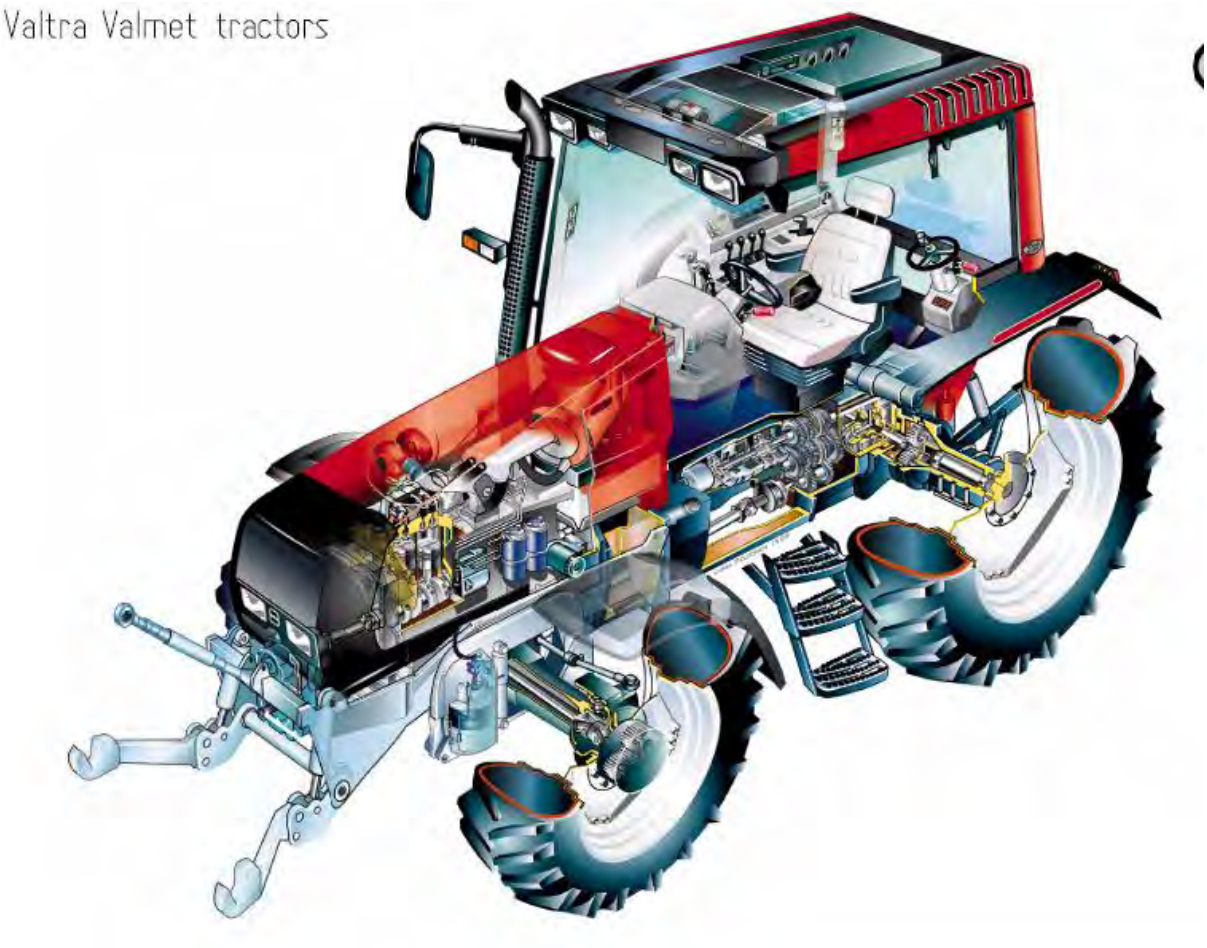
VALTRA – VALMET

MEGA MEZZO HI-TEC



WORKSHOP MANUAL

VALTRA

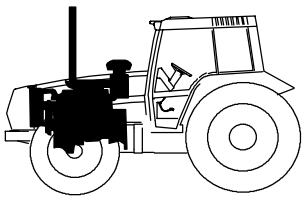
Service Manual

Tractors

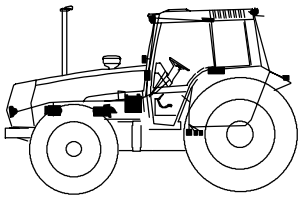
Groups 10–100

Valtra Inc.
44200 Suolahti, Finland

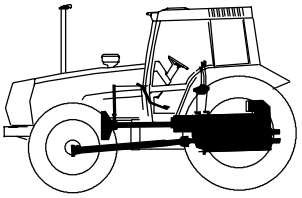
10 General



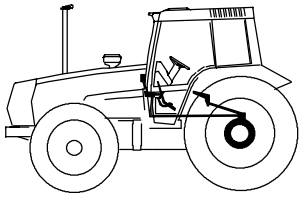
20 Engine



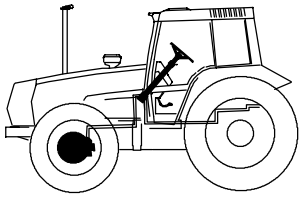
30 Electrical system



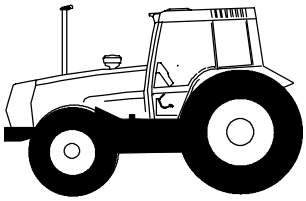
40 Power transmission



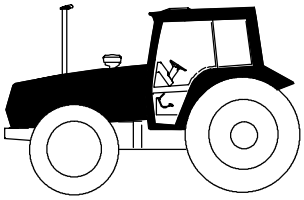
50 Brake system



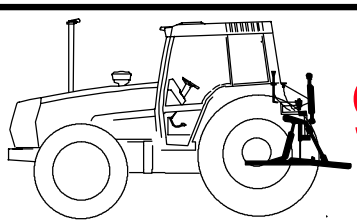
60 Steering system and Front axle



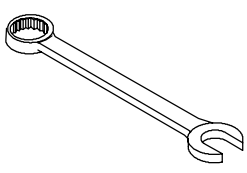
70 Frame and Wheels



80 Cab and Shields



90 Hydraulics



100 Tools

Contents

Technical data

Single dry–disc clutch of cup spring type, mechanically operated. The clutch assembly is the same on all 6000–8400 tractors. On the tractors with Hi–Trol, the clutch disc has no vibration damping springs.

Manufacturer	F&S
Clutch disc diameter	330 mm
Clutch disc diameter, latest 8200–8400 (transmission 460) and 8050–8750	350 mm
Linings on 6000–8100	organic (asbestos–free)
Linings on earlier 8400	ceramic (asbestos–free)
Linings on latest 8200–8400 (transmission 460) and 8050–8750 (ø 350)	organic (asbestos–free)
Releasing force	max. 2950 N
Clutch pressure against flywheel	about 11200 N

Tightening torques

Clutch–flywheel	23 Nm
Pump shaft drive flange–flywheel	46 Nm
Release bearing tube guide sleeve–fuel tank, –659477	46 Nm
Engine–fuel tank	80 Nm
Flange joint, propeller shaft	35 Nm

Adjustments

Clutch pedal free travel, –659477	20–25 mm
Clutch pedal free travel with cable type release mechanism, 659478–	15–20 mm
Clutch lever travel (at wing nut), –659477	10–15 mm
Distance, wing nut–adjuster stop (new disc), –659477	50–55 mm
Distance between cable nut and cab front wall with pedal travel 15–20 mm, 659478–	3 mm

With cable type release mechanism, the release lever bolt is tightened first fully home and then it is unscrewed:
– 3/4 a turn, –662263
– 1/4 a turn, 662264–.

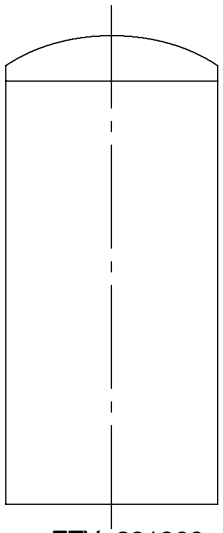
Special tools

A

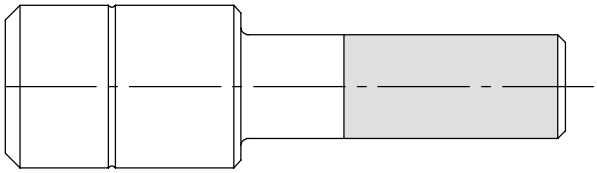
Part no	Description
ETV 891900	Sleeve for fitting clutch release bearing (Clutch 505–905)
ETV 892380	Sleeve for removing clutch release bearing (Clutch 505–905)
ETV 893790	Centring tool for clutch disc (Clutch 505–905)

Locally prepared tools

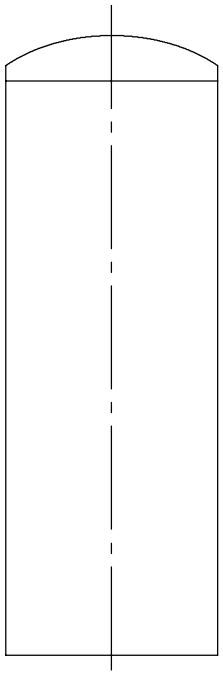
ET 893470	Support roller for splitting tractor (Frame and Wheels 505–905)
ET 893480	Support plate (2 pcs) (Frame and Wheels 505–905)



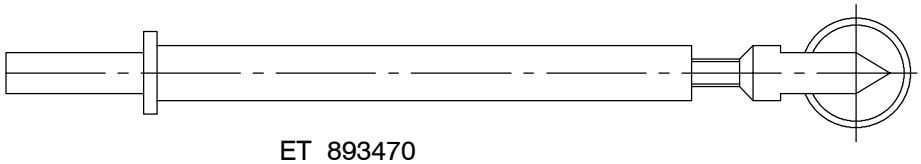
ETV 891900



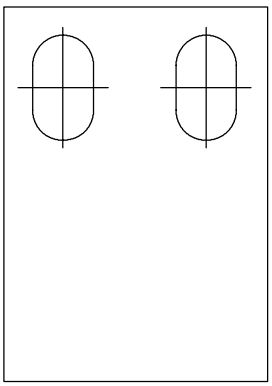
ETV 893790



ETV 892380



ET 893470



ET 893480

Clutch, description

Important! Construction of clutch release mechansim from ser. no. **659478**, see page **410/8**.

Models 6100–8100 are provided with a single dry–disc clutch of the cup spring type. The clutch is operated mechanically. The disc is provided with damping springs (not on Hi–Trol models). Clutch disc diameter is 330 mm and it has organic linings (asbestos–free) (8400 has ceramic linings).

The clutch transmits power from the flywheel through a tubular shaft (clutch shaft) to the input shaft of the quick–shift gear (or reverse shuttle), and further to the gearbox. The clutch shaft front end is supported with a bearing. The clutch shaft front end splines are engaged with the disc hub splines. The clutch shaft rear end is connected to the gearbox input shaft with a coupling sleeve.

The release bearing is fitted at the end of a tube, the rear end of which is controlled by the clutch lever. At the front end the tube is supported in a guide sleeve

Pedal travel is adjusted by means of the wing nut on the link rod. Disc wear is indicated by the distance between the wing nut and the adjuster stop.

The pump drive shaft, which is driven by the drive flange on the flywheel, runs inside the clutch shaft.

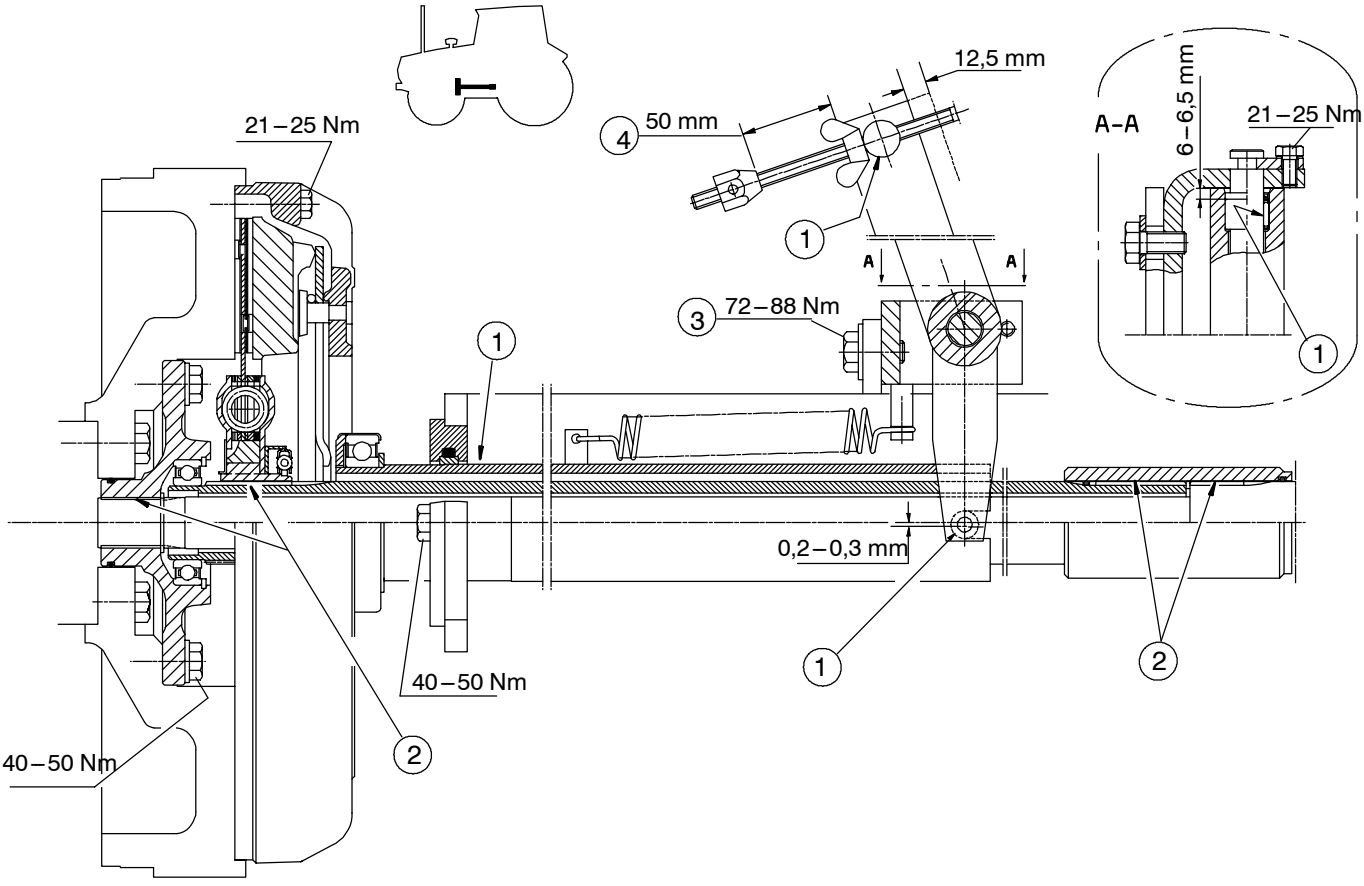


Figure 1. *Clutch with release mechanism* ***up to ser. no. 659477****.*

1. Universal grease
2. Pressure–resistant grease
3. Screw for adjusting position of release fork: 0,2–0,3 mm below the centre line.
Thus the position of the release bearing is correct when the tube is in the front position
4. When changing the clutch disc the distance between the wing nut and adjuster stop is set to 50 mm.

NOTE! On HiTech tractors, which have a Powershift Shuttle , there is not a clutch assembly on the flywheel, but only a drive disc, see page **410/4A**.

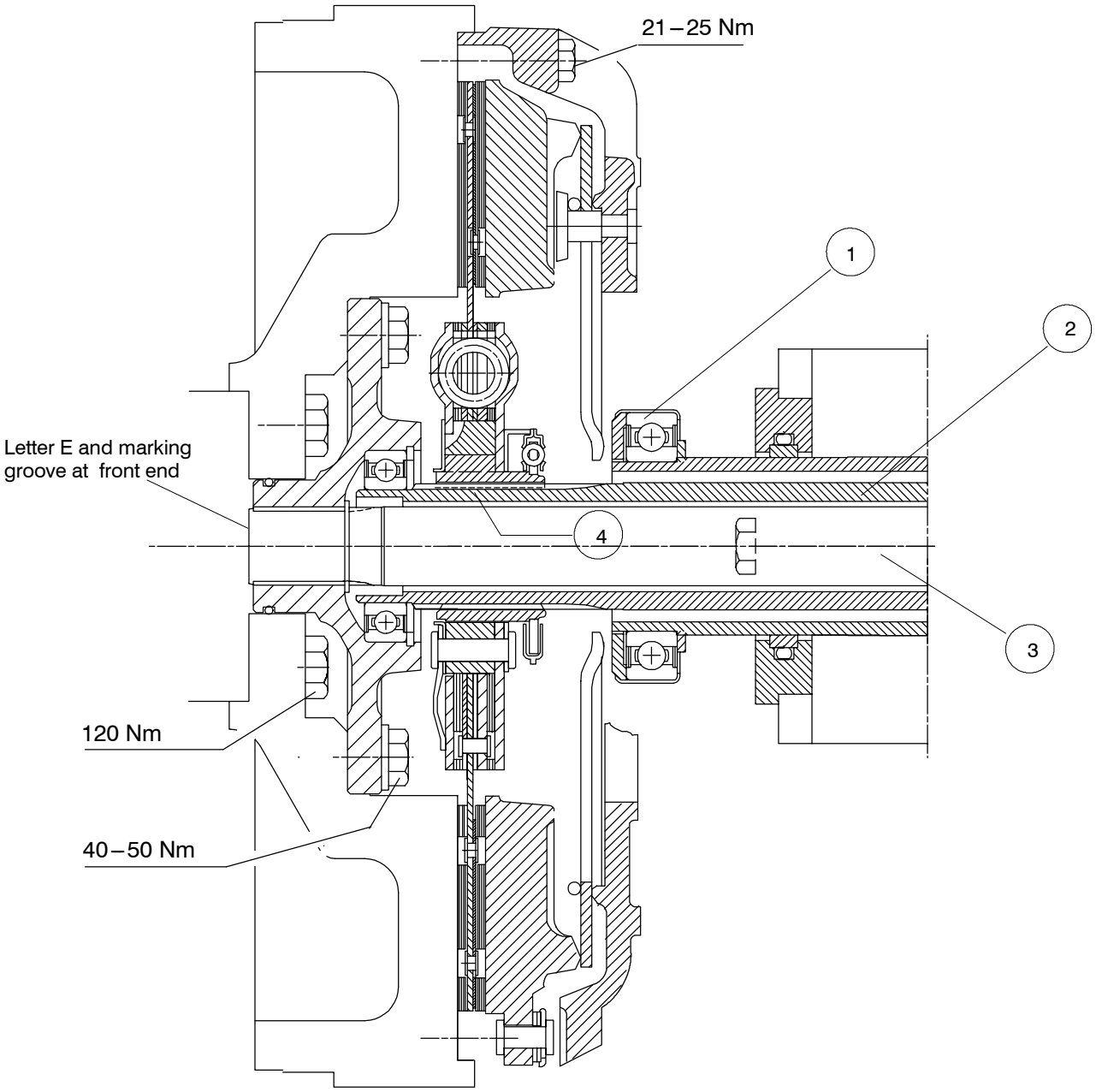
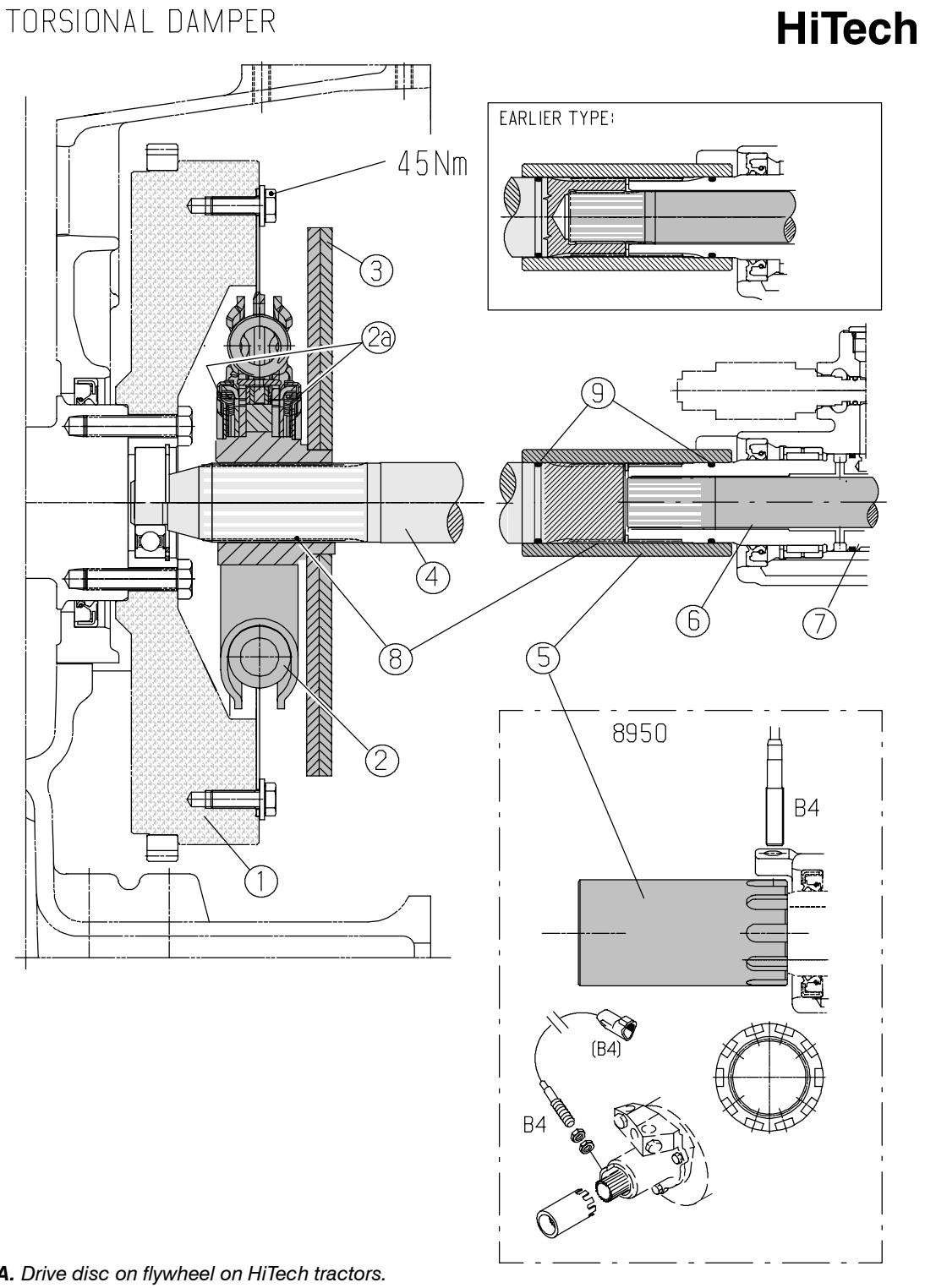


Figure 2. *Clutch assembly*

1. Clutch release bearing
2. Clutch shaft
3. Pump drive shaft
4. Pressure–resistant grease on splines

Note! *The circlip at the pump drive shaft front end has been removed. The new drive shaft is fitted so that the end which has a groove must be turned to the engine side. Pump drive shafts for tractors 8200–8400 have also letter E at the front end of the shaft. Spare part shafts have both the groove and the letter. If you fit a new pump drive shaft onto the earlier tractors, check if there is a cavity (reliever) at the rear end of the crankshaft. If it is there, use a metal plate to prevent the pump drive shaft from moving too much forwards.*

Note! *On transmission 650 the pump drive shaft diameter is 30 mm. On other transmissions (300, 460) 28 mm. On transmission 650 the hollow clutch shaft is shorter on machines, which have a reinforced DPS–gear.*



Picture 2A. *Drive disc on flywheel on HiTech tractors.*

1. Flywheel (different on HiTech tractors)
2. Disc damping springs
3. Plates which increase mass
4. Closed drive shaft (earlier a hollow clutch shafti)
5. Coupling sleeve between drive shaft–DPS input shaft. Sealed with o–rings.
6. Pump/PTO drive shaft
7. DPS input shaft
8. EP grease on splines
9. O–rings
B4: SigmaPower sensor.

Clutch servo

The clutch servo reduces pedal force by about 40 percent. The clutch servo is standard equipment on 6100–8100 tractors.

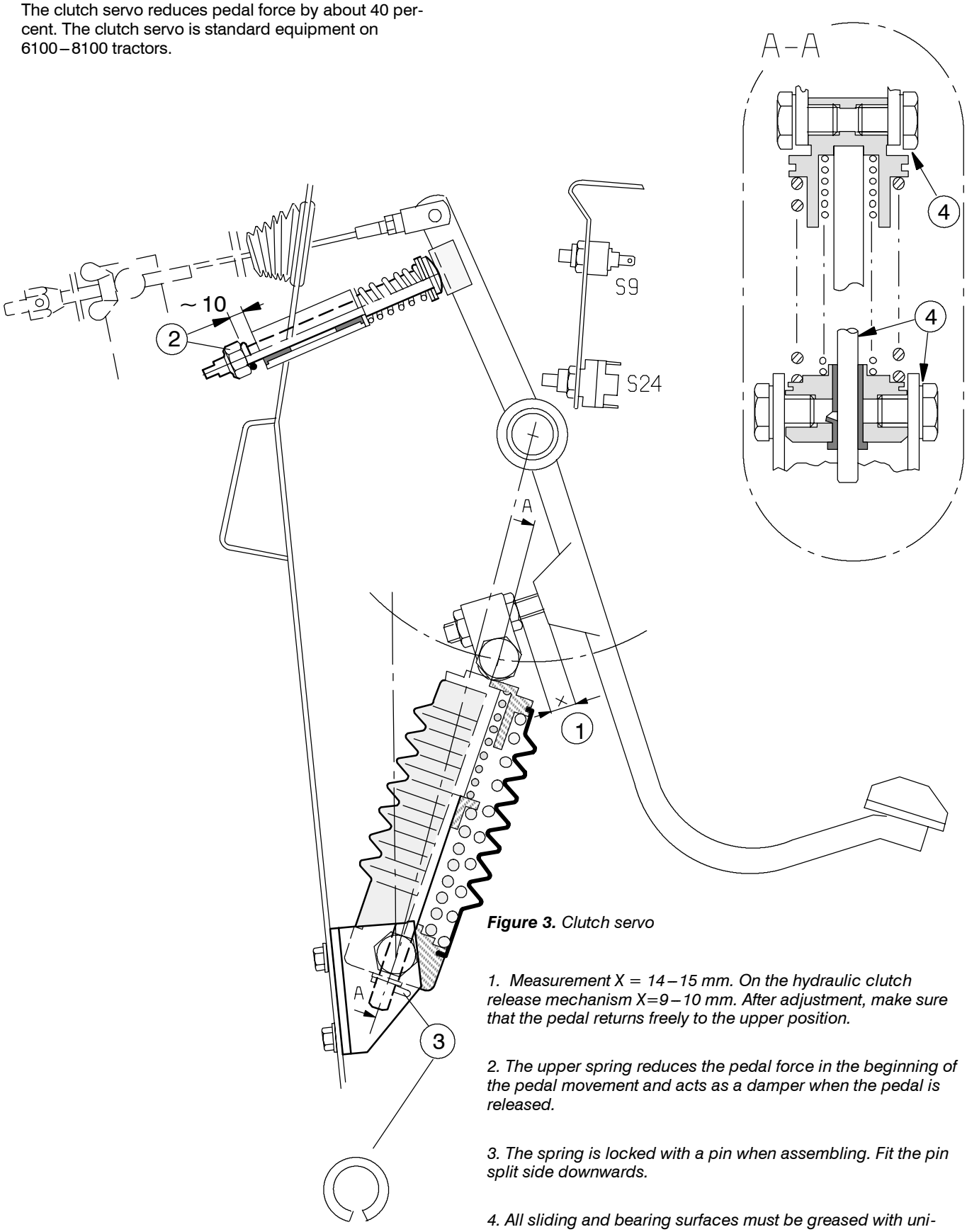


Figure 3. *Clutch servo*

1. Measurement X = 14–15 mm. On the hydraulic clutch release mechanism X=9–10 mm. After adjustment, make sure that the pedal returns freely to the upper position.

2. The upper spring reduces the pedal force in the beginning of the pedal movement and acts as a damper when the pedal is released.

3. The spring is locked with a pin when assembling. Fit the pin split side downwards.

4. All sliding and bearing surfaces must be greased with universal grease when fitting the clutch servo.

S9 = Safety circuit breaker (when starting)
S24 = Switch for disengaging the quick–shift gear

Hydraulic coupling Voith (–658205 and 666066–)

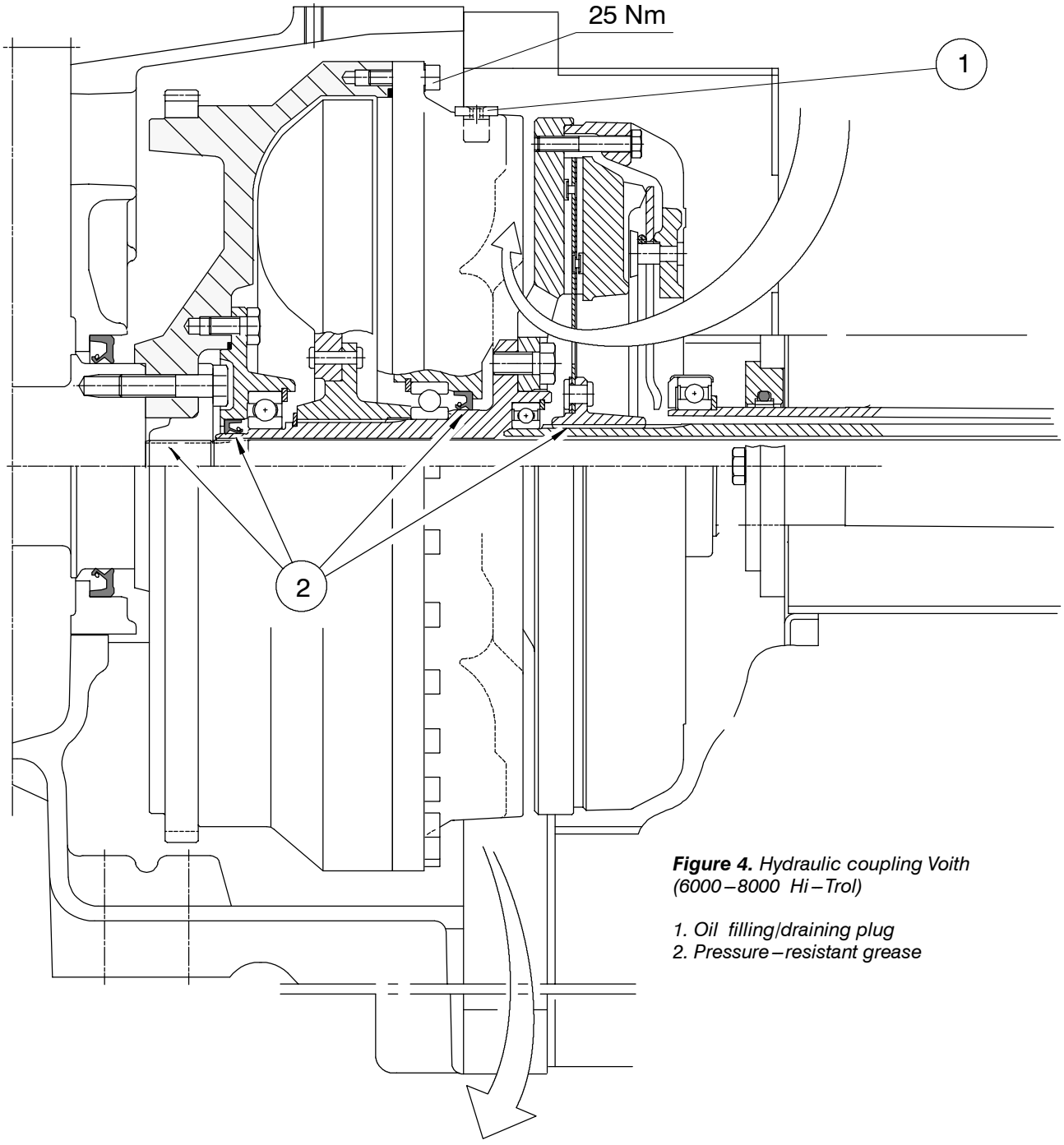


Figure 4. *Hydraulic coupling Voith (6000–8000 Hi–Trol)*

1. Oil filling/draining plug
2. Pressure–resistant grease

Valmet 6000–8000 Hi–Trol –models are equipped with a hydraulic coupling between the flywheel and the clutch. The mechanical clutch (except the disc) and its adjusting values are the same as on models without the hydraulic coupling (see figure 1).

The hydraulic coupling is maintenance–free. It is not even necessary to check the oil level.

Oil quality in hydraulic coupling, see page **130**/**4**.
Oil volume in hydraulic coupling, see page **130**/**4**.

Hydraulic coupling type: Voith 390 TD–VA (–658205) or Voith TD–FVA1 (666066–)
Diameter: 433 mm
Slip at max. power: 2 %

Hydraulic coupling Transfluid (658206–666065)

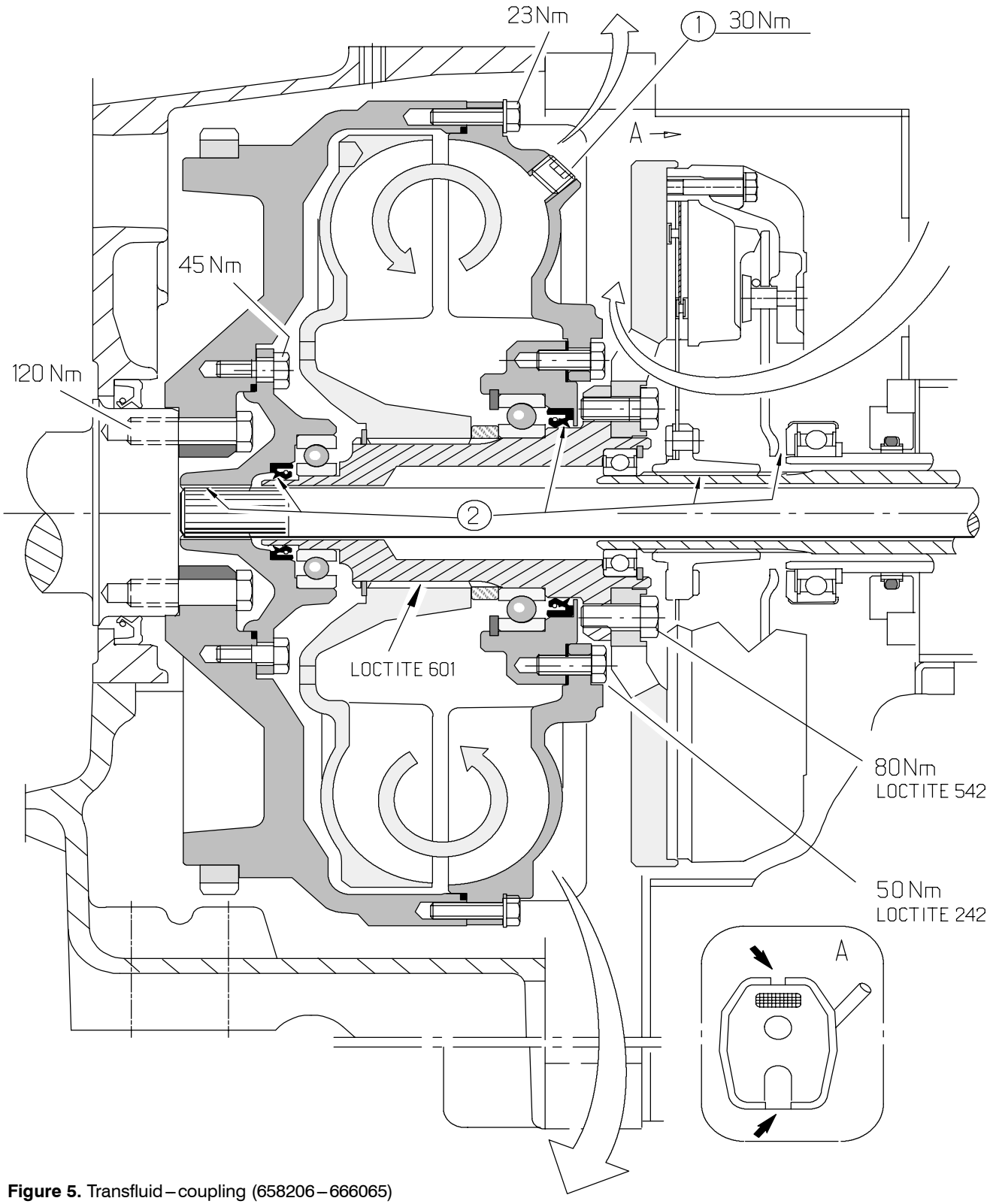


Figure 5. Transfluid–coupling (658206–666065)
1. Oil filling/draining plug. Chesterton no. 908 (UK 0181) on threads.
2. EP grease

With effect from tractor ser. no 658206 up to ser. no 666065 tractors 6000–8000 have a hydraulic coupling of Transfluid make.

Oil quality and volumes in the hydraulic coupling, see page **130/4**.