

New Sulzer Diesel

**New Sulzer Diesel Ltd
Winterthur, Switzerland**

Spare Parts Code Book for Sulzer Diesel Engines ZAL40S

Vessel:

Type:

Engine No.:

Mailing address:

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Instructions for use of code book

The different parts of the Diesel engine concerned are listed in this Code Book and provided with code numbers. These numbers are indispensable for the correct handling of your requests and orders.

The scope comprises all engine components except the following parts which have no code number and which are therefore not listed in the code book:

- Single components from sub-suppliers
- Commercially standard parts (screws, bolts, nuts, washers etc.)
- Standard piping including flanges and screwed connections
- Tools (these are contained in the Maintenance Manual under group 9400)

This spare parts code book contains various design executions (Alternatives). Care must be taken that only such spare parts are ordered which are really fitted in the customer's engine.

These design execution alternatives have been marked in the table of contents 020, as well as in the respective text sheet with (●). It is here necessary to determine which design executive is actually fitted.

Engine components shown/described on pages marked with (○) may but not must be fitted (depending on the engine plant).

In case of doubt we recommend contacting the maker for information.

We recommend to confirm telephone and telegram orders immediately in writing, giving the fullest details as set out below.

To enable us to deliver a spare parts order correctly, we need the following information:

1. Name of ship
2. Engine type, year of build and engine manufacturer
3. Cylinder- or engine numbers
4. Design execution according to table of contents 0020/1 (see paragraph 2)
5. Number of parts wanted
6. Code numbers and nomenclature of parts
7. Classification company

For particular Attention

This manual is put at the disposal of the recipient solely for use in connection with corresponding SULZER type Diesel engines. It has always to be **treated as confidential**.

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To ensure the best efficiency, reliability and lifetime of the engine and its components, only **original spare parts** should be used.

The particulars, data, presentations etc. in this manual correspond to the **situation existing at the time of going to press** and they are based on drawings made by **NEW SULZER DIESEL**. It must be recognized that such particulars, data, presentations etc. may be subject to later **modifications** due to further developments, experience or any other reason.

This manual has been prepared to the best knowledge and ability of its authors. However, neither NEW SULZER DIESEL nor their employees assume any liability under any legal theory whatever including negligence for claims for any damages whatsoever or claims of any other nature such as regarding additional supplies or services or other demands, with regard to this manual and its contents or to any modification thereto or in connection with any use thereof.

NEW SULZER DIESEL
LIMITED

WINTERTHUR
SWITZERLAND

Foreword

The documentation for this Diesel engine type comprises the following books and publications:

- **Service Instructions Manual**

This contains information covering engine operation, the required operating media (oil, water and fuel), as well as a description of the function of specific systems.

- **Maintenance Manual**

This contains, in addition to the maintenance diagrams, information covering specific dismantling and assembly work necessary for engine maintenance.

It contains furthermore a masses (weight) table of certain individual parts, a clearance table, a list of rubber / O-rings, tightening values for important screwed connections and a tools list.

- **Code Book (spare parts catalogue)**

In this book all parts are marked with a code number by which they can be ordered from the engine supplier. *Spare parts are to be ordered exclusively from this book.*

Spare parts list

On pages KS 960 the "MIN. REQUIRED SPARE PARTS" have been listed in accordance with the **IACS-Requirements M7 (1987)**, (International Association of Classification Societies).

- The "Spare parts list" of IACS (column 1) must be regarded as a **requirement**, contrary to the spare parts listed by the classification societies, (ABS, BV, LR, DNV) which are considered as **recommendation**.
- With GL, NKK, PRS, RS, ZC, RINA the spare parts lists are regarded as **requirement**, which may slightly deviate from the IACS listing.
- In column 2 the spares are listed which are additionally recommended by NEW SULZER DIESEL.

- **Publications for outside manufacturers**

Separate publications are provided for those items on the engine supplied by outside manufacturers, such as turbocharger, governor, torsional vibration damper, etc. In most cases these can also be used as spare parts catalogue. Without fail the type-, make- and serial numbers from the name plate must be indicated.

In addition to these, the timing, acceptance and erection records of the engine concerned as well as schematic diagrams are also supplied.

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What is to be found where		KS 0040/1

Group 1

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Thrust bearing for crankshaft	ZA40S	KS 120
Crankcase vent	ZA40S	KS 160
Casing to crank space		KS 161
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End cover (casing)	DRIVING END	KS 165-1
End cover	engine with shaft extension	KS 165-6
End cover	FREE END	KS 165-7
End cover	engine with built-on pumps	KS 165-10

Group 2

Cylinder liner	ZA40S	KS 214
Cylinder cover	(output 720kW/cylinder)	ZA40S • KS 270-1
Cylinder cover	(with TURNOMAT)	ZA40S • KS 270-2
Fuel injection valve	ZA40S	KS 272
Fuel pressure pipe	ZA40S	KS 272-1
Starting valve	ZA40S	KS 274
Inlet and exhaust valve	ZA40S	• KS 275
Inlet and exhaust valve	output 720kW/cyl. (seat $\leq 45^\circ$)	ZA40S • KS 275-1
Exhaust valve	(TURNOMAT)	ZA40S • KS 275-2
Indicator valve	ZA40S	KS 277-1
Relief valve	ZA40S	KS 277-2
Rocker gear for cylinder cover	ZA40S	KS 280

Group 3

Crankshaft		KS 310-7
Vibration damper	engine with built-on pumps	• KS 310-9
Vibration damper	engine with built-on pumps	• KS 310-10
Turning gear (arrangement)	ZA40S	• KS 320
Turning gear (arrangement)	ZA40S	• KS 320-1
Turning gear (vertical worm shaft) ZA40S		KS 321
Turning gear (horizontal worm shaft)	ZA40S	KS 321-1
Turning gear (pinion shaft)	ZA40S	KS 321-2
Turning gear (drive, switch box)	ZA40S	KS 327
Connecting rod	ZA40S	KS 330
Rotating piston	ZA40S	• KS 340
Rotating piston (with nozzle) ...	output 720kW/cylinder	ZA40S • KS 340-1

Group 4

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Camshaft	non reversible engine 9 cyl.	KS 420-3
Starting air distributor	reversible engine ZA40S	● KS 431
Starting air distributor	non reversible engine ZA40S	● KS 431-1
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Control elements (control valve)	stationary ZA40S	KS 460-5
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Local control stand	reversible engine	● KS 480-1
Local control stand	non reversible engine	● KS 480-2
Control elements (telescope connection)		KS 491
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Group 5

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Group 6

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Flap for by-pass	ZA40S	KS 673-1
Air duct for by-pass	(8, 9 cyl.)	● KS 673-2
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Waste gate (inlet valve)	ZA40S	KS 675-1
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Group 7

Pump attachment		KS 700
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Cooling water pump non reversible engine		ZA40S ○ KS 730
Raw water pump non reversible engine		ZA40S ○ KS 730-1
Nozzle cooling water pump non reversible engine		ZA40S ○ KS 730-2
Charge air-coupling water pump non reversible engine		○ KS 730-3
Fuel booster pump		ZA40S ○ KS 741

Group 8

Exhaust pipe (arrangement) 6 cylinder	●	KS 811
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Exhaust pipe (arrangement) 9 cylinder	●	KS 811-2
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Group 9

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Spare parts list		KS 960	

Remarks:

- Attention is drawn to **diverse design execution alternatives**. It is necessary to determine which design execution has been fitted in the customer's engine.
- Attention is drawn to **special design executions**. These engine components **may but not must be built-in** (non-standard components).

What is to be found where?

When looking for specific components, refer to the Table of Contents provide a basic guide (0020/1).

In addition, for certain spare parts see the illustration 0040/2.

At the same time, the illustration provide an overall picture of the basic construction of the engine. Details may differ, depending on the model type.

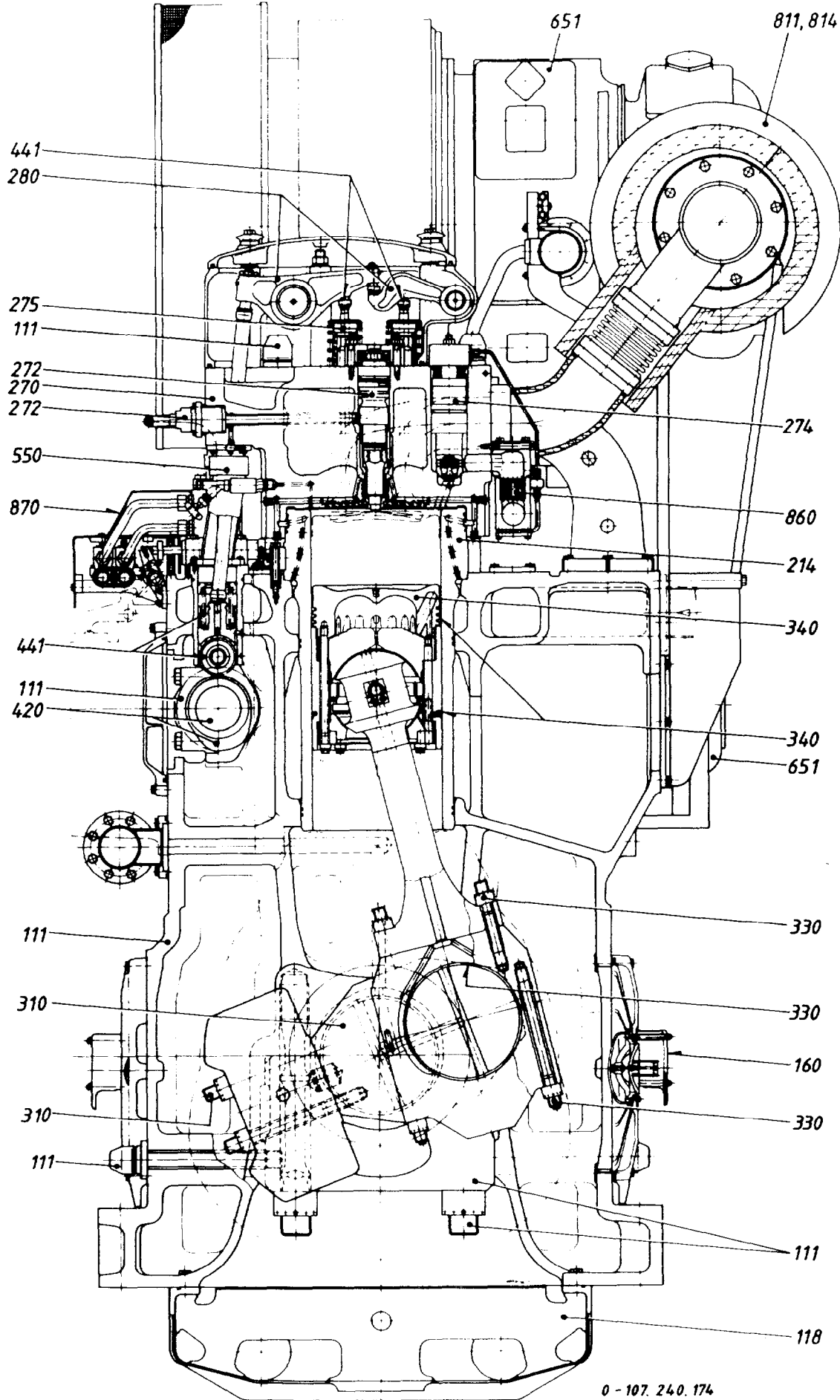


Table of contents

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Indicator valve	ZA40S	KS 277-1
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Rocker gear for cylinder cover	ZA40S	KS 280

Group 3

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Turning gear (drive, switch box)	ZA40S	KS 327
Connecting rod	ZA40S	KS 330
Rotating piston	ZA40S	• KS 340
Rotating piston (with nozzle) ...	output 720kW/cylinder	ZA40S • KS 340-1

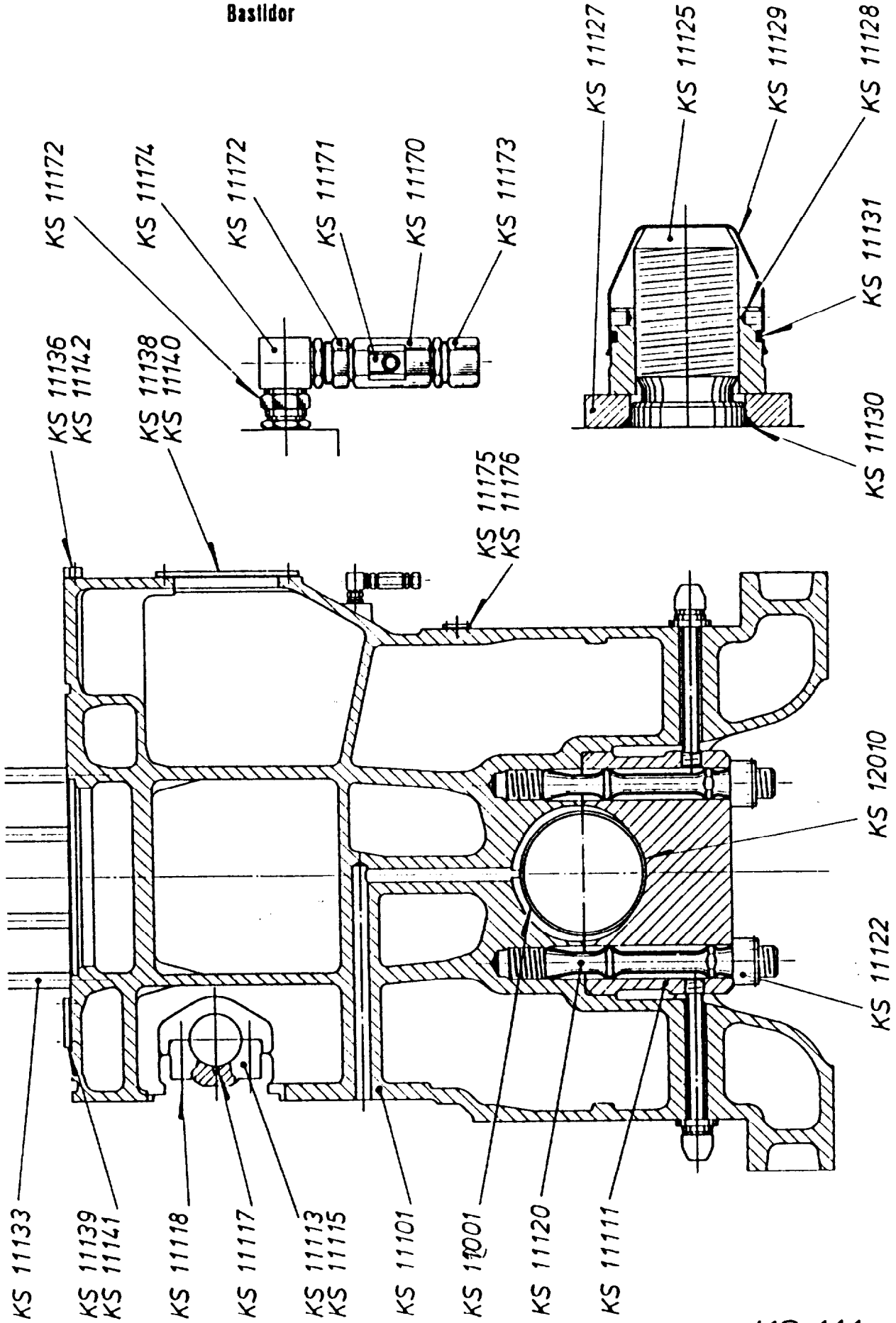
Group 4

Camshaft drive		KS 410
Camshaft	non reversible engine 6,8 cyl.	KS 420-2

Group 1



Bâti moteur
 Motorgehäuse
 Engine frame
 Bastidor



KS 111

Engine frame

KS 11101 Engine frame

*KS 11111 Bearing cover to main bearing

*KS 11113 Bearing cover for camshaft standard bearing

*KS 11115 Bearing cover for camshaft lapped bearing

KS 11117 Dowel pin for bearing cover KS 11113 and
KS 11115

KS 11118 Screw for camshaft bearing

KS 11120 Stud for main bearing

KS 11122 Nut for stud KS 11120

KS 11125 Horizontal tie rod for main bearing

KS 11127 Ring for horizontal tie rod KS 11125

KS 11128 Nut for horizontal tie rod KS 11125

KS 11129 Sleeve for horizontal tie rod KS 11125

KS 11130 O-ring for ring KS 11127

KS 11131 O-ring for Nut KS 11128

KS 11133 Stud for cylinder cover

KS 11136 Connecting piece for engine frame

KS 11138 Cover for engine frame

KS 11139 Cover for engine frame

KS 11140 Joint for cover KS 11138

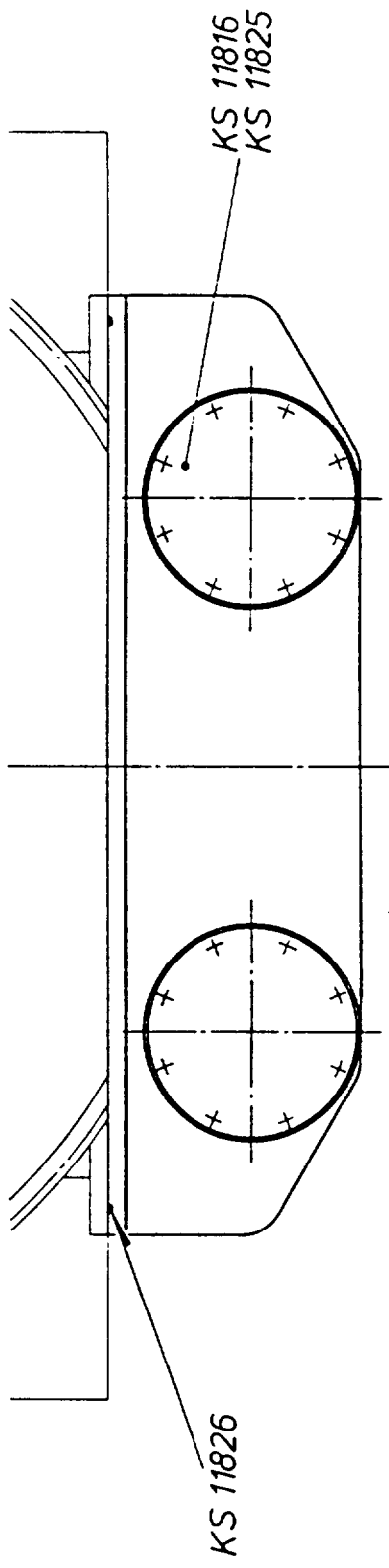
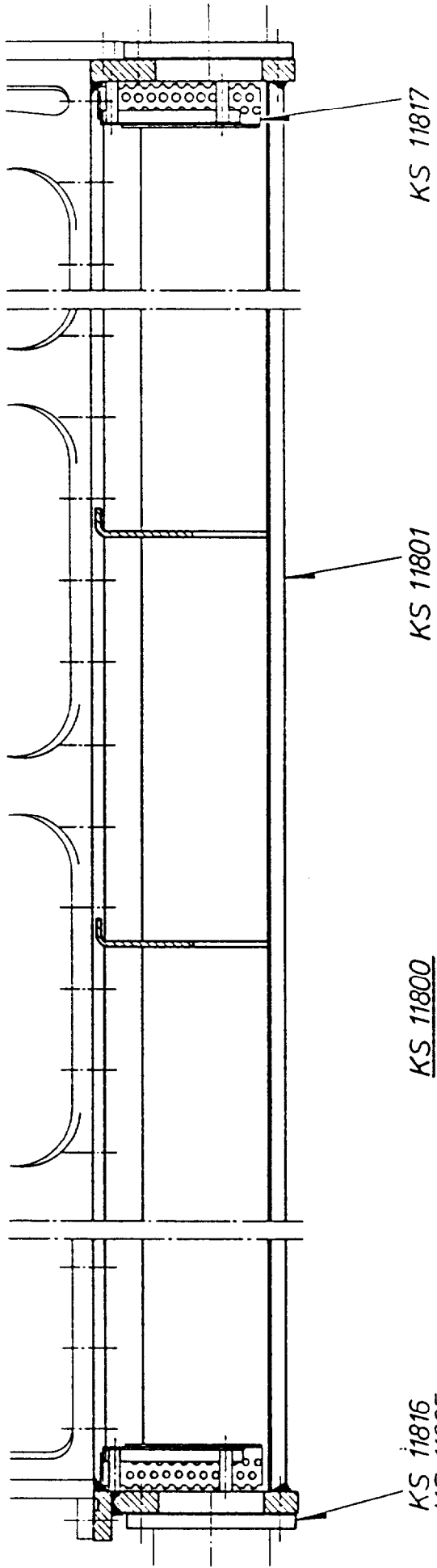
KS 11141 Joint for cover KS 11139

KS 11142 Joint for connecting piece KS 11136

KS 11170 Control casing for engine housing
KS 11171 Nozzle for control casing
KS 11172 Adjustable SERTO connection for control casing
KS 11173 SERTO-screwed union for control casing
KS 11174 Baffle piece for control casing
KS 11175 Square joint for engine frame
KS 11176 Blind flange for engine frame
KS 12001 Upper bearing half shell for main bearing
KS 12010 Lower bearing half shell for main bearing

* Bearing bore not finish-machined (machining allowance); Please contact NSD in such a case.

Carter à huile
Oeltrog
Oil sump
Cârter de aceile



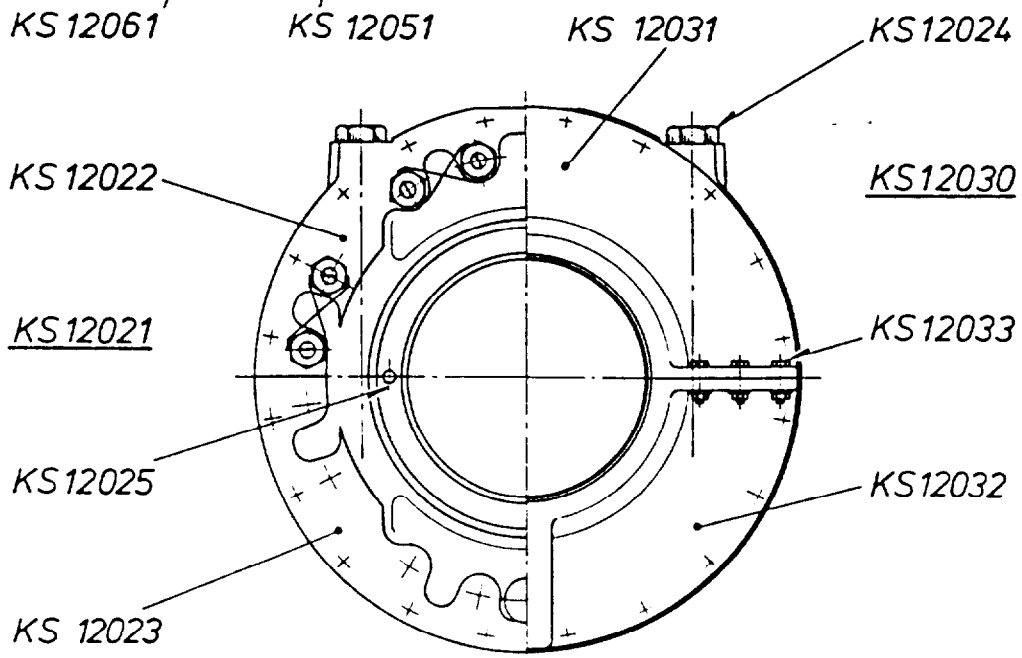
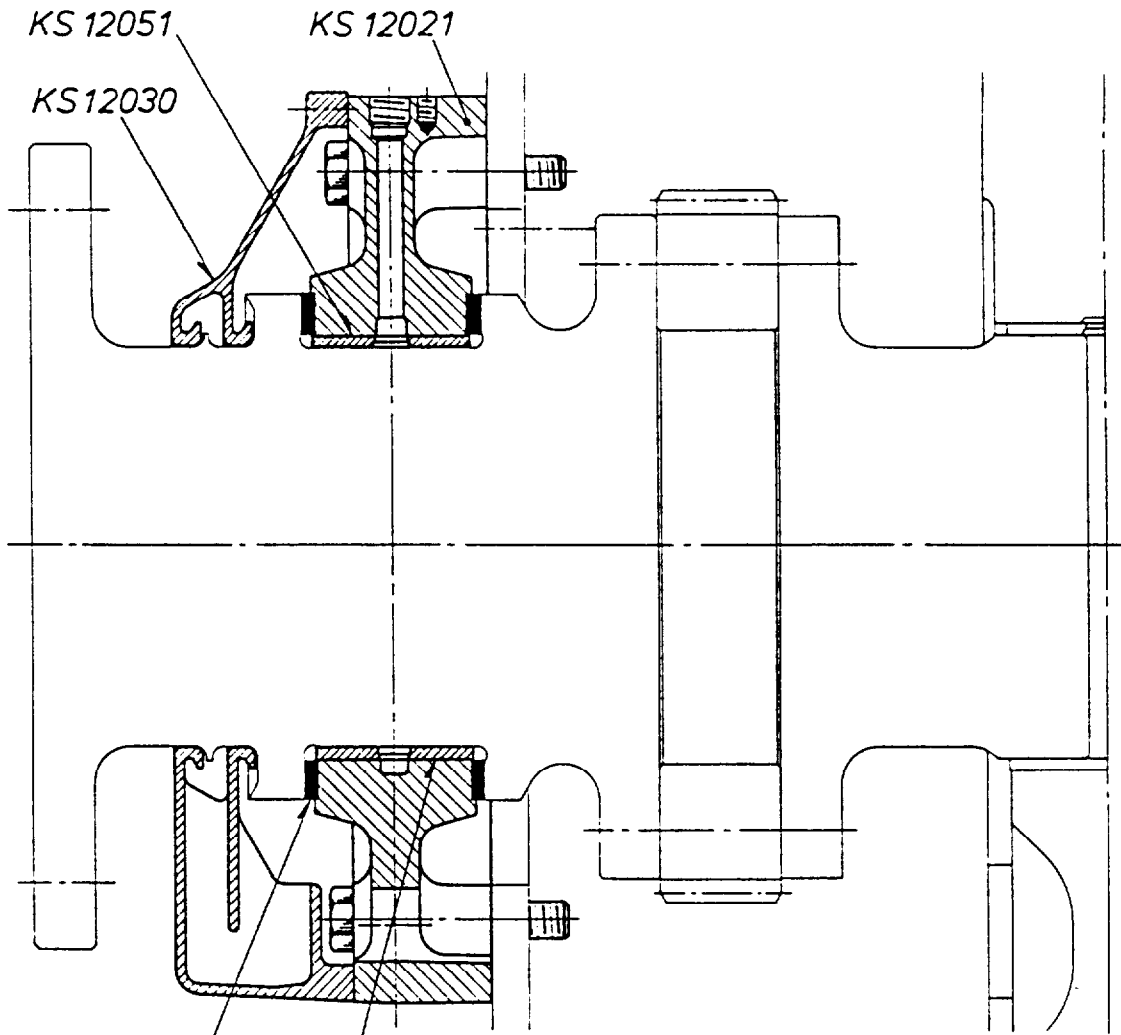
KS 118

Oil sump

- KS 11800 Oil sump with front side drains, complete
- KS 11801 Oil sump
- KS 11816 Blind flange for oil sump
- KS 11817 Oil strainer for oil sump
- KS 11825 Sealing for blind flange KS 11816
- KS 11826 Round rubber cord for oil sump

Paliers du vilebrequin
Kurbelwellenlager
Main bearings
Cojinetes del cigüeñal

Palier de butée
Passlager
Thrust bearing
Cojinete de empuje



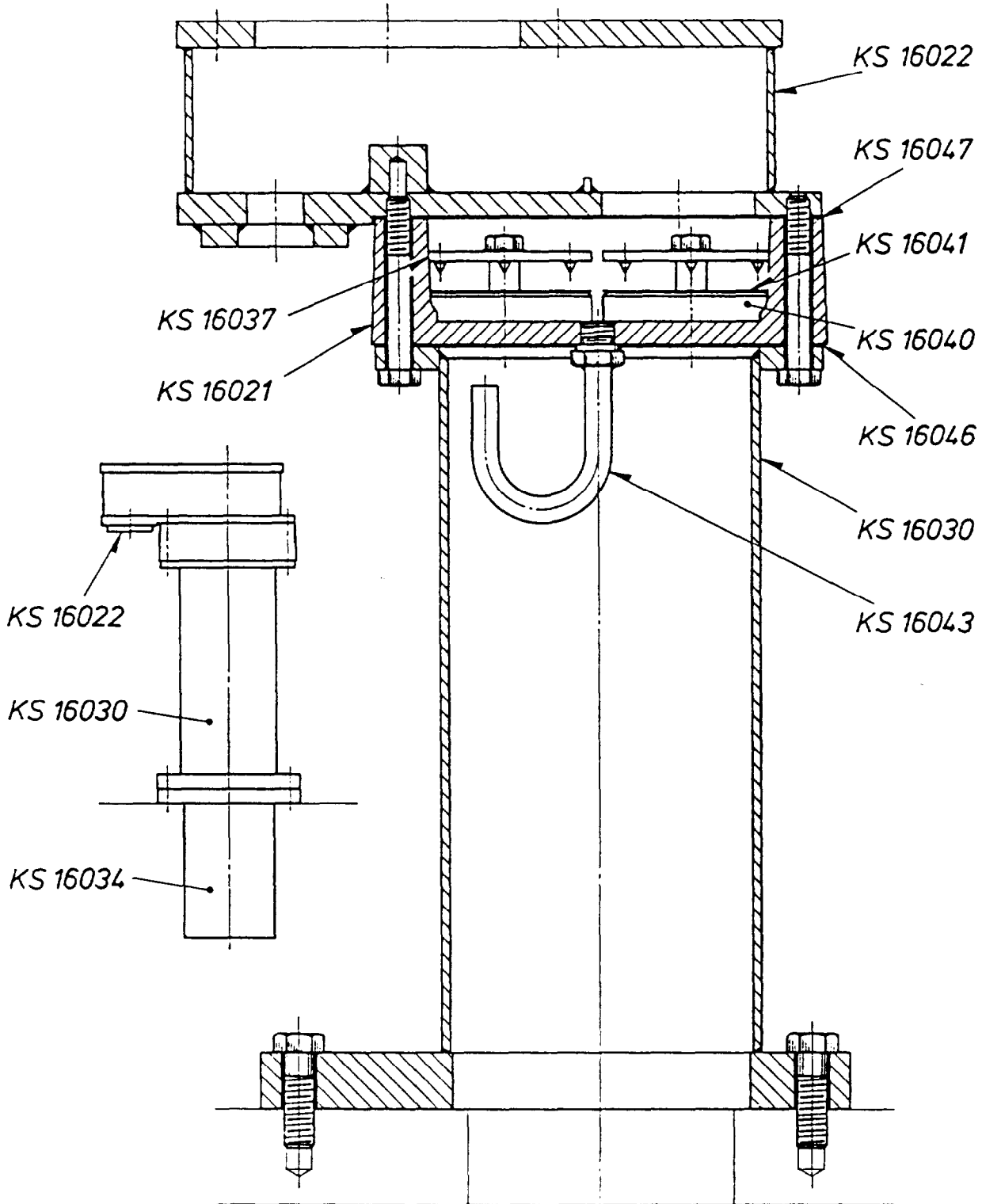
KS 120

Thrust bearing for crankshaft

- KS 12021 Bearing housing, two-part , complete for crankshaft thrust bearing
- KS 12022 Upper half of housing for bearing housing
- KS 12023 Lower half of housing for bearing housing
- KS 12024 Bolt for bearing housing
- KS 12025 Dowel pin for bearing housing
- KS 12030 Oil cup, two-part, complete for crankshaft thrust bearing
- KS 12031 Oil cup - top part
- KS 12032 Oil cup - bottom part
- KS 12033 Reamed bolt for oil cup
- KS 12051 Bearing half for thrust bearing
- KS 12061 Thrust bearing ring halves

Aération du carter
Kurbelraumlüftung
Crankcase vent
Ventilación del cárter

KS 16020



KS 160