator of various engine events.[KPNR5342-05.rtf]	
Indirectly Cooled Piston		A piston cooled mainly by the conduction of heat through the cylinder walls.
Indoor Air Quality		
Induction		Using the magnetic field to impart electricity into an object which is not otherwise connected to the first ones.
Induction brazing machinery		Induction brazing is when the parts are loaded with filler metal and placed near the induction coils for rapid heating.
Induction Generator		A nonsynchronous AC generator similar in construction with an AC motor, and which is driven above synchronous speed by external sources of mechanical power.
Induction Hardening		A method of hardening the surface of a part electrically. A high frequency current, varying from a few thousand cycles to several million cycles per second, is passed through a coil that is held very close to the surface to be hardened. This induces eddy
induction heat treat Application	Induction Heat Treat is preferred for hardening specific wear surfaces, such as splines, link rails, and bolts.	
Induction heating		Induction heating is a process for heating metal through the use of alternating electric current.
induction heating machine		The part to be heat-treated is heated rapidly by the electromagnetic field generated by an induction coil carrying alternating current, which induces eddy currents in the part.
induction soldering machinery		Induction brazing is when the parts are loaded with filler metal and placed near the induction coils for rapid heating.
Industrial Air-Conditioning		Air-conditioning for uses other than comfort.
industrial cleaner		strong detergents or other cleaning products that are aggressive in their action and intended to remove heavy industrial soils from machine tools, parts, factory floors, or other hard surfaces. They are often corrosive to skin and eyes, and even the milde
Industrial Grade Relay		An AC protective relay that is installed within the switchgear enclosure and cannot be easily removed for testing and calibration.
Industrial Grapple Bucket	Industrial Grapple Bucket	
Industrial Hygiene		Science of anticipating, recognizing, evaluating and controlling workplace conditions that may cause workers injury or illness.
Industrial Hygiene Hazards		Biological, Chemical, Physical.
Industrial Power Systems		

Industrial Power Systems Division

industrial screwdriver

Industrial screwdrivers are automated tools that are used to turn screws while providing close control of screw torque. They can be electric or pneumatic and may include features such as torque feedback and controlled stopping.

industry classification

The base 784C as supplied by Caterpillar requires additional mounting of equipment or machinery in order to determine the final function and industry classification.

Inert shielding gas

Prevents oxidation of the weld and the weld region.

Inertia

That property of matter which causes it to tend to remain at rest if already motionless or to continue in the same straight line of motion if already moving.

Inertia force

Inertia force is a force exerted on or by a body as a result of its inertia. (Inertia is a property of matter by which it remains at rest or in uniform motion in the same straight line unless acted upon by some external force.)

Inertia weld

Inertia welding is a welding process in which the energy required to make the weld is supplied primarily by stored rotational kinetic energy of the welding machine. When the rotating work piece is forced against the stationary work piece, the kinetic ener

Inertia-braked towable mass

Inertia-braked towable mass

inflation pressure adjustment

For additional information about tire inflation, tire pressures, and tire inflation pressure adjustment, refer to the Operation and Maintenance Manual Tire Inflation Information for the machine that is being serviced.

Information Management System

Infrastructure Development
ingestion

Taking in substances through the digestive system.

Ingot

An ingot is a casting of simple shape, suitable for working or remelting.

Initial Alarm message

Initial Alarm Message

initial calibration

An even load balance across the loadcells and pins is an essential part of the initial calibration set up.

initial check

After the initial check, the belt tension should be checked at Every 250 Service Hours or 1 Year.

initial contact	Take all measurements at the time of initial contact in order to prevent twisting.	
initial cost	The initial cost of the repair-after-failure philosophy is lower.	
initial determination	Make the initial determination of the machine's failure to crank.	
initial diagnostic code	The initial diagnostic code was probably caused by a poor electrical connection or a short at one of the harness connectors that was disconnected and reconnected.	
initial elevation	If the ATS Instrument did not have an initial elevation, clearing the benching data stops guidance.	
initial fault	The initial fault was probably caused by a poor electrical connection or a short at one of the harness connectors that was disconnected and reconnected.	
initial flow	The initial flow on the charts is low reflecting the standby pressure from the pump.	
initial lash	Record the initial lash settings for each unit prior to adjustment.	
initial lift	When the initial lift is laid, the end gate should be adjusted in order to ride on the grade.	
Initial pitting		Initial pitting, or corrective pitting, is caused by local areas of high stress due to uneven surfaces on the gear teeth. Initial pitting usually develops within a relatively short time, reach a maximum, and, with continued service, polishes to a lesser s
initial position solution	In order to calculate an initial position solution, a GPS receiver must be able to receive signals from at least five satellites.	
initial power-up	The LED's are illuminated during initial power-up in order to test the LED's.	
initial range	If the duty cycle of the sensor exceeds this initial range, the automatic calibration function adjusts the limits of the duty cycle in order to adjust for the new range.	
initial reverse gear	When you scroll to this option, the display will show the initial reverse gear.	
initial screen	From the initial screen press the OK button in order to enter the Main Menu.	

initial service	If initial service requires the removal of the outer protective cover, removal of the cover must be performed by trained personnel.	
initial setup	Initial Setup Procedure	
initial start up	Refer to Special Instruction REHS0371 Installation And Initial Start Up Procedures For G3300 And G3400 Engines.	
initial transmission downshift	The initial transmission downshift will always respond.	
initial upper position limit	Initial Upper Position Limit	
initial value	Before the beginning of the system test, the gauge cluster and the tachometer go from the initial value to zero.	
initial V-belt tension	Initial V-belt tension 535 N120 lb Used V-belt tension 355 N80 lb	
Initiation site		The initiation site is the starting location of a crack.
injection actuation pressure control valve	Open or Short for the Injection Actuation Pressure Control Valve	
injection cycle	When the pressure drops the needle valve will close and the injection cycle stops.	
injection delay	Injection delay; Cross section of injection delay	
injection duration	Engine rpm is controlled by adjusting the injection duration.	
injection lifter arm	Bore in the injection lifter arm for the lifter shaft assembly	
injection pressure	The actuation pressure of the oil generates the injection pressure that is delivered by the unit injector.; Injection pressure is greater than actuation pressure of the oil by approximately six times.	
Injection Pump		A high-variable pressure pump delivering fuel into the combustion chamber.
Injection System		The components necessary for delivering fuel to the combustion chamber in the correct quantity, at the correct time, and in a condition satisfactory for efficient burning.
injector	When an injector is replaced, program the new injector code into the ECM.[KPNR5342-05.rtf]	technical term
Injector Actuation Pressure Control Valve		A component of the Cat HEUI fuel system that controls the pressure of the oil which actuates the unit injector.
injector actuation pressure signal	Injector Actuation Pressure signal erratic	

injector actuation Pressure system	Injector Actuation Pressure system fault
injector code	If the ECM is replaced, all of the injector codes must be programmed into the new ECM.[KPNR5342-05.rtf]
injector cutout test	When an injector cutout test is performed, a faulty electronic unit injector will indicate a low reading in comparison with the other electronic unit injectors.
injector driver circuit	On four cylinder engines, injectors 1 and 4 share a common injector driver circuit in the ECM.[KPNR5342-05.rtf]
injector height gauge	Injector height gauge 4 is used in order to obtain a dimension of 78,0 ± 0,2 mm3,07 ± 0,01 inch.
injector Nozzle	Part Numbers for Injector Nozzle Tips for use with the Caterpillar Fast Fill Ports
Injector Pipe	Injector Pipe Nut Tool
injector pipe nut tool	Injector Pipe Nut Tool
injector rocker arm	As the fuel injector rocker arm moves downward, the master piston is allowed to retract into the bore.
injector seat cleaning brush	Injector Seat Cleaning Brush
injector set	When lubrication pump 5 is operating, change-over valve 6 delivers lubricant to each injector in one injector set.
injector solenoid	The amount of fuel is proportional to the duration of the signal to the injector solenoid.[KPNR6741-05.rtf]
injector solenoid circuit	Schematic for the injector solenoid circuit for the 1106C Genset
injector spring	1Locknut Torque120 ± 15 N·m90 ± 11 lb ft 2Rocker arm shaft Diameter of the rocker arm shaft45,000 ± 0,013 mm1,7716 ± 0,0005 inch Bore in the bearing for the rocker arm shaft45,077 ± 0,015 mm1,7747 ± 0,0006 inch 3Fuel injector spring Length under test force85 mm3,3 inch Test force300 ± 25 N67 ± 6 lb Free length after test87,65 mm3,451 inch Outside diameter43,85 mm1,726 inch 4Lifter Diameter of a new unit injector lifter34,950 ± 0,010 mm1,3760 ± 0,0004 inch Bore in the head for the unit injector lifter35,000 ± 0,025 mm1,3780 ± 0,0010 inch

injector tip	Check the unit injector for an excessive brown discoloration that extends beyond the injector tip.; The HEUI injector functions as an atomizer by pumping high pressure fuel through orifice holes in the unit injector tip.	
injector trim calibration	The injector serial numbers are shown on the Injector Trim Calibration screen.[KPNR5342-05.rtf]	
injector trim file	The injector trim files must be loaded into the ECM if any of the following conditions occur:[KPNR5342-05.rtf]	
Inkjet rapid prototyping		This machine uses a single jet each for a plastic build material and a wax-like support material, which are held in a melted liquid state in reservoirs. The liquids are fed to individual jetting heads, which squirt tiny droplets of the materials as they a
inlet	Remove inlet air temperature sensor 1 and the O-ring seal.[KPNR8106-01.rtf]	an opening for the ingress of air or gas
inlet air	The inlet air flows into the engine cylinders through the inlet valves of the cylinders.	
inlet air heater	617-5 Inlet Air Heater Relay :[KPNR5342-05.rtf]	
inlet air pressure indicator	Inlet Air Pressure Indicator 9	
Inlet Air Restriction		The pressure drop of the combustion air from atmospheric pressure to the compressor inlet of a supercharged engine or to the inlet manifold of a naturally aspirated engine.
inlet air restriction pressure	Inlet Air Restriction Pressure	
inlet air shut off relay control	Inlet Air Shut Off Relay Control	
inlet air temperature indicator	8High inlet air temperature indicator (used on 3406E generator sets only)	
inlet air temperature sensor	Remove inlet air temperature sensor 1 and the O-ring seal.[KPNR8106-01.rtf]	
inlet duct	Inspect the bottom of the inlet duct and inspect the precleaner tubes for dirt and debris.	
Inlet Fuel Pressure		The fuel pressure supplied to the fuel inlet of a diesel engine.
inlet heater	The indicator for the air inlet heater turns on if the engine coolant temperature is too low.	
inlet manifold	The inlet manifold was removed for photographic purposes.[KPNR8106-01.rtf]	
inlet manifold air pressure	The sensor for the inlet manifold air pressure measures the amount of boost.	
inlet manifold air pressure sensor fault	Inlet Manifold Air Pressure Sensor Fault	
Inlet Manifold Pressure		Absolute pressure in the inlet manifold of a spark ignited engine.

inlet manifold seal	Inlet manifold seals	
inlet manifold temperature	When the coolant temperature drops below 70 °C158 °F and the inlet manifold temperature drops below 5 °C41 °F, the engine idle speed will increase to 1100 rpm.	
inlet port	This makeup oil is supplied to the inlet port of the swing motor in order to prevent cavitation in the swing motor.	
inlet selection switch	10Air inlet selection switch	
inlet temperature sensor	The air inlet temperature sensor and the coolant temperature sensor are passive sensors.	
Inline		A type of cylinder arrangement in an engine where the cylinders are aligned in a row.
in-line refrigerant dryer	Refer to Disassembly and AssemblyIn-Line Refrigerant Dryer- Remove and Install for instructions on replacing the in-line dryer.	
inner bore	Spray the piston and spray the inner bore of tool bushing with Rust Preventive138-8447.	
inner dust seal	Inner dust seal 3 and outer dust seal 4 may have been installed dry in the swing gear and bearing or inner dust seal 3 and outer dust seal 4 may have been bonded to the swing gear and bearing.	
Inner pack		Packaging inside a container that keeps parts separated and protected.
inner pin	Orientation of the slot in the inner pin must be 90 ± 20 degrees from the slot that is in the outer pin.	
inner race	Position a magnet F on the inner race of swing bearing D.	
inner sun gear	Power from the hydraulic motor is transmitted through the coupling to the inner sun gear.	
inner tube	Check the seal for the top inner tube for wear and damage.	
inoperative fuel injection nozzle	An inoperative fuel injection nozzle or a problem with the fuel injection pump could cause this low temperature.	
in-process material		Material that still needs value added operations performed to reach before reaching final form.
Input Enable function	Status of the Secondary Fuel Switch for the Input Enable Function	

input flow	The operating pressure of the hammer will vary with the amount of back pressure, input flow, and the hardness of the material.	
input frequency	The basic input frequency equals one revolution per a piece of reflective tape.	
Input Oil Flow	Recommended Input Oil Flow	
input pin	The machine must be moving in order for the ECM to see a signal on the input pin.	
input ring gear	Input ring gear 8 is splined to and turns with the input shaft.	
input sensor	The electronic control module sees the input sensor signal as information about the condition, environment, or operation of the engine.	
Input Shaft	Input ring gear 8 is splined to and turns with the input shaft.	The shaft carrying the driving gear, such as in a transmission by which the power is applied.
input signal	The engine and pump controller receives input signals from various components on the machine.	
Input Status	Input Status	
input string	CHK - the number of bad checksums detected by CAESultra when checking the input strings.	
Insert Bearing Installation menu		A removable, precision-made bearing.
installation parameter	The Setup Menu - Installation menu appears. Site installation parameters will have a direct impact on engine performance and the ability to achieve optimum service life for the engine.	
installation process	Read the entire coupler installation process prior to installing the backhoe and ensure that you fully understand the installation process.	
Installation Setup menu	Pressing the appropriate Soft Key toggles between the Configuration Setup menu and the Installation Setup menu.	
Installation Workbook	Record the bucket measurement values in the Installation Workbook for future reference.	
Instantaneous Peak Demand instrument illumination		The maximum demand at the instant of greatest load.
Instrument Panel	7 Instrument Illumination Instrument Panel (Lower) - Install; Instrument Panel (Lower) - Remove	

instrument radio	Ask your site manager to check that the radio channel, and network if applicable, set up in the control box is compatible with the instrument radio.	
instrumentation		
Insulated Case Circuit Breaker		A power circuit breaker that is provided in a preformed case, similar to a molded case breaker.
insulated heater line	The Water Temperature Regulator and Insulated Heater Lines	
insulation	Check each wire for nicks or signs of abrasion in the insulation.	material used in insulating
Insulator		Materials or substances that effectively block the movement of electrons. An example is glass.
intake manifold	The ECM will set intake manifold (boost) pressure to a maximum valid pressure for two seconds.[KPNR5342-05.rtf]	
intake manifold (boost) pressure	Use this procedure in order to troubleshoot high intake manifold air (boost) pressure or use this procedure if the following event code is active.[KPNR5342-05.rtf]	
intake manifold air pressure	Intake Manifold Air Pressure Is High[KPNR5342-05.rtf]	
intake manifold air temperature	Use this procedure in order to troubleshoot high intake manifold air temperature or use this procedure if one of the following event codes is active.[KPNR5342-05.rtf]	
intake manifold boost pressure fault	Intake Manifold Boost Pressure Fault	
intake manifold pressure	1785-3 Intake Manifold Pressure Sensor :[KPNR5342-05.rtf]	
intake manifold temperature sensor fault	Intake Manifold Temperature sensor fault	
intake stroke	The inlet valves open when the piston moves down on the intake stroke.	
Intake Valve		The valve which allows air to enter into the cylinder and seals against exit.
intake valve actuation pressure	Pressure sensor for the intake valve actuation pressure	
intake valve actuator circuit	Intake Valve Actuator Circuit - Test	
intake valve actuator response	Intake Valve Actuator Response - Test	
Intake Valve Actuator Solenoid Test	The Caterpillar Electronic Technician (ET) will indicate OPEN during the Intake Valve Actuator Solenoid Test.	
intake valve actuator system	Check the intake valve actuator system for debris that could restrict the flow of oil.	

Intake Valve Actuator Test	Perform the Intake Valve Actuator Test
intake valve actuator unit	Inspect the suspect intake valve actuator unit.
integral charge pump	The pump contains an integral charge pump.
integral connector	Both sensors are magnetic sensors with an integral connector.
integral fuel filter	The fuel transfer pump has an integral fuel filter.
integral makeup valve	The spool within the metering pump contains a integral makeup valve for each steering cylinder .
integral pendulum	The camshaft drive gear has integral pendulums which act as a vibration damper for the front gear group.
integral toolbox	Maintenance truck (with integral toolbox)
integral voltage regulator	The alternator is a three-phase charging unit that contains an integral voltage regulator.
Integrated EDI	
integrated electronic control	Integrated Electronic Controls
Integrated Planning Model	
Integrated Purchasing System	
Integrated socket tray	With the addition of an integrated socket tray, the user selects the correct socket for the fastener, the system registers the socket selected and automatically sets the tool's torque value for that operation. This means that the assembly station only req
Integrated System Network	
integrated temperature sensing module	Integrated Temperature Sensing Module (ITSM)
Integrated Toolcarrier	Integrated Toolcarrier; For use with the IT62H Integrated Toolcarrier and with 950H and 962H Wheel Loaders
intensifier piston	In this position, the spool valve blocks actuation oil from reaching the intensifier piston.
interactive dialog	The Calibrate Sensors option provides instructions and an interactive dialog for calibrating the drum slope sensor.
Intercooler	
Intergranular	
Intergranular fracture	
Interior Door Release	Interior Door Release (9)

EDI is Electronic Data Interchange system. All the suppliers receive the Caterpillar schedule information via this system.

Heat exchanger for cooling the air between stages of compression.
Intergranular refers to the region between metal grains.
Intergranular fracture is brittle fracture that propagates along the grain boundaries of a metal.

interior storage box	The fuse panel is located on the left side of the interior storage box.	
interlock event	Before the operator can take control of the transmission the operator must perform the following sequence of interlock events:	
interlock function engine stop	The interlock function engine stop can be configured using Caterpillar Electronic Technician (ET) service tool.	
interlock solenoid	The interlock solenoid for the axle interlock valve is located on the axle propel pump.	
interlock strategy	For machines equipped with the Interlock Strategy move the key start switch to the ON position.	
intermediate piston ring	The gaps in the intermediate piston ring and the top piston ring should be separated by 120 degrees.[KPNR8106-01.rtf]	
intermittent charging	Intermittent Charging	
intermittent current draw	The problem is a possible intermittent current draw in the system.	
intermittent engine shutdown	The engine may experience changes in the engine rpm, and intermittent engine shutdowns or complete engine shutdowns while the conditions that cause this diagnostic code are present.	
intermittent flow	With the Auxiliary Operating Mode Switch M in this position, the system provides intermittent flow for the auxiliary hydraulic function.	
intermittent function	Turn the switch right in order to operate the intermittent function with spray.	
intermittent mode	Position 1 is off and position 2 is intermittent mode.	
intermittent problem	There may be an intermittent problem in the wiring harness or in a connector.; Also, wiggle the switch harness from the switch to the ECM in order to reveal an intermittent problem.	
intermittent windshield wiper	Intermittent Windshield Wiper	
internal broaching machine		Broaching machines that enlarge or shape an existing hole by either pushing or pulling a broach through the hole. Internal broach types include hole, keyway, internal gear, and rifling.
Internal burst		An internal burst is an internal fracture or tear in a shaped part resulting from the action of internal forces developed during the shaping process on inclusions in the metal.

internal clock	The key will no longer start the machine when the internal clock in the security system passes the expiration date.	
internal condensation	Small amounts of moisture may be in the system due to internal condensation.	
internal control circuit	The CAT Data Link consists of internal control circuits and the connecting harness wiring.	
internal corrosion	A loss of support in the cored wire of the cable may be caused by internal corrosion, external corrosion, or wear of the outside wires.	
internal diagnostic clock	Display the clock hour of the internal diagnostic clock.	
internal excitation	El magnetismo residual es necesario para el arranque del internal excitation generator.	
internal excitation generator	Internal Excitation Generators	
internal failure cost	Internal Failure Costs are cost incurred by the company when products fail to conform to the requirements prior to delivery to the customer.	
internal filter element	Clean Internal Filter Element	
internal fuel transfer pump	The fuel is drawn by an internal fuel transfer pump into the fuel injection pump.	
internal grinding machine		Internal grinders use a wheel to grind the inside diameter of a workpiece as the workpiece itself rotates.
internal ground source	When dome lamp switch 2 is moved to the ON position an internal ground source will be switched.	
internal heater	The camera is equipped with an internal heater to help counteract the effects of condensation, snow, or ice.	
Internal Input		Data is also collated from internal sources to assist in planning material requirements. Internal information has two levels:
internal load control valve	The stabilizer valves have internal load control valves 5, 5A, 17, and 17A that prevent any movement of the stabilizers.	
internal malfunction	There is an internal malfunction in the alternator.	
internal network	You may also store or install a copy of the Software on a storage device, such as a network server, used only to install or run the Software on your other computers over an internal network; but in such case you must acquire and dedicate a license for each separate computer on which the Software is installed or run from the storage device.	

internal position sensor	Each cylinder contains internal position sensors.	
internal potentiometer	The voltage range is limited by the internal potentiometer P2.	
internal speaker	An internal speaker that sounds when any remote switch is selected.	
internal stress	Manufacturing processes such as welding, machining or cold working can result in internal stresses in metals. Heat Processes help relieve these internal stresses.	
internal voltage regulator	An internal voltage regulator in the alternator controls the electrical output in order to keep the battery at a full charge.	
Internal-Combustion Engine		An engine that burns fuel within itself as a means of developing power.
International Standards Organization		
Interpretation Guide	Refer to Caterpillar Publication PEDP7035S-O-S Fluid Analysis Interpretation Guide in order to fully understand optimizing oil change intervals.	
Interrupted Quenching		Refers to the use of two or more quenching media to obtain the final structure required. The part may be removed after a definite time in the original quenching medium and then finish cooled in another medium. Several methods have been developed. See Aust
Interruptible		This refers to the practice of operating on-site power systems, at the request of a utility, to reduce electrical demand on the utility grid during periods of high consumption.
interruptible load		Loads which can be temporarily disconnected without damage or any apparent reduction in facility performance. Such loads may include electric motors, driving pumps and fans, or lighting circuits.
Interruptible Power		Electric energy supplied by an electric utility subject to interruption by the electric utility under specified conditions.
Interrupting Capacity		The magnitude of electrical current that a device can safely interrupt (open against), without failure of the component.
Interrupting Rating		The maximum current allowed by the normal source protective device on a generator set, that the automatic transfer switch is capable of interrupting. It applies when line voltage falls below the preset value of the voltage sensing relay, and the standby s

Inventory		Materials (and information) present along a Value Stream between process-ing steps. Examples include raw materials, Work in Process (WIP) and finished goods.
Inventory Control System	Material Requirement Planning is a software- based production planning and inventory control system used to help manage manufacturing processes	
Inventory Turns		How quickly materials move through a facility or an entire value stream, calculated by dividing a measure of cost of goods by the amount of inventory on hand.
Ionizing Radiation	An example of Ionizing Radiation is X-ray.	
Iron oxide		Iron oxide is a group of minerals and inorganic compounds made up of iron and oxygen such as FeO (Wuestite), Fe2O3 (Hematite) and Fe3O4 (Magnetite). Used to straighten hexagons, flats, and squares. Essentially consisting of two groups of rolls placed at right angles to each other. Each group of rolls consists of five or more rolls set in the same plane and adjusted to provide reciprocate bending of th
irregular straightener		A collection of formal international standards, technical specifica-tions, technical reports, handbooks and web-based documents on quality management and quality assurance. There are approximately 25 documents in the collection, with new or revised documents developed on an ongoing basis. A governor having zero speed droop.
ISO 9001: 2000		Isolation encloses the hazard to reduce/eliminate the level of exposure.
Isochronous Governor		
isolation		
isolation mount	Remove nuts 3, the washers, the isolation mounts, electronic control module 4, and the ground strap.; Position the isolation mounts on electronic control module 4.	
isolator		Materials used between the foundation of a generator set and its mounting surface. A method of hardening steel by quenching from the austenitizing temperature into an agitated salt bath which is maintained at a constant temperature level above the point at which martensite is formed (usually 450° F or higher), holding in this for suffic
Isothermal Quenching		
jack handle	The storage position for the jack handle 11 is inside the engine compartment on the right side.	
Jack Stand	Jack Stand	
Jacket Water		Cooling water which circulates through the engine.

Jacket Water Aftercooling	Engines with Jacket Water Aftercooling	
jacket water pump	Inspect the impeller vanes at the jacket water pump for damage and/or for erosion.; A restriction of the shunt line from the expansion tank to the inlet of the jacket water pump will cause a reduction in water pump efficiency.	
Jet		A small hole in a carburetor passage to measure the flow of gasoline.
Jet Cooling		A method of passing cooling oil below the piston by means of a jet or nozzle.
jig boring machine		Jig boring is used to accurately enlarge existing holes and make their diameters highly accurate. Jig boring is used for holes that need to have diameter and total runout controlled to a high degree.
Job Rotation	To prevent fatigue you should take frequent breaks for water, rest, and food, encourage job rotation	
Job Safety Analysis	A good Safe Job Procedure is the result of a "Job Safety Analysis" or JSA. The JSA team started by identifying the steps needed to perform the operator tasks for a given work station.	
Job Site Solutions Job Site Solutions Pctr		
Joiminy Hardenability Test		A test used to determine the hardenability of any grade of steel. It is based on the premise that (1) irrespective of their chemistry, steel bars of the same size loose heat at a predetermined number of degrees per second under fixed conditions and (2) th
joystick	To adjust the line relief valve pressure setting of the upper work tool, push the thumb wheel on the right joystick FORWARD.[RPNR7389-09.rtf]	a control mechanism moving through 360 degrees
joystick alignment event	The joystick alignment event disappears from the Messenger display.	
Joystick Controls Alternate Patterns	(10) Joystick Controls Alternate Patterns (If Equipped)	
joystick slide control	Use the keys in the following illustration in order to calibrate the joystick slide control.[RPNR7389-09.rtf]	
joystick thumbwheel control	The joystick thumbwheel control will be inoperative.	
jump start cable	Connect one positive end of the jump start cable to the positive cable terminal of the discharged battery.	

jumper cable	At the secondary steering motor, connect a jumper cable from the -battery to the -battery terminal of the motor.; At the secondary steering motor, briefly connect a jumper cable from the +battery to the +battery terminal of the motor.	
jumper wire	Measure the voltage between the jumper wire in P2-47 (sensor supply) and the jumper wire in P2-39 (sensor return).[KPNR5342-05.rtf]	
Just-in-Time (JIT) Production		Production system that makes and delivers what is needed, when it is needed, in the amount needed. Relies on production leveling as a foundation and comprises three operating elements: the pull system, Takt time and continuous flow.
k Amps Interrupting Capacity		
Kanban		Signaling device that gives authorization and instructions for production or withdrawal (conveyance) of items in a pull system. The term is Japanese for "sign" or "signboard." Kanban cards are the best-known and most common example of these signals.
Kanban Post		A storage container for Kanban cards pulled from a delivered product.
Kelvin Scale		A temperature scale having the same size divisions as those between Celsius degrees, but having the zero point at absolute zero.
Kerf		The width of the cut.
Key		A fastening device wherein two components each have a partially cut groove, and a single square is inserted in both to fasten them together such as between the shaft and hub to prevent circumferential movement.
Key Manufacturing Assumptions		Operation strategy with set of goals and policies that will guide manufacturing activities
key reader	This diagnostic code is recorded when the transmission ECM does not receive expected information from the key reader over the data link.; Check the active diagnostic screen and the logged diagnostic screen for a communication error between the machine ECM and the key reader.	
key start switch	The red LED will momentarily illuminate when the key start switch is turned from the OFF position to the ON position.[RPNR7389-09.rtf]	

key switch	Check the harness for abrasions and for pinch points from the key switch to the ECM.[KPNR5342-05.rtf]	
keystone piston ring	Keystone piston rings are designed to expand during the compression stroke of the engine.	
Keystone ring	The compression ring is a Keystone ring.	
keyswitch	The engine will run on a default torque map until the keyswitch is cycled.[KPNR5342-05.rtf]	a switch operated with a key
keyway		A keyway is a longitudinal groove, slot, or other cavity, usually in a shaft, into which is placed a key to help hold a hub on the shaft. The key and keyway are usually used for alignment or mechanical locking.
kickout	When the kickout feature is activated, it will return the work tool to a set position.	
Kickout Set Switch	Schematic for the Kickout Set Switch; Status for the Kickout Set Switch	
Kiel Engine Center Kiel Engine Center Pctr		
Killed Steel		A steel sufficiently deoxidized to prevent gas evolution during solidification. The top surface of the ingot freezes immediately and subsequent shrinkage produces a central pipe. A semikilled steel, having been less completely deoxidized, develops suffici
Kilo-Volt-Amperes Reactive		The abbreviation for Kilo-Volt-Amperes Reactive. It is associated with the reactive power that flows in a power system. Reactive power does not load the set's engine but does limit the generator thermally.
Kinetic Energy		The energy which an object has while in motion.
knock		A general term used to describe various noises occurring in an engine; may be used to describe noises made by loose or worn mechanical parts, preignition, detonation, etc.
knuckleboom loader	579 Trailer Mount Knuckleboom Loader Turn the adjustment screw on the main relief valve for one half turn clockwise to 39000 kPa in order to ensure that the setting is above the setting for the line relief valve.[RPNR7389-09.rtf] The intake manifold pressure should read $0 \pm 0,5$ kPa	
kPa		kilopascal(s)
Lacquer		A solution of solids in solvents which evaporate with great rapidity.
Laminar		A layer of fluid.
Laminar Flow		A smooth flow in which no crossflow of fluid particles occurs.

Lamp Socket	Check the Wiring to the Lamp Socket; Check for Electrical Power to the Lamp Socket	
land fill	Which process provides potential areas of waste elimination through material handling processes defined in the VSM, and uses returnable containers to eliminate land fill and increase productivity?	
Landfill Compactor	Landfill Compactor	
landfill gas		Limit Landfill Gas-limits of components in the gas being burned (for example limit of H2S)
landfill Gas Collection and Control Systems		
Landfill Gas-To-Energy		
Landfill Methane Outreach Program		
Laps		During the Forging process, an area where the flow of metal is not uniform or causes imperfections is called a lap. A lap can be found on a radius or any such area where the metal flow changes direction.
Large Tow Motor Traffic	The forge shop involves the transfer of very heavy and hot material and hence has a large volume of fork truck traffic. The SJPs and proper operating procedures should be followed to avoid matters of concern	
laser	LASER is an acronym for Light Amplification by Stimulated Emission of Radiation.	
laser alignment	Precise Laser Alignment Instructions	
laser beam	The Laser Receivers are 360 degree omni-directional receivers that detects the laser beam and send information about the elevation of the laser beam to the AccuGrade Display.	
laser catcher	The method that is used to bench the system when a laser catcher is mounted on the machine depends on whether you are in depth mode or in slope and depth mode.	
laser cutting machine		Laser cutting machines use high-powered lasers to cut, scribe, or perforate a variety of materials in plate or sheet form.
Laser Heat Treatment	Partial Piece Heat Treat - Processes that Heat Treat partial piece part geometries, including Induction and Laser Heat Treatment.	

laser marking machine		A laser beam is used to create a permanent mark, code, or design on a part for identification and/or tracking purposes.
laser plane	Manually adjust the cross slope of the blade so that the cutting edge is parallel to the laser plane.	
Laser powder forming		A high power laser is used to melt metal powder supplied coaxially to the focus of the laser beam through a deposition head. The X-Y table is moved in raster fashion to fabricate each layer of the object. The head is moved up vertically as each layer is c
laser receiver	Used to link both laser receivers to be parallel	
Laser Receiver Control screen	The Laser Reference System offers access to the Laser Receiver Control screen.	
Laser Reference System	Laser Reference System - If the AccuGrade Laser Reference System is enabled, the Laser Reference Sys mode will allow the operator to perform functions that are related to set up and use of the AccuGrade Laser Reference System for the Backhoe Loader (BHL).	
laser strike	Check for laser strike	Laser point of impact.
laser transmitter	Although a laser transmitter is not included with the AccuGrade Laser System, a laser transmitter is required if the AccuGrade Laser System is equipped with Laser receivers.	
laser welding machine		Laser beam welding utilizes a high-power laser beam as the source of heat to produce a fusion weld.
latch tab	Also verify that the latch tab of the connector returns to the locked position.[KPNR5342-05.rtf]	
Latent Heat		Heat energy absorbed in process of changing form of substance (melting, vaporization, fusion) without change in temperature or pressure.
lateral clearance	When the shims 11 and 12 are assembled, adjust the lateral clearance to a maximum of 1,0 mm 0,04 inch.	
lathe	The cast engine block is shaped according to specifications using power - driven machine tools like lathe.	
Lathes and turning centers		Lathes and turning centers cut a rotating part with a stationary cutting tool. The tool moves parallel and perpendicular to the workpiece axis to provide the desired finished shape.
Latin American Commercial Latin American Commercial PC Leachate Collection System		

lead	Connect the other lead to a good ground.[KPNR6741-05.rtf]	a conductor by which one circuit element is electrically connected to another or to the circuit
lead acid battery	Refer to Special InstructionSEHS9249Use of 4C-4911 Battery Load Tester for 6, 8 and 12 Volt Lead Acid Batteries and Special InstructionSEHS7633Battery Test Procedure.	
Lead Time (LT)		Total time from the beginning of the supply chain to the time something needs to ship. The amount of value-added time and non-value-added time for a product to move through the entire value chain.
Lead tin overlay flaking		Lead tin overlay flaking is a condition where small bits of the lead tin overlay on a steel backed aluminum bearing flake off. Lead tin overlay sheeting is a condition where large areas of the lead tin overlay on a steel backed aluminum bearing come off, frequently due to poor adhesion between the lead tin overlay layer and the aluminum layer beneath it.
Lead tin overlay sheeting		
leakage	The operational checks can be used to find leakage in the system and components that are not functioning correctly.	the process or an instance of leaking, or something that escapes by leaking
leakoff port	In this position, fuel above the injector needle is allowed to vent through the leakoff port.[KPNR6741-05.rtf]	
lean manufacturing	Lean Manufacturing is a generic process management philosophy derived mostly from the TPS (Toyota Production System) and other sources. It involves the selection of a particular product family, understanding the current state, designing a future lean value stream, and creating an implementation plan to achieve the future state of design.	
lean value stream		
LED	The red LED will momentarily illuminate when the key start switch is turned from the OFF position to the ON position.[RPNR7389-09.rtf]	light emitting diode
Ledging		Ledging is permanent plastic deformation of the surface of a gear tooth that is not strong enough to carry the applied loads.
left extender	The angle of attack for the left extender and the angle of attack for the right extender must be set independently.	
left extender extend solenoid	When a left screed extender switch is in the EXTEND position, power from terminal J2-2 transfers to the left extender extend solenoid.	
Legal Services		

Legal Services Division
Letter Drills

Drills on which the size is designated by a letter.

level gauge

The hoist has been removed from the recoil spring assembly in order to provide a better illustration of level gauge 4.

Leveling the Load

Equalizing the type and quantity of production over a fixed period of time. Enables production to efficiently meet the customer demands while avoiding batching and results in minimum inventories, capital costs, manpower and production lead-time through the entire value stream.

lever

When the hydraulic activation lever is moved to the UNLOCK position, pilot oil flows from pilot manifold 26 to solenoid valves:[RPNR7389-09.rtf]

SMALL FINGER CONTROL; Small control lever 'toggle lever'

lever

LARGE CONTROL: a hand control; blade control lever

lever assembly

Remove bolt 14 and disconnect lever assembly 12. The fine modulation mode enables a different lever modulation map that provides less current during the initial lever travel.

lever modulation map

Lever Puller Hoist

Lever Puller Hoist

L-Head Engine

An engine design in which both valves are located on one side of the engine cylinder.

lid lock

The Caterpillar designed quench machines are designed for safety. The safety features include Lid Locks

lift arm

Keep all work tools tilted downward when repair work is being formed with the lift arms in the raised position.

Lift Capacity

Hydraulic Lift Capacity

Lift Cylinder Drift

Check The Lift Cylinder Drift ; Approximate Lift Cylinder Drift

Lift Kickout Control

Lift Position Sensor and Mounting (Lift Kickout Control) - Remove and Install

lift plus slope guidance method

If a lift plus slope guidance method is selected, then the Sensor Swap soft key cycles through the guidance and sensor combinations listed below:

lift valve

Remove the pilot control line and remove the fitting from the bottom of the lift valve on the loader control valve.

lifting device

Use the suitable lifting device in order to position cylinder head 5 on the engine block.[KPNR8106-01.rtf]

Lifting Hooks		Lifting Hooks are used to lift castings in various stages of the process.
light emitting diode		
Light Material	Light Material bucket 1.0 m3 (1.3 yd)	
limit switch	The limit switch is activated by hydraulic activation control lever 3.[RPNR7389-09.rtf]	
limited slip differential	Limited Slip Differential; Limited Slip Differential - Assemble. The limited slip differential is intended to limit torque through one side of the axle to no more than 70 percent of maximum available torque.	
limp-home mode procedure	Do NOT use the secondary steering system as a limp-home mode procedure.	
Lincoln Quicklub Lubrication System	The Lincoln Quicklub Lubrication System Some commonly used transactions for basic business functions recorded in the MTS Location Distribution System include:	
Line Assembly Item Order	Storing Ordering Ordering includes the following activities: Ident Inventory Inquiry Multiple Item Order Order for Work Order Material	
Line Boring Tool	Refer to Special Instruction SMHS7606 Use of Line Boring Tool Group 1P-4000 for the instructions that are needed to use the tool group.	
Line Checker	The Line Checker manages material at all inventory locations and verifies material availability.	A person who manages inventory.
line relief valve	The working pressure for the work tool is limited by the line relief valve for the work tool 12 through number one check valve EC1 13.[RPNR7389-09.rtf]	
liner		a sleeve in a bore, such as a cylinder liner, bronze liner, or service liner; DO NOT USE 'liner' alone to mean 'the inner surface of a head (a head liner)'
liner		an internal shell or skeleton which provides strength or support, such as a filter liner, body liner, or hose liner; DO NOT USE 'liner' alone to mean 'the inner surface of a head (a head liner)'
Lines of stress		Lines of stress are imaginary lines within a part under load that designate the intensity of stress in any section of the part.

link bracket	Link Bracket[KPNR8106-01.rtf]	
Link Inductor	Image Caption	Inductor is an electrical component with inductance. Inductance is an effect resulting from a magnetic field formed around a current carrying conductor, which tends to resist changes in the current.
linkage area	Whenever there are equipment control linkages the clearance in the linkage area will change with the movement of the equipment or the machine.	
linkage arm	Visually inspect for damage or interference between moving parts and the loader frame that may have caused the sensor linkage arms weld bosses to bend or cause the linkage arm to break loose from the weld joint.; If repair is needed, ensure that the weld joint is re-welded to the linkage arm with appropriate dimensions and tolerances.	
linkage geometry	The calibration of the lift linkage is used in order to compensate for variations in linkage geometry.	
lip seal	Install the lip seal so that the sealing lip is facing in the direction that is shown.	
lip type seal	Lubricate the sealing lip of lip type seal with the lubricant that is being sealed.	
Lipping		Lipping is permanent plastic deformation of the surface of a gear tooth that is not strong enough to carry the applied loads, less drastic than ledging.
Liquefied Natural Gas		Natural gas that has been condensed to a liquid, typically by cryogenically cooling the gas to -327.2° F (below zero).
liquefied petroleum gas		A mixture of gaseous hydrocarbons, mainly propane and butane that change into liquid form under moderate pressure.
Liquid		Matter which has a definite volume but takes the shape of any container.
Liquid Absorbent		A chemical in liquid form which has the property to “take on” or absorb moisture.
Liquid Crystal Display		A device for alphanumeric displays using a pattern of tiny sealed capsules which contain a transparent liquid crystal that becomes opaque when an electric field is applied to it; the contrast between the transparent and opaque areas forms letters or numbers.
Liquid Spray		A paint application method where liquid paint is atomized into droplets as it is forced through a tiny
Live Wire		A conductor which carries current.

load	Two pump flow distributes the load equally for work tools that are used extensively.[RPNR7389-09.rtf]	a weight or mass that is carried, lifted, or supported; i.e. mechanical load
load		electrical potential
load check valve	The load check valve prevents unexpected movement of an implement when a joystick is initially activated at a low pump delivery pressure.	
load control valve	The weight of load control valve 7 is approximately 32 kg70 lb.	
Load Curve		A curve on a chart showing power (kilowatts) supplied, plotted against time of occurrence, and illustrating the varying magnitude of the load during the period covered.
load cycle	The Record mode is used in order to record a load cycle in place of the preset load cycle.; The machine progresses through several stages during the load cycle when the Autodig System is used.	
Load Following Load Haul Dump	R1600G Load Haul Dump	Operation of equipment to match production to demand.
Load Line		A center line indicating the points of contact where the load passes within the bearing. The utilization of generator sets in order to control the amount of electrical power purchased from a utility. This can be accomplished by switching specific loads from utility power to generator power, or operating generator(s) in parallel with the utili
Load Management		
load piston orifice	13Load piston orifice The advanced dual-slope body design with V-shaped floor increases load retention, maintains a low center of gravity, reduces shock loading, and maintains optimum load distribution on steep inclines and in challenging haul road conditions.	
load retention		
Load Sense Demand		A paralleling system operating mode in which the system monitors the total kW output of the generator sets, and controls the number of operating sets as a function of the total load on the system. The purpose of load demand controls is to reduce fuel cons
load sense port	When the signal is sent to the load sense port 15.	
load sense signal	When the pressure in cavity 18 overcomes the force of both load sense signal 15 and margin spring 14.	
Load Sensing	Location of the Relief Valve247-8632 Load Sensing; Relief Valve (Load Sensing Signal) - Test and Adjust	

Load Shedding		The process by which the total load on a paralleling system is reduced, on overload of the system bus, so that the most critical loads continue to be provided with reliable electrical service. Overload is typically determined as a bus underfrequency condi
Load Signal Resolver	22Shuttle Valve260-8590 Load Signal Resolver; 26Shuttle Valve260-8590 Load Signal Resolver	
load valve	Pump pressure is affected by the flow and the open rate of the load valve on the flow meter 34.[RPNR7389-09.rtf]	
load weight	Conveyors and elevators are designed to exceed maximum planned load weight	
loadcell/payload pivot pin	Disconnect the machine harness from the loadcell/payload pivot pin and the TPMS indicator. Dimensions and performance specifications shown are for machines equipped with 12.5/80-18 SGL front tires, 19.5L-24 IT525 rear tires, ROPS canopy, standard stick with 610 mm (24 inch) standard duty bucket, and 0.96 m3 (1.25 yd3)	
loader bucket	loader bucket and standard equipment unless otherwise specified.	
loader control bank valve	The priority valve is bolted to the lift control valve on the loader control bank valve.	
loader control valve	Remove the pilot control line and remove the fitting from the bottom of the lift valve on the loader control valve.	
loader frame	Pressure tap 7 is located on the loader frame near the articulation joint on the right side of the machine.; Visually inspect for damage or interference between moving parts and the loader frame that may have caused the sensor linkage arms weld bosses to bend or cause the linkage arm to break loose from the weld joint.	
loader hinge pin	Height to loader hinge pin (transport)	
loader lift arm	Install the lock 2 for the bucket onto the bracket on the loader lift arm.	
Loader Tilt Circuit	Loader Tilt Circuit for Parallel Lift Machines	
Load-Line Angle		The angle of a load line with respect to the shaft center or bearing radial centerline.
lobe	There is a cam for each piston and each cam has three lobes.[KPNR6741-05.rtf]	technical term

lobe lift	Use the following procedure to find the actual lobe lift:[KPNR6740-04.rtf]	
lock bushing	Measure the amount of shims 7 that are behind the lock bushing 6.	
lock pin	Stored lock pins	
locking wedge	Terminals cannot be retained inside the connector if the locking wedge is not installed correctly.[KPNR5342-05.rtf]	
locknut	Loosen locknut 14 on the line relief valve for the work tool.[RPNR7389-09.rtf]	a usually thin nut screwed down on another nut to prevent it from loosening; a self-locking nut
lockout device	Remove - Each lockout device must be removed.	
Lockout Procedures	Remember, follow the lockout procedures if the inspection requires going up on the bridge platform.	Procedure that is done to isolate energy sources on machines and equipment.
lockout process	In the LOTO process using a lock, Authorized Employees are assigned a personal safety lock to use during the lockout process.	
lockout switch	If the parking brake is set and the hydraulic lockout switch is disengaged, the display should show 32_ _04.; Disengage the hydraulic lockout switch.	
lockout tag	In the LOTO process, Authorized Employees are those that are approved to apply and remove lockout tags and locks.	
lockout valve	The hydraulic lockout valve for the pilot oil is not functioning properly.; Switch G for the hydraulic lockout valve, tilt control C, lift control D, and auxiliary control E are located to the right of the operator's seat.	
log file	The log file contains the time and the number of occurrences of each warning.	
logging fork	The auxiliary valve controls auxiliary implements such as a logging fork, a side dump bucket, or a multipurpose bucket.; Machines without auxiliary functions (logging fork, side dump bucket, multipurpose bucket, etc) will not have auxiliary cylinders 11.	
logging machine	On a logging machine, the pressure setting for the system pressure should be approximately 27580 ± 690 kPa4000 ± 100 psi.	

Logistics Data Management		Logistics Data Management at Caterpillar simply means working with suppliers to review and agree on Logistics Parameters such as supplier response time, transit time, order multiplies, and package quantities.
logistics planner		Employees who support inbound materials management to Point of use.
Logistics Planning Analyst	Extra work for Logistics Planning Analyst (LPA). The LPA at the facility is required to manage the job of following up on CDS and checking that a payback schedule is fulfilled.	
logistics planning function	The Logistics Planning function plays a leadership role in identifying, recommending, and executing the appropriate replenishment strategy for production inventory.	
logistics planning process	OSS replenishment begins with the supplier response to a Pull trigger. A lean finished goods buffer is established at the supplier's end during the Logistics Planning Process.	The Logistics Planning Process defines the strategy and tactics for managing the replenishment for each part, determines the replenishment method and results in the Plan for Every Part (PFEP).
LOGNET Purchasing System		The LOGNET Purchasing System receives the 56 week horizon procurement plan for purchased material from MRP. It then issues releases to the supplier and passes firm orders to the MRP system.
Longitudinal crack		A longitudinal crack is one that runs in a lengthwise direction in a part.
Longitudinal shear fracture		A longitudinal shear fracture is a fracture due to shear loading in a lengthwise direction in a part.
Longitudinal shear plane		A longitudinal shear plane is a shear plane running in the lengthwise direction in a part.
Lot Number	Stamp Related Issues refers to a condition, when the stamped text is not clear enough for reading. The stamp conveys information on Lot number of steel	
Lot Sizing	At the plant policy level, a minimum quantity and maximum number of days' demand can be established to control order planning.	
low air pressure warning buzzer	The valve will not close during truck operation unless the operator is operating the truck after activation of the low air pressure warning buzzer.	
Low carbon steel		Low carbon steel is steel that contains from 0.10 to 0.30% carbon and less than 0.60% manganese.

Low Compression Rating		
Low Cruise Control Speed Set Limit	Low Cruise Control Speed Set Limit	
Low cycle fatigue		Low cycle fatigue is fatigue that occurs at a relatively small number of cycles (perhaps less than 10,000). Low cycle fatigue may be accompanied by some plastic, or permanent, deformation.
Low Heat Value		The total heat produced by burning a given mass of fuel minus the latent heat of evaporation of water produced by the combustion process.
Low Intake Valve Actuation System Oil Pressure	Low Intake Valve Actuation System Oil Pressure	
low pressure fuel supply circuit	Service on the low pressure fuel supply circuit	
low pressure fuel system	Repair any leaks from the low pressure fuel system and from the cooling, lubrication or air systems.	
Low Side Pressure		Pressure in cooling side of refrigerating cycle.
Low Speed Range Axle Ratio	Low Speed Range Axle Ratio	
Lower Explosive Level		Lower Explosive- lean limit of gas or detonation
LOWER position	Move the hoist control to the LOWER position and increase the engine speed.	
Lower Powertrain Systems		
lower work tool	To adjust the line relief valve pressure setting of the lower work tool, push the thumb wheel on the right joystick BACKWARD.[RPNR7389-09.rtf]	
Lowest Achievable Emission Rate		
lubricant pressure switch	electronic control 1, pilot oil pressure switch 2, pilot oil solenoid valve 3, fault indicator lamp 4 and lubricant pressure switch 5.	
Lubricant Spray		A mix of graphite and water is used to lubricate and cool the dies during the Forging operation.
lubrication		Lubrication reduces the friction of the fastener's threads and more of the rotational force is applied to stretching the bolt.
lubrication oil	Fuel in the lubrication oil may be a possible cause of rapid wear of the camshaft and the tappets.[KPNR6741-05.rtf]	
Lubricator		A mechanical oiler which feeds oil at a controlled rate.
lug condition	When the load that is applied to the engine is too large, the engine will run in the lug condition.[KPNR6741-05.rtf]	

lug, to		Condition when the engine is operating at or below its maximum torque speed, or slowing the speed of an engine by adding load.
machinability	Machinability refers to the ease with which metals can be machined. Metals such as steel are often softened by heat treatment to improve machinability.	Machinability is the relative ease of machining a material as compared with machining a standard base material.
Machine		
machine control module	Check the Throttle Command at the Machine Control Module[KPNR5342-05.rtf]	
machine control system	The Machine Control System communicates back and forth on the CAN Data Link.	
machine controller	The machine controller integrates performance functions and allows the feeder and auger speeds to be set independently which extends component life.	
machine ECM	When switch 37 is pressed, the machine ECM sends a signal to the extend solenoid for attachment control valve 16.[RPNR7389-09.rtf]	
machine electronic control module	A machine Electronic Control Module (ECM) must be configured at the time of installation.[KPNR5342-05.rtf]	
machine electronic control system	Refer to Testing and Adjusting Calibration for the Machine Electronic Control System.[RPNR7389-09.rtf]	
machine fire suppression system	If equipped, know how to use the machine fire suppression system.	
machine frame	Check the voltage between the machine frame and the + battery post.	
machine harness	Disconnect the solenoid with the active diagnostic code from the machine harness.; The solenoid remains disconnected from the machine harness.	
machine harness connector	At the machine harness connector, measure the resistance from the signal contact 12 (wire 410WH) to all contacts that are used in the machine harness connectors for the ECM.	
Machine Information Display System	The codes can also be read on the Machine Information Display System (MIDS) panel, if equipped.	
machine lockout control	The machine lockout control allows the machine to be safely locked out while service is performed.	
machine lockout mode	When the machine lockout mode is activated, the following conditions exist:	
machine operating altitude range	Machine Operating Altitude Range	

machine performance	Load sense steering maximizes machine performance by directing power through the steering system only when needed, maximizing available power for productive work and improving fuel efficiency.	
Machine Pitch	Initialize Machine Pitch	Machine tilt.
machine security system	The ECM detects an erratic signal or an intermittent signal from the Machine Security System (MSS).[KPNR5342-05.rtf]	
machine service connector	The machine service connector is mounted on the machine and the Cat Data Link is used for the connection.	
Machine Shipping Order	OSS replenishment begins with the supplier response to a Pull trigger. A lean finished goods buffer is established at the supplier's end during the Logistics Planning process. The OSS items finished at the suppliers end must be staged in Machine Shipping	
machine system	The machine system is never reprogrammed unless major modifications of hardware are made in order for the excavator to comply with the requirements of a different system.[RPNR7389-09.rtf]	
machine tending robot		Robotic equipment used to load and unload machines. For example, stand-alone robots used for automatic loading/unloading machining equipment.
machine tool		a machine such as a lathe, mill, or grinder that is used to manufacture parts. As distinguished from perishable tooling such as drills, taps, or carbide inserts that are used "in" machine tools to cut parts.
machining		The removal of material caused by tools contacting work pieces at various feeds and speeds.
machining burr		Machining burrs are the ragged, protruding portions of work material on the edges of machined parts.
machining center		Machining centers are computer-controlled machine tools capable of performing a variety of cutting operations on different surfaces and different directions on a workpiece.
Macroscopic examination		Macroscopic examination is examination of a fracture surface with the naked eye, magnifying glass, or light microscope.
Magnaflux		Magnaflux is used to inspect link forgings by means of a magnetic particle inspection method. This is a non- destructive method of revealing surface and some sub- surface conditions.

Magnaglo		Magnaglo is the trade name for a nondestructive test method that uses wet fluorescent (requires a black light) magnetic particles to detect surface and subsurface flaws in ferrous parts. The affected area of the magnetic lines of force.
Magnetic Field		
magnetic force	As the magnetic force of the solenoid becomes greater than the force of spring 2, spool 3 moves in a downward direction against the force of the spring.	
magnetic line	The small amount of current is produced from the small magnetic lines of force.[KPNR6741-05.rtf]	
Magnetic particle inspection		Magnetic particle inspection is a nondestructive inspection method used for detection of surface and subsurface flaws in ferromagnetic materials such as iron and steel.
Magnetic Pick-Up		
Magnetic Switch	Magnetic Switch	
magnetic tube	Remove plate assembly 2, the magnetic tube and the screen from the housing.	
main bearing	The 3066 Engine has seven main bearings while the 3064 Engine has five main bearings.[KPNR8106-01.rtf]	
main bearing cap	Remove bolts 6 that secure crankshaft main bearing caps 7 and rear main bearing cap 8 in position in the engine cylinder block.[KPNR8106-01.rtf]	
Main Breaker		A circuit breaker at the input or output of the bus, through which all of the bus power must flow. The generator main breaker is the device that interrupts the set's power output. Main breakers provide overcurrent protection and a single disconnect point
main control valve	High negative flow control pressure PN flows from the main control valve through line 44 and port 17 to piston chamber 65 of the idler pump regulator.	
main ground cable	Clamp a Current Probe9U-5795 or Ammeter8T-0900 around the main ground cable.	
main housing	Install the final drive sprocket if the sprocket was removed from the main housing.	
Main Lighting Switch	Main Lighting Switch (11)	
main menu	From the MAIN MENU screen, use the right key 2 to scroll through the menu options.[RPNR7389-09.rtf]	
main pump	The default parameter values for TOOL#2 are for one-way hydraulic oil flow from two main pumps.[RPNR7389-09.rtf]	

main relay coil	Remove the ground wire from the main relay coil.[KPNR5342-05.rtf]	
main relief valve	Verify that the main relief valve is set to the proper specification that is found in Testing and Adjusting Relief Valve (Main) - Test and Adjust for the machine.[RPNR7389-09.rtf]	
Mainfall Sensor	The Mainfall Sensor measures the slope of the machine in the direction of travel.	Sensor that measures pitch of the machine, which is used to calculate the cross slope. (This is a term used for AccuGrade.)
maintenance cost	Full pilot control means no cables or linkages to wear, keeping "as new" controllability throughout the machines life and reducing maintenance costs.	
Maintenance Manual	This Special Instruction is a supplement to the machine's Operation and Maintenance Manual.; This document must be permanently attached to the machine's Operation and Maintenance Manual.	
Maintenance Power		Electric energy supplied by an electric utility during scheduled outages of the cogenerator.
maintenance services	Maintenance Services	
Maintenance Watch	When purchasing subscriptions on machines that are equipped with Product Link Modules, Maintenance Watch and Health Watch cannot be purchased without a subscription to Asset Watch.	
Make Value Flow		Simplify processes to to quickly identify problems and increase process efficiency
Make Value Flow principle	This is a simple diagram of evry step involved in bringing a product from order to delivery. It includes every stage of both material and information flow. The "Current State" VSM must be analyzed for potential improvements in material flow. The outputs f	
makeup check valve	Makeup check valve	
makeup line	Disconnect makeup line 4 from connector 2 at swing motor 1.	
makeup oil	Makeup oil prevents damage to the motor by not allowing the motor to rotate without oil.	
Makeup Water		The water required to replace the water lost from a cooling tower by evaporation, drift, and bleedoff.
male coupler	Remove the cap 2 that protects the male coupler.	

Manual click wrench		Manual click wrenches are torque tools that can be set at a specified torque level and when used for tightening, will "click" once the necessary torque level is achieved.
manual coupler pin	Move the lever for the manual coupler pins to the ENGAGED position. Manual coupler	
manual press brake		Press brakes bend sheet metal or plate by utilizing long dies and a mechanical press. The mechanical press is either the crank or eccentric type, with speeds that vary from a maximum at the center of the stroke to zero at the bottom of the stroke.
Manual Valve		A valve which is opened, closed, or adjusted by hand.
Manually Established Data		Plant policy provides default values that can be applied when specific parameters are not available at part number level. It is a combination of both mechanically computed and manually established data.
Manufacturing & Systems Engineers		It is one of the job titles of the manufacturing engineer.
Manufacturing Area	Heat Treat receives parts from many suppliers and ships completed material to many customers. This involves a lot of traffic to and from storage bays, furnaces, checkout locations, or hold bays. Use caution as you walk and drive in any manufacturing area.	
Manufacturing Engineer		An engineer who is responsible for planning the life of a product from raw material to finished part/product choosing methods, technology and processes.
Manufacturing Execution System Logistics		MESL is a tool that allows Caterpillar LPAs and Caterpillar suppliers to
manufacturing order	A manufacturing order is set on the basis of the demand plan.	
manufacturing plan		Instructions, material lists, resources and floor space requirements.
manufacturing production execution	It's now up to Manufacturing Production Execution to look at production plans, check available resources, and start executing these plans to develop the customized product the customer wants.	Transforms resources into value-added finished products.
Manufacturing Specialists Manufacturing Support	It is one of the job titles of the manufacturing engineer.	Provides predictive support to maintain process control.
map recording	The main purpose of map recording is to display, on the Plan View, position and attribute information.	

margin pressure	Load sensing pressure is equal to the sum of the system pressure plus the margin pressure.; This method involves measuring the margin pressure with a differential pressure gauge while the implement is in the FLOAT position.	
margin spool	If the margin pressure is out of the range, then remove the cap from margin spool 10 on the pump compensator.; Adjust the margin spool until the differential is 2300 kPa335 psi.	
margin spring	When the pressure in cavity 18 overcomes the force of both load sense signal 15 and margin spring 14.; The combination of the force of margin spring and the increase of pressure at load sensing port 15 will overcome the oil pressure in cavity 18.	
Marine Duty		A generator with features to meet marine duty certification. PM, thermocouples in winding for heat sensing, green paint, and space heaters.
Marine Generator Set Engine Marine Power System	C4,4 Marine Generator Set Engine	
Marketing and Product Support Division	Production Withdrawals may not always be necessary. They should ideally be avoided as they deplete the inventory owned by the Marketing and Product Support Division (MPSD). This inventory is dedicated for dealer needs. In fact, CDS provides a service to k	
marmon clamp		Circular clamps used for air pipe connection. They include metal rings to aid in sealing.
Martempering		A method of hardening steel by quenching from the austenitizing temperature into some heat extracting medium (usually salt) which is maintained at some constant temperature level above the point at which martensite starts to transform (usually about 450°
Martensite		Martensite is an austenite transformation product that forms when austenite is cooled rapidly, allowing no time for carbon to diffuse and form pearlitic products.
Masking		Applying masking to surfaces that must be protected from receiving paint
Mass Elastic System		Pistons, rods, crankshaft, flywheel, coupling, driven equipment, and associated shafting.

mass excavator	Only machines that are equipped with the mass excavator arrangement require manual lubrication of the bucket link pins.	
Master Link Induction		The induction heat treatment process which is used on the part named "master link"
master pin	Position the track so that the master pin is above the center line of the sprocket or idler.	
master scheduling	Based on the forecasts reviewed and approved by S&OP, Master Scheduling and Master Demand arrange for the material requirement planners to order material from the supply base.	
mate, to	The contacts should mate correctly when the two pieces of the connector are placed together.	to join or fit together; couple
Material Management		Material Management ensures the right part, to the right place, at the right time, at the right quantity, at the right quality.
Material Acquisition Time		Material Acquisition Time quantifies the number of working days required for the supplier to acquire raw/rough material. It is defined as the planned number of day and/or hours required, as defined by the supplier, for acquisition of material to support p
Material defect		A material defect is an imperfection in a part that makes it unsuitable for its intended application.
Material flaw		A material flaw is an imperfection or weakness in a part that is not severe enough to make it unsuitable for its intended application.
Material Flow		Movement of physical items through the entire value stream.
material handler	As a machine, the vehicle has a primary use as a material handler to pickup and place materials	
Material Handling		Moving necessary materials through a production process within a facility.
Material Handling Arm	Material Handling Arm	
Material Handling Arrangement		
material handling device	To perform the responsibilities of an operator effectively, he needs to have a sound understanding of material handling devices such as cranes.	
Material In Process Time		Material in Process Time quantifies the number of workdays required for the supplier to manufacture the product. It is defined as the planned number of days and/or hours required, as defined by the supplier, to perform processing activities on a part numb

Material Management		The Supply Chain / Material Management process ensures consistent delivery of the right part, to the right place, at the right time, at the right quantity, at the right cost, at the right quality every single time. This allows Caterpillar to meet customer
Material properties		Material properties are qualities peculiar to an individual material including both mechanical properties and physical properties.
material removal robot		Stand alone robots used for removing material (i.e. Grinding).
Material Replenishment Collaboration		The part of CPS focused on improving supplier replenishment processes by rolling out common, rationalized procedures. One part of the overall solution to achieve our order-to-delivery goals and enable the company to migrate from push to pull.
Material Requirements Planning		Information system that determines what assemblies must be built and materials must be procured in order to build a unit of equipment by a certain date. Queries the bill of materials and inventory data-bases to derive the necessary elements.
Material Routing	There are several steps involved in the receiving process. These include Traffic Data Receipt Reporting Material Routing Receipt Count Verification Inquiries	The path followed by materials from receipt to final usage is termed Material Routing.
Material Safety Data Sheet		a document that is supplied by the chemical manufacturer or supplier that explains the chemical and physical hazard of the product and provides suggestions on personal protective equipment, first aid, fire and spill clean up.
Material Sourcing	The job of Material Sourcing depends on the job at hand.	Material procurement.
material spring back		The largest variable in the forming process. Spring back occurs when the press releases the piece;
Material Status System		The Material Status (M/S) system provides current on- hand and on-order information.
Materials and Manufacturing Management		It is a set of applications that provide flexibility to our manufacturing facilities and helps manage change. MAMM reliability handles product designing, material procurement for a product, final assembly, and product shipment.
Mating fracture		In a fractured part, the mating fracture is the opposite fracture surface that mates up with the one under consideration.

Mating fracture surface		The mating fracture surface is one or the other of the two fracture surfaces created when a part breaks.
mating part	Clean the faces of all the mating parts.[KPNR8106-01.rtf]	
mating surface	Prior to the installation of the swing motor, make sure that the mating surfaces of the swing motor and the swing drive are thoroughly clean and dry.	
Matte appearance		See Matte finish.
Matte finish		A surface with a matte finish lacks luster or gloss and has an unusually smooth even surface free from shine or highlights.
Max min		An inventory control process that provides for variability in demand. The minimum triggers the need to order
maximum allowable air pressure	The maximum allowable air pressure is 1030 kPa150 psi.	
maximum allowable clearance	For the maximum allowable clearance between the sliphead and the tooth, refer to the engine's Specifications manual.	
maximum allowable exhaust back pressure	Maximum allowable exhaust back pressure	
maximum allowable inlet air restriction	Maximum allowable inlet air restriction	
maximum allowable load	The combined weight of the work tool and the applied load must not be greater than the maximum allowable load at the point of load application.	
maximum allowable movement	The maximum allowable movement is 0,76 mm0,03 inch.	
Maximum design stress		Maximum design stress is the maximum stress that a part is expected to experience under normal operating conditions.
maximum hinge pin height	Maximum hinge pin height	
maximum horsepower	In this case, it is necessary to utilize the underspeed feature when the engine is being operated at a maximum horsepower.	
maximum reach	Maximum reach (from grill to heel of fork)	
Mean Effective Pressure		The calculated combustion in pounds per square inch (average) during the power stroke, minus the pounds per square inch (average) of the remaining three strokes.
Mean Time Between Failures		
measured flow	To get more accurate test results, measured flow should be corrected by the following calculation.	

Measuring Brinell Indentation	The Brinell and Rockwell tests involve applying loads to the part and then obtaining a value derived from the depth of the penetration.	Brinell Indentation is used to calculate the material hardness by the impact of a hard steel ball of a specific diameter and specified load in the test material. It is measured by dividing the applied load and the impression of the impact.
Mechanical Advantage		The ratio of the resisting weight to the acting force. The distance through which the force is exerted divided by the distance the weight is raised.
Mechanical bond		A mechanical bond is the adherence of one part to another through a pure physical attachment such as "through" holes, interlocking fingers or roughened surfaces.
Mechanical Efficiency		(1) The ratio of brake horsepower to indicated horsepower, or ratio of brake mean effective pressure to mean indicated pressure. (2) An engine's rating which indicates how much of the potential horsepower is wasted through friction within the moving parts
Mechanical Equipment	Hydraulic fluid and process air are needed for the power and movement of mechanical equipment.	
Mechanical Governor		A simple type of governor using flyweights for speed sensing and throttle control.
Mechanical Injection		Mechanical force pressurizing the metered fuel and causing injection.
Mechanical Interface	External sources are mainly systems other than MRP that provide data for creating the MRP plan. This data is provided in the form of a mechanical interface or transfer	
mechanical or ultrasonic cleaner		Cleaners that physically disturb the contaminants, as with wire or fiber brushing, dry or wet abrasive blasting, tumbling, and steam jets. Ultrasonic cleaners use high frequency sound waves to create bubbles for loosening and removing dirt, scale, and oth
Mechanical properties		Mechanical properties are those properties of a material that reveal its elastic and plastic behavior when force is applied, thereby indicating its suitability for mechanical applications. Some examples of mechanical properties are: tensile strength, yiel
Mechanical Quick Coupler	Mechanical Quick Coupler	
Mechanical working		Mechanical working is plastic deformation or other physical change to which metal is subjected, by rolling, hammering, drawing, etc. to change its shape, properties or structure.
Mechanically Operated Valve		A valve which is opened and closed at regular points in a cycle of events by mechanical means.

Medart		Equipment developed for straightening cold drawn bars measuring from about 1/2" to 2-7/8" in diameter. These straighteners have one concave and one straight roll which revolve the bar as it passes between them. Much of the sizing of the bar and the bright
Medium carbon steel		Medium carbon steel is steel that contains from 0.30% to 0.60% carbon and less than 1.00% manganese. It is produced by any of the standard processes.
Medium Duty medium pressure	Not all machines that are equipped with System 14 and System 17 have medium pressure.[RPNR7389-09.rtf]	
medium pressure circuit	Auxiliary pump 28 is mounted on machines that are equipped with System 14 in order to supply hydraulic oil to the medium pressure circuit for rotation of the work tool.[RPNR7389-09.rtf]	
Medium Range Medium Voltage		Also: Mid-Range Any AC voltage between 1000 and 15,000 VAC.
Melting point		The melting point is the temperature at which a pure metal, compound or eutectic changes from solid to liquid, the temperature at which the liquid and the solid are in equilibrium.
Menu Scroll switch	Toggle a Menu Scroll switch until Operating Mode is highlighted.	
Mercury		Heavy silver-white metallic element; only metal that is liquid at ordinary room temperature.
Messenger	When you start the machine the Messenger display will show the current blade modulation selection.	
Metal		Metals are opaque, fusible, ductile, and typically lustrous substances that are good conductors of electricity and heat, especially one that is a chemical element as distinguished from an alloy.
metal burr	Use a deburring tool in order to remove the metal burr from the openings in the carrier.	
Metal Fatigue		When metal crystallizes and is in jeopardy of breaking because of vibration, twisting, bending, etc.
metal forming machine		Metal forming machines typically squeeze metal into shape and include (but are not limited to) bending machines, cold-heading machines, presses, shears, coil slitters, and stamping machines.
Metal grain		Metal grains are small crystals with crystallographic planes in various orientations that comprise a metal part.

metal inert gas (MIG) welding machine		A MIG welding machine creates an arc between the work piece and a continuously consumable electrode, the "wire" in these wire-welding processes.
Metal refining		Metal refining is a process that removes impurities and metallic oxides from a molten bath by reaction with the slag and other additions.
Metal Shot	Floor areas around shot blast equipment will be hazardous if the metal shot on the floor is not swept up frequently	
Metal structure		Metal structure is the configuration of atoms as they add to one another in an orderly and repeating three-dimensional pattern (crystal structure); or, the structure that is observed when a polished and etched specimen of metal is viewed in an optical mic Metal treatment is usually necessary to condition metals either before or after processing of any kind. Treatments may improve the product's properties such as increasing durability or resisting corrosion, or greatly influence mechanical properties, such
metal treatment machine		
Metallurgical analysis		Metallurgical analysis generally consists of analyzing the metal in a part to determine its composition, microstructure and mechanical or physical properties. Also commonly used as a synonym for failure analysis.
Metallurgical stress raiser		A metallurgical stress raiser is an irregularity or discontinuity in the material or microstructure of a part that acts the same as a physical stress raiser.
Metalworking Process	Forging is needed in Caterpillar because it manufactures parts that are stronger than those manufactured by any other metalworking process	
Metatarsal Guard	The most complete foot protection you can buy is safety shoes with the metatarsal guard built in.	Device that is intended to prevent or reduce the severity of injury to the metatarsal and insteps from impacts and crushing. Metatarsal foot protection is designed to shield your instep (tarsal bones), toes, and joints from falling heavy objects that could crush your foot if wearing only substantial footwear.
Metatarsal Protection		A fuel pump delivering a controlled amount of fuel per cycle.
Metering Fuel Pump		
Metering Pump	Metering Pump (HMU Steering); Metering Pump (HMU Steering) - Remove	
metering spring	Seat 10 moves down against the force of metering spring 11 and spring 12.	

Methyl Chloride (R-40)		A chemical once commonly used as a refrigerant. The chemical formula is CH ₃ Cl. Cylinder color code is orange. The boiling point at atmospheric pressure is -10.4° F.
Metric Size		Size of a component, part, etc., in metric units of measurement (e.g., meters, centimeters).
metric taperlock stud	The following table has the recommended standard torque values for metric taperlock studs for use on all Caterpillar equipment and Mitsubishi engines.	
Mfg. Engineering		Specifies the procedures and resources needed to transform product design into products
Mfg. Production Execution		The process which transforms resources into value-added finished products
Mfg. Support		Provides predictive support to maintain process control
Mfg.Engineering		Specifies the procedures and resources needed to transform product design into products
Micrometer		A precision measuring tool that is accurate to within one one-thousandth of an inch or one one-hundredth of a millimeter.
Micrometer and Scribe		Micrometer is used for checking link thickness while the scribe is used for marking scribe lines. Scribe lines ensure that there is enough stock and the bore is centered.
Micron		A micron is one-millionth part of a meter.
Microstructure		Microstructure is the visible structure of polished and etched metal and alloy specimens as revealed by the microscope at a magnification over ten diameters.
Microvoid		A microvoid is a microscopic cavity that forms during fracture of a ductile metal. A very large number of microvoids form in the region with the highest stress; some of them join together to form the actual fracture surface, each side of which contains cu
Microvoid coalescence		Microvoid coalescence is the mechanism of ductile fractures that permits the fracture to zigzag through the metal structure.
Microwelding		Microwelding occurs when one metal part welds itself to another in very tiny areas, usually at the high points on a surface (known as asperities) and often due to frictional heating.
MID	Diagnostic codes consist of the Module Identifier (MID), the Component Identifier (CID), and the Failure Mode Identifier (FMI).[KPNR5342-05.rtf]	module identifier;DO NOT USE 'mid' to mean 'equally distant from the extremes'
mid-term horizon		The period of time that is between the short term (execution window) and the longer term strategic

MIG welding		Metal Inert Gas welding. An arc welding process that joins metals by heating them with an arc between continuously fed filler metal (consumable) electrode and the workpiece. Externally supplied gas or gas mixtures provide shielding.
milling machine	The cast engine block is shaped according to specifications using power - driven machine tools like milling machine.	A machine used to remove metal, cut splices, gears, etc., by the rotation of its cutter or abrasive wheel.
million metric tons of carbon equivalents		
Mini Hydraulic Excavator	Mini Hydraulic Excavator	
Minimum Generation		Generally, the required minimum generation level of a utility system's thermal units. Specifically, the lowest level of operation of oil-fired and gas-fired units at which they can be currently available to meet peak load needs.
misc status	From the MISC STATUS menu, use the appropriate up key 8 or down key 13 to scroll through the listed information for the system components.	
Misc. Interplant Shipping Order		
Misc. Interplant Transfer		
miscellaneous demand system	Master Demand Systems helps manage demand for the new parts including sales forecast, customer orders, and miscellaneous demand that come from the Order Processing Systems and Miscellaneous Demand Systems.	
Miscellaneous Order Entry System		The Miscellaneous Order Entry System is the third and final source of demand. It includes Caterpillar facility domestic and foreign purchase orders along with other miscellaneous demand.
misfire, to	The engine may misfire.[KPNR5342-05.rtf]	to fail to fire when expected, as in a cylinder that doesn't fire when it is supposed to
Misfiring		When the pressure of combustion of one or more cylinders is lower than the remaining cylinders, one or more cylinders have an earlier or later ignition than the others.
Mismatch/Misalignment		This refers to a condition, when misalignment in the symmetry of a forged part causes a shifting of material on the periphery. This occurs due to top and bottom dies not aligning properly.
Mixed Cycle		Where fuel burns partly at constant volume and partly at constant pressure. Sometimes applied to the actual combustion cycle in most high-speed internal combustion engines.

Mixture Control		A screw or adjustable valve to regulate the air/fuel provided by a carburetor.
mobile ball valve	Remove the cover plates from the fixed ball valve 27 and the mobile ball valve 28.	
Mobile Sequenced Replenishment		This method is used in locations where physical space constraints prohibit the storage of two 8-hour shifts of material. Here, truck trailers can be used
Mobile Sequencer		Mobile Sequencer refers to a trailer or similar mobile storage solution, which maintains a sequence of the product on board. A minimum of 3 staging locations is recommended for mobile sequenced trailers, one of which is reserved for empty containers to be
Mobil-trac™	Models are available with steel tracks for dependable use and easy maintenance, or rubber Mobil-trac™ systems for extra mobility and smooth, quiet operation.	
Modem		Modulator/demodulator
modulated control	The work tool operates with modulated control from the right joystick thumbwheel.[RPNR7389-09.rtf]	
modulated handle	MODULATED HANDLE[RPNR7389-09.rtf]	
modulating valve	The solenoid energizer circuit of the modulating valve is shorted to ground.	
modulation reduction valve	When the Power Train/Chassis ECM energizes lockup solenoid valve 1, the pilot oil will flow to modulation reduction valve 2 in the torque converter lockup clutch and solenoid valve.	
module identifier	The module identifier (MID) identifies the electronic control module that detected the diagnostic code.	Full form of: mid
Modulus of elasticity		The modulus of elasticity is a measure of the rigidity of stiffness of a metal; the ratio of stress (below the proportional limit) to the corresponding strain. On the stress-strain diagram, the modulus of elasticity is the slope of the stress-strain curve
moisture entry	Thoroughly inspect the connectors for evidence of moisture entry.; If moisture or corrosion is evident in the connector, the source of the moisture entry must be found and the source of the moisture entry must be repaired.	
Mold Cavities	The molten metal is poured into mold cavities via sophisticated gating systems.	

Mold Drying		The drying of the cope (top half) and the drag (bottom half) are done separately, but the processes are very similar. The cope and drag are dried to achieve the right hardness and rigidity.
Mold machine		The flask, molding sand, and pattern are placed on a pattern plate mounted on an anvil, and jolted upward by air pressure at rapid intervals. The inertial forces compact the sand around the pattern to create the molds used during the casting process.
Molded Case Circuit Breaker		Automatically interrupts the current flowing through it when the current exceeds the trip rating of the breaker. Molded case refers to the use of molded plastic as the medium of electrical insulation for enclosing the mechanisms, and for separating conductors.
Molding		A mold is a hollow block in which liquid material is poured for casting. The molding process involves pouring liquid material for casting into the mold and letting it set inside the mold.
Molliers Diagram		Graph of refrigerant pressure, heat, and temperature properties.
molten material	First, we melt the work pieces and add a filler material to form a pool of molten material (the weld puddle).	
molybdenum	One of the most common metals that can be forged is high-temperature alloys containing cobalt, nickel, or molybdenum	
molybdenum grease	Apply Molybdenum Grease 5P-0960 to the pin bores.	
monitor	The value for power shift pressure on the monitor may not always match the pressure reading on the pressure gauge.[RPNR7389-09.rtf]	a device used to record and control a process
monitoring system	The ECM uses the main display module on the Monitoring System for showing diagnostic information to service personnel.	
Monochlorodifluoromethane		A refrigerant better known as Freon 12 or W-22. The chemical formula is CHClF ₂ . Cylinder color code is green.
Monocoque Construction		Integral construction of stator assembly where outside shell provides a major portion of construction strength.
motion control lever	Direct System - Move motion control lever 1 to the desired direction and select either full throttle or part throttle to move the machine.	
motor	This allows oil from auxiliary pump 28 to flow through the auxiliary control valve (medium pressure) 3 to the motor for clockwise rotation.[RPNR7389-09.rtf]	an engine
motor displacement	Motor displacement per revolution	

Motor Facing		Motor facing is another term for a C-face motor adapter that is used to close-couple pumps or other components to the face of a motor.
motor flushing valve	The oil travels through the motor flushing valve.	
motor grader	Ok, so in addition to the demand for track-type tractors, we see that China requires 40 motor graders in a few months, Brazil requires eight off-highway mining trucks, and 23 underground mining loaders have to be delivered to Australia.	
motor head	This oil then flows through passage 15 of motor head 3 to the hydraulic tank.	
Motor Inrush Current		The current required to start an electric motor at rest. This current is equal to the current that would be drawn by the motor if the rotor were not allowed to turn.
Motor Operated Potentiometer		
motor output shaft	When parking brake release port 9 is vented to the air, the motor output shaft does not rotate with a torque of 440 N·m320 lb ft or less.	
motor rotary group	During a swing operation of the upper structure, the oil delivery from the idler pump flows through passage 8 or passage 10 in block 1 to motor rotary group 36.	
mounting bracket	Make sure that the shaft of the track carrier roller and the bore in the mounting bracket on the undercarriage are clean and free of dirt.	
Mounting Plate	Main Control Valve and Mounting Plate - Remove; Main Control Valve and Mounting Plate - Install	
movable plate	Adjust the spacing between reaction plate 2 and movable plate 3 so that the spacing is approximately the same length as the recoil spring assembly (free length).	
MPGM grease	Apply MPGM grease to the bulldozer blade connectors.	
MRC Connect		Supplier tool that provides a single web communications strategy in support of efficient, collaborative business processes between logistics and suppliers.
MSS	The ECM detects an erratic signal or an intermittent signal from the Machine Security System (MSS).[KPNR5342-05.rtf]	machine security system
muffler	Attach a suitable lifting device to muffler 1.	a device to quiet noise, such as an engine muffler, exhaust muffler, or foam muffler

multi purpose	Pull the roller rearward in order to open the multipurpose bucket. Weight with bucket MP	
Multi Purpose bucket	Multi Purpose bucket - 0.6 m3 (0.8 y3)	
Multi Terrain Loader	Multi Terrain Loader	
multicast snippet	Multicast snippets are used in order to pass as-built surface information between machines.	
Multifuel		A term used to describe an engine which can burn a variety of different fuels.
multi-functional	The apron close switch (not shown) is located on the multi-functional control handle.	
multimeter	Use a multimeter to monitor the percent duty cycle of the throttle command at the machine control module.[KPNR5342-05.rtf]	a device for measuring current flow, resistance and voltage
multimeter probe	At the back of the harness connector for the sensor, insert a Multimeter Probe7X-1710 along the ground wire 235BK (contact 2).	
Multiple crack initiation		Multiple crack initiation is the simultaneous initiation of several cracks during fatigue failure of a part.
multiple disc brake	Cat rear oil-cooled, multiple disc brakes offer exceptional, fade-resistant braking and retarding for maximum performance and productivity in all haul road conditions.	
Multiple Rating Engine		An engine which has a variable full load fuel setting to provide more than one full load power.
Multipurpose Grease	Multipurpose Grease	
Multipurpose Lithium Complex Grease	Special PublicationPEHP0003Product Data Sheet for Multipurpose Lithium Complex Grease (MPG)	
Multipurpose Tractor Oil	Special PublicationPEHP3050Product Data Sheet for Caterpillar Multipurpose Tractor Oil (MTO)	
Multi-tasking or universal machining centers		Machining centers that are equipped with both horizontal and vertical spindles. They have a variety of features and are capable of machining all surfaces of a workpiece (vertical, horizontal, and diagonal).
multi-tool	The Multi-Tool Gp285-0910 is used to check the air flow through the radiator core.[KPNR6741-05.rtf]	
Multi-Torque		

Multi-viscosity oil		A multi-viscosity oil is one in which the viscosity/ temperature characteristics are such that its low temperature and high temperature viscosity fall within the limits of two different SAE numbers.
Mushroom heads	Impact tools such as chisels, punches, and wedges are unsafe if they have mushroomed heads.	a chisel or punch where the top has been flattened due to overuse.
NACD	NACD THUMB[RPNR7389-09.rtf]	
natural aspirated arrangement	The C4.4 Marine Generator Set is available as a naturally aspirated arrangement, a turbocharged arrangement and a turbocharged aftercooled arrangement.	
Natural Convection		Circulation of a gas or liquid due to the difference in density resulting from temperature difference. Movement of a fluid caused by temperature differences (density changes).
Natural Gas		Hydrocarbon gas found in the earth, composed of methane, ethane, butane, propane and other gases.
Natural Sand		Sand which results from the natural disintegration and abrasion of rock. This material is used to create the casting mold in which the molten iron and other additives are poured.
naturally aspirated		A term applied to an engine which has no method of compressing air supplied to the inlet manifold.
naturally aspirated marine generator set	Naturally Aspirated Marine Generator Sets	
NC drilling machine		Numerically controlled drilling machines in which various drilling operations are performed automatically and in the desired sequence with the use of a turret.
Necking		Necking is the reduction of the cross-sectional area of a part under the action of a tensile load.
needle valve	When the force of the fuel pressure is greater than the force of the spring, the needle valve will lift up.[KPNR6741-05.rtf]	
negative battery	The negative battery is supplied through P1- 1, 2, 3, 9, 10.[KPNR5342-05.rtf]	
negative flow control	Perform the calibration for the proportional solenoid valve for negative flow control.[RPNR7389-09.rtf]	
negative flow rate	A change of 0,1 mm 0,0039 inch in shim thickness will change the negative flow rate 3 L/min0,8 US gpm at a negative flow control pressure of 2350 kPa340 psi.	

negative flow signal	Connect two tees 15 to the elbow at the negative flow signal pressure port of idler pump 24.	
Negative on Hand	Material Status System(M/S) reports are generated in the cases like Negative on Hand.	
NEMA 1 Enclosure		This enclosure designation is for indoor use only when dirt, dust, and water are not a consideration. Personnel protection is the primary purpose of this type of enclosure.
Neoprene		A synthetic rubber highly resistant to oil, light, heat, and oxidation.
Nest Pad		Nest Pad is the pad or substrate on which the forge workpiece is placed while being forged
Network		A system of transmission or distribution lines so cross-connected and operated as to permit multiple power supply to any principal point on it.
Neutral axis		The neutral axis (for instance under a bending load) is the boundary between the tensile and compressive stresses in a part.
NEUTRAL position	Return the thumb wheel to the NEUTRAL position.[RPNR7389-09.rtf]	
neutral start relay	When hydraulic activation lever 3 is in the locked position, the neutral start relay will be active.[RPNR7389-09.rtf]	
neutralizer switch	9Transmission neutralizer switch	
neutralizer valve	Remove the steering neutralizer valve.; Install the steering neutralizer valve.	
New Material Release		Announces new or different items of interest that would be of value to dealers and sales representatives.
Nil ductility transition temperature		The nil ductility transition temperature is the temperature at which the impact behavior of a metal changes from ductile to brittle in the presence of a stress raiser.
nipple	Connect hose 9 to nipple assembly 8.[RPNR7389-09.rtf]	a hose or pipe fitting, such as an autobrake fluid valved nipple, NPT nipple, pipe nipple, plain nipple, or hose nipple
nipple		a grease fitting, such as a grease nipple or lubrication nipple
Ni-Resist		Ni-Resist is a trade name for a type of cast iron alloyed with high percentages of nickel and chromium, basically the iron equivalent of stainless steel in their properties. Available in either gray or ductile iron grades, Ni-Resist irons have good heat r
Nitriding	Nitriding creates a uniform but shallow case using atmosphere containing ammonia.	Nitriding is a subcritical temperature case hardening process that introduces nitrogen into the surface of a part to strengthen it.
nitrogen	If the tires were originally inflated with air, nitrogen is still preferred for adjusting the pressure.	a gaseous element, atomic number 7

nitrogen chamber	It is necessary to remove all air from the nitrogen chamber of the brake accumulator.; When the brake accumulator is rebuilt, add approximately 1,9 L0,5 US gal of SAE 10 hydraulic oil in the nitrogen chamber of the brake accumulator.	
Nitrogen Charging Procedure	Nitrogen Charging Procedure; For more information on the Nitrogen Charging Procedure, refer to the Service Manual module Testing and AdjustingRide Control Accumulator - Test and Charge for Nitrogen Charging Procedure.	
Nitrogen Oxide		The combination of nitrogen and oxygen that occurs during the combustion process.
nitrogen purge capability	The Caterpillar designed quenc machines are designed for safety. Additionally, the oil quench stations have fire suppression hoods or hoses, and many have nitrogen purge capabilities.	
No Alarm option	Use the Cursor up or the Cursor down buttons in order to select the No Alarm option that is on the Alarm Mode screen.	
Nodular cast iron		See Ductile cast iron.
no-load condition	The engine rpm will increase when the transmission is neutralized due to the no-load condition from the transmission.; Run the engine in the no-load condition at high idle.	
Nomenclature		Nomenclature is a system or set of terms or symbols especially in a particular science or discipline such as failure analysis.
Nominal Amplitude		Nominal Amplitude is a specification of the Vibratory System
Non Slip Soles	One of the rows on Existing safeguards table	Shoe soles for a better grip on the ground to give a better traction and prevent slipping
Non Value-Added Activity		An activity that takes time, resources or space but does not add value to the product itself. The activity may be necessary under current conditions, but does not add value from the customer's perspective.
Non-Additive		The purpose of non-additive is to identify the capacity at a plant that produces products from a skid pack provided by another plant. In this case, the additive capacity would be listed at the skid pack source plant, and the assembly plant would list thei

Nondestructive testing		Nondestructive testing is any type of testing performed on an object that leaves the object essentially unchanged after the testing is completed.
Nonferrous Metals		Any metals not containing iron.
non-instrumented electric direct drive tool		Non-instrumented electric direct drive tools can tighten several fasteners in a short amount of time and have the same high susceptibility to early trigger release as pulse tools which cause undertorque. It is critical to hold down the trigger on the tool
non-interruptible load		Loads which cannot tolerate even a momentary power outage without causing damage or severe functional loss to a facility. A computer is a noninterruptible load, as any power lapse could result in loss of vital data or computer-controlled action.
Non-Ionizing Radiation	Examples include lasers, microwaves and radio waves, prolonged exposure to which may be harmful for humans.	
nonlinear load		Any load for which the relationship between voltage and current is not a linear function. Some common nonlinear loads are fluorescent lighting, SCR motor starters, and UPS systems. Nonlinear loads cause abnormal conductor heating and voltage distortion.
Non-Machined Drum Edge	Non-Machined Drum Edges	Compactor drum edges without taper.
nonmetallic hood	Dust that is generated from repairing nonmetallic hoods or nonmetallic fenders can be flammable and/or explosive.	
normal distribution curve	Normal Distribution curve is one where the average value is in the middle and other values are distributed evenly in both the directions.	
normal operating condition	An example of a normal operating condition is stopping the machine.	
Normal Rotation	Normal Rotation; Opposite Normal Rotation	
Normal stress raiser		Normal stress raisers are those that naturally arise from the design or manufacture of a part such as fillets, holes, keyways, gear teeth, threads, section changes, etc.
normal working pressure	Normal working pressure of the number 1 attachment valve[RPNR7389-09.rtf]	
North Pole		North Pole (magnet). The pole from which the lines of force emanate (thereafter entering the south pole).
Notching		A method of producing stator laminations by indexing and punching stator slots one at a time.

note	Note: You can access Preferences at anytime during the order process (on any screen) by scrolling over the "Resources" bar and selecting "Prefernces."	
notes	Notes: Information on non-GAAP financial measures, including the treatment of redundancy costs in the first quarter and in the outlook, is included on page 25.	
notice	A non-exhaustive list of operations that may cause product damage are identified by NOTICE labels on the product and in this publication.	
Nox		Combination of nitric oxide (NO) and nitrogen dioxide (NO2). A harmful chemical present in combustion air formed by decomposition and recombination of molecular oxygen and nitrogen. Measured in parts per million by volume. NOx Concentration (ppm) = 629 x NOx mass emissions (g/hr) / Exhaust mass flow (kg/hr)
NOxRACT		Reasonable Available Control Technology being applied to NOx on existing stationary sources in nonattainment areas.
nozzle		a sprinkler, such as a spray bar nozzle or individual sprinkler nozzle;DO NOT USE 'nozzle' alone to mean 'a high pressure sprayer' such as an air nozzle or agent dispersal nozzle
nozzle		an injector nozzle, such as a pump discharge nozzle or starting aid nozzle;DO NOT USE 'nozzle' alone to mean 'a high pressure sprayer' such as an air nozzle or agent dispersal nozzle
nozzle		the circular set of vanes in a turbocharger that direct exhaust gasses onto the turbine
nozzle assembly	Lower end, or nozzle assembly C	
nozzle check	This provides a positive downward force on the nozzle check 19 at all times when fuel is not being injected.; Pilot injection begins when the injection pressure increases in order to overcome the force of the nozzle spring 15 which lifts the nozzle check 19.	
nozzle spring	Pilot injection begins when the injection pressure increases in order to overcome the force of the nozzle spring 15 which lifts the nozzle check 19.	
nozzle tip	The downward movement of the piston and plunger 10 pressurizes the fuel in the plunger cavity to the nozzle tip 20.	
number drill		Drills on which the size is designated by a number.

Numerical Control Programming		It uses electronic communication with manufacturing machines to direct the machine to perform the desired task.
nut	Slowly back off the last two bolts or the last two nuts that are located at opposite ends of the cover or device.	a device for securing a bolt by mating with its threaded end
Nutrunners		Nutrunners are controlled nut drivers, often with torque transducers in the head. They are used in precision fastening and assembly applications, and can be interfaced with SPC software for quality control.
NX-CAM		A Siemens CAM application
Occupational Safety and Health Association	The Occupational Safety and Health Association (OSHA) requires employers to provide safety glasses for anyone working in or entering a manufacturing environment.	
off-board laser transmitter	The AccuGrade System uses advanced laser technology, machine mounted components and an off-board laser transmitter, this state-of-the-art blade control system provides precise elevation information on the display LCD in order to achieve accurate 2D guidance.	
Off-Highway Truck	Off-Highway Truck/Tractor	
office of business practice	You may anonymously report the suspected violation to the Caterpillar Office of Business practice Confidential Helpline at 1-800-300-7898	
Off-Peak		Time periods when power demand are below average. For electric utilities, generally nights and weekends; for gas utilities, summer months.
offset, to	This offsets the load of the attachment pump.	to have a bend around an obstruction;DO NOT USE 'offset' to mean 'counterbalance, counteract, or compensate for' or 'move or shift'
ohm	Each resistance measurement is greater than 5000 ohms.	A unit of electrical resistance equal to that of a conductor in which a current of one ampere is produced by a potential of one volt across its terminals. A unit used to measure the opposition or resistance to flow of electric current in a circuit.
Ohm's Law		The number of amperes flowing in a circuit is equal to the number of volts divided by the number of ohms.
Ohmmeter		An instrument for measuring the resistance in a circuit or unit in ohms.

oil	This allows oil from drive pump 30 to flow through attachment control valve 21 and this allows oil from idler pump 29 to flow through auxiliary control valve 20.[RPNR7389-09.rtf]	a petroleum derivative, such as a machine oil or lubricant
oil chamber	Some of the oil that flows through passage 18 flows into oil chamber 2 at the front of the transmission.; Some of the oil from oil chamber 2 flows to the No.	
oil check plug	Clean the surface area around oil check plug 1.	
oil control ring	The position of the end gap of the oil control ring is 180 degrees from the ends of the ring expander.[KPNR6740-04.rtf]	
Oil Cooler		A heat exchanger for lowering the temperature of oil.
oil delivery	The oil delivery flows through center bypass passage 3 to the bucket control valve.	
oil drain	Check that the oil drain is not blocked or restricted.[KPNR5342-05.rtf]	
oil fill cap	Remove oil fill cap 13.	
oil filter assembly	The weight of oil filter assembly 9 is approximately 20 kg45 lb.	
oil filter bypass valve	There is an oil filter bypass valve on the inlet side of the transmission oil filter.; Install oil filter bypass valve 6 and oil filter bypass valve 5 in engine oil filter base 4.	
oil filter indicator	7Transmission oil filter indicator	
oil flow	When the machine is travelling, the swing circuit and implement circuits do not require a large amount of oil flow.	
oil gallery	Oil is sent from main oil gallery 7 through drilled passages in the cylinder block.[KPNR6741-05.rtf]	
oil groove	Make sure that the oil grooves on thrust washers 10 are facing away from rear main bearing cap 8.[KPNR8106-01.rtf]	
Oil Groove Depth	Oil Groove Depth of the Brake Discs; Oil Groove Depth	
oil hole	Ensure that the oil hole of the camshaft bearings are in alignment with the oil ports in the engine block.[KPNR8106-01.rtf]	
oil jet tube assembly	Side view of the oil jet tube assembly; Oil jet tube assembly with a dual orifice	
oil level	Ensure that the engine is filled to the correct oil level.[KPNR6741-05.rtf]	

oil level dipstick	Maintain the oil level between the MIN mark and the MAX mark on the oil level dipstick.	
oil pan	Remove six bolts 5 (not shown) and the washers that mount front housing 4 to the oil pan.[KPNR8106-01.rtf]	
oil pressure	Since the return oil flow from the motor rotary group is also blocked at the swing control valve, the oil pressure in passage 8 increases.	
oil pressure gauge	An oil pressure gauge that has a defect can indicate low oil pressure.[KPNR6741-05.rtf]	
oil pump housing	Measure the depth in the oil pump housing.[KPNR6741-05.rtf]	
Oil Pumping		An engine condition wherein excessive oil passes by the piston rings and is burned during combustion.
Oil Quench Stations	The Caterpillar designed quench machines are designed for safety. Additionally, the oil quench stations have fire suppression hoods or hoses, and many have nitrogen purge capabilities.	
Oil quenching		Oil quenching is rapid cooling of a heated metal part in an oil bath.
Oil Renewal System	If your machine is equipped with the Oil Renewal System (ORS), engine oil is blended into the fuel supply of the machine.	
oil ring groove	Position the spring for the oil control ring in the oil ring groove in the piston body assembly.; Four holes that are drilled from the piston oil ring groove to the interior of the piston drain excess oil from the oil ring.	
oil seal	If the oil seal shows a sign of oil leaks, remove the wear sleeve and the oil seal.[KPNR8106-01.rtf]	
Oil Separator		Device used to remove oil from gaseous refrigerant.
Oil Slinger		A special frame disk fastened to a revolving shaft. When the shaft rotates and oil contacts the disk, it is thrown outward away from the seal, and thus reduces the force on the seal.
oil sludge	Look for oil sludge.; Inspect the oil drain hole for oil sludge.	
oil suction tube	Check the inlet screen on the oil suction tube and remove any material that may be restricting oil flow.[KPNR5342-05.rtf]	

oil sump	When the engine is started, the transmission oil pump 11 pulls oil from oil sump 14.; The pressurized oil leakage drains to oil sump 14.
oil supply tube	Remove bolts 1 from oil supply tube 2.[KPNR8106-01.rtf]
oil system	When the pressure of the oil system reaches 343 kPa50 psi oil pressure relief valve 9 opens.[KPNR6741-05.rtf]
oil tank	Return oil is flowing into the hydraulic oil tank above the level of oil that is in the tank.; There are leaks in the line between the hydraulic pump and the hydraulic oil tank.
Oil, Refrigeration	
Oil-Bath Air Cleaner	
OK key	When the desired character is highlighted, press the OK key 8.[RPNR7389-09.rtf]
ON position	The toggle switch will be returned to the ON position.
ON/OFF	ON/OFF switch
one pump flow	One pump flow is used for work tools that require low flow rates for actuation.[RPNR7389-09.rtf]
one touch idle	The engine returns to high idle if the AEC or the one touch idle feature is active.[RPNR7389-09.rtf]
One Voice	The two key principles on which MRC is based are Collaboration and One Voice. These enable Caterpillar to forge strong and transparent relationships with its suppliers.
One-piece Flow	The use of Laser Heat Treat has given Caterpillar a number of benefits. One of them is one-piece flow, i.e., the part can be transferred to the next process just after the laser heat treat operation, without compromising the safety and quality.
one-way flow	If the desired relief setting is for tools which require one-way flow, set the line relief valve for one-way flow A.[RPNR7389-09.rtf]

Specifically prepared oil used in refrigerator mechanism circulates to same extent with refrigerant. The oil must be dry (entirely free of moisture), otherwise, moisture will condense out and freeze in the refrigerant control and may cause refrigerant mec

An air filter that utilizes a reservoir of oil to remove the impurities from the air before it enters the intake manifold or the compressor of the turbine.

Making and moving one piece at a time in manufacturing or logistics process.

one-way hydraulic oil flow	The default parameter values for TOOL#1 are for one-way hydraulic oil flow from one main pump.[RPNR7389-09.rtf]	
on-highway engine	C13 and C15 On-highway Engines with Standard (Deep) Oil Pans	
open circuit	A diagnostic code indicates an electrical problem such as a short circuit or an open circuit in the engine's wiring or in an electrical component.[KPNR5342-05.rtf]	
Open Die Forging		Open die forging is performed with flat dies with no precut profiles. The key to this movement of the work piece. Larger parts over 200,000 pounds and 80 feet in length can be hammered or presses inot shape through this process.
Open die forging presses		A solid workpiece is placed between two flat dies and reduced in height by pressing the two dies together.
open time	Open time for the number 1 attachment valve[RPNR7389-09.rtf]	
Open-Type Compressor		Compressor in which the crankshaft extends through the crankcase and is driven by an outside motor.
Open-Type System		A refrigerating system which uses a belt-driven compressor or a coupling-driven compressor.
Operating Costs	Strategic Manufacturing Planning (SMP) supports strategic manufacturing decisions and includes detailed estimates for the following: Capital equipment Facility building Personnel Operating costs Production schedules	
operating height	Maximum operating height	
Operating Manual	Refer to the tool's Operating Manual for the testing procedure.	
operating monitoring system	If a warning indicator for the charging system is ON, see Service MagazineSEBD1751Difference Between Alternator Indicator In Electronic Monitoring System (EMS) And Low Voltage Indicator In Operating Monitoring System (OMS).	
operating plan		The approved plan from S&OP.
operating pressure	Normal operating pressure for this unit is 345 kPa (50 psi).	

Operating Rate		Amount of time in a period (e.g., shift, day) that a machine is used to make something.
Operating Specifications	Operating Specifications	
operating speed	Perform the following steps in order to test the operating speed of the boom cylinders.	
operating system	The Operating System eliminates waste using 6 Sigma and 6 Sigma lean tools.	It eliminates waste using 6 Sigma and 6 Sigma lean tools.
operating temperature	In cold weather, the engine will not obtain operating temperature if even small amounts of coolant travel through the radiator.[KPNR6741-05.rtf]	
operating weight	Approximate operating weight	
Operation and Maintenance Manual	Refer to the Operation and Maintenance Manual for information on improving the characteristics of the fuel during cold weather operation.[KPNR5342-05.rtf]	
operation manual	name of the manual	
operation position	Hold the device for activation in the OPERATION position for a few seconds in order to allow the hydraulic system to stabilize before repeating the Steps.[RPNR7389-09.rtf]	
Operational Availability		The percent of actual production time / available production time. The goal is always 100 percent. Also: the fraction of time a machine functions properly when needed.
operator	The keys 2 and 3 allow the operator to access additional information about the generator set.	
operator console	The work tool can also be selected by pushing the tool select switch in the standard switch panel located on the right hand side of the operator console.	
operator cooler	Heat treat areas are naturally hotter than machining areas, but they also have more cooling equipment for the operators, such as operator coolers	
Operator Cycle Time		The time it takes an operator to go through all work elements before repeating them.
Operator Environment	Operator Environment	
operator equipment check	To repeat processes with confidence, stable and capable equipment are required. These equipment need to be routinely inspected and maintained to ensure that they produce the right quality products consistently. It is the operators' responsibility to take	

operator manual	All furnaces and Caterpillar designed quenches have "Emergency" and "Recovery" procedures, on location, as part of the Operator Manuals.	
operator preventative maintenance check	A proactive approach to detecting and eliminating equipment hazards should include conducting daily "Operator Preventative Maintenance Checks" as scheduled	
operator seat	Use a point that is visible from the operator seat as a reference point for the target.	
operator station	Comfort and control - a top quality operator station helps maximize productivity.	
Opposed Piston Engine		An engine having two pistons operating in opposite ends of the same cylinder, compressing air between them.
Optional Equipment	See Standard and Optional Equipment for details.	
Optional Ride Control System	Optional Ride Control System improves productivity and comfort.	
Order Interval		The frequency (days) that a part is ordered.
Orderly Turbulence		Air motion which is controlled as to direction or velocity.
Ore		An ore is a mineral containing a valuable constituent (such as metal) for which it is mined and worked.
orientation	Tooling set up related issues refers to a condition, when tooling such as die punch is not set-up properly (orientation, alignment	
Orifice		Accurate size openings for controlling fluid flow.
o-ring	Looking a bit closer, he sees that the captive o-ring has broken.	
O-ring face seal connector	1O-ring face seal connector	
O-ring flange coupling	An O-ring flange coupling is used to fasten a hose to a port for large, high-pressure hose applications.	
O-ring seal	Inspect the tube assembly O-ring seal.	
oscillating axle	Drain the oil from the oscillating axle into a suitable container for storage or disposal.; Attach a suitable lifting device to both sides of oscillating axle 8, as shown.	
oscillation drive shaft bearing	Apply lubricant through remote mounted fitting 3 for the front oscillation drive shaft bearing 1.	

Otto Cycle		Also called four-stroke cycle. Named after the man who adopted the principle of four cycles of operation for each explosion in an engine cylinder. They are (1) intake stroke, (2) compression stroke, (3) power stroke, (4) exhaust stroke.
Our Values in Action		Our Values in Action is Caterpillar's Worldwide Code of Conduct and is composed of Integrity, Excellence, Teamwork, and Commitment, and how we use these values to make sound, ethical decisions in the best interest of Caterpillar stakeholders.
Outage	(electric utility)	An interruption of electric service that is temporary (minutes or hours) and affects a relatively small area (buildings or city blocks).
Outboard Exciter	Outboard Exciter-generator related	Exciter components are physically located outboard of the ball bearing. This design is used to keep shaft deflection between the bearing center and the engine drive flange mounting to a minimum.
Outbound Logistics	Outbound Logistics prepares Prime Products (finished machines) for delivery to dealers and also prepares finished parts and components for delivery to the parts distribution center and other facilities.	
outer cover	Outer covers have embedded armoring.	
outer dust seal	Inner dust seal 3 and outer dust seal 4 may have been installed dry in the swing gear and bearing or inner dust seal 3 and outer dust seal 4 may have been bonded to the swing gear and bearing.	
outlet port	The travel motor output shaft rotates with an applied torque of 29 N·m21 lb ft or less when the parking brake release port is pressurized to 780 kPa115 psi with both the inlet port and the outlet port open to the hydraulic oil tank.	
outlet pressure sensor	This diagnostic code is associated with the Hydraulic Pump 2 Outlet Pressure Sensor.	
output flow rate	Each pump is tested individually for an output flow rate at a specified delivery pressure and a specified negative flow control pressure.	
output shaft	The output shaft of the travel motor is splined to sun gear 15.	
output transfer gear case	The oil is then sent back to the reservoir in the output transfer gear case.	
output voltage	After approximately ten minutes of operating the engine at full throttle, the output voltage of the alternator should be 14.0 ± 0.5 volts.[KPNR6741-05.rtf]	

Over Air Configuration feature	The technician then sets configuration parameters that can be viewed and changed using the EquipmentManager Over the Air Configuration feature, however, it is recommended that these parameters be provided to the technician before installation begins.	Wireless configuration.
Over Processing	Over processing can be avoided by following the standard operating procedures during forging.	
Overall Equipment Effectiveness		A Total Productive Maintenance (TPM) measure of how effectively equipment is being used.
Overcrank		EPG only. On the EMS II module, a flashing red light and a horn annunciate when an overcrank has occurred. The ECM will determine when an overcrank has occurred and will provide the information on the datalink.
over-end value	Lift Capacities are over-end values.	Lift capacity value over end of the machine.
Overhaul Protection for Trucks		A comprehensive Cat plan to protect against unexpected engine repair costs on overhauled engines; covers 100 percent of any repair cost for qualifying parts and labor.
Overhead Camshaft		A camshaft which is mounted above the cylinder head.
Overhead Console	Overhead Console	
overhead crane		An overhead crane has a moveable bridge that travels on overhead fixed runways, carrying a motor drive or manually moved hoisting mechanism.
overhead lifting device	Overhead lifting device must have adequate weight rating.	
Overload		An overload is a load that exceeds the maximum design stress for a part.
Overpressure		Overpressure is pressure that exceeds the recommended maximum pressure in a hydraulic system.
Overproduction		Producing something earlier or faster than required by the next process.
override	Use the Cat ET to select the override function in order to switch individual lamps ON and OFF.[KPNR5342-05.rtf]	the act or a means of overriding (to set aside and replace)
overrunning clutch	The overrunning clutch transmits torque of the armature.[KPNR6741-05.rtf]	
Overrunning-Clutch Starter Drive		A mechanical device that locks in one direction but turns freely in the opposite direction.

oversize dimension	Bore the cylinder to the specified oversize dimension if the inside diameter reaches the repair limit but the inside diameter does not reach the service limit.[KPNR6740-04.rtf]	
oversize thrust plate	Three oversize thrust plates are available as replacements if the end play still exceeds the maximum limit.[KPNR6740-04.rtf]	
overspeed	Use this procedure in order to troubleshoot an engine overspeed or use this procedure if the following event code is active.[KPNR5342-05.rtf]	the state of running out of control
Overspeed Governor		A governor that shuts off the fuel or stops the engine only when excessive speed is reached.
Oversquare Engine		An engine that has a larger bore diameter than the length of its stroke.
overswing	Measure the amount of overswing by measuring the distance between the marks on the swing bearing.	drift
Overvoltage Relay		Operates when the monitored voltage exceeds the relay setpoint. If monitoring a generator set the generator set's circuit breaker is typically tripped open and the generator set is shut down.
owning cost	Caterpillar quality, improved serviceability and productivity provide maximum uptime and lower owning and operating costs.	
Oxidation		Oxidation is the chemical combination of a petroleum product with oxygen with resultant degradation of its composition and performance. Oxidation is accelerated by heat, light, metal catalysts (e.g. copper), and the presence of water, acids, or solid cont
Oxide		An oxide is the product of a corrosion reaction in which the corroded metal has oxidized (i.e., formed a compound of the metal and oxygen), usually applied to reactions with a gas containing elemental oxygen, such as air.
Oxidized metal		Oxidized metal is metal that has undergone oxidation.
Oxyfuel gas cutting		A flame, created by the combination of a fuel gas and oxygen, is used to remove a narrow zone from a metal plate or sheet.
Pacemaker Process		Any process along a value stream that sets the pace for the entire stream. Usually near the customer end of the value stream, often the final assembly cell. Not to be confused with bottleneck process, which necessarily con-strains downstream processes because of a lack of capacity.

Painting		The process of applying paint or powder.
Pan Height Gauge		Head Height Gauge is used to check core height at both ends of the prints. High assemblies must be bumped down.
panel assembly	Disconnect harness assemblies 8 from panel assembly 9.; Remove panel assembly 9.	
Paper Air Cleaner		An air filter with a special paper element through which the air is drawn.
Parallel Circuit		An electric circuit with two or more branch circuits. It is wired to allow current to flow through all branches at the same time.
parallel feeder passage	The other path flows through parallel feeder passage 4.	
Paralleling		Two or more AC generator sets (or one generator set and the utility) supplying power to a common load. Connection of the power sources is made so that the sources electrically function as a single source of power. Parallel operation requires that the two
parameter	Parameter A1 EXTEND MAX PRES is used in order to control the maximum pilot pressure.[RPNR7389-09.rtf]	a variable or an arbitrary constant appearing in a mathematical expression, each value of which restricts or determines the specific form of the expression
parameter value	The machine ECM has programmed parameter values NAME, MAX DIAL, and MIN DIAL for flow and pressure for the work tool.[RPNR7389-09.rtf]	
Parent metal		See Base Metal.
Pareto Analysis	TPM analyzes losses by using the Pareto Analysis.	It is a means of sorting data for example, frequency of record errors occurring from different sources, based on Pareto principle. The principle suggests that most effects come from relatively few causes: that is, approximately 80% of the record errors come
park brake	Activate the switch by starting the engine and disengaging the park brake.	
parking brake	When the separator plates and the friction plates are forced together, the rotation of drive shaft 3 in the travel motor gradually slows to a stop as the parking brake engages.	
parking brake indicator	Further loss of oil pressure will cause parking brake indicator 1 to come on and the parking brake will automatically engage to stop the machine.	
parking brake release port	When parking brake release port 9 is vented to the air, the motor output shaft does not rotate with a torque of 440 N·m320 lb ft or less.	

parking brake release switch	Use parking brake release switch 1 to engage or disengage the parking brake when you park the machine.	
Part marking machines		Part marking machines are used to mark parts within a code or other information that is used for traceability.
part number	If the download of the injector trim file fails, confirm that the part number for the injector is correct.[KPNR5342-05.rtf] If a terminal must be replaced, part number 28170085 must be used.	
part number breakdown	Multi-unit part that consists of multiple items purchased as a complete unit with no part number breakdown and no serviceable items within the unit Example: battery	
Part Storage Requisition	So whenever a shortage occurs, a detailed analysis of the root cause and all possible sources of resolution is required. Here is a list of factors that need to be taken into account :	
Partial Piece Heat Treat	Partial Piece Heat Treat - Processes that Heat Treat partial piece part geometries, including Induction and Laser Heat Treatment.	
Particle		A particle is a minute fragment of material.
particle emissions		Emitted substances including soot (unburned carbon), soluble organic fraction (SOF), and sulfates.
Parts Manual		
parts service	The LPA performs the following functions: Contact the supplier of the inventory to place a short-dated order for additional material to be sent to the factory. Frequently, the supplier does have additional inventory that can be shipped immediately. Before	
Pascal's Law		Pressure applied anywhere to a body of confined fluid is transmitted undiminished to every portion of the surface of the containing vessel.
passage	The passages in the cylinder block connect main bearings and camshaft bearings.[KPNR6741-05.rtf]	a conduit
path	The other path flows through parallel feeder passage 6, attachment control valve 4, bucket control valve 3 and boom I control valve 2.	the route or course along which something moves
Paving Compactor	Paving Compactor	

payload control system	Both sensors continuously communicate the corresponding frequency with the ECM for the payload control system.; The ground is connected to the ground in the ECM for the payload control system.	
PDP Process		The process of evaluating an employee on the quality of their performance in the job.
peak current	The peak current will appear on the voltmeter in peak hold or max mode.	
Peak Demand		The maximum electrical power (kilowatt) demand for a given facility for a given time.
peak hold	The peak current will appear on the voltmeter in peak hold or max mode.	
Peak Load		The highest electrical demand within a particular period of time. Daily electric peaks on weekdays occur in late afternoon and early evening. Annual peaks occur on hot summer days.
Peak Load Power Plant		A power generating station that is normally used to produce extra electricity during peak load times.
Peak Sharing		Power customers directly assisting utilities by generating electricity during times of peak demand on the utility system.
Peaking Unit		A power generator used by a utility to produce extra electricity during peak load times.
Peak-to-Peak Voltage		Measurement of voltage from the maximum value of one polarity to the maximum of the opposite polarity.
Pearlite		Pearlite is a lamellar aggregate (consisting of very fine alternating plates) of ferrite and iron carbide in the microstructure of iron and steel.
pedal	To adjust the line relief valve pressure setting of the upper work tool, push the left pedal FORWARD.[RPNR7389-09.rtf]	a foot lever
pedal stop	Insert a 3,5 mm0,14 inch shim between Treadle heel stop 4 and pedal stop 3 of both the left brake pedal and the right brake pedal.; Insert a 1,5 mm0,06 inch shim between Treadle heel stop 4 and pedal stop 3 of both the left brake pedal and the right brake pedal.	
pedal travel	16Maximum pedal travel; The Integrated Braking System is in normal mode C when the operator depresses the left brake pedal between calibrated initial brake pressure point 14 and the point of maximum pedal travel 16.	

Peening		Flattening the end of a rivet, etc., using the force of a hammer.
Penetration		In welding, penetration is the distance from the original surface of the base metal to the depth at which fusion stops.
percent duty cycle	Use a multimeter to monitor the percent duty cycle of the throttle command at the machine control module.[KPNR5342-05.rtf]	
Percent Utilization		Percentage of a trailer or sea van that is used compared to the maximum allowable.
Percentage of Industry Sales		Compares Caterpillar sales to industry sales
performance	The PERFORMANCE menu allows the user to view data for a list of system parameters.	the way in which something functions
performance maps	The personality module contains all of the instructions for the ECM and the performance maps for the ECM in a specific engine application.; The ECM contains programmed performance maps (software) in order to define horsepower, torque curves and rpm.	
Permanent Magnet		Excitation Type — A permanent magnet fixed on shaft which initiates current flow in PM stator when rotated.
Permanent Magnet Excitation		Use of a PM pilot exciter to supply power to the voltage regulator and main exciter.
Permanent Magnet Pilot Excited Generator	Permanent Magnet Pilot Excited Generators	
permanent magnet rotor	The pilot exciter consists of a permanent magnet rotor and a stator.	
Permissive Paralleling		A feature of manual and automatic paralleling switchboards that prevents out-of-phase manual paralleling. A synchronizing check relay prevents the electrical closing of the electrically operated circuit breaker if the incoming set is outside of the freque
perpendicular lift	A perpendicular lift has been applied to the Design Surface to create a working surface.	
personal lock	Then the Authorized Employee places their personal lock on the energy source's disconnect to prevent the equipment or systems from being started or moved.	
personality module	The personality module code must be reset to zero.[KPNR5342-05.rtf]	
Petroleum		An oil-liquid mixture made up of numerous hydrocarbons chiefly of the paraffin series.
Phase		The relationship in time between two waveforms of the same frequency. For practical use, refer to single- and three-phase.

Phase Selector Switch		Allows one meter to supply power to the voltage regulator and main exciter.
Phosphatize		A zinc or iron phosphate solution is used to tie up the free iron atoms and provide an amorphous surface
Phosphor-Bronze		A bearing material composed of tin, lead, and copper.
photo pickup	The multitach measures the hydraulic fan rpm by using reflective tape and a photo pickup. Place photo pickup 2 into the holder on magnetic base 3 and tighten the screw. Place photo pickup (2) into the holder on magnetic base (3) and tighten the screw. Attach magnetic base (3) to the fan guard assembly. 7. When the reflective tape and photo pickup (2) are in alignment, the LED indicator (red light) will come on. Position photo pickup (1) accordingly.	
Photomicrograph		A photomicrograph is a photograph of the microstructure of a metal.
Physical Change		A change which does not alter the composition of the molecules of a substance.
physical hazard		Noise, radiation and thermal.
Physical properties		Physical properties are the properties of a material that are relatively insensitive to structure and can be measured without the application of force. Examples of physical properties are density, thermal conductivity, melting temperature and magnetic and
Physical structure		Physical structure is the way something is put together; for metals, see Crystal structure.
Pickling		A treatment given hot rolled rods prior to cold drawing. Its purpose is to remove hot rolled scale and other foreign matter from the rod; and this is commonly done by immersing in a hot acid, generally a sulfuric acid solution. The rolls are then rinsed i
pickup tube	Remove pickup tube 4 and the gasket from engine oil pump 1.; Install the gasket and pickup tube 4 on engine oil pump 1.	
Pig Iron		This term refers to material that is completely ferrous & does not contain any additional materials (unlike an alloy). The material has a very high carbon content. Used in the cast iron process.
Pigs		Pigs are small bars cast from the iron from a blast furnace.

pile entry control	Inputs to the Implement ECM: The implement ECM receives information from the Cat Data Link. The information that is received is listed below. Engine ECM: Engine speed, Engine warning status. Transmission ECM: Key switch position, Parking brake status, Transmission gear, Torque converter output torque, Torque converter output speed, Ground speed, Autodig pile entry control.....	
pillow block	8Lubricate the pillow block with Multipurpose Grease1P-0808.; 5Apply Anti-Seize Compound4C-5593 to the contact surface of the drive shaft prior to installing the pillow block.	
Pilot Check Pilot Circuit	Pilot Circuit	The example in the course was referring to an airline pilot.
pilot control actuator	The ECM sends no current to pilot control actuator 1b and pilot control actuator 1a.	
pilot control line	Remove the pilot control line and remove the fitting from the bottom of the boom control valve.	
pilot control valve	During the disassembly of the auxiliary pilot control valve, put identification marks on each component for assembly purposes.	PILOT VALVES spool valve used to control other spool valves, such as a pilot valve, control valve
pilot hydraulic system	The pilot hydraulic system supplies oil to the main pumps, the main control valve, the swing brake and the travel motors.	
pilot manifold	Pilot pump 31 supplies oil to pilot manifold 26.[RPNR7389-09.rtf]	
pilot oil	When the foot pedal for the work tool is depressed FORWARD, pilot oil flows to attachment control valve 3.[RPNR7389-09.rtf]	
Pilot Oil Accumulator	Pilot Oil Accumulator (Dead Engine Lower) - Test and Charge; Pilot Oil Accumulator (Dead Engine Lower)	
pilot oil filter	The oil delivery from the pilot pump flows through pilot oil filter 1 and into the components in the pilot system.	
Pilot oil line	9 Pilot oil line for left turns.; 9 Pilot oil line for left turns	
pilot oil manifold	Pilot oil pressure is sent from the pilot oil manifold to straight travel solenoid 14.	
Pilot oil passage	6 Pilot oil passage.	
pilot oil pressure	Pilot oil pressure is sent from the pilot oil manifold to straight travel solenoid 14.	

pilot oil pressure switch	electronic control 1, pilot oil pressure switch 2, pilot oil solenoid valve 3, fault indicator lamp 4 and lubricant pressure switch 5.	
pilot oil solenoid valve	electronic control 1, pilot oil pressure switch 2, pilot oil solenoid valve 3, fault indicator lamp 4 and lubricant pressure switch 5.	
pilot pressure	The pilot pressure is reduced to the value of parameter F2 DERATE MAX PRES before the hydraulic pressure on the head end of the work tool cylinder reaches the value of parameter F2 SQEZ END PRES.[RPNR7389-09.rtf]	
pilot pressure oil	The pilot pressure oil from port 18 flows through passages 9, 20 and 8 into return chamber 13.	
pilot pump	When the hydraulic activation lever is moved to the UNLOCK position, pilot pump 31 supplies oil to solenoid valves:[RPNR7389-09.rtf]	
pilot relief valve setting	If the pilot relief valve setting is not within the specification, adjust the pilot relief valve.	
Pilot Shaft		A shaft position in or through a hole of a component as a means of aligning the components.
pilot valve	A damaged seal in one of the proportional valves in the pilot valve; Remove bottom shaft yoke 1 from the shaft of the steering pilot valve.	
pin	All connectors, pins and sockets are completely coupled and/or inserted.[KPNR5342-05.rtf]	Type of electrical connector
pin		cylinder-shaped piece of steel that is used for obtaining measurements
pin		the actuating mechanism for operating a valve; valve pin
pin assembly	Remove bolt 3 and pin assembly 4.; Use two people to position steering cylinder 7 and install pin assembly 6 and bolt 5.	
pin bushing	Use Tool C and a suitable press to remove piston pin bushing 8 from connecting rod 3.[KPNR8106-01.rtf]	
Pin Puller Sleeve	Pin Puller Sleeve As	
Pin Puller Stud	Pin Puller Stud	
pinch point	Check the harness for abrasions and for pinch points from the battery to the ECM.[KPNR5342-05.rtf]	Pinch Points are any point other than the point of operation where there is a possibility of being caught between: <ul style="list-style-type: none"> • the moving parts of a machine or meshing objects, • a moving and a stationary object, or two or more moving objects. • the moving

pinion	Reduction gear 20 reduces the speeds of the armature and the reduction gear transmits torque to the pinion.[KPNR6741-05.rtf]	a small cogwheel that engages or is engaged by a larger cogwheel or a rack
pinion gear	Pinion gear 6 and pinion gear 7 are installed on the pinion shafts.; Slide pinion gear assembly 10 away from the differential housing in order to install Tooling B.	
pinion housing	Tighten an appropriate bolt and an appropriate nut through an outer bolt hole in pinion housing 9.; A is the bolt circle radius of pinion housing 9 in meters.	
pinion shaft	The pinion shaft 8 rotates around bearing gear 15.	
Pintle-Type Nozzle		A closed-type nozzle having a projection on the end of the fuel valve which extends into the orifice when the valve is closed.
Pipe		In diesel applications, that type of fluid line, the dimensions of which are designated by nominal (approximate) inside diameter. Pipe is the central shrinkage cavity located in the upper portion of an ingot that forms during solidification of the ingot.
Pipe defect		A pipe defect is a flaw in wrought steel parts resulting from incomplete removal of the pipe during processing of a steel ingot.
pipe plug	The pressure can cause hydraulic fluid or items such as pipe plugs to escape rapidly if the pressure is not relieved correctly.	
Pipe Sealant	Apply Pipe Sealant5P-3413 to the threads of the two pipe plugs.	
pipelayer	Caterpillar pipelayer system includes winch and boom, counterweight and frame.	
pistol grip tool	Pistol grip tools are best for work activities performed on vertical surfaces and in-line tools are best for work activities performed on horizontal surfaces.	
piston	Align the piston and connecting rod with the crankshaft.[KPNR8106-01.rtf]	a sliding piece moved by or against fluid pressure
Piston Boss		The reinforced area around the piston-pin bore.
piston chamber	During negative flow control, negative flow control pressure PN from line 44 enters piston chamber 65.	
Piston Collapse		A condition describing a collapse or a reduction in diameter of the piston skirt due to heat or stress.
piston cooling jet	Rotating the engine will allow access to the remaining piston cooling jets 1.[KPNR8106-01.rtf]	
Piston Head		The portion of the piston above the top ring.
Piston Lands		That space of the piston between the ring grooves.

Piston Motor	Piston Motor (Hydraulic Fan) - Assemble; Piston Motor (Hydraulic Fan) - Disassemble	
piston pin	Align the oil holes in piston pin bearing 8 and connecting rod 3 when piston pin bearing 8 is installed.[KPNR8106-01.rtf]	
piston pin bearing	If the clearance between piston pin 2 and piston pin bearing 8 is over 0,080 mm0,0031 inch, replace piston pin 2 or piston pin bearing 8 with a new part.[KPNR8106-01.rtf]	
piston pin bore	Measure the piston diameter along the perpendicular of the piston pin bore.[KPNR6740-04.rtf]	
Piston Pump	Piston Pump (Steering); Piston Pump (Implement) Margin Pressure - Test and Adjust	
piston ring	Put clean engine oil on the piston rings and the connecting rod bearings.[KPNR8106-01.rtf]	
Piston Ring Compressor	Piston Ring Compressor	
piston ring end gap		The clearance between the ends of the ring (when installed in the cylinder).
Piston Ring Expander	Piston Ring Expander	
Piston Ring Gap		The clearance between the ends of the piston ring.
Piston Ring Groove		The grooves cut in the piston into which the piston rings are fitted.
Piston Ring Groove Gauge	The Piston Ring Groove Gauge Gp186-0190 is available to check the top ring groove in the piston.; Refer to the instruction card with the tool for the correct use of the Piston Ring Groove Gauge Gp186-0190.	
Piston Ring Side Clearance		The clearance between the sides of the ring and the ring lands.
piston rod	The movement of the piston rod slows down before the piston rod stops.	a heavy rod connecting two parts for the transmission of force, as in piston rod
piston seal	A piston seal in a cylinder has excessive wear.	
Piston shoe	8 Piston shoe.	
Piston Skirt		The portion of the piston which is below the piston bore.
piston slipper	As drive shaft 21 rotates, the barrel, the pistons, and the piston slippers rotate around swashplate 20.	
PIT charge		PIT is Production Interplant Transfer cost associated with transferring part(s) to another facility.
Pitch line		The pitch line is the location on a gear tooth, approximately midway up the tooth that crosses the pitch circle, or the equivalent-size disk that could geometrically replace the gear.

pitting	Carburizing hardens the surface to prevent wearing and pitting.	Pitting is corrosion of a metal surface, confined to a point or small area that takes the form of cavities. Also, a type of wear characterized by the presence of surface cavities formed by processes such as fatigue, local adhesion, or cavitation.
Pivot plan		The pin or shaft on which a component moves. Clearly defines the standard work involved in a factory operation. A plan may include instructions, resources and a
Plan for Every Part		Detailed plan for each part used in a production process, showing everything relevant to managing the process with no errors or waste.
Plan, Do, Check, Act		Improvement cycle based on the scientific method of proposing a change in a process, implementing the change, measuring the results and taking the appropriate action.
planet gear carrier	The rotation of the planet gear turns the first stage planet gear carrier which is splined to the second stage sun.	
planetary assembly	Each planetary gear 14 is mounted to planetary carrier 4 by shafts 13 and by roller bearings 15 in order to form a planetary assembly.	
planetary carrier assembly	To completely remove retaining ring 3, planetary carrier assembly 5 must be disassembled.; Use Tooling D and a suitable lifting device to remove planetary carrier assembly 5 from the axle housing.	
planetary gear	11Inside diameter of a new planetary gear for the Number 1 clutch ; 18Inside diameter of a new planetary gear for the Number 2 clutch and the Number 3 clutch	
planetary power shift transmission	The 854K heavy-duty planetary power shift transmission is the same field-proven transmission found on the 854G.	
planetary shaft	12Diameter of a new planetary shaft for the Number 1 clutch ; 17Diameter of a new planetary shaft for the Number 2 clutch and the Number 3 clutch	
planetary transmission	The transmission hydraulic control is installed on the top of the planetary transmission and on the side of the torque converter housing.; Output torque from the torque converter enters the planetary transmission through either the Number 1 sun gear or the Number 2 sun gear.	

Planned Inventory		Amount of inventory needed before each step in a process to keep processing moving smoothly.
plasma cutting machine		Plasma cutting machines melt an area with an arc, and then cut by a high-velocity, high-temperature ionized gas.
plasma-arc welding machine		Plasma-arc welding machines use a concentrated stream of plasma, and ionized hot gas, composed of nearly equal numbers of electrons and ions. Plasma-arc welds create deeper and narrower welds on a variety of metals.
Plastic		Plastic refers to a condition in which a material is capable of being deformed continuously and permanently without rupture.
Plastic deformation		Plastic deformation is an alteration of shape that remains permanent after removal of the load that caused the alteration.
Plastic flow		Plastic flow is the movement of metal as it is bent, folded, twisted, or manipulated into a permanent new shape.
plastic tube assembly	Disconnect plastic tube assembly 2 from fuel priming pump 3.	
Plate		Plate is sheet steel with a width of more than 200 mm (8 in.), and a thickness ranging from 6 mm (.25 in.) to more than 300 mm (12 in.).
Plating		Plating is the process of forming an adherent layer of metal or alloy on the surface of an object.
play		The movement or slack between two components.
Plenum Chamber		Chamber or container for moving air or other gas under a slight positive pressure.
plow bolt	Carefully strike the head of the plow bolt with a hammer.	
plug		A plug is a fitting that is placed in a port that is not in use. It prevents fluid from leaking from the unused port.
plug orifice	The oil will flow through plug orifice 21.	
Plug Tap	Plug Tap	
plunger	Valve seat 23 shifts downward by the force of spring 22 until the valve seat comes in contact with plunger 24. Steel front drum and rubber tires at the rear allow a single machine to function as both a double drum and pneumatic compactor.	ACTS AS PUMP; a device which compresses, such as a brake plunger, injection pump plunger, or shutoff solenoid plunger
pneumatic compactor		
Pneumatic impulse torque tool	A pneumatic (i.e. air powered) impulse torque tool uses pressurized air to drive a sealed hydraulic unit, which generates a pulse that creates the torque needed to tighten a fastener.	

Pneumatic Pulse Tool	Pneumatic pulse torque tools can be either instrumented or non-instrumented. Instrumented air impulse torque tools can provide various options, such as comparing applied torque to the specified torque requirement. It may also detect when a fastener has been	
pneumatic tyre	The pneumatic tyres provide even compaction on uneven surfaces.	
Pneumatics		That branch of physics pertaining to the pressure and flow of gases.
Pneumatic-type	These are types of shot-peening machines. The shot is propelled by compressed air and can be directed at exact location.	
Pocket Guide		
pod plug	Pod plugs need not be compressed but are inserted in the same manner by first lifting the ear.	Type of hearing protection that are inserted into the ear.
Pod-style Eccentric Weight	Pod-style Eccentric Weights	Refers to housing of eccentric weights for vibratory compactors. The Point of Operation is where many risks can be present. This is the machine location where the operation is being performed. Point of operation examples include metal punching, cutting and forming operations
Point of operation		
pointer	Turn the crankshaft until the timing mark on the crankshaft pulley is aligned with the pointer on the timing gear housing in order to adjust the valve lash.[KPNR6740-04.rtf]	an indicator needle, such as a dial gauge pointer or compensation pointer; an arrow indicator, such as a boom extension reference pointer or flywheel housing pointer.
Point-of-Use		Consumption point where material is used, including storage area of production parts and materials as close as possible to the operations that require them.
Point-of-Use Storage		Storing production parts and materials as close as possible to the operations that require them.
Polar		Polar (magnet). Either end of a magnet.
Polar Timing Diagram		A graphic method of illustrating the events of an engine cycle with respect to crankshaft rotation.
Polarity		Refers to the grounded battery terminal or to an electric circuit or to the north and south pole of a magnet.
Polarizing		To develop polarization of the pole shoes in respect to battery polarity.
pole	The poles have residual magnetism that produces a small magnetic field between the poles.[KPNR6741-05.rtf]	technical term
Pole Shoe		A soft iron piece over which the field coil is placed.

Polishing		Polishing is the act of making a surface smooth and glossy usually by friction.
polishing machine		Polishing machines produce a smooth, lustrous surface finish on parts. Polishing is done with disks or belts made of fabric, leather, or felt and coating with fine powders of aluminum oxide or diamond.
pop up alert indicator	Then, the monitoring system will display a pop up alert indicator for the machine system with the abnormal condition.	
poppet		a type of valve, such as a differential poppet or relief poppet
poppet		a sliding poppet, such as a charge relief valve poppet, relief valve control poppet, or pressure limiter valve poppet
Porosity		Porosity is fine holes, or pores, within a metal part.
Port Bridge		The portion of a cylinder or liner between two exhaust or scavenging ports.
port plate	The piston draws oil from passage 30 of port plate 29 during this movement.	
Port Scavenging		Introducing scavenging air through ports in the cylinder wall when they are uncovered by the power piston near the end of the power stroke.
Portable Hydraulic Pump	If hydraulic pressure is unavailable and the machine must be towed, use the Portable Hydraulic Pump1DE-3048 in order to release the parking brake.	
portable hydraulic tester	Portable hydraulic tester (flow meter)4C-9910	
Ports		Openings in the cylinder block and cylinder head for the passage of oil and coolant. (Also exhaust-intake connection and valve openings.)
Position Sensor	Position Sensor (Left Brake Pedal) (Electronic Technician) - Calibrate; Position Sensor (Left Brake Pedal) (Operator Monitor) - Calibrate	
Positioning Equipment		Enables the weld to be placed in the proper orientation to control the molten weld pool.
Postheat Cycle	Postheat Cycle	
Potential Energy		The energy possessed by a substance because of its position, its condition, or its chemical composition.
Potential Transformer		An instrument used to reduce the voltage to be measured by a known ratio to a level suitable for the meter movement.
Pour Point		The lowest temperature at which an oil will flow.
Powder Coating		A dispersion of small thermoplastic particles that are applied either via reciprocating devices, multi-axis

power circuit	The power circuits of the ECM should have less than two ohms of resistance between the contacts of the ground connector and the frame ground.	
Power Conditioner		A device which removes undesirable transients and distortion from a power source.
Power Edge	Cat, Caterpillar, their respective logos, "Caterpillar Yellow" and the Power Edge trade dress, as well as corporate and product identity used herein, are trademarks of Caterpillar and may not be used without permission.	Leave in English.
power factor		A correction factor used to figure the actual power being consumed. It is defined as the ratio of the actual power to the apparent power (current/voltage): Power Factor = Actual Power (watts) / Apparent Power (kV•A)
Power Factor Meter		Indicates the ratio between true power (kW) and apparent power (kV•A).
Power Factor/VAR Controller		A device to maintain constant generator set reactive power output while operating in parallel with a utility or other large source. The controller interfaces with the generator automatic voltage regulator and can usually be set to maintain a constant power
power indicator	There is a POWER indicator on the communication adapter that indicates that the communication adapter is receiving power.[KPNR5342-05.rtf]	
power meter key	28The power meter key	
power outlet	Next, connect the other end of the power cable to a 240 volt power outlet.	
Power Pool		Two or more interconnected electric systems planned and operated to supply power in the most reliable and economical manner for their combined load requirements and maintenance program.
power rating	The rated fuel limit is a limit that is based on the power rating of the engine and on the engine rpm.[KPNR5342-05.rtf]	
power rating family	The rating number is the selected rating within a power rating family.[KPNR5342-05.rtf]	
power shift	Install a pressure gauge with a 6000 kPa870 psi capacity on pressure tap 11 for the power shift.[RPNR7389-09.rtf]	Full form of: ps

power shift pressure	Adjust the value on the monitor until the desired power shift pressure is attained on the pressure gauge that is connected to the pressure tap for power shift pressure.[RPNR7389-09.rtf]
power shift transmission	The electronically controlled power shift transmission features three forward and three reverse speeds, and a maximum rimpull capacity of 75 432 kg (166,300 lb).
power supply circuit	Thoroughly inspect the connectors that are associated with the power supply circuit and the fuel supply circuit.[KPNR5342-05.rtf]
power train	Disconnect the machine harness connector(s) from the power train ECM.; CID 0672 FMI 01 is recorded when the power train electronic control module (ECM) reads the speed sensor signal as being valid but below the normal operational range.
Power Train Electronic Control Module	The transmission gear switch communicates with the Power Train Electronic Control Module.
Power Train Electronic Control System	When the machine speed is greater than 8 km/h5 mph, the Power Train Electronic Control System will not allow you to shift from forward gear into NEUTRAL or into REVERSE.
power train gear pump	The oil flows from screen 1 to the torque converter scavenge pump section of the power train gear pump.
power train guard	Position a jack under the power train guard in order to lower the power train guard.
power train oil cooler	Oil from the torque converter outlet relief valve then flows to the power train oil cooler.
power train system	When the oil does not go through the filter elements, the debris in the oil will cause damage to other components in the power train system.
Power Train/Chassis Electronic Control Module	Some input signals to the Power Train/Chassis Electronic Control Module (Power Train/Chassis ECM) during a shift can cause a hunting condition of the transmission.

Power, Apparent

A quantity of power proportional to the mathematical product of the volts and amperes of a circuit. This product is generally designated in kilovoltamperes (kV•A), and is comprised of both real and reactive power.

Power, Real		The energy or work-producing part of “apparent power.” It is the rate of supply of energy, measured commercially in kilowatts.
PowerGram		A publication designed to feature an OEM (Original Equipment Manufacturer) product that incorporates a Caterpillar product into their system. The OEM feature includes a photograph, product description, and product features and benefits. Also included with
powershift transmission	Powershift transmissions have 16 forward and nine reverse speeds for lkmaximum field productivity.	
Precision Insert Bearing		A precision type of bearing consisting of an upper and lower shell and a replaceable wear surface.
Precombustion Chamber		A portion of the combustion chamber connected to the cylinder through a narrow port. Fuel is injected into and is partly burned in the precombustion chamber. Heat released by the burning causes the CO in the precombustion chamber to be ejected into the cy
Preconceived idea		A preconceived idea is an opinion formed by the failure analyst prior to collecting actual knowledge (facts) regarding a failure.
Precrack		A precrack is a crack or crack-like feature in a part that is present prior to the part going into service; precracks often result from material or manufacturing problems.
precracked		A precracked part is one that contains a precrack.
Pre-existing crack		A pre-existing crack is a crack existing in a part prior to putting the part in service; pre-existing cracks may originate from manufacturing processes or rough handling.
Preheat Cycle	Preheat Cycle	
Preheating		Preheating is heating a part to a lower temperature prior to heating the part to the final temperature to reduce distortion or prevent cracking.
Preignition		Ignition occurring earlier than intended. For example, the explosive mixture being fired in a cylinder as by a flake of incandescent carbon before the electric spark occurs.
Preloading		Adjusting taper roller bearings so that the rollers are under mild pressure.
prerotation vane		Vanes which are located at the compressor inlet. These vanes can be rotated through the use of an actuator to vary the load.
press		Presses with a driving force upto 12,000 tons, squeeze the metal into shape vertically, with controlled high pressure.
Press-Fit		Also known as a force-fit or drive-fit. This term is used when the shaft is slightly larger than the hole and must be forced into place.
Press-Fit Pressure		Force exerted per unit of area. (See Drive-fit.)

pressure	Check the pressure in the work tool at the drive pump's pressure tap 11.[RPNR7389-09.rtf]	force applied over a surface, measured as force per unit of area;DO NOT USE 'pressure' to mean 'the act of pressing; the application of continuous force by one body upon another body which it is touching'
pressure cap	After the engine is cool, loosen the pressure cap in order to relieve the pressure out of the cooling system.[KPNR6741-05.rtf]	
Pressure Compensator Valve	Adjusting the Pressure Compensator Valve	
Pressure Differential		The difference in pressure between any two points of a system or a component. The pressure difference at two ends of a circuit, part of a circuit, or the two sides of a filter, or the pressure difference between the high side and low side in a refrigerator mechanism.
Pressure Drop		
pressure gauge	Adjust the value on the monitor until the desired power shift pressure is attained on the pressure gauge that is connected to the pressure tap for power shift pressure.[RPNR7389-09.rtf]	
pressure level	The operator sound exposure Leq (equivalent sound pressure level) measured according to the work cycle procedures in ANSI/SAE J1166 OCT98 is 73 dB(A) for the cab offered by Caterpillar when properly installed and maintained and tested with the doors and windows closed.	
Pressure Lubrication		A lubricating system in which oil at a controlled pressure is brought to the desired point.
Pressure oil chamber	4 Pressure oil chamber.	
pressure port	When a pressure gauge is connected to the pressure port for the extension of the number 1 attachment relief valve, press the OK key 8.[RPNR7389-09.rtf]	
pressure reducing valve	A portion of the oil in pilot line 21 also flows through pilot line 23 and pilot line 25 to the pressure reducing valve for boom priority 26.	
Pressure Regulator, Evaporator		An automatic pressure regulating valve. Mounted in suction line between evaporator outlet and compressor inlet. Its purpose is to maintain a pre-determined pressure and temperature in the evaporator.
pressure sensor	The electronic control system uses a pressure sensor in order to monitor the hydraulic pressure in the head end of the work tool cylinders.[RPNR7389-09.rtf]	

pressure setting	The pressure setting for the top line relief valve and for the bottom line relief valve for the attachment control valve is 36800 ± 1500 kPa 5340 ± 220 psi.[RPNR7389-09.rtf]	
Pressure Suction		Pressure in the low pressure side of a refrigerating system.
pressure tap	Adjust the value on the monitor until the desired power shift pressure is attained on the pressure gauge that is connected to the pressure tap for power shift pressure.[RPNR7389-09.rtf]	
Pressure Time (PT) Curve		A visual representation of the pressure within the combustion chamber during an engine's working cycle.
Pressure Transducers	The Caterpillar designed quench machines are designed for safety. The safety features include Pressure Transducers.	
pressure type cooling system	The pressure type cooling system can operate safely at a higher temperature than the boiling point of water at a range of atmospheric pressures.[KPNR6741-05.rtf]	
Pressure-Relief Valve		A valve that limits the maximum system pressure.
pressurized hydraulic flow	System 3 is used for work tools that require pressurized hydraulic flow in one direction.[RPNR7389-09.rtf]	
Pressurized System	(12) Pressurized System	
pressurizing pump	Use the pressurizing pump to increase the pressure to an amount of 20 kPa 3 psi more than the operating pressure of the filler cap.[KPNR6741-05.rtf]	
pressurized air	When pressurized air and/or pressurized water is used for cleaning, wear protective clothing, protective shoes, and eye protection.	
preventive maintenance	This helps prioritize planned maintenance jobs and helps focus specialist resources on tackling complex maintenance tasks.	The care and servicing by personnel for the purpose of maintaining equipment in
Pework		The first phase of the value stream transformation process, which usually lasts six to eight weeks. Charts the transformation and lays the ground-work to enable it.
primary air cleaner element	The dual element air cleaner contains a primary air cleaner element and a secondary air cleaner element.	
Primary Distribution Feeder		An electric line supplying power to a distribution circuit, usually considered to be that portion of the primary conductors between the substation or point of supply and the center of distribution.

primary filter	The primary filter/water separator is located between the fuel tank and the priming pump.[KPNR6741-05.rtf]	
primary fuel filter	This primary fuel filter that has a vent screw may be installed on a fuel system that has a low fuel tank.	
Primary Steering Action Light	Primary Steering Action Light 13	Light that indicates a problem in the primary steering system.
prime product	EPP is the central process that defines and documents the required capacity volumes to be used for planning purposes for Caterpillar Prime Products.	
prime, to	The pump has a plunger 25 which is manually operated in order to prime the fuel system.[KPNR6741-05.rtf]	to prepare for operation, as by pouring water into a pump or gasoline into a carburetor
Process Improvement Dialogues		Regularly scheduled two-way discussions between leaders and their organizations. Focused on Continuous Improvement, discussions are supportive, open and honest.
Process Owner		Responsible for the process methodology along with the related tools, processes, assessment and certification criteria.
Process Planning		The overall name used for describing the process creation and definition for assembly, machining and
Processing		Processing is another term for the manufacturing steps used to produce a part.
Processing error		A processing error is an error in one of the manufacturing steps used to produce a part.
Processing Time		The planned number of days and/or hours as defined by the supplier required to perform processing activities on a part number to bring it to the Supplier Response Point. This is the Supplier Processing Time minus Supplier Time.
procurement	Inventory errors may occur when the incorrect P.O prefix is applied while ordering material.	
Product Family		A product and its variants that pass through similar processing steps and common equipment just prior to shipment to the customer. A product family is the unit of analysis for VSMs, which are defined from the most down-stream step just before the customer.
Product Finishing		The combination of manufacturing processes used to apply paint to machines and engines to impart
Product Information		A book designed to educate dealers on a product or product line, and serve as a resource guide to aid in the sales process. It is comprehensive, yet quickly read, with a bulleted text format. Product features, benefits, and diagrams; servicing information

Product Level Value Stream		A visual representation of material and information flow within a well-defined product.
Product Link	Cat MineStar System Component	Leave in English.
Product Link Module	Disconnect the Product Link Module from the power source by disconnecting the wiring harness at the Product Link module.	
Product Link System	The Product Link System ensures maximum uptime and minimum repair costs by simplifying tracking of equipment fleets.	
product support agreements	Cat dealers offer a variety of product support agreements and work with customers to develop a plan that best meets specific needs.	
production facility	Supply Chain/Material Management is taking care to ensure that parts for the D11s and the necessary raw materials are sourced in a proper manner and delivered to the right production facility.	
Production Kanban		Signal that specifies the kind and quantity of product that the upstream process must produce.
Production Lead Time		The amount of time it takes to produce one product from the time the order is placed until delivery. Defined as: A + B + C: A: From the time order is received until work is begun; B: From the beginning of work until the product is completed; C: From product completion until delivery to the customer
Production Leveling		The Japanese word for “unevenness” or “fluctuation” is Mura. This can refer to two situations: When work is unevenly distributed among team members and when products are unevenly distributed on the production line. Ideally, production leveling distributes work evenly and prevents fluctuation.
Production Preparation Process		Revolutionary in comparison to Continuous Improvement (CI) and Rapid Improvement Workshops (RIW), which are evolutionary. 3P means big change or a period of major change such as NPI or moving a product line. It establishes a production system that will achieve the best quality product, at the demand volume and at the proper timing (Takt time). Proper cost is a by-product of these factors.

Production Stress Avoidance

profiling and duplicating milling machine

Prognostics

Program Management

Programmable Regeneration Monitoring System Status parameter
Progress Rail Services

projection welding machine

Prony Brake

Proof Stress

Propeller-type

proportional reducing valve

proportional solenoid valve

Protective Atmosphere

Protective Pilots

PRV

Illustration describes the system's response when the ARD Programmable Regeneration Monitoring System Status parameter is programmed to SHUTDOWN.

This type of shot-peening machine is not preferred because the shot cannot be directed at an exact location.

The machine ECM sends an electrical signal to the proportional reducing valve for power shift pressure. Perform the calibration for the proportional solenoid valve for negative flow control.[RPNR7389-09.rtf]

In most enclosed furnaces an atmosphere is admitted to protect the product surface from scaling.

A furnace designed for safety includes doors equipped with Protective Pilots

9Manifold for the PRV solenoids (Pressure Reducing Valve)[RPNR7389-09.rtf]

The Japanese word for “over-burden” or “difficult to do” is Muri. Muri is anything that places too heavy a mental or physical burden on team members. In the case of machinery, Muri is evident when equipment is operated beyond its designed capacity. The production system should be designed to avoid over-stressing people and machines.

Profile milling machines have five-axis movements, three linear and two angular movements. Duplicating milling machines reproduce parts from a master model by using tracer fingers.

Predict failure or potential problems before occurrence.

The Corporate Certification Program Manager in the Supply & Production Quality (SPQ) group provides management oversight for the MQ12005 Caterpillar Quality Certification Program.

One or more projections (dimples) are embossed, forged, or machined on one of the surfaces to be welded. The two pieces are then pressed together and weld nuggets are formed as the projections are compressed.

A friction brake used for engine testing.

The load per unit area which a material is capable of withstanding without resulting in a permanent deformation of more than a specified amount per unit of cage length after complete release of load; i.e., the stress that will produce a very small permance

proportional reducing valve

PRV solenoid	Attach a 4000 kPa580 psi pressure gauge to pressure tap 11 that is located on the manifold for the PRV solenoids 9.[RPNR7389-09.rtf]	
pry bar	Use two people, a pry bar, and a block in order to support hydraulic track adjuster 1. Use a pry bar in order to disengage retainer 5.	usually refers to a rolling head type bar; see the CSTG tool catalog
Psychrometric Chart		A chart that shows the relationship between the temperature, pressure, and moisture content of the air.
PTO Engine RPM Set Speed	PTO Engine RPM Set Speed	Set engine speed for power take-off.
Puddling	Underfill refers to a condition, where there is not enough material formed in the right locations and contours of the part. This is caused by improper billet placement and puddling of die lube.	
pull down		An expression indicating action of removing refrigerant from all or a part of a refrigerating system.
pull in coil	Current from the battery flows from the S terminal of the magnetic switch to the pull in coil P.[KPNR6741-05.rtf]	
Pull Production		Production control in which downstream activities signal their needs to upstream activities. Pull production strives to eliminate overproduction and is one of the three major components of a complete just-in-time production system.
pull test	Perform a 45 N10 lb pull test on each of the wires that are associated with the temperature sensors.[KPNR5342-05.rtf]	
puller	Slide Hammer Puller[KPNR8106-01.rtf]	a device for pulling
Puller Leg	Puller Leg	
Puller Stud	Puller Stud; Pin Puller Stud	
pull-up voltage	The ECM continuously outputs a pull-up voltage on the circuit for the sensor signal wire.[KPNR5342-05.rtf]	
pulse tool		A pulse tool combines the speed of an impact with the repeatability of a shut-off nutrunner. Shut-off pulse tools take speed and low torque reaction and add advanced automatic shut-off mechanisms to take the operator and the guesswork out of the fastening
pulse width	Abnormal Frequency, Pulse Width, or Period[KPNR5342-05.rtf]	
Pulse Width Modulated signal	View the Pulse Width Modulated (PWM) signal of the multimeter as the shaft to the sensor is rotated.	A signal consisting of variable width pulses at fixed intervals, whose ratio of "TIME ON" versus total "TIME OFF" can be varied. (Also referred to as "duty cycle.")

pulse width modulation	The rotary position sensor is pulse width modulation (PWM).; The pulse width modulation (PWM) is a signal of 500 Hertz between 5% and 95%.	A signal consisting of variable width pulses at fixed intervals, whose ratio of "TIME ON" versus total "TIME OFF" can be varied. (Also referred to as "duty cycle.")
Pump		A device for moving fluids.
pump body	Remove head assembly 26 from pump body 27.; Remove two plugs 52 from pump body 27.	
pump delivery pressure	Turn valve 26 on portable hydraulic tester 10 clockwise until the pump delivery pressure is 6850 kPa1000 psi.	
pump discharge line	Pressure gauge 7 is installed in the pump discharge line before change-over valve 6 and is used to measure the system pressure.	
pump down		The act of using a compressor or a pump to reduce the pressure in a container or a system.
pump flow	Pump flow or oil pressure is low.; Because the unit injector hydraulic pump is being turned at engine cranking speed, pump flow is very low.	
pump flow limit	When 1PUMP FLOW LIMIT option is highlighted, press the OK key 8.[RPNR7389-09.rtf]	
pump gear	Measure the clearance between the oil pump gears and the oil pump housing with a feeler gauge.[KPNR6741-05.rtf]	
pump housing	Case drain oil from the pump housing flows from port 2 to the case drain filter.	
pump oil	The pump oil flows through the line for the work tool 9 to the work tool.[RPNR7389-09.rtf]	
Pump outlet	11 Pump outlet.;	
Pump Output	Pump Output	
pump pressure	Pump pressure is affected by the flow and the open rate of the load valve on the flow meter 34.[RPNR7389-09.rtf]	
pump regulator	The machine ECM regulates the negative flow control pressure that will be supplied to the pump regulator.[RPNR7389-09.rtf]	
pump speed	The secondary pump speed/timing sensor is mounted on the fuel rail pump.[KPNR5342-05.rtf]	
Pumping Loss		The power consumed by replacing exhaust gas in the cylinder with fresh air.
Punch Holder		A Punch Holder is a device or feature in a forging die that holds/positions a hole or other forming punch in the Die.

Punch Press		A method of straightening which employs a punch press, "V" block supports, a dial gauge, and a straightedge. The bar to be straightened is placed on "V" blocks under the punch and rotated against a dial gauge or straightedge. The punch is then used to str
Purchasing Service Agreement	<p>So whenever a shortage occurs, a detailed analysis of the root cause and all possible sources of resolution is required. Here is a list of factors that need to be taken into account :</p> <ul style="list-style-type: none"> • Material status (frozen Purchasing Service Agreement/Part Storag 	
purge, to	Purge the air from the main hydraulic pump.	to free (as a boiler) of sediment or relieve (as a steam pipe) of trapped air by bleeding
Purging		Releasing compressed gas to the atmosphere through some part of parts for the purpose of removing contaminants from the part or parts.
push button activation switch	The Fix It improvement idea at this workstation was to replace the push button activation switch with light switches.	
Push Fit		The part of the bearing that can be slid into place by hand if it is square with its mounting.
Push Production		A system of manufacturing in which parts are pushed from one step to the next step, without regard for what is really needed. Large batches of items are produced at a maximum rate based on forecasted demand, then moved to the next downstream process or into storage, regardless of the actual pace of work in the next process. Such a system makes it virtually impossible to establish the smooth flow of work from one process to the next that is the hallmark of lean production.
Push System		A replenishment system in which parts are pushed from one step to the next step, without regard for what is really needed at the next step. Batches of items are produced at the fastest rate possible, based on forecasted demand. Then they are moved to the
Pusher Carb	Image Caption	Name of a furnace used in the carburizing heat treat process
pushing blade		PUSHING BLADE: a paddle-like edge, as in a screwdriver blade, stainless steel blade, bulldozer blade, or moldboard blade Note: DO NOT USE 'blade' alone to mean 'the rubber squeegee on a windshield wiper', for example windshield wiper blade or wiper blade

Push-Puller pushrod	Push-Puller; Push-Puller Plate Install plug 8 and the pushrod in the body assembly. Apply clean engine oil to both ends of the pushrods.	a rod moved by a cam to operate the valves in an internal combustion engine.
putty knife	To ensure that the lip of inner dust seal has not adhered to the top of the bearing at the seal joint, run a dull putty knife between the lip of the seal and the bearing at the seal joint.	
Pyrometer		A temperature indicator used for indicating exhaust temperature.
Qualitative fact		A qualitative fact is one that answers a "what" question; for instance, in a chemical analysis qualitative facts are the identity of the components of a substance or mixture.
quality assurance	Quality Assurance (QA) establishes confidence by providing assurance to all concerned that quality-related activities are performed effectively, and the product will meet or exceed the set standards for performance.	
quality control method	Match each Quality Control Method with its appropriate Definition and click Submit.	
quality control tool	It's time to get acquainted with quality control tools and techniques.	
Quality Management		The Quality Management process enables facilities to proactively control quality. It delivers defect-free products and services to customers and internal process partners. The process provides efficient, competitive and proactive process control structures
quench base	Below many of the heat treat installations is a pit or basement that houses quench bases	
Quench crack		A quench crack is a fracture that forms in a part during the quenching phase of a heat treating process.
quench machine		Quench refers to the rapid cooling of a part to prevent phase transformations. Quenching may be carried out in the following medias including water, brine (saltwater), oils, molten salts, air, caustic solutions, polymer solutions or gas.
Quench Tooling Storage Racks	Floor areas around oil quenches and quench tooling storage racks get slippery from oil dripping off parts and tooling.	
Quenchant	Just as induction heating is directed to a specific geometry , the quenchant is also specifically directed. Water is the most common quenchant in the induction process.	

quenchant reservoir Below many of the heat treat installations is a pit or basement that houses quenchant reservoirs

Quenching

Quenching is the process where a part that has been heated to a temperature above its upper critical is rapidly cooled at a controlled rate to obtain the desired metalical structure.

Quenching and tempering

Quenching and tempering is a heat treatment process used to harden ferrous alloys of suitable composition by heating within or above the transformation range and cooling at a rate sufficient to increase the hardness substantially. Hardening is followed by

Queue Time

Additional elements of lead time can be established at the part number level within MRP. Example of lead time is queue time

quick coupler

312C L Excavator with a 4,65 m15 ft 3 inch reach boom, a 1,8 m6 ft 8 inch stick, a quick coupler, and 600 mm2 ft triple grouser track shoes

Quick Coupler Control

20Quick Coupler Control

Quick Coupler function

Refer to the Operation and Maintenance ManualOperation Information Quick Coupler Function topic for more information about the quick coupler.

quick coupler pin switch

The quick coupler pin switch with the red lock button is used to engage the pins.

Quick Cure Primer 4C-9500

Clean and prime the sleeve internal diameter and the crankshaft outside diameter with Quick Cure Primer4C-9500.

quick disconnect fitting

Do not use quick disconnect fittings on the hydraulic lines.

Quick Steer

Quick Steer allows the operator to select full steering action with minimal steering wheel action.

Quick-Connect Hydraulic Test Port

Quick-Connect Hydraulic Test Ports

quick-release bracket

You must fully insert the GPS Mast 14 into the quick-release bracket on the GPS Receiver 13.

Quicksilver

Metallic mercury.

R-11, Trichloromonofluoromethane

Low pressure, synthetic chemical refrigerant which is also used as a cleaning fluid.

R-113, Trichlorotrifluoroethane

Synthetic chemical refrigerant.

R-12, Dichlorodifluoromethane

A popular refrigerant known as Freon 12.

R-160, Ethyl Chloride

Refrigerant which is seldom used at the present time.

R-170, Ethane

Low temperature application refrigerant.

R-22, Monochlorodifluoromethane

R-290, Propane

R-40, Methyl Chloride

R-600, Butane

R-611, Methyl Formate

R-717, Ammonia

R-764, Sulphur Dioxide

race Position dial indicator A between the carbody and the outer race of the swing bearing C.

Rack Shutoff

Radial Air Cleaner

Radial Air Cleaner 4

Radial Clearance

radial drill

radial seal air filter

3 Radial Seal Air Filters

Radial tearing

radiator

radiator assembly

The weight of radiator assembly 3 is approximately 19 kg43 lb.

radiator baffle

A missing radiator baffle or a damaged radiator baffle raises the temperature of the air that goes through the radiator.

radiator cap

Check that the seating surfaces of the pressure relief valve and the radiator cap are clean and undamaged.[KPNR5342-05.rtf]

Radiator Compartment

Radiator Compartment

Synthetic chemical refrigerant.

Low temperature application refrigerant.

Refrigerant which was used extensively in the 1920s and 1930s.

Low temperature application refrigerant, also used as a fuel.

Low pressure refrigerant.

Popular refrigerant for industrial refrigerating systems; also a popular absorption system refrigerant.

Low pressure refrigerant used extensively in the 1920s and 1930s. Not in use at present; chemical is often used as an industrial bleaching agent.

a holder or cage for a bearing, as in a bearing race or bearing race spring

An engine protection measure involving a hydraulic fuel rack actuator installed on an engine's injection pump housing. When activated, the piston of the actuator moves the rack to the fuel "off" position.

The clearance within the bearing and between the balls and races, perpendicular to the shaft.

The workpiece is clamped securely and the drill is lowered manually by hand wheel or by power feed at preset rates. Drill presses include bench-type, stand alone, and radial drills.

Radial tearing is a type of ductile fracture sometimes observed in threaded fasteners where the fracture face shows what look like internal shear lips between the center of the cross section and the surface of the part.

any of various devices (as a nest of pipes or tubes) for heating external objects or cooling internal substances

radiator core	The Multi-Tool Gp285-0910 is used to check the air flow through the radiator core.[KPNR6741-05.rtf]	
radiator filler cap	This label is located on the expansion tank beside each radiator filler cap.	
Radiator Group	Side View of the Radiator Group	
Radiator Top Tank	Radiator Top Tank - Remove and Install	
Radio frequency automatic guided vehicles		An Automatic Guided Vehicle, or AGV consists of a computer controlled wheel based load carrier that runs on the plant floor in a defined path controlled by radio frequency.
Radio-controlled Crane	The operator of a radio-controlled crane should be as short a distance as reasonably possible (from the crane).	A crane that is controlled by radio-freq. Device.
Radius		The distance from the center of a circle to its outer edge or the straight line extending from the center to the edge of a circle.
Rag		Rag is the excess material (flash) which is left over in the finished (forged) component
RAISE position	When the hoist control lever is in the RAISE position or in the LOWER position and the shift lever is in the REVERSE position the requested gear command is set to the NEUTRAL position.	
random error	Errors occurring during measurements can be broadly categorized into Controllable Errors and Random Errors.	
Random Wound		The type of winding style which refers to flexible bundles of main stator winding with round wire.
rapid improvement workshop	Rapid Improvement Workshop (RIW)	
Ratchet Box Wrench	Ratchet Box Wrench	
Ratchet drive end	A ratchet drive end is similar to a plain drive end in that it has a square drive that allows sockets or crowfoot wrenches to be attached, but it also has a ratcheting mechanism.	
Ratchet marks		Ratchet marks are ridges on a fatigue fracture surface that indicate where two adjacent fatigue cracks have grown together. Ratchet marks usually originate perpendicular to a surface and may be straight or curved, depending on the combination of stresses
ratchet wrench		The internal operation of a ratchet type torque wrench. It operates on the principle of a pawl that engages the sloping teeth of a wheel or bar that permits rotation in only one direction.
rate of change	The rate of change is outside of the expected limit.	

Rate Route		A tool that stores contract and rate information on domestic carriers and, in some instances, on ocean carriers.
Rate Schedule		Price list showing how the utility will bill a class of customers.
Rated		The advertised value of an engine when full load is removed, expressed as a percentage of full load speed.
Rated Bucket Load	Rated Bucket Loads for 906H Compact Wheel Loaders	
Rated Capacity	Rated Capacity	
rated fuel limit	The rated fuel limit is a limit that is based on the power rating of the engine and on the engine rpm.[KPNR5342-05.rtf]	
Rated Horsepower		Value used by the engine manufacturer to rate the power of his engine, allowing for safe loads, etc.
Rated Operating Load	Rated Operating Load	
rating interlock	To clear the rating interlock, enter the factory password when Cat ET is first connected.[KPNR5342-05.rtf]	
rating number	The rating number is the selected rating within a power rating family.[KPNR5342-05.rtf]	
Ratio		The relation or proportion of one number or quantity to another.
raw material	Manufacturing Production Execution transforms resources, raw materials, and components into higher value-added finished products by executing engineering product and process plans.	
reach boom	315D Excavator with a reach boom and a 1,85 m6 ft 1 inch stick	
reaction arm	Use Tooling A to release the tension on the reaction arm of the parking brake.; Remove bolt 11 and reaction arm 12.	
reaction dowel	Install sun gear 113, clutch piston 111, coupling gear 110, and reaction dowels 112.; Install reaction dowels 59 and springs 60.	
Reaction Plan		Reaction plan is defined to guide the actions, in case there are any out of control process conditions as indicated on the control charts, such as, shut down the process, inform the supervisor immediately etc.
Reactive Droop Compensation		One method used in paralleled generator sets to enable them to share reactive power supplied to a load. This system causes a drop in the internal voltage of a set when reactive currents flow from that generator. Typically, at full load, 0.8 PF, the output

Reactive Power		Power that flows back and forth between the inductive windings of the generator and the inductive windings of motors, transformers, etc., which are part of the electrical load. This power does no useful work in the electrical load nor does it present load
Real-Time Kinematic ream, to	The method is called Real-Time Kinematic (RTK), GPS.	To finish a hole accurately with a rotating fluted tool.
rear axle breaker relief valve	The access door for the rear axle breaker relief valve is located behind the cab in the middle of the cab platform.	
rear axle centerline	Rear axle centerline to front grill	
rear differential drain plug	Remove rear differential drain plug 1 from manifold 2, and allow the oil to drain into a suitable container.	
rear drive shaft	Refer to Disassembly and AssemblyRear Drive Shaft - Remove and Install,	
rear tyres traction		
rear window wiper	Place the switch in the middle position in order to activate the rear window wiper. The components of the window wiper and washer circuit are the front window wiper and washer switch, the front and rear window washer motors, the front window wiper motor, the rear window wiper motor, and the rear window washer and wiper switch.	
rear window wiper motor		
Rear Work light	Rear Work Lights (10 Amp)	
Reason Code	Reason Code	
recalibrate, to	Recalibrate the monitor.[RPNR7389-09.rtf]	to calibrate again
Receiver-Drier		A cylinder in a refrigerating system for storing liquid refrigerant and which also holds a quantity of desiccant.
receptacle lock wedge	Receptacle lock wedge (typical example)	
Reciprocating Action		A back-and-forth (alternating) movement.
Reciprocating Engine		A type of engine where pistons with pressurized gas move back and fourth (reciprocate) within the cylinders).
Reciprocation Compressor		Compressor which uses a piston and cylinder mechanism to provide pumping action.
reclaimer mixer	Product name	
recoil spring	Heavy-Duty recoil springs	
recoil spring assembly	Prior to disassembling the recoil spring assembly, make sure that Tooling A is on a level surface.	

Record Location Data	Plant policy provides default values that can be applied when specific parameters are not available at part number level. Examples of plant policies defaults include record location	
Recrystallization temperature		The recrystallization temperature is the approximate temperature at which a new, strain-free grain structure forms from an existing cold worked grain structure within a specified time. Recrystallization is usually accomplished by heating the cold worked m
Rectifier		A device which exhibits a very high resistance to the flow of current in one direction and a very low resistance to flow in the opposite direction. Rectifiers are used to change AC voltages to DC before applying it to the generator field.
rectifier bridge	The AC is changed into direct current (DC) when the current passes through the diodes of the rectifier bridge.	
Recuperators	Image Caption	Recuperater is a device used to recover waste heat from exhausts
Red Tagging		Labeling unneeded items for removal from a production or office area during a 5S exercise.
Reducing Bushing	Reducing Bushing	
reduction gear	Reduction gear 20 reduces the speeds of the armature and the reduction gear transmits torque to the pinion.[KPNR6741-05.rtf]	
reduction group	The first stage reduction group consists of the following components:	
Reduction of Area		The difference between the original cross sectional area and that of the smallest area at the point of rupture. It is usually stated as a percentage of the original area, also called "contraction of area."
refer to	Refer to Troubleshooting Flash Programming.	
Refining		Refining is a process applied to a material to make it free from impurities or unwanted material.
refinish, to	Refinish the rest of the cylinder liners to the same size.[KPNR8106-01.rtf]	to give a new surface
refractometer		An instrument used to measure the concentration level of some MWFs. It measures the degree to which light is bent as it passes through the solution being checked as compared to water. The higher the concentration, the greater the angle of refraction. The
Refractory	Image Caption	A refractory is a heat-resistant material, usually nonmetallic, which is used for furnace lining and such.

Refrigerant		Substance used in refrigerating mechanism to absorb heat in evaporator coil by change of state from a liquid to a gas, and to release its heat in a condenser as the substance returns from the gaseous state back to a liquid state.
refrigerant analyzer tool	Refrigerant Analyzer Tool Gp	
refrigerant condenser	Position refrigerant condenser 9 and install bolts 7 and 8.	
Refrigerating Effect		The amount of heat in Btu/h or Cal/hr the system is capable of transferring.
Refrigeration-Absorption		Refrigerating effect produced by the change in pressure in the system produced by the changes in the ability of a substance to retain a liquid dependent upon the temperature of the substance.
Refrigeration-Mechanical		Refrigerating effect produced by the changes in pressure in the system produced by mechanical action of a compressor.
regeneration valve	The return oil flow from the head end of boom cylinders 1 flows through boom regeneration valve 41 to the rod end of the boom cylinders.	
regrind, to	If the repair limit is exceeded, regrind the bearing journals to the specified dimension.[KPNR6740-04.rtf]	to grind again
regulate, to	The work tool's pressure setting is regulated by line relief valve 6.[RPNR7389-09.rtf]	to fix or adjust the time, amount, degree, or rate of
regulating valve	The fuel transfer pump has a regulating valve in order to control the low pressure.[KPNR6741-05.rtf]	
Regulator		An electronic device which senses AC current, compares current to a set value, rectifies AC to DC and applies it to the exciter stator winding in order to maintain constant output voltage in the main stator winding. (See VR1, 2, 3, 4)
regulator assembly	Attach the open end of hose assembly 6 to regulator assembly 11.; Install an Pressure Gauge8T-0856 in the remaining port next to regulator assembly 11.	
Regulator, Electrical		An electromagnetic or electronic device used to control generator voltage.
relay	Check the Voltage at the Main Relay[KPNR5342-05.rtf]	an electrical device, for example an actuating relay, control relay, or source relay
release	Release the pressure from the hydraulic lines.	to relieve or purge pressure
relief		the release of pressure, as in bypass relief valve, high flow relief valve, or pressure relief;DO NOT USE 'relief' alone to mean 'the release of gear strain', as in tip relief or tooth tip release, or 'the release of excess heat', as in heat relief

relief		the release of a mechanical stress, as in stress relief;DO NOT USE 'relief' alone to mean 'the release of gear strain', as in tip relief or tooth tip release, or 'the release of excess heat', as in heat relief
relief dump spool valve	Install valve 35 and screen 36 into main relief dump spool valve 32.	
relief valve	A temporary setting of the main relief valve pressure is required before any line relief valve pressure setting is adjusted.[RPNR7389-09.rtf]	RELIEF VALVES spring controlled relief valves, such as a pressure relief valve
relief valve adjustment	To prevent a change in power shift pressure during the relief valve adjustment, do not turn the engine start switch to the OFF position.	
relieve, to	Then, pry the cover loose in order to relieve any spring or other pressure, before removing the last two bolts or nuts completely.	to free from burden or force
Remanufactured Extended Coverage		A Caterpillar program which protects buyers from repair expenditures beyond the standard warranty period on remanufactured truck engines.
Remanufacturing		Remanufacturing is the process of manufacturing a part or component into a new product.
removal and installation	Removal and Installation of the Harness Connector Terminals	
removal procedure	Before the removal procedure, the exterior of the component should be thoroughly cleaned.	
remove and install	Generator Fan - Remove and Install	
repair cost	Additionally, Caterpillar offers a line of genuine remanufactured components which can help lower repair costs.	
repair limit	If the repair limit is exceeded, regrind the bearing journals to the specified dimension.[KPNR6740-04.rtf]	
Repair Stand	Repair Stand; Hydraulic Cylinder Repair Stand Gp	
replacement part	If a safety message is attached to a part that is replaced, install a safety message on the replacement part.	
replacement relay	The replacement relay has resolved the problem.[KPNR5342-05.rtf]	
replenishment method	Identify the replenishment methods followed at Caterpillar	

replenishment signal system	Kanban is a method of JIT production that uses standard containers or lot sizes with a replenishment signal system of flagging the need for inventory to the supplier.	
Residual Compressive Stress		A residual compressive stress is a residual stress that is compressive in nature.
residual magnetism	The poles have residual magnetism that produces a small magnetic field between the poles.[KPNR6741-05.rtf]	
Residual stress		Residual stress is the macroscopic stress that is set up within a metal as the result of non-uniform plastic deformation. This deformation may be caused by cold working or by drastic gradients of temperature from quenching or welding.
residual temperature	Residual temperature is the temperature remaining in the part after quenching and should be measured in the thickest section.	
Residual tensile stress		A residual tensile stress is a residual stress that is tensile in nature.
resin	For mold sand preparation the first step is to prepare the sand. The sand is mixed according to precise recipe with a resin (binder)	
Resin Binder	For mold sand preparation the first step is to prepare the sand. The sand is mixed according to precise recipe with a resin (binder).	The Resin Binder is a chemical (in thick liquid form) that is mixed with the Natural Sand to bond and harden the Sand, creating a mold around the casting pattern.
resistance	There is an open circuit or excessive resistance in the wiring or connections between the batteries and the ECM.[KPNR5342-05.rtf]	opposition to the passage of a steady electric current
resistance measurement	Be sure to wiggle the wires in the harnesses as you make each resistance measurement.[KPNR5342-05.rtf]	
Resistance, Electrical		The opposition offered by a body when current passes through it.
resistor	A resistor is a device that provides a resistance to current flow.	an electric circuit element used to provide resistance
resolver valve	A resolver valve selects the higher pressure between the pressure in the control valve and the pressure from the proportional reducing valve.	
Response Check		A measure of the engine's ability to develop increasing torque at constant speed.
Response Check Idle Speed		The engine speed specified for the cool-down portion of the response check.

Response Check Speed		The constant engine speed at which the engine is loaded to determine the time to develop a specified torque.
Response Time		The time required to fulfill an order.
restriction	Check for a restriction in the air inlet system.[KPNR6741-05.rtf]	that which restrains or restricts; a limitation
Resume/Accel Switch	6Resume/Accel Switch	
Retainer plate	Make sure that you install the retainer plate in the proper position for the amount of bumper weights that are installed. 16 Retainer plate.	
Retaining Compound	Retaining Compound	
retaining ring	Use Tooling A in order to remove retaining ring 1 from idler pulley assembly 2.[KPNR8106-01.rtf]	
Retard injection timing		To set the timing so that injection occurs later than TDC or fewer degrees before TDC.
retarder	Move lever 1 upward in order to release the retarder.	
retarder lever switch	First, ensure that the retarder lever switch is operating correctly.	
Retention compound		Retention compound is a substance that has the consistency of grease and is applied to the O-ring groove to make the O-ring stick to the groove.Retention compound is made from chemicals that can withstand high pressure and temperatures, and does not affect
retract	Retract the bucket cylinder and place the work tool on the ground.	to draw back or in
retract solenoid	When right joystick thumbwheel 36 is moved BACKWARD , the machine ECM sends a signal to the retract solenoid for attachment control valve 17.[RPNR7389-09.rtf]	
retractable seat belt	Seat Belt Adjustment for Retractable Seat Belts	
retraction	Use the following information in order to calibrate the solenoid valve for the retraction of the auxiliary control valve.[RPNR7389-09.rtf]	the state or power of drawing back or being drawn back
return circuit	The return circuit from the solenoid is open.; The return circuit from the solenoid is shorted to +battery.	
return hydraulic system	In order to prevent this vacuum condition, makeup oil is delivered from the return hydraulic system to the swing motor.	
return line	Return oil flows through the return line for the work tool 5 and back to hydraulic tank 10.[RPNR7389-09.rtf]	

return oil	Return oil flows back through the main control valve to hydraulic tank 9.[RPNR7389-09.rtf]	
return oil flow	The return oil flow from the head end of boom cylinders 1 flows through boom regeneration valve 41 to the rod end of the boom cylinders.	
return passage	A passage partially opens allowing the oil from the rod end of the boom cylinders in port 5 to flow to return passage 6.	
Return port	1 Return port to the hydraulic oil tank.	
return wire	If the code is active for more than one sensor, the problem is most likely in the return wire for the sensor.[KPNR5342-05.rtf]	
Reverse bending fatigue		Reverse bending fatigue is fatigue fracture of a part resulting from the application of a reverse bending load.
Reverse bending load		A reverse bending load is a load applied to a part that acts in one direction and then in the opposite direction; reverse bending loads often produce two fatigue cracks that grow toward each other until final fracture occurs.
reverse fan function	First, the reverse fan function has a continuous reverse mode.	
reverse fan solenoid	Reverse Fan Solenoid (330D)	
Reverse Flush		To pump water or a cleaning agent through the cooling system in the opposite direction to normal flow.
REVERSE position	When the hoist control lever is in the RAISE position or in the LOWER position and the shift lever is in the REVERSE position the requested gear command is set to the NEUTRAL position.	
Reverse Rotation		An engine condition caused by a transmission shift from forward to reverse, or vice versa, when sufficient engine torque is not available at idle speed to overcome propeller and driveline inertia. It causes the engine to stall or reverse itself.
Reverse torsional fatigue		Reverse torsional fatigue is a type of fatigue fracture where cyclic twisting forces act in opposite directions causing the fracture to propagate at a 45-degree angle.
Reverse torsional loading		Reverse torsional loading is cyclic twisting forces acting in opposite directions on a part.
Reverse VAR Relay		Detects VAR flow into generator set (leading power factor). This condition occurs in a paralleled generator set if the system is not adjusted properly or a failure has occurred in the excitation system.

Rheostat		A device to regulate current flow by varying the resistance in the circuit.
Ride Control	Schematic of the Solenoid Valves (Ride Control); This diagnostic code is associated with Ride Control Solenoid Valve #3.	
Ride Control System	The optional Ride Control System further enhances the already smooth road handling of the machine, resulting in increased operator comfort and higher productivity.	
ridge	Use tool A to remove the wear ridge from the inner surface of the cylinder bore.[KPNR8106-01.rtf]	a ring caused by wear or deposit buildup, such as a carbon ridge or liner wear ridge
ridge		a restraining projection, as in a restraining ridge
ridge reamer	Use a ridge reamer in order to cut the ridge of the cylinder if the liner is in good condition.[KPNR6740-04.rtf]	
Rigging Hardware	Remember the load consists of everything below the hook, including slings, spreader bar, and other rigging hardware.	Devices used for supporting, cradling or hoisting something.
rigging/lifting device	As an operator, you are responsible for the inspection of your rigging/lifting devices before each use and the safety of the lift.	device that is placed on an object so it can be moved.
right hand service	The C18 Marine Engine is also available with left hand service or right hand service.	Right side service access.
right key	Use the right key B or the left key E in order to scroll through the menu options.[RPNR7389-09.rtf]	
Rim cracks		In DI pistons, rim cracks are thermal cracks that occur on the crater rim over the thrust skirts.
Rimmed Steel		An incompletely deoxidized steel normally containing less than 0.25% carbon and having the following characteristics: (a) During solidification an evolution of gas occurs sufficient to maintain a liquid ingot top ("open" steel) until a side and bottom rim
ring carrier	1 Ride control switch.; Install seal ring 102 on ring carrier 100.; Install ring carrier 100 in carrier assembly 101.	
ring expander	The position of the end gap of the oil control ring is 180 degrees from the ends of the ring expander.[KPNR6740-04.rtf]	
ring gear	Perform the following procedure, if the ring gear was removed from the flywheel:[KPNR8106-01.rtf]	

ring groove	Install new piston rings in the ring grooves of the piston.[KPNR6740-04.rtf]	
Ring Job		The service work on the piston and cylinder including the installation of new piston rings.
ring roller		Ring rollers turn donut - shaped round pieces of metal under extreme pressure , against a rotating roll. As a result, it squeezes out one- piece rings without any kind of welding.
ring seal	Remove the ring seal 2 from the cap.;; Discard the ring seal.	
ring terminal	Use a 7/16 ring terminal for B+ terminal.	
Rinsing		The process of using chemicals to remove soils from the surface of the metal.
ripper auto stow switch	Ripper Auto Stow Switch (27)	Switch for park position.
Riser		A riser is a reservoir placed on a casting that fills with molten metal and provides a localized head of molten metal during casting solidification.
Risers		Bus bars that connect circuit breakers to the system bus.
risk assessment technique	A risk assessment technique, which identifies potential failures in the manufacturing process.	
Risk Monitoring	Risk Monitoring is an integral part of Industrial Hygiene. The Manufacturing Engineer and the Industrial Hygienist share responsibility for monitoring the control of exposure risk.	
Risk Priority Number	Once the risks and safeguards were rated, the team multiplied the risk rating by the safeguard rating and recorded the number in the Risk Priority Number (RPN) column.	
Rivet		A soft-metal pin having a head at one end.
road reclaimer	Product name	
Roading Light Package	Roading Light Package	
Robot Programming		It deals with programming of industrial robot arm and associated process equipment.
rocker arm	The movement causes pushrod 24 to move rocker arm 19.[KPNR6741-05.rtf]	

rocker arm bore diameter	4Rocker arm bore Diameter of the rocker arm bore 25,013 to 25,051 mm0,9848 to 0,9863 inch Rocker arm Clearance between the rocker arm and the rocker shaft0,026 to 0,089 mm0,0010 to 0,0035 inch Maximum permissible clearance between the rocker arm and the rocker shaft0,17 mm0,007 inch	Diameter of the rocker arm bore for the bushing
rocker arm bushing	3Align the oil holes in rocker arm bushing 4 with the oil holes in the rocker arm when the rocker arm bushing is replaced.[KPNR6740-04.rtf]	
rocker arm shaft	Bore in the rocker arm for the rocker arm shaft; Diameter of the rocker arm shaft	
rocker assembly tool	Rocker Assembly Tool	
rocker shaft	The fuel injection lines do not need to be removed in order to remove the rocker shaft and pushrods.[KPNR8106-01.rtf]	
rocker shaft assembly	Install torx screws 1 to the rocker shaft assembly finger tight.	
rocker switch	This is used with a joystick that is not equipped with a third function (thumb wheel or rocker switch).; The transmission neutralizer override switch is a momentary rocker switch.	
Rockwell Hardness		A measurement of the degree of surface hardness of a given object by pressing a steel ball or diamond cone into a sample and using scales which indicate differences between depths penetrated by major and minor loads.Rockwell hardness is a hardness number derived from the net increase in depth of an impression as the load on an indenter is increased from a fixed minor load to a major load and then returned to the minor load. Rockwell hardness numbers are always quoted.
Rockwell Testing machine		The description is on Page 51, look at the Rockwell Test Tab
rod		part of a control linkage; as in actuator rod
rod		A rod that is used for locating a part or an assembly
rod		A straight, thin piece or bar of material such as metal or wood
rod end	There is a line relief valve for the the rod end of the tilt cylinder A and a line relief valve for the head end of the tilt cylinder B.	

Roll burnishing		Roll burnishing is a cold working process which produces a fine surface finish by the planetary rotation of hardened rolls over a bored or turned metal surface. Roll burnishing involves cold working the surface of the work piece to improve surface structu
roll pin hole	Each stake mark should be approximately $2,25 \pm 0,75$ mm $0,090 \pm 0,030$ inch from the outside diameter of the roll pin hole.	
roller	The overrunning clutch has rollers.[KPNR6741-05.rtf]	a metal cylinder on an axle which is used to facilitate movement, such as a battery roller, track roller, or the roller on a switch.
roller bearing	The components of the second group are roller bearing 6, roller bearing 7 and pinion shaft 8.	a roller bearing, i.e., a number of rollers fitted or pinned in a carrier; these are generally are shaft bearings which surround a shaft and are surrounded by the bearing race, lubricated with grease; for example an antifriction bearing or a wheel bearing
roller hearth furnace	Gas or electric fired roller hearth furnaces are generally used for heating material.	
roller tappet		Also: Roller Lifters. Refers to valve lifters having a roller at one end which is in contact with the camshaft and is used to reduce friction.
Rolling		Rolling is a term applied to the metal working operation of shaping and reducing metal in thickness by passing it between rolls which compress, shape and lengthen it following the roll pattern. The metal is often heated before rolling.
Rolling Business Management		Caterpillar's monthly forecasting process. Primarily operational in nature, RBM focuses on the upcoming six quarters with primary emphasis on the near quarter. RBM information is consolidated at the corporate level and reviewed by the Executive Office.
rolling business management (RBM) process		The financial outlook for the Company, used by the EO, for guidance to Wall
Rolling contact stress fatigue		Rolling contact stress fatigue is subsurface fatigue fracture resulting from the rolling action of one surface on another as in roller bearings. In this type of fatigue, cracks initiate subsurface.
Rolling mill		A rolling mill is the equipment used for rolling down metal to a smaller size or to a given shape employing sets of rolls the contours of which determine or fashion the product into numerous intermediate and final shapes.
Rolling Torque Bar	Rolling Torque Bar	
Rollover Protective Structure	Integrated Rollover Protective Structure (ROPS)/Falling Object Protective Structure (FOPS) standard	

Rollovers	Much of the mechanical equipment that makes our heat treat installations effective is also hazardous for the operators. One would be rollovers	
roof hatch	In order to open the roof hatch, release lock 2.	
Root Cause Corrective Action	RCCA is a systematic procedure which involves identifying the root causes of issues.	
Roots Blower		An air pump or blower similar in principle to a gear-type pump.
Rope Brake		A friction brake used for engine testing.
Rotary Blower		Any blower in which the pumping element follows rotary motion, centrifugal blowers being the exception.
Rotary Compressor		Compressor which uses vanes, eccentric mechanisms, or other rotating devices to provide pumping action. Mechanism which pumps fluid by using rotating motion.
rotary mixer	RM-300 Rotary Mixer (with ROPS, cab and universal rotor)	
rotating beacon	Rotating beacon, magnetic	
Rotating bending fatigue		Rotating bending fatigue is fatigue fracture of a part resulting from the application of a rotating bending load. Rotating bending loading is loading applied to a part in such a way that the entire circumference of the part cycles through tension and compression as the part rotates about one of its axes; most common in shafts or shaft-like parts.
Rotating bending loading		
rotating grapple	The descriptions refer to the operation of a rotating grapple.[RPNR7389-09.rtf]	
rotation	Auxiliary pump 28 is mounted on machines that are equipped with System 14 in order to supply hydraulic oil to the medium pressure circuit for rotation of the work tool.[RPNR7389-09.rtf]	the turning of an element about its long axis as if on a pivot;DO NOT USE 'rotation' to mean 'one complete turn (a revolution)'
Rotation of Engine		The direction of rotation of the engine flywheel as viewed from the rear of an engine, usually expressed as clockwise or counterclockwise. The rotation of an engine is normally counterclockwise.
Rotation Point	Torque is calculated by multiplying the applied force by the distance the force is applied from the rotational point.	A point about which something rotates
rotator gear group	Repeat steps through step for all rotator head bolts 2 in rotator gear group 3.	
rotator head bolt	The rotator head bolt 2 should not move before a torque that is specified in table is reached.	

rotator motor	When the thumb wheel for the rotator motor is depressed, a PWM signal is sent to solenoid valves 4.	
Rotor		Rotating valve or conductor for carrying fluid or electrical current from a central source to the individual outlets as required.
rotor assembly	As the rotor assembly begins to turn between the field winding and the stator windings, a small amount of alternating current (AC) is produced in the stator windings.[KPNR6741-05.rtf]	
Rough machining		Rough machining is the initial, preliminary machining on a part to remove metal down close to the final dimensions.
Roughing Stone		A coarse honing stone.
Routes of Entry		How a substance enters the human body, by injection, ingestion, inhalation, or absorption.
Routing Accuracy		Measures the accuracy of manufacturing routing, which supports correct costing, ability to plan capacity
rubber toric ring	Never permit oil to contact rubber toric ring 2, housing ramp 4 or seal ring ramp 7 before both seal rings 1 are assembled in the final position.	
rubber tubing	Use tape or rubber tubing on connecting rod bolts to protect the crankshaft journals.[KPNR8106-01.rtf]	
rugged forestry application	Purpose-built carbody design uses the most advanced manufacturing processes, ensuring durability and reliability in the most rugged forestry applications.	
Rule of thumb		A rule of thumb is any rough and ready practical method for doing something. For instance, in carpentry a rule of thumb is to "measure twice and cut once".
RUN position	Turn the key start switch to the RUN position.[RPNR7389-09.rtf]	
Runbacks		Bus extensions from the circuit breaker that provided a location for connection of the cables coming from a generator set.
running light	ARunning Lights	Travel light.
running sheave		A running sheave is a pulley that rotates as the load block is raised or lowered.
Running-fit		A machine fit with sufficient clearance to provide for expansion and lubrication.
Rusting		Rusting is the reaction of water containing dissolved oxygen with iron or steels to form a series of corrosion products leading to a mixture of various iron oxides (geothite).

S·O·S	S·O·S Services is a highly recommended process for Caterpillar customers to use in order to minimize owning and operating cost.	
Sacrificial anode		A sacrificial anode is a protective device to prevent electrolytic corrosion. Anodes (often made of Mg or Al metal) are sacrificed intentionally to protect a steel system, such as a buried pipeline, offshore platform or ship's hull.
SAE Horsepower		Formula to determine power: $\text{bore diameter}^2 \times \text{number of cylinders} / 2.5 = \text{hp}$
SAE J88Apr95 - Constant Speed Moving Test procedure	The average exterior sound pressure level is 79 dB(A) when the SAE J88Apr95 - Constant Speed Moving Test procedure is used to measure the value for the standard machine.	
SAE Viscosity Numbers		Simplified viscosity ratings of oil based on Saybolt viscosity.
safe job procedure		The Safe Job Procedures (SJPs) is a document that lists the right thing to do while on a job. For manufacturing jobs the SJP should be located at the job site . For more mobile jobs, like maintenance , transportation and others, it is displayed at a center
safety		Safety begins with the recognition of hazards and risks associated with our job tasks and then eliminating or controlling those identified hazards. By doing this, we can make Safety a way of life.s
Safety Audit		Regular safety audits are consistently performed to verify compliance. Action plans
safety equipment	For an injury free workplace, you should always use the appropriate safety equipment for the job.	
Safety Factor		Providing strength beyond that needed as an extra margin of insurance against parts failure. Safety factor is allowance for variation in material, manufacturing and operation. Safety factor for a part is calculated by dividing its endurance limit stress by the maximum design stress.
safety guard	Image caption	Safety guards are used to cover rotating or moving parts on the equipment to create a safe working environment
safety latch	Use only the correct lifting device for the job, after having inspected the chains, cables, safety latches, and general condition of the hoist.	
Safety Manual		
safety organization		National Safety Organizations (OSHA, NIOSH, ETC.)

Safety Stock		Inventory held to compensate for variation in demand, quality and downtime.
Safety Time	Part number detail provides the MRP parameters that can be applied when planting a specific part. One of the parameters include Safety time	
Safety Valve		See Relief Valve.
safety-related waste	This principle is about building a Safety First culture by placing the highest importance on eliminating safety-related waste.	
Sales and Operations Plan		A formal process within Class A to maintain a valid current operating plan in support of customer requirements and the business plan.
Sales and Operations Planning	Sales and Operations Planning	
Sales Forecast Accuracy		Measures our ability to predict the level of demand for our products.
Sales Forecast Bias		Indicates forecast influence by being consistently pessimistic or optimistic.
Sales Funnel Management	Sales Funnel Management process	
sales model		A unique identifier used to differentiate Caterpillar products in the market place.
Sand Blast		Also: Glass Blast. A cleaning method using an air gun to force the sand at low pressure (about 150 psi) against the surface to be cleaned.
Sand Mold		The Sand Mold is used to create the Casting when molten iron and other additives are poured into mold and then cooled in a controlled environment..
Sanke Foot Guards		Metatarsal foot protection can be part of the footwear construction or attached to your shoe as seen in the pictures. These add on protectors are called Sanke Foot Guards.
Satin finish		See Matte finish.
sawing and cut-off machine		Sawing and cut-off machines are used to cut raw material to specified lengths or sizes.
Saybolt Viscosimeter		A container with a calibrated outlet tube for determining the viscosity of liquids. (This method is now obsolete.)
Saybolt Viscosity		The number of seconds necessary for 60 mL of liquid to pass through the outlet tube of a Saybolt viscosimeter under standardized test conditions.
Scab		A rough projection on a casting caused by the mold breaking or being washed by the molten metal or occurring where the skin from a blowhole has partly burned away and is not welded.

scaling		Scaling is the loss of metal from a metal surface by the formation of a scale (oxide layer).
scanning electron microscope		A scanning electron microscope is an instrument that can greatly magnify the surface of an object while at the same time retaining excellent depth of field.
Scavenging		The displacement of exhaust gas from the cylinder by fresh air.
scavenging air		The air which is pumped into a cylinder to displace exhaust gas.
Scavenging Blower		A device for pumping scavenging air.
Scavenging Pump		A piston-type pump delivering scavenging air to an engine.
Scheduled Oil Sampling		A Cat service which offers insight into engine wear through periodic analysis of oil samples.
Scheduling Analysts		It is one of the job titles of the manufacturing engineer.
schematic	Air Inlet and Exhaust System Schematic[KPNR6741-05.rtf]	a structural or procedural diagram, especially of an electrical or mechanical system
schematic diagram	J2/P2 schematic diagram for the C4.2 engine harness[KPNR5342-05.rtf]	
score		A score is a line or scratch on a surface made by a sharp object, or to mark with lines, grooves, scratches, or notches.
Scrap History		The history of transactions performed to the part number after it has been identified as scrap
Scrap Percent	Scrap percentage overrides can be established at the part number level. Although MRP maintains a scrap percentage based on actual scrap history, this calculation can be overridden with a fixed rate.	
screed extender	Right screed width switch 10 controls the position of the right screed extender.	
screed operator station	The second switch is located at the left screed operator station but the second switch is not shown in the photos.	
screed plate	The main screed plate is 457 mm (18") wide (measured front to back).	
Screw Extractor		A device used to remove broken bolts, screws, etc. from holes.
Scuffing		Scuffing is to become scratched, chipped, or roughened by wear - frequently used to describe adhesive wear on parts.
S-Curve		The curve that results from plotting the time for austenite transformation against the temperature at which the transformation takes place. These curves were originally developed by Davenport & Bain and reported in their paper entitled "Transformation of A

sea level	This will also show the effect of height above sea level.; Height above sea level for engine operation	
seal	Ensure that all of the seals are correctly in place and ensure that the connectors are completely coupled.[KPNR5342-05.rtf]	a device which forms a barrier to the movement of air or fluid at a flexible joint, such as a main seal or bearing seal
seal assembly	Install O-ring seal 54 and lip seal 55 onto the seal assembly.	
seal extension ring	Install seal extension ring 4 in the groove in balance piston 5.	
seal groove	Pull each end of the inner dust seal out of the seal groove of the swing gear and bearing approximately 50,8 mm2,00 inch.	
seal installer sleeve	Seal Installer Sleeve	
seal installer stud	Seal Installer Stud	
seal ring	Remove seal ring 18 from output shaft 17.; Remove seal ring 36 from carrier shaft 23.	
seal ring face	A small piece of paper from a paper towel can force apart the seal ring face, which will cause a leak.	
Seal ring housing	5 Seal ring housing.	
seal ring retaining lip	Push the rubber toric ring over the seal ring retaining lip on one side.	
Sealed Bearing		A bearing which is lubricated and sealed at the factory and which cannot be lubricated during service.
Sealed Unit		(See Hermetic System) A motor-compressor assembly in which motor and compressor operate inside a sealed dome or housing.
sealing lip	Lubricate the sealing lip of U-cup seal lightly with the lubricant that is being sealed.	
sealing surface	The sealing surfaces of the tube assembly or hose assembly should be secured squarely.	
Seam		A seam is a surface irregularity that results from a crack, a heavy cluster of nonmetallic inclusions, a deep lap, or a defect in the ingot surface that has become oxidized and is prevented from welding shut during rolling or forging.
Seamless Rolled Ring Forging		Seamless rolled forging is typically performed by punching a hole in a thick and round piece of metal. As a result, a donut shape is created. It is then rolled and squeezed or in some cases, pounded into a thin ring. Ring diameters can vary from a few inc
Seat		A surface, usually machined, upon which another part rests or seats. For example, the surface upon which a valve face rests.

Second Law of Thermodynamics		Heat will flow only from material at certain temperature to material at lower temperature.
Secondary adhesive wear		Secondary adhesive wear is adhesive wear that occurs after primary wear or fracture has occurred.
secondary air cleaner element	The dual element air cleaner contains a primary air cleaner element and a secondary air cleaner element.	
Secondary debris		Secondary debris is debris particles generated as a result of a secondary wear process.
Secondary Distribution System		A low-voltage, alternating-current system which connects the secondaries of distribution transformers to the customer's services.
secondary energy	Primary and Secondary Energy (cont'd)	
secondary fuel filter base	Remove the connection 1 from the top of the secondary fuel filter base.	
Secondary wear		Secondary wear is wear that occurs after or over the top of another type of wear - for instance, adhesive wear (secondary) may occur after and over the top of abrasive (primary) wear.
security access parameter	Security Access Parameter[KPNR5342-05.rtf]	
sediment bowl	Use Tooling A in order to remove fuel filter 5 and the sediment bowl.	
seizure	Inspect the main bearings for peeling, melting, seizure or poor contact.[KPNR6741-05.rtf]	the act or process of seizing
Selective Energy System		The name previously used to describe a form of cogeneration in which part, but not all of the site's electrical needs were met with on-site generation with additional electricity purchased from a utility as needed.
selector spool	selector spool 7; The pilot system controls the movement of selector spool 7 and directional spool 8 in steering control valve 6.	
selector valve	The check valves act as a selector valve.	
Self Excited		Excitation Type — Generator where residual magnetism found in the revolving field lamination initiates current flow in the main stator winding.
self-circulating air method	Self-circulating air method	
self-excited	Most of the alternators in Caterpillar applications are self-excited.	excited by the field produced by the dynamo itself
Self-quenching process	The use of Laser Heat Treat has given Caterpillar a number of benefits. One of them is self-quenching process.	
self-retracting utility knife	instead use a self-retracting utility knife.	

semi-finished material	The next process, fabrication applies to the building of machines, structures, and parts by cutting, shaping, and assembling components made from raw or semi-finished materials.	
Semifloating Piston Pin		A piston pin which is clamped either in the connecting rod or piston bosses.
Semi-Gantry Crane		A semi-gantry crane is a gantry crane with one end of the bridge rigidly supported on one or more legs that run on a fixed rail or runway and the other end of the bridge being supported by a track running on an elevated rail or runway.
semi-long stick	311D LRR Excavator with a reach boom, a 2,6 m8 ft 6 inch semi-long stick, a 0,40 m30,52 yd3 bucket, a 2450 kg5400 lb counterweight, and 500 mm20 inch triple grouser track shoes	
Semi-synthetic MWF		a MWF that contain both oil and/or other oil-like materials along with emulsifiers and ingredients that do mix with water like detergents, rust preventatives, buffers, biocides, and water-soluble lubricants. They are often somewhat cloudy but not opaque a
sending unit	The sending unit converts these signals to an electrical impulse which is used by a mounted gauge.[KPNR6741-05.rtf]	
Sensible Heat		Heat which causes a change in temperature of a substance.
sensor	When the pressure that is detected by this sensor falls between the upper and lower limits, the electronic control system reduces the pilot pressure that is used to activate the circuit.[RPNR7389-09.rtf]	a device that receives and responds to a signal or stimulus
sensor circuit	The Adapter Cable8T-8726 is a 3 pin breakout harness that is used to make measurements in sensor circuits.	
sensor connector	If the sensor is disconnected at the sensor connector, the presence of pull-up voltage at the sensor connector indicates that the wires from the sensor connector to the ECM are not open or shorted to ground.[KPNR5342-05.rtf]	
sensor power supply	The sensor power supply in the control has failed.	
sensor return	37Coolant temperature sensor return[KPNR5342-05.rtf]	
sensor signal	The sensor signal changes in a proportional manner.[RPNR7389-09.rtf]	

sensor signal wire	At the machine harness for the sensor, measure the voltage between the frame ground and the sensor signal wire.	
sensor supply	An open circuit diagnostic code for the sensor supply may become active when all of the sensors are disconnected.	
Separate Circuit AfterCooled		Removal of the aftercooler from the jacket water circuit, and provision of cooling from an independent source. It is necessary on all turbocharged engines and high temperature jacket water systems used in heat recovery applications.
Separate Circuit Aftercooler	Auxiliary water pump or a separate circuit aftercooler (SCAC)	A heat exchanger for cooling combustion air cooled by a source of water external to the engine.
Separator		For oil. A device used to separate refrigerant oil from refrigerant gas and return the oil to the crankcase of the compressor.
Separator, Battery		A porous insulation material placed between the positive and negative plates.
Sequenced Line Side Replenishment		This method is used when two shifts of OSS Material are stored line side, feeding a POU for consumption. This material is loaded from an aisle or dock door for sequenced presentation to the production line.
Serial IP	If Caterpillar Communications Adapter II (Serial IP) is not an option for selection, the firmware for the communications adapter must be updated.[KPNR5342-05.rtf]	
serial number	The injector serial number and the injector confirmation code are located on the injector.[KPNR5342-05.rtf]	
Series-Parallel Circuit		A circuit with three or more resistance units in a combination of a series and a parallel circuit.
serpentine belt	Inspect the condition of the serpentine belt 1.	
service brake pedal	Service Brake Pedal Pressed[RPNR7389-09.rtf]	
service brakes	If the machine begins to move during the test, reduce the engine speed immediately and apply the service brakes.; Personal injury can result if the machine moves while checking the service brakes.	
Service Bulletin		
Service Capability	More dealer Inventory because as the difference in Service Capibility gets bigger with longer SPA.	
Service Code	Service Code	

service code indicator	The service code indicator is shown when a code has been detected.	
Service Information System	Some parameters are stamped on the engine information plate, but most parameters must be obtained from the TMI data on SIS Web.[KPNR5342-05.rtf]	Service Information System
Service Letter Service Magazine		
service manual	Refer to the Service Manual for any procedures that are required to relieve the hydraulic pressure.	
service mode	Start Service Mode and input a fixed power shift pressure of 2900 kPa420 psi.	
service points	Vandalism protection, locked service points	
service records	Check the service records of the engine for information that is related to the last oil change.	
service technician	The service technician can use the Caterpillar Electronic Technician in order to perform maintenance work on the machine.	
Service Technician Workbench	If you do not have the flash file, use the Flash File Search tool on the Service Technician Workbench (STW) to obtain the flash file for your engine.[KPNR5342-05.rtf]	
service tool	The following service tools should be used in order to troubleshoot the electrical system easily:[RPNR7389-09.rtf]	
Serviceable Hermetic		Hermetic unit housing containing motor and compressor assembled by use of bolts or threads.
set screw	7Before assembly, apply Loctite Product 638 to the set screw.; Torque for installing the set screw	
SET UP Time		Set up time is an important factor in demonstrated capacity, shorter set times contribute to increased capacity and longer et up times create excess inventory and delay the product delivery
Set/Decel Switch	3Set/Decel Switch	
setscrew	Turn setscrew 29 until the pressure gauge reading at pressure tap 30 is 4100 ± 200 kPa595 ± 29 psi.	a screw, often without a head, used to hold two parts in position relative to each other without motion
Setup Reduction		The process of reducing the time required to changeover a process from the last part of the previous product to the first good part for the next product.

Setup Time		The time required to changeover a process from the last part of the previous product to the first good part for the next product.
shackle	Remove the shackle and the suitable lifting device.	a U-shaped metal fitting
shaft	Remove idler gear bolt 5 and the washer from the idler gear shaft .[KPNR8106-01.rtf]	a long, generally cylindrical bar, especially one that rotates and transmits power
shaft assembly	Slowly rotate shaft assembly 34 during the installation in order to make sure that the shaft assembly does not bind in the body of the travel motor.	
Shaft Horsepower		Power delivered at the engine crankshaft. This term is commonly used instead of brake horsepower to express output of large marine engines.
Shakeout		Once the metal has solidified, the casting is removed from the mold.
Shear fracture		A shear fracture is one that occurs when shear stresses exceed shear strength before any other type of fracture can occur. Typical shear fractures are transverse fracture of a ductile metal under a torsional (twisting) stress, and fracture of a rivet cut
Shear lip		A shear lip is a narrow, slanting ridge along the edge of a fracture surface. The term sometimes also denotes a narrow, often crescent shaped, fibrous region at the edge of a fracture that is otherwise of the cleavage type, even though this fibrous region
Shear load		A shear load is a loading condition where two loads acting in the opposite direction are applied to a part simultaneously.
Shear stress		A shear stress is a stress caused by two equal and parallel forces acting upon an object from opposite directions.
shear, to		Shear is an action or stress resulting from applied forces that causes or tends to cause two contiguous parts of a body to slide relatively to each other in a direction parallel to their plane of contact.
Shearing	This process is carried out using a Hydraulic Shearing machine. The machine has sensors that measure the length that needs to be cut. The bars are cut into the required length .	Shearing is the result of applying a shear force to a body.
Sheet		A sheet is wide flat-rolled steel. It is generally accepted that steel less than 3 mm (.118 in.) thick is sheet and more than 3 mm (.118 in.) thick is plate.
shell	An alloy retort (shell) is placed over the cans and sits in an oil seal.	grappins

Shell-and-Tube Flooded Evaporator Shell-Type Condenser		Device which flows water through tubes built into cylindrical evaporator or vice-versa. Cylinder or receiver which contains condensing water coils or tubes.
Shielded metal-arc welding or stick welding machinery		Stick, the most basic of welding processes, offers the easiest option for joining steel and other metals. Stick joins metals when an arc is struck between the electrode and the work piece, creating a weld pool and depositing a consumable metal electrode i
shift inhibit indicator	Shift Inhibit Indicator The information from the transmission output speed sensors and the information from the shift lever position sensor allow the transmission to automatically shift while the ground speed changes.	
shift lever position sensor	It may be necessary to remove head 2 several times in order to determine the correct thickness of shim or shims 5 that are used to adjust the rolling torque of the travel motor output shaft.	
shim		a thin, often tapered piece of material used as a leveller or filler between other materials, especially metal
Shipping Order Scheduling System		The shipping Order Scheduling System is the second source of demand and involves actual customers , dealers, and stock orders. These orders list standard model and attachment specifications.
shock absorber	The accumulator will act as a shock absorber.; Accumulator 2 works in the same manner as a shock absorber.	
shock load	The anti-reaction valves also prevent shock load at the stop of a swing operation.	
shoe support guard	Factory cab guarding, shoe support guards and heavy-duty access doors help extend component life, reduces downtime and helps protect your forestry machine investment.	
shop air pressure	Retain brake piston 14 by hand, and apply approximately 525 kPa75 psi of shop air pressure to brake release port Y.	
short circuit	Slow operation of the starting motors can also be caused by a short circuit, loose connections, and/or dirt in the motor.[KPNR6741-05.rtf]	to accidentally establish a low-resistance connection between two points in an electric circuit
short, to	The energize circuit of the action alarm is shorted to ground.	

shot blasting	Shot Blasting uses small steel balls and granules of silicon as shots, and is used for finishing a product after casting or forging processes.	Machines with abrasive materials (usually sand) are propelled by a high-velocity jet of air, or by a rotating wheel, onto the surface of the workpiece. Shot blasting is particularly useful in deburring metallic and nonmetallic materials and stripping, cle
Shot Peening	Shot Peening uses a metalworking process where small round, particles (known as "shots") are projected against a wrok piece.	Shot peening machines repeatedly hit the workpiece surface with a large number of cast steel, glass, or ceramic shot (small balls), making overlapping indentations on the surface. This process improves the fatigue life of the component and is used extensi
shot peening machine		
Shots	Shot Peening uses a metalworking process where small round, particles (known as "shots") are projected against a wrok piece.	
shrink wrap tubing	The shrink wrap tubing will protect the seal during installation of shaft 39.	
Shrinkage cavity		A shrinkage cavity is a void left in cast metals as a result of solidification shrinkage because the volume of metal decreases during cooling. Shrinkage cavities usually occur in the area of the last metal to solidify after casting.
Shrink-Fit		A fit between two components made by heating the outer component so that it will expand and fit over the inner component. As the outer component cools, it shrinks and thereby fits tight to the inner component.
Shunt		A parallel circuit where one resistance unit has its own ground.
shunt line	A restriction of the shunt line from the radiator top tank to the engine water pump inlet will cause a reduction in water pump efficiency.[KPNR6741-05.rtf]	
Shunt Trip		Feature modification allows for tripping the breakers with an electrical signal from a remote location.
Shunt Winding		A resistance coil with its own ground.
shutdown lamp	The Shutdown lamp and the Warning lamp will normally be installed in the application.[KPNR5342-05.rtf]	
shutdown switch	When the shutdown switch is grounded injection is disabled.[KPNR5342-05.rtf]	
Shutoff Valve		A valve which opens and thereby stops the flow of a liquid, air, or gas.
shuttle valve	Remove shuttle valve 20.; Remove O-ring seals 21 and backup rings 22 from shuttle valve 20.	

side attachment pedal	Pedal für Seitenarbeitsgeräte	
side load	Side loading causes the cable to wind improperly on the drum.	A force on the load causing it to become unstable.
Side Pull	Side pulls may cause the load to shift and fall.	A force on the load causing it to become unstable.
Side Shields	Side shields protect your eyes from objects coming at angles towards you. When greater protection is needed, goggles or a face shield should be selected.	Devices that attach to glasses to protect the eyes and sides of the face from flying debris.
sideshift lock cylinder	The sideshift lock cylinders (if equipped) are located at the rear of the machine.	
sight gauge	Check the oil level in the sight gauge.; Check the hydraulic oil level in the sight gauge.	
sight gauge group	The threads of the boss must be clean before mounting the sight gauge group 2.	
sight glass	A sight glass in the low pressure supply line is helpful in diagnosing air in the fuel.[KPNR5342-05.rtf]	
signal	When switch 37 is pressed, the machine ECM sends a signal to the extend solenoid for attachment control valve 16.[RPNR7389-09.rtf]	an impulse or fluctuating electric quantity whose variations represent coded information;DO NOT USE 'signal' alone to mean 'turn signal'
signal circuit	The ECM uses this pull-up voltage in order to detect an open in the signal circuit.[KPNR5342-05.rtf]	
Signal Kanban		A signal that triggers an upstream process to produce when a minimum quantity is reached at the downstream process.
signal voltage	This diagnostic code is recorded when the signal voltage of the hydraulic oil temperature sender and the voltage is too low.	
signal wire	If the code is only active for one sensor, the problem is most likely in the signal wire for the sensor.[KPNR5342-05.rtf]	
Signaling device	Signaling device that gives authorization and instructions for production or withdrawal (conveyance) of items in a pull system. The term is Japanese for "sign" or "signboard." Kanban cards are the best-known and most common example of these signals.	
Significant Figures		The number of digits in a number defining the precision of the number.
Silencer		A device for reducing the noise of intake or exhaust.
Silica Gel		Chemical compound used as a drier, which has the ability to absorb moisture when heated. Moisture is released and the compound may be reused.

Silicon-Controlled Rectifier		A device that passes current in one direction only, like an ordinary rectifier, but includes a switch to control the current flow.
Silky		See Matte finish.
Similar Part Machining		Using a similar experienced based logic when planning similar machining operations
single axis angle sensor	The AccuGrade System uses a single axis angle sensor in order to measure the pitch of the machine (forward/aft angle of the car body).	
Single Control Lever	Single Control Lever	
Single Element		Number of elements in an assembly, especially filters.
Single GPS Receiver	Additionally, the Angle Sensor can be used to determine the blade slope for operation with a Single GPS Receiver or a Single Laser Receiver.	
single hydraulic circuit	Perform the following Steps in order to release the hydraulic pressure from a single hydraulic circuit of the main hydraulic system.	
Single Laser Receiver	Additionally, the Angle Sensor can be used to determine the blade slope for operation with a Single GPS Receiver or a Single Laser Receiver.	
Single Mast System	Single Mast System And Sonic System With Cross Slope	AccuGrade system that uses a single mast for calculations.
Single Phase		An AC system having one voltage of given frequency.
Single Voltage		Term used to denote 4-lead unit — 480V or 600V.
Single-Minute Exchange of Die		Technique to setup/changeover from one part to another within less than ten minutes (single digit changeover time).
single-throw switch	The autodig kickout set switch is a double-pole, single-throw switch.	
Single-Tilt Loader	Single-Tilt Loader	Backhoe Loader with standard loader linkage.
SIS Web	SIS Web can also be used to obtain the flash files by clicking the Service Software Files feature that is on the SIS Web web site.; Click on Service Software Files in SIS Web.	
site calibration	High accuracy (RTK) GPS systems use a configuration file generated from the site calibration.	
six cylinder engine	The crankshaft of the six cylinder engine has seven main bearings.[KPNR6741-05.rtf]	
six digit display area	The CID is a four digit code that is shown on the six digit display area.	
Skid Steer Loader	Skid Steer Loader	

Skid Steer Loader Backhoe	For information on repairing the frame assembly, refer to Special Instruction REHS3577 Repair Procedure for Frame Assembly on Skid Steer Loader Backhoe.	
skidder	The Cat 545C replaces the 545, the largest of a well-rounded line of wheel skidders, with the size and power to match all loggers' skidding needs.	
skidding	The torque converter is matched to the Cat C7 engine for excellent rimpull and skidding performance.	
skiving machine		Skiving machines perform a shaving process, which removes extra material from parts using specially designed knives.
Slab		A slab is the most common type of semi-finished steel. Traditional slabs measure 250 mm (10 inches) thick and 750-2200 mm (30-85 inches) wide [and average about 6 meters (20 feet) long], while the output of the recently developed "thin slab" casters is ap
slag		Slag is caused by insufficient de-slagging or skimming of the melt. This slag gets entrained in the pour and trapped in the mold.
slag inclusions		Slag inclusions are inclusions consisting of slag products from a prior metal casting operation.
Slant fracture		Slant fracture is a type of fracture appearance in which the plane of metal separation is inclined at an angle (usually about 45 degrees) to the axis of the applied stress.
sleeve assembly	Remove locating pin 7, sleeve assembly 6, and bearing cup 8 from intermediate housing 1.; Remove locating pin 20 and remove sleeve assembly 21.	
sleeve bearing	Insert sleeve bearing 1 at 7 degrees from taper side during the press fit.	
Sleeve Installer	Sleeve Installer	
slide lock	Refer to Systems Operation Sideshift Slide Lock Circuit for the operation of the slide lock.	
slider	Drag the brown slider back and forth to view the relation between build schedule, capacity, and inventory.	
Sliding contact stress fatigue		Sliding contact stress fatigue is fatigue fracture resulting from the sliding action of one surface on another as in gear teeth or engine bearings. In this type of fatigue, cracks initiate on the surface of the part.
Sliding-Fit		Where sufficient clearance has been allowed between the shaft and journal to allow free running without overheating.

Slings	Remember the load consists of everything below the hook, including slings, spreader bar, and other rigging hardware.	A looped rope, strap, or chain for supporting, cradling, or hoisting something
Slip		Slip is the process by which metal grains change shape under a shearing force resulting in plastic deformation of a part.
slip		A slip occurs when we lose our balance from the loss of friction or the grip between the walking or working surface and our feet
slip rings	The alternator design has no need for slip rings or for brushes.	
Slip-In Bearing		A liner made to precise measurements which can be used for replacement without additional fitting.
slit	The slit of seal ring 5 must turn in direction of piston.	a long, narrow cut or opening
Slit Coil		A particular width of coil steel slit for a die run.
Slobber		Unburned lubricating oil or fuel discharged into the exhaust system along with exhaust gasses.
slope guidance method	If a slope guidance method is selected, then when you press Sensor Swap the end of the blade receiving slope guidance is changed, and the direction of the design slope is reversed.	
slope swap soft key	Use the slope swap soft key when you return to the guidance screen to change the direction of the slope.	
Slot Liners		Insulation between top and bottom magwire coil in slot passage.
Slot Separator		The insulation between top and bottom magwire coil in the slot passage.
Slow crack		A slow crack is a fracture that develops and propagates over time, usually due to repeated loading of the part; also another name used for a fatigue crack.
slow return check valve	Slow return check valve 18 is located between return line 16 and the hydraulic tank.	
Small Power-Production Facility		As defined in the Public Utility Regulatory Policies Act (PURPA), a facility that produces energy solely by using as a primary energy source, biomass, waste, renewable resources, or any combination thereof, and has a power production capacity that, togeth
SmartBoom Control	SmartBoom Control (26)	
Smearing		Smearing is to obliterate, obscure or blur surface features by a wiping action.
Smooth Operation	Smooth Operation	

S-N Curves		Curves that are obtained by plotting the number of cycles (N) as abscissa against the load per square inch(s) applied to the test specimen as ordinate. They graphically illustrate the effect of rapid reversals of stress of definite value on the life of th
snap ring	snap ring 16; Center cam 15 is held in position by snap ring 16.	
SNUB position	The signal from the body position sensor is also used to control the SNUB position of the hoist control valve.	
snubber		Material used to absorb energy produced by a sudden change in motion.
socket	Tool (B) is a 46 mm socket.	a fitting for removing a bolt, such as a deep socket, double-universal socket
socket	Straight Thread O-Ring Plugs (Socket Drive) The socket may be hexagonal or a square recessed drive.	a shaped chamber which permanently holds the ball-shaped end of a rod within it, as in ball socket or blade lift cylinder socket
socket	Measure the voltage at the suspect lamp socket.	threaded receptacle for a light bulb
socket	Verify that the sockets provide good retention for the pins. Insert a new pin into each socket one at a time in order to check for a good grip on the pin by the socket.	an electrical receptacle
socket head bolt	Through the opening in the end of Tooling A, remove the socket head bolts and lock strip 8 from the end of the retaining rod for the recoil spring.	
socket terminal	Crimp a socket terminal to one end of the jumper wire.	
Sodium Valve		A valve designed to allow the stem and head to be partially filled with metallic sodium.
SoftCruise		Provides a small "soft" window centered around the cruise set speed. SoftCruise modulates fuel delivery above and below the cruise set speed to eliminate abrupt cutoffs in fuel delivery while in cruise, and allows the truck to increase speed slightly abov
Soil Compactor	Soil Compactor	
Soil Excavation	Standard Duty, Heavy Duty, Heavy Duty Rock, Pin Lock, Soil Excavation, Coral and Ditch Cleaning Buckets	
soil stabilizer	Product name	
Solar Cell		A photovoltaic cell that can convert light directly into electricity. A typical solar cell uses semiconductors made from silicon.
Solar Turbine Incorporated		

soldering		Soldering is a method of joining metal parts using a filler metal of low melting point (solder). Heat is applied to the metal parts, and the soft filler metal is pressed against the joint, melts, and is drawn into the joint by capillary action. After the
soldering iron		Soldering irons are tools for bonding two or more metallic surfaces together with an intermediate alloy (such as tin/lead or zinc/copper alloys), which is melted and re-cooled as the bond.
solenoid	When additional safety is needed on machines that are equipped with a swing brake solenoid, disconnect the swing brake solenoid so that the swing brake remains engaged.[RPNR7389-09.rtf]	a cylindrical coil of insulated wire in which an axial magnetic field is established by a flow of electric current; or an assembly often used as a switch, consisting essentially of a coil and a metal core free to slide along the coil axis under the influence of the magnetic field
solenoid circuit	The FMI 03 means that the ECM has determined that the voltage of the solenoid circuit is above normal.	
solenoid energizer circuit	The solenoid energizer circuit of the modulating valve is shorted to the +battery circuit.	
solenoid test	Perform the Injector Solenoid Test on Cat ET in order to determine if all of the injector solenoids are being energized.[KPNR5342-05.rtf]	
solenoid valve	When the hydraulic activation lever is moved to the UNLOCK position, pilot pump 31 supplies oil to solenoid valves:[RPNR7389-09.rtf]	
Solid Absorbent Refrigeration		Refrigerating system which uses a solid substance as an absorber of the refrigerant during the cooling part of the cycle and releases refrigerant when heated during the generating part of the cycle.
Solid Injection		The system used in diesel engines where fuel as a fluid is injected into the cylinder rather than a mixture of fuel and air.
solid state laser	One of the major types of LASERs.	
solid steel lift arm	Solid steel lift arms absorb high stresses generated during loading without sacrificing strength or durability.	
Solid Water System		A type of high temperature heat recovery system. Also known as ebullient system.
solid-state	The voltage regulator is a solid-state electronic switch.	
Soluble oil		a MWF that contains only oil and/or oil-like ingredients that would not by themselves mix with water, combined with emulsifiers to help disperse the oil in water. They are very cloudy and look like milk. They provide good lubrication, improved cooling and
solvent		A solution which dissolves some other material. For example, water is a solvent for sugar.

Sonic Tracer	The Sonic Tracer is centered directly over the elevation reference surface	
soot load	This process occurs at periodic intervals that depend on the soot load.	
Sorbite		A late stage in the tempering of martensite when the carbide particles have grown so that the structure has a distinctly granular appearance. Further and higher tempering causes globular carbides to appear clearly.
sound attenuated		A term used to describe a generator set enclosure which has been specially designed to reduce the amount and severity of escaping noise.
Sound Power Level		The total sound power being radiated from a source, such as a generator set. The magnitude of the sound is independent of the distance from the source.
Source Code	The Releasing System provides an assortment of information. This includes source code	
space heater		Heating elements mounted in the unit to keep windings warm during shutdown periods which eliminate condensation on the electric components.
spacer	Install the spacers, the washers, and nuts 1 that secure exhaust manifold 2 to the cylinder head assembly.[KPNR8106-01.rtf]	a device for maintaining proper distance between two objects
spacer plate	Install a new cylinder head gasket and new water seals in the spacer plate.	
Spaghetti Chart		Diagram of the path taken by a product as it travels through the value stream. In a mass-production organization, the product's route often looks like a plate of spaghetti.
spanner wrench	FTorque wrench and spanner wrench	
Spark Arrestor Muffler	Spark Arrestor Muffler	
Spark Testing		An inspection method for quickly determining the approximate analysis of steel. It is intended primarily for the separation of mixed steel and, when properly conducted, is a fast, accurate, and economical method of separation. It consists in holding the s
Sparkly		A sparkly fracture surface is one with multiple facets that reflect incoming light.
Spats		Spats are required only if you are wearing shoes with shoestrings. This is to prevent molten iron from getting inside your shoes through the eyelets. Make sure your pant legs are over the spats, so that there are no traps where molten iron can deposit and

Spatter
Special Instruction
Special Publication

Specific Fuel Consumption

Specific Gravity

Specific Heat

Specification Sheet

Spatter is the metal particles blown away from the welding arc. Spatter particles do not become part of the completed weld.

The fuel rate divided by the power. Corrected specific fuel consumption is the value obtained when the corrected fuel rate is divided by corrected power.

The ratio of the weight of a given volume of any substance to that of the same volume of water.

Ratio of quantity of heat required to raise the temperature of a body one degree to that required to raise the temperature of an equal mass of water one degree.

A technical overview of a particular engine or engine-related product. Sales features, engine specifications, performance data and curves, dimensions and weight, standard and accessory equipment, and rating definitions and conditions are among the standar

Specifications

speed control lever

Shift the transmission direction and speed control lever 7 (if equipped) to the NEUTRAL position and in any speed position.; The transmission does not disengage when the transmission direction and speed control lever (if equipped) is in the NEUTRAL position.

speed governor

The cruise control function of the electronic engine works as an engine speed governor when the vehicle is stationary or when the vehicle is operated at a vehicle speed below the idle vehicle speed limit.

Speed Range

Speed Range and Direction; Speed Range

speed sensor

The engine speed sensor is located on the flywheel housing.[RPNR7389-09.rtf]

speed/timing ring

The primary speed/timing sensor generates a signal by detecting the movement of the teeth that are on the speed/timing ring.[KPNR5342-05.rtf]

speed/timing signal

The engine will shut down if both of the speed/timing signals are lost.[KPNR5342-05.rtf]

spider assembly

Remove bolts 3, plate 4, and spider assembly 5.; Install spider assembly 5, plate 4, and bolts 3.

spider gear assembly

Remove spider gear assembly 5.; Install spider gear assembly 5.

spider key	The long tooth is spider key 19.; Center cam 15 is free to rotate about spider key 19 inside notch 18.	
spill ports	Moving the sleeves to the right covers the spill ports for a shorter distance which reduces the effective pumping stroke.; Inspect the spill ports on the injectors for an excessive discharge of oil.	
Spills	Work surfaces should be made of slip-resistant material and be free of spills, holes, projections or depressions that could cause slips, trips, or falls.	Achemical that has been released from its container.
spindle	Lower the temperature of the spindle 8.[KPNR8106-01.rtf]	a long tapered pin serving as an axis for rotation
splice connector	Splice connectors are used within the harness of the machine.	
spline	The swing motor output shaft is splined to first stage sun gear 11.	Linked by splines (the sliding joint on shafts, such as an armature assembly spline, pump shaft spline, internal spline, or matching spline)
split	Align the split in the spring pin to the top or to the bottom.	a longitudinal fissure
split flange coupling	Installation of Split Flange Couplings	
split injection cycle	The HEUI injector operates with a split injection cycle.; The split injection cycle has five phases of injection:	
Split System		Refrigeration or air-conditioning installation which places condensing unit outside or remote from evaporator. Also applicable to heat pump installations.
split, to		to divide sharply or cleanly, especially into lengthwise sections or into two parts of approximately equal size;DO NOT USE 'split' to mean 'to break, burst, or rip apart with force'
SPN-FMI code	Cross-Reference from CID-FMI Code to Flash Code to SPN-FMI Code to Functional Test or Procedure[KPNR5342-05.rtf]	
spool	The pilot oil will shift the spool in auxiliary control valve 15 to the DOWNWARD position.[RPNR7389-09.rtf]	a circular rod with a series of grooves cut in the side, which travels in a cylinder and is used as a type of valve in hydraulic systems
spool assembly	Remove O-ring seals 6 and spool assembly 7.; Install O-ring seals 6 and spool assembly 7.	
spool spring	The spool valve 6 is held in the top of the bore for the spool valve by the spool spring 5.; The spool valve is held in the up position or the closed position by the force of the spool spring.	

spool valve	The spool valve 6 is held in the top of the bore for the spool valve by the spool spring 5.; In this position, the spool valve blocks actuation oil from reaching the intensifier piston.	
Spot welding		Spot welding is the most common form of resistance welding. Spot welding is usually used on sheet metal and in applications having some type of overlapping joint design. Resistance spot welds are made from electrodes on both sides of the joint and no fill
spray gun	A key tools used in the Forging processs is Spray Gun	
spray type oil	Apply spray type oil to the inside of shell 10 in order to prevent rust.	
spreader bar	Remember the load consists of everything below the hook, including slings, spreader bar, and other rigging hardware.	A device specifically designed to allow an object to be raised or moved.
spring applied fluid released parking brake	Self-adjusting, Spring Applied Fluid Released (SAFR™) parking brake is applied by a spring force when fluid pressure is released.	
spring chamber	The oil pressure in spring chamber 21 forces plunger 24 and valve seat 23 upward against the force of springs 22 and 25.	
spring retainer	Install check ball 14, ball check spring 13, valve slug 12, spring retainer 11, and retaining ring 10 in spool assembly 7.; Remove retaining ring 10, spring retainer 11, valve slug 12, ball check spring 13, and check ball 14 from spool assembly 7.	
spring rod	Install the O-ring seal, plate 97, springs 83, and spring rods 76.; Make sure that the top clutch plate is installed so that the small holes are over the spring rods, as shown.	
spring washer	Remove cartridge assembly 1, spring washer 2, and coil assembly 3.; Install coil assembly 3, spring washer 2, and cartridge assembly 1.	
sprocket	The machine can move unexpectedly when both tracks are disengaged from the sprockets.	any of various toothlike projections arranged on a wheel rim to engage the links of a chain
Spun bearing		A spun bearing is a bearing that has been forced to rotate in its bore because it has adhered to the bore or shaft.
Spur Gear		A toothed wheel having external radial teeth.
Squish Area		The area confined by the cylinder head and flat surface of the piston when on compression stroke.

Stairway Access Light Switch	33Stairway Access Light Switch	
stake mark	Each stake mark should be approximately 1,50 mm0,059 inch from the outside diameter of the spring pin hole.	
stall test	Remove the front axle shafts and rear axle shafts except for stall tests.	
stamp related issue		This refers to a condition, when the stamped text is not clear enough for reading. The stamp conveys information on Part number, Lot number of steel and die code. This is a result of poor stamping force or blunt stamp tool. The key parameters are depth, a
stamp, to	Program the engine serial number to match the engine serial number that is stamped on the engine information plate.[KPNR5342-05.rtf] Stamp related issues refers to a condition, when the stamped text is not clear enough for reading. The stamp conveys information on Part number, Lot number of steel and die code. This is a result of poor stamping force or blunt stamp tool	to imprint or impress with a mark, design, or seal
Stamping Force		
standard atmosphere		Condition when air is at 14.7 psia pressure, at 68° F temperature.
Standard Conditions		Used as a basis for air-conditioning calculations. Temperature of 68° F, pressure of 29.92 in Hg and relative humidity of 30 percent.
Standard Deviation		Statistical indices of variability that describe the dispersion of data in a population.
standard duty bucket	Dimensions and performance specifications shown are for machines equipped with 12.5/80-18 SGL front tires, 19.5L-24 IT525 rear tires, ROPS canopy, standard stick with 610 mm (24 inch) standard duty bucket, and 0.96 m3 (1.25 yd3) loader bucket and standard equipment unless otherwise specified.	
standard equipment	Bulldozer Arrangements are included in the standard equipment.	
standard feeler	Use 0,038 mm0,0015 inch shim stock or a standard feeler to verify that the components are seated properly.	
standard injector	Adjustment for Standard Injector (SL-1)	

standard stick	Dimensions and performance specifications shown are for machines equipped with 12.5/80-18 SGL front tires, 19.5L-24 IT525 rear tires, ROPS canopy, standard stick with 610 mm (24 inch) standard duty bucket, and 0.96 m3 (1.25 yd3) loader bucket and standard equipment unless otherwise specified.	
Standard Undercarriage	Standard Undercarriage with 2 sets of stabilizers in the lowered position	
Standard Work		Establishing precise procedures for each operator's work in a production process, based on three elements: Takt time, work sequence and Standard Inventory. This, the foundation of the CPS, enables all team members to identify problems. The best current method for doing a job is written down; this is called standardized work.
Standby Capacity		The capacity that is designed to be used when part or all of the prime source of power is interrupted.
standby position	Illustration x shows the idler pump regulator in the STANDBY position.	
Standby Power		Output available with varying load for the duration of the interruption of the normal source power. Fuel stop power in accordance with ISO3046/1, AS2789, DIN6271, and BS5541.
standby pressure	Standby pressure setting (maximum); Low pressure standby pressure should not exceed 3900 kPa/565 psi.	
Standby Rate		The utility charge for standby electricity.
Starry fracture		See Starry reverse torsional fatigue.
Starry reverse torsional fatigue		Starry reverse torsional fatigue is a type of transverse fracture in which reversed torsional loading acts through features on the surface of the part (such as spline teeth) to produce a fracture surface with pronounced radial features from the center to
start switch	The service mode will be terminated 10 seconds after the start switch is turned to the OFF position.[RPNR7389-09.rtf]	
starter	This allows the starter to operate.[RPNR7389-09.rtf]	an attachment for starting an internal-combustion engine
starter keyswitch	Turn the starter keyswitch and the disconnect switch to the OFF position.	
starter lockout switch	The starter lockout switch prevents engine start-up.	

starter switch	Current flows from the SW terminal of the starting motor relay to the L terminal when the starter switch of the starting motor is in the ON position.[KPNR6741-05.rtf]	
starting aid equipment	In cold weather conditions, wait until the indicator light for the starting aid equipment is Off.	
starting aid relay	If the starting aid is required, then the ECM will activate the starting aid relay and electrical power is switched to the starting aid for a controlled period of time.[KPNR5342-05.rtf]	
starting aid switch	Typical schematic for the starting aid switch	
starting aid system	The glow plug relay is controlled by the ECM in order to provide high current to the glow plugs that are used in the starting aid system.	
starting circuit	The starting circuit is in operation only when the start switch is activated.[KPNR6741-05.rtf]	
Starting-Air Valve		A valve which admits compressed starting air to the cylinder.
start-of-shift meeting	*Available time = Total shift time minus scheduled breaks (lunch, morning and afternoon breaks, start-of-shift meeting, etc.)	
Static Electricity		Electricity at rest; pertaining to stationary charges.
Static Fuel System Setting		A setting of a fuel system, either mechanical or electronic, made in an attempt to obtain the desired fuel rate at a particular engine operating point. Settings are normally made to provide either full load fuel rate or the fuel rate at torque check rpm.
Static Head		The maximum height the coolant water is raised.
static operator sound pressure level	The static operator sound pressure level is 70 dB(A) when ISO 6394:1998 is used to measure the value for an enclosed cab.	
Static shipping instructions		Printed guides given to each supplier informing him of what mode (ie: less-than-truck load, full-truck load) and carrier to call with freight-in specified weight brackets.
Static Torque	Static Torque	
stationary mount loader	Caterpillar has a full line of stationary mount loaders for a wide range of mill yard applications.	
stationary regeneration	A stationary regeneration is an active regeneration that is initiated by the operator via the ARD force switch.	
stator winding	Relais	

status flag	A status flag will appear on Cat ET if a derate is active.; A status flag will appear if the engine is operating in cold mode.	
status group	The Electronic Technician uses status groups in order to display information about the status of the parameters.[RPNR7389-09.rtf]	
status screen	No fuel rail pressure can be observed on the status screen of the Caterpillar Electronic Technician (ET).[KPNR5342-05.rtf]	
Staybolt		A stress bolt running diagonally upward from the bedplate to the opposite side of the frame.
Steady Flow		A flow in which the velocity components at any point in the fluid do not vary with time.
steam pocket	The formation of an air pocket or a steam pocket in this type of cooling system is difficult.	
Steel		Steel is a commercial iron based alloy that contains carbon in any amount up to about 1.7 percent as an essential alloying constituent, is malleable when under suitable conditions, and is distinguished from cast iron by its malleability and lower carbon c
Steel Toe Shoe	The steel toe in this shoe will guard your toes. When it has been determined that the arch of your foot needs protection, metatarsal foot protection should be worn.	A type of shoe that will prevent or reduce the severity of injury to the metatarsal or toe areas.
Steelmaking		Steelmaking is the process of refining pig iron, directly reduced iron, and scrap steel into carbon steel and various alloys of steel.
Steering Column Tilt and Telescope Control	Steering Column Tilt and Telescope Control (1)	
Steering Column Tilt Control	Steering Column Tilt Control 1	
steering frame lock	Refer to Disassembly and AssemblySteering Fame Lock - Separate and Connect.	
Steering System	Steering System; Steering System Troubleshooting	
Steering Wheel Tilt Control	Steering Wheel Tilt Control (16) (If Equipped)	
Stellite		Stellite is a commercial trade name for a series of cobalt-based alloys with excellent resistance to thermal, mechanical and chemical degradation.
Step Plate	Step Plate	
Stethoscope		A device for conveying the sound of a body (engine noise) to the technician.

stick	Close the valves that are mounted on the end of the stick in order to prevent activation of the work tool.[RPNR7389-09.rtf]	part of the arm of a backhoe, as in backhoe extendable stick or clamshell stick
Stick control valve	Stick control valve 7	
stick cylinder rod end	The return oil from the stick cylinder rod end enters port 8.	
stick drift reduction valve	When the joystick for the stick is in the NEUTRAL position, the stick drift reduction valve stops oil leakage from the rod end of the stick cylinder.	
stick hydraulic circuit	When the stick hydraulic circuit is operated independently of other hydraulic circuits, stick I control valve 21 and stick II control valve 13 are operational for both the STICK IN operation and the STICK OUT operation.	
STICK IN position	Hold the stick in the STICK IN position during the calibration.[RPNR7389-09.rtf]	
stick valve	Perform the following steps in order to calibrate the stick valve:	
Stiffness		Stiffness is a material property that measures resistance to deflection, i.e. stiffer materials are more difficult to bend.
Stop Light	Limit Switch (Stop Light); Limit Switch (Stop Light) - Adjust	
stop valve	To prevent oil flow to the work tool during this testing and adjusting procedure, close the stop valves in the lines for the work tool.[RPNR7389-09.rtf]	
stopper	In order to adjust the crossover relief valves on the right travel motor, place stopper 17 in the sprocket for right travel.	a plug
storage bay	Heat Treat receives parts from many suppliers and ships completed material to many customers. This involves a lot of traffic to and from storage bays	
storage box	Anti-skid plate covers top of storage box and upper structure to prevent slipping during maintenance.	
storage compartment	Storage compartment, internal	
Straight oil		a MWF not diluted with water. Most consist primarily of mineral or vegetable oils. They are normally amber in color, and relatively thick and oily compared to water. They can have very high levels of additives to improve performance. They provide the
Straight Thread O-Ring	Straight Thread O-Ring (STOR)	

Straight thread O-ring adapter		A straight thread O-ring adapter (STOR) consists of straight threads, with an O-ring placed externally at the base of the threads.
straight thread o-ring fitting	Straight Thread O-Ring fittings for medium pressure usage will have shorter threaded ends than high pressure fittings.	
straightedge	Measure the amount of the warpage of the cylinder block with a straightedge and feeler gauge.[KPNR6740-04.rtf]	a rigid flat rectangular bar, as of wood or metal, with a straight edge for testing or drawing straight lines
Straightening		Cold finished bars may require straightening following cold drawing, turning, or furnace treatment in order to meet the standard established for the particular type or grade being produced. Straightening is a bending process used to remove distortion caused by heat treatment so that a part conforms to print tolerances.
Straightening crack		A straightening crack is a crack in a part that results from trying to remove distortion due to heat treatment by loading the part in a hydraulic press.
strap type wrench	Remove the oil filter 3 with a strap type wrench. CPS enables the Enterprise Strategy built on the foundation of Our Values in Action and 6 Sigma—the Strategic Area of Improvement (SAI); Order-to-Delivery, and Critical Success Factors (CSFs); PEOPLE, QUALITY, VELOCITY, and TROUGH.	
strategic area of improvement	Strategic Manufacturing Planning (SMP) deals with the plans and strategies required to support business plans for a significant capital investment project (new facilities, upgradation or expansion of infrastructure, etc). It supports strategic manufacturi	
Strategic Manufacturing Planning	Advantages of Strategic Sourcing	
strategic sourcing Streamline Flow		A nonturbulent flow, essentially fixed in pattern. Stress is the intensity of internally distributed forces or components of forces that resist a change in the volume or shape of a material that is or has been subjected to external forces. Stress is expressed in force per unit area and is calculated on th Stress concentration factor is the multiplying factor for applied stress that allows for the presence of a structural discontinuity such as a notch or hole. This factor is determined by taking the ratio of the greatest stress in the region of the disconti See Stress raiser.
Stress		
Stress concentration factor		
Stress concentrator		

Stress corrosion cracking		Stress corrosion cracking is failure by cracking under combined action of corrosion and a tensile stress, either external (applied) or internal (residual). SCC excludes corrosion-reduced sections that fail by fast fracture. However, SCC does include inter
Stress raiser		A stress raiser is a physical irregularity such as a change in shape or a discontinuity that causes a local increase in stress in the part. Some examples of stress raisers include sharp cornered grooves or notches, threads, fillets, holes, etc.
Stress relief heat treatment		Stress relief is a heat treatment process wherein a part is heated to a suitable temperature, held at temperature long enough to reduce residual stresses, and cooled slowly enough to minimize the development of new residual stresses.
Striation		A striation is a microscopic line on a fatigue fracture surface that shows the location of the tip of the fatigue crack at some point in time. In ductile metals, the fatigue crack advances by one striation with each load application, assuming the magnitud
string line	1D guidance provides cutting edge guidance relative to an external reference such as a string line or gravity, and is independent of the location of the machine.	
Stringer		In wrought materials, a stringer is an elongated configuration of microconstituents or foreign material aligned in the direction of working. The term is commonly associated with elongated oxide or sulfide inclusions in steel.
Stripped thread		Stripped threads are internal or external threads that have been removed by a shearing overload.
Stroboscope		Timing light. An instrument used to observe the periodic motion of injection visible only at certain points of its path.
Stroke-to-Bore Ratio		The length of the stroke divided by the diameter of the bore.
structural durability	The four-plate loader tower distributes forces evenly from the lift arms to the main frame, which eliminates twisting for maximum structural durability.	
structural shape		The general term applied to the rolled, flanged sections having at least one dimension of their cross section 3 inches or greater.
Structural Support	It's good practice to leave the trolley at one end of the bridge and the bridge at a structural support if you can.	Support beam.
stub boom	315D Excavator with a 2,6 m8 ft 6 inch fore boom, a 2,5 m8 ft 2 inch stub boom, a 1,85 m6 ft 1 inch stick, a bare quick coupler, and 600 mm24 inch triple grouser track shoes	

stub shaft	Check each idler gear assembly for excessive wear to the bearing and/or the idler stub shaft.	
Stud Puller		A device used to remove or to install stud bolts.
Stuffing Box		A chamber having a manual adjustment device for sealing.
Subcooling		Cooling of liquid refrigerant below its condensing temperature.
Subject Matter Expert	Ensuring that the Subject Matter Expert (SME) designated to be the trainer of an area is identified	
Submerged arc welding		A submerged arc-welding machine creates a thick layer of flux completely covers the molten metal and prevents spatter and sparks. The flux also acts as a thermal insulator, allowing deep penetration of heat into the workpiece.
suction bell	Under normal operation, the oil travels from the oil pan through the suction bell 14 to oil pump 15.[KPNR6741-05.rtf]	
Suction Line		Tube or pipe used to carry refrigerant gas from evaporator to compressor.
suction pipe	Ensure that the fuel level in the fuel tank is above the level of the suction pipe in the fuel tank.[KPNR6741-05.rtf]	
Sulfur		An undesirable element found in petroleum in amounts varying from a slight trace to 4 or 5 percent.
Sulfur Dioxide		An engine emission made up of the oxidized portion of sulfur in fuel. SO_2 (g/kW-hr) = 0.01998 x BSFC (g/kW-hr) x % sulfur - in fuel (by weight)
Summarized Demand	MRP responds to replanning triggers such as change of demand, excessive scrap, inventory adjustment and accesses the total summarized demand at the planning level.	
sump		a tank or reservoir that contains the coolant pump(s) and most of the MWF that feeds one or more machine tools. Needs to be cleaned whenever the MWF is pumped out and replaced.
sump pump		A pump which removes liquid from the sump tank.
sun gear	Install sun gear 14 in carrier assembly 15.	
sun screen	Roll-down sun screen for rear window	
Supercharger		A blower or pump which forces air into the cylinders at higher-than-atmospheric pressure. The increased pressure forces more air into the cylinder, thus enabling more fuel to be burned and more power produced.

Superficial Hardness		Measure of the degree of surface hardness with a more sensitive depth measuring system than is used with regular Rockwell machines. It is recommended for use on thin strip or sheet material, nitrided or lightly carburized pieces.
Supermarket		The location where a predetermined standard inventory is kept to supply downstream processes.
supersaturated		A supersaturated solution is a metastable solution in which the dissolved material exceeds the amount the solvent can hold in normal equilibrium at the temperature and under the conditions that prevail.
Supervised Flame Rods	A furnace designed for safety includes doors equipped with Supervised Flame Rods	
Supplemental Thermal		The heat required when recovered engine heat is insufficient to meet thermal demands.
Supplementary Firing		The injection of fuel into the recovered heat stream (such as turbine exhaust) to raise the energy content (heat of the stream).
Supplementary Power		Electric energy supplied by an electric utility in addition to that which the facility generates itself.
supplier	The pressure setting for relief valve 3 must be reset to the specification of the supplier for each work tool that is used.[RPNR7389-09.rtf]	one who supplies goods or services
supplier certification program	The Supplier Quality Excellence Program (SQEP) is a supplier certification program developed by Caterpillar to support its zero defect culture.	
Supplier Information	If I need to contact the supplier in regards to a quality issue, I can access the supplier information via Lognet to determine the person and the contact phone number in the quality department.	Contact information for a specific supplier such as departments, individual names, along with address and phone numbers
Supply Chain		The Supply Chain / Material Management process ensures consistent delivery of the
supply chain planning process	Let's take a quick look at some of the basic concepts of lean manufacturing that are considered in the Supply Chain Planning process.	
supply line	The pump oil flows through the supply line for the work tool 6 to the work tool.[RPNR7389-09.rtf]	
supply stream	Activities in the supply stream signal needs after existing stock has been exhausted.	

supply voltage	Fabricate six jumper wires that are long enough to be used to measure the supply voltage at the ECM connectors.[KPNR5342-05.rtf]	
supply wire	Remove the supply wire for the suspect injector from the ECM connector.[KPNR5342-05.rtf]	
support group	Once the support group is determined, the Idea/Issue needs to be prioritized.	
support resource	He acts as a liaison to other support resources required to implement the CI action.	
Surface asperity		A surface asperity is a tiny projection from the surface of a part, the roughness of the surface of a part.
Surface broaching machines		Broaching machines that shape the surface of a material by using a surface broach. Surface broach types include slab, slot, contour, dovetail, pot, and straddle.
Surface crack		A surface crack is an elongated fissure or opening on the surface of a part.
surface grinding machine		A surface grinder has a "head" which is lowered, and the workpiece is moved back and forth past the grinding wheel on a table that has a permanent magnet for use with magnetic stock.
surface hardness	Heat Treatment helps make steel stronger. It is often used to produce steel parts that are hard and wear-resistant on the exterior but soft and ductile on the exterior.	
Surface Prep		The removal of surface imperfections from a previous process prior to painting.
Surface scale		See Surface oxide.
Surge Capability		A quantity equal to or above MSC that can be used for a short period, typically up to eight weeks.
suspect throttle input	Use a suitable jumper wire to short the 2 wire of the throttle switch to the wire for the suspect throttle input at the throttle switch.[KPNR5342-05.rtf]	
suspension accumulator	Discharging the Suspension Accumulator Procedure	
suspension seat	Vinyl suspension seat	
sustain		A required daily cleaning process that is part of standard work for an area.
sustainability	Sustainability is a key element of our corporate strategy and switching to green electricity is central to that.	

sustainable development	Recognize Caterpillar's commitment to sustainable development	
sustainable system	But as we work leaner and eliminate waste, the sub-systems will overlap, ultimately uniting in one sustainable system, CPS.	
Swarf		a cottony accumulation of fine metal and abrasive particles from a machining or grinding process.
swashplate	The negative flow control pressure forces the swashplate in the pump to the correct angle to limit the flow and pressure to the work tool.[RPNR7389-09.rtf]	technical term
swashplate control piston	A portion of the oil flow from the idler pump in passage 5 flows through passage 13 and displacement change valve 12 to swashplate control piston 9.	
swing brake	When additional safety is needed on machines that are equipped with a swing brake solenoid, disconnect the swing brake solenoid so that the swing brake remains engaged.[RPNR7389-09.rtf]	
swing brake solenoid valve	The machine ECM sends output signals to the swing brake solenoid valve, the travel speed solenoid valve and the straight travel solenoid.	
swing control valve	When the swing joystick is in the NEUTRAL position, the swing control valve is in the NEUTRAL position.	
swing cushion valve	Remove the swing cushion valve.	
swing hydraulic circuit	The swing relief valve maintains the operating pressure of the swing hydraulic circuit at a lower pressure than the swing relief valve setting until the pressure in the swing hydraulic circuit forces piston 25 to the right against adjustment plug 30.	
swing lock system	This machine is equipped with a swing lock system that is hydraulically controlled.	
swing parking brake	Slowly move the swing joystick and make sure that the swing parking brake is activated.	
swing relief valve	If the pressure reading at pressure tap 2 is not within the specification, adjust the swing relief valve.	
swing-out door	The swing-out doors on both sides of the engine offer ease of access to a number of service components.	
Swirl pattern		Swirl pattern, when used in conjunction with inertia or friction welded parts, is the twisted appearance on a weld surface that did not achieve sufficient temperature to complete the weld.

switch	When the switch is in the OFF position the switch has an open condition.	
switch box	5 Service connector (switch box).	
switch input	The throttle switch is connected to the four switch inputs of the machine control module.[KPNR5342-05.rtf]	
switch input fault	The main display module does not detect switch input faults.	
switch panel	Measure the resistance from the Machine ECM (Wire 251YL) CAN + contact J2-50 to the corresponding CAN + (Wire 251YL) connection of the Switch Panel and the Monitor.	
Switchgear		The equipment between a generator and the lines of distribution that switches the electrical load to and from a generator, protects the generator from short circuits, monitors generator output, provides the means to parallel two or more units onto the sys
swivel adapter	A swivel adapter can be placed between a ratchet-style wrench and its socket to allow the socket to fit squarely on the fastener when space is limited.	An adapter that provides the ability to pivot in direction directions for alignment.
swivel elbow	Assemble and install seals 30, tee 3, swivel elbow 40 and coupling 37 to connector 2 at swing motor 1.	
swivel joint	C Cable end with swivel joint.	
Swivel nut coupling	A swivel nut coupling is found on the end of a hose and connects the hose to an ORFS adapter.	
Swivel sockets		Swivel sockets help apply the torque squarely to the fastener when there is not enough clearance around the fastener for the torque tool to be positioned directly over the fastener.
Synchronizing Lights		Lamps connected across a circuit breaker of a generator set. The lights indicate when the voltage wave forms of the incoming and operating power sources coincide and paralleling can be completed. When the lights fade from light to dark, and they are at th
synthetic base oil	Synthetic base oils are acceptable for use in these engines if these oils meet the performance requirements that are specified for the engine.	
Synthetic Material		A complex chemical compound which is artificially formed by the combining of two or more compounds or elements.

Synthetic MWF	Table also contains a column that describes the system response when the conditions indicate that an abnormal operating condition exists.[KPNR5342-05.rtf]	a MWF that does not contain oil or other oil-like materials. They contain detergents, rust preventatives, buffers, biocides, and water-soluble lubricants. They are as thin and transparent as water but are amber colored or are dyed. They provide the best
system response		
System Shutdown		On the EMS II module, a flashing red light and a horn annunciate if the ECM initiates a system controlled emergency shutdown or if there is an active system fault. This may be an overspeed, low oil pressure, or high coolant temperature shutdown.
Systems operation		
tab groove	Ensure that the main bearing tab fits in the tab groove of the bearing housing of the cylinder block.[KPNR8106-01.rtf]	
tachometer	The indicator is located in the front instrument panel below the tachometer.	An instrument indicating rotating speeds. Tachometers are sometimes used to indicate crankshaft rpm. Processes within transportation that take place at an individual shipment level, prior to the actual movement of product, such as: Short Term Shipment Planning, Tendering Loads to Carrier.
Tactical processes		
tail swing	The radius of the upper body stays close to the width of the undercarriage allowing the operator to concentrate on the work at hand, rather than the tail swing of the machine.	
Takt Image		Creates an awareness of Takt time in areas of a production process where products cannot be delivered and taken away at the frequency of Takt time. Takt image often can be achieved by removing finished goods and delivering production signals at a multiple of Takt time proportional to pack-out quantity or conveyance size.
Takt Rate		The vision of an ideal state in which you have eliminated waste and improved the performance of the value stream to the point that it is possible to achieve one-piece flow based on Takt time.
takt time	Takt Time is used to synchronize the pace of production with the pace of sales.	The rate at which the product must be produced to satisfy market demand. Determined by dividing available production time by the rate of customer demand.

Takt Time/Cycle Time Bar Chart

Tamper ramp dial	3Tamper ramp dial
tandem spools	Applying force to a brake pedal causes the tandem spools in service brake control valve 6 to move.
tank filler cap	Remove the tank filler cap.
Tap and Die Set	
Tap Wrench	Tap Wrench
Taper	
taper side	Insert sleeve bearing 1 at 7 degrees from taper side during the press fit.
tapered pipe thread fitting	The following table has the recommended standard torque value for tapered pipe thread fitting for use on all Caterpillar equipment and Mitsubishi engines.
tappet	Oil then flows from valve mechanism 2 to the bores of the tappet.[KPNR6741-05.rtf]
Tappet Noise	
tapping	Hammers are used for tapping.
tapping machine	
Target Gross Machine Operating Weight	The Target Gross Machine Operating Weight (including payload) for the 785C Off-Highway Truck is 249500 kg550000 lb.
target payload	Target payload
tattletale	The tattletale for the injectors that were exchanged will increase by one.[KPNR5342-05.rtf]
tattletale mode	The values will be cleared in the tattletale mode.; In the tattletale mode, the actuation of the clear switch allows all extreme values to be cleared.
tattletale number	Parameters that can be changed have a tattletale number.; The tattletale number shows if a parameter has been changed.
TC compression stroke	360° from TC compression stroke[KPNR6741-05.rtf]

A bar chart that compares cycle times of each operation to the customer demand (i.e., Takt time). Used to balance the line and ensure that all operations can meet Takt. Toyota strives for 85 percent cycle time to Takt so that minor variations in cycle time do not impact the ability to meet Takt.

A set of cutting tools used to cut internal and external threads.

A taper is a gradual diminution of thickness, diameter, or width in an elongated object.

a lever or projecting arm that is moved by contact with another part, usually to communicate motion
The noise caused by the excessive clearance between the valve stem and the rocker arm.

Tapping machines are used to create internal threads in workpieces and may be available with features for multiple tapping operations.

electronic troubleshooting term

tear ridge		Tear ridges are alternating high and low areas in the form of concentric ridges on a ductile fracture surface that result from deformation of the metal crystals prior to fracture.
Technical Hotline		the phone number a person should call for questions regarding the Departmental Expense system.
Technical Information Bulletin		
technical marketing information	If the fuel setting is higher than given in the TMI (Technical Marketing Information), there can be damage to engine or turbocharger parts.[KPNR6741-05.rtf]	
Technovet		U.S. manufacturer of engineering laboratory apparatus
tee		a true T in a line, such as oil distribution tee, shuttle valve tee, or swivel tee
tee		a tee used as a point for a temporary connection, such as an exiting tee or service tee
tee bolt	The correct torque for the constant torque hose clamp (tee bolt and spring) 2 is $7,5 \pm 1$ N	
telehandler	The Rear Axle Lock (RAL) on the Telehandler is designed to improve the lateral stability of the machine when the machine is lifting heavy loads to high elevations.	
Temper Brittleness		The term applied to the brittleness or low impact resistance that may occur in medium carbon and many alloy steels that are slowly cooled from the tempering temperature. It may be corrected by water quenching after tempering. Molybdenum in amounts of 25%
Temper color		Temper color is surface discoloration on metal due to heating it in air; the color can give some indication of the temperature to which the metal was heated.
temperature adapter multimeter	Temperature Adapter Multimeter	
temperature control knob	ATemperature Control Knob	
Temperature of Compression		The temperature of the compressed air charge in a power cylinder at the end of the compression stroke before combustion begins.
temperature sender	The temperature sender for the hydraulic oil connects to the monitor at pin number 3.[RPNR7389-09.rtf] It is one of the six pieces of information that the operators should monitor every time they load a new heat number on the FAMS screen. It should match the temperature on the Heat Treat Information System.	
Temperature Setpoint		
Temporary Hardness		Dissolved substances which precipitate out when water is heated.

temporary setting	A temporary setting of line relief valve 14 is required before line relief valve 19 can be adjusted.[RPNR7389-09.rtf]	
Tensile fatigue		Tensile fatigue is fatigue fracture of a part due to repeated (cyclic) application of tensile loads.
Tensile strength		In tension testing, tensile strength is the ratio of maximum load to the original cross-sectional area of the specimen.
tension	Tension is a force inside the fastener that tries to return it to its original length.	Tension is a force or load that produces elongation.
Tension load		See Tension
terminal	Insert one end of the jumper wire into the terminal for the suspect injector's supply.[KPNR5342-05.rtf]	a device attached to the end of a wire or cable or to an electrical apparatus for convenience in making connection
terminating resistor	Verify that two terminating resistors exist on the data link.[KPNR5342-05.rtf]	
termination resistor	If a termination resistor is missing, install the missing resistor.; If both resistors are present, measure the resistance between pin A and pin B of each termination resistor.	
Terrain	Cat MineStar System Component	
test bench	For all relief valve tests, the recommended method to test a relief valve is to remove the valve from the machine and use a test bench to test and adjust the valve.	
test circuit	Cat ET displays the correct status for each test circuit.[KPNR5342-05.rtf]	
test gauge	Check the actual engine oil pressure with a calibrated test gauge.[KPNR5342-05.rtf]	
test hose	Connect one end of the test hose 32 to the supply line for the work tool 24.[RPNR7389-09.rtf]	
test lamp	Connect a test lamp between the +Battery wire and the jumper wire.[KPNR5342-05.rtf]	
test point	Check the resistance in the wire between P1-26 and test point C at the starting aid relay.[KPNR5342-05.rtf]	
tester	Use the Coolant/Battery Tester Gp245-5829 in order to ensure adequate freeze protection.[KPNR6741-05.rtf]	a piece of equipment which performs tests
Testing and Adjusting		
testing and adjusting manual	Refer to the System Operation Manual and the Testing and Adjusting Manual for the machine.[KPNR5342-05.rtf]	

text information view	This section provides detailed information on how to use the AccuGrade System guidance and text information views.	
T-head Engine		An engine design wherein the inlet valves are placed on one side of the cylinder and the exhaust valves are placed on the other.
thermal bypass valve	The hydraulic oil cooler receives oil that is sent from the thermal bypass valve.	
Thermal Capacity		The maximum amount of heat that a system can produce.
Thermal Condenser		The part of a refrigeration mechanism which receives hot, high pressure refrigerant gas from the compressor and cools gaseous refrigerant until it returns to liquid state.
thermal crack		Thermal cracks are cracks in a part that result from sudden, non-uniform changes in the temperature of the part.
Thermal Efficiency		A gallon of fuel contains a certain amount of potential energy in the form of heat when burned in the combustion chamber. Some of this heat is lost and some is converted into power. The thermal efficiency is the ratio of work accomplished to the total qua
Thermal fatigue		Thermal fatigue is fracture resulting from the presence of temperature gradients that vary with time in such a manner as to produce cyclic stresses in a structure.
thermal fatigue crack		Thermal fatigue cracks are cracks that develop on the surface of a part as a result of repetitive, rapid heating and cooling cycles.
Thermal Growth		The tendency for materials to expand when exposed to heat. Exhaust piping of a generator set undergoes this phenomenon.
thermal protection	The thermal protection for the air inlet heater is intact.[KPNR5342-05.rtf]	
thermal spray machine		Coating machines that apply various metals and alloys, and ceramics by a spray gun with a stream of oxyfuel, flame, electric arc, or plasma arc. The coating material may be in the form of wire, rod, or powder.
thermal stress		Thermal stresses are stresses in metal resulting from nonuniform temperature distribution.
thermocouple		The part of a pyrometer which consists of two dissimilar metal wires welded together at the inner end and held in a protective housing.
Thermodynamics		1st law of: Energy can neither be created nor destroyed — it can only be changed from one form to another. 2nd law of: To cause heat energy to travel, a temperature (heat intensity) difference must be created and maintained.

Thermographs		Infrared images of operating equipment showing various temperature changes used to diagnose overheated
Thermostat		A temperature-responsive mechanism used for controlling heating systems, cooling systems, etc. (such as between the cylinder block and the radiator) usually with the object of maintaining certain temperatures without further personal attention.
thickness feeler gauge	Use a thickness feeler gauge in order to measure the distance between the frame and the lower hitch mount plate.	
thimble		Separate the exhaust pipe from walls or ceiling to provide mechanical and thermal isolation.
thinning grapples		Thinning grapples are designed for harvesting small diameter trees, usually felled by a mechanical feller buncher.
third-angle orthographic projection	Third Angle Orthographic Projection	
thread	Put clean engine oil on the threads of main bearing cap bolts 6.[KPNR8106-01.rtf]	the projecting helical rib of a screw
Thread Lock Compound	At installation of position sensor, apply Thread Lock Compound 9S-3263 to the threads of the screws.; Thread Lock Compound	
Three body wear		Three body wear is a type of abrasive wear in which a third body is introduced between two other bodies causing abrasive damage to each such as a large particle passing between a crankshaft and engine bearing.
Three Phase		An AC system having three voltages of the same frequency but displaced in phase by 120 degrees relative to another.
three-category warning system	EMS III allows the operator to view requested information and utilizes a three-category warning system to alert the operator of abnormal machine conditions.	
Three-dimensional printing		The process starts by depositing a layer of powder object material at the top of a fabrication chamber. To accomplish this, a measured quantity of powder is first dispensed from a similar supply chamber by moving a piston upward incrementally. The roller
three-phase full-wave excitation	SR4B generators are utilized in three-phase full-wave excitation and regulation.	
throttle	Maximum position of the dial for the throttle[RPNR7389-09.rtf]	the valve controlling the volume of vaporized fuel charge delivered to the cylinders of an internal-combustion engine;DO NOT USE 'throttle' to mean 'speed or power'

throttle backup switch	When a problem is detected with the throttle signal, the throttle backup switch is enabled.[KPNR5342-05.rtf]	
throttle command	Use a multimeter to monitor the percent duty cycle of the throttle command at the machine control module.[KPNR5342-05.rtf]	
throttle hold mode switch	Set the throttle hold mode switch to the MANUAL position.	Switch that holds throttle in position.
throttle lock switch	If a diagnostic code becomes active for the throttle sensor, the throttle lock switch is available for use as a backup control for the throttle control.	
throttle position	Verify that the status for Throttle Position is stable and that the engine is able to reach high idle speed.[KPNR5342-05.rtf]	
throttle switch	The throttle switch is ignored by the ECM until the fault is cleared and the keyswitch is cycled.[KPNR5342-05.rtf]	
Throttling		Reducing the engine speed (flow of fuel).
throttling slot	The return oil from the head end of the boom cylinders flows through passage 59 and through the throttling slots on the spool for the boom regeneration valve to check valve 57.	
Through harden		Through hardening is a heat treatment process that hardens a part so that the hardness of the metal is essentially constant throughout the cross section of the part.
Throw		The distance from the center of the crankshaft main bearing to the center of the connecting rod journal.
Thru-Bolt		Term usually applied to the stress rod passing through the engine frame to carry combustion stresses.
Thrust Bearing	(Washer)	A bearing or washer of bronze or steel which restrains endwise motion of a turning shaft, or withstands axial loads instead of radial loads as in common bearings.
Thrust Load		A load which pushes or reacts through the bearing in a direction parallel to the shaft.
thrust plate	Remove thrust plate 6 from the idler gear shaft.[KPNR8106-01.rtf]	
thrust washer	Remove thrust washers 2 from the cylinder block and from the rear main cap.[KPNR8106-01.rtf]	

thumb wheel	To adjust the line relief valve pressure setting of the upper work tool, push the thumb wheel on the right joystick FORWARD.[RPNR7389-09.rtf]	
thumbwheel duty cycle	The value of the Thumbwheel duty cycle does not respond correctly.	
Thyristor Control		A method of powering a DC motor by an AC generator.
tilt cylinder	There is a line relief valve for the the rod end of the tilt cylinder A and a line relief valve for the head end of the tilt cylinder B.	
Time Lag of Ignition		See Ignition Lag.
Time line		A time line is an illustration showing the succession of significant events that occurred during a failure.
time stamp	Also, the logged diagnostic data shall include the number of occurrences of the problem and two time stamps.	to imprint the date and time on the recording media
Time-Of-Use Rates		Electricity prices that vary depending on the time periods in which the energy is consumed. In a time-of-use structure, higher prices are charged during utility peak-load times.
timer	Some applications may be equipped with an engine protection shutdown system or an idle timer shutdown system that interrupts electrical power to the keyswitch.[KPNR5342-05.rtf]	a device in the ignition system of an internal-combustion engine that causes the spark to be produced in the cylinder at the correct time
Timing	(Diesel)	The angular position of the crankshaft relative to top dead center at the start of injection.
Timing	(Spark Ignited)	The angular position of the crankshaft relative to top dead center at the time the spark plugs are energized.
timing case cover	The timing case cover is made from pressed steel.	
timing gear	Ensure that the marks on the timing gears are in alignment.[KPNR8106-01.rtf]	
timing mark	Ensure that the timing marks of the camshaft gear are on the front.[KPNR8106-01.rtf]	
Timing Pin	Timing Pin; Timing Pin Adapter	
timing sensor	Primary Speed Timing Sensor[KPNR8106-01.rtf]	
TiN flash		Tin flash is a very thin layer of tin metal applied to the outside surface of engine bearings to resist corrosion prior to installation of the bearing.

tip over protection structure	The same guidelines for the inspection, the maintenance and the modification of the ROPS/FOPS Structure are required for the Tip Over Protection Structure.	
tire	A tire explosion is much more violent than a blowout.	a solid or air-filled covering for a wheel fitted around the wheel's rim to absorb shock and provide traction
TMI	If the fuel setting is higher than given in the TMI (Technical Marketing Information), there can be damage to engine or turbocharger parts.[KPNR6741-05.rtf]	technical marketing information
tolerance	The allowable tolerance for rod bearing journals that are out of round is 0,010 mm/0,0004 inch.[KPNR6740-04.rtf]	leeway from a standard
Ton of Refrigeration		Refrigerating effect equal to the melting of one ton of ice in 24 hours. This may be expressed as follows: 288,000 Btu/24 hr; 12,000 Btu/1 hr; 200 Btu/min; 3.52 kW
tool control system	The TOOL INSTALLATION menu will allow you to set the parameters for the tool control systems which are being installed.[RPNR7389-09.rtf]	
Tool Design		The design of fixtures, tooling and gages necessary to support the manufacturing and assembly processes.
Tool Operating Manual	In a Tool Operating Manual, on the cover page, use this translation in capital letters	
tool parameter	To access the tool parameters, enter the service mode on the monitor.[RPNR7389-09.rtf]	
Tool presetters		Tool measuring and inspection systems that provide tool presetting functions prior to the tool being used in a specific machine. A tool presetter may use video cameras, manage tool assemblies for jobs running on machining centers and cells, allow CAD file
Tool Selection		The selection and application of the appropriate cutting tools for use during machining operations.
Toolbox Talks	For safety related media and literature, please visit Safety.cat.com where you'll find videos, multimedia, excerpts from the Operations & Maintenance Manuals from both current and former Cat machine models, handy checklists designed to facilitate safe procedures, and Toolbox Talks that can be used for your safety discussions on the job site.	
tooling	Use Tooling A in order to remove secondary fuel filter 7.	technical term

Tooling/Set-Up Related Issues		This refers to a condition, when tooling such as die punch is not set-up properly (orientation, alignment, etc.). This results in broken forge parts and/or tooling. In such cases, both are scrapped.
Tools Development		The Tools Development process enables access to and storage of the tools in the CPS toolbox. All CPS tools, standards, related materials and specifications are stored in an easy to use one-stop-shop. Any user from any business unit can easily and quickly
top center	6 piston at top center.; After the top center position has been located, rotate the crankshaft for the number of degrees that is applicable to your engine model.	The position of the crankshaft at the time the piston is at its highest position.
top center position	After the top center position has been located, rotate the crankshaft for the number of degrees that is applicable to your engine model.; 6 piston at the top center position on the compression stroke.	
top line relief valve	The pressure setting for the top line relief valve and for the bottom line relief valve for the attachment control valve is 36800 ± 1500 kPa5340 ± 220 psi.[RPNR7389-09.rtf]	
Top Piston Ring	Top Piston Ring (2)	
Top-Down		Must meet the most stringent law, but, based on environmental, energy, and economic considerations could step down to a less stringent law.
Topping-Cycle		A cogeneration facility in which the energy input to the facility is first used to produce useful power, with the heat recovered from power production then used for other purposes.
Topsticks		Insulation wedge to prevent magwire coils from coming out of slot passage.
torque	Tighten bolts 2 to a torque of 83 ± 5 N-m61 ± 4 lb ft.[KPNR8106-01.rtf]	a measure of the tightness of a fastener
Torque at TC rpm		The steady state torque developed by an engine at the torque check speed.
torque bar	DRolling torque bar; To measure seal drag torque, fasten rolling torque bar D across the axle housing.	
Torque Check Speed		The speed at which an engine is run to check the low speed performance characteristics.
torque converter inlet relief valve	10Torque converter inlet relief valve	
torque converter lockup clutch	Some of the oil goes to the torque converter lockup clutch and solenoid valve.	

torque converter oil temperature sensor	Use this procedure to troubleshoot any suspect problems with the circuit for the torque converter oil temperature sensor.	
torque converter outlet relief valve	Oil from the torque converter outlet relief valve then flows to the power train oil cooler.	
torque converter sump	Remove drain plug 2 for the torque converter sump and drain the oil into a suitable container.	
torque converter updrive housing	The power train gear pump, the torque converter lockup clutch and solenoid valve, and the torque converter outlet relief valve are attached to the torque converter updrive housing.	Front housing.
torque curve	The rated fuel limit enables the engine power and torque outputs to conform to the power and torque curves of a specific engine model.[KPNR5342-05.rtf]	
torque map	The engine will run on a default torque map until the keyswitch is cycled.[KPNR5342-05.rtf]	
torque of the allen head screw	Check the torque of the allen head screws for the ECM connectors.[KPNR5342-05.rtf]	
Torque Shaping		A way to optimize engine response through control of horsepower at a given engine speed.
torque spring	The Rated Fuel Limit is similar to the rack stops and the torque spring on a mechanically governed engine.	
torque value	Refer to service TroubleshootingElectrical Connectors - Inspect for the correct torque values.[KPNR5342-05.rtf]	
torque wrench	Use a suitable torque wrench and Tooling G in order to determine the amount of torque that is needed to rotate the bearing cones.; Use a suitable torque wrench and Tooling J in order to determine the amount of torque that is needed to rotate the bearing cones.	
Torsion		Torsion is a twisting action applied to a shaftlike or cylindrical member. The twisting may be either reversed (back and forth) or unidirectional (one way).
torsion spring	The torsion spring in the pilot valve is broken.	
Torsional deformation		Torsional deformation is alteration of the shape of a part that remains permanently after the removal of the torsional load on the part.
Torsional fatigue		Torsional fatigue is fatigue fracture that results from repeated (cyclic) torsional loads on a part.

Torsional load		A torsional load is the force that occurs when a load is applied to a part in a twisting manner.
Torsional shear fracture		A torsional shear fracture is a type of ductile shear fracture that can occur under torsional loading.
Torsional shear stress		Torsional shear stress is the stress developed in a plane perpendicular to the axis in a cylindrical part about which there is a torsional load.
Torsional Study		An analysis used to predict operating characteristics of the vibrating system of an engine, which includes pistons, rods, the crankshaft, the flywheel, coupling, the driven equipment, and associated shafting.
tortoise	When the travel speed control switch is set at the LOW SPEED position, the tortoise appears on the default message display of the monitor.	a pictograph of a tortoise, signifying 'slow'
TOS Sensor	The diagnostic code will be active when the signal from TOS Sensor 1 (leading) to the ECM is incorrect.; Disconnect the machine harness connector from the TOS Sensor 1 (leading) connector.	
total clearance	Measure the total clearance between the boom and the upper frame at the bore for the boom foot pin assembly.	
Total Cooling System Capacity	Total Cooling System Capacity	
total cost of ownership	Analyzing the Total Cost of Ownership (TCO) also helps to establish optimum fixed re-order quantities.	The total cost of the supply delivery system including the sum of all the costs associated with every activity in the supply stream.
Total Cycle Time		The time from work order release into a value stream until completion / movement of product into shipping / finished goods.
Total Energy Systems		The name previously used to refer to a form of cogeneration in which all electrical and thermal energy needs were met by on-site systems. A total energy system was usually completely isolated from or completely served by the electrical utility system for
Total Productive Maintenance	(TPM) A set of techniques to ensure every machine in a production process is always able to perform its required tasks. The approach is termed total in three senses: total participation of all employees (not just maintenance personnel), total productivity	A set of techniques to ensure every machine in a production process is always able to perform its required tasks. The approach is termed total in three senses: total participation of all employees (not just maintenance personnel), total productivity of equipment and total life cycle of equipment.
total quality management	Total Quality Management (TQM) refers to the management strategies an organization adopts to excel in all facets of the products and services it provides.	

total shift time	*Available time = Total shift time minus scheduled breaks (lunch, morning and afternoon breaks, start-of-shift meeting, etc.)	
Total Supply Chain Cost		The total cost, inclusive of inventory carrying cost, freight costs, and service provider costs,
tow arm adjustment scale	The tow arm adjustment scale 7 provides a reference for the position of the screed to the tow arm.	
Toyota production system	Toyota Production Systems (TPS) manages the manufacturing and logistic operations at Toyota Motor Corporation.	Production system developed and used by Toyota Motor Company that focuses on the complete elimination of waste in order to consistently improve quality, reduce cost and shorten lead times.
traceability		The ability to trace an assembly or component back to it's origin. It usually includes some form of
track assembly		The Track Assembly is the completed assembly of individual tracks and the attached links.
track block assembly	Place track block assembly 17 in sprocket 16 in order to block forward left travel.	
track carrier roller	Loosen bolt 2 that holds track carrier roller 3 to the mounting bracket on the undercarriage.	
Track Feller Buncher	All Caterpillar Track Feller Bunchers can be configured with factory installed Harvester linkages and hydraulic packages.	
track link	The Forging process used to manufacture the track link comprises many sub processes	
track loader	The 953C Track Loader delivers unmatched versatility in a wide range of applications.	
track tension	Adjusting Track Tension	
Track Type Tractor	The AccuGrade Laser System that is installed on Track Type Tractors can generate guidance information by measuring the position cutting edge relative to the laser plane.	
Track-Type Loader	Track-Type Loader	
Track-Type Skidder	Track-Type Skidder	
Traction Control System	Combines Traction Control System (TCS) and Automatic Retarder Control (ARC) into one system.	

	Much of the data stored by MTS is ascertained through inquiries. Here is a list of inquiries that support the Receiving Process:	
traffic number inquiry	<ul style="list-style-type: none"> • Purchase Order Inquiries • Identification Number Inquires • Traffic Number Inquiries □ 	
training facilitator	The Training Facilitator and the Team Lead have a vital role to play in OJT and Cross Training processes.	
Transducer		A device for converting a variable physical parameter to a proportional electrical signal. The inputs can be temperature, pressure, position, voltage, current, or any other physical parameter. Outputs are typically 4-20 ma, 0-10 volts or some other signal
Transfer lines		Transfer lines consist of number of machine tools arranged in a sequence, which creates a highly automated production line great for high-volume parts or mass production.
transfer pump	Remove bolts 3 and remove fuel transfer pump 2.[KPNR8106-01.rtf]	
Transformation Range	For many steel Heat Treatments, the temperature must be raised to the transformation range to bring about a change in its properties.	
Transformer		A device used to convert from one voltage level to another with very little loss of power.
Transgranular		Transgranular means to crack through or across crystals or grains. Also called intracrystalline or transcrystalline.
Transgranular fracture		Transgranular fracture is fracture that propagates within the metal grains along specific crystallographic planes. See also Cleavage fracture.
Transit Time		The planned number of days and/or hours required to transport a part number from the Supplier to the designated receiving location utilizing the agreed-upon standard transportation mode. Where the Supplier is responsible for providing the standard transpo
Transmission Chassis Control	Transmission Chassis Control (TCC)	
transmission gear position sensor	The transmission will automatically shift until the information from the transmission gear position sensor signals the Power Train/Chassis ECM to stop the automatic shifts.	

transmission modulator control	Apply the transmission modulator control in order to stop the machine.	
transmission mount		A transmission mouint is a device used to stabilize the transmission under vehicle load to allow the shifter to engage the gear properly.
transmission neutralization setpoint	transmission neutralization setpoint; The left brake pedal must be depressed beyond the transmission neutralization setpoint 15.	
transmission neutralizer	The left pedal functions as a brake and a transmission neutralizer so the operator can maintain high engine rpm for full hydraulic flow and fast cycle times.	
transmission neutralizer control	The transmission neutralizer override switch is the only input to the transmission neutralizer control.; The transmission neutralizer control will be enabled when the machine is started.	
transmission oil filter housing	The transmission oil filter housing 1 is located at the left rear of the tractor.	
transmission oil temperature	coolant temperature, engine oil pressure, transmission oil temperature and alternator output.	
transmission output shaft	The transmission output shaft is connected to drive gear 2 by splines.; The flow of power in the output transfer gears goes from the transmission output shaft to drive gear 2.	
transmission output speed sensor	Location of the transmission output speed sensors. The information from the transmission output speed sensors and the information from the shift lever position sensor allow the transmission to automatically shift while the ground speed changes.	
Transportation		The process that occurs anytime Caterpillar pays a service provider and / or carrier to move its products —
transportation plan	Inbound Logistics develops a transportation plan for the receipt of new material.	
transverse	(direction)	The transverse direction is literally "across" - usually signifying a direction or plane perpendicular to the direction of working.
Transverse rupture		Transverse rupture is ductile fracture perpendicular to the longitudinal axis of a part.

Transverse rupture strength

Transverse rupture strength is the stress, calculated from flexure formula, required to break a specimen like a simple beam that is supported near the ends with the load applied midway between the centerline of the supports.

Transverse shear fracture

Transverse shear fracture is ductile shear fracture that occurs on a transverse shear plane.

Transverse shear plane

The transverse shear plane is the plane that is perpendicular to the longitudinal axis of a part on which a ductile shear fracture can occur under torsional loading.

Transverse torsional shear

Transverse torsional shear is a shear fracture that occurs as a result of torsional loading, for example, twisting the head off a bolt.

Trap

A receptacle often installed at the lowest point in generator set exhaust piping to drain moisture that could reach and damage the system's silencer.

travel alarm control

17Travel alarm control

travel alarm relay

This diagnostic code is associated with the Travel Alarm Relay.

travel control lever

Slowly move the left travel control lever to full FORWARD position and check the pressure gauge reading at pressure tap 2.

travel crossover relief valve

A temporary setting of the main relief valve is required before travel crossover relief valves can be tested.

travel lever

Move the machine by operating both travel levers at the same time.

travel mode selector switch

When the travel mode selector switch is pressed, the travel mode can be set to the rabbit mode or set to the tortoise mode.

travel motor cover

Heavy-Duty travel motor covers

travel pedal

The foot pedal for the work tool will be located on the left side of the travel pedals if the machine is equipped with a straight travel pedal.[RPNR7389-09.rtf]

Traveling column milling machines

Horizontal or vertical milling machines with a CNC moving column and fixed table/bed.

Treadle heel stop

Insert a 3,5 mm0,14 inch shim between Treadle heel stop 4 and pedal stop 3 of both the left brake pedal and the right brake pedal.; Insert a 1,5 mm0,06 inch shim between Treadle heel stop 4 and pedal stop 3 of both the left brake pedal and the right brake pedal.

tree diagram	Fishbone Diagram (Cause-and-Effect Diagram) can also be used in combination with a Tree Diagram.	
Tribal Knowledge		Information known to an organization but not documented for public consumption. A Capacity Plan ingrelated example would be a family of machines expected to undergo a radical design change within three or four years. Such a change could be switching from
Tribology		Tribology is the science concerned with the design, friction, lubrication, and wear of contacting surface that move relative to each other.
Trichlorotrifluoroethane		Complete name of refrigerant R-113. Group 1 refrigerant in rather common use. Chemical compounds which make up this refrigerant are chlorine, fluorine, and ethane.
trim press		Trim presses are used after the forging press operations to remove excess metal or flash.
trip		A trip occurs when we make contact unexpectedly with an object while in motion which results in loss of balance
trip point	The intake manifold air temperature is above the trip point temperature for four seconds.[KPNR5342-05.rtf]	
Trip Unit		Adevicewithina low voltage circuit breaker that provides overcurrent protection.
triple grouser track shoe	312C L Excavator with a 4,65 m15 ft 3 inch reach boom, a 1,8 m6 ft 8 inch stick, a quick coupler, and 600 mm2 ft triple grouser track shoes	
Troostite		A microconstituent of hardened and tempered steel which etches rapidly and therefore usually appears dark. It consists of a very fine aggregate of ferrite and cementite and is normally not resolved under the microscope.
Tropicalization		Thoroughly insulating rotor and stator with epoxy to provide high insulating and mechanical properties under severe moisture and temperature conditions.
trouble code	Refer to TroubleshootingDiagnostic Trouble Codes for additional information on diagnostic codes.[KPNR5342-05.rtf]	
Troubleshooting		A process of diagnosing or locating the source of the trouble or troubles from observation and testing. Also see Diagnosis.
Troubleshooting Electronic Service Tools	Refer to Troubleshooting Electronic Service Tools for further information.	

Truck Engine Pro		A Cat computer program to assist customers in selecting truck engine models and options. Various drivetrain and component performance analyses can be reviewed.
Truck Owner Protection Plan		A Cat plan offering a guaranteed cost per mile for all truck engine maintenance and repairs.
Trunnion Support	Trunnion Support (Oscillating Axle, Rear) - Remove and Install; Trunnion Support (Oscillating Axle, Front) - Remove and Install	
Tub Tilters	Much of the mechanical equipment that makes our heat treat installations effective is also hazardous for the operators. One would be tub tilters	
tube assembly	The tightening sequence of the fasteners that attach a tube assembly or hose assembly to the machine is very critical to the proper function of the machine.	
tube bending machine		Bending machines that use internal mandrels, or filling tubes with particulate materials such as sand, are often necessary to prevent collapsing of the tubes during the bending. Solid rods and structural shapes are also bent by these techniques.
Tubing		That type of fluid line whose dimensions are designated by actual measured outside diameter.
Tugger		A material-handling machine that similar to a train which is used to pull various items.
Tuliping		See Dishing.
tune, to	Tune the machine to the LOW PRESSURE value that is located under TARGET VALUE that is found in table .[RPNR7389-09.rtf]	to adjust a radio or television receiver to receive signals at a particular frequency
Tungsten inert gas (TIG) welding machine		The TIG process lets you weld thinner material than other processes and it also provides excellent fusion. TIG also produces the best looking weld beads, which used when cosmetic appearances are important.
Turbine		An engine or motor having a drive shaft driven either by steam, water, air, gas, etc., against curved vanes of a wheel or set of wheels, or by the reaction of fluid passing out through nozzles located around the wheel(s).
turbine blade	The exhaust gases push the blades of turbocharger turbine wheel 6.[KPNR6741-05.rtf]	TURBINE BLADE: a vane of a turbine or stator, as in a turbine blade or stator blade Note: DO NOT USE 'blade' alone to mean 'the rubber squeegee on a windshield wiper', for example windshield wiper blade or wiper blade

turbine blade	Check that the turbine blades rotate freely.[KPNR5342-05.rtf]	
Turbine Generator		A device that uses steam, heated gases, water flow, or wind to cause spinning motion that activates electromagnetic forces and generates electricity.
turbine housing	Remove gasket 2 from the turbine housing.[KPNR8106-01.rtf]	a case that surrounds a high speed rotor acting as a pump, such as a compressor housing, turbine housing, or compressor wheel housing
turbine Wheel	Inspection of the turbine Wheel and the turbine housing	
turbo wastegate actuator	Turbo Wastegate Actuator Fault	
turbocharged aftercooled marine generator set	Turbocharged Aftercooled Marine Generator Sets Rated at 50 Hz 86 ekW and 60 Hz 93 ekW	
turbocharger	Check that the housing for the turbocharger is free of dirt and debris.[KPNR5342-05.rtf]	a centrifugal blower driven by exhaust gas turbines and used to supercharge an engine
turbocharger compressor housing	If oil is found in the air pipe, inspect the turbocharger compressor housing and inspect the outlet from the turbocharger compressor for oil.[KPNR5342-05.rtf]	
turbocharger compressor wheel	Rotate the assembly of the turbocharger compressor wheel and the turbocharger turbine wheel by hand.[KPNR6741-05.rtf]	
turbocharger turbine wheel	Rotate the assembly of the turbocharger compressor wheel and the turbocharger turbine wheel by hand.[KPNR6741-05.rtf]	
turn off	Push down on remote shutdown switch (2) to turn the transmitter off.	
turn on	When a site map is present on the data card, the site map information loads when you turn on the Display.	
Turning and Polishing		Whereas cold drawing reduces the cross sectional area by subjecting the bar to compressive and elongating forces, turning and polishing accomplishes the same by turning 1/16 to 3/16 inches from the diameter, depending on the bar size, usually following by
twin turbocharged aftercooled aspiration	Twin Turbocharged Aftercooled Aspiration	
Two body wear		Two body wear is a type of abrasive wear in which one body directly abrades another such as a hard file on a piece of metal.
two pump flow	Two pump flow distributes the load equally for work tools that are used extensively.[RPNR7389-09.rtf]	

Two-Cycle Engine		An engine design permitting a power stroke once for each revolution of the crankshaft.
Two-Stage Combustion		Combustion occurring in two distinct steps such as in a precombustion chamber engine.
Two-Stroke Cycle		The cycle of events which is complete in two strokes of the piston or one crankshaft revolution.
two-way flow	If the desired relief setting is for tools which require two-way flow, set the line relief valves for two-way flow B and line relief valves for two-way flow C.[RPNR7389-09.rtf]	
two-way hydraulic oil flow	The default parameter values for TOOL#3 are for two-way hydraulic oil flow from one main pump.[RPNR7389-09.rtf]	
Tyre Wetting System		Tyre wetting system allows solvent to be sprayed on the tire surfaces
u-cup seal	Lubricate the sealing lip of U-cup seal lightly with the lubricant that is being sealed. Caterpillar 2007 Model Year On-highway Diesel Engines must use ultralow sulfur diesel fuel (ULSD) in order to comply with the on-highway diesel engine emissions regulations that are prescribed by the United States Environmental Protection Agency.	
ultralow sulfur diesel fuel		
Ultrasonic		Ultrasonic is a frequency above the human ear's audibility limit of about 20,000 Hertz.
Ultrasonic inspection		Ultrasonic inspection is an inspection technique that uses ultrasonic sound waves to assess internal quality characteristics or measure the wall thickness of parts.
ultrasonic welding machine		Ultrasonic welding machinery joins the contacting surfaces of the two pieces by subjecting them to a static normal force and oscillating shearing (tangential) stresses. It can be used with a wide variety of metallic and nonmetallic materials, including di
undercarriage frame assembly	Put an alignment mark on swing gear and bearing 1 and on the undercarriage frame assembly for assembly purposes.	
Underfill		This refers to a condition, where there is not enough material formed in the right locations and contours of the part. This is caused by improper billet placement and puddling of die lube.
Underground Articulated Truck	Service ManualREN8538AD45B Underground Articulated Truck	

underspeed control parameter	If a tool is not operating properly and the underspeed control parameter is turned ON, disable this parameter.[RPNR7389-09.rtf]	
Uneven Quenching		Non Uniform Quenching (Can result in cracks), to remove heat from the steel being hardened, hardness is proportional to the rate of heat loss.
Uniflow Scavenging		Scavenging method in which air enters one end of the cylinder and exhaust leaves the opposite end.
Uninterrupted Power Supply		A power supply which maintains regulated power during a shortage to under- or overvoltage or no voltage.
uninterruptible Power Supply	The Caterpillar Uninterruptible Power Supply (UPS) is a fully integrated line-interactive system that uses a flywheel to store mechanical energy in the form of a rotating mass.	
union	A union allows the connection of two pieces of threaded pipe to be connected, when it is not possible to rotate the length of pipe.	
Unique Coordinate Location	After the receipt and entry of the material, the MTS Location Distribution System places it in a "unique" coordinate location.	
Unit cell		A unit cell is the smallest arrangement of atoms that repeats itself within metal grains. The configuration of the unit cell depends on the metal. The most common unit cells are cubic, body-centered cubic, face-centered cubic, hexagonal and tetragonal.
unit injector	If the repair does not eliminate the problem, reinstall the electronic unit injectors that were removed and continue with this test procedure.[KPNR5342-05.rtf]	
unit injector bore	This passage connects with each unit injector bore in order to supply fuel to unit injectors.	
Universal Warning label	The Universal Warning label 1 is located on both sides of the valve mechanism cover base.	
UNLOCK position	When the hydraulic activation lever is moved to the UNLOCK position, pilot oil flows from pilot manifold 26 to solenoid valves:[RPNR7389-09.rtf]	
Unscrambling	In this process, round corner square steel bars are brought in from the yard. These bars are kept in room temperature for a day or so and then introduced into the line. In the production line the bars are loaded onto the de-scrambler. The de- scrambler de	

unswitched +Battery	The connections for the unswitched +Battery may be routed through a dedicated protection device (circuit breaker).[KPNR5342-05.rtf]	
Up		
update rate	The update rate for parameters that are generated by the Caterpillar Monitoring System is not correct.; The update rate for parameters that are generated by the power train ECM is not correct.	
updraft carburetor		A carburetor type in which the mixture flows upward to the engine.
updrive gear adjust tool assembly	Updrive Gear Adjust Tool Assembly	
upper control limit	Control limits are natural limits of a process within specified confidence levels, expressed as UCL (Upper Control Limit) and LCL (Lower Control Limit).	
Upper critical temperature		The upper critical temperature in any specific steel composition is the temperature at which the austenite phase change begins or is completed (for a specific rate of heating or cooling).
upper drive shaft	Refer to Disassembly and AssemblyUpper Drive Shaft - Remove and Install.	
upper shim set	Remove bearing cage 4 and upper shim set 5.	
upper sight gauge	On machines equipped with a dump body maintain the hydraulic oil level above the ADD COLD mark in upper sight gauge 2 when the dump body is fully lowered.	
upper work tool	To adjust the line relief valve pressure setting of the upper work tool, push the thumb wheel on the right joystick FORWARD.[RPNR7389-09.rtf]	
upsetter		Upsetters are forging presses used for a forging process known as "upsetting"
upshift gear speed switch	Pressing the upshift gear speed switch on the STIC control will cause the machine to shift into the next highest gear.	
UPWARD position	The pilot oil will shift the spool in the auxiliary control valve to the UPWARD position.[RPNR7389-09.rtf]	
Utility Grade Relay		Refers to a draw-out relay.
Utilization Factor		The ratio of the maximum demand of a system (or part of a system) to its rated capacity.

Vacuum		A perfect vacuum has not been created as this would involve an absolute lack of pressure. The term is ordinarily used to describe a partial vacuum; that is, a pressure less than atmospheric pressure — in other words a suction.
Vacuum Fluorescent		A type of visual display, often used on system control/ monitoring panels, which provides excellent visibility in a variety of lighting conditions.
Vacuum Gauge		A gauge used to measure the amount of vacuum existing in a chamber or line.
Vacuum Pump		Special high efficiency compressor used for creating high vacuums for testing or drying purposes.
Value		The inherent worth of a product as judged by the customer and reflected in its selling price and market demand.
Value Stream		All of the actions, including value-adding and non-value-adding actions, required to bring a product from concept to launch and from order to delivery. These include actions to process information from the customer and actions to trans-form the product on its way to the customer.
value stream map	Owns the line's current state value stream map and partners with support groups in the implementation of changes needed to achieve future state value stream map.	
Value Stream Mapping (VSM)		A simple diagram of every step involved in the material and information flows needed to bring a product from order to delivery. A current-state VSM follows a product's path from order to delivery to determine current conditions. A future-state VSM deploys opportunities for improvement identified in the current-state map to achieve a higher level of performance at some future point.
Value-Added Activity (VA)		Any activity that transforms or shapes material or information or improves quality to meet customer requirements.
Value-Added Time		The time expended in value-added activity to produce a unit. Time for those work elements that transform the product in a way for which the customer is willing to pay.
Value-Added Time Critical Path		The time spent in changing the form, fit and function of a unit of production through the series of consecutive activities that represent the longest time path through the process.
valve		HYDRAULIC SPOOL a spool type hydraulic valve, such as a speed shift valve or hitch control valve

valve		DRAIN VALVES faucet tap type drain valve, such as a crankcase drain valve
valve		CHECK VALVES check ball and spring type valves, such as a check valve
valve		ELECTRIC CONTROLLED electrically controlled solenoid valves, such as an antispin solenoid valve
valve		BALL VALVE; valve used to stop flow of fluids, such as an in-line fuel shutoff valve
valve actuation oil pressure sensor	A pressure regulating assembly will be used to regulate air pressure to the intake valve actuation oil pressure sensor.	
valve actuation oil pressure solenoid	The intake valve actuation oil pressure solenoid.	
valve actuator unit	Inspect the suspect intake valve actuator unit.	
valve assembly	If the return fuel pressure regulating valve is suspect, replace the valve assembly.[KPNR5342-05.rtf]	
valve block	Remove bolts 5 from valve block 6.	
valve body	Remove boot 2 from valve body 1.; Remove plugs 3, springs 5, and balls 6 from valve body 1.	
valve bridge	Place the appropriate feeler gauge between rocker arm and the valve bridge.[KPNR6741-05.rtf]	
Valve Bridge Adjustment	See Testing And Adjusting Valve Lash And Valve Bridge Adjustment.; Valve Lash and Valve Bridge Adjustment	
Valve Clearance		The air gap allowed between the end of the valve stem and the valve lifter or rocker arm to compensate for expansion due to heat.
valve cover	Disconnect the connectors from the valve cover base.[KPNR5342-05.rtf]	
Valve Duration		The time (measured in degrees of engine crankshaft rotation) that a valve remains open.
Valve Expansion		Type of refrigerant control which maintains pressure difference between high side and low side pressure in a refrigerating mechanism. Valve is caused to operate by pressure in low or suction side. Often referred to as an Automatic Expansion Valve or AEV.
Valve Float		A condition where the valves are forced open because of valve-spring vibration or vibration speed.
Valve Grinding		Also called valve lapping. A process of lapping or mating the valve seat and valve face usually performed with the aid of an abrasive.

valve guide	The outer face of the valve guides must be clean and dry before installing the valve stem seal 6.[KPNR8106-01.rtf]	
Valve Guide Installation Gauge	Valve Guide Installation Gauge	
valve keeper	Apply sufficient pressure to Tooling B in order to remove valve keepers 3.[KPNR8106-01.rtf]	A device designed to lock the valve spring retainer to the valve stem.
valve lash	Adjust the inlet valve lash to 0,250 mm0,0098 inch.[KPNR8106-01.rtf]	
valve lash adjustment interval	If the mileage between the lash adjustment intervals that are indicated above (current mileage minus the mileage of the last adjustment) exceeds the recommended interval, the root cause of the problem could indicate a lack of maintenance.	
valve lifter	Use a magnet in order to remove valve lifter 1 from the engine cylinder block, as shown.[KPNR8106-01.rtf]	
Valve Margin		The distance between the edge of the valve and the edge of the face.
valve mechanism cover base	Install a new gasket and position valve mechanism cover base 7.[KPNR8106-01.rtf]	
Valve Oil Seal		A sealing device to prevent excess oil from entering the area between the stem and the valve guide.
Valve Overlap		The period of crankshaft rotation during which both the intake and exhaust valves are open. It is measured in degrees.
valve plate	The oil then flows through passage 13 in valve plate 19 and passes through passage 20 in cylinder barrel 24.	
Valve Rotator		A mechanical device locked to the end of the valve stem which forces the valve to rotate about 5° with each rocker-arm action.
valve seat	Inspect the valve seats for wear and for damage.[KPNR8106-01.rtf]	
valve seat insert	Lower the temperature of the new inlet valve seat inserts 2.[KPNR8106-01.rtf]	
valve spool	The pilot pressure oil at that end of the valve spool forces the valve spool to shift.	
valve spring	Check the depth of the valves below the face of the cylinder head before the valve springs are removed.[KPNR8106-01.rtf]	
Valve Spring Compressor	Valve Spring Compressor	
valve spring retainer	Do not compress the spring so that valve spring retainer 4 touches valve stem seal 6.[KPNR8106-01.rtf]	

Valve Stem Guide		A bushing or hole in which the valve stem is placed which allows lateral motion only.
valve stem seal	Do not compress the spring so that valve spring retainer 4 touches valve stem seal 6.[KPNR8106-01.rtf]	
Valve Timing		The positioning of the camshaft (gear) to the crankshaft (gear) to ensure proper valve opening and closing.
Valve, Suction		Valve in refrigeration compressor which allows vaporized refrigerant to enter cylinder from suction line and prevents its return.
Valve-in-head Engine		Same as Overhead Valve Engine.
Valve-seat Insert		A hardened steel ring inserted in the cylinder head to increase the wear resistance of the valve seat.
vandalism protection caplock	Vandalism protection caplocks	
vane		Any plate, blade, or the like attached to an axis and moved by or in air or a liquid.
Vapor		Word usually used to denote vaporized refrigerant rather than the word gas.
Vapor Blanket	The first phase that takes place is the formation of a vapor blanket around a part as it is quenched.	
vapor charged		Lines and component parts of a system which are charged at the factory.
Vapor Line		The large line from the inside coil to the outside portion of the heat pump is dual purpose — suction line on cooling and hot gas line on heating. Only a high pressure gauge must be used to measure pressure in this line.
Vapor Lock		A condition wherein the fuel boils in the fuel system, forming bubbles which retard or stop the flow of fuel to the carburetor.
variable piston pump	The variable piston pump uses an angled drive plate which rotates.; Steering pump 16 is a variable piston pump.	
variable shift control	The variable shift control uses the engine speed in order to provide optional autoshift points.; The power train electronic control module (ECM) uses the position of the variable shift control switch 4 and the engine speed in order to determine the autoshift points for the transmission.	
Variation of a Process / Process Variability		All manufacturing processes exhibit variation, that is all the values related to the final process output are not the same. For example dimensions of a production part from a manufacturing process are not exactly the same, but the values are distributed a

Varnish		Varnish is a hard, lustrous coating of deposits that results from oil oxidation products formed during high temperature engine operation. Varnish deposits can also form on other parts for instance, in the fuel injection system where oxidation products fro
VCI oil	Add VCI oil at a rate of two percent of the lubricating oil capacity.	
VDC	5.00 ± 0.25 VDC[KPNR6740-04.rtf]	voltage direct current
Velocity Council	The contains useful information on how the Supply Chain operates. This book, published in 2006, has been approved by the Caterpillar Supply Chain Council and Velocity Council.	
vent screw	This primary fuel filter that has a vent screw may be installed on a fuel system that has a low fuel tank.	
vent, to	If an engine is started inside an enclosure, make sure that the engine's exhaust is properly vented.	to discharge something such as moisture, vapor, or fumes
ventilation duct	Heat treat areas are naturally hotter than machining areas, but they also have more cooling equipment for the operators, such as ventilation ducts	
venting		Venting tubes are inserted into the cope for trapped gases to escape from the assembled product.
Verifier		A device that measures the characteristics of a bar code including the contrast, reflectance, modulation, and compliance with the parameters of the bar code symbology.
Vertical Guidance	Unlike 3D Guidance methods, Vertical Guidance does not rely on knowing the three dimensional location of the machine.	
vertical guidance plane	Illustration shows how the AccuGrade System projects the vertical guidance plane from the single vertical guidance point to the blade tips to determine the cut or fill for the blade tips.	
vertical guidance point	The vertical guidance point will change sides of the blade when the focus point changes.	
Vertical Lift Engine Enclosure	Vertical Lift Engine Enclosure	
vertical machining center		A machining center with the spindle of the machine is oriented in the vertical direction. Vertical machining centers are suitable for performing various machining operations on flat surfaces with deep cavities, such as in mold and die making.

vertical offset value	For lift guidance methods on all machine types, toggling the vertical offset remote switch, or toggling the vertical offset remote switch for the end of the blade receiving lift guidance, causes the vertical offset value to change.	
vertical turning center		A computer-controlled lathe or turning center with a vertical spindle and several features including multiple turrets that holds a variety of tools and/or multiple spindles.
very early hour reliability	Caterpillar must reduce Very Early Hour Reliability (VEHR) and Dealer Repair Frequency (DRF) as part of our effort to improve quality.	Reliability of machine during initial hours of use.
vibration analysis		Monitors vibration and reports on it when it exceeds set limits or baseline data.
vibration analyzer modem	Vibration Analyzer Modem	
vibration damper	The vibration forces are minimized by the use of a vibration damper.[KPNR6741-05.rtf]	
vibratory amplitude control	3Vibratory amplitude control	
vibratory asphalt compactor	Product name	
vibratory frequency	Testing and Adjusting Vibratory Frequency	
Vibratory or barrel finishing deburring		Machines used to improve the surface finish and remove burrs from large numbers of relatively small workpieces. Specially shaped abrasive pellets or media are placed in a container along with the parts to be deburred and then the container is either vibra
vibratory selection switch	A vibratory selection switch provides standard front, rear and both drum vibratory capabilities.	
vibratory soil compactor	Product name	
vibratory system	The vibratory system provides good balance between frequency and amplitude in order to meet various job site conditions.	
vibratory utility compactor	Product name	
video input terminal	The monitoring system can display the camera image on the monitor by connecting a commercially available camera to the video input terminal that is provided.	
VIMS	Cat MineStar System Component	
VIP Cycle		The Vacuum Impregnation treatment of windings to provide improved environment protection/insulation of windings.
Viscosity		Viscosity is the property of resistance to flow in a fluid or semifluid.

Viscosity Index		Oil decreases in viscosity as temperature changes. The measure of this rate of change of viscosity with temperature is called the viscosity index of the oil.
Viscous Vibration Damper	Viscous Vibration Damper	
Visual examination		Visual examination is a process by which failed parts are optically examined to discover facts (also called road signs) that will identify the type of fracture or wear that led to failure of the part.
visual inspection	VISUAL INSPECTION OF THE SENSOR MOUNTING	
Visual Workplace		The placement in plain view of all tools, parts, production activities and indicators of production system performance so the status of the system can be understood at a glance by everyone involved. The practice of making all standards, targets and actual conditions highly visible in the workplace, so that everyone can see and understand the actual conditions versus the requirements.
Vital Information Management System	Vital Information Management System (VIMS)	
Volt		A unit of electromotive force that will move a current of one ampere through a resistance of 1 ft.
voltage	Measure the voltage between the jumper wire in P2-47 (sensor supply) and the jumper wire in P2-39 (sensor return).[KPNR5342-05.rtf]	electric potential or potential difference expressed in volts
voltage adjust potentiometer	17 Voltage Adjust Potentiometer	Controls generator voltage output through the generator voltage regulator.
voltage adjust rheostat	Voltage Adjust Rheostat 9	
voltage adjust switch	Voltage Adjust Switch 6	
Voltage Flicker		Term commonly used to describe a significant fluctuation of voltage.
voltage output	A sensor that has failed and the voltage output is high.	
voltage regulator	A voltage regulator in the circuit controls the electrical output in order to keep the battery at full charge.[KPNR6741-05.rtf]	
voltmeter	Before starting the machine, connect a voltmeter between the B+ terminal and the case of the alternator.	technical term
Volts-per-Hertz Regulation		Providing fast recovery under block loading conditions, maintaining close voltage control over the normal load range, and producing rapid response of an engine/generator set by matching generator output to engine performance.
Volumetric Efficiency		The difference between the volume of air drawn in on the intake stroke and the air mechanically entering the cylinder.
Vortex		A whirling movement of a mass of liquid or air.

VPPE		A 2007 \$2.4M research project to determine the feasibility of a visually-based, light-weight 3-D model process
walk-around inspection	A walk-around inspection should only take a few minutes.	
Wall Crane		A wall crane is a crane having a jib, with or without a trolley, and supported from a side wall or line of columns of a building.
Warning Beacon	Warning Beacon	
warning tag	These warning tags (Special InstructionSEHS7332) are available from your Caterpillar dealer.	
washer	Remove nuts 1, the spacers, and the washers that secure exhaust manifold 2 to the cylinder head assembly.[KPNR8106-01.rtf]	a flat thin ring or a perforated plate used in joints or assemblies to ensure tightness, prevent leakage, or relieve friction;DO NOT USE 'washer' alone to mean 'something that washes' Any activity that consumes resources but creates no value for the customer. Most value-stream activities that actually create value as perceived by the customer are a tiny fraction of the total activities. Eliminating the large number of wasteful activities is the greatest potential source of improvement in corporate performance and customer service.
Waste		
waste handler	D7R Series 2 WH Waste Handler	
waste handling	Special attachments and operating instructions are required for Waste Handling applications and other Custom configurations.	
	The MQ12005 certification is a model of excellence for process management. MQ12005 focuses on the following: Quality process control Product conformance Customer satisfaction Employee engagement Waste reduction	
Waste reduction		
wastegate	The ECM determines the injection timing, the amount of fuel that is delivered to the cylinders and the intake manifold pressure if an electronically controlled wastegate is installed on the turbocharger.[KPNR5342-05.rtf]	A valve which regulates turbocharger boost pressure and enables the operator to adjust the inlet manifold air pressure.
wastegate actuator	If any mechanical fault exists, except for the wastegate actuator (if equipped) , then the turbocharger must be replaced.[KPNR5342-05.rtf]	

Water Brake		A device for engine testing in which the power is dissipated by churning water.
water director	Coolant flows around the cylinder liners, through the water directors and into the cylinder head.; The water directors send the flow of coolant around the valves and the passages for exhaust gases in the cylinder head.	
water jacket	The manifold disperses the coolant to water jackets around the cylinder walls.	
Water Loop		The test cell water piping is plumbed to allow flow and temperature control to the evaporator, measured in tons.
water pump	If the water pump is heated up to 80 °C176 °F, the components can be easily removed.[KPNR8106-01.rtf]	
water pump housing	Use a suitable press and Tooling C in order to remove shaft assembly 3 from water pump housing 4.[KPNR8106-01.rtf]	
Water quench		Water quenching is rapidly cooling a hot metal part in a bath of water.
Water regulator	1 Water regulator.	
water separator	The primary filter/water separator is located between the fuel tank and the priming pump.[KPNR6741-05.rtf]	
water separator bowl	Remove the water separator bowl and seal from the filter element and discard the used filter.	
Water Spray System	Water Spray System	
Water Tank	Large Capacity Water Tank	
water temperature regulator	If necessary, install the water temperature regulator.[KPNR8106-01.rtf]	
water temperature regulator housing	Connect hose 78 to the water temperature regulator housing.	
water temperature sensor	Install the O-ring seal onto water temperature sensor 2.[KPNR8106-01.rtf]	
Water Vapor Pressure		The partial pressure of the water vapor in the combustion air being supplied to an engine.
Water-Cooled Condenser		Heat exchanger which is designed to transfer heat from hot gaseous refrigerant to water. Condensing unit which is cooled through use of water.
water-jet cutting machine		The force of a water jet acts like a saw and cuts a narrow groove into the material.
Water-Steam Circuit		Piping to direct the flow of steam.

Watt-Hour Demand Meter		Similar to a watt-hour meter except that it also provides an indication of the highest kW load level achieved during operation.
Watt-Hour Meter		A recording device that totals the average power (kW) passing through it in a period of time. The reading is kilowatt hours — a measure of the total energy consumed by the load.
Weakest link		The weakest link is the area of a part that carries the highest load or that contains an unusual or abnormal stress raiser.
wear area		Unintentional deterioration resulting from use. It can happen due to environmental factors as well
Wear environment		Wear environment is the set of conditions that allow or promote a particular type of wear.
wear scar diameter	The maximum allowable wear scar diameter using the ASTM D6079 test method is 460 mm at 60°C (140°F). If it is necessary to remove wear sleeve 4 from crankshaft pulley 3, use a suitable hammer and a suitable chisel.[KPNR8106-01.rtf]	
wear sleeve		
Wear Testing		Wear is due to several unrelated actions such as cutting, abrasion, corrosion, galling, and fatigue. In wear testing, first the type of wear developed in service is determined, then suitable laboratory equipment is developed for the test, duplicating serv
Weather Protective		A type of enclosure often used for generator sets to prevent damage from natural elements.
weighted root mean square acceleration	The hands and arms are exposed to a weighted root mean square acceleration that is 2.1 m/s ² .	
weld	When you weld use the appropriate protective equipment that is required by the job conditions.	to unite (metallic parts) by heating and allowing the metals to flow together
Weld metal		Weld metal is the electrode and base metal that was melted while welding was taking place. Together they form the weld bead.
Weld Process Module		The current Caterpillar process planning application for weldment process documentation.
Welded fabrication		See Weldment.
welding	Proper welding procedures are necessary in order to avoid damage to the engine's electronic control module, to sensors, and to associated components.[KPNR5342-05.rtf]	to unite (metallic parts) by heating and allowing the metals to flow together
Welding Helmet		The welding helmet protects the face from sparks and radiation as well as protecting the eyes from dangerous infrared and ultraviolet light.

Welding machinery		Welding machines cover devices used in a wide array of joining processes including arc welding (MIG, TIG, stick, submerged arc), resistance welding, laser welding, electron beam welding, stud welding orbital welding, wave soldering, hot dip brazing, torch
welding positioners and manipulator		Welding positioners and manipulators include tube and circumferential welder, turning roll and rotator, weld manipulator, positioner and turntable, longitudinal seamer, robotic positioning station, and head and tail stock type positioners and manipulators
Welding Power Supply		Provides the power and controls for voltage and wire-feed speed.
Welding Robot		Automates welding.
Welding screens		Protective screens, made of a polyvinyl chloride plastic film, used to protect nearby workers from exposure to the UV light from the electric arc.
Weldments	A furnace designed for safety includes heavy duty weldments	
Wet Bulb		An instrument with a sensitive element which measures ambient (moving) air temperature. Device used in the measurement of relative humidity. Evaporation of moisture lowers temperature of wet bulb compared to dry bulb temperature in the same area.
wet disc brake	The pressure of the oil causes the wet disc brakes that are enclosed in each axle to engage.	
Wet Methods	Wet Methods reduce dust generation.	
Wet Sleeve		A cylinder sleeve which is about 70 percent exposed to the coolant.
Wheel Dozer	Wheel Dozer	
wheel hub	The drain/fill plug for the final drive is located on the wheel hub.	
Wheel Loader	Wheel Loader; Compact Wheel Loader	
Wheel Skidder	Wheel Skidder	
wheel Tractor-Scraper	Wheel Tractor-Scraper	
Wheeling		The use of the transmission facilities of one system to transmit power for another system.
White Smoke		The emission caused by vaporized but unburned fuel passing through an engine; usually occurs during startup of a cold engine.
Whole Piece Heat Treat	Whole Piece Heat Treat- Processes that Heat Treat the whole piece part, including Carburizing, Nitriding, and Direct Hardening	

Widefield stereomicroscope		A widefield stereomicroscope is a binocular (two eyepieces) microscope designed to observe the surfaces of parts using reflected light.
wiggle test	If applicable, perform a wiggle test by using Cat ET in order to identify intermittent connections.[KPNR5342-05.rtf]	
WinFlash	Select WinFlash from the Utilities menu of the electronic service tool.[KPNR5342-05.rtf]	
winter fronts	The use of winter fronts or shutters is discouraged with air-to-air aftercooled systems.; Winter fronts can only be used on certain truck models.	
wiper motor cover	Remove the wiper motor cover under the monitor, as shown in illustration .	
wire	Measure the voltage between the wire for the supply voltage that was removed from the air inlet heater and the chassis ground.[KPNR5342-05.rtf]	a pliable metallic strand;DO NOT USE 'wire' alone to mean 'a metal filament for electrical connection' (use a specific phrase
wire guided automatic guided vehicle		An Automatic Guided Vehicle, or AGV consists of a computer controlled wheel based load carrier that runs on the plant floor in a defined path defined by the buried wires.
wire jumper	Install a wire jumper between the jumper wire for the fuel rail pump solenoid and the jumper wire for the solenoid return.[KPNR5342-05.rtf]	
wiring harness	Check the wiring harnesses for abrasion, for corrosion and for pinch points.[KPNR5342-05.rtf]	
wiring harness connector	Refer to the Electrical System Schematic for this machine and check all involved wiring harness connectors and wiring.	
Withdrawal Kanban		A signal that specifies the kind and quantity of product that the downstream process (customer) may withdraw.
Withstand Rating		The maximum current of an automatic transfer switch on a generator set in a fault condition when the switch is closed and on normal service. The ATS is required to withstand the energy let through the normal service protective device while that device int
woodruff key	Remove woodruff key 2 from crankshaft 1.; Position woodruff key 2 in crankshaft 1.	
woody		A woody fracture surface is rough and dark and has a somewhat fibrous appearance.

Woody ductile fracture		Woody ductile fracture is a type of ductile fracture that occurs along flow lines in a part and results in a rough, woody surface texture with the grain flow clearly exposed.
Woody fracture		Woody fracture is a type of ductile fracture that occurs when loads are applied to a part in such a way that fracture can occur along the natural grain flow lines in the part.
Work Area Vision System	Work Area Vision System (WAVS) 25	
Work hardening		Work hardening is an increase in hardness and strength caused by plastically deforming metal at temperatures below the recrystallization range.
work load pressure	The work load pressure from the head end of the boom cylinders and the force of spring 3 now acts on load check valve 4.	
work tool	For this system, parameters that are not shown in the tables do not affect operation of the work tool.[RPNR7389-09.rtf]	
work tool circuit	When the clench pressure circuit is activated in order to grip an object, the hydraulic pressure for the work tool circuit increases to the line relief setting.[RPNR7389-09.rtf]	
Work Tool Coupler	Work Tool Coupler (7)	
work tool cylinder	The pilot pressure is reduced to the value of parameter F2 DERATE MAX PRES before the hydraulic pressure on the head end of the work tool cylinder reaches the value of parameter F2 SQEZ END PRES.[RPNR7389-09.rtf]	
Work Tool Positioner Control	24Work Tool Positioner Control	
work tool solenoid valve	When the hydraulic activation lever is moved to the UNLOCK position, pilot oil flows from pilot manifold 13 to work tool solenoid valve 1.[RPNR7389-09.rtf]	
working load limit	The working load limit (WLL) is stamped on each tool.	
working pressure	The working pressure for the work tool is controlled by relief valves 4 and 5.[RPNR7389-09.rtf]	
Work-In-Process		Any inventory between raw material and finished goods.
Worktool Positioner Control	Tilt Position Sensor and Mounting (Worktool Positioner Control) - Remove and Install	

Worldwide Code of Conduct		The Worldwide Code of Conduct is the most important document produced at Caterpillar. It is used as a daily guide for putting our values in action. It explains what integrity, excellence, teamwork, and commitment mean to us how we use these values to ma
worm drive band type clamp wrench	Ensure that the constant torque hose clamp is the same size as the worm drive band type clamp.	Device used for tightening adapter, bolts, fasteners, nuts, etc.
Wrist Pin		The journal for the bearing in the small end of an engine connecting rod which also passes through piston walls. Also known as a piston pin.
wrist rest	Pull the knob 28 in order to adjust the height of the wrist rest.	
wrought		Wrought is a material designation that refers to material that has been shaped by heating and plastic deformation.
Wrought metal		Wrought metal is metal that has been shaped by heating and mechanically forming by processes such as rolling, forging, extruding or drawing.
Wye Connection		A means of connecting generator windings with the option of using the neutral connection.
yaw roller	Once the pitch rollers are set correctly, It is necessary to set the yaw rollers on either side of the body.	
Yielding		Yielding is a change is shape that is evidence of plastic deformation in structural materials.
Yoke		Device used to induce current into a part for defect detection.
yoke assembly	Yoke assembly 7 is connected to the short drive shaft that is connected to the rear differential.; Yoke assembly 8 is connected to the drive shaft.	
yoke retainer	Remove bolt 15 and yoke retainer 16 from the output shaft.; Install yoke retainer 16 and bolt 15 on the output shaft.	
Z-Bar	Box-section main frame is designed to handle heavy loads, while Z-Bar linkage maximizes breakout force.	
Zener Diode		A diode that allows current to flow in reverse bias at the designed voltage.
Zero Breakdowns	Caterpillar's policy to avoid accidents.	

Zero Goal

Central to Caterpillar's Vision 2020 is the realization of its Vision Zero goals. The Zero concept is about reducing the occurrence of defects, injuries, and breakdowns to zero.

Total Productive Maintenance (TPM) is crucial to the fulfillment of zero goal

zero-defect culture

Caterpillar's supply base understands, supports, and completely adheres to Caterpillar's zero-defect culture.

Diesel Engines		Machinery		Machinery	
Akasaka	Baudouin	Akerman	Ammann	Kleeman	Kobelco
BMW	Bukh	Astra	Atlas Copco	Komatsu	Kramer
Caterpillar	CHN 25/34	Atlas Weyha.	Atlet	Kubota	Lamborghini
Cummins	Daihatsu	Bell	Bendi	Landini	Liebherr
Detroit	Deutz	Bigjoe	Bobcat	Linde	Link-belt
Doosan-Daewoo	Fiat	Bomag	BT	Manitou	Massey-Ferg.
Ford	GE	Carelift	Case	Mccormick	MDI-Yutani
Grenaa	Guascor	Caterpillar	Cesab	Mitsubishi	Moxy
Hanshin	Hatz	Challenger	Champion	Mustang	Neusson
Hino	Honda	Claas	Clark	New-Holland	Nichiyu
Hyundai	Isotta	Combilift	Crown	Nissan	OK
Isuzu	Iveco	Daewoo-Doosan	Demag	OM-Pimespo	others-tech
John-Deere	Kelvin	Deutz-Fahr	Dressta	Pel-Job	PH-mining
Kioti	Komatsu	Drott	Dynapack	Poclain	Powerscreen
Kubota	Liebherr	Extec	Faun	Same	Samsung
Lister	Lombardini	Fendt	Fiat	Sandvik	Scania
MAK	MAN B&W	Fiatallis	Flexicoil	Schaefer	Schramm
Mercedes	Mercuriser	Furukawa	Gehl	Sennebogen	Shangli
Mirrlees BS	Mitsubishi	Genie	Grove-gmk	Shibaura	Steiger
MTU	MWM	Halla	Hamm	Steinbock	Steyr
Niigata	Paxman	Hangcha	Hanix	Still	Sumitomo
Perkins	Pielstick	Hanomag	Hartl	Super-pac	Tadano
Rolls / Bergen	Ruggerini	Haulpack	Hiab	Takeuchi	TCM
Ruston	Scania	Hidromek	Hino truck	Terex	Toyota
Shibaura	Sisu-Valmet	Hitachi	Hyster	Valpadana	Venieri
SKL	Smit-Bolnes	Hyundai	IHI	Versatile	Vogele
Sole	Stork	Ingersoll-rand	JCB	Volvo	Weidemann
VM-Motori	Volvo	JLG	John-Deere	Wirtgen	Yale
Volvo Penta	Westerbeke	Jungheinrich	Kalmar	YAM	Yanmar
Wichmann	Yanmar	Kato	Kioti		