Ignition "Off"

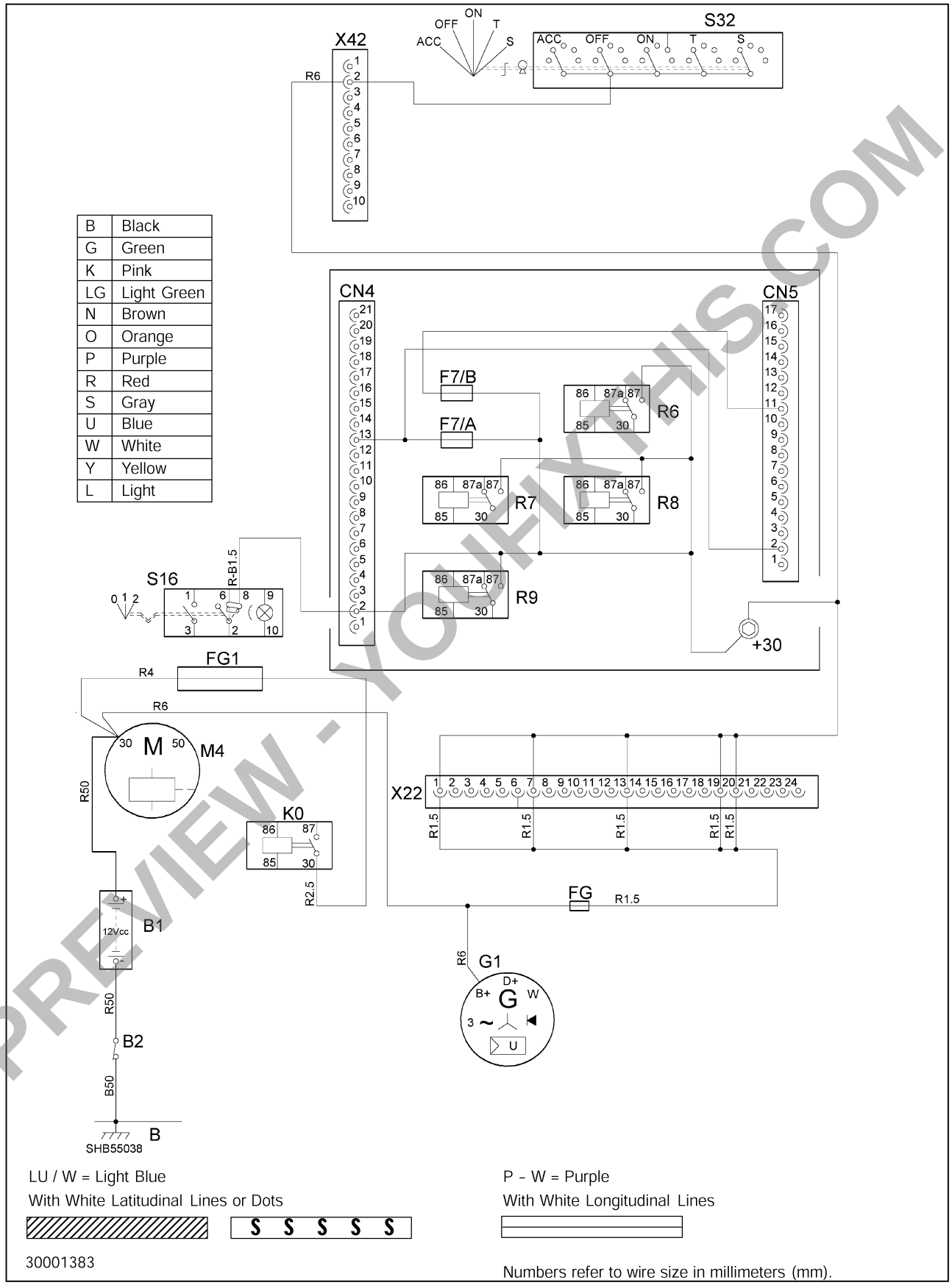
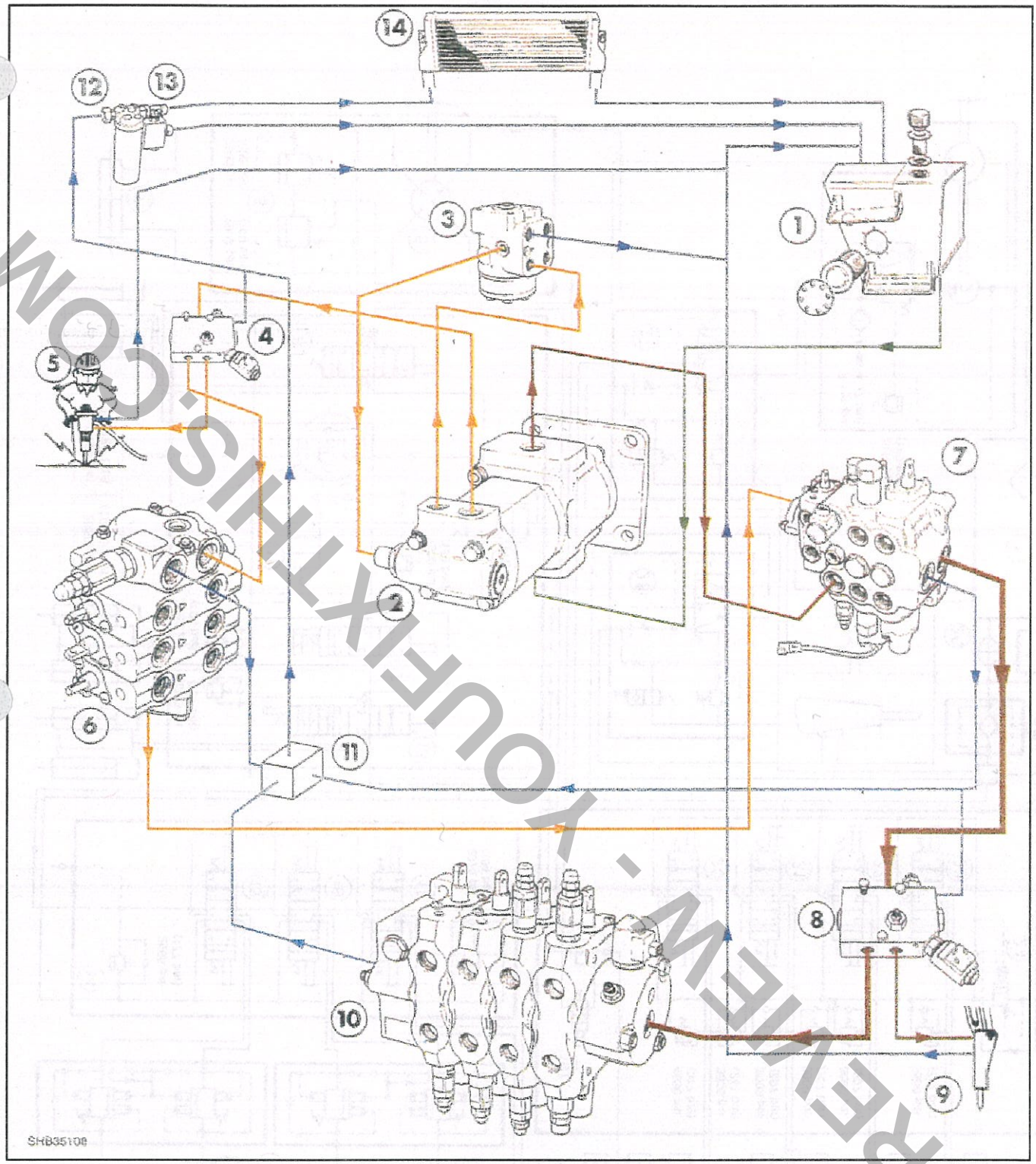


Figure 3-55

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Hydraulic Circuit Schematic

Figure 8-5

1. Hydraulic Reservoir
2. Hydraulic Pump
3. Steering Motor
4. Hand Hammer Control Valve
5. Hand Hammer
6. Stabilizer and Extendable Dipper Control Valves
7. Loader Control Valves
8. Backhoe Hammer Control Valve
9. Backhoe Hammer
10. Backhoe Control Valves
11. Return Line Distributor Block
12. Filter
13. Oil Cooler By-Pass Valve
14. Oil Cooler

Front Pump Oil | Rear Pump Oil | Suction Oil | Return To Reservoir

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ANGULAR TORQUE DATA

PART	Thread size	1st Stage torque		Angle 2nd Stage (*)	Stabilised Torque N·m	Stabilised Torque lbf ft
		N·m	lbf ft			
Cylinder head bolts	M 12 x 1.25	40	29.0	240°	140–220	103 – 162
Main bearing cap bolts	M 14 x 1.5	80	59.0	90°	160–280	118 – 162
Connecting rod cap bolts	M 11 x 1.5	40	29.0	60°	100–160	74 – 118
Flywheel mounting bolts	M 12 x 1.25	40	29.0	60°	100–200	74 – 147

(*) Tighten nuts in two stages:

TIGHTENING TORQUE DATA

PART	Thread size	Tightening torque	
		N·m	lbf ft
Rocker shaft pedestal bolts	M 8	25	18.4
Crankshaft hub retaining nut	M 30 x 1.5	294	217
Fan and alternator pulley bolts	M 10 x 1.25	55	41
Inlet manifold retaining bolts	M 8	25	18.4
Alternator and belt tension adjustment nut	M 10 x 1.25	55	41
Coolant pump retaining bolts	M 10 x 1.25	55	41
Nuts for injector mounting studs	M 8	25 **(*)**	18.4
Rocker cover nuts	M 8	15	11.0
Oil pump and pump cover retaining bolts	M 8	25	18.4
Timing gear case and cover bolts	M 8	25	18.4
Intermediate flanged journal bolts	M 10 x 1.25	55	41
Camshaft thrust plate retaining bolts	M 8	35	26
Rear crankcase cover bolts	M 8	25	18.4
Tappet adjuster locknuts	M 8	22	16.2
Exhaust manifold retaining bolts	M 8	25	18.4
Injection pump mounting bolts	M 8	25	18.4
Sump pan retaining bolts to – inner rear timing cover and gear case – cylinder block and flywheel case – 75 hp	 M 10 X 1.25 M 10 X 1.25	 39 – 49 49 – 59	 29 – 36 36 – 43

(*) Tighten nuts in two stages:

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14. Disconnect the heater and Air Conditioning hoses.

IMPORTANT: *If air conditioning is fitted, disconnect at the air conditioning quick release couplings only. If it is necessary to disassemble the air conditioning at any other point, it will be necessary to discharge the system using a suitable reclaim/recharging station.*

15. Disconnect the fuel tank feed and return pipes pipes

16. Disconnect the foot throttle cable at the injection pump.

17. Remove the cab mat

18. Remove the cab floor access panel

19. Disconnect the electrical connections
    - Forward Reverse solenoids (on top of the transmission)
    - Transmission lever at base of lever
    - FWD solenoid

20. Disconnect the transmission to lock out valve pipe

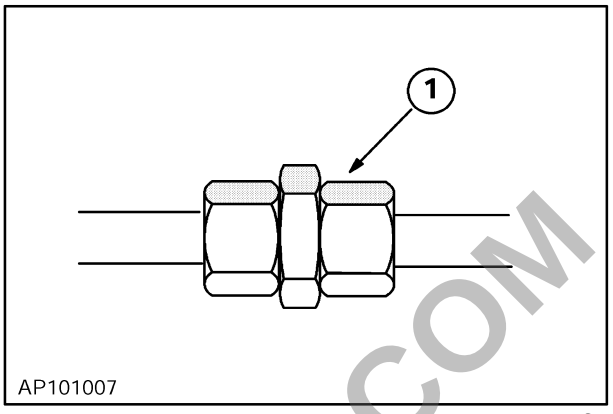
21. Disconnect lock out return pipe and plug the hole (oil will leak out of transmission)

22. Remove front drive shaft (where fitted) and remove rear drive shaft

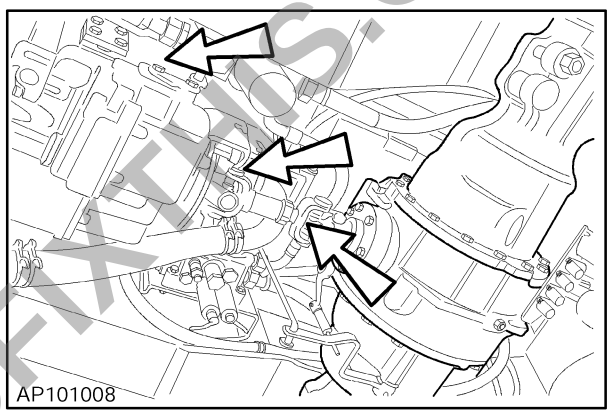
23. Disconnect the hand brake cable

24. Disconnect the gear lever

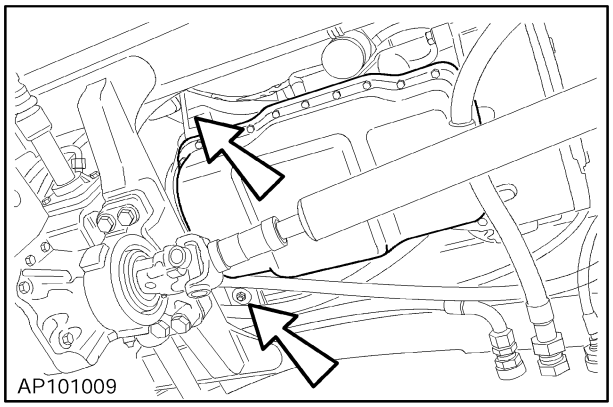
25. Pull back hydraulic pumps (leaving all pipes attached). Check that the oil pump drive shaft does not slide out with the pump



9



10



11

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Ignition "On"

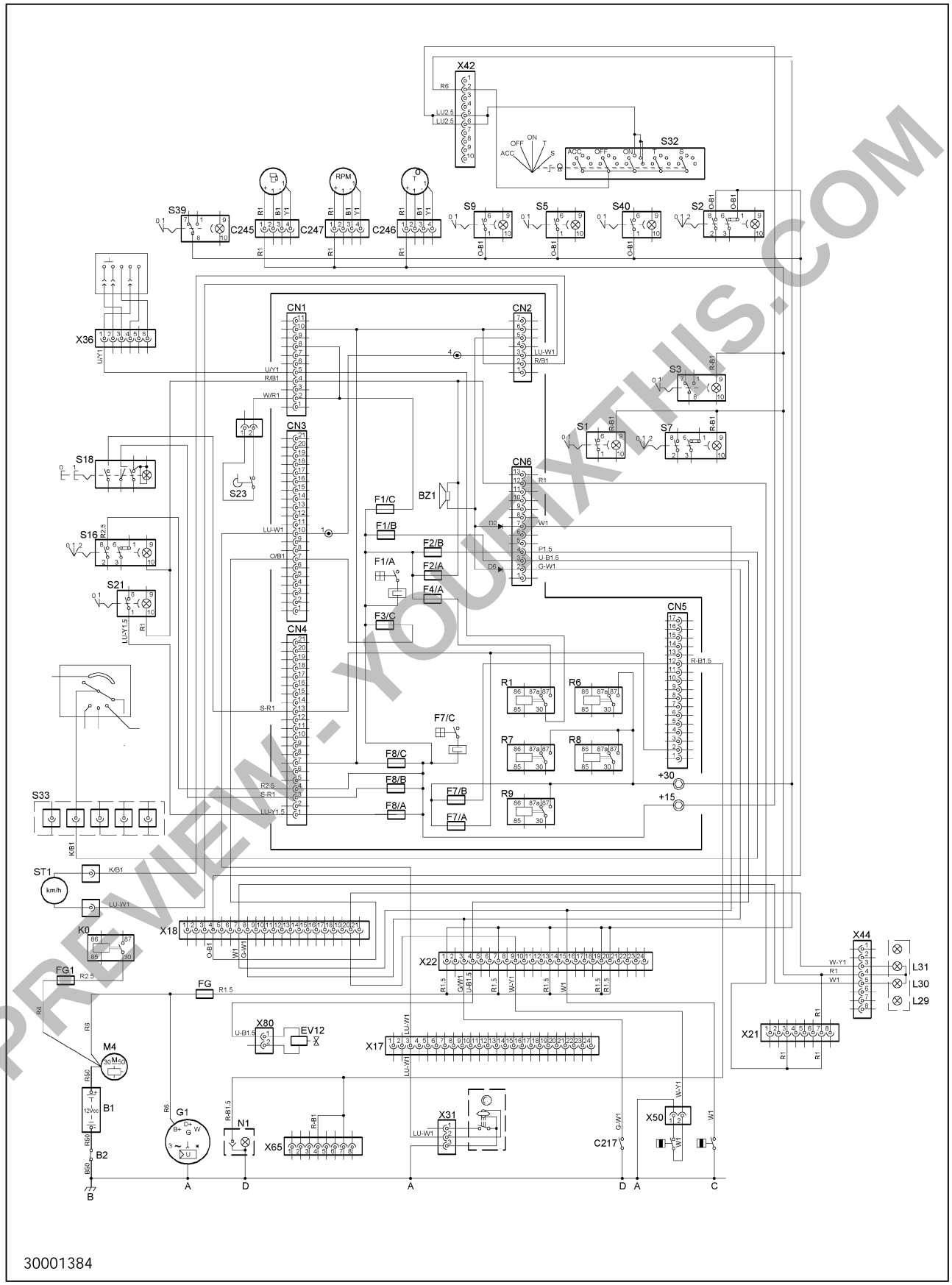


Figure 3-58

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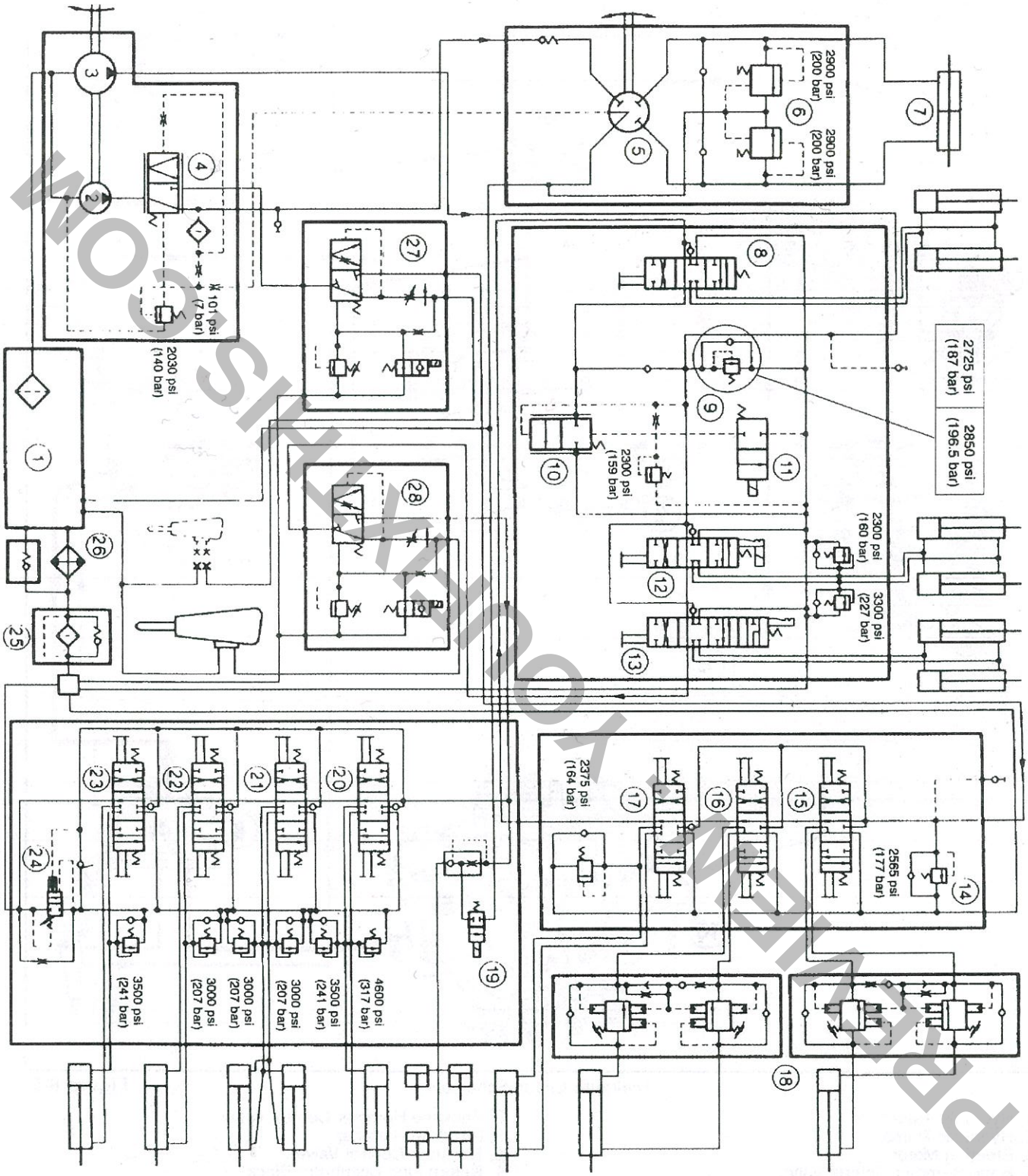


Figure 8-6

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TORQUE SPECIFICATIONS

Item Description	ft. lbs.	N¡m
Cooler Return Pipe Union	36–58	49–78
Cooler Return Pipe Elbow	36–58	49–78
Stator Support Retaining Bolt	19	26
Flywheel To Flex Plate	32	43
Flex Plate to Torque Converter	32	43

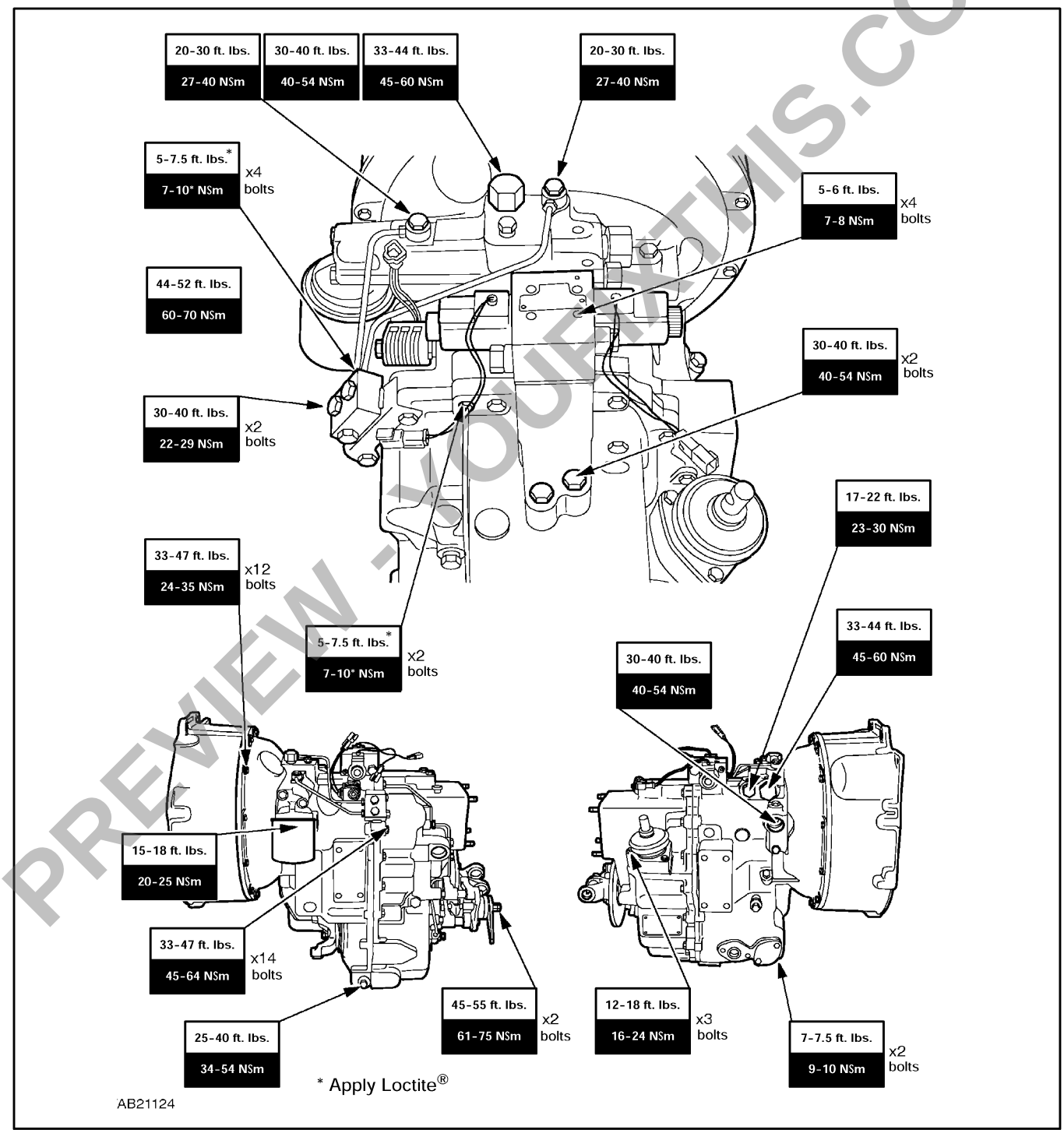


Figure 4-135

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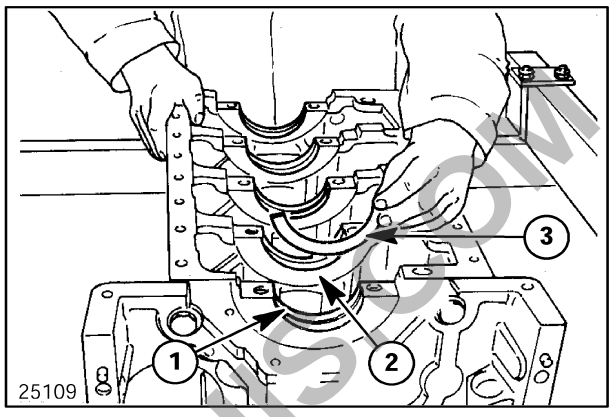
RE-ASSEMBLING THE ENGINE

Proceed as follows:

— Install the tappets in their crankcase bores.

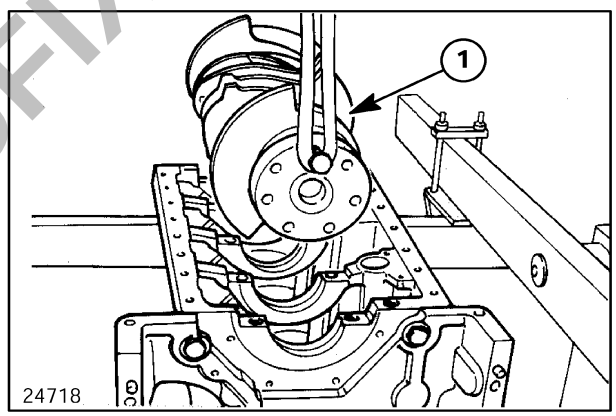
— Lubricate the main bearing seats with engine oil and install the half shell bearings, 3.

— Stick the semi-circular thrust washers to both sides of the penultimate main bearing with grease.



60

— Lubricate the upper surfaces of the main bearing shells with engine oil and lower the crankshaft, 1, into position taking care not to dislodge the semi-circular thrust washers installed previously.

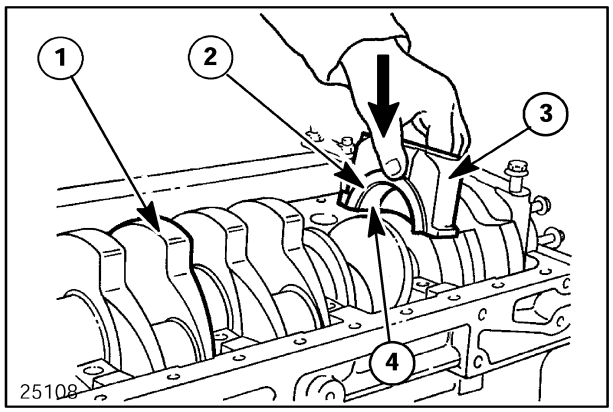


61

— Lubricate the crankshaft journals with engine oil and fit the main bearing caps, 3, with the half-shells, 4, fitting the top semi-circular thrust washers, 2, to the penultimate bearing cap.

— Rotate the crankshaft, 1, a few times to allow the parts to settle into position.

— Insert the main bearing cap bolts and screw in until the head of the bolt is up against the cap.



62

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Starting Circuit

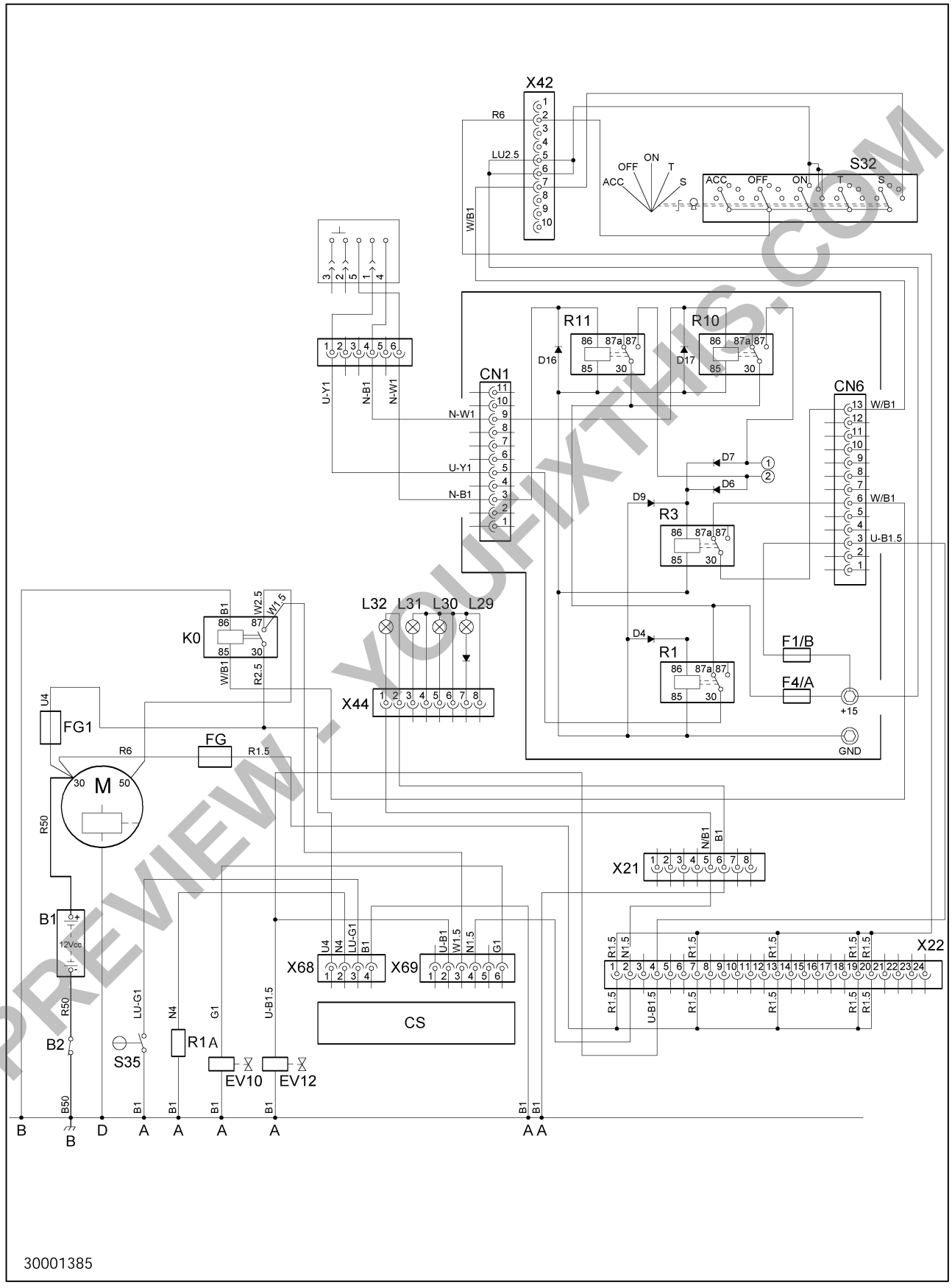
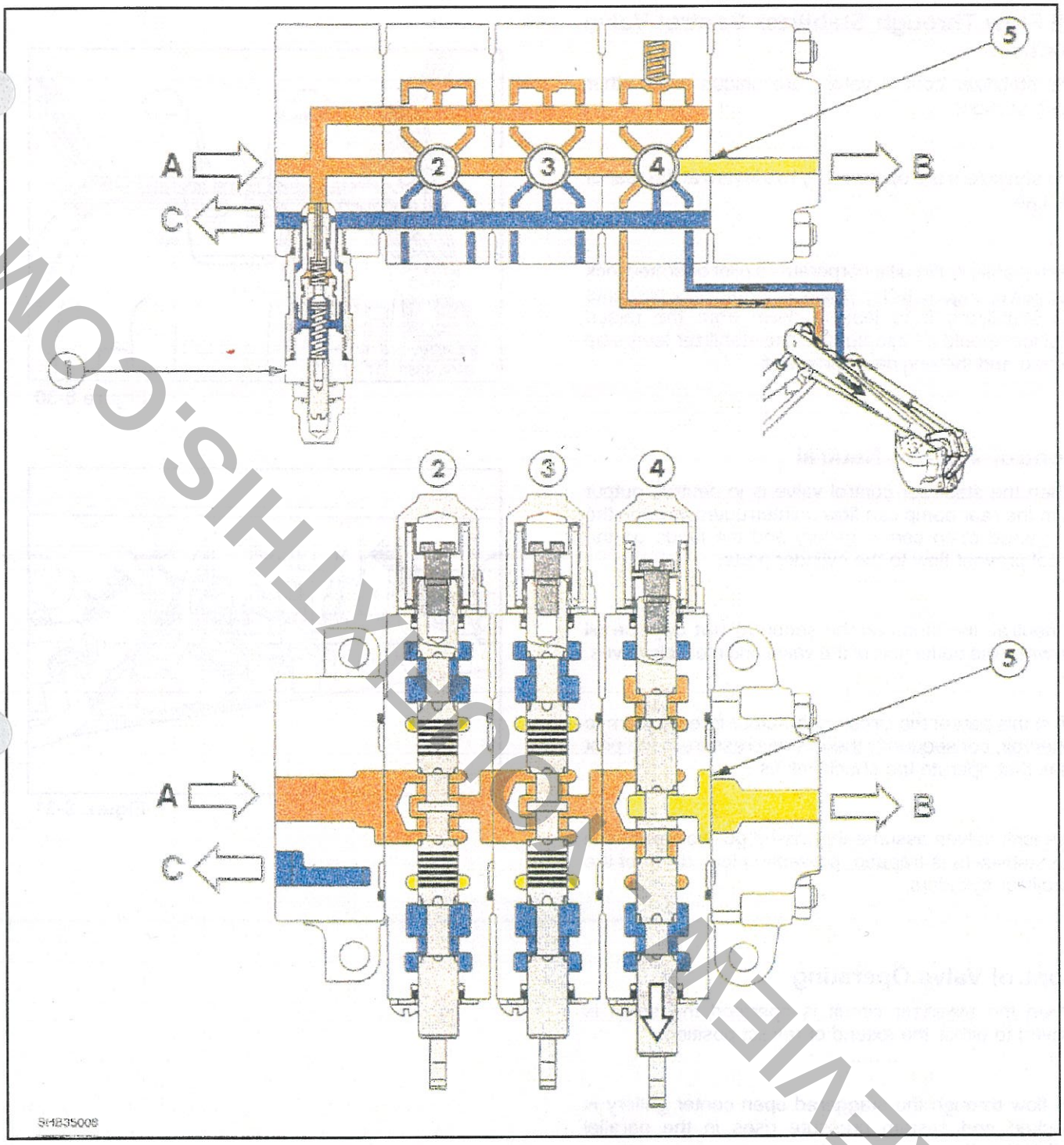


Figure 3-64

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Oil Flow Through Extendable Dipper and Stabilizer Valve Sections **Figure 8-29**

Port A — Flow From Rear Pump

1. Rear Pump Main Relief Valve @ 2565 psi (177 bar)
2. Left-Hand Stabilizer Valve

Port B — Rear Pump Flow to Loader Control Valve

3. Right-Hand Stabilizer Valve
4. Extendable Dipper Valve
5. Staggered Open Center Gallery

Rear Pump Flow | Trapped/Static Flow Oil | Return to Reservoir

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TORQUE SPECIFICATIONS

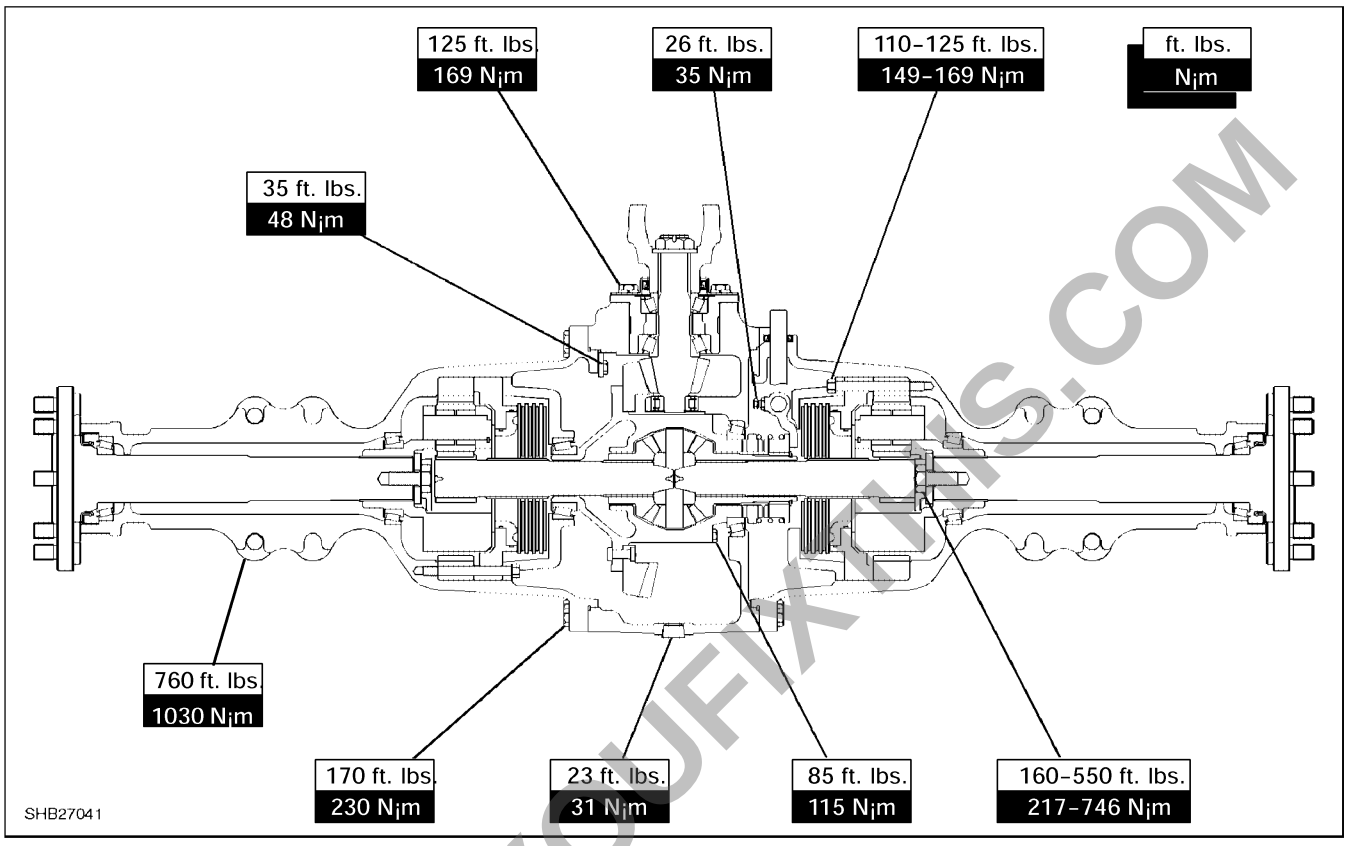


Figure 5-41

Drive Shaft U-Joint Retaining Bolts ..... 27 ft. lbs. (37.1 N¡m)

Thrust Block Bolts ..... 35 ft. lbs. (47.5 N·m)

Rear Wheel Nuts ..... 400 ft. lbs. (540 N¡m)

SPECIAL TOOLS

Tool Description	Application
Yoke Holding Tool NH01259	Axle Shaft Bearing Preload Adjustment
Differential Gauge Tool FNH02141	Differential Bearing Preload Adjustment
Ring Gear Tool FNH02122	Ring Gear Removal / Installation
Yoke Holding Tool NH01259	Pinion Nut Removal / Installation

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FRONT INSTRUMENT PANEL ANALOG TYPE, Figure 3-15

IMPORTANT: The position of switches, gauges and warning lamps may vary slightly from that shown, dependant upon country and options fitted. Thoroughly familiarize yourself with the layout of your machine before operation.

1. Speedometer (Optional)
2. Tail Light/Instrument Light Switch/Main (Headlight) Switch (Optional)
3. Independent Hand Hammer Switch (Optional)
4. Main Beam Warning Indicator Lamp (Where driving lights are installed)
5. Lower Beam Warning Indicator Lamp (Where driving lights are installed)
6. Brake Oil Low Level Warning Lamp
7. Turn Signal Indicator Lamp
8. Four Way flasher button
9. Rotating Beacon Switch (Optional)
10. Four Wheel Drive Switch (Optional)

    Position 1 (forward) – Two wheel drive selection, with four wheel drive engagement for braking when brakes are applied.

    Position 2 (center) – Four wheel drive engaged.

    Position 3 (rear, light on) – Two wheel drive with two wheel braking.

SIDE MOUNTED INSTRUMENT PANEL ANALOG TYPE, Figure 3-16

1. Key Start

   I= Accessories "ON"
   II= Off
   III=Ignition "ON"
   IV=Thermostart
   V= Engine Start (cranking)

2. Engine Coolant Temperature Gauge (with warning buzzer)
3. Rear Window Wash and Wipe Switch
4. Boom Lock Switch for Transport on road (On= Boom Unlocked)
5. Sideshift Carriage Clamp Switch (Side Shift Models Only) On= Carriage Unlocked
6. Rear Work Lamp Switch
7. Spare Blank (Optional Equipment)
8. Parking Brake 'ON' Warning Lamp (with buzzer)
9. Transmission Oil Pressure Warning Lamp (with buzzer)
10. Transmission Oil Temperature Warning Lamp
11. Thermostart Warning lamp
12. Air Cleaner Restriction Indicator Lamp
13. Engine Oil Pressure Low Indicator Lamp (with buzzer)
14. Battery Charge Indicator Lamp
15. Spare Blank (Optional Equipment)
16. Spare Blank
17. Spare Blank
18. Front Work Lamp Switch
19. Fuel Tank Level Indicator Gauge
20. Tachometer and Hour Meter

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LB75 REPAIR MANUAL CONTENTS

SECTION 1 - ENGINE

SECTION 2 - FUEL SYSTEM

SECTION 3 - ELECTRICAL

SECTION 4 - TRANSMISSION

SECTION 5 - REAR AXLE/BRAKES

SECTION 6 - STEERING/FRONT AXLE

SECTION 7 - CAB

SECTION 8 - HYDRAULICS

SECTION 9 - ACCESSORIES

The sections used throughout all New Holland Construction product Service Manuals may not be used for each product. Each Service Manual will be made up of several books. Each book will be labeled as to which sections are in the overall Service Manual, and which sections are in each book.

The sections listed above are the sections utilized for the LB75 Backhoe Loader.

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SECTION 1
ENGINE
CONTENTS

ENGINE OVERHAUL 1-2
- GENERAL SPECIFICATIONS 1-2
- TORQUE SETTINGS 1-11
- TROUBLESHOOTING 1-16
- LUBRICATION CIRCUIT 1-20
- OVERHAUL 1-25

LUBRICATION SYSTEM 1-65
- GENERAL SPECIFICATIONS 1-65
- TORQUE SETTINGS 1-66
- TROUBLESHOOTING 1-66
- LUBRICATION CIRCUIT 1-68
- OVERHAUL 1-69

COOLING SYSTEM 1-71
- GENERAL SPECIFICATIONS 1-71
- TORQUE SETTINGS 1-72
- TROUBLESHOOTING 1-73
- LUBRICATION CIRCUIT 1-76
- OVERHAUL 1-78

INDEX 1-82

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TORQUE VALUES - VARIOUS	N·m	lbf ft
Oil Pan Drain Plug	41	30
Oil Pump to Block	23	17
Oil Filter Adaptor Bolts	42	31
Oil Filter Mounting Bolt Insert	34	25
Oil Pressure Switch Assembly	31	23
Idler Pulley Bolt	54	40
Pump Connector to Block	24	18

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TROUBLESHOOTING

***IMPORTANT**: When effecting a repair the cause of the problem must be investigated and corrected to avoid repeat failures.*

The following table lists problems and their possible causes with recommended remedial action.

PROBLEM	POSSIBLE CAUSES	REMEDY
Low oil pressure	1. Engine oil level low	1. Top up, as necessary
	2. Wrong grade of oil	2. Drain and refill with correct grade of oil
	3. Blocked oil pump sump screen	3. Clean pump screen
	4. Oil pressure relief valve faulty	4. Fit new relief valve
	5. Oil pump worn	5. Renew Oil Pump
	6. Excessive oil pump rotor and shaft assembly clearance	6. Overhaul pump
	7. Excessive main or connecting rod bearing clearance	7. Install new bearings inserts and / or re-grind crankshaft

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COMPONENT GROUND LOCATIONS

All electrical components are grounded through the part itself or through ground wires to one of five main chassis ground locations. Ground locations for all components are shown on the individual circuit diagrams as a letter reference along the ground line at the base of each drawing. Refer to Figures 3-30 through 3-34 for illustrations of the locations. Thoroughly clean all paint and rust from ground connections to ensure good contact and avoid any voltage drop or unwanted resistance. When attaching ground wires, always place the heaviest ground wire next to the ground surface. Stack the remaining wires according to size with the largest first and the smallest on top.

NOTE: Ground locations for all components are also shown on the individual circuit diagrams as a letter reference along the ground line at the base of each drawing.

Ground Point A

Components identified with a Ground Point A are grounded by means of their attachment to the frame or other grounded structure.

Ground Point B - Battery and Engine

The battery is grounded through the disconnect switch to the right hand rear engine wall.

The engine is grounded from the right hand rear engine wall to the engine flywheel housing.

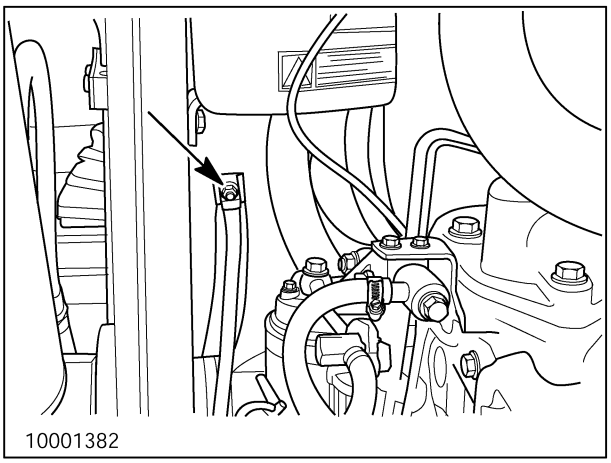


Figure 3-30

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F4/C 10 Amp : Switches (Rear Work Lights & Boom Lock, Side Shift Clamp)

F5/A 15 Amp : Work Lights, Front Inner

F8/A 15 Amp : Work Lights, Rear Outer

F8/B 15 Amp : Work Lights, Front Outer

F8/C 15 Amp : Work Lights, Rear Inner

FG 40/80 Amp Fusible Link

R6 Work Light Relay, Front Inner

R7 Work Light Relay, Rear Inner

R8 Work Light Relay, Front Outer

R9 Work Light Relay, Rear Outer

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X83 Hand Hammer Solenoid Valve

When switch is operated 12V should be found at Pin 1.

Solenoid resistance should be 7.5 Ω

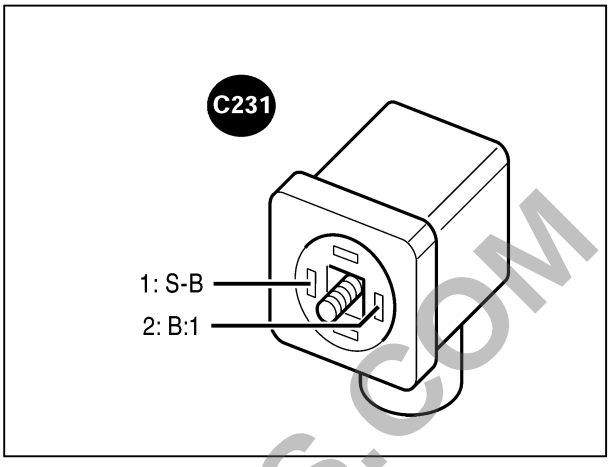
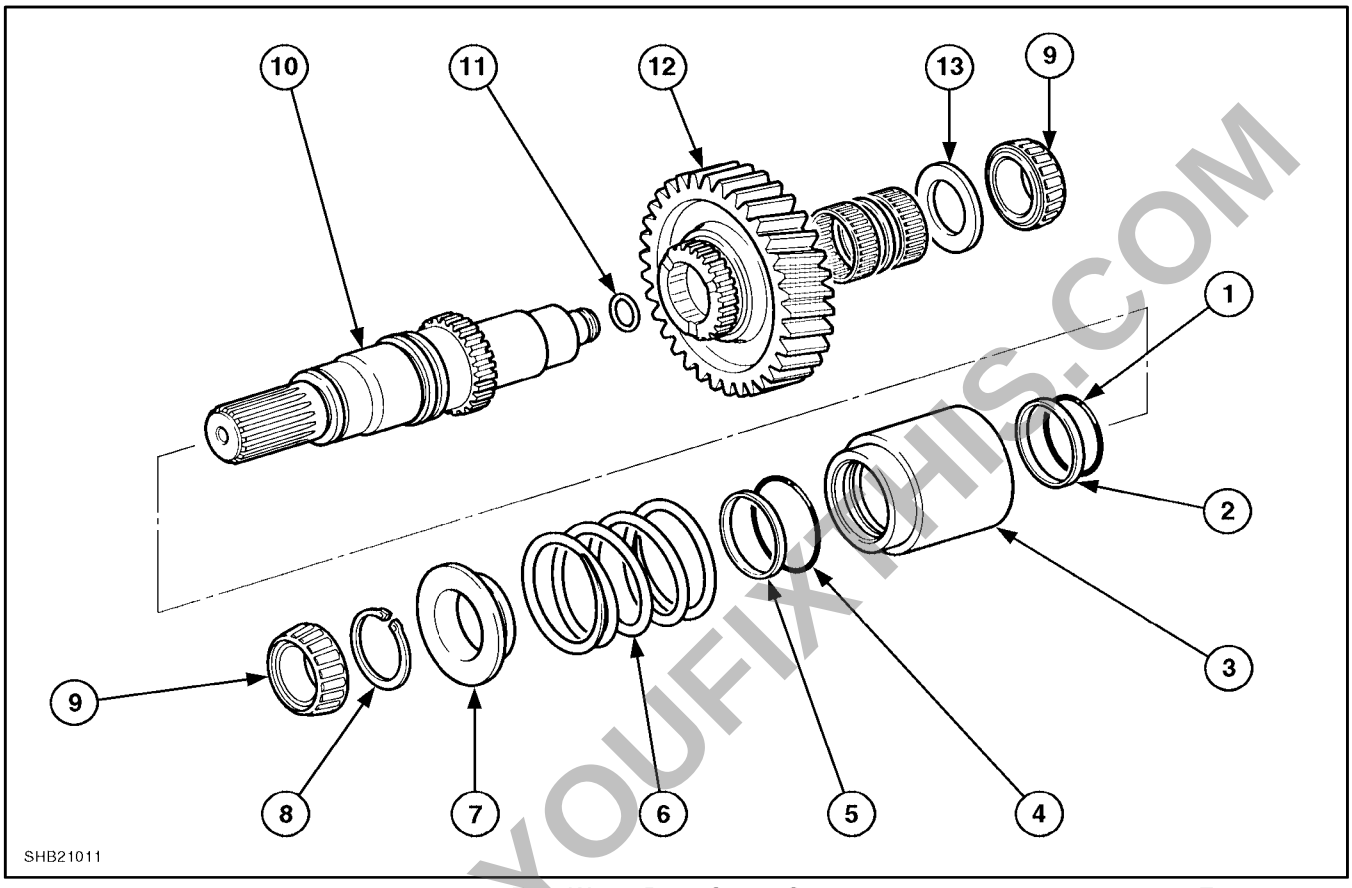


Figure 3-188

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Four-Wheel Drive Output Shaft — Disassembly



Four-Wheel Drive Output Shaft **Figure 4-46**

1. O-Ring
2. Sealing Ring
3. Piston Body
4. O-Ring
5. Sealing Ring
6. Spring
7. End Plate
8. Snap Ring
9. Bearing
10. 4WD Shaft
11. O-Ring
12. Output Gear
13. Thrust Washer

FWD Output Shaft Disassembly

1. Remove the old O-ring from the gear end of the FWD shaft and place the shaft vertically (hold in a soft jaw vice). Using a three-legged puller under the face of the gear, pull the gear and bearing carefully from the shaft.

   Inspect the shaft for scoring or wear patterns that may be evident and check the gear thrust washer and bearing.

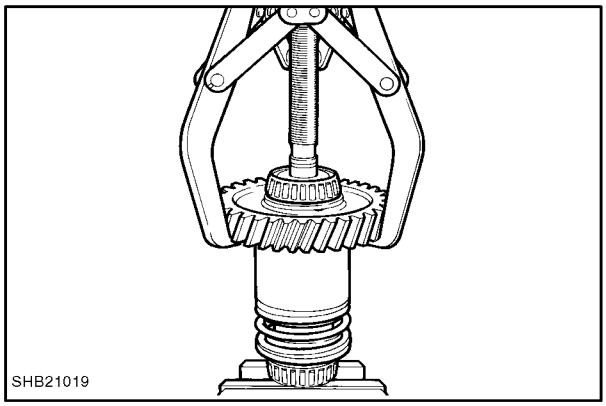


Figure 4-47

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Drive Pinion Preload Spacers/Shims

PART NUMBER	SPACER / SHIM SIZE
81847148	1.2540–1.2545″ (31.852–31.864 mm)
81847149	1.2560–1.2565″ (31.902–31.915 mm)
81847150	1.2580–1.2585″ (31.953–31.966 mm)
81847151	1.2600–1.2605″ (32.004–32.017 mm)
81847152	1.2620–1.2625″ (32.055–32.068 mm)
81847153	1.2640–1.2645″ (32.106–32.118 mm)
81847154	1.2660–1.2665″ (32.156–32.169 mm)
81847155	1.2680–1.2685″ (32.207–32.220 mm)
81847156	1.2700–1.2705″ (32.258–32.271 mm)
81847157	1.2720–1.2725″ (32.309–32.322 mm)
81847158	1.2740–1.2745″ (32.360–32.372 mm)
81847159	1.2760–1.2765″ (32.410–32.423 mm)
81847160	1.2780–1.2785″ (32.461–32.474 mm)
81847161	1.2800–1.2805″ (32.512–32.525 mm)
81847162	1.2820–1.2825″ (32.563–32.576 mm)

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B. Method 2

1) Wrap a length of string, 3, evenly and without overlapping around the exposed input shaft splines, 2, and using a pull scale, 1, measure the force required to rotate the pinion shaft.

   The scale should be read during rotation of the pinion. Do not read the scale at the point where rotation starts.

2) Tighten the pinion nut until the rotational pull is 21–31 lb (9.5–14.0 kg) on the spring scale.

   It may be necessary to temporarily replace the differential and ring gear to prevent rotation of the pinion during tightening of the pinion nut.

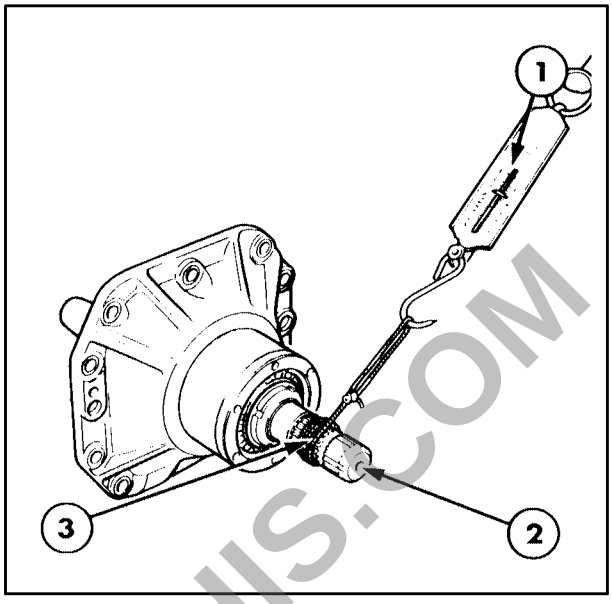


Figure 6-95

- After the pinion bearing preload has been set, record the reading obtained, so that it can be used when the ring gear bearing preload needs to be set.

- Position a tabbed thrust washer, 1, and side gear, 2, into one half of the differential housing, 4.

- Install the bevel gears and thrust washers onto the shafts and position the shafts into the differential housing. It will be necessary to lightly tap each shaft to ensure that they are fully seated in the housing.

- Position the remaining tabbed thrust washer and side gear into the second half of the differential housing and assemble the two halves of the housing, ensuring that they align with the marks scribed during disassembly.

- Install the ring gear in the housing. Coat the threads of the retaining bolts with Loctite® 243 Threadlocker and tighten to 57 ft. lbs. (78 N¡m).

- Press the two side bearings onto the housing, ensuring that they are both fully seated.

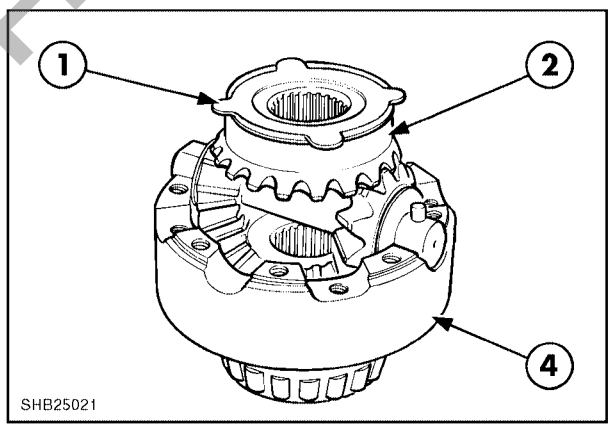


Figure 6-96

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Preliminary Inspection

1. Rotate the compressor shaft. Use a suitable socket on the hub center bolt or by hand using the rubber dampers.

   If severe roughness is felt while rotating the hub, the compressor should be disassembled.

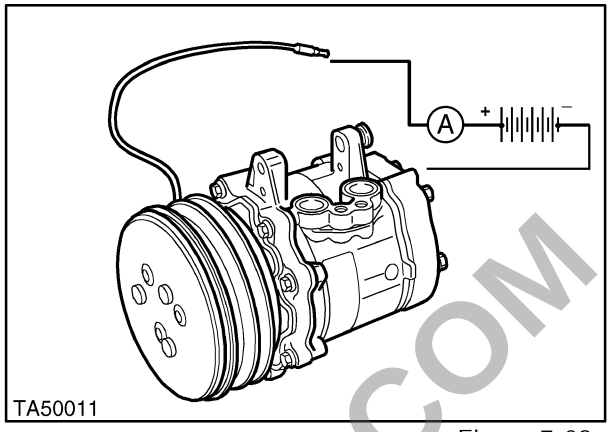


Figure 7-69

2. Using a 12-volt battery, check current drawn by the field coil which should be between 3.6- 4.2 amps.

   Very high current readings indicate a short circuit in the field coil, and no current reading indicates an open circuit. Replace coil with either fault. Resistance of the coil using an ohmmeter should be approximately 3.0Ω at 20°C.

   A poor ground connection of the field coil will result in a low voltage.

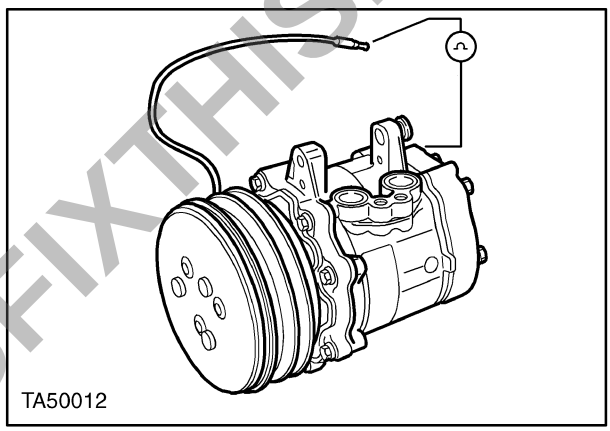


Figure 7-70

3. Ensure clutch is disengaged and rotate pulley by hand. If roughness in the bearing is felt, it will be necessary to replace the pulley and bearing as an assembly.

Clutch Disassembly - Removal

All clutch servicing should be done with the compressor removed from the vehicle:

1. Support the compressor. If using a vise, do not hold on to the housing.

2. Attach tool, 1, number NH 01276, to the cover on the front of the clutch plate and, placing a socket and ratchet through the tool, remove the cover attaching nut.

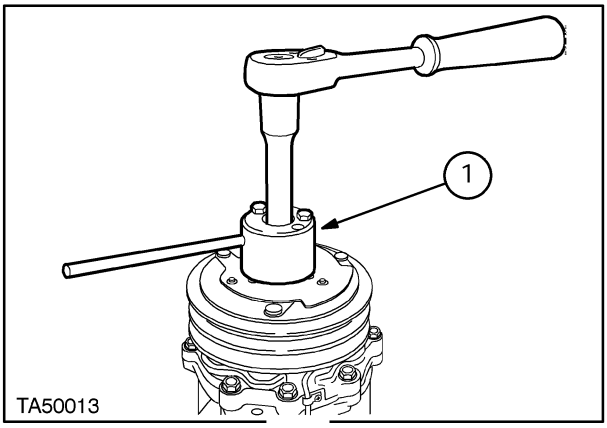
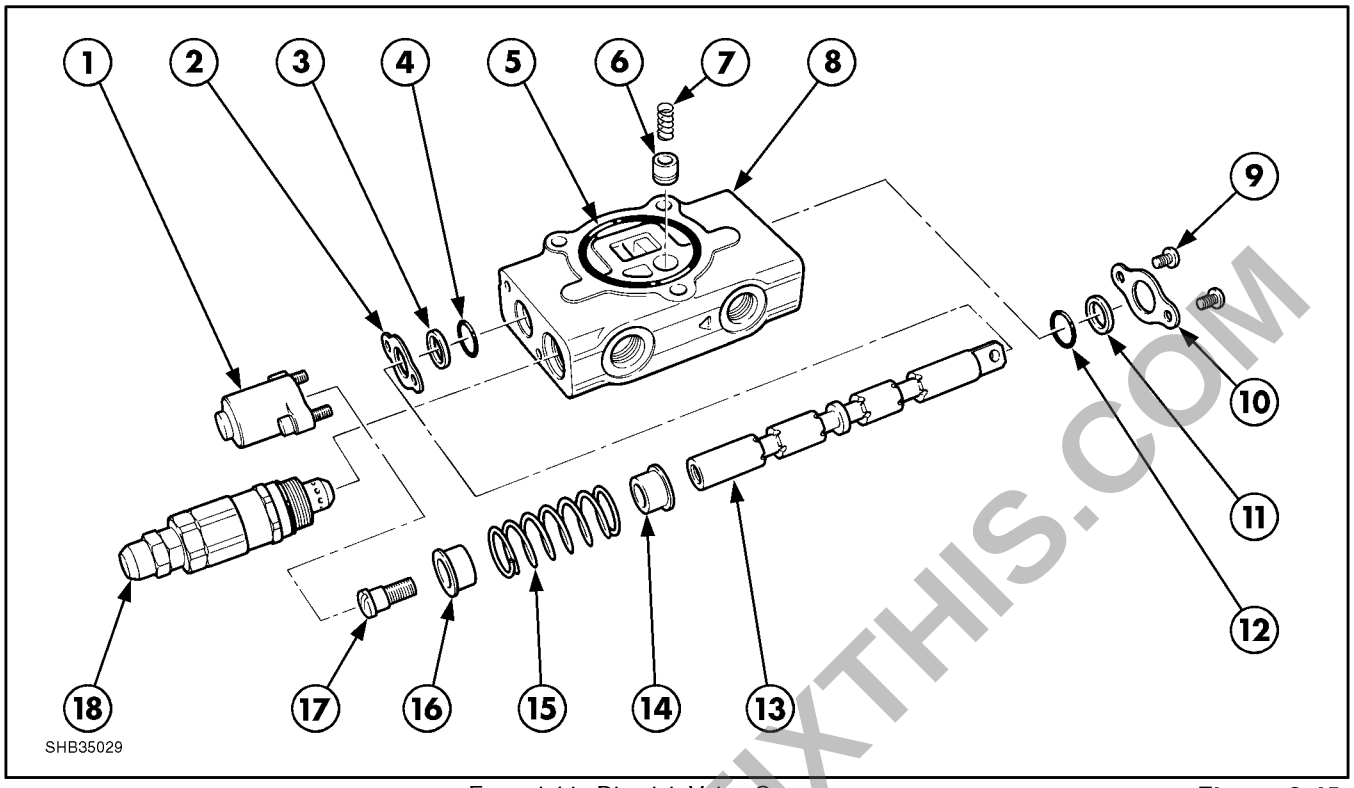


Figure 7-71

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Extendable Dipstick Valve Components **Figure 8-45**

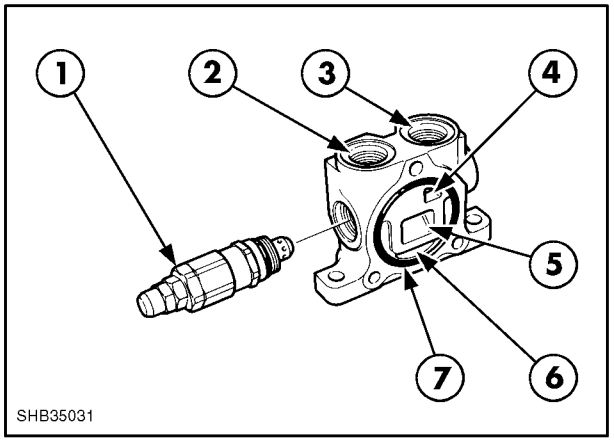
1. Spool Cap
2. Seal Plate
3. Wiper
4. O-Ring
5. O-Ring
6. Check Valve
7. Spring
8. Valve Body
9. Screws
10. Seal Plate
11. Wiper
12. O-Ring
13. Spool
14. Spring Seat
15. Spring
16. Spring Seat
17. Screw
18. Circuit Relief Valve

6. Disassemble the stabilizer and extendable dipper valve sections with reference to Figures 8-45 and 8-47.

NOTE: The stabilizer valve sections are not fitted with a check valve between each section.

The rear pump relief valve and extendable dipper circuit relief valve can be serviced if required but must be readjusted prior to use.

Refer to Circuit Relief Valve Overhaul and Pressure Testing Sections for further details.



Inlet End Cover **Figure 8-46**

1. Rear Pump Relief Valve
2. Outlet From Exhaust Port
3. Inlet Port
4. Parallel Gallery
5. Open Center Gallery
6. Exhaust Gallery
7. O-Ring

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Troubleshooting

General

PROBLEM	POSSIBLE CAUSES	CORRECTION
All circuits fail to operate	1. Pump drive inoperative	1. Investigate and repair as necessary
	2. Low oil level	2. Check and add oil
	3. Restricted pump suction line	3. Inspect suction line and reservoir, repair as necessary
Slow operation or loss of power in all circuits	1. Pump worn	1. Perform pump performance test and replace/reseal as necessary
	2. Restricted pump suction line	2. Inspect suction line and reservoir, repair as necessary
Backhoe and loader circuits fail to operate or operate slowly while extendable dipper and stabilizers operate correctly	1. Main system relief valve leaking or incorrectly adjusted	1. Perform main system relief valve pressure test
	2. Front pump worn	2. Perform pump performance and pressure test and overhaul as necessary
		Refer to Loader and Backhoe Troubleshooting Charts

Troubleshooting

Stabilizers and Extendable Dipper

PROBLEM	POSSIBLE CAUSES	CORRECTION
Stabilizer and extendable dipper circuits fail to operate, are slow or have loss of power	1. Rear pump circuit relief valve leaking or incorrectly adjusted	1. Perform rear pump circuit relief valve pressure test and overhaul as necessary
	2. Rear pump worn	2. Perform pump performance pressure and flow test and replace/reseal as necessary
Extendable dipper fails to operate or is slow to operate on extend cycle	1. Extendable dipper circuit relief valve leaking or incorrectly adjusted	1. Pressure test extendable dipper circuit relief valve
Extendable dipper slow to operate in extend and retract cycle	1. Valve spool leakage	1. Examine extendable dipper valve section for wear or scoring
	2. Piston seal leaking or cylinder barrel damaged	2. Examine/reseal piston and gland
Stabilizer leg leaks down	1. Stabilizer lock valve leaking	1. Examine/overhaul stabilizer lock valve
	2. Piston seal leaking or cylinder barrel damaged	2. Examine/reseal piston and gland

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718718019	**LOADER CONTROL** - 4x1 This kit is required to convert the E Series backhoe loader two-spool loader control valve to a three-spool valve. The third spool may be used to operate a multipurpose (4 x 1) bucket or other front-mounted hydraulic attachment. Maximum hydraulic flow to the kit is 16.6 gal/min (62.7 liters/min) at 2200 engine RPM.	Auxiliary loader valve section Loader lever Hoses and lines to end of loader boom	6 hrs.	4 x 1 bucket Optional attachments
718728019	**HAND TOOL CIRCUIT** The hand tool circuit kit is designed to operate a hand-held hammer or other auxiliary hydraulic attachment. It is located at the left-hand side of the subframe in front of the fuel tank. It is electrically controlled via a front console mounted switch. Oil flow is adjustable from 0 to 16.6 gal/min at 2200 engine RPM. Oil flow is not bidirectional with this kit.	Hand tool valve (adjustable) Front console switch Hoses and lines to left-hand subframe	6 hrs.	85999240 - 3/8″ Coupler Kit
85999240	**3/8″ COUPLER KIT** 3/8″ flat-faced hydraulic couplers for Hand Tool Hydraulic Circuit Kit #718728019.	3/8″ flat-faced couplers (2) Adapters (2)	0.5 hr.	Hand Tool Circuit Kit #718728019

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