580LE-SLE-LSP-LPS 590SLE-LSP LOADER BACKHOES
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*Refer to the Engine Service Manual

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TORQUE SPECIFICATIONS (METRIC HARDWARE)

Use the following torques when specifications are not given.

These values apply to fasteners with coarse threads as received from supplier, plated or unplated, or when lubricated with engine oil. These values do not apply il graphite or Molydisulfide grease or oil is used.

Grade 8.8 Bolts, Nuts and Studs		
		
Size	**Pound-inches**	**Newton metres**
M4	24 to 36	3 to 4
M5	60 to 72	7 to 8
M6	96 to 108	11 to 12
M8	228 to 276	26 to 31
M10	456 to 540	52 to 61
M12	66 to 79	90 to 107
M14	106 to 127	144 to 172
M16	160 to 200	217 to 271
M20	320 to 380	434 to 515
M24	500 to 600	675 to 815
M30	920 to 1100	1250 to 1500
M36	1600 to 1950	2175 to 2600

Grade 10.9 Bolts, Nuts and Studs		
		
Size	**Pound-inches**	**Newton metres**
M4	36 to 48	4 to 5
M5	84 to 96	9 to 11
M6	132 to 156	15 to 18
M8	324 to 384	37 to 43
M10	54 to 64	73 to 87
M12	93 to 112	125 to 150
M14	149 to 179	200 to 245
M16	230 to 280	310 to 380
M20	450 to 540	610 to 730
M24	780 to 940	1050 to 1275
M30	1470 to 1770	2000 to 2400
M36	2580 to 3090	3500 to 4200

Grade 12.9 Bolts, Nuts and Studs



Usually the torque values specified for grade 10.9 fasteners can be used satisfactorily on grade 12.9 fasteners.

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ENGINE OIL RECOMMENDATIONS

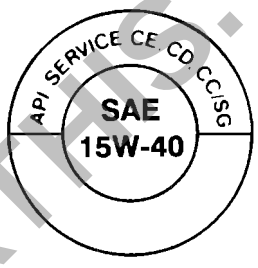
CASE No. 1 engine oil is recommended for your engine. This oil gives correct lubrication for your engine under all operating conditions.

If CASE No. 1 Multiperformance or Performance engine oil cannot be obtained, use only oil corresponding to API/CE category.

NOTE : *Never add any performance or other additive product to the engine oil sump. Engine oil change intervals are shown in this manual in accordance with tests performed on CASE lubricants.*

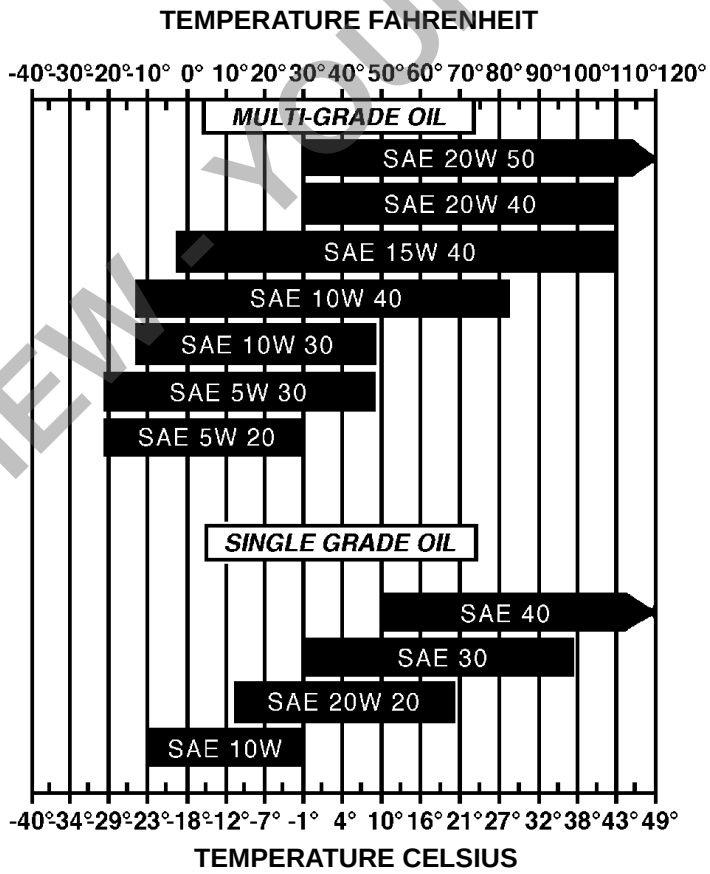


EO1730



654L9

Oil viscosity/Oil operating range



IO36LO

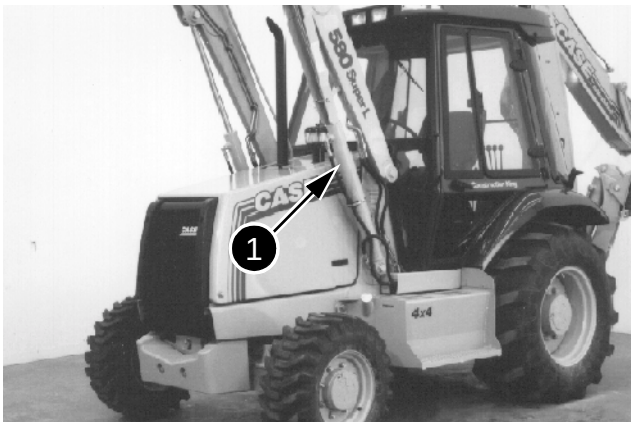
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REMOVING THE RADIATOR

Put identification tags on all disconnected hoses and wires. Close disconnected hoses and fittings with caps and plugs.

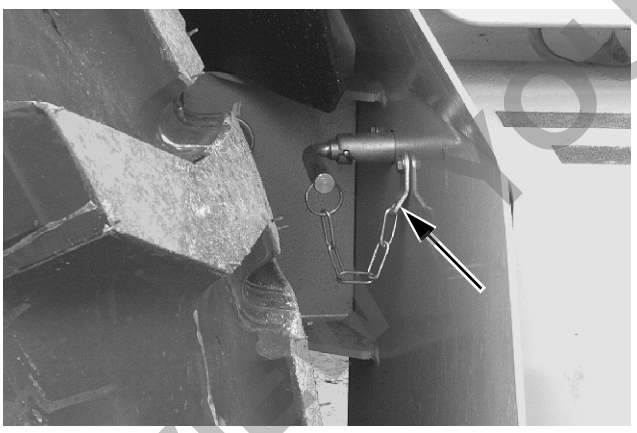
STEP 1



BP9502285

Park the machine on a level surface. Raise the loader attachment, shut down the engine, then install the locking bar (1) to maintain the loader attachment in position.

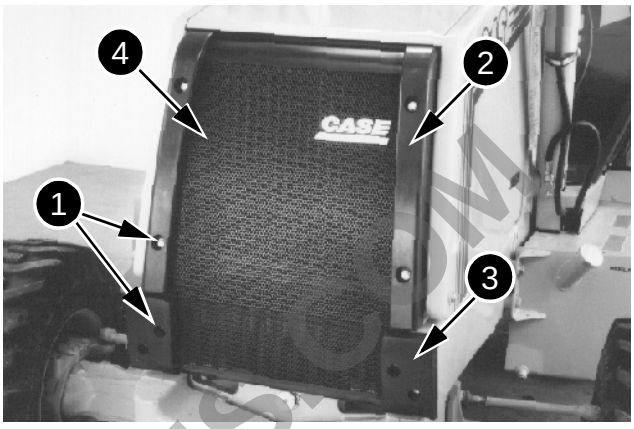
STEP 2



CD95K021

Place the battery master switch in the "Off" position (circuit isolated from battery).

STEP 3



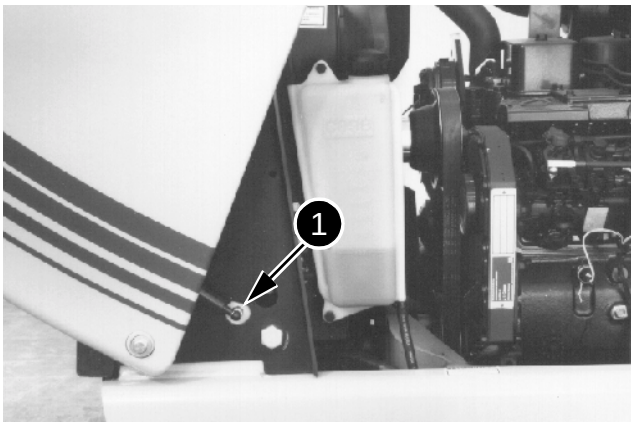
BP9502315

Remove the caps screws (1), upper (2) and lower bumpers (3), and the grille (4) from the front of the machine.

STEP 4

Remove the bolts, washers, and nuts from the pivot point on the hood.

STEP 5



BP9502286

Have another person help with the following procedure:

A. Open the hood.

B. Remove the retainers from the hood struts (1) and disconnect the hood struts from the stud.

C. Hold the hood in place and disconnect the hood cable from the radiator shroud on the other side of the machine.

D. Carefully lower the hood back to the closed position.

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580LE INSPECTION PROCEDURE

1. Prepare the machine for the stall tests as per the instructions in this section.
2. Warm up the hydraulic oil as per the instructions in this section.
3. Apply the parking brake and start the engine.
4. With the engine running at full speed, keep the loader control lever in the RAISE position and read the tachometer. Note the reading on the first line of the inspection sheet.
5. Reduce the engine speed to idle.
6. Move the transmission control lever to second speed and the direction of travel control lever to the FORWARD position.
7. Gradually increase engine speed up to full speed and read the tachometer. Note the reading on the second line of the inspection sheet.
8. Reduce the engine speed to idle (over a period of 2 min with turbo-charger) and stop the engine.
9. Refer to the inspection sheet to interpret the results of the stall tests.

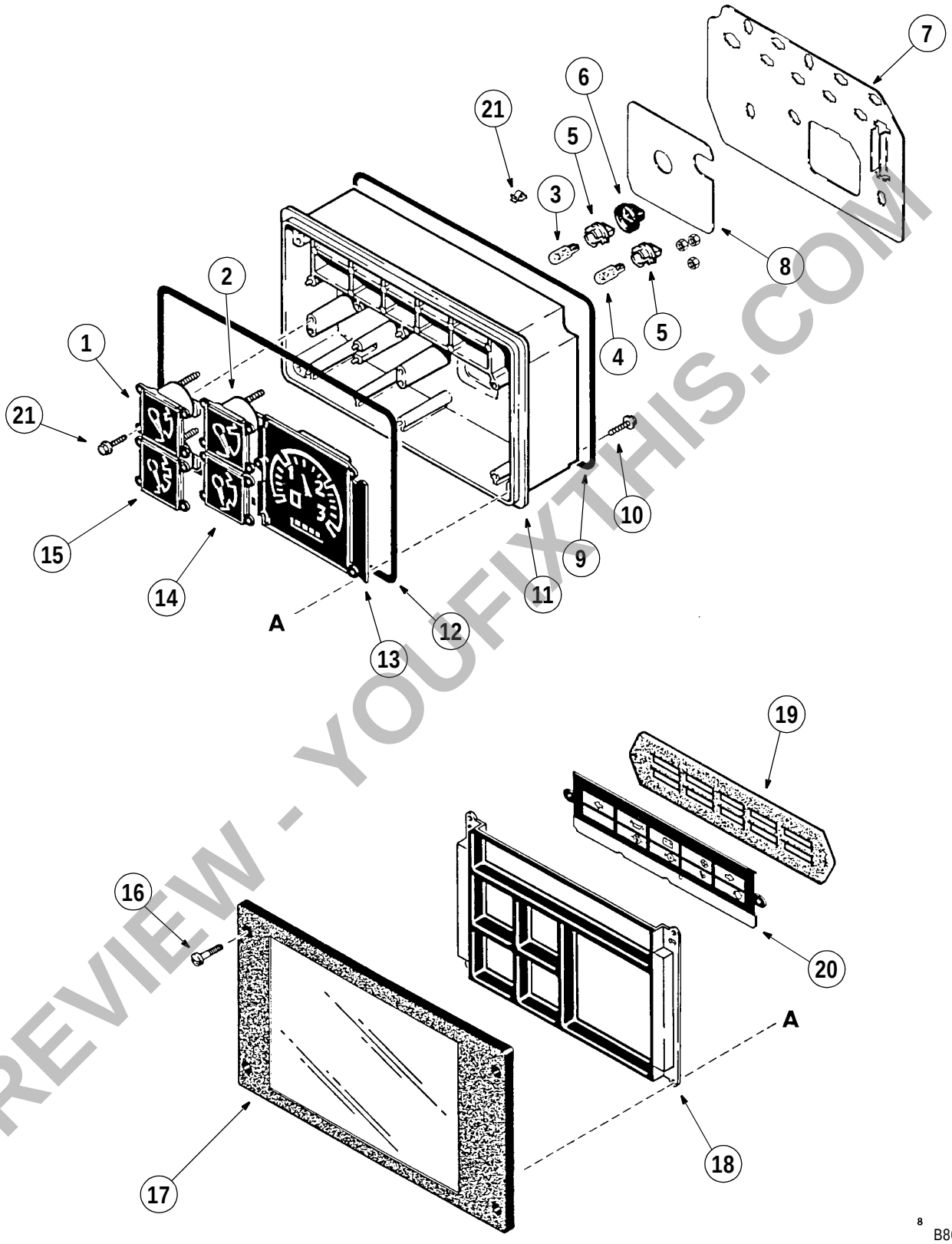
580LE INSPECTION SHEET

1. _____ rpm = hydraulic stall speed (specifications between 2235 and 2305 rpm)
2. _____ rpm = torque converter stall speed (specifications between 2235 and 2310 rpm)

rpm	
1. 2235 to 2305 2. 2235 to 2310	Torque converter, transmission, hydraulic system and engine assumed to be in good condition.
1. Over 2305 2. Over 2310	Problem with the engine. Check the engine speeds. Refer to specifications in Section 9001. Check the fuel injection pump setting as per instructions in Section 3410.
1. Under 2235 2. Under 2235	Problem with engine. Check the engine speeds as per instructions in Section 9001. Check the fuel injection pump setting as per instructions in Section 3410. Change the fuel filter and the air filter.
1. Under 2235 2. 2235 to 2310	Problem(s) with the hydraulic system. Refer to Section 8002. Check the relief valve setting. Do the pump test.
1. Over 2305 2. 2235 to 2310	Problem(s) with the hydraulic system. Refer to Section 8002. Check the relief valve setting. Do the pump test. Check for leaks at the loader control valve.
1. 2235 to 2305 2. Over 2310	Problems with the transmission or torque converter. Refer to Section 6002 and check the transmission and the torque converter.
1. 2235 to 2305 2. Under 2235	Problems with the transmission or torque converter. Refer to Section 6002 and check the transmission and the torque converter.

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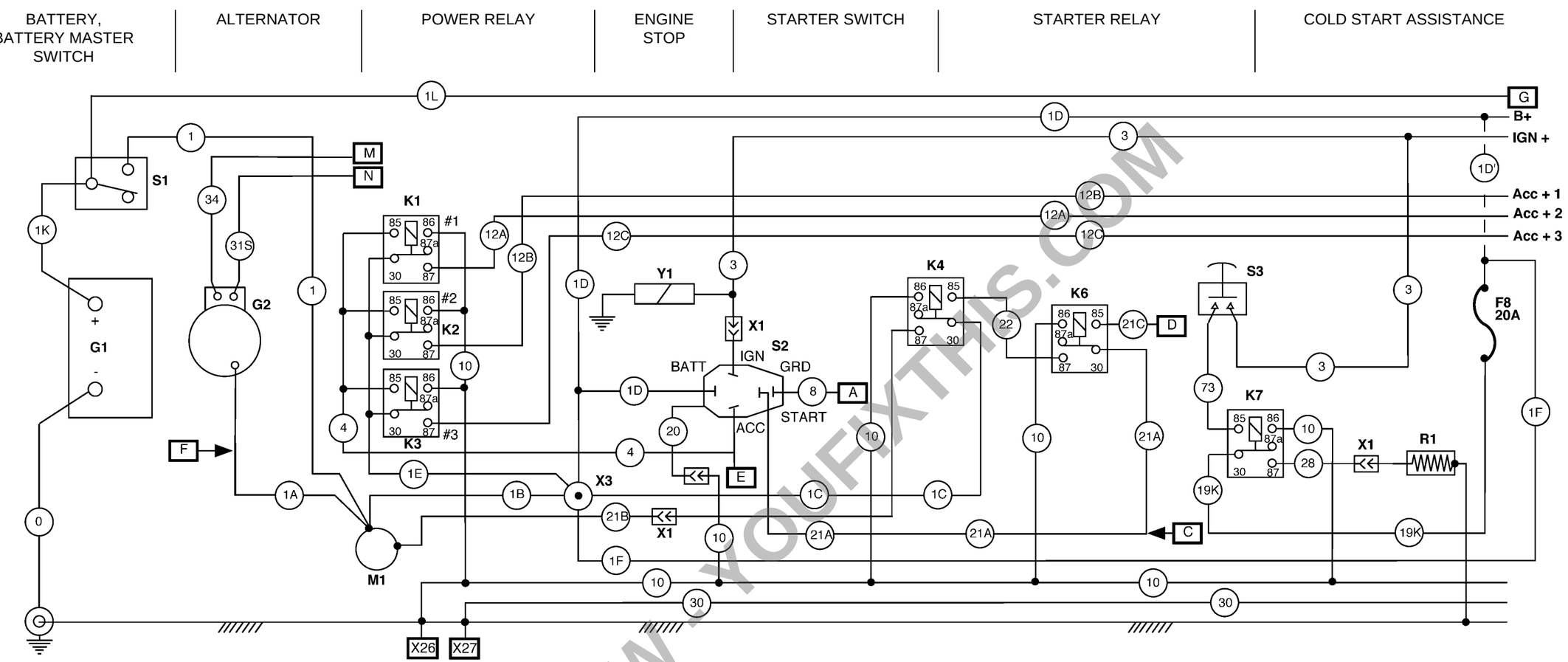
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8 B861764R

1. *Water temperature gauge*
2. *Oil temperature gauge*
3. *Bulb No. 194*
4. *Bulb No. 168*
5. *Socket*
6. *Rubber boot*
7. *Circuit board*
8. *Gasket*
9. *Gasket*
10. *screw*
11. *Body*
12. *Gasket*
13. *Tachometer*
14. *Voltmeter*
15. *Fuel gauge*
16. *Screw*
17. *Cover*
18. *Retainer*
19. *Gasket*
20. *Identification strip*
21. *Screw*

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CM00C002

M1

Wire number	Wire section mm²	Wire colour
0	ST	None
1	0	Red
1A	8.5	Red
1B	10	Red
1C	3	Red
1D	3	Red/light blue
1E	3	Red
3	3	Orange/white
4	1.5	Orange/black
8	1.5	Yellow/white
10	1.5	Black/orange
12A	3	Red/black
12B	3	Red/orange

_ _ _ _ _ 1D’ = M1

Wire number	Wire section mm²	Wire colour
12C	3	Red
19K	1.5	Red/brown
20	1.5	Black
21A	1.5	White/red
21B	3	White
21C	1.5	White/yellow
22	1.5	White/purple
28	2	Grey/orange
30	1.5	Noir/yellow
31S	1.5	Yellow/red
34	1.5	Yellow/dark blue
73	1.5	Green/grey

M2

Number of wire	Wire section mm²	Wire colour
0	ST	None
1	?	Red
1A	8.5	Red
1B	10	Red
1C	3.32	Red
1D	3.32	Red
1E	3.32	Red
1F	3.32	Red
1L	3.32	Red
1K		
3	3.32	White
4	1.32	Grey
8	1.32	Yellow
10	1.32	Black

Wire number	Wire section mm²	Wire colour
12A	3.32	Red
12B	3.32	Red
12C	3.32	Red
19K	1.32	Red
21A	1.32	Light blue
21B	3.32	White
21C	1.32	White
22	1.32	White
28	2.07	Light blue
30	1.32	White
31S	1.32	Yellow
34	1.32	Light green
73	1.32	Grey

Connectors X1 - X2					
Wire no.	M1	M2	Wire no.	M1	M2
3	X1 (A1)	X1 (A3)	28	X1 (G4)	X1 (N4)
21B	X1 (A3)	X1 (A4)			

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Problems of a general nature

NOTHING moves, neither at the loader end, nor at the backhoe end.
→ **a)** Carry out first of all HYDRAULIC INSPECTIONS on the section of the control valve concerned.
→ Complete the general failure detection procedure (G1). See page 19.

The selector button for "loader" function or "backhoe" function (S47) does not respond.
→ The button (S47) is possibly defective. To make sure, carry out the component inspection procedure (C5). See page 25.

The transmission cut-out button (S48) does not respond.
→ The button (S48) is possibly defective. To make sure, carry out the component inspection procedure (C6). See page 25.

The stabilizers do not operate.
→ Carry out the Danfoss (D) component inspection procedure (see page 27).

Problems connected with the backhoe

One of the functions of the backhoe is inoperative.
→ **a)** Carry out first of all HYDRAULIC INSPECTIONS on the control valve section concerned.
→ **b)** Complete the failure detection procedures (D1) (page 29) and (D2) (page 30) on the inoperative function.
→ **c)** If the operation of the components inspected at (D1) and (D2) is found to be correct and if the HYDRAULIC INSPECTIONS carried out on the control valve section (see a) show normal operation, this indicates that the failure is in the **electronic control box** (A3). Therefore change the electronic control box, not forgetting to perform a new calibration (see page 32), after the change has been completed.

None of the functions of the backhoe is operative.
→ **a)** Carry out first of all HYDRAULIC INSPECTIONS on the control valve section concerned.
→ Complete the general failure detection procedure (G1) (see page 19).

The bucket shaking button (S46) is inoperative.
→ The shaking button (S46) is perhaps defective. To make sure, carry out the component inspection procedure (C4) (see page 25).

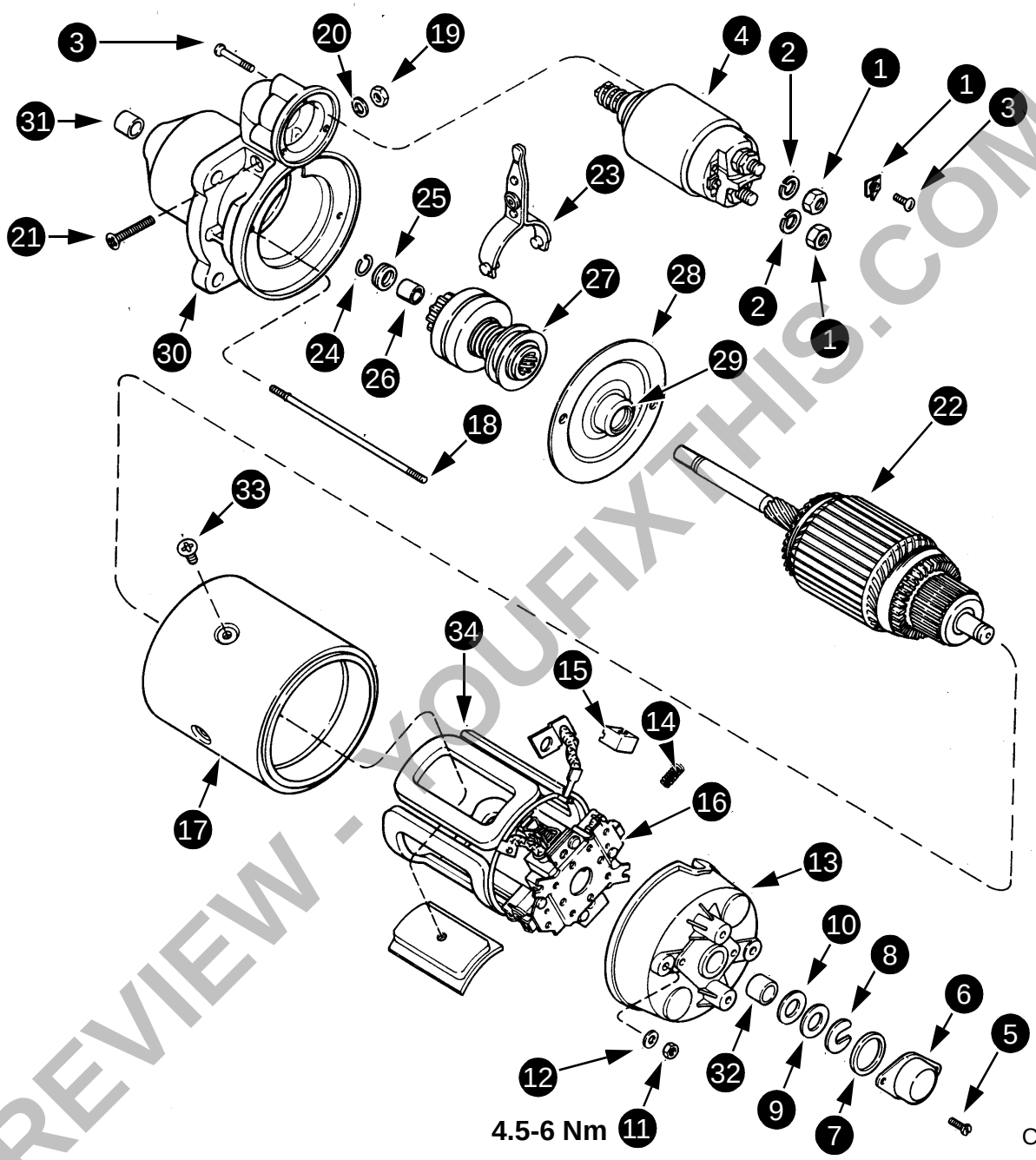
The backhoe operates more slowly than usual (even in "Normal" mode or in "Fine" mode).
→ Check the two-speed solenoid valve operation. To do this, carry out the component inspection procedure (C7) (see page 26).

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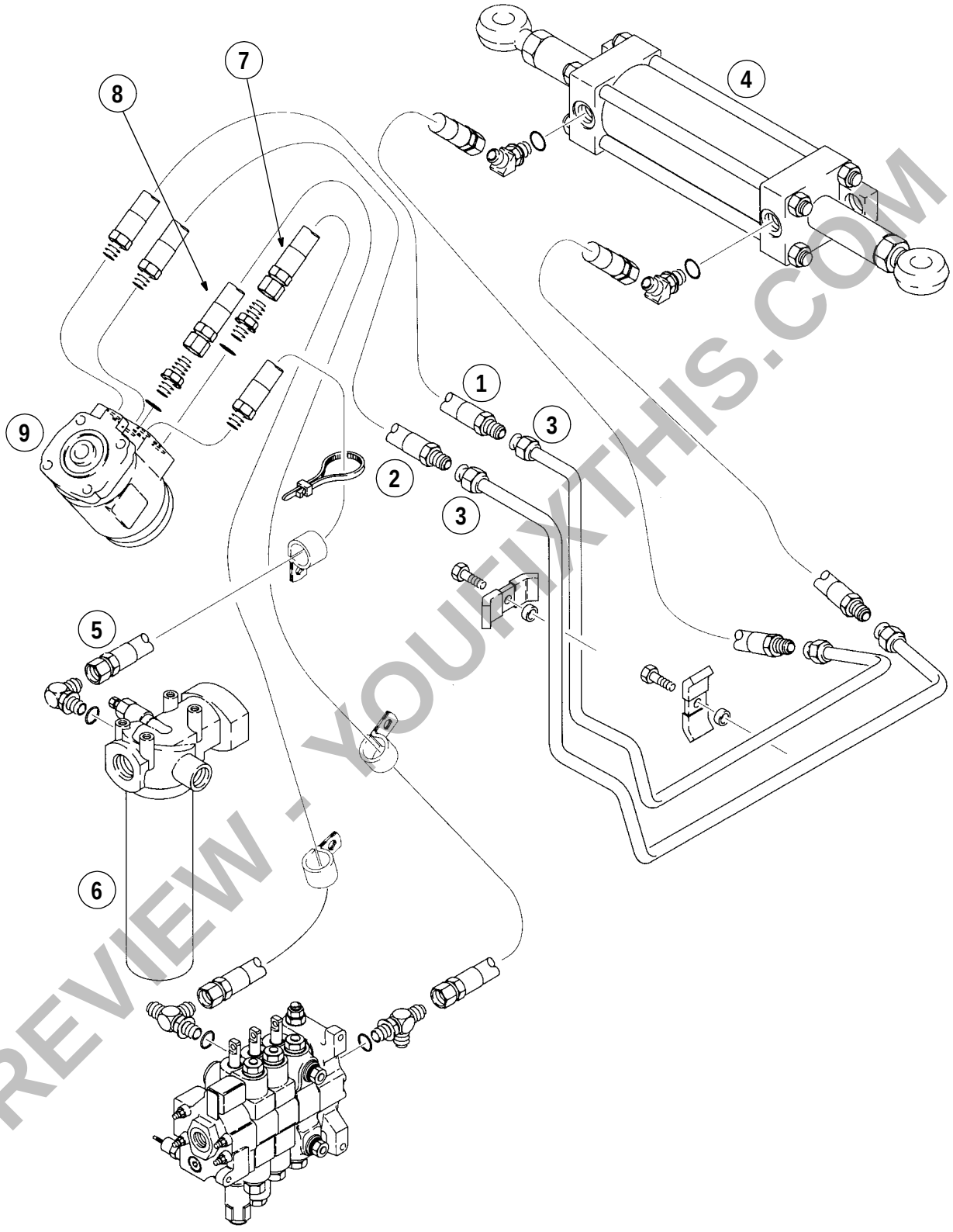
Assembly and disassembly

NOTE : *Parts are numbered in order of disassembly. Assembly is carried out in reverse order.*



1 Nut
2 Washer
3 Screw
4 Starter solenoid
5 Screw
6 Cap
7 Seal
8 Snap ring
9 Shim
10 Shim
11 Nut
12 Washer
13 Cover
14 Brush spring
15 Brush
16 Brush holder
17 Field coil housing
18 Stud
19 Nut
20 Washer
21 Screw
22 Armature
23 Fork
24 Retaining ring
25 Thrust bushing
26 Bushing
27 Drive clutch
28 Plate
29 Dowel
30 Drive housing
31 Bushing
32 Bushing
33 Screw
34 Winding

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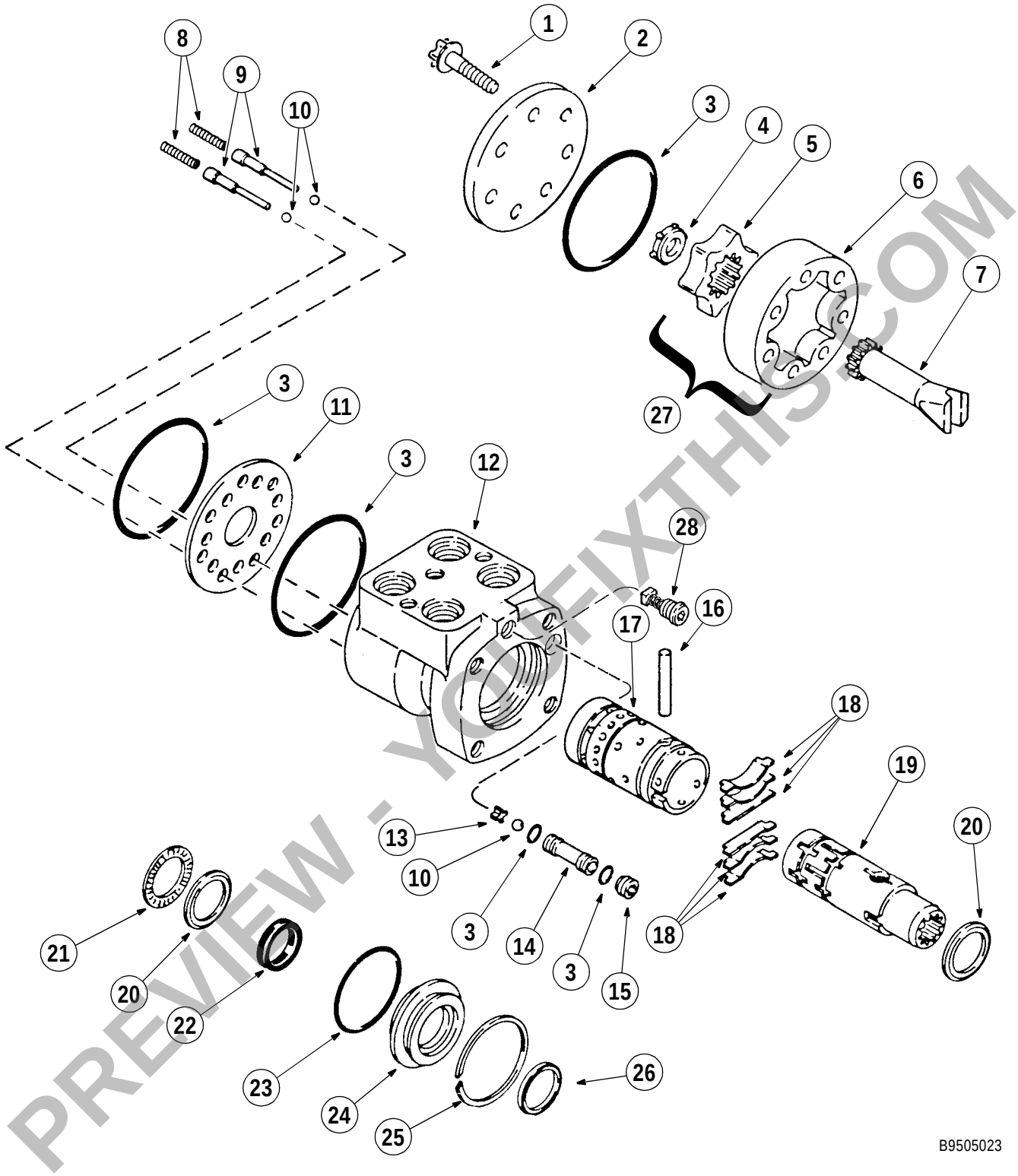
B9503250

1. *Hose*
2. *Hose*
3. *Hose*
4. *Steering cylinder*
5. *Hose*
6. *Hydraulic filter*
7. *Hose*
8. *Hose*
9. *Steering control valve*

Steering control valve hydraulic installation

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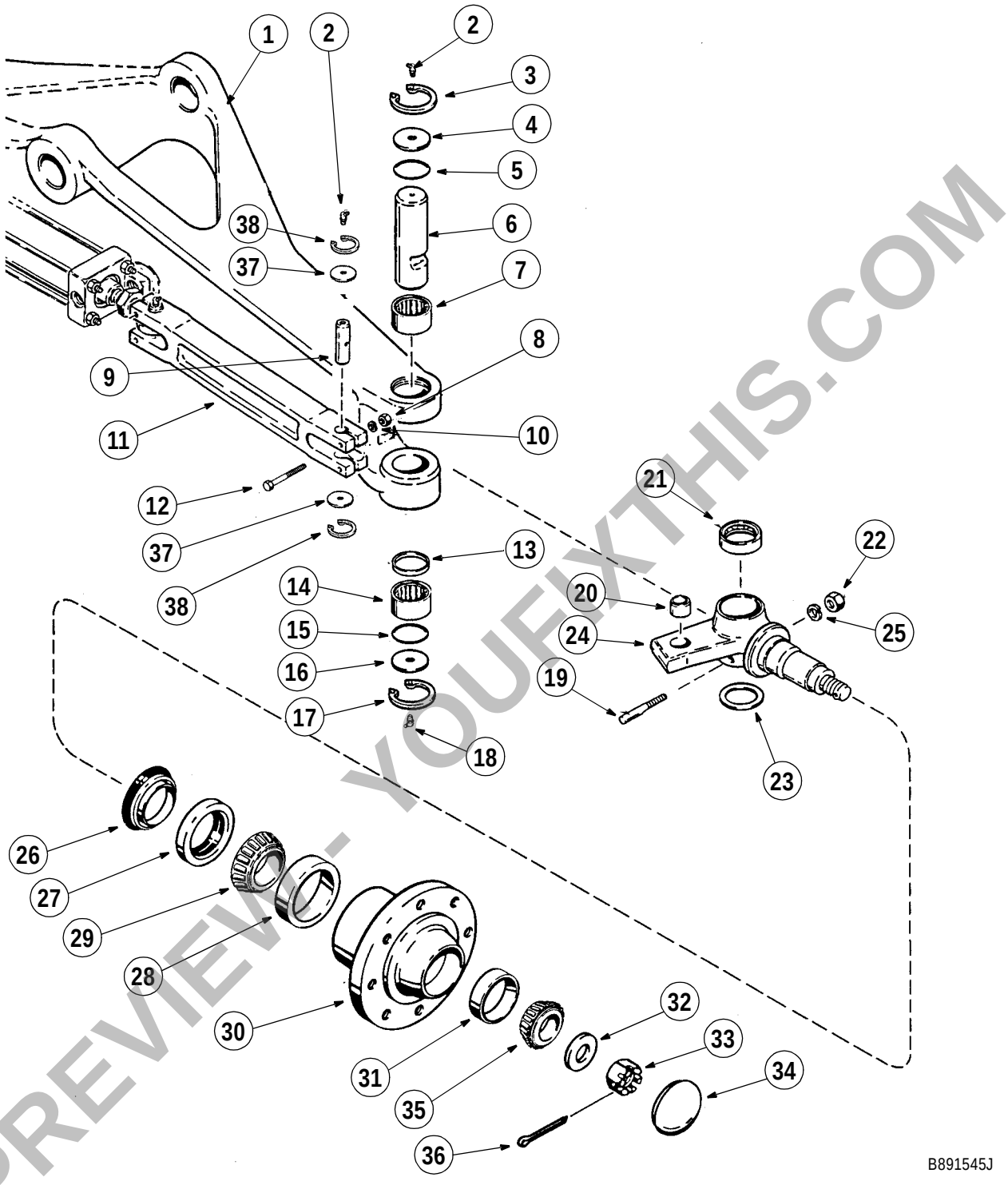
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1. *Ferry head screws*
2. *End plate*
3. *O-Ring*
4. *Spacer*
5. *Rotor*
6. *Stator*
7. *Drive shaft*
8. *Springs*
9. *Pin*
10. *Ball*
11. *Spacer plate*
12. *Body*
13. *Retainer*
14. *Seat*
15. *Allen head plug*
16. *Pin*
17. *Sleeve*
18. *Centering springs*
19. *Spool*
20. *Thrust washer*
21. *Thrust bearing*
22. *Seal*
23. *O-Ring*
24. *Gland*
25. *Retaining ring*
26. *Seal*
27. *Metering gear set*
28. *Relief valve, DO NOT REMOVE*

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1. *Front axle*
2. *Grease fitting*
3. *Snap ring*
4. *Spacer*
5. *O-Ring*
6. *Kingpin*
7. *Bearing*
8. *Nut*
9. *Pivot pin*
10. *Lock washer*
11. *Steering link*
12. *Bolt*
13. *Seal*
14. *Bearing*
15. *O-Ring*
16. *Spacer*
17. *Snap ring*
18. *Grease fitting*
19. *Lock pin*
20. *Bushing*
21. *Thrust bearing*
22. *Nut*
23. *Thrust washer*
24. *Spindle*
25. *Lock washer*
26. *Spindle seal*
27. *Hub seal*
28. *Bearing cup*
29. *Wheel bearing*
30. *Hub*
31. *Bearing cup*
32. *Flat washer*
33. *Nut*
34. *Cap*
35. *Wheel bearing*
36. *Cotter pin*
37. *Washer*
38. *Snap ring*

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REMOVAL OF THE TRANSMISSION

STEP 1

Park the machine on a level surface. Put the backhoe in the transport position with the stabilizers down. Also put the loader bucket on the floor.

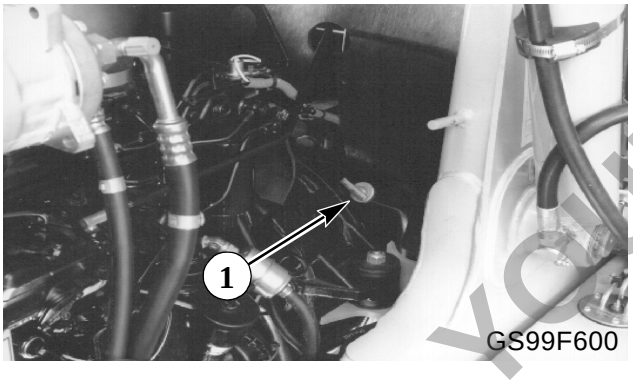
STEP 2

Raise the wheels off the floor high enough to remove the rear axle from under the machine. Put suitable stands under both sides of the machine at the front and rear.

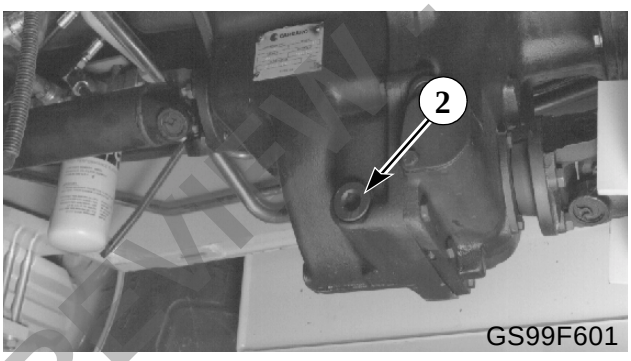
STEP 3

The rear wheels can be removed to ease the transmission removal: however; this step is not a requirement.

STEP 4



GS99F600



GS99F601

1. TRANSMISSION DIPSTICK
2. TRANSMISSION DRAIN PLUG

Drain the transmission oil using the following procedure:

1 Loosen the transmission dipstick to relieve any pressure.

2 Remove the drain plug for the transmission.

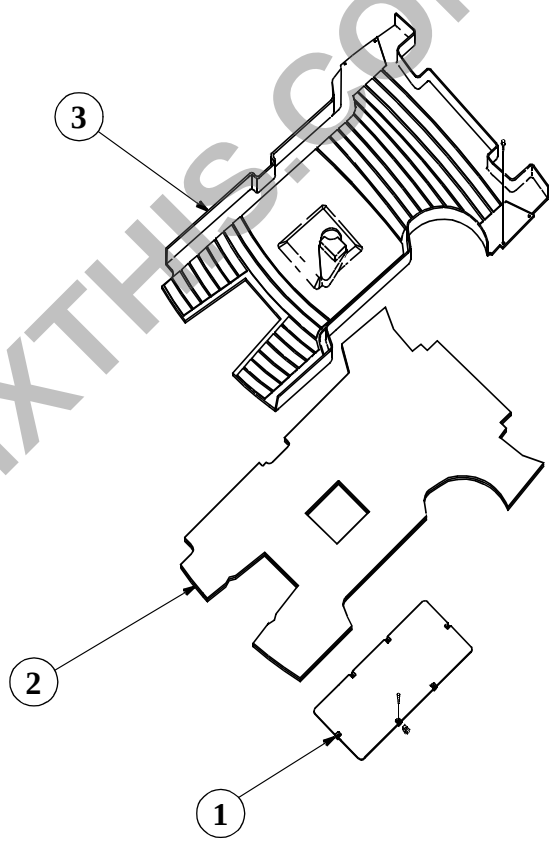
STEP 5

Install the transmission drain plug.

STEP 6

If equipped, remove the cab floor mat.

STEP 7



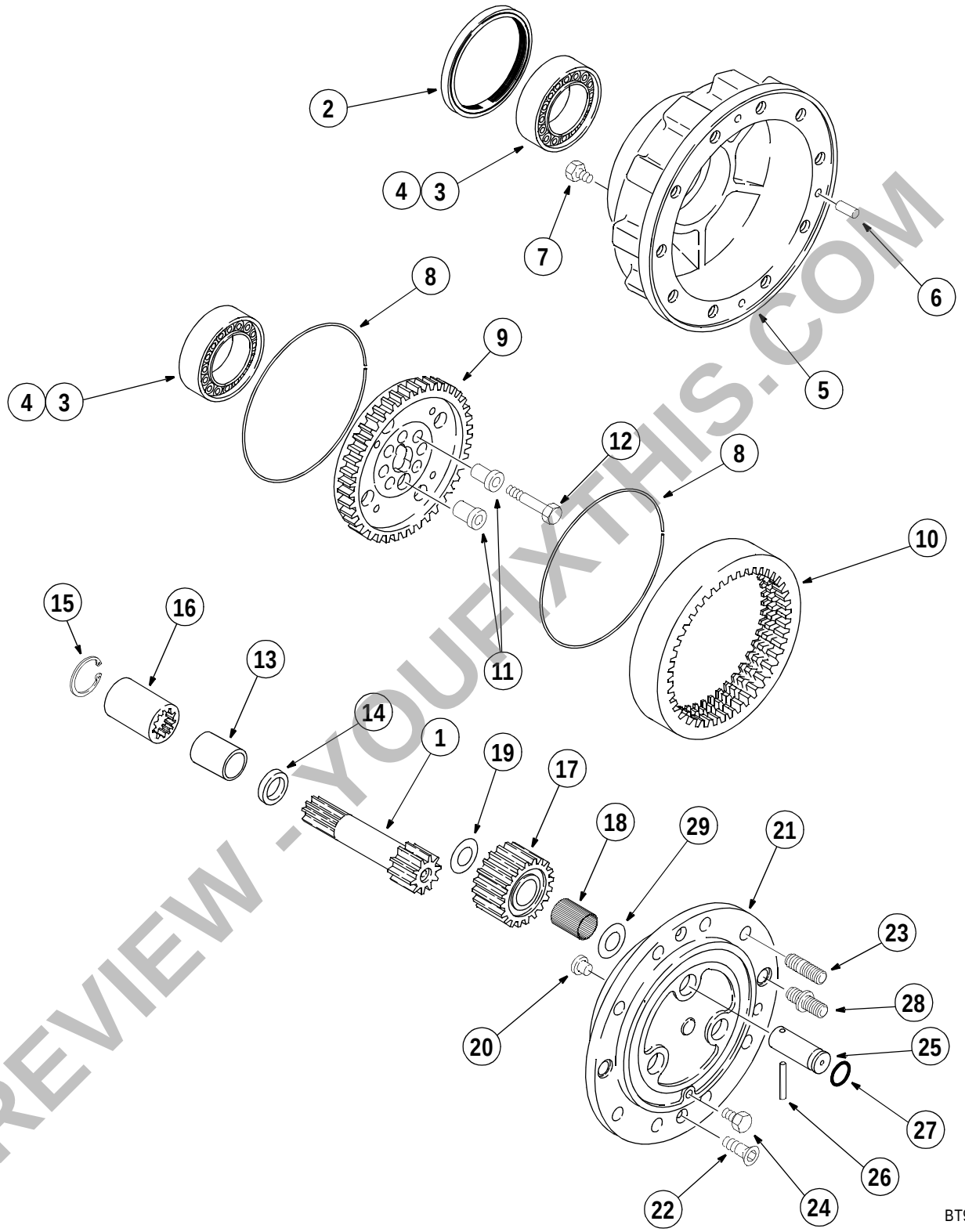
GS99J600

1. FRONT FLOOR PLATE
2. FOAM FLOORMAT PAD
3. FLOORMAT

Remove the cab front floor plate (1), floormat pad (2) and floormat (3).

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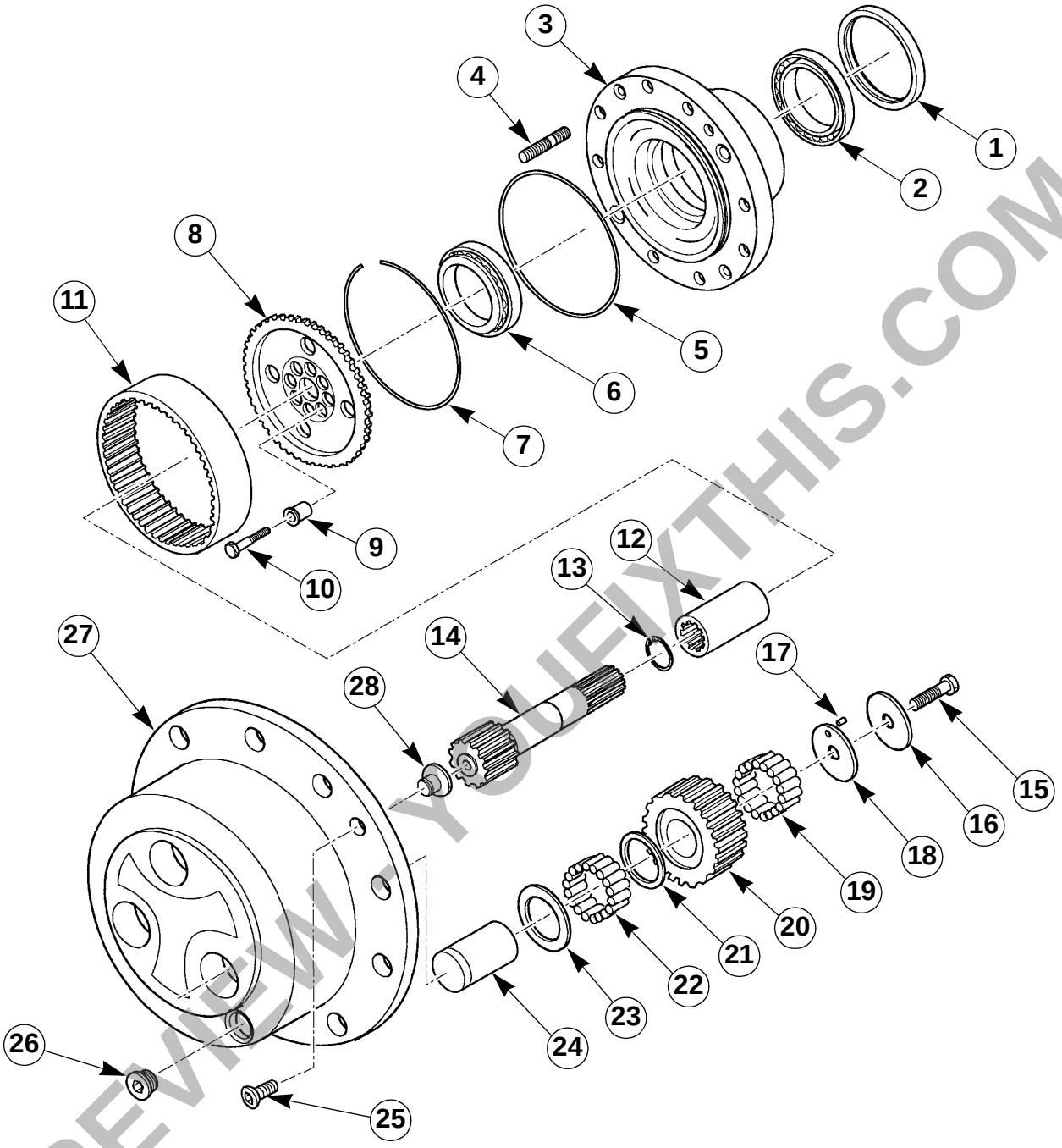
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1. *Drive shaft*
2. *Seal*
3. *Bearing*
4. *Bearing cup*
5. *Wheel hub*
6. *Dowel pin*
7. *Cap screw*
8. *Lock ring*
9. *Ring gear hub*
10. *Ring gear*
11. *Bushing*
12. *Cap screw (8)*
13. *Bushing*
14. *Seal*
15. *Snap ring*
16. *Coupling*
17. *Pinion gear*
18. *Needle bearing*
19. *Inner thrust washer*
20. *Thrust pin*
21. *Carrier*
22. *Allen head screw*
23. *Stud*
24. *Plug*
25. *Pinion shaft*
26. *Roll pin*
27. *O-Ring*
28. *Shoulder stud (2)*
29. *Outer thrust washer*

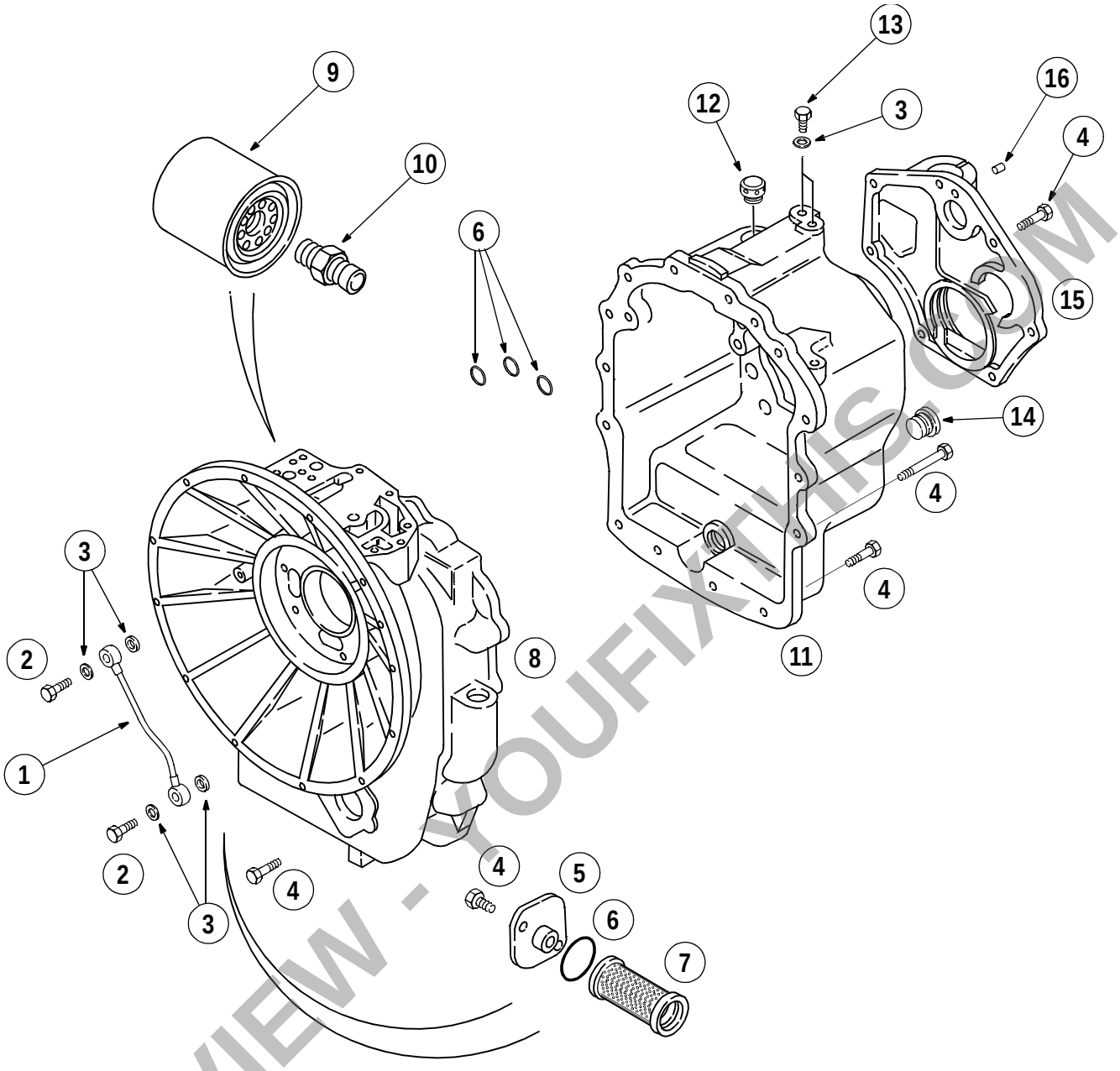
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CI00B522

1	SEAL	15	SCREW
2	INNER BEARING	16	WASHER
3	WHEEL HUB	17	PIN
4	STUD	18	INNER STOP
5	O-RING	19	NEEDLE ROLLER BEARING
6	OUTER BEARING	20	PINION
7	RETAINING RING	21	WASHER
8	RING GEAR HUB	22	NEEDLE ROLLER BEARING
9	BUSHING	23	THRUST WASHER
10	SCREW	24	PINION SHAFT
11	RING GEAR	25	ALLEN SCREW
12	COUPLING SLEEVE	26	PLUG
13	SNAP RING	27	HOUSING
14	DRIVE SHAFT	28	THRUST PIN

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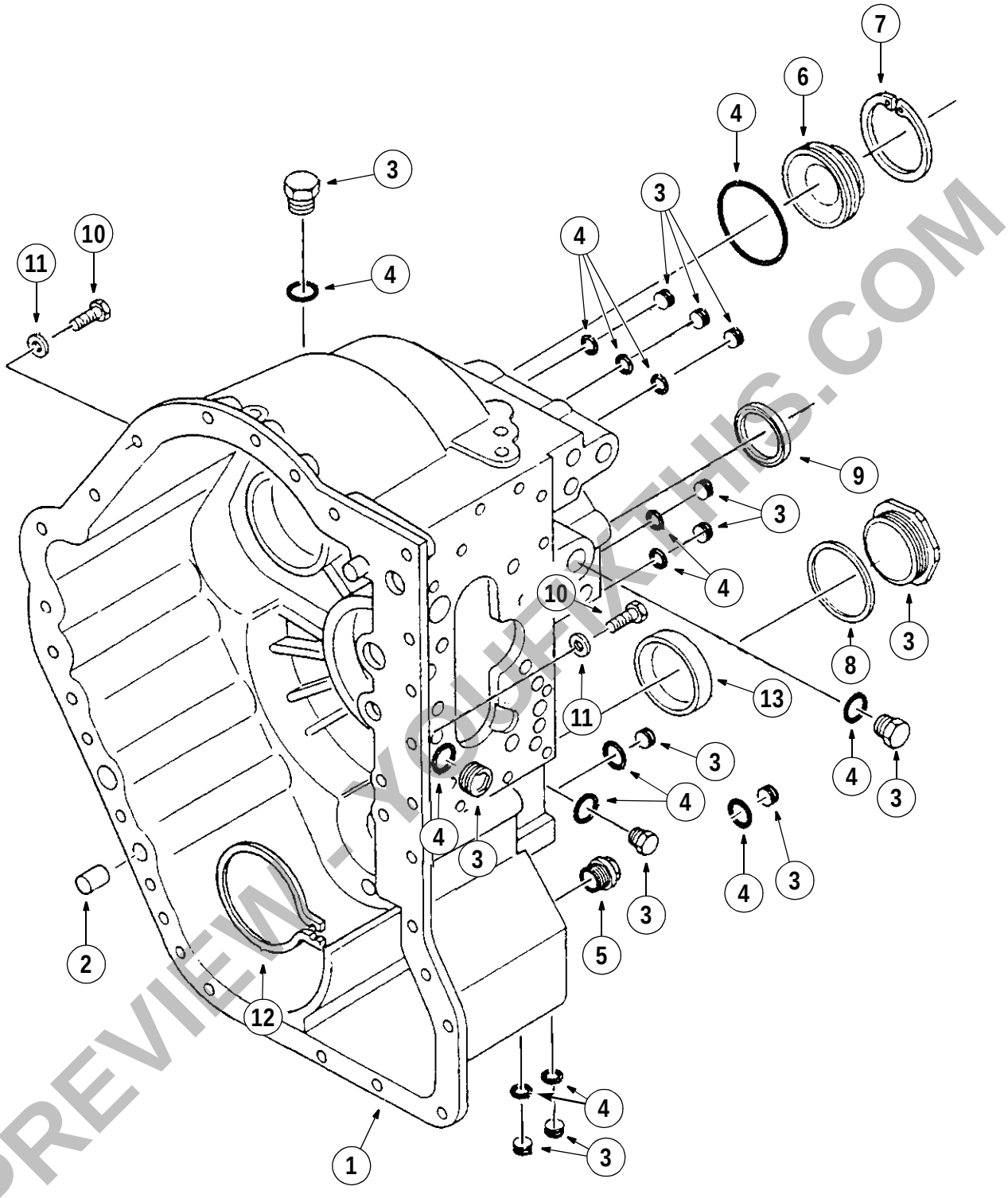
BT95G173

1. Tube
2. Hollow cap screw
3. Copper washer
4. Cap screw
5. Cover
6. O-ring
7. Oil screen
8. Front housing
9. Oil filter
10. Fitting
11. Rear housing
12. Breather
13. Test port plug
14. Drain plug
15. Rear cover
16. Dowel pin

Two-wheel drive gear box

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BS99D107

1. TRANSMISSION HOUSING
2. PIN
3. PLUG
4. O-RING
5. DRAIN PLUG
6. COVER
7. RETAINING RING
8. PLUG SEAL
9. HOUSING SEAL
10. CAP SCREW
11. LOCK WASHER
12. SNAP RING
13. BUSHING

Exploded View of Rear Transmission Housing

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MASTER-CYLINDER

Removal

STEP 1



BP9502285

Park the machine on a hard, level surface. Raise the loader and install the support strut to hold the loader in position.

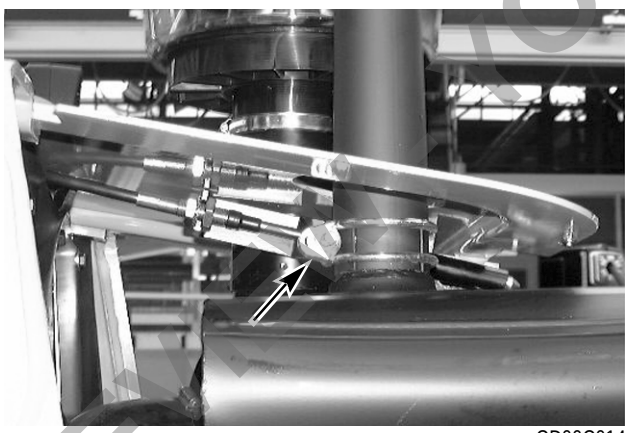
STEP 2

Apply the parking brake.

STEP 3

Open the hood.

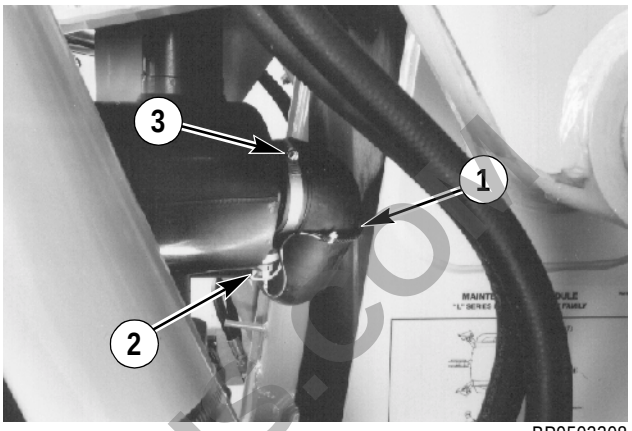
STEP 4



CD00C014

Loosen the clamp for the exhaust pipe at the silencer. Remove the exhaust pipe from the silencer.

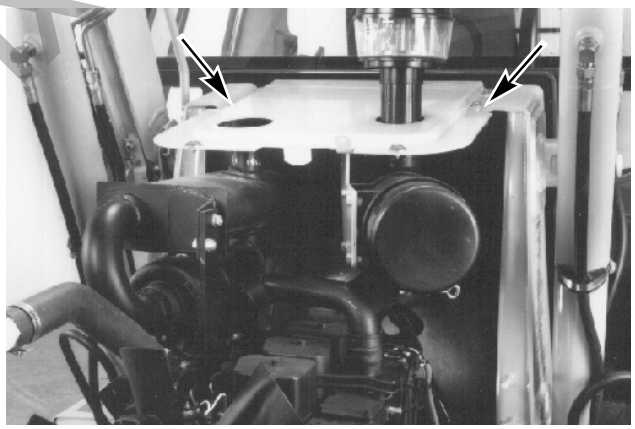
STEP 5



BP9502308

Remove the tie strap (1). Remove the electrical connectors (2) from the air filter restriction warning lamp. Loosen the clamp (3) on the air filter hose. Disconnect the air filter hose.

STEP 6



BP9502306

Remove the cap screws and flat washers that fasten the cover to uprights. Remove the cover and air cleaner as an assembly.

STEP 7

Remove the screws, the flat washers and the insulating panel which covers the master-cylinders.

NOTE: *See the illustration on page 5 for the following steps.*

STEP 8

Eliminate all traces of dirt on and around the master-cylinder (1).

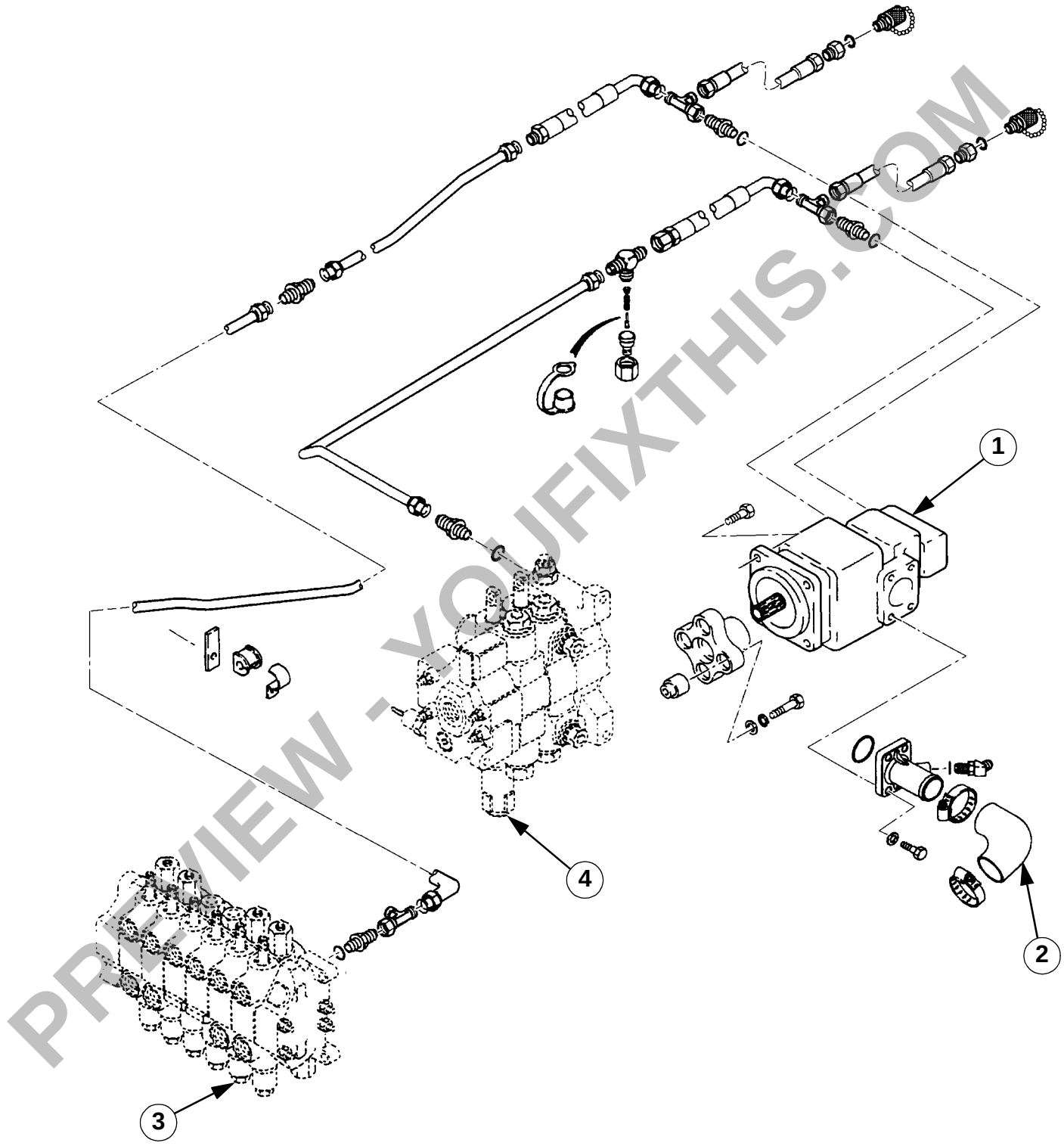
STEP 9

Remove the yoke pin (2) that attaches the master cylinder (1) yoke (3) to the brake pedal.

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Hydraulic pump assembly



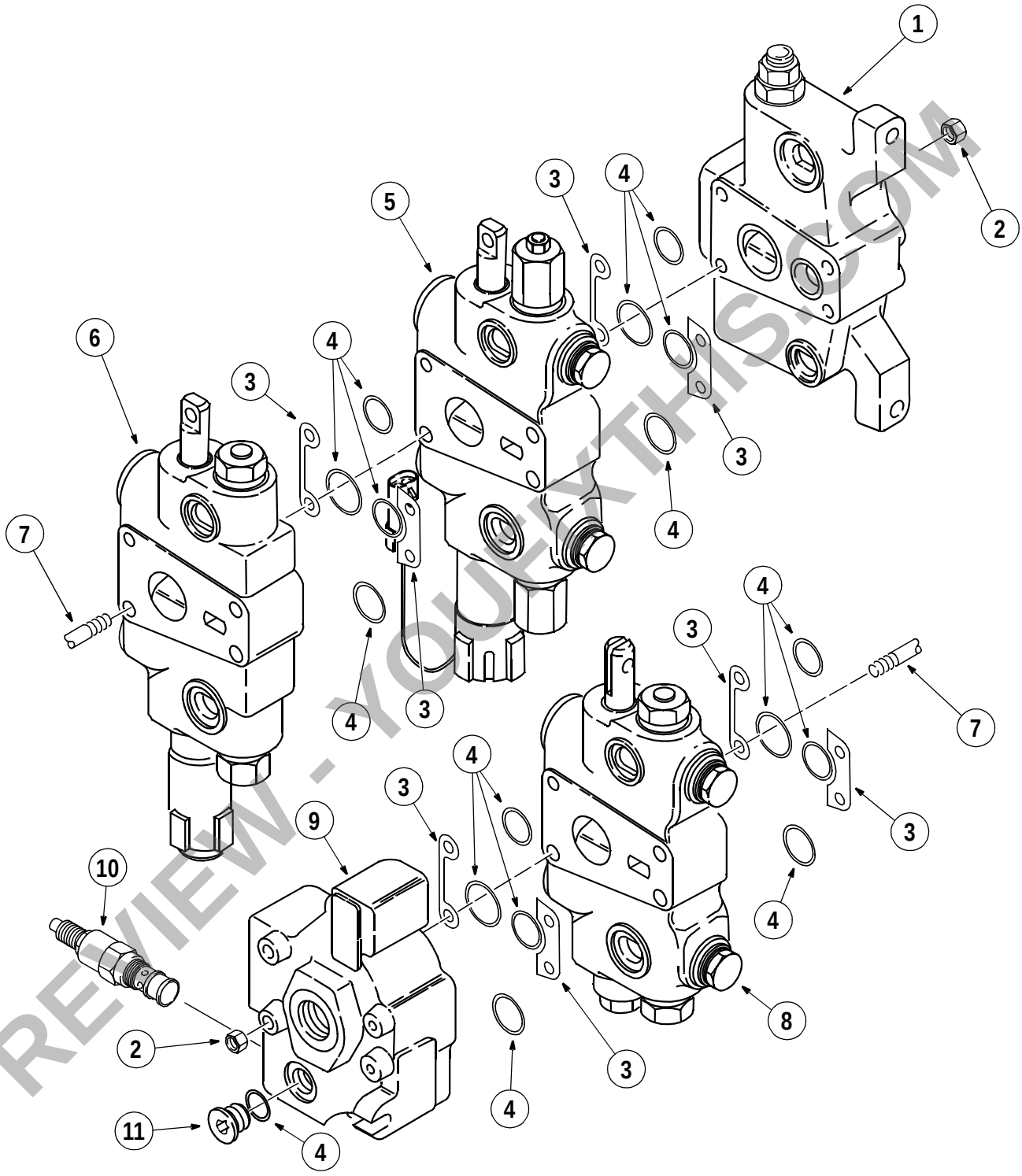
CI00C510

1 HYDRAULIC PUMP
2 INLET PIPE
3 BACKHOE CONTROL VALVE
4 LOADER CONTROL VALVE

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Loader control valve sections



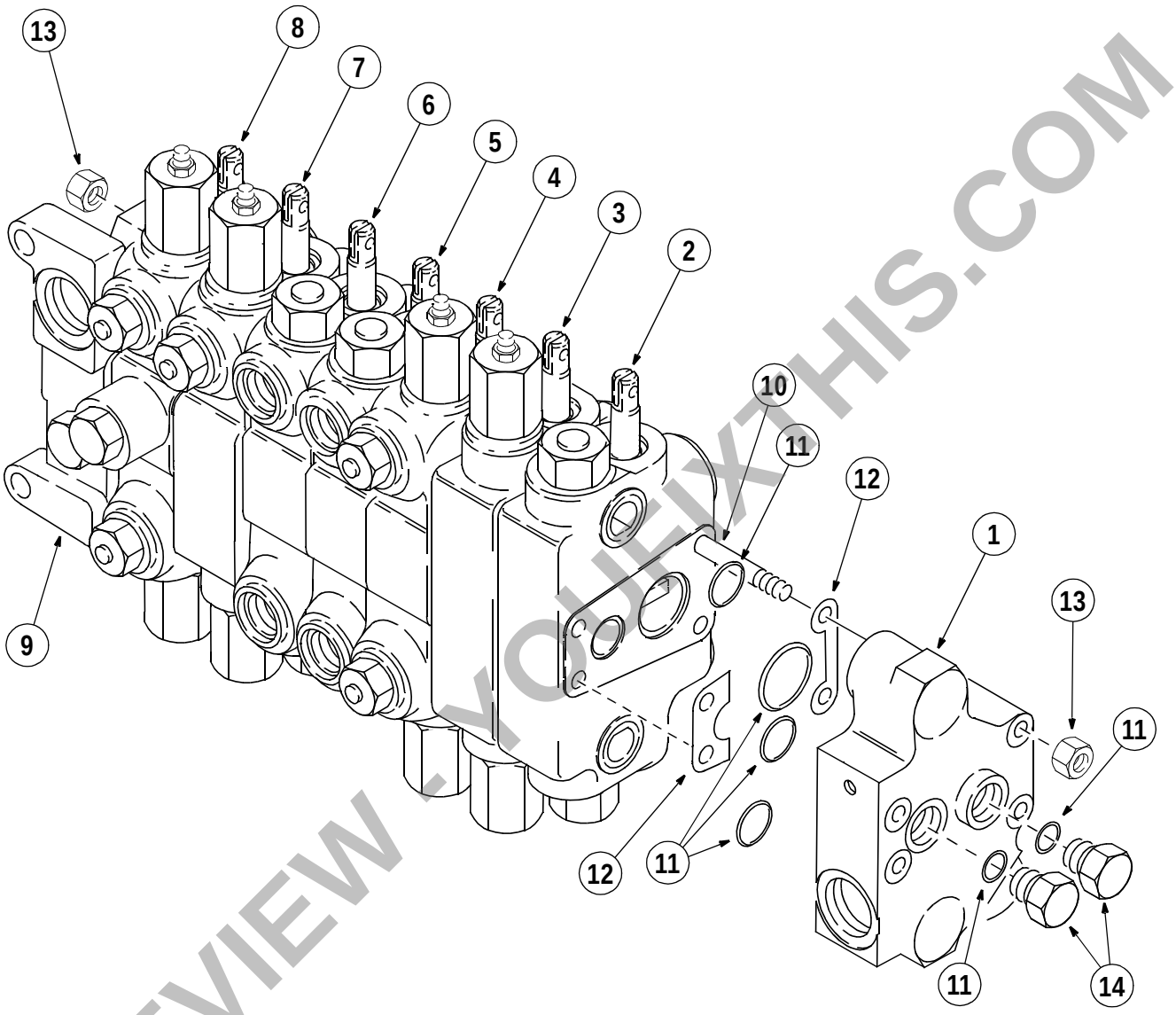
B9505026T

1 INLET PLATE
2 NUT
3 SHIM
4 O-RING-RING
5 BUCKET SECTION
6 ARM SECTION
7 THREADED RODS
8 4-IN-1 BUCKET SECTION
9 OUTLET PLATE
10 MAIN RELIEF VALVE
11 PLUG

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Backhoe control valve



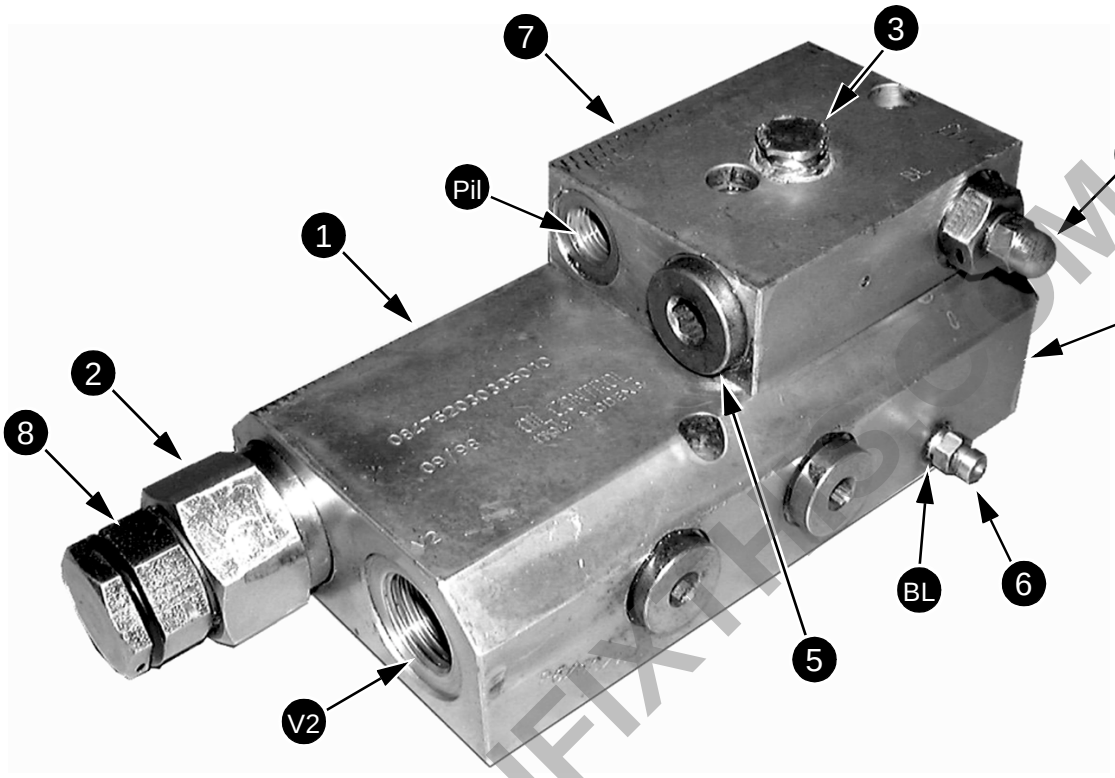
B9504002T

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1. *Outlet section*
2. *Telescopic dipper section*
3. *Bucket section*
4. *Dipper section*
5. *Stabilizer section*
6. *Stabilizer section*
7. *Boom section*
8. *Swing section*
9. *Inlet section*
10. *Threaded rod*
11. *O-Ring*
12. *Shim*
13. *Nut*
14. *Plug*

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BOOM SAFETY VALVE



CK00B001

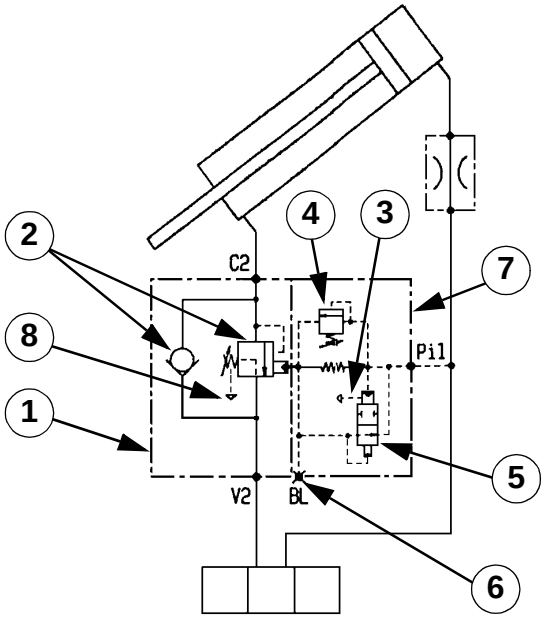
Description

1 SAFETY VALVE
2 SECONDARY RELIEF VALVE
3 VENT PLUG
4 PILOTING VALVE
5 DECOMPRESSION CHECK VALVE
6 DECOMPRESSION SCREW
7 PILOTING BLOCK
8 VENT PLUG

Port identification

V2 Safety valve supply
C2 Boom cylinder small chamber supply
Pil Safety valve piloting
BL Decompression port

Basic schematic



CS00C509

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BRAKE PEDAL ADJUSTMENT

Checking brake pedal height

1. Remove the rubber pads (1) and (2) from the brake pedals (3) and (4).
2. If the brake pedal locking device (5) is engaged, disengage the brake pedal locking device (5).
3. If the operator's compartment has a floor mat, remove the floor mat from the operator's compartment.
4. Measure the distance between the operator's compartment floor and the rear of each of the brake pedals (3) and (4), as shown in (13). When the brake pedals (3) and (4) are in the disengaged position, they should be at a distance of 177 mm to 179 mm above the operator's compartment floor.

Adjusting brake pedal height

1. Unscrew the stop screw (7) lock nuts (6).
2. Turn the stop screw (7) clockwise or anticlockwise as required, to adjust the brake pedals (3) and (4) so that the rear of the brake pedals (3) and (4) is at the specified 177 mm to 179 mm above the operator's compartment floor.
3. Retighten the lock nuts (6) on the stop screw (7).
4. Repeat Steps 1 to 3 for the other brake pedal (3) or (4).

Adjusting the free travel

NOTE: *Free travel is the distance that the brake pedal moves before the push-rod comes into contact with the outer piston of the master cylinders.*

1. Measure the free travel at the rear of each brake pedal (3) and (4), as shown. The free travel should be between 1.5 and 4.6 mm.
2. To increase or reduce the free travel, unscrew the lock nut (8) on each yoke (9) and turn the push-rod as required to obtain the correct free travel. Then retighten the lock nut (8).

Adjusting the brake pedal switch

1. Loosen the lock nut (10) on the screw (11) which actuates the brake switch (12). Adjust the screw (11) so as to obtain a clearance of between 1mm and 2mm between the screw (11) and the brake switch (12), when the brake pedal (3) or (4) is in the released position. Retighten the lock nut (10).
2. The brake switch (12) must operate when the brake pedal (3) and (4) is actuated.

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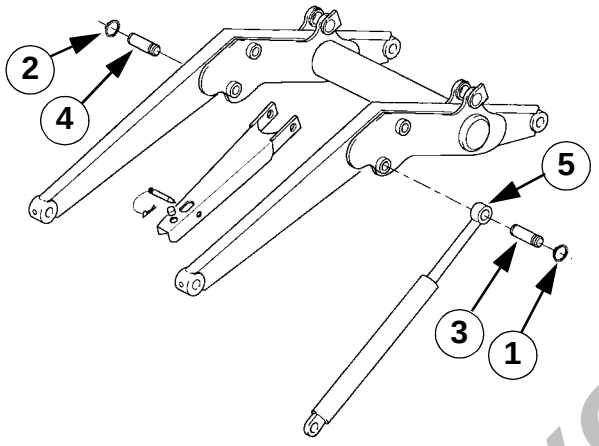
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REMOVING THE LOADER ARM (Standard version)

1. Park the machine on a hard, level surface.
2. Apply the parking brake.
3. Raise the loader chassis until the linkage pins in the lift cylinder piston rod eyes are higher than the hood. Stop the engine.
4. Connect suitable lifting equipment to loader chassis to keep the loader chassis in place.
5. Disconnect the cables from the battery.

NOTE: *Always disconnect the negative cable last.*

6.



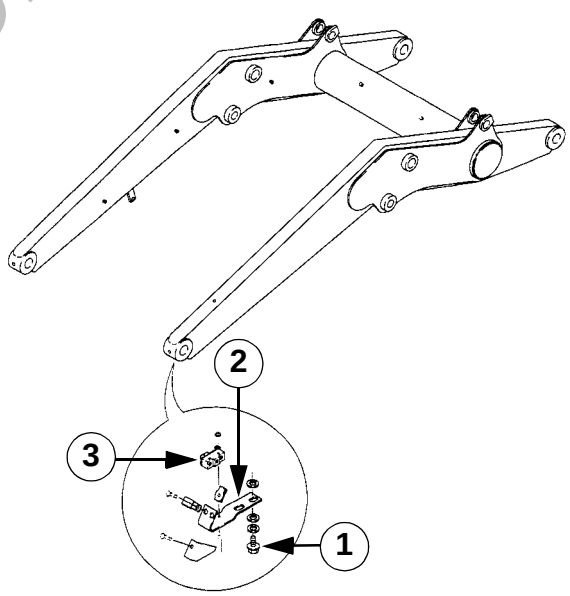
CS98D177

Remove the outer snap rings (1) and (2) which retain the lift cylinder piston rod (5) eye linkage pins (3) and (4).

7. Drift the linkage pins out of the loader chassis, using suitable drifts.

WARNING: *Keep the drifts in position.*

8. Support the right-hand lift cylinder and remove the drift. Lower the lift cylinder onto the front axle.
9. Support the left-hand lift cylinder and remove the drift. Lower the lift cylinder onto the front axle and remove the locking bar.
10. Lower the bucket to the ground.
11. Remove the cap from the hydraulic reservoir. This is to reduce oil leaks when removing the hoses.
12. Move the loader control lever to the right or left to release all pressure in the bucket circuit.
13. Disconnect the hoses from the bucket cylinders at the pipes located on the right-hand side of the machine chassis post. Attach an identification label to each of the pipes.
14. Plug all the hoses and pipes using, respectively, a cap or plug with a 7/8-14" thread.
15. Disconnect the clam cylinder hoses, if equipped, at the pipes located on the left-hand side of the machine chassis post. Attach an identification label to each pipe.
16. Plug all the hoses and pipes using, respectively, a cap or plug with a 7/8-14" thread.
17. Install the cap on the hydraulic reservoir.
18.



CS98D139

Remove the two screws (1) from the return-to-dig control switch (3) retaining bracket (2). It is not necessary to disconnect the wiring harness from the return-to-dig control switch.

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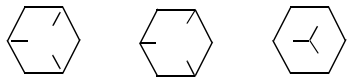
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TORQUE SPECIFICATIONS - STEEL HYDRAULIC FITTINGS 4-5
LOCTITE PRODUCT CHART 6

TORQUES SPECIFICATIONS (DECIMAL HARDWARE)

Use the torques in this chart when special torques are not given. These torques apply to fasteners with both UNC and UNF threads as received from suppliers dry, or when lubricated with engine oil. Not applicable if special graphities, Molydisulfide greases, or other extreme pressure lubricants are used.

Grade 5 Bolts, Nuts and Studs



Size	Pound-inches	Newton metres
1/4 inch	108 to 132	12 to 15
5/16 inch	204 to 252	23 to 28
3/8 inch	420 to 504	48 to 57
7/16 inch	54 to 64	73 to 87
1/2 inch	80 to 96	109 to 130
9/16 inch	110 to 132	149 to 179
5/8 inch	150 to 180	203 to 244
3/4 inch	270 to 324	366 to 439
7/8 inch	400 to 480	542 to 651
1.0 inch	580 to 696	787 to 944
1-1/8 inchs	800 to 880	1085 to 1193
1-1/4 inchs	1120 to 1240	1519 to 1681
1-3/8 inchs	1460 to 1680	190 to 2278
1-1/2 inchs	1940 to 2200	2631 to 2983

Grade 8 Bolts, Nuts and Studs



Size	Pound-inches	Newton metres
1/4 inch	144 to 180	16 to 20
5/16 inch	288 to 348	33 to 39
3/8 inch	540 to 648	61 to 73
7/16 inch	70 to 84	95 to 114
1/2 inch	110 to 132	149 to 179
9/16 inch	160 to 192	217 to 260
5/8 inch	220 to 264	298 to 358
3/4 inch	380 to 456	515 to 618
7/8 inch	600 to 720	814 to 976
1.0 inch	900 to 1080	1220 to 1465
1-1/8 inchs	1280 to 1440	1736 to 1953
1-1/4 inchs	1820 to 2000	2468 to 2712
1-3/8 inchs	2380 to 2720	3227 to 3688
1-1/2 inchs	3160 to 3560	4285 to 4827

NOTE : *Use thick nuts with Grade 8 bolts.*

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