



Operation and Maintenance Manual

432D and 442D Backhoe Loaders

S/N: BRG1-UP

Operation and Maintenance Manual

432D and 442D Backhoe Loaders

Media Number -SEBU7401-02

Publication Date -01/06/2006

Date Updated -28/06/2006

s00037320

Foreword

SMCS - 7310; 7340

Literature Information

This manual should be stored in the operator's compartment in the literature holder or seat back literature storage area.

This manual contains safety information, operation instructions, transportation information, lubrication information and maintenance information.

Some photographs or illustrations in this publication show details or attachments that can be different from your machine. Guards and covers might have been removed for illustrative purposes.

Continuing improvement and advancement of product design might have caused changes to your machine which are not included in this publication. Read, study and keep this manual with the machine.

Whenever a question arises regarding your machine, or this publication, please consult your Cat dealer for the latest available information.

Safety

The safety section lists basic safety precautions. In addition, this section identifies the text and locations of warning signs and labels used on the machine.

Read and understand the basic precautions listed in the safety section before operating or performing lubrication, maintenance and repair on this machine.

Operation

The operation section is a reference for the new operator and a refresher for the experienced operator. This section includes a discussion of gauges, switches, machine controls, attachment controls, transportation and towing information.

Photographs and illustrations guide the operator through correct procedures of checking, starting, operating and stopping the machine.

Operating techniques outlined in this publication are basic. Skill and techniques develop as the operator gains knowledge of the machine and its capabilities.

Maintenance

The maintenance section is a guide to equipment care. The Maintenance Interval Schedule (MIS) lists the items to be maintained at a specific service interval. Items without specific intervals are listed under the "When Required" service interval. The Maintenance Interval Schedule lists the page number for the step-by-step instructions required to accomplish the scheduled maintenance. Use the Maintenance Interval Schedule as an index or "one safe source" for all maintenance procedures.

Maintenance Intervals

Use the service hour meter to determine servicing intervals. Calendar intervals shown (daily, weekly, monthly, etc.) can be used instead of service hour meter intervals if they provide more convenient servicing schedules and approximate the indicated service hour meter reading. Recommended service should always be performed at the interval that occurs first.

Under extremely severe, dusty or wet operating conditions, more frequent lubrication than is specified in the maintenance intervals chart might be necessary.

Perform service on items at multiples of the original requirement. For example, at every 500 service hours or 3 months, also service those items listed under every 250 service hours or monthly and every 10 service hours or daily.

California Proposition 65 Warning

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects, and other reproductive harm.

Battery posts, terminals and related accessories contain lead and lead compounds. **Wash hands after handling.**

Certified Engine Maintenance

Proper maintenance and repair is essential to keep the engine and machine systems operating correctly. As the heavy duty off-road diesel engine owner, you are responsible for the performance of the required maintenance listed in the Owner Manual, Operation and Maintenance Manual, and Service Manual.

It is prohibited for any person engaged in the business of repairing, servicing, selling, leasing, or trading engines or machines to remove, alter, or render inoperative any emission related device or element of design installed on or in an engine or machine that is in compliance with the regulations (40 CFR Part 89). Certain elements of the machine and engine such as the exhaust system, fuel system, electrical system, intake air system and cooling system may be emission related and should not be altered unless approved by Caterpillar.

Machine Capacity

Additional attachments or modifications may exceed machine design capacity which can adversely affect performance characteristics. Included would be stability and system certifications such as brakes, steering, and rollover protective structures (ROPS). Contact your Cat dealer for further information.

Cat Product Identification Number

Effective First Quarter 2001 the Cat Product Identification Number (PIN) has changed from 8 to 17

characters. In an effort to provide uniform equipment identification, Caterpillar and other construction equipment manufacturers are moving to comply with the latest version of the product identification numbering standard. Non-road machine PINs are defined by ISO 10261. The new PIN format will apply to all Cat machines and generator sets. The PIN plates and frame marking will display the 17 character PIN. The new format will look like the following:

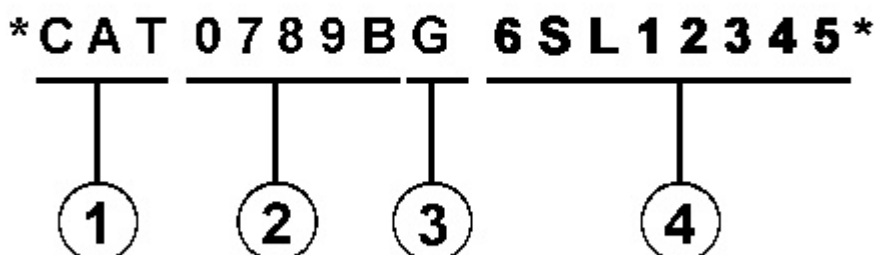


Illustration 1

g00751314

Where:

1. Caterpillar's World Manufacturing Code (characters 1-3)
2. Machine Descriptor (characters 4-8)
3. Check Character (character 9)
4. Machine Indicator Section (MIS) or Product Sequence Number (characters 10-17). These were previously referred to as the Serial Number.

Machines and generator sets produced before First Quarter 2001 will maintain their 8 character PIN format.

Components such as engines, transmissions, axles, etc. and work tools will continue to use an 8 character Serial Number (S/N).

Operation and Maintenance Manual

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i01896575

Safety Messages

SMCS - 7000; 7405

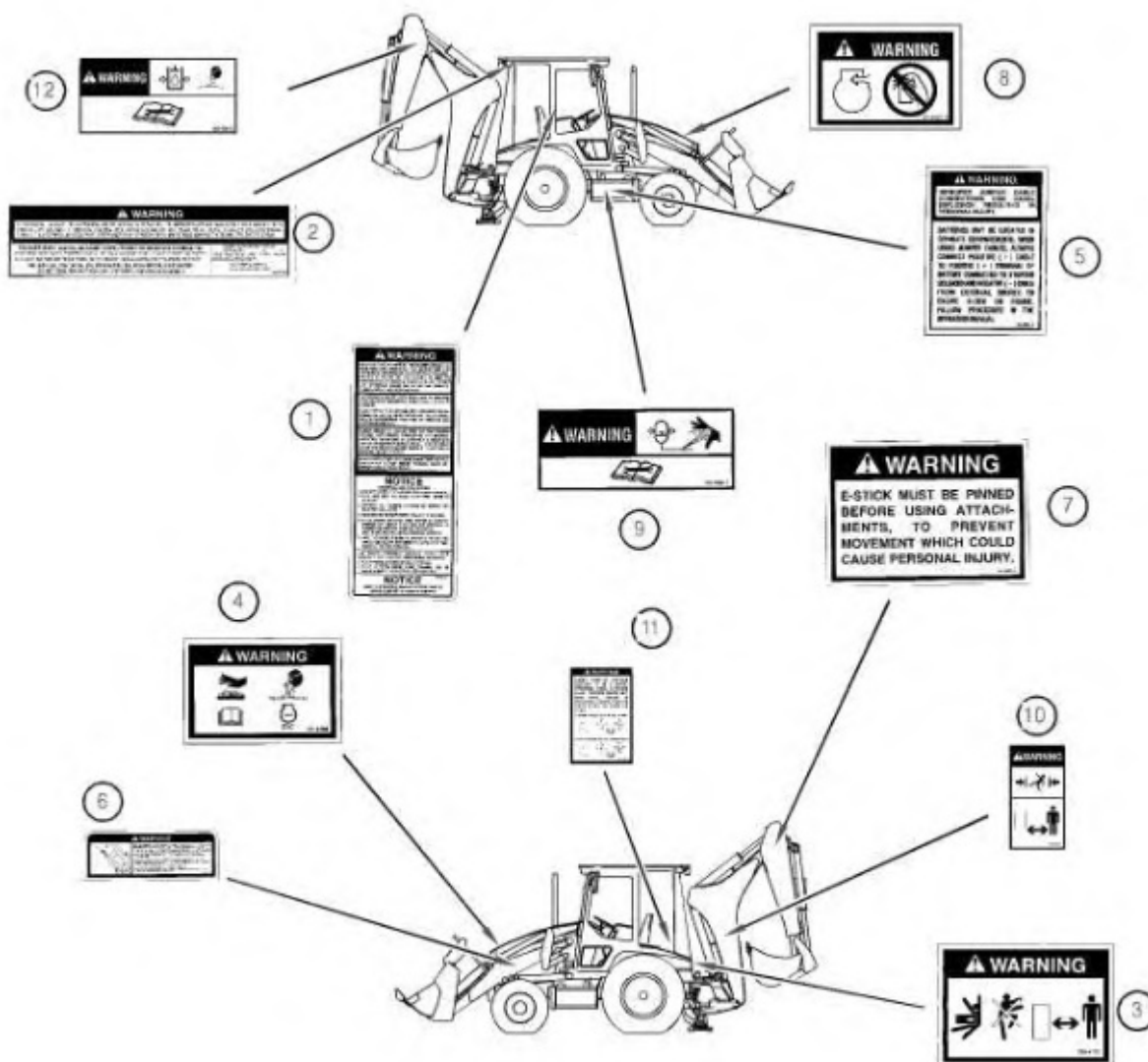


Illustration 2

g01012857

There are several specific safety messages on this machine. The exact location of the hazards and the

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i01897291

Daily Inspection

SMCS - 7000

NOTICE

Accumulated grease and oil on a machine is a fire hazard. Remove this debris with steam cleaning or high pressure water, at least every 1000 hours or each time any significant quantity of oil is spilled on a machine.

Note: For maximum service life of the machine, make a thorough walk-around inspection before you operate the machine. Inspect the machine for leaks. Remove any debris from the engine compartment and the undercarriage. Ensure that all guards, covers, and caps are secured. Inspect all hoses and belts for damage. Make the needed repairs before you operate the machine.

Perform the following procedures on a daily basis.

- Operation and Maintenance Manual, "Backhoe Boom, Stick, Bucket, and Cylinder Bearings - Lubricate"
- Operation and Maintenance Manual, "Backup Alarm - Test"
- Operation and Maintenance Manual, "Brake Reservoir Oil Level - Check"
- Operation and Maintenance Manual, "Braking System - Test"
- Operation and Maintenance Manual, "Cooling System Level - Check"
- Operation and Maintenance Manual, "Engine Air Filter Service Indicator - Inspect"
- Operation and Maintenance Manual, "Engine Oil Level - Check"
- Operation and Maintenance Manual, "Fuel System Water Separator - Drain"
- Operation and Maintenance Manual, "Hydraulic System Oil Level - Check"
- Operation and Maintenance Manual, "Loader Bucket, Cylinder, and Linkage Bearings - Lubricate"
- Operation and Maintenance Manual, "Seat Belt - Inspect"
- Operation and Maintenance Manual, "Tire Inflation - Check"

- Operation and Maintenance Manual, "Transmission Oil Level - Check"
- Operation and Maintenance Manual, "Wheel Nut Torque - Check"

Refer to the Maintenance Section for the detailed procedures. Refer to the Maintenance Interval Schedule for a complete list of scheduled maintenance.

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Operator Station

SMCS - 7300; 7301; 7451

The following information briefly identifies the components of the cab. More information on the operation of each item is covered separately in this manual.

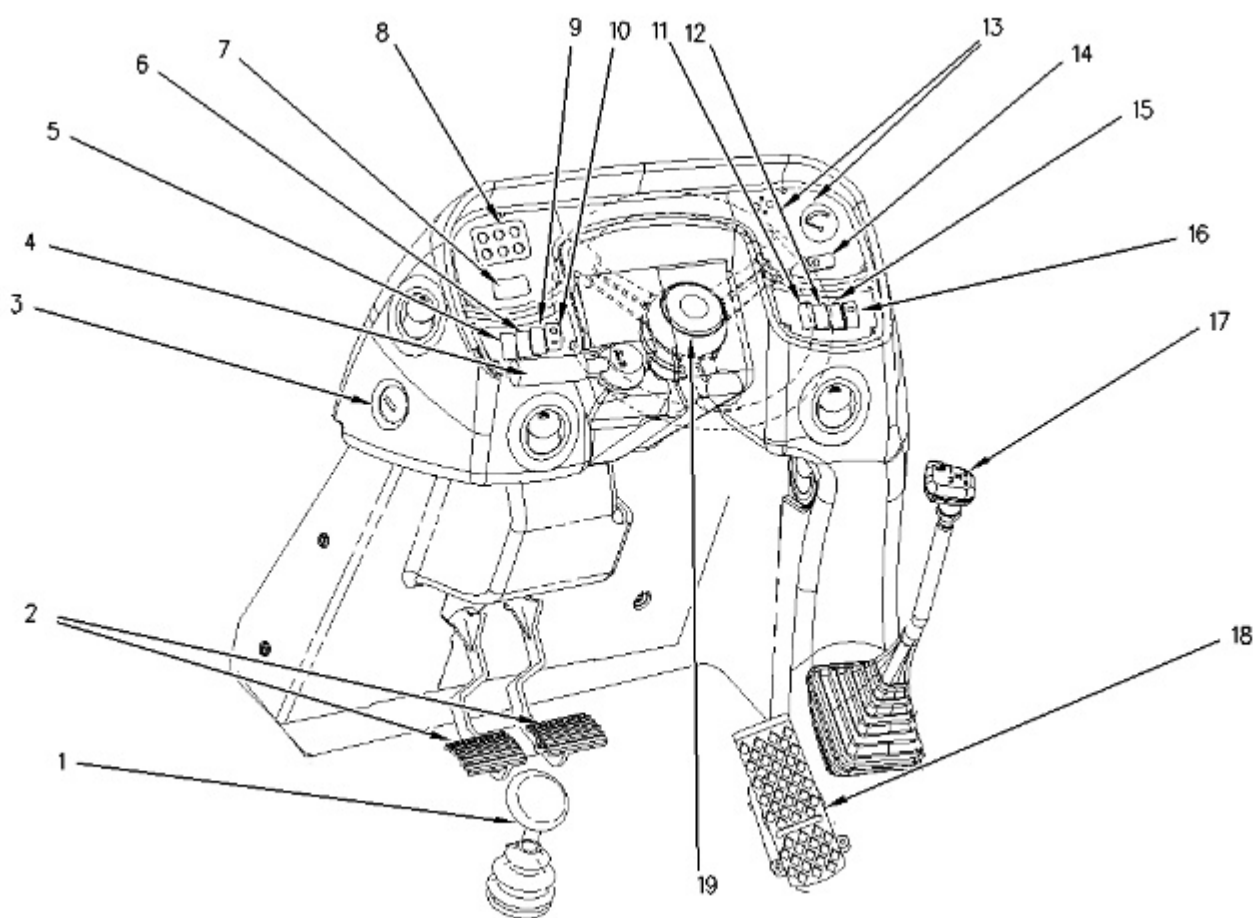


Illustration 1

g00935155

- (1) Differential Lock Control
- (2) Service Brakes
- (3) Hour Meter
- (4) Transmission Direction Control
- (5) Quick Coupler Control
- (6) Auxiliary Circuit Control (Momentary Switch)
- (7) All Wheel Drive Control

Operation and Maintenance Manual

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i01437551

Wheel Nut Torque - Check

SMCS - 4051; 4199; 4200

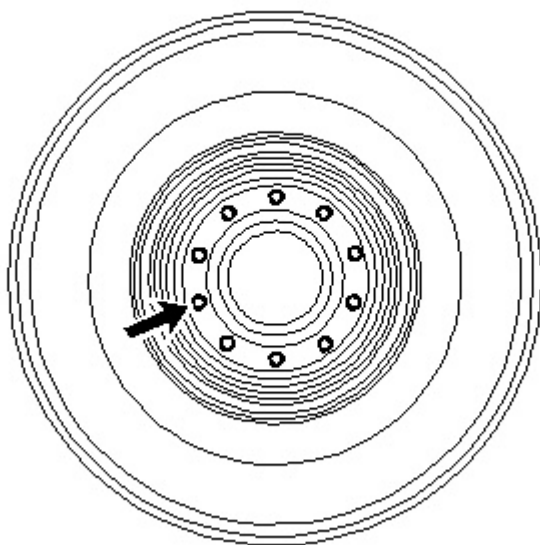


Illustration 1

g00102965

Check the torque on new wheels or repaired wheels after every ten service hours until the specified torque is maintained.

Put a drop of oil on all wheel studs on reassembly.

Torque the nuts to 400 ± 40 N·m (295 ± 30 lb ft). Use a star pattern when you torque the nuts.

Check the nuts on all four wheels.

Diesel Engines

ABS	Agco-Sisu
Akasaka	Baudouin
BMW	Bukh
Caterpillar	CHN 25/34
Cummins	Daihatsu
Detroit	Deutz
Doosan-Daewoo	Fiat
Ford	GE
Grenaa	Guascor
Hanshin	Hatz
Hino	Honda
Hyundai	Isotta
Isuzu	Iveco
John-Deere	Kelvin
Kioti	Komatsu
Kubota	Liebherr
Lister	Lombardini
MAK	MAN B&W
Mercedes	Mercruiser
Mirrlees BS	Mitsubishi
MTU	MWM
Niigata	Paxman
Perkins	Pielstick
Rolls / Bergen	Ruggerini
Ruston	Scania
Shibaura	Sisu-Valmet
SKL	Smit-Bolnes
Sole	Stork
VM-Motori	Volvo
Volvo Penta	Westerbeke
Wichmann	Yanmar

Machinery

ABG	Airman
Akerman	Ammann
Astra	Atlas Copco
Atlas Weyha.	Atlet
Bell	Bendi
Bigjoe	Bobcat
Bomag	BT
Carelift	Case
Caterpillar	Cesab
Challenger	Champion
Claas	Clark
Combilift	Crown
Daewoo-Doosan	Demag
Deutz-Fahr	Dressta

Machinery

Drott	Dynapack
Extec	Faun
Fendt	Fiat
Fiatallis	Flexicoil
Furukawa	Gehl
Genie	Grove-gmk
Halla	Hamm
Hangcha	Hanix
Hanomag	Hartl
Haulpack	Hiab
Hidromek	Hino truck
Hitachi	Hyster
Hyundai	IHI
Ingersoll-rand	JCB
JLG	John-Deere
Jungheinrich	Kalmar
Kato	Kioti
Kleeman	Kobelco
Komatsu	Kramer
Kubota	Lamborghini
Landini	Liebherr
Linde	Link-belt
Manitou	Massey-Ferg.
Mccormick	MDI-Yutani
Mitsubishi	Moxy
Mustang	Neusson
New-Holland	Nichiyu
Nissan	OK
OM-Pimespo	others-tech
Pel-Job	PH-mining
Poclain	Powerscreen
Same	Samsung
Sandvik	Scania
Schaefer	Schramm
Sennebogen	Shangli
Shibaura	Steiger
Steinbock	Steyr
Still	Sumitomo
Super-pac	Tadano
Takeuchi	TCM
Terex	Toyota
Valpadana	Venieri
Versatile	Vogele
Volvo	Weidemann
Wirtgen	Yale
YAM	Yanmar



Operation and Maintenance Manual

**259D, 279D, 289D, 299D and 299D XHP Compact
Track Loaders, 257D, 277D and 287D Multi Terrain
Loaders and 236D, 242D, 246D, 262D, 272D and
272D XHP Skid Steer Loaders**

S/N: BGZ00001-UP (MACHINE)



Operation and Maintenance Manual

259D, 279D, 289D, 299D and 299D XHP Compact Track Loaders, 257D, 277D and 287D Multi Terrain Loaders and 236D, 242D, 246D, 262D, 272D and 272D XHP Skid Steer Loaders

Media Number -SEBU9084-00

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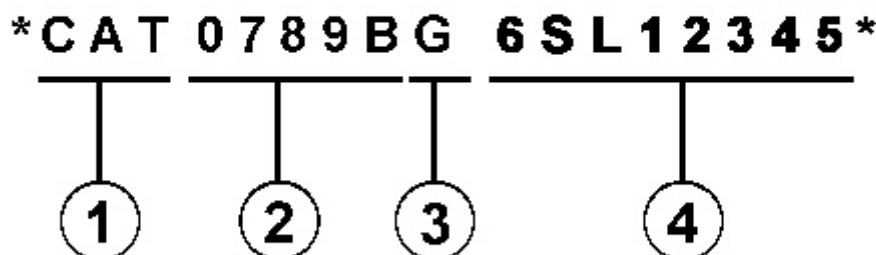


Illustration 1

g00751314

Where:

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i05039072

Safety Messages

SMCS - 7000; 7405

There are several specific safety messages on this machine. The exact location of the hazards and the description of the hazards are reviewed in this section. Be familiar with all safety messages.

Make sure that all of the safety messages are legible. Clean the safety messages or replace the safety messages if you cannot read the words. Replace the illustrations if the illustrations are not legible. When you clean the safety messages, use a cloth, water, and soap. Do not use solvent, gasoline, or other harsh chemicals to clean the safety messages. Solvents, gasoline, or harsh chemicals could loosen the adhesive that secures the safety message. Loose adhesive will allow the safety message to fall.

Replace any safety message that is damaged, or missing. If a safety message is attached to a part that is replaced, install a safety message on the replacement part. Any Cat dealer can provide new safety messages.

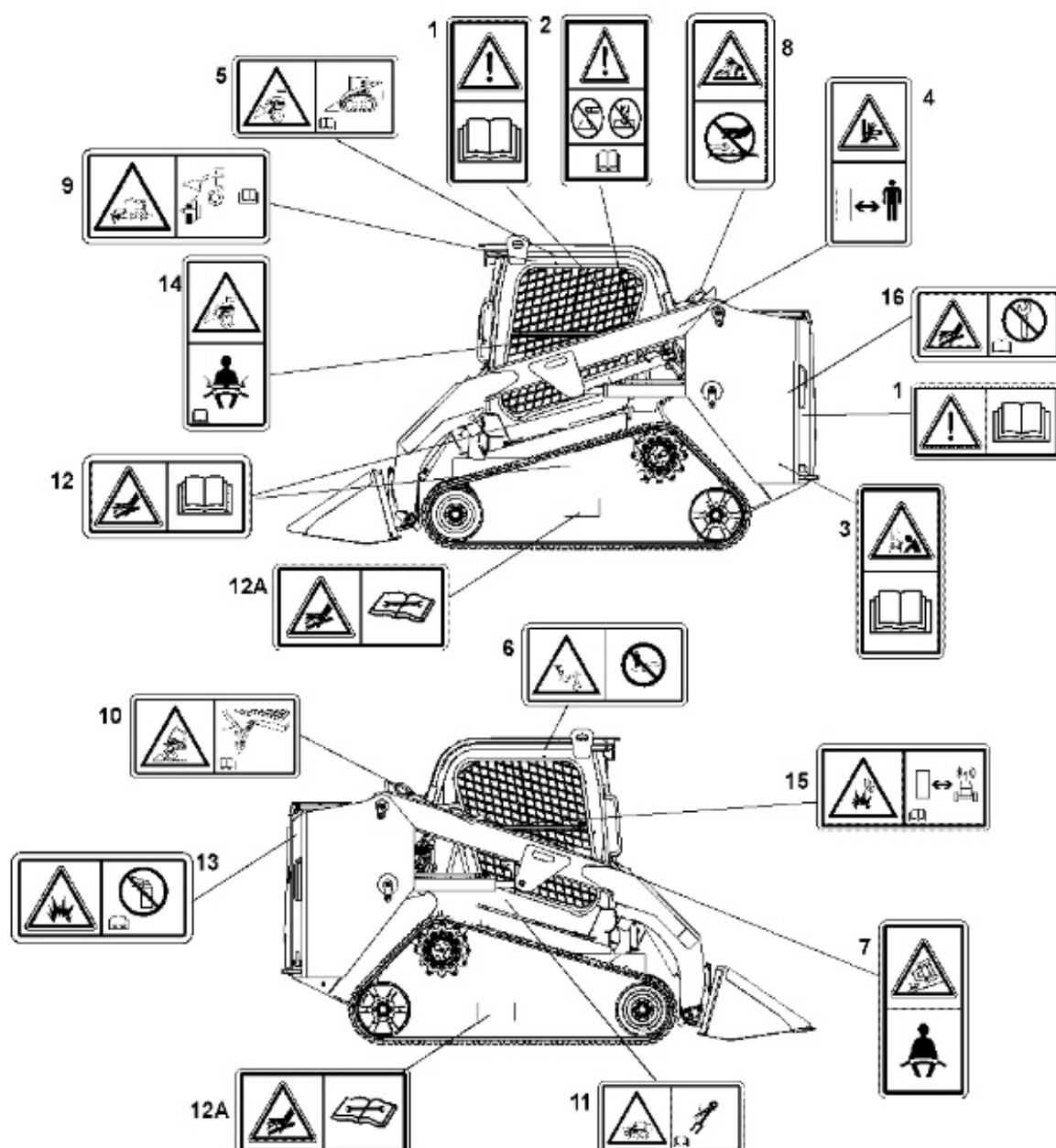


Illustration 1

g03209697

- (1) Do Not Operate.
- (2) Rollover Protective Structure/Falling Object Protective Structure
- (3) Jump Starting
- (4) Crushing Hazard
- (5) Stay Inside Operator Station
- (6) Never Permit Riders.
- (7) Seat Belt
- (8) Pressurized System
- (9) Work Tool Coupler
- (10) Cab Support



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i05187701

Cab Tilting

SMCS - 7301-506; 7301-509



WARNING

Do not go beneath cab unless cab is empty and support lever is engaged.

Failure to follow the instructions or heed the warnings could result in injury or death.



WARNING

Do not tilt the cab using an open door. The door must be closed and latched when lifting the cab. The door may become dislodged from its hinges and may cause serious personal injury or death.

Tilting the Cab Upward

1. Park the machine on level ground.

Note: Empty the water tank (if equipped) before you tilt the cab.

2. Lower the loader arms fully. If you tilt the cab upward with the loader lift arms in the RAISED position, engage the brace for the loader lift arms. See Operation and Maintenance

Manual, "Loader Lift Arm Brace Operation" for the process for engaging the brace for the loader lift arms.

3. Turn the engine start switch key to the OFF position.
4. Remove the two front bolts for the ROPS. There is one bolt on each side of the cab under the lift arm.
5. Close the cab door and ensure that the door is latched.
6. Tilt the cab upward. Stand on the ground when you tilt the cab.

Note: More than one person may be needed to tilt the cab.

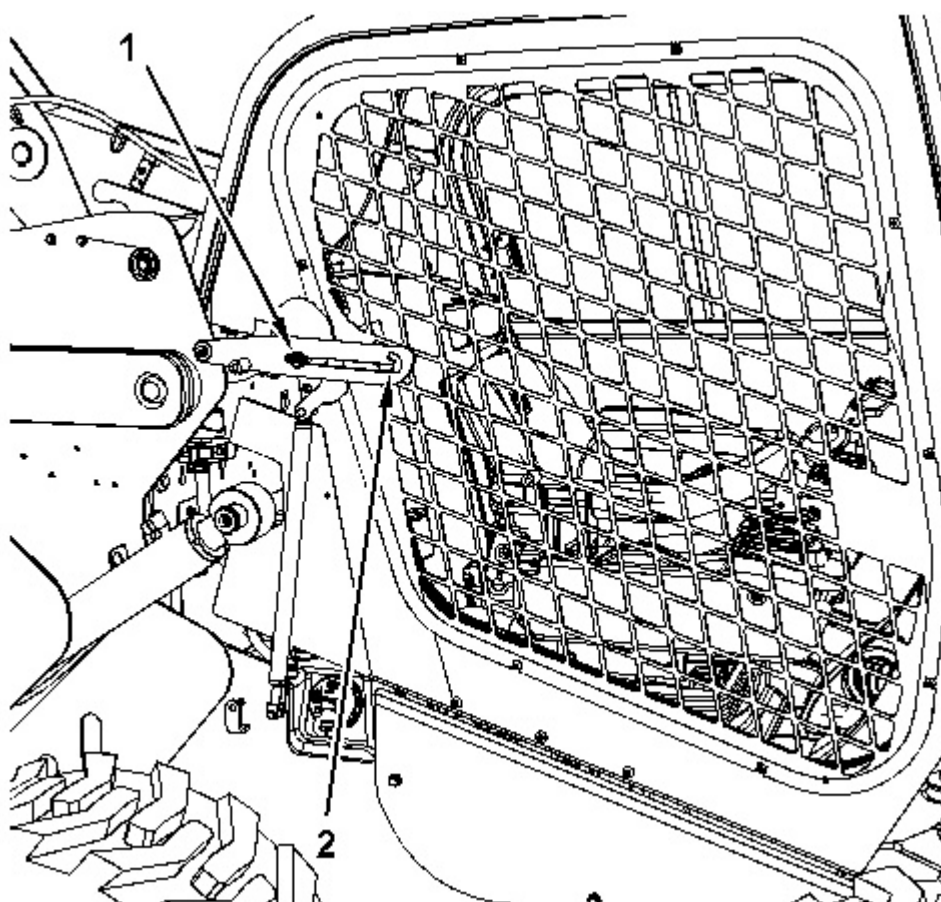


Illustration 1

g02625112

Cab support lever. For clarity the lift arm is not shown.

(1) Unlocked

(2) Locked

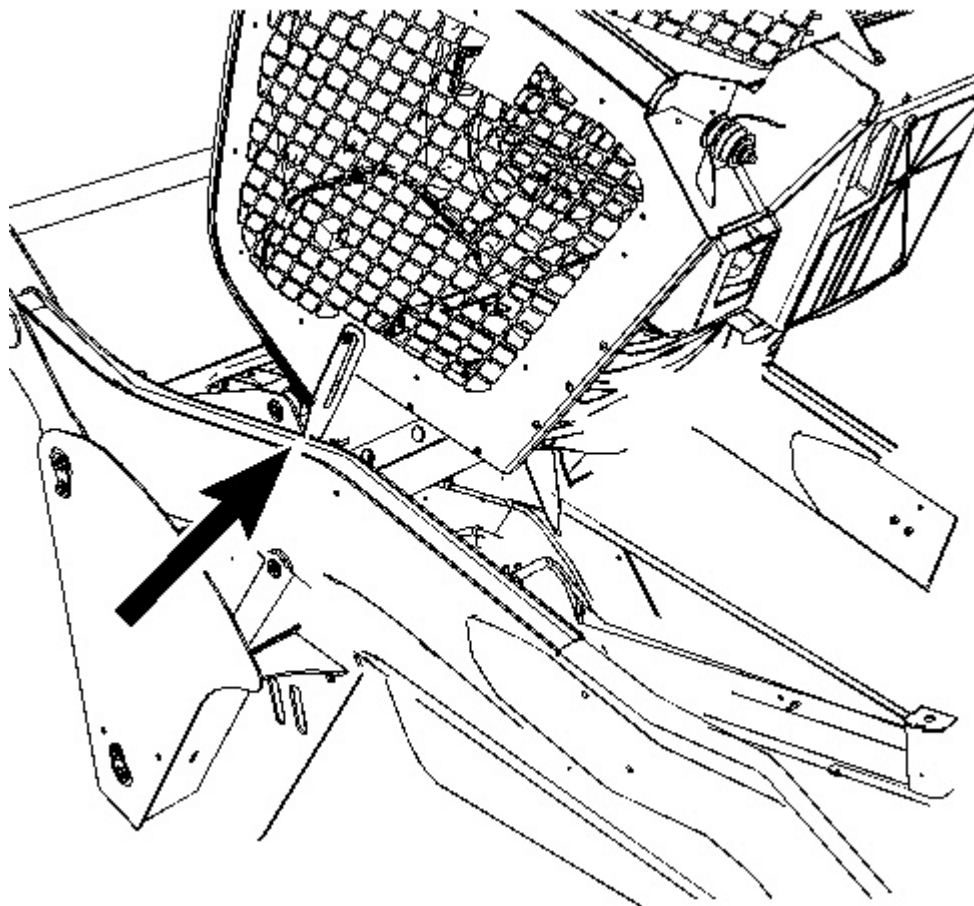


Illustration 2

g02641677

7. The cab support lever is on the right side of the machine. As the cab raises, the locking lever will slide into the LOCKED position. Ensure that the cab support lever is in the LOCKED position.

Tilting the Cab Downward

Note: More than one person may be needed to tilt the cab.

1. Remove the cover from the ventilation ducts.
2. Ensure that no person is under the cab. Remove all of the tools and unsecured items that are underneath the cab.
3. Tilt the cab upward. Move the cab support lever to the UNLOCKED position.
4. Tilt the cab downward.
5. Install the bolts for the ROPS. Torque the bolts to $125 \pm 10 \text{ N}\cdot\text{m}$ ($92 \pm 7 \text{ lb ft}$).



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i03881935

Work Tool Guard and Reflector - Inspect/Replace

SMCS - 6700

Ensure that all safety reflectors are clean. Ensure that all safety reflectors are not damaged. When you clean the safety reflectors, use a cloth, water and soap. Do not use solvent, gasoline, or other harsh chemicals to clean the safety reflectors. Solvents, gasoline, or harsh chemicals could loosen the adhesive that secures the safety reflectors. Loose adhesive will allow the safety reflectors to fall.

Replace any safety reflector or replace any guards that are damaged, or missing. If a safety reflector is attached to a part that is replaced, install a safety reflector on the replacement part. Any Caterpillar dealer can provide new safety reflectors.



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i01809997

Work Tool Mounting Bracket - Inspect

SMCS - 6700-040-BK

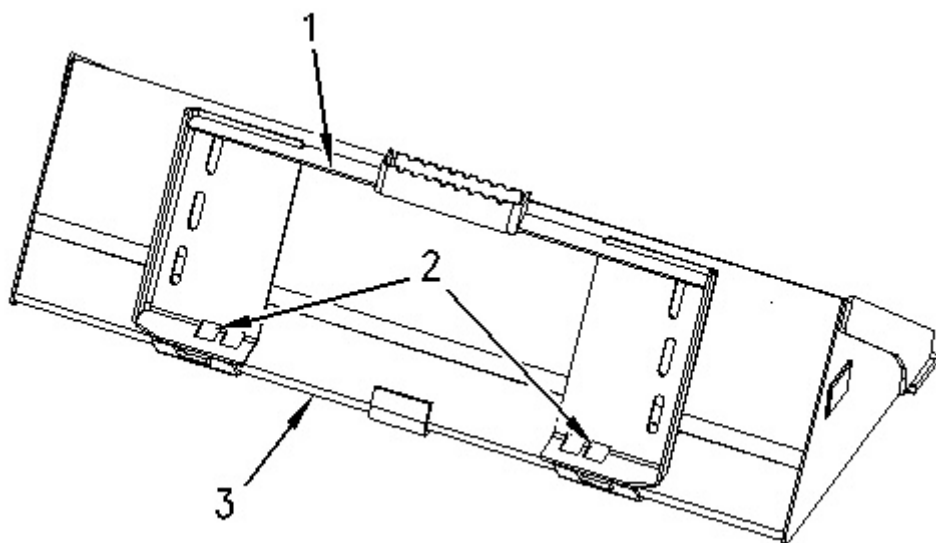


Illustration 1

g00925058

Inspect upper angled plate (1) and ensure that the plate is not bent or otherwise damaged. Inspect holes (2) for wear and for damage. Inspect lower angled plate (3) and ensure that the plate is not bent or otherwise damaged. If any wear is suspected or any damage is suspected, consult your Caterpillar dealer before you use the work tool.

Diesel Engines

ABS	Agco-Sisu
Akasaka	Baudouin
BMW	Bukh
Caterpillar	CHN 25/34
Cummins	Daihatsu
Detroit	Deutz
Doosan-Daewoo	Fiat
Ford	GE
Grenaa	Guascor
Hanshin	Hatz
Hino	Honda
Hyundai	Isotta
Isuzu	Iveco
John-Deere	Kelvin
Kioti	Komatsu
Kubota	Liebherr
Lister	Lombardini
MAK	MAN B&W
Mercedes	Mercruiser
Mirrlees BS	Mitsubishi
MTU	MWM
Niigata	Paxman
Perkins	Pielstick
Rolls / Bergen	Ruggerini
Ruston	Scania
Shibaura	Sisu-Valmet
SKL	Smit-Bolnes
Sole	Stork
VM-Motori	Volvo
Volvo Penta	Westerbeke
Wichmann	Yanmar

Machinery

ABG	Airman
Akerman	Ammann
Astra	Atlas Copco
Atlas Weyha.	Atlet
Bell	Bendi
Bigjoe	Bobcat
Bomag	BT
Carelift	Case
Caterpillar	Cesab
Challenger	Champion
Claas	Clark
Combilift	Crown
Daewoo-Doosan	Demag
Deutz-Fahr	Dressta

Machinery

Drott	Dynapack
Extec	Faun
Fendt	Fiat
Fiatallis	Flexicoil
Furukawa	Gehl
Genie	Grove-gmk
Halla	Hamm
Hangcha	Hanix
Hanomag	Hartl
Haulpack	Hiab
Hidromek	Hino truck
Hitachi	Hyster
Hyundai	IHI
Ingersoll-rand	JCB
JLG	John-Deere
Jungheinrich	Kalmar
Kato	Kioti
Kleeman	Kobelco
Komatsu	Kramer
Kubota	Lamborghini
Landini	Liebherr
Linde	Link-belt
Manitou	Massey-Ferg.
Mccormick	MDI-Yutani
Mitsubishi	Moxy
Mustang	Neusson
New-Holland	Nichiyu
Nissan	OK
OM-Pimespo	others-tech
Pel-Job	PH-mining
Poclain	Powerscreen
Same	Samsung
Sandvik	Scania
Schaefer	Schramm
Sennebogen	Shangli
Shibaura	Steiger
Steinbock	Steyr
Still	Sumitomo
Super-pac	Tadano
Takeuchi	TCM
Terex	Toyota
Valpadana	Venieri
Versatile	Vogele
Volvo	Weidemann
Wirtgen	Yale
YAM	Yanmar



Operation and Maintenance Manual

931C AND 935C SERIES II TRACK-TYPE LOADER

S/N: 2AK1-UP

Operation and Maintenance Manual

931C AND 935C SERIES II TRACK-TYPE LOADER

Media Number -SEBU6349-00

Publication Date -01/09/1990

Date Updated -11/10/2001

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Machine Description

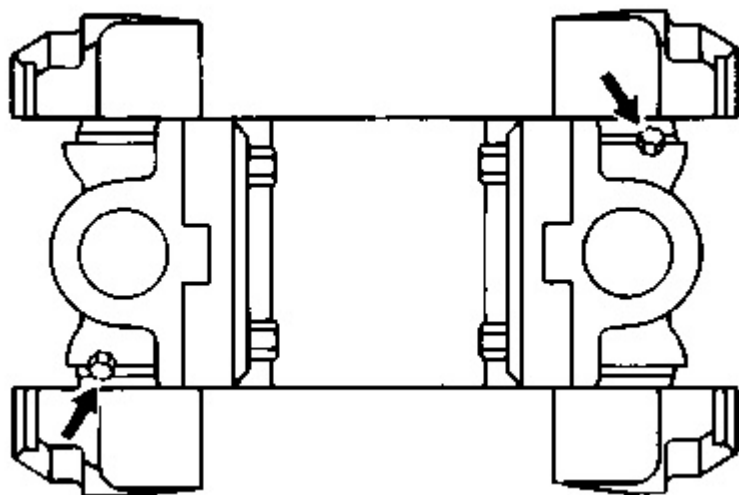


This machine is equipped with a direct-injection 3204 engine. It has a power shift transmission, variable flow hydraulics, and mechanically applied brakes.

This machine is designed primarily for moving and digging material.

Machine Storage

For complete machine storage information refer to Special Instruction SEHS9031, "Storage Procedure for Caterpillar Products."



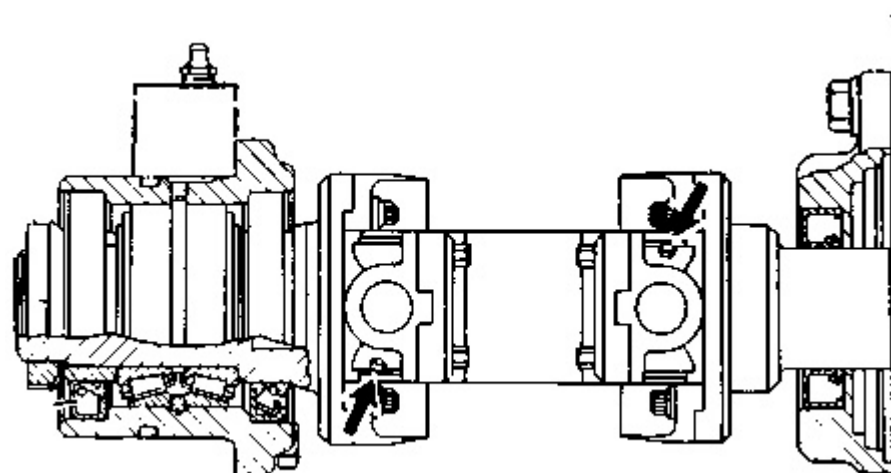
Lubricate 2 fittings.

Power Take-Off U-Joints (If Equipped)

Lubricate Fittings



Remove the floor plate.



Lubricate 2 fittings.

Power Take-Off Bearings (If Equipped)

Lubricate Fitting

Diesel Engines

ABS	Agco-Sisu
Akasaka	Baudouin
BMW	Bukh
Caterpillar	CHN 25/34
Cummins	Daihatsu
Detroit	Deutz
Doosan-Daewoo	Fiat
Ford	GE
Grenaa	Guascor
Hanshin	Hatz
Hino	Honda
Hyundai	Isotta
Isuzu	Iveco
John-Deere	Kelvin
Kioti	Komatsu
Kubota	Liebherr
Lister	Lombardini
MAK	MAN B&W
Mercedes	Mercruiser
Mirrlees BS	Mitsubishi
MTU	MWM
Niigata	Paxman
Perkins	Pielstick
Rolls / Bergen	Ruggerini
Ruston	Scania
Shibaura	Sisu-Valmet
SKL	Smit-Bolnes
Sole	Stork
VM-Motori	Volvo
Volvo Penta	Westerbeke
Wichmann	Yanmar

Machinery

ABG	Airman
Akerman	Ammann
Astra	Atlas Copco
Atlas Weyha.	Atlet
Bell	Bendi
Bigjoe	Bobcat
Bomag	BT
Carelift	Case
Caterpillar	Cesab
Challenger	Champion
Claas	Clark
Combilift	Crown
Daewoo-Doosan	Demag
Deutz-Fahr	Dressta

Machinery

Drott	Dynapack
Extec	Faun
Fendt	Fiat
Fiatallis	Flexicoil
Furukawa	Gehl
Genie	Grove-gmk
Halla	Hamm
Hangcha	Hanix
Hanomag	Hartl
Haulpack	Hiab
Hidromek	Hino truck
Hitachi	Hyster
Hyundai	IHI
Ingersoll-rand	JCB
JLG	John-Deere
Jungheinrich	Kalmar
Kato	Kioti
Kleeman	Kobelco
Komatsu	Kramer
Kubota	Lamborghini
Landini	Liebherr
Linde	Link-belt
Manitou	Massey-Ferg.
Mccormick	MDI-Yutani
Mitsubishi	Moxy
Mustang	Neusson
New-Holland	Nichiyu
Nissan	OK
OM-Pimespo	others-tech
Pel-Job	PH-mining
Poclain	Powerscreen
Same	Samsung
Sandvik	Scania
Schaefer	Schramm
Sennebogen	Shangli
Shibaura	Steiger
Steinbock	Steyr
Still	Sumitomo
Super-pac	Tadano
Takeuchi	TCM
Terex	Toyota
Valpadana	Venieri
Versatile	Vogele
Volvo	Weidemann
Wirtgen	Yale
YAM	Yanmar