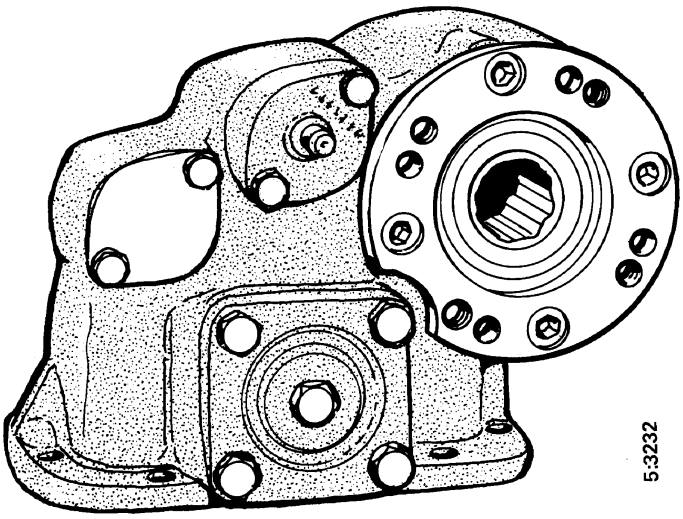
SCANIA

05:06-01

Issue 1 **en**

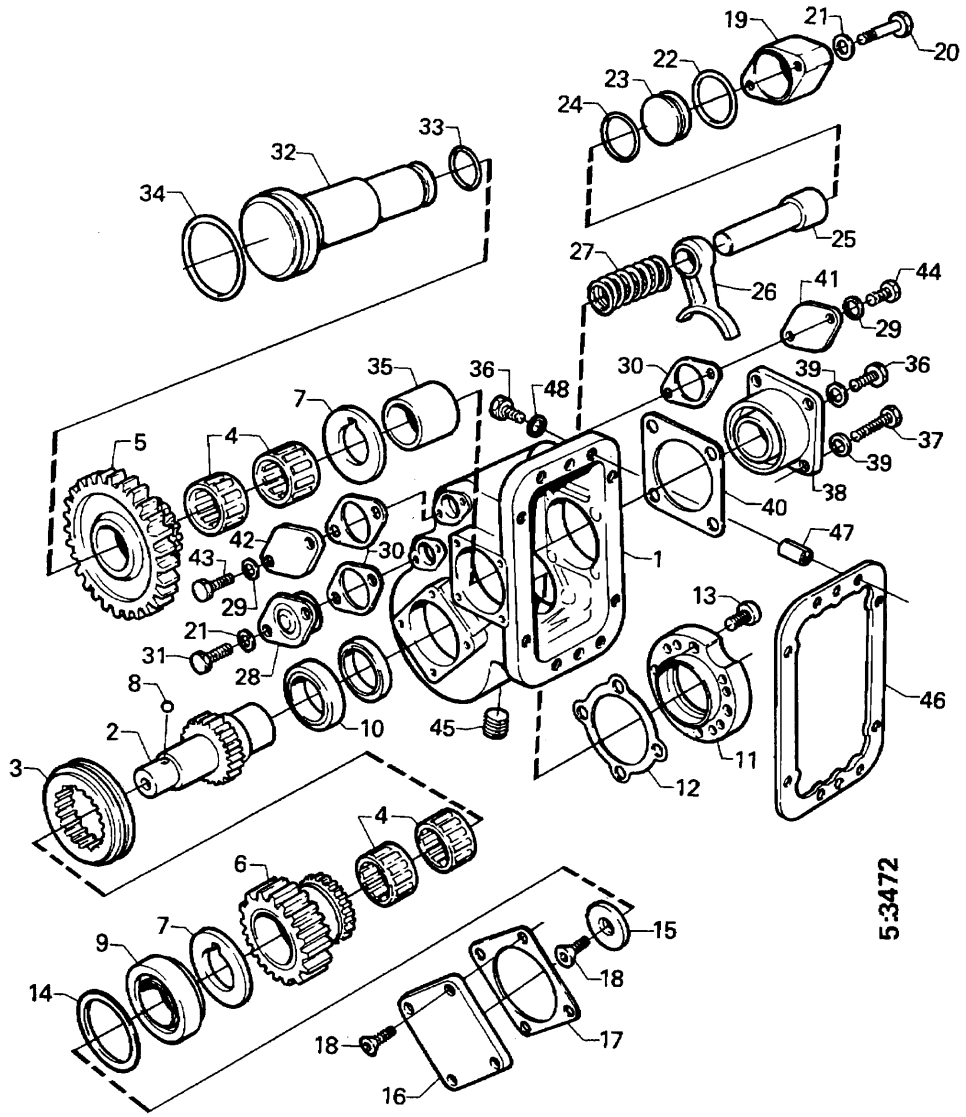
Power take-offs
EG600, EG601, EG603, EG604

Description of operation and work description



1 585 738

Contents



1 *Power take-off housing*
2 *Shaft*
3 *Shift sleeve*
4 *Needle bearing*
5 *Gear*
6 *Gear*
7 *Washer*
8 *Ball*
9 *Roller bearing*
10 *Bearing*
11 *Adapter*
12 *Gasket*
13 *Bolt*
14 *Shim*
15 *Washer*
16 *Cover*
17 *Gasket*
18 *Bolt*
19 *Cylinder*
20 *Bolt*
21 *Washer*
22 *O-ring*
23 *Piston*
24 *O-ring*
25 *Shaft*
26 *Shift fork*
27 *Compression spring*
28 *Bushing*
29 *Washer*
30 *Gasket*
31 *Bolt*
32 *Shaft*
33 *O-ring*
34 *O-ring*
35 *Spacing sleeve*
36 *Bolt*
37 *Bolt*
38 *Cover*
39 *Spring washer*
40 *Gasket*
41 *Cover*
42 *Cover*
43 *Bolt*
44 *Bolt*
45 *Plug*
46 *Gasket*
47 *Spiral pin*
48 *Spring washer*

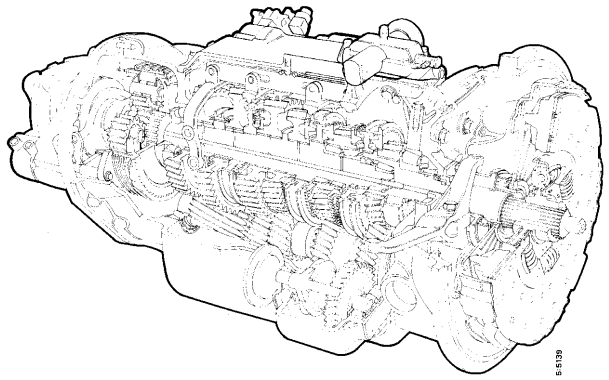
Description of operation

Gearbox driven power take-offs EG600/601/603/604

Description applies to EG600, EG601, EG603 and EG604. The difference between these power take-offs is the exchange ratio.

The EG601 is intended for use with the GR900 range gearbox. The EG600 and EG604 are for the GRS900 range split gearbox and the EG603 is for the GR801. The power take-offs mesh with the front gear on the lay shaft. Both power take-offs and gearboxes have helical gears.

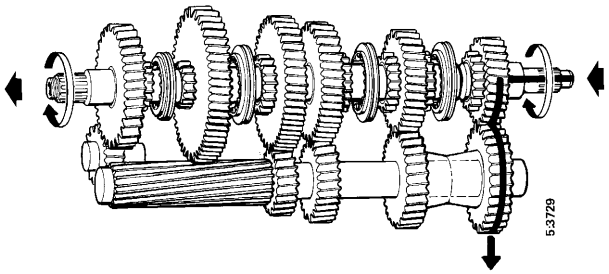
The difference in exchange ratio between the power take-offs for the various gearboxes depends on a varying number of teeth on the lay shaft gear. It is therefore not possible to fit a power take-off, which is designed for one gearbox, to another gearbox without modifying it.



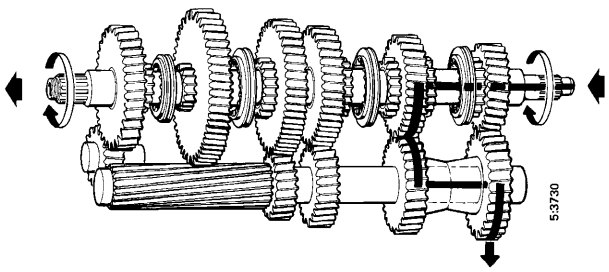
GRS900

The power take-off for the GRS900 can have two exchange ratios by selecting either low or high split.

The power take-off for the GR900 and GR801 can only be run with one exchange ratio.

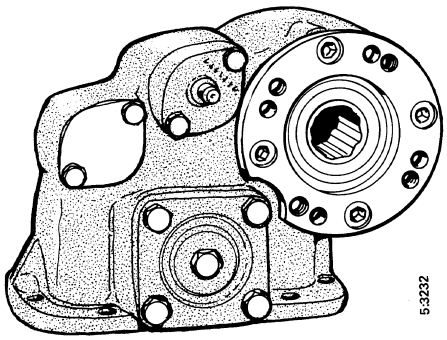


Low split

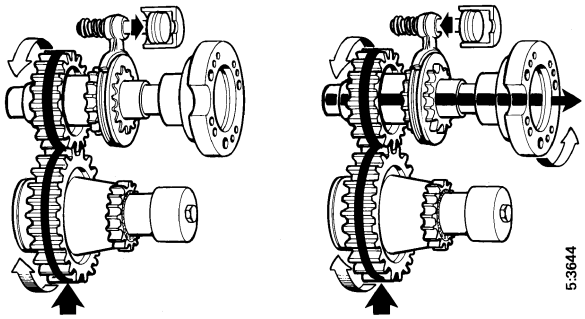


High split

The EG600/601 is designed for direct drive of hydraulic pumps. For this purpose, there is an adapter on the secondary shaft.



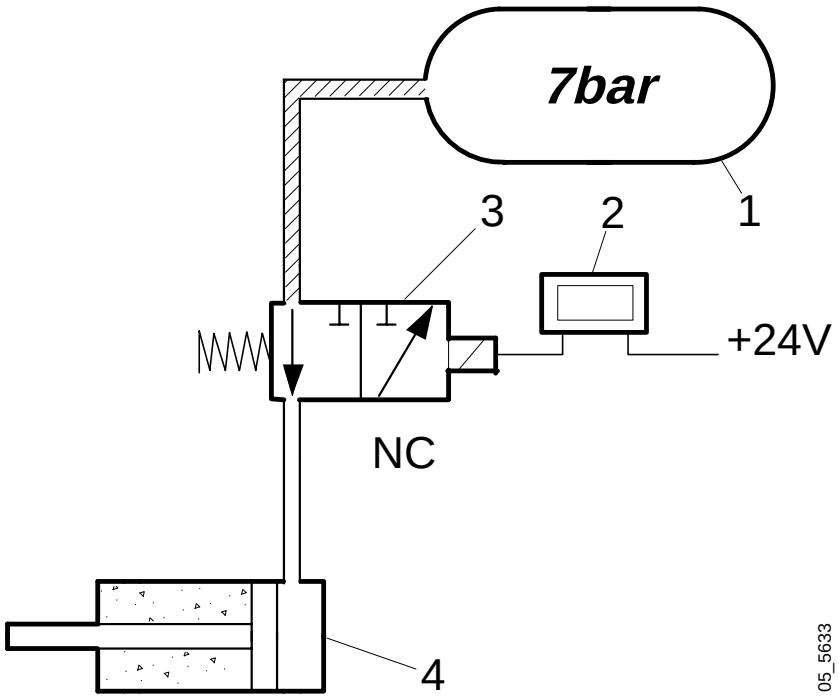
The EG600/601 has dual shafts. There is a shift sleeve on the first shaft which is controlled by a compressed air cylinder.



Disengaged *Engaged*

A flange kit for propeller shaft drive is available from ”After sales” for the EG603 and 604.

Electrical/compressed air diagram



Air line, pressurized

Air line, pressurized / not pressurized

Electric cable

1 Air tank
2 Switch, power take-off
3 Solenoid valve, power take-off (3/2 valve)
4 Air cylinder with spring return

Work description

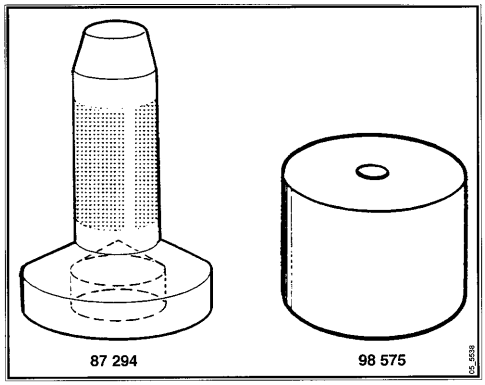
Dismantling

Special tools

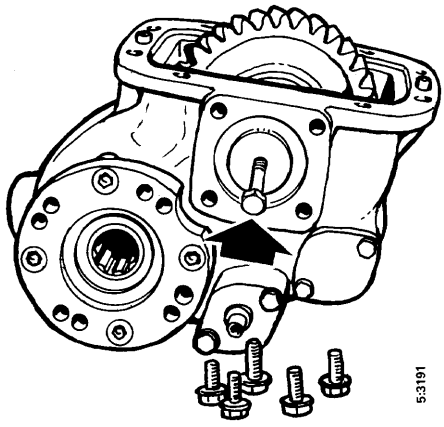
Number	*Designation*
87 294	*Drift*
98 575	*Drift*

Other tools

587 517	*Extractor plate*



N.B. In the text covering dismantling and assembly, the words ”front” and ”rear” are used. ”Front” is that part of the power take-off which is closest on the exploded view drawing, i.e. facing forward in the truck.



1 Remove the bolts from the cover over the primary shaft.

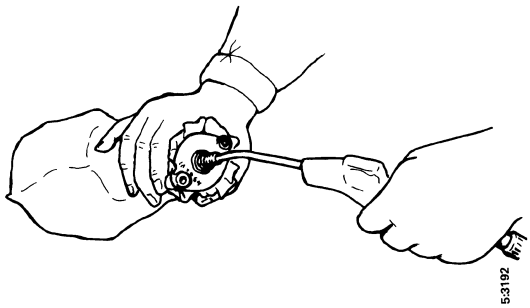
2 Screw a long bolt (M10) into the centre hole. Tap on the bolt so that the shaft comes out. Remove sleeve and washer as well as gear and needle bearing from the shaft.

3 Remove the cover.

4 Remove the front cover from the gear shift shaft. Remove the spring.

5 Remove the shift cylinder. Push out the shaft and remove the shift fork.

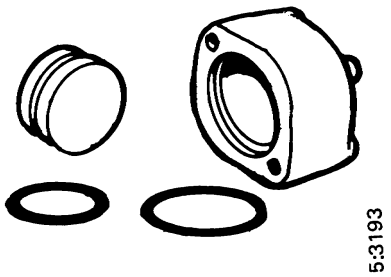
6 Remove the piston from the cylinder by blowing in compressed air through the air nipple. Capture the piston in a plastic bag or in your hand.



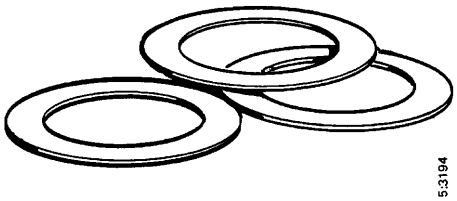
WARNING!

The piston can cause damage if it is not caught when it is pressed out.

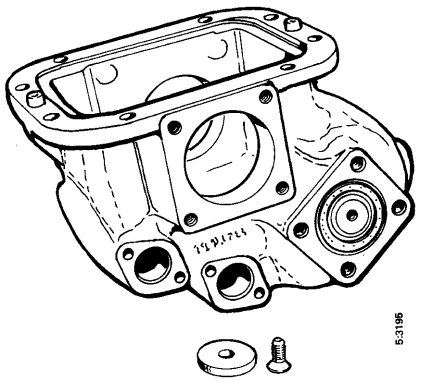
7 Remove the O-rings from piston and cylinder.



8 Remove the front cover from the secondary shaft. Remove the shims under the cover.



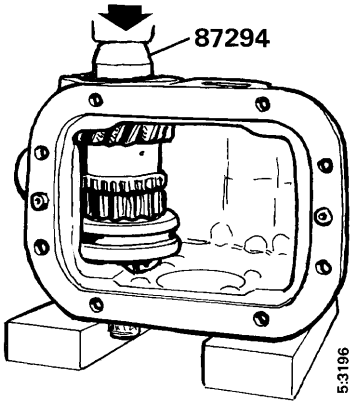
9 Secure the gear and remove the lock bolt and washer in the centre of the shaft front end. The bolt is secured with locking compound. Heat the bolt to max. 200 °C if it is difficult to undo.



10 Remove the adapter. Remove the seal from the adapter.

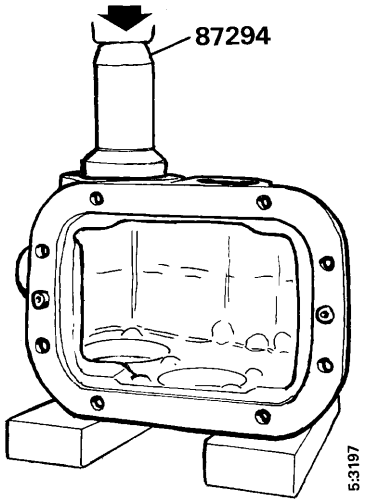
11 Place the power take-off on two supports. Lift the shift sleeve. Press on the end of the shaft using drift 87 294. Press off the rear bearing outer race and front bearing inner race.

N.B. Keep the locking ball.

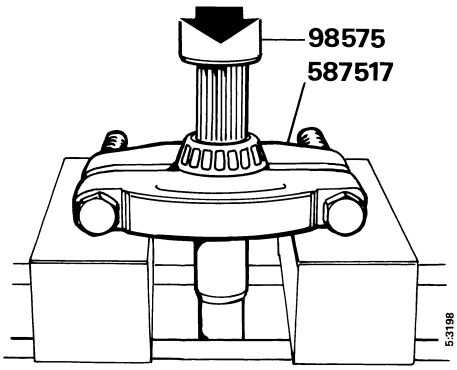


12 Remove the secondary shaft, gear, shift sleeve, thrust washer and locking ball.

13 Press the secondary shaft front bearing outer race from the housing. Use drift 87 294.



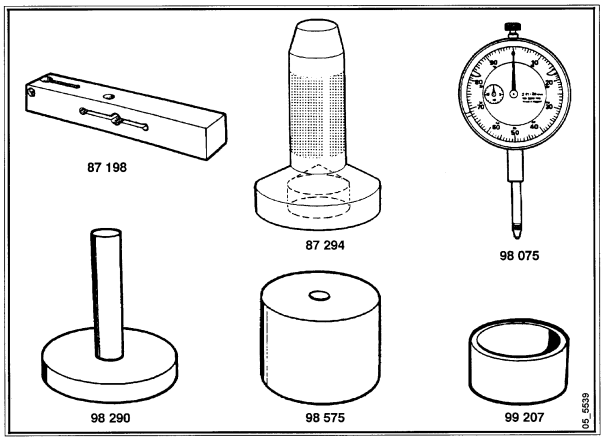
14 Press off the rear inner bearing race from the shaft. Use e.g. extractor plate 587 517 and drift 98 575.



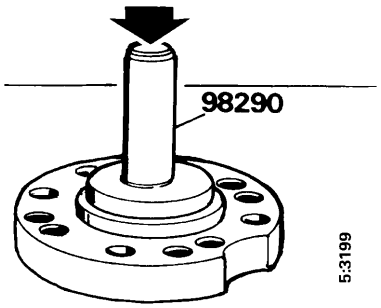
Assembly

Special tools

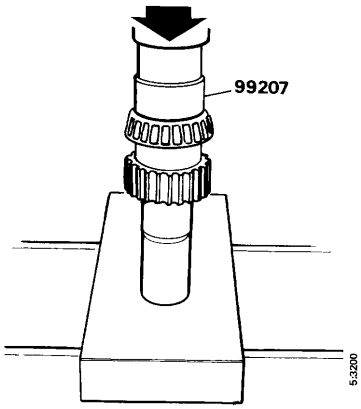
Number	*Designation*
87 198	*Straight edge*
87 294	*Drift*
98 075	*Dial gauge*
98 290	*Drift*
98 575	*Drift*
99 207	*Drift*



1 Press a new seal into the adapter for the secondary shaft. Use drift 98 290. Lubricate the sealing lip.



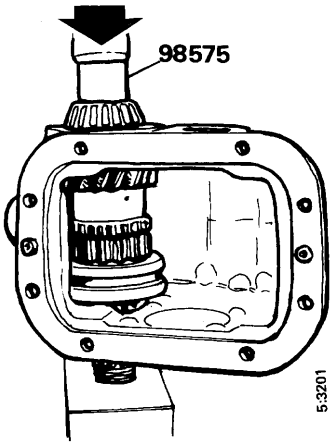
2 Press the rear bearing on to the secondary shaft using drift 99 207.



3 Thread both needle bearings on to the secondary shaft. Apply a little grease to the ball hole so that it stays in place. Fit the shift sleeve to the gear. Insert the shaft in the housing and thread on the gear and shift sleeve.

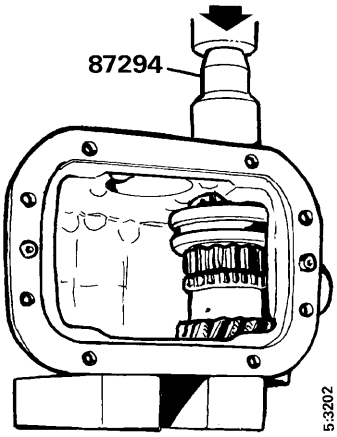
4 Thread the thrust washer on to the shaft. Turn it so that the groove is aligned with the ball on the secondary shaft.

5 Place the power take-off on the press bench with the rear end of the shaft down. Insert and press down the front bearing inner race against the thrust washer. Use drift 98 575.

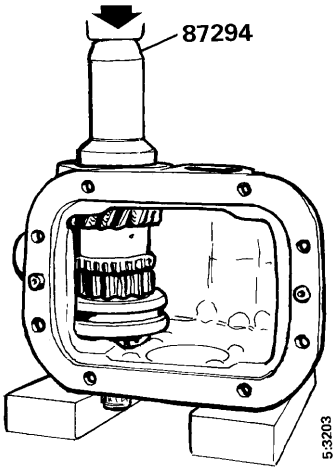


6 Press in the rear outer bearing race using drift 87 294. Fit the rear cover with a new gasket. Tighten the bolts alternately.

Tightening torque 39 Nm.

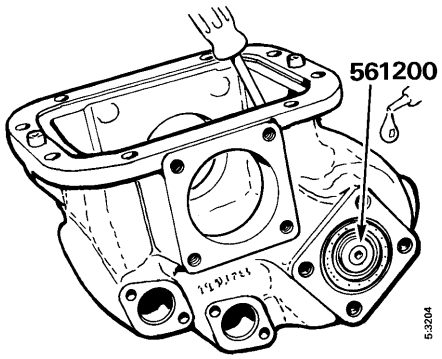


7 Press in the front bearing outer race sufficiently far to eliminate axial play. Use drift 87 294.

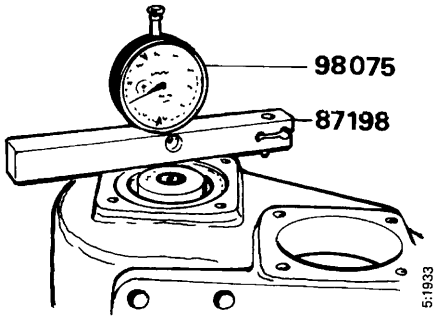


8 Fit bolt and washer to the end of the secondary shaft. Lock the bolt using locking compound 561 200.

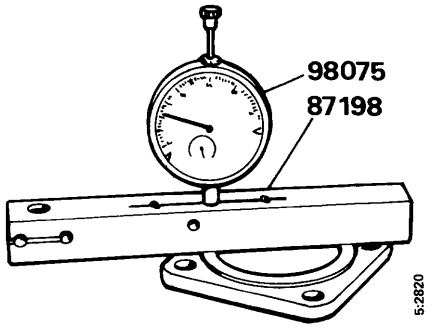
Tightening torque 20 Nm.



9 Measure the distance between the housing and the front bearing outer race. Use straight edge 87 198 and dial gauge 98 075.



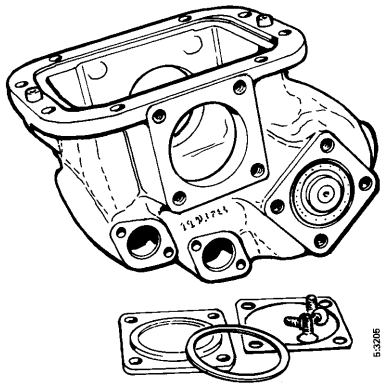
10 On the front cover, measure the distance from the shoulder and down to the gasket (new gasket).



11 Subtract the dimension attained in point 10 from the one obtained in point 9; for example 3.25 - 2.15 mm = 1.10 mm. This is the dimension of the shims which should be placed under the cover.

The following shims are available: 0.25; 0.30; 0.40 and 0.50 mm. If the required dimension cannot be achieved using a combination of these shims, select shim thickness so that there is a certain amount of play, i.e. the closest smaller value.

12 Bolt down the front cover over the secondary shaft using shims and a new gasket.



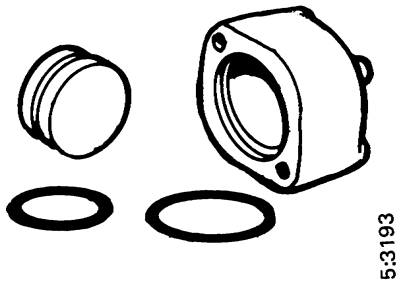
13 Check that the gear moves easily on the shaft.

14 Place the shift fork on the shift sleeve and push the shift shaft into the housing and shift fork.

15 Place a new O-ring on the shift cylinder piston, lubricate piston and cylinder with special grease 319 308. Press the piston into the cylinder.

16 Place a new O-ring in the groove on the shift cylinder. Fit the cylinder to the housing.

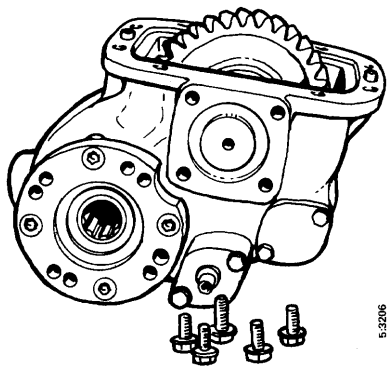
17 Thread the return spring on to the shift shaft. Fit the front shift shaft cover. Use a new gasket. Make sure that the bleeding holes point towards the drain plug.



18 Insert the primary shaft in the housing. Fit needle bearing, gear, washer and spacing sleeve. Use new O-rings.

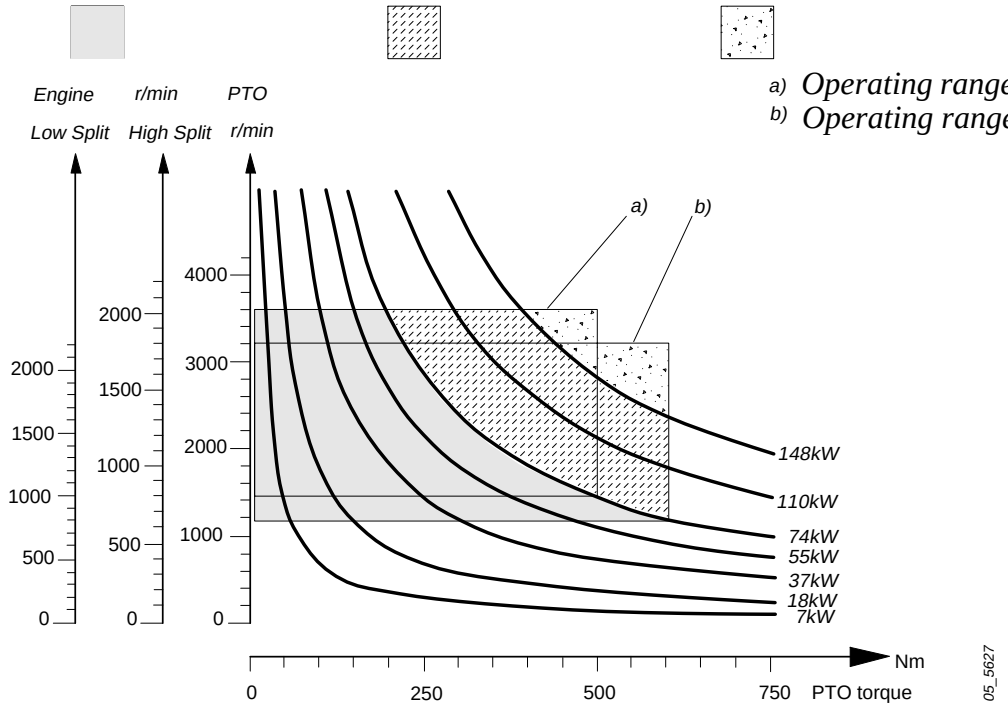
19 Tap or press the primary shaft into the housing.

20 Bolt down the rear cover. Use a new gasket.



Specifications

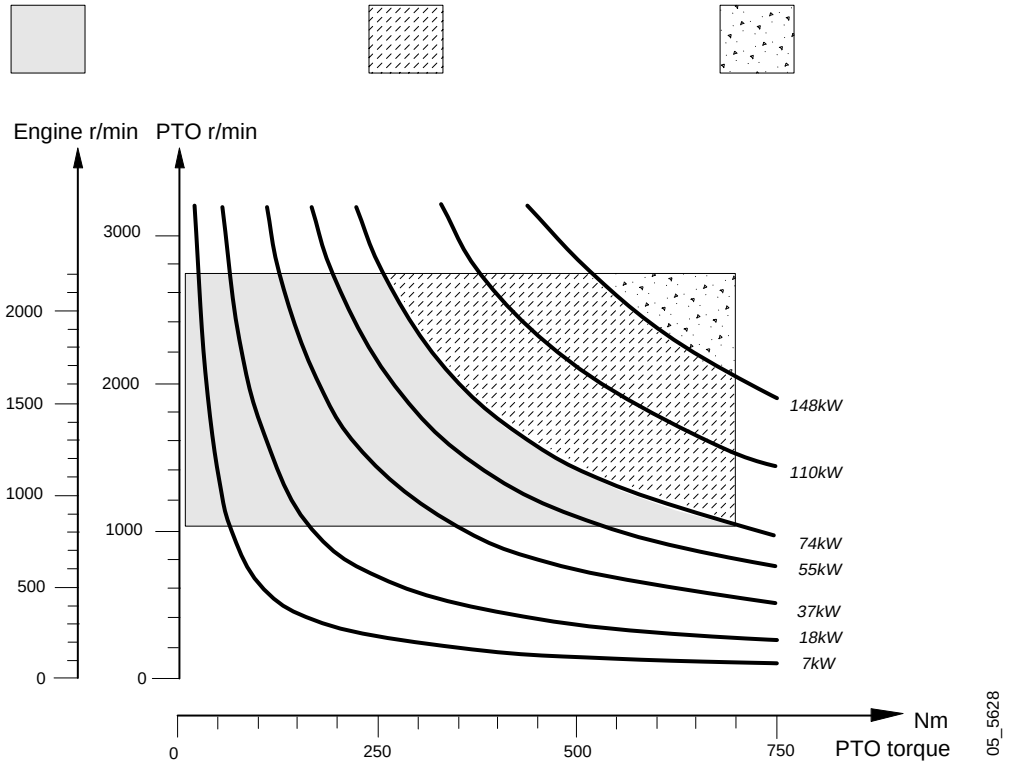
Continuous Intermittent operation (15 min.) Momentary



a) *Operating range, high split*
b) *Operating range, low split*

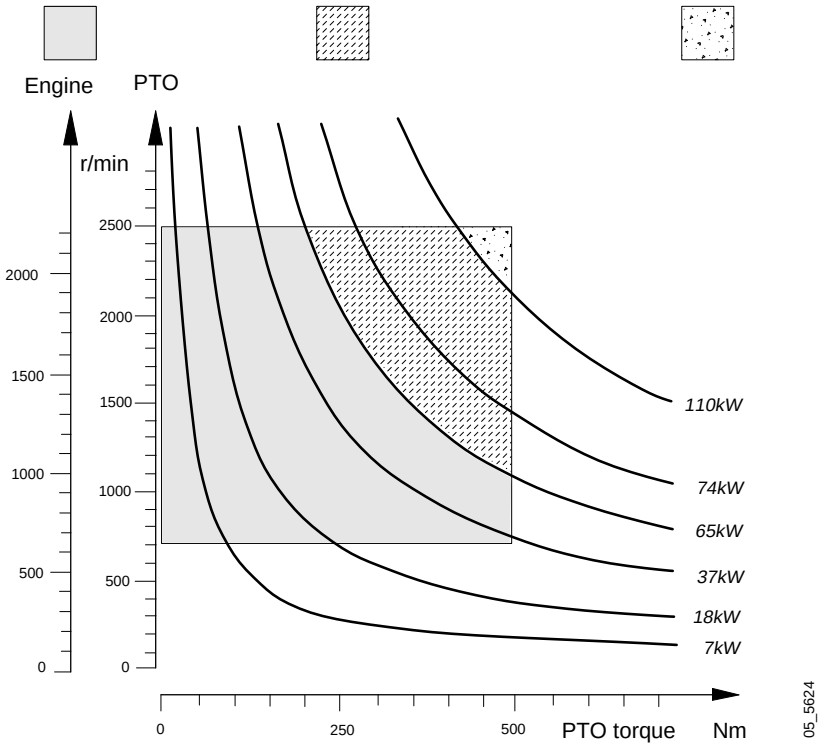
EG 600 (Exchange ratio 1.45 / 1.78)

Continuous Intermittent operation (15 min.) Momentary



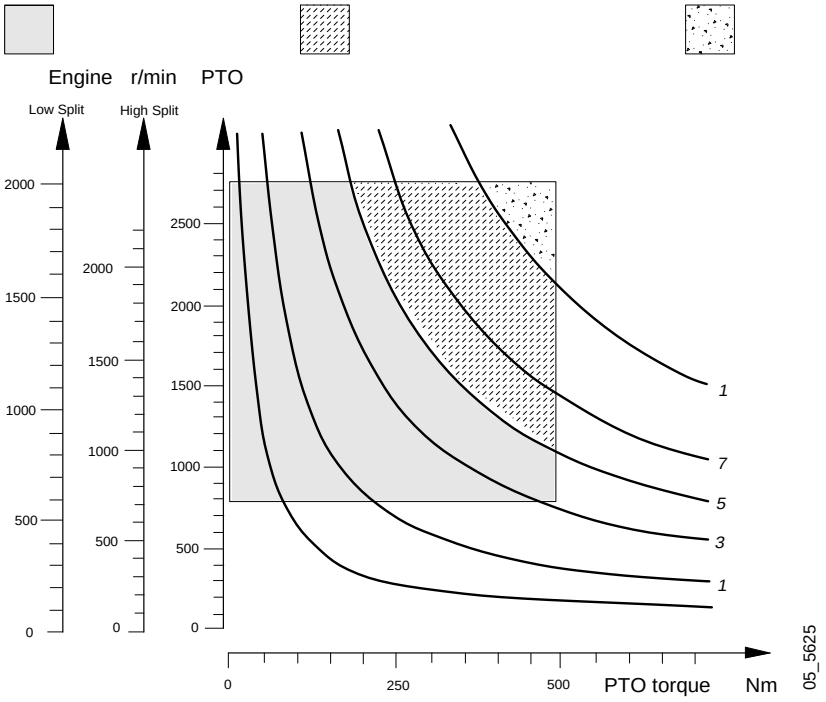
EG 601 (Exchange ratio 1.24)

Continuous Intermittent operation (15 min.) Momentary



EG 603 (Exchange ratio 1.13)

Continuous Intermittent operation (15 min.) Momentary



EG 604 (Exchange ratio 1.12 / 1.37)

Tightening torques

Rear outer bearing race ..... 39 Nm
Secondary shaft ..... 20 Nm

Exchange ratio x engine speed

GRS900	EG600	High split	1.78
		Low split	1.45
	EG604	High split	1.37
		Low split	1.12
GR900	EG601		1.24
GR801	EG603		1.13

Special tools

Number	*Designation*	*Tool board*
87 198	*Straight edge*	*D2*
87 294	*Drift*	*AD/AS3, G3*
98 075	*Dial gauge*	*D2*
98 290	*Drift*	*G3*
98 575	*Drift*	*G2*
99 207	*Drift*	*G4*

Other tools

587 517	*Extractor plate*