
FILLING CAPACITIES AND SETTINGS

CLAAS JAGUAR 880

Gearbox capacities

Basic machine:

Transfer gearbox	3.85 litres (3.38 Imp. qt; 4.08 U.S. qt) multi-grade transmission oil SAE 90, API-GL-4-90 (MIL-L-2105)
Angle drive gearbox for fan	0.7 litres (0.62 Imp. qt; 0.74 U.S. qt) multi-grade transmission oil SAE 90, API-GL-4-90 (MIL-L-2105)
Ground drive change-speed transmission	6.8 litres (5.98 Imp. qt; 7.20 U.S. qt) multi-grade transmission oil SAE 90, API-GL-4-90 (MIL-L-2105)
Final drive gearboxes, each holding	3 litres (2.64 Imp. qt; 3.18 U.S. qt) multi-grade transmission oil SAE 90, API-GL-4-90 (MIL-L-2105)
Change-speed and reversing gearbox	9.5 litres (8.36 Imp. qt; 10.07 U.S. qt) multi-grade transmission oil SAE 90, API-GL-5-90 (MIL-L-2105 B)
Angle drive gearbox for top feed rollers	0.7 litres (0.62 Imp. qt; 0.74 U.S. qt) multi-grade transmission oil SAE 90, API-GL-5-90 (MIL-L-2105 B)
Gearbox for top feed rollers	1 litre (0.88 Imp. qt; 1.06 U.S. qt) multi-grade transmission oil SAE 90, API-GL-5-90 (MIL-L-2105 B)
Chain drive casing for bottom feed rollers	0.4 litres (0.35 Imp. qt; 0.42 U.S. qt) semi-fluid lubricant, NLGI Class 00
Rear wheel drive axle	2.3 litres (2.02 Imp. qt; 2.43 U.S. qt) multi-grade transmission oil SAE 90, API-GL-4-90 (MIL-L-2105)
Rear wheel drive axle SIGE:	
Differential	10.5 litres (9.24 Imp. qt; 11.13 U.S. qt) multi-grade transmission oil SAE 90, API-GL-5-90 (MIL-L-2105 B)
Wheel hubs, each holding	0.8 litres (0.70 Imp. qt; 0.85 U.S. qt) multi-grade transmission oil SAE 90, API-GL-5-90 (MIL-L-2105 B)
Front attachments:	
Maize header, 8-row:	
Main gearbox	0.75 litres (0.66 Imp. qt; 0.80 U.S. qt) multi-grade transmission oil SAE 90, API-GL-5-90 (MIL-L-2105 B)
Spur gearbox	0.2 litres (0.18 Imp. qt; 0.21 U.S. qt) multi-grade transmission oil SAE 90, API-GL-5-90 (MIL-L-2105 B)
Chain drive casing	0.9 litres (0.79 Imp. qt; 0.95 U.S. qt) multi-grade transmission oil SAE 90, API-GL-5-90 (MIL-L-2105 B)
Maize header, 6-row:	
Main gearbox	0.7 litres (0.62 Imp. qt; 0.74 U.S. qt) multi-grade transmission oil SAE 90, API-GL-5-90 (MIL-L-2105 B)
Spur gearbox	0.2 litres (0.18 Imp. qt; 0.21 U.S. qt) multi-grade transmission oil SAE 90, API-GL-5-90 (MIL-L-2105 B)
Pick-up 4.30 m / 3.00 m / 2.20 m:	
Angle drive gearbox	0.75 litres (0.66 Imp. qt; 0.80 U.S. qt) multi-grade transmission oil SAE 90, API-GL-4-90 (MIL-L-2105)
Pick-up 3.80 m:	
Angle drive gearbox	0.85 litres (0.75 Imp. qt; 0.90 U.S. qt) multi-grade transmission oil SAE 90, API-GL-4-90 (MIL-L-2105)

FILLING CAPACITIES AND SETTINGS

CLAAS JAGUAR 880

Hydraulic system:

Working hydraulic system
and hydrostatic ground drive

Oil change

approx. 16 litres
(14.09 Imp. qt; 16.96 U.S. qt)

Refill

approx. 52 litres
(45.80 Imp. qt; 55.12 U.S. qt)

Multi-grade hydraulic oil HV (ISO-VG 32 and 46)
Conforming to DIN specifications 51 524, Part 3

Pressure of hydraulic systems

Pressure relief valve lift hydraulic system

175⁺¹⁵ bar (2528⁺²¹⁷ psi)

Pressure relief valve hydrostatic steering

115⁺¹⁵ bar (1668⁺²¹⁷ psi)

Pressure relief valve low pressure hydraulic system

19⁺⁴ bar (275⁺⁵⁸ psi)

Hydrostatic ground drive

LINDE BPV 100 LKS / BMF 75 TFC:

Operating pressure

420 bar (6091 psi)

Charge pressure

18⁺¹ bar (261⁺¹⁴ psi)

Radiator guard

25^{+2.5} bar (363^{+36.3} psi)

Safety features

Basic machine:

Cut-out clutch for feed drive

1700 Nm (1253.85 ft lb)

Maize header, 8, 6 and 5-row – 38":
(overrun clutches in the universal drive shafts)

Knife and gathering chain drive

1000 Nm (737.56 ft lb)

Feed auger

1000 Nm (737.56 ft lb)

Pick-up 4.30 m / 3.80 m / 3.00 m / 2.20 m:

Slip clutch for feed auger

780 – 820 Nm (575.30 – 604.80 ft lb)

Slip clutch for pick-up

380 – 420 Nm (280.27 – 309.77 ft lb)

Torque settings

Mounting bolts:

Knives – cutting cylinder

Hexagon bolts M 16

= 250 Nm (185 ft lb)

Shear bar

= 195 Nm (144 ft lb)

Shear bar support (anvil)

Eye bolts BM 20 x 200 DIN 444

Self-locking nuts VM 20 CN 200808

= 300 Nm (221 ft lb)

Wheel studs, wheel bolts:

Front axle

Wheel bolts M 22 x 1.5 - 10.9 and
wheel nuts with thrust piece
H 22 DIN 74 361-10

= 860 Nm (634.3 ft lb)

Rear axle

Wheel bolts M 18 x 1.5 - 8.8 and
special lock washers (Limes)
C 18.5 DIN 74361

= 260 Nm (191.8 ft lb)

Rear wheel drive axle

Wheel studs M 18 x 1.5 - 8.8 and
countersunk collar nut

= 310 Nm (228.6 ft lb)

GENERAL RECOMMENDATION FOR REPAIR

1. Locate the seat of the trouble, note all defective parts and take all precautions to prevent accidents.
2. Use genuine CLAAS spares and suitable CLAAS special service tools.
3. Always disconnect the negative battery cable (–) when working on the engine.
4. Drain off oil before removing the transmission cases. Use a plastic or soft metal hammer to separate parts tightly fitted into each other.

5. Three-phase alternator

- a) Never disconnect the cables between the alternator, voltage regulator and battery with the alternator running.
- b) Do not connect the battery terminals in reverse polarity; this will destroy the alternator diodes.
- c) Do not carry out work on live parts unless the engine is stopped and the battery cables are disconnected.
- d) Do not flash connections to check current flow. This will damage the semiconductors.
- e) Do not use an electric welder on machines unless all the alternator wires are disconnected!
- f) The battery provides the current for the field excitation required to start the alternator action via the charge indicator bulb. Burnt out bulbs must, therefore, be renewed to ensure positive field excitation.

6. Correct tension of steel roller chains

Find the center point in the slack span between sprockets. With the tight span slightly under load, push in the center point of the slack span with the thumb. The tension of the chain is correct when its slack span deflects about 2 % of the center distance between shafts. Tension of new chains should be checked at short intervals.

Example: If the distance between the centers of the shafts is 500 mm, the slack span of the chain should deflect about 10 mm.

7. Taper ring fasteners (locking cones)

Parts can be securely fastened by taper rings, even when high power is transmitted from the drive element to the shaft and vice versa. However, the preload must be correct.

Installation:

When fitting the taper rings, it is **important** that the shaft, hub, parallel key and taper rings are thoroughly cleaned, that semi-fluid lubricant NLGI grade 00 (e.g. Shell Retinax G or its equivalent) is applied and that the components are tightened to the specified torque in the correct order of assembly.

IMPORTANT: No solid grease must be used when assembling the parts.

Removal:

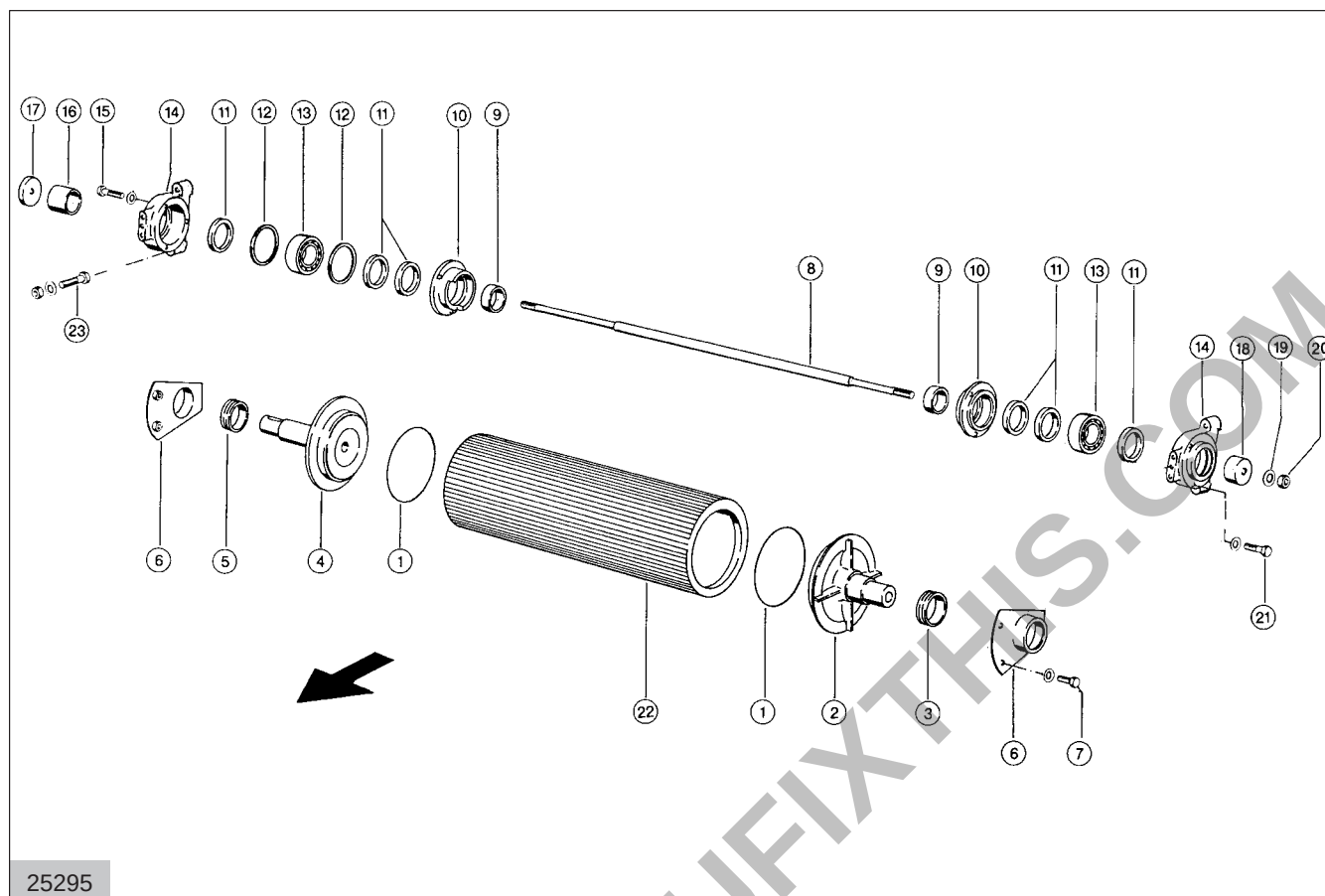
After loosening the fixing components that clamp the taper rings axially in position, use a suitable hammer and block-ended tube and apply a short, sharp blow to loosen the taper ring fasteners.

IMPORTANT: The inside diameter of the tube must be large enough to fit over the taper ring.

8. Self-locking bolts (with adhesive-filled micro capsules)

Renew self-locking bolts, e.g. Verbus-Plus/Imbus-Plus or similar bolts whenever they have been disturbed. In exceptional cases, self-locking bolts may be reused up to three times. Always be sure to tighten the self-locking bolts to the specified torque.

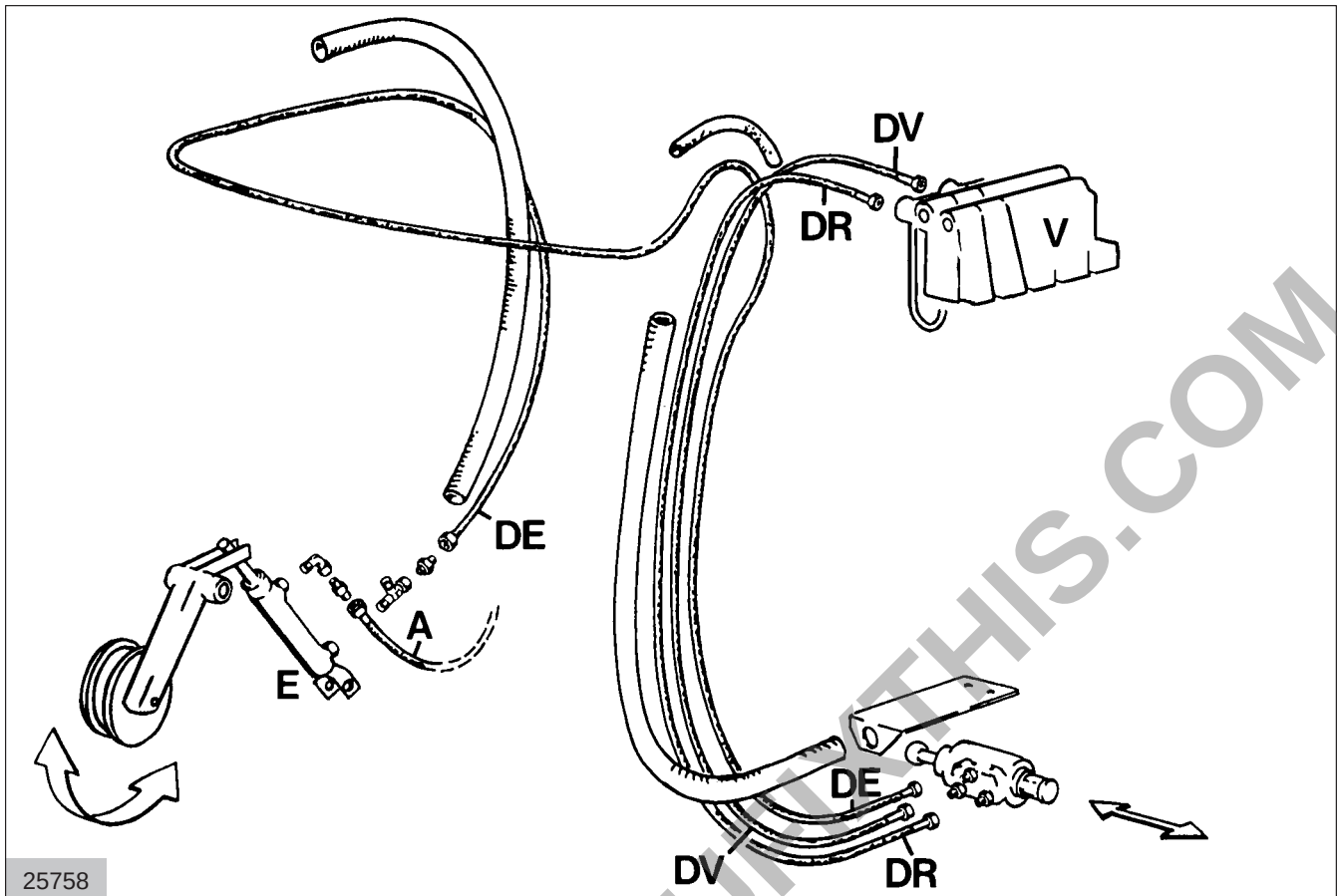
Self-locking bolts with adhesive-filled micro capsules must always be quickly tightened to the specified torque. When removing these bolts, screw them quickly all the way out. These self-locking bolts with adhesive-filled micro capsules **must not** come in contact with sealant or jointing compound (e.g. Eppl 33 or similar products).



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Exploded view of front corn-cracker roller:

- | | | | |
|----|---|----|---------------------------------|
| 1 | O-ring 155 x 3 DIN 3771 | 22 | Roller barrel |
| 2 | Left-hand flange | 23 | Hex. bolt M 12 x 50 DIN 931-8.8 |
| 3 | Threaded bushing, right-hand thread
(from machine No. ...) | | Hex. nut M 12 DIN 934-8 |
| 4 | Right-hand flange | | Contact washer A 12 |
| 5 | Threaded bushing, left-hand thread
(from machine No. ...) | | (Fig. 151) |
| 6 | Sealing plate | | |
| 7 | Hex. bolt M 8 x 16
Contact washer A 8 | | |
| 8 | Threaded rod | | |
| 9 | Bushing | | |
| 10 | Ring | | |
| 11 | Shaft seal | | |
| 12 | Shim 70 x 80 x 2 DIN 988 | | |
| 13 | Self-aligning roller bearing 22208 E/C3-W33 DIN 635 | | |
| 14 | Bearing housing | | |
| 15 | Hex. bolt M 6 x 40 DIN 931
Contact washer A 6 | | |
| 16 | Bushing | | |
| 17 | Clamping washer | | |
| 18 | Cap | | |
| 19 | Contact washer A 16 | | |
| 20 | Hex. nut M 16 x 1.5 DIN 934-10 | | |
| 21 | Hex. bolt M 6 x 40 DIN 931-8.8
Contact washer A 6 | | |



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Layout and pipeline connections of low-pressure hydraulic system for reverse drive cylinder and feeder drive hydraulic cylinder:

- V = Solenoid valve unit
- S = To hydraulic cylinder for grindstone mechanism
- M = Pressure line from hydraulic pump
- E = Feeder drive belt tensioning cylinder
- R = Reverse drive cylinder
- A = Pressure line to feeder drive belt tensioning cylinder – under pressure at all times.
- DV = Pressure line »feeder forward«
- DR = Pressure line »feeder reverse« (reversing)
- DE = Pressure line »feeder drive belt tensioning«

(Fig. 79)

STEERING

Orbitrol steering unit problems

External leaks:

External leaks are identified by oil leaking from the valve block / steering motor flange faces, from the pressure relief valve and from the shock valve.

Cause:

1. O-rings on the flanges are not sealing properly.
2. O-ring on the adjusting screw for the pressure relief valve not sealing properly.
3. O-ring on the shock valve plug not sealing properly.



Internal leaks:

Internal leaks may be the reason for the rear wheels not responding immediately to the steering on soft ground, or for no hard stop being felt on the steering wheel when the rear wheels are turned fully to the left or right.

Cause:

The inner O-rings of the shock valve are not sealing properly.

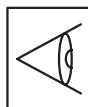


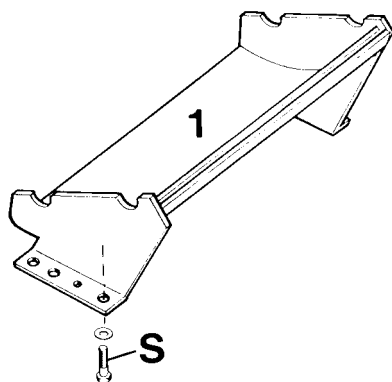
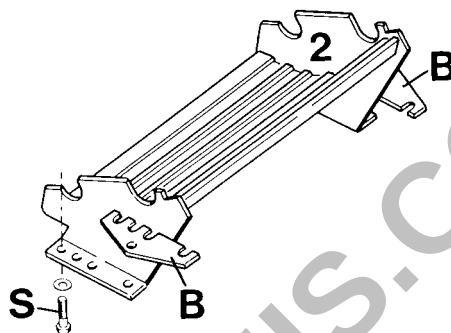
Remedy:

1. If oil is leaking from the valve block to the steering motor flange faces, fit new O-rings.
2. If oil is leaking from the pressure relief valve and the shock valve and if there are internal leaks, replace the complete valve block.

Checking the steering system:

1. Check the oil level and the tension of the hydraulic pump drive belt.
2. The hydraulic oil must be at operating temperature (approx. 60 °C)
3. Turn the steering wheel with a force of 25 Nm (18 ft lbs) until the steering stops make contact. If the steering wheel can be turned four revolutions per minute further (in either direction), the steering unit must be replaced or its seals renewed.
4. Check the pressure of the hydraulic oil in the steering system using a pressure gauge.





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Adjusting concave plate

Plain concave plate (1):

The plain concave plate (1) cannot be adjusted.

Shims (B) must not be used in installing plain concave plate.

Concave plate (2) with four rasp bars:

The concave plate (2) can be adjusted.

If new chopper knives are installed and positioned all the way out, six shims (B) on each side may be inserted between chopper housing and attachment of concave plate.

As soon as chopper knives have become worn down by more than 2 mm, concave plate can be adjusted by removing shims (B).

NOTE: Position concave plate as close as possible to chopper knives. However, concave plate must not contact knives. To check, turn cutting cylinder **manually**.

The same number of shims must be used on both sides.

S = Hex. bolts M 16 x 45 DIN 933-8.8

Conical spring washer 16

(Fig. 45)

Assembling and installing cutting cylinder

1. Attach drive flanges (9 and 10) with hex. bolts (11). Tighten with **225 Nm** torque.
2. Press seal (12) and shaft seals (14) into bearing housing (13). Slide bearing housing on drive flanges.
3. Remove two bolts holding knives and replace by crane lugs to lift cutting cylinder horizontally into housing.
Lift cutting cylinder into housing by means of a crane or similar instrument. Make sure not to load bearing housing (13) as this would damage seals (12).
4. Screw location screw (22) into feed housing on both machine sides.
5. Glue O-ring (15) into bearing housing (13) with silicone rubber (spare part No. 136 516.0) at three points.
6. Slide ring (16) onto drive flange. Observe correct installation position.
7. Press self-aligning roller bearing (17) on drive flange as far as stop by means of suitable pipe.
8. Press bearing housings (21) onto self-aligning roller bearing on both sides. In doing so, turn bearing housing so that location screw (22) fits in through bore.

(Fig. 70 to 73)

9. Place hex. socket head cap screws (23) and tighten.
- (Fig. 70, 71 and 74)

10. Detach cutting cylinder and remove crane lugs. Insert hex. bolts to attach knives. Knives must be aligned relative to shear bar.

Install cover plate (A).

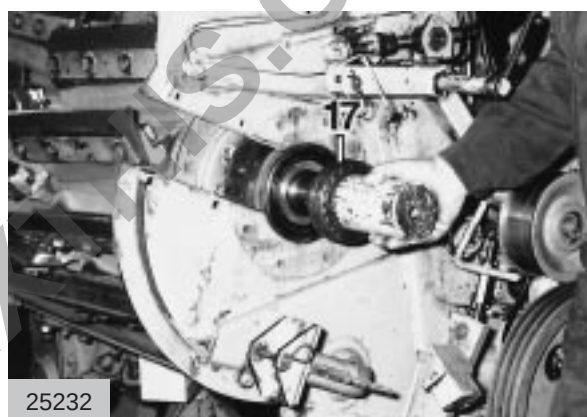
(Fig. 75)



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ENGINE OUTPUT ASSEMBLY

Removing the engine output assembly

Unbolt the panels (S).

(Fig. 1)



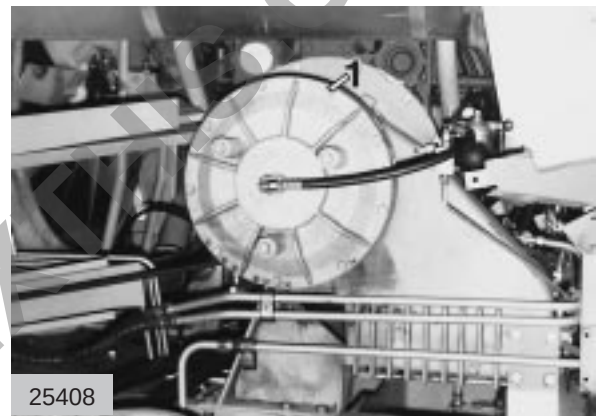
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Remove the hydraulic hose and seal the connections.
Unscrew the hex. head bolt (1) and remove the clutch.

(Fig. 2)

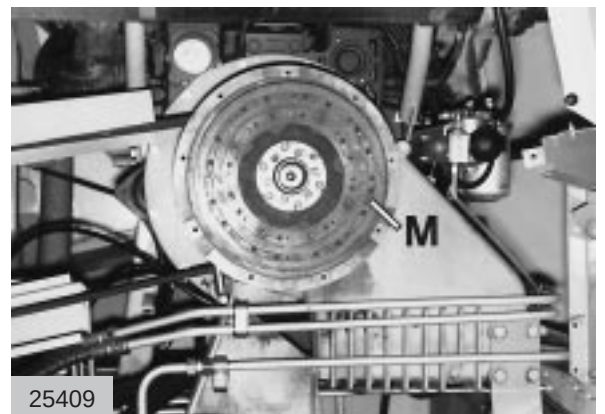
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Remove the driven disc (M).

(Fig. 3)

3



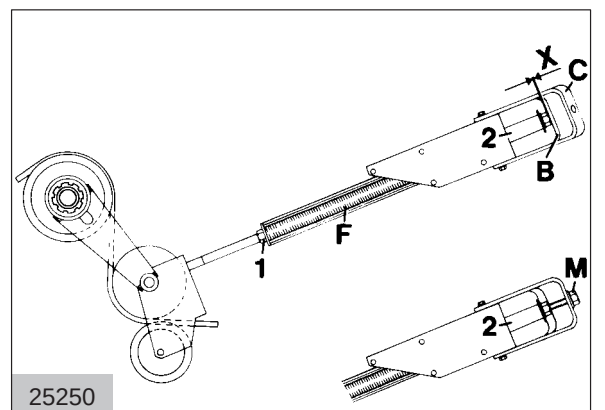
Loosen the power band belt for the main transmission.
Tilt the restricting bracket (B) to the side. Place the
restricting bracket (C) centrally over the cylinder barrel.

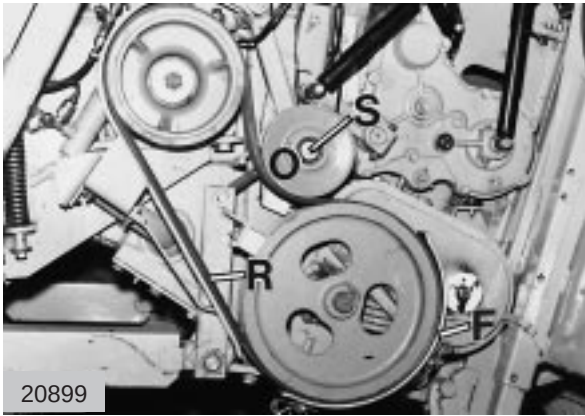
Screw a M 22 x 120 hex. head bolt (part no. 215 766.0)
through the bracket (C) into the cylinder barrel (2).

Remove the spring cylinder (F) using the hex. head bolt (M)
as far as the bracket (C).

(Fig. 4)

4





5. Remove belt guide (F). Take off power band belt (R) from the pulley.

(Fig. 5)



6. Loosen top clamps (P) on both sides and hinge them back.

(Fig. 6)



7. Lift the front attachments slightly so the gap between feed units and chopping unit will open. Adjust the stand all the way down to the ground and secure in place.

8. Loosen the hexagon nut (M) and swing down the holding clamps mounted on the hexagon shaft under the chopping unit.

9. Push the machine backwards.

(Fig. 7)

Assembling front feed roller (magnet housing for metal detector)

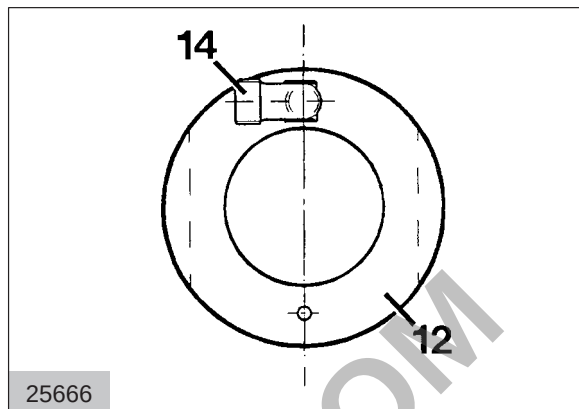
1. Replace all damaged parts, clean all parts thoroughly and coat them with oil.
 2. Bolt magnet housing (2) onto square shaft (1).
 3. Press ball bearing (6) onto square shaft and secure axially with circlip (7).
 4. Press ball bearing (9) into flange (8) and secure with circlip (10).
 5. Press the preassembled flange (8) onto the square shaft and secure axially with circlip (11).
 6. Screw in angle union (14) into seal (12) according to figure 76.
 7. Insert ring set (13) with Molykote Longterm 2 (CLAAS no.: 202 393.0) into the groove of the seal (12).
 8. Press the preassembled seal onto the square shaft (1) in such a way, that the angle union will be parallel to a flat surface of the square shaft end.
 9. Place the flange (18) onto the feed roller and screw down tight.
- Torque for counter sunk bolts (16) = 45 Nm**
10. Place the spacer ring (19) onto the right flange shaft. Press the pedestal bearing (20) with a special tool (Fig. 77) onto the shaft in such a way that the angle union (21) will show to the left when the pedestal bearing is installed.
 11. Place the preassembled square shaft into the feed roller and bolt down flange (8).

Torque for counter sunk bolts (16) = 45 Nm.

(Fig. 75, 76 and 77)



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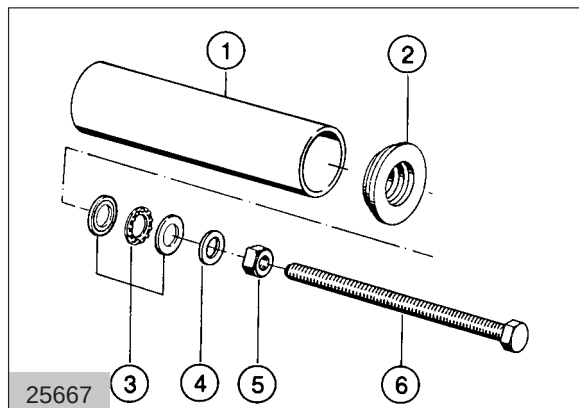


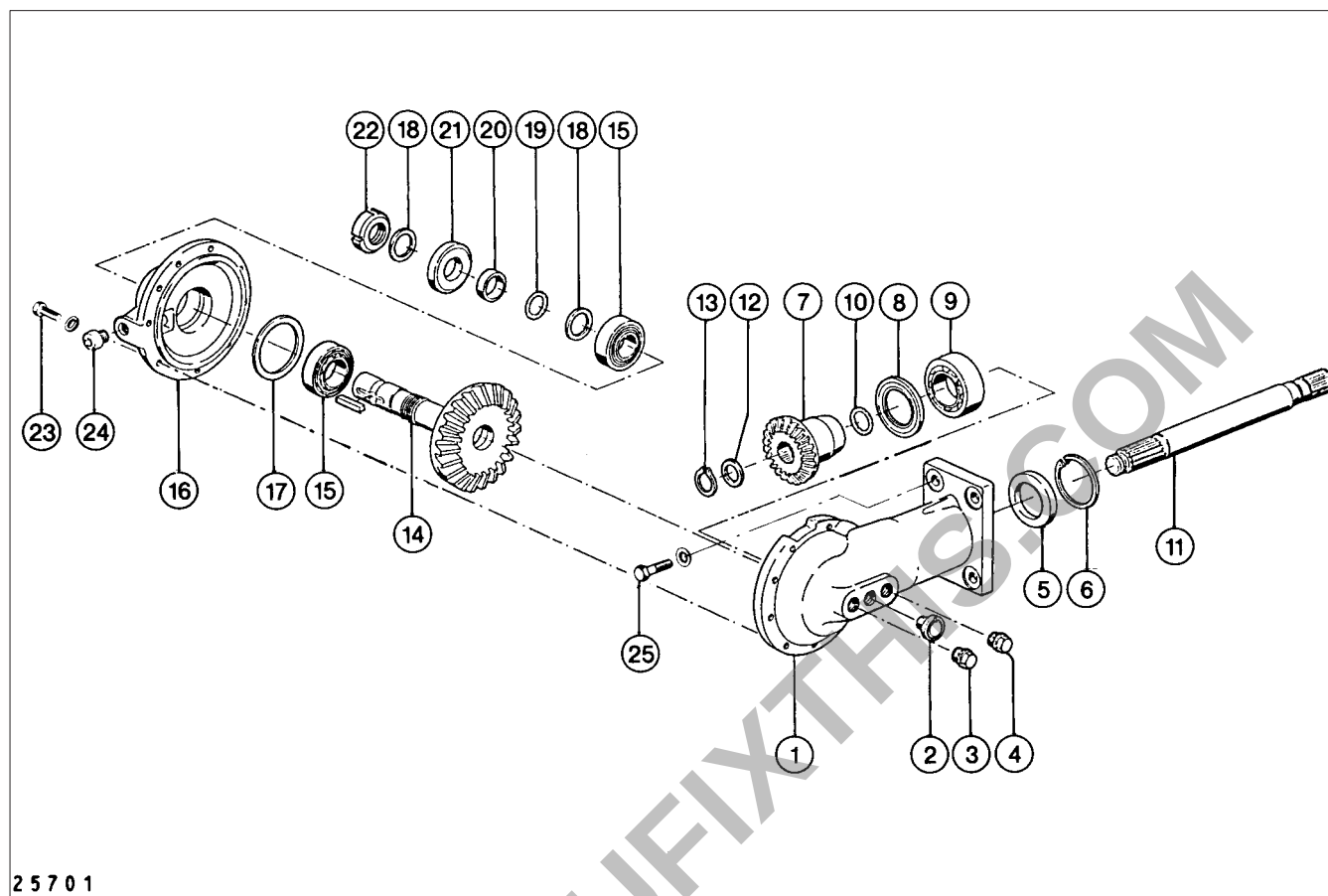
Special tool:

- | | | |
|---|---|-------------|
| 1 | Tubing 60 x 4.5 x 150 mm (self made) | |
| 2 | Centralizing washer | – 181 879.0 |
| 3 | Axial grooved ball bearing 51 103 DIN 711 | – 177 899.9 |
| 4 | Washer 13 x 30 x 3 | – 236 844.0 |
| 5 | Hexagon nut M 12 DIN 934-8 | – 236 172.0 |
| 6 | Hexagon bolt BM 12x180 DIN 546-8.8 | – 236 302.0 |

(Fig. 77)

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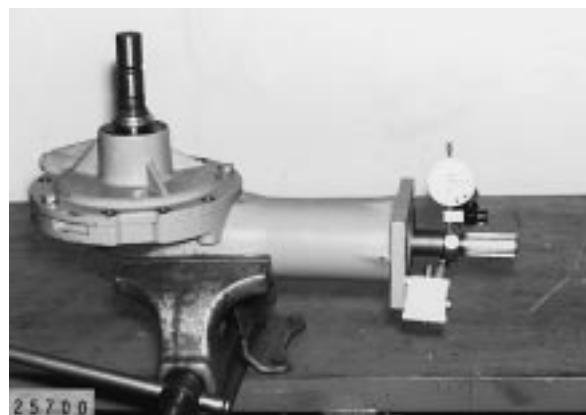


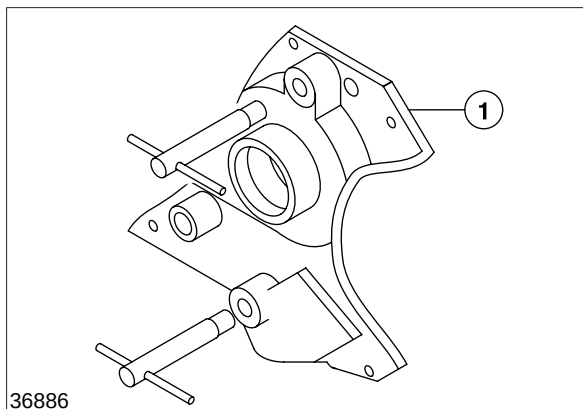


2 5 7 0 1

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210

Special tool:

1 Gearbox cover

(Fig. 210)



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26. Check that the torsional flank clearance of the gear wheel set (7) is **0.15 mm to 0.25 mm**. If necessary, correct the torsional flank clearance by means of shims (23).

ATTENTION! The reverse shaft may have an axial play of **0 to 0.1 mm**.

(Fig. 202, 203 and 211)



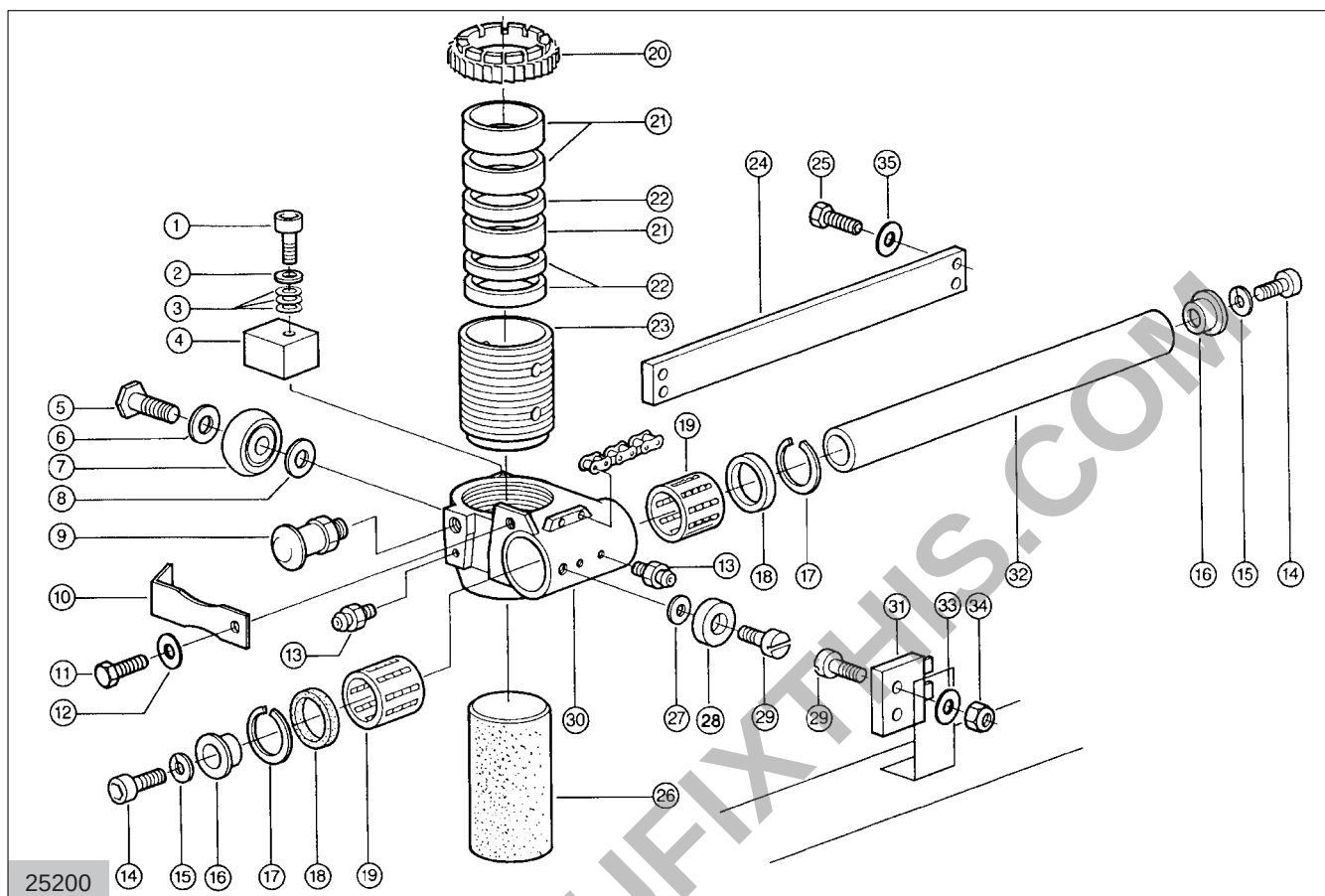
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27. Raise the reverse gear wheel (12) and check the torsional flank clearance of **0.15 mm to 0.25 mm**. If necessary, correct the torsional flank clearance using shims (15).

ATTENTION! The reverse shaft may have an axial play of **0 to 0.1 mm**.

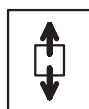
(Fig. 202, 203 and 212)

28. Coat the tooth faces with inking paste. Check and optimise the contact pattern. If necessary, alter the setting of the bevel pinion and repeat assembly steps 10. to 27.



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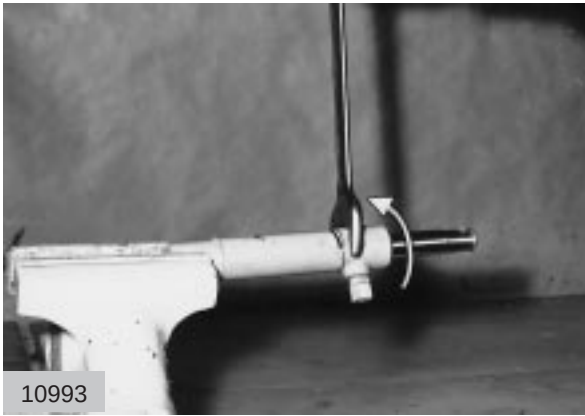


Exploded view of grinding unit:

- 1 Hex. socket head cap screw M 10 x 25
DIN 912-8.8
- 2 Detent edged ring Vskz 10
- 3 Shim 10 x 16 x 0.1; 0.5 DIN 988
- 4 Guide plate
- 5 Hex. bolt M 12 x 35
- 6 Contact washer S 12
- 7 Guide roller
- 8 Shim 12 x 18 x 1 DIN 988
- 9 Stop bolt
- 10 Spring plate
- 11 Hex. bolt M 8 x 25 DIN 933-8.8
- 12 Contact washer A 8
- 13 Grease nipple
- 14 Hex. socket head cap screw M 16 x 45
DIN 912-8.8
- 15 Detent edged ring Vskz 16
- 16 Location bushing
- 17 Snap ring
- 18 Wiper
- 19 Linear ball bearing
- 20 Toothed nut
- 21 Bushing
- 22 Thrust ring
- 23 Guide bushing
- 24 Guide rail

- 25 Hex. bolt M 10 x 45 DIN 931-8.8
- 26 Grindstone
- 27 Washer
- 28 Magnet
- 29 Hex. socket head cap screw M 8 x 20-4.8
- 30 Grindstone holder
- 31 Flat switch
- 32 Guide shaft
- 33 Washer
- 34 Hex. nut M 4 DIN 934
- 35 Contact washer

(Fig. 40)



4. Attach locking wire (7) with its hook and turn the cylinder head so that the wire is drawn into the groove.

(Fig. 72)

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Removing and dismantling the reverse drive hydraulic cylinder

Loosen the cylinder at (Z).

(Fig. 73)



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Disconnect the reverse drive cylinder and unscrew the hydraulic pipelines.

(Fig. 74)



75

Unbolt the reverse drive cylinder from bracket (H).

(Fig. 75)

8. Unscrew the neck journal and check the teeth pattern. Correct the teeth pattern and backlash with shims (3 and 14).
9. Insert the O ring (16). Screw on the neck journal with the hex. head bolts (18). Tighten to **78 Nm** torque.

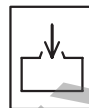
(Fig. 75, 76 and 83)



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10. Fill 50% of the cavity (F) with grease. Insert the shaft seals (9) with grease. Fill the packing washer at (D) with grease. Grease e.g. Shell Retinax A (part no. 411 056.0)

(Fig. 75, 76 and 84)



11. Fit the cap (10). Fix the bevel gear and fill with **0.7 litres** of gear oil.

Oil type:

Multi-purpose gear oil conforming to (MIL-L-2105)
API-GL-4-90 specifications.



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Axial fan angle drive gearbox installation

Place the cone on the shaft and insert the flat keys.

(Fig. 85)



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Move the hub onto the shaft and insert the cone.

(Fig. 86)

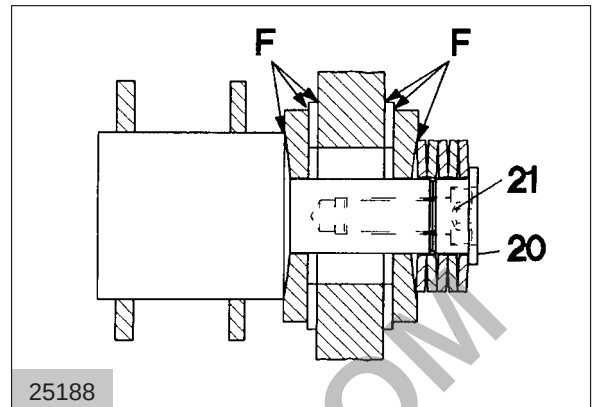


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Installing shear bar adjustment unit

Assemble items (16 to 21). Grease surfaces (F) in the process. When sliding Belleville spring washers into position, observe correct mounting position. Tighten hex. socket head cap screw with **78 Nm**. Bushing (20) and hex. socket head cap screw (21) must be aligned precisely.

(Fig. 23 and 24)

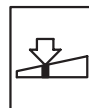
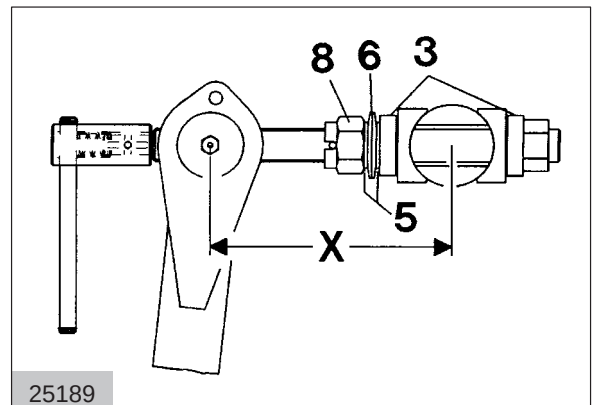


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Coat spindle (1) with high-temperature installation paste.

Assemble items (1, 3, 4, 5, and 6) on spindle. Attach castellated nut (8) and tighten with **40 Nm**. Turn castellated nut until cotter pin (7) can be inserted.

(Fig. 23 and 25)



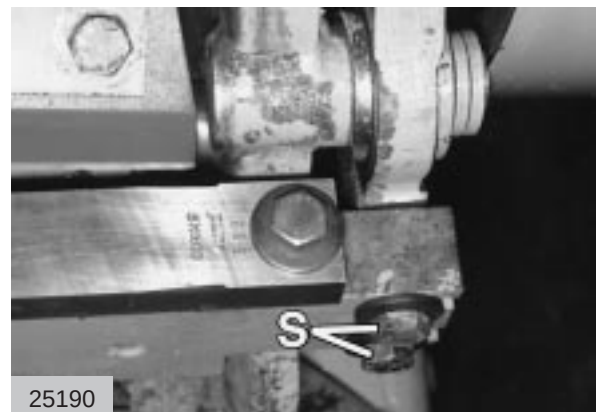
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Set toggle so that dimension (X) is 144 ± 2 mm.

(Fig. 23 and 25)

Insert hex. bolts (S) of shear bar support and tighten with **195 Nm**.

(Fig. 26)



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