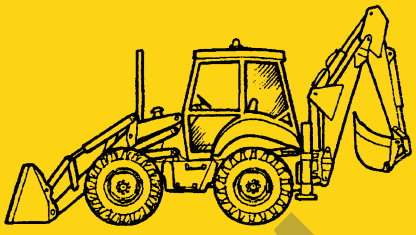
NEW HOLLAND CONSTRUCTION

555E
575E
655E
675E

SERVICE MANUAL



NEW HOLLAND

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555E, 575E, 655E, 675E LOADER BACKHOE REPAIR MANUAL CONTENTS

SECTION 1 – ENGINE



SECTION 2 – FUEL SYSTEMS

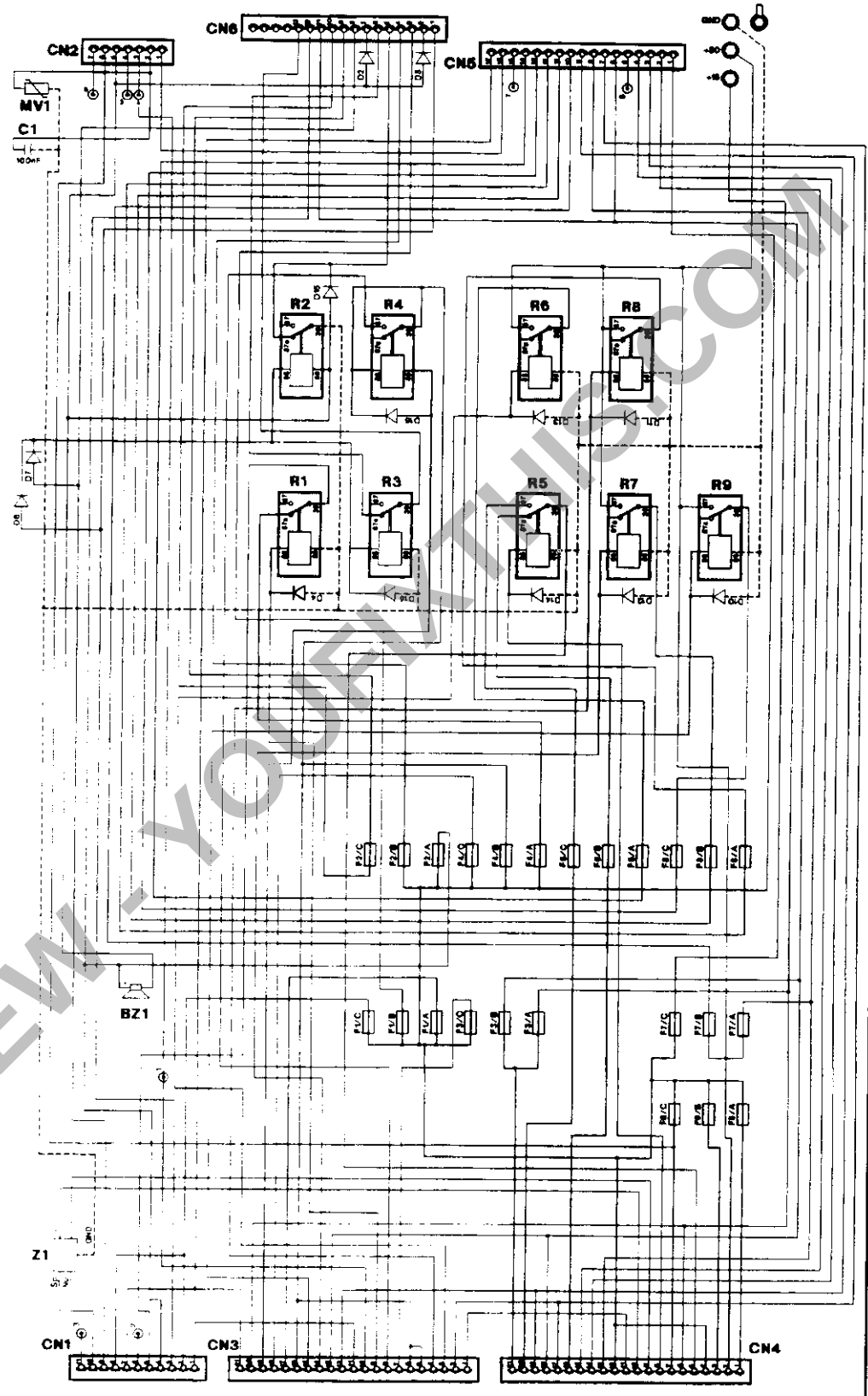
SECTION 3 – ELECTRICAL
SECTION 4 – TRANSMISSIONS
SECTION 5 – REAR AXLE AND BRAKES
SECTION 6 – STEERING AND FRONT AXLE
SECTION 7 – CAB
SECTION 8 – HYDRAULIC SYSTEM
SECTION 9 – ACCESSORIES

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B	Black
G	Green
K	Pink
LG	Light Green
N	Brown
O	Orange
P	Purple
R	Red
S	Gray
U	Blue
W	White
Y	Yellow
L	Light

LU / W = Light Blue
With White Latitudinal Lines or Dots

P / W = Purple
With White Longitudinal Lines

Numbers refer to wire size in millimeters (mm).

Figure 3-50

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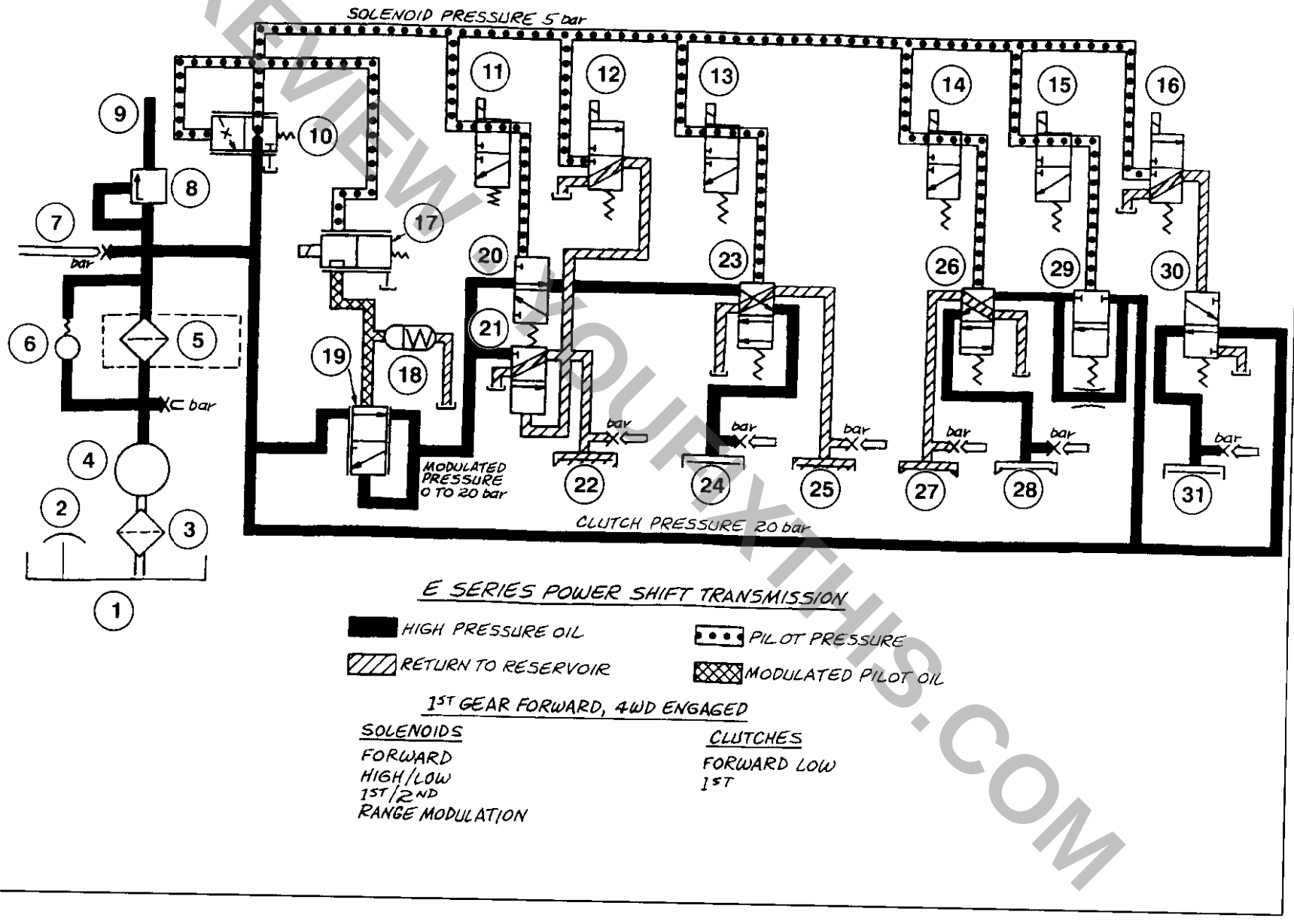
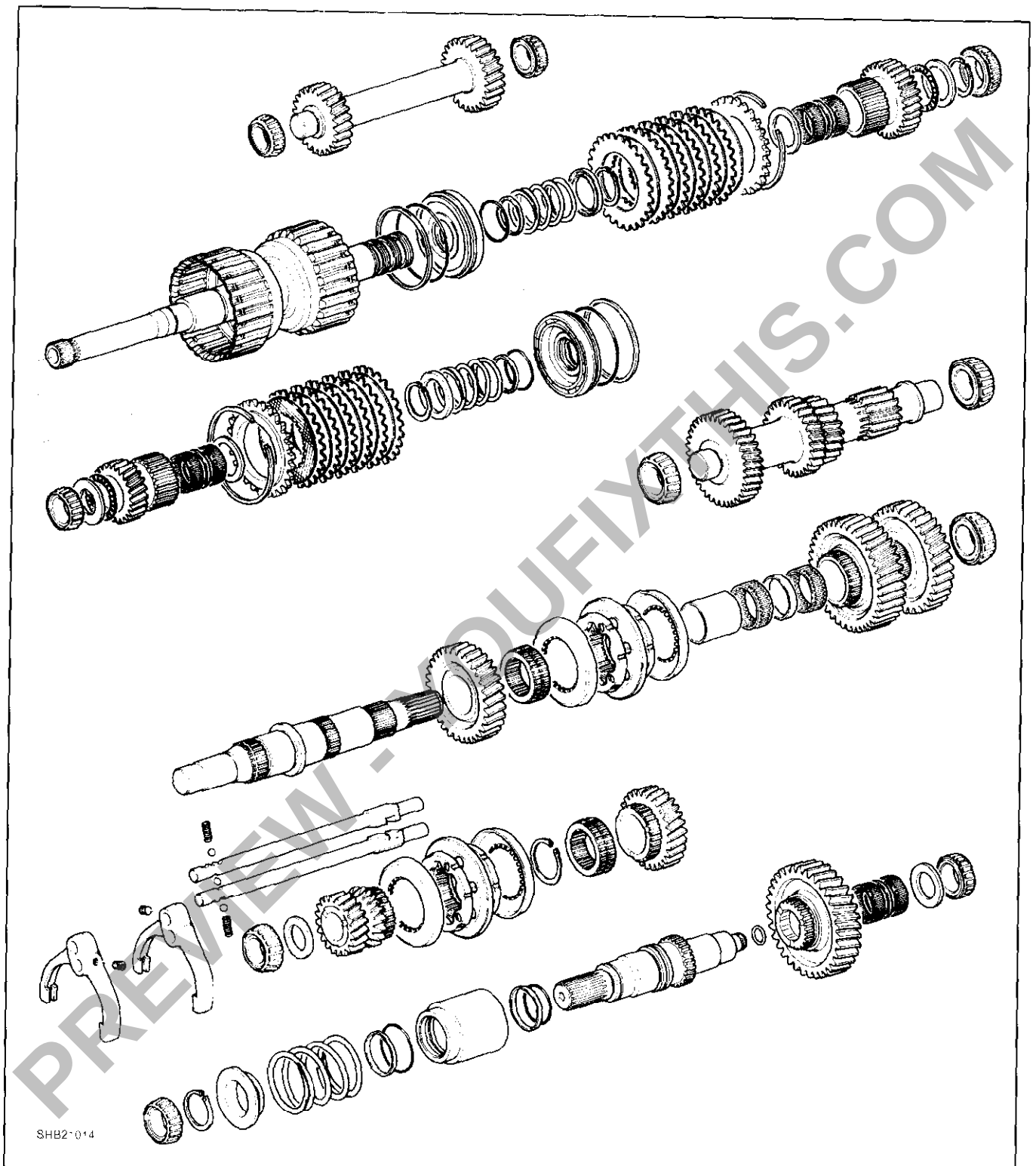


Figure 4-143

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4X4 Power Shuttle

Figure 4-35

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TORQUE SPECIFICATIONS

TORQUE VALUES — VARIOUS	ft. lbs.	N·m
Main Bearing Bolts	145	197
Connecting Rod Bolts	110	149
Cylinder Head Bolts (with Engine Cold)	160	217
Intake Manifold-to-Cylinder Head	26	35
Exhaust Manifold-to-Cylinder Head	28	38
Exhaust Pipe-to-Flange	23	31
Flywheel-to-Crankshaft	145	197
Oil Pan Drain Plug	30	41
Valve Rocker Cover Bolts	18	24
Crankshaft Pulley-to-Crankshaft	210	224
Self-Locking Screw-Valve Rocker Arm	18	24
Injector Attachment Bolts	17	23
Timing Cover Bolts – 5/16	15	20
Timing Cover Bolts – 3/8	23	31
Cover Bolts (Blanks Oil Drilling)	23	31
Oil Pump-to-Block	17	23
Water Pump-to-Cylinder Block	35	48
Water Pump Cover-to-Pump	20	27
Oil Pan-to-Cylinder Block (Cast)	28	38
Injector Line Nuts	18	24
Leak-off Tube Banjo Fitting Bolts	8	11
Injection Pump-to-Front Adapter Plate	18	24
Camshaft Idler Drive Gear-to-Block	175	237
Front Adapter Plate-to-Cylinder Block	18	24
Thermostat Housing Bolts	18	24
Camshaft Gear Bolt	51	69
Camshaft Rear Gear Plate Bolts	35	47
Oil Filter Adapter Bolts	31	42
Oil Filter Mounting Bolt Insert	25	34
Starting Motor-to-Rear Adapter Plate	23	31
Dynamic Balancer-Cylinder Block	86	117
Injection Pump-to-Gear Nut (4-Cyl.)	58	79
Oil Pressure Switch Assembly	23	31
Turbocharger-to-Exhaust Manifold Nut	33	44
Single Fan-to-Pulley Nose Thread	21	27
Crankshaft Rear Oil Seal Retainer:		
Initial Tightening	9	12
Final Tightening	17	23
Belt Tensioner Pulley Bolt	40	54
Temperature Sensors	15	20
Tensioner to Water Pump Bolt	40	54
Idler Pulley Bolt	40	54
Pump Connector to Block	18	24

CYLINDER BLOCK PLUG TORQUE	ft. lbs.	N·m
1/4"–27 NPT	8	11
1/4"–18 NPT	22	30
3/4"–18 NPT	28	38
3/4"–14 NPT	20	27

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LED Displayed Faults

If a fault is, or there have been (intermittent faults) present, a detailed fault display can be selected by placing: The Powershift lever in Neutral position and pressing the Kickdown button. The indicated fault on the LED display can then be localized by using the table below, until power down.

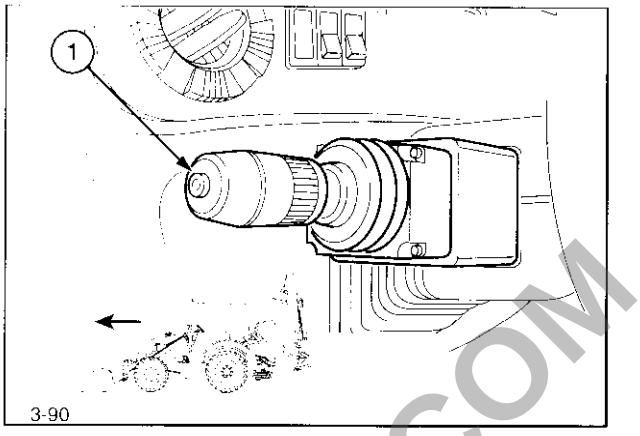


Figure 4-202

Fault Group

The faults are displayed using 2 LEDs on the 8 LED display. Faults are displayed as 3 subgroups – Group A:

Fault Sub Group A	Group Indication
Input related	LED 1 blinks red
Output related	LED 2 blinks red
Other	LED 3 blinks red

Within each group several faults are possible. The second LED's position – Group B, indicates the fault area, where the color indicates the fault type.

Typically an open circuit condition is shown using an orange LED where a short circuit condition is indicated with a red LED, Figure 4-197.

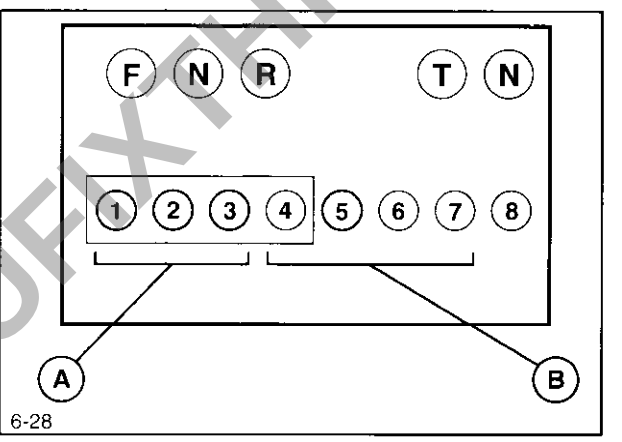


Figure 4-203

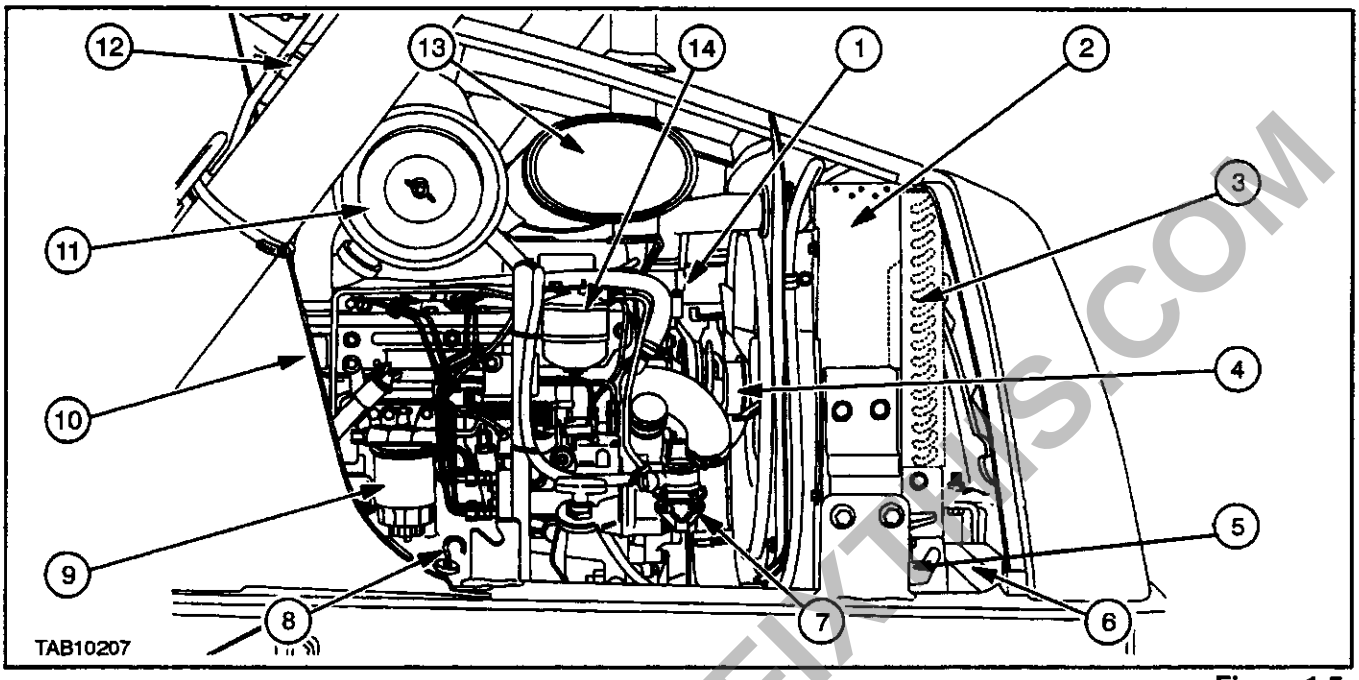
Once the fault code has been determined proceed to fault codes on the following page.

Fault Group LED (A)	Fault Group LED (B)	Fault	Fault Code
None	None	No fault active	–
1 Red	4 Orange	Shift lever input fault	F1
1 Red	5 Orange	Speed sensor Open Circuit	F2
1 Red	5 Red	Speed sensor Short Circuit	F3
1 Red	7 Green	Battery Over voltage	F4
2 Red	4 Orange	Open circuit on one or both direction outputs	F5
2 Red	4 Red	Direction output forced to plus – Critical fault	F6
2 Red	5 Orange	Other output Open Circuit	F7
2 Red	5 Red	Other output Short Circuit	F8
2 Red	6 Orange	Modulation output Open Circuit	F9
2 Red	6 Red	Modulation output Short Circuit	F10
3 Red	5 Red	Startup Fault – Limp Home Mode Selected	F11

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OVERHAUL

Diesel Engine Disassembly



Right-Hand View of Engine

Figure 1-5

1. Thermostat
2. Coolant Radiator
3. Air Conditioning Condenser (When Fitted)
4. Water Pump
5. Transmission Oil Cooler
6. Battery
7. Fuel Lift Pump
8. Engine Oil Level Dipstick
9. Fuel Filter
10. Cold Start
11. Air Cleaner
12. Coolant Recovery Tank
13. Muffler
14. Fuel Sedimentor/Separator

WARNING: ALLOW THE ENGINE TO COOL TO AMBIENT TEMPERATURE BEFORE CLEANING. CLEANING A HOT ENGINE IN COOL WATER COULD RESULT IN DAMAGE TO THE FUEL PUMP AND OTHER COMPONENTS.

In the following procedures and illustrations the engine generally is shown removed from the tractor.

The engine overhaul procedure initially describes the assembly process for rebuilding an engine using all new components. Following this section are defined headings which describe detailed repair specifications and procedures, where components are suitable for reuse. Refer to the Specifications Section to ensure components are serviceable.

Where overhaul of components is required without engine being removed from the tractor refer to the following headings, and the relevant paragraphs, in the main overhaul procedure.

Operations or repairs that can be performed with the engine still in the tractor.

- Cylinder head and associated components
- Fuel injection pump and related parts
- Water pump, thermostat and associated components
- Oil pump relief valve
- Oil pan and gasket
- Turbocharger
- Front timing cover/timing gear removal
- Oil pan removal for access to crankshaft, bearing shells, piston removal and oil pump suction tubing
- Front pulley and damper assembly

Operations or repairs that can be performed only with the engine removed from the vehicle and separated from the transmission housing, with oil pan removed.

- Crankshaft rear oil seal and carrier removal (with oil pan removed)
- Oil pump and drive gear removal

NOTE: All gaskets, seals and O-rings must be replaced with new upon reassembly. Where new sealant is to be applied refer to "Engine Specifications".

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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
Engine does not develop full power	1. Clogged air cleaner	1. Clean or replace element
	2. Fuel line obstructed	2. Clean
	3. Faulty injectors	3. Clean and reset
	4. Incorrect valve lash adjustment	4. Check and reset
	5. Burnt, worn or sticking valves	5. Replace valves with new or oversize, and/or machine the valve guide bores
	6. Blown head gasket	6. Check head flatness and fit new gasket
	7. Incorrect fuel delivery	7. Check injectors and pump
	8. Low cylinder compression	8. Replace piston rings or rebore/resleeve as necessary
Oil pressure warning light fails to operate	1. Bulb burnt out	1. Replace bulb
	2. Warning light pressure switch faulty	2. Replace pressure switch
	3. Warning light circuit faulty	3. Check and replace wiring
Excessive exhaust smoke	1. Oil leak on compressor or turbine side of turbocharger, where fitted	1. Overhaul turbocharger
	2. Exhaust leak on exhaust manifold side of turbocharger, where fitted	2. Install new gasket
	3. Air cleaner dirty or restricted	3. Clean
	4. Excessive fuel delivery	4. Overhaul injection pump and injectors
	5. Thermostart valve stuck open	5. Replace thermostart valve (See "Fuel Systems")
Water temperature gauge fails to reach normal operating temperature	1. Faulty temperature sender	1. Replace sender switch
	2. Incorrect or faulty thermostat	2. Replace thermostat
	3. Faulty water temperature gauge	3. Replace temperature gauge

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SPECIFICATIONS

Model		555E	575E	655E	675E
No. of Cylinders		4	4	4	4
Bore	inches (mm)	4.4 111.8	4.4 111.8	4.4 111.8	4.4 111.8
Stroke	inches (mm)	4.4 111.8	5.0 127.0	5.0 127.0	5.0 127.0
Displacement	cu in (cu cm)	268 4393	304 4983	304 4983	304 4983
Compression Ratio		17:5–1	17:5–1	17:5–1	17:5–1
Compression at Cranking Speed of 200 rpm	psi bar	375 25.5	375 25.5	375 25.5	375 25.5
Firing Order		1–3–4–2	1–3–4–2	1–3–4–2	1–3–4–2
Idle Speed	rpm	680/850	680/850	680/850	680/850
Max. No Load Speed	rpm	2325/2375	2325/2375	2325/2375	2225/2275
Rated Engine Speed	rpm	2200	2200	2200	2100

Cylinder Block

Taper of Cylinder Bore	
Repair Limit	0.001″ (0.025 mm)
Wear Limit	0.005″ (0.127 mm)
Cylinder Bore Out-of-Round	
Repair Limit	0.0015″ (0.03 mm)
Wear Limit	0.005″ (0.127 mm)
Cylinder Bore Diameters	4.4007–4.4032″ (111.778–111.841 mm)
Rear Oil Seal Bore Diameter	5.542–5.546″ (140.77–140.87 mm)
Block-to-Head Surface Flatness	0.003″ (0.08 mm) in any 6″ (152 mm) 0.001″ (0.03 mm) in any 1″ (25.40 mm)

Cylinder Head

Valve Guide Bore Diameter	0.3728–0.3738″ (9.469 mm–9.495 mm)
Head-to-Block Surface Flatness	0.001″ (0.03 mm) in any 1″ (25.4 mm), or 0.005″ (0.127 mm) Overall Limit

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Oil Specification

Temperature	Oil Viscosity & Type	API Classification	Engine Oil & Filter Change Period (Hours)
Below 10°F Below –12°C	Low Ash SAE 5W or Low Ash SAE 5W/20 or SAE 5W–30	SF/CD/CF–4	150 150 150
0°F to 40°F –18°C to 4°C	Low Ash SAE 10W Series 3 or SAE 10W–30	SF/CD/CF–4	150 300
0°F to 90°F –18°C to 32°C	Low Ash SAE 10W Series 3 or SAE 10W–40	SF/CD/CF–4	300 300
Above 10°F Above –12°C	Low Ash SAE 30W Series 3 or SAE 15W–40 (Preferred)	SF/CD/CF–4	300

NOTE: When using diesel fuel with a sulphur content below 1.0%, Series 3 diesel engine oil with an API classification of CD may be used instead of CF–4 oil, but the oil and filter interval must be reduced to 150 hours.

When using diesel fuel with a sulphur content between 1% and 1.3% use only oils listed above but reduce the oil and filter change period to every 50 hours.

The use of fuel with a sulphur content above 1.3% is not recommended.

Engine Oil Capacities (Less Oil Filter)

Model	U.S. Qts	Imp. Qts	Liters
4-Cylinder	16.9	14.0	16.0

Engine Oil Capacities (With Oil Filter)

Model	U.S. Qts	Imp. Qts	Liters
4-Cylinder	17.6	14.8	17.0

Thermostat

Opening Temperature	174–181°F (79–83°C)
Fully Open	199–205°F (93–96°C)

Expansion Tank Cap

Opening Pressure	13 psi (0.9 bar)

Water Pump

Type	Centrifugal
Drive	V-Belt

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FOUR-WHEEL DRIVE IDENTIFICATION

The serial number and axle type is printed on the plate, 1, located on the rear of the axle housing.

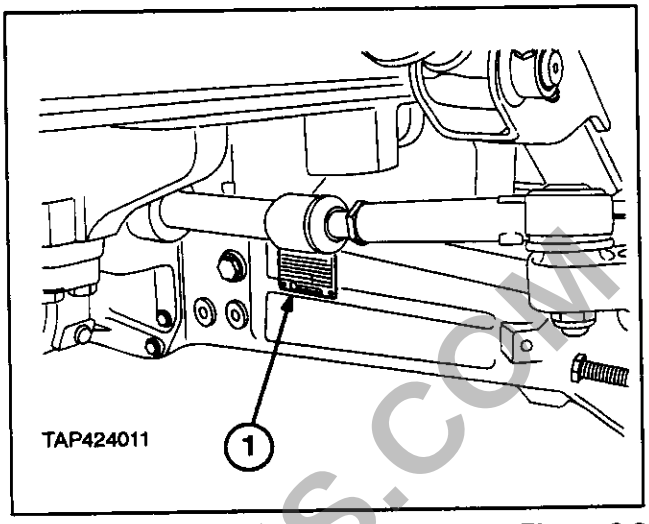


Figure 0-3

TRANSMISSION IDENTIFICATION

The serial number and type is printed on the plate, 1, on the lower right side of the transmission.

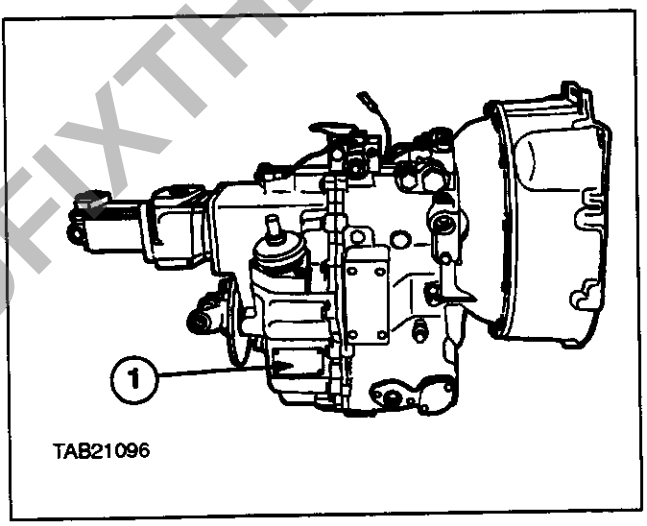


Figure 0-4

REAR AXLE IDENTIFICATION

The serial number, 1, is stamped on the left side of the rear axle housing.

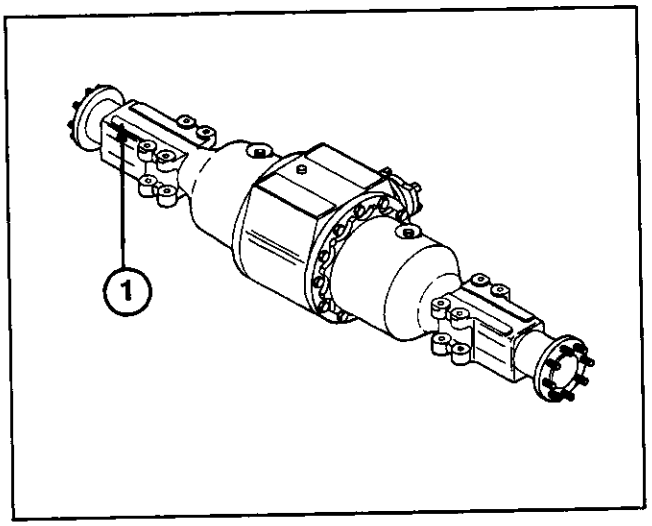


Figure 0-5

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Installation

1. Lubricate the pressure relief valve and spring and insert into housing, ensuring free movement. Install a new O-ring to the plug and torque to 42 ft. lbs. (55 N·m).

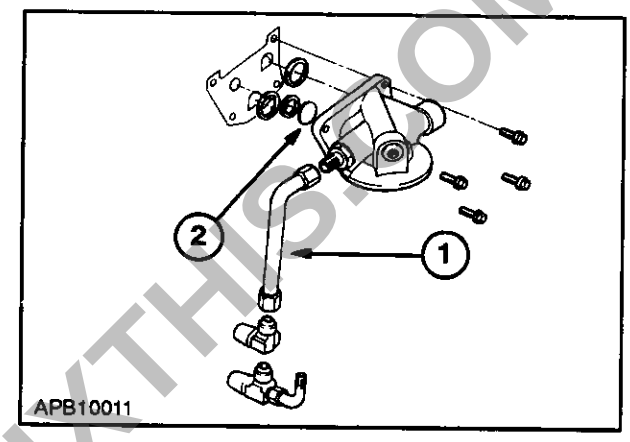


Figure 1-109

NOTE: On some models including the turbocharged version the pressure relief valve "end plug" is replaced by an oil return tube from the engine block. Where this pipe is installed a plug is used to blank the oil return port to the engine block.

2. Fit tube, 1, to the connector and torque to 20 ft. lbs. (27 N·m).

3. Install the oil filter head to the engine block with new O-rings, 2, and plug where required as above and torque the bolts to 26–35 ft. lbs. (34–47 N·m).

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Remove pressure gauges and fit stop solenoid or plug.
Prime as at test (1).

10.	Back Leakage	(C)	775	40 to 100 cm^3 per 100 Strokes Flow Rate 310 to 775 cm^3/min
11.	Advance	(C)	775	5.5°

If incorrect repeat from test (3).

12.	Max. Delivery (Coded Pumps)	(S)*	See	Coded Value ± 0.5 mm^3/st Code Max. Spread 5.0 mm^3/st
13.	Delivery	(C)	1050	Record Delivery cm^3
14.	Governor	(S)	1140	3.0 to 4.0 cm^3
15.	Delivery	(C)	1180	Maximum 1.6 cm^3
16.	Delivery	(C)	1050	As Test (13) ± 0.3 cm^3

Run test machine down to 100 rpm and stop.

17.	Latch Valve	(S)	210	Screw latch valve adjuster fully in, then screw out until advance reads 3.25 to 4.0°. Lock adjuster.

Run test machine down to 100 rpm and stop.

18.	Excess Fuel	(C)	150	Minimum 20.0 cm^3. Advance to read 0°.
19.	Advance	(C)	190	0°

If incorrect repeat from test (17).

20.	Latch Valve	(C)	230	Advance 3.25 to 4.0°

If incorrect repeat from test (17).

21.	Advance	(C)	775	5.5°

If incorrect repeat from test (11).
Move throttle lever to closed position for tests (22, 23, 24).

22.	Idle Delivery	(S)	360	3.0 to 3.5 cm^3. Throttle closed.
23.	Shutoff Lever	(C)	280	Shutoff lever closed. Max. 0.5 cm^3
24.	Shutoff Solenoid	(C)	280	De-energize solenoid, wait 5 seconds. Max. 0.5 cm^3
25.	Timing	S/C		Outlet 'X', Pressure 55 bar Indexing tool at 261°. Scribe line.

REFER TO STATEMENT AT END OF EXPLANATORY NOTES REGARDING MAXIMUM FUEL AND SPEED SETTING AND VARIATIONS IN ENGINE PERFORMANCE.

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B1 Battery

B2 Battery Disconnect Switch

CN1 Circuit Board Harness Connector (11 Pin)

CN2 Circuit Board Harness Connector (7 Pin)

CN3 Circuit Board Harness Connector (21 Pin)

CN4 Circuit Board Harness Connector (21 Pin)

CN5 Circuit Board Harness Connector (17 Pin)

CN6 Circuit Board Harness Connector (13 Pin)

C001 Cab Main to Engine Harness Connector

C004 Engine Oil Pressure Sender

C006 Starter Solenoid Battery Terminal

C009 Air Filter Restriction Indicator Switch

C013 Alternator

C015 Fuel Shutoff Solenoid Valve

C019 Cab Main to Chassis Harness Connector

C046 Transmission Speed Sensor

C063 Brake Light Switch, Left-Hand

C072 Ignition Switch

C075 Transmission Shuttle Lever and Horn Switch

C082 Rotary Beacon Switch

C083 Hazard Light Switch

C106 Radio Connector

C119 Blower Switch

C189 Front Work Light Switch

C190 Main Light Switch (Taillights Only on Std CP Unit)

C191 Rear Work Light Switch

C193 Cigar Lighter

C217 Engine Coolant Temp. Sender and Switch

C226 Speedometer

C238 Instrument Console Harness Connector (21 Pin)

C240 Instrument Console Harness Connector (8 Pin)

C245 Fuel Gauge

C246 Coolant Temperature Gauge

C247 Tachometer and Hour Meter

C248 Side Panel Warning Lights

C250 Backhoe Boom Transport Lock Switch

C251 Side Shift Clamp Switch

C252 Not Used

C253 Not Used

C266 3-Speed Fan Switch

C274 Air Seat Suspension Compressor (Opt.)

C276 Ether Cold Start Switch (Opt.)

D2 Engine Oil Low Pressure Warning Buzzer

D5 Engine Coolant High Temperature Warning Buzzer

F1/A 10 Amp Auto-Reset : Rear Window Wiper Motor

F1/B 7.5 Amp : Fuel Shutoff Solenoid

F1/C 10 Amp : Auto 4-Wheel Braking & Brake Lights

F2/A 15 Amp : Air Seat, Switch Lights, Park Brake Buzzer

F2/B 15 Amp : Blower Motor

F3/C 10 Amp : Switches (Front Work Lights & Ether Start, Backhoe Quick Attach)

F4/A 5 Amp : Transmission

F6/A 7.5 Amp : Rotary Beacon

F6/B 7.5 Amp : Hazard Lights

F6/C 7.5 Amp : 4WD Switch, Hand Tool, Tachometer

F7/A 10 Amp : Horn

F7/B 10 Amp : Cigar Lighter, Interior Lights, Radio

F7/C 10 Amp Auto Reset : Windshield Wiper Motor

FG 80 Amp Fusible Link

R1 Transmission Shuttle Relay

R6 Work Light Relay, Front Outer

R7 Work Light Relay, Rear Inner

R8 Work Light Relay, Front Inner

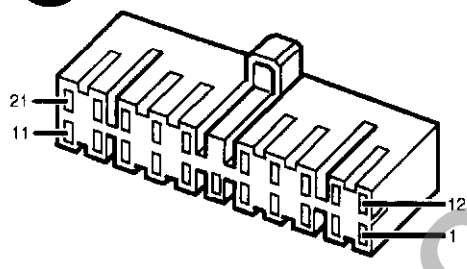
R9 Work Light Relay, Rear Outer

R10 Air Conditioner Relay

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CN3

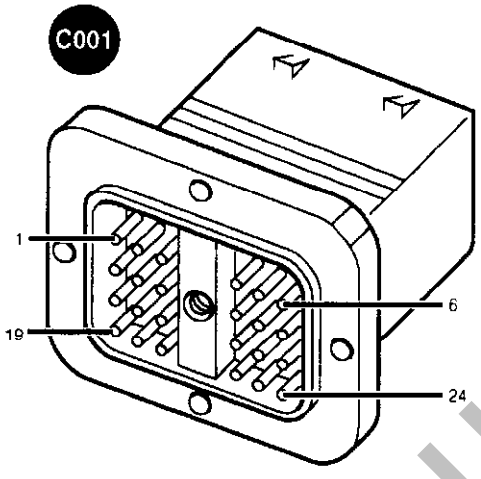
1: S-B:1
2: U:1
3: Y-G:1
4: K-Y:1
5: W/R:1
6: W/R:1
7: O/B:1
8: S-R:1
9: LU/R:1
10: LU/W:1



11: O/B:1
12: R-B:1
13: Y:1
14: LU-Y:1
15: O/W:1
16: LU/B:1
17: R-G:1
18: P-B:1
19: LU-G:1
20: Y-B:1
21: LU:1

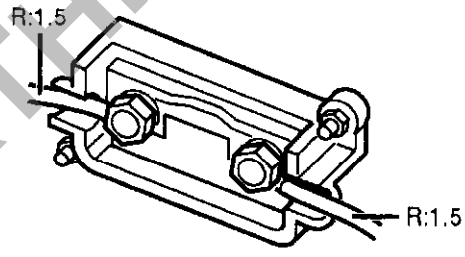
C001

1: R:1.5
2: N:1.5
3: G-W:1
4: U-B:1
5: R/B:1
7: R:1.5
8: B:1.5
9: W-Y:1
10: LU-B:1
11: K:1
12: Y-R:1
13: R:1.5



14: B:1.5
15: W:1
16: N-B:1
17: P-W:1
18: G-B:1
19: R:1.5
20: R:1.5
21: W/N:1
22: N-W:1
23: K:1
24: N-G:1

FG



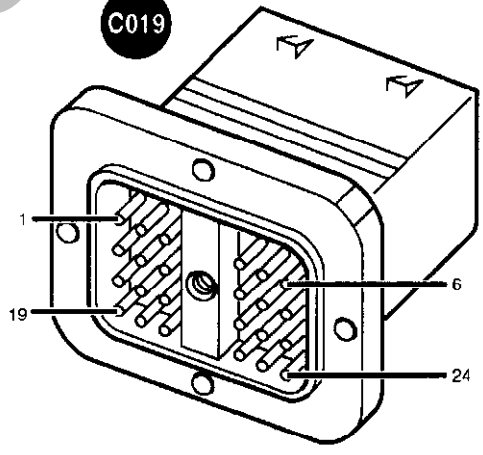
C006

1: R:6



C019

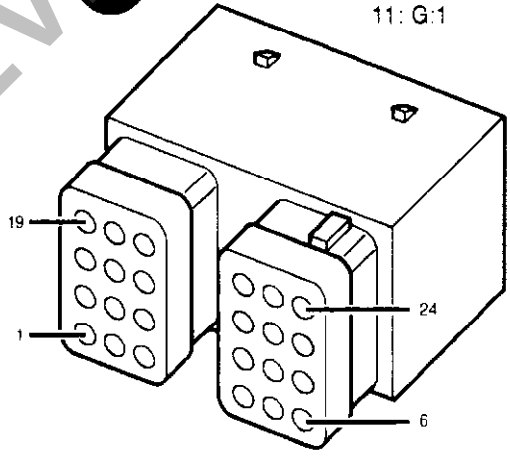
1: W-B:1
2: U-R:1
3: LU-W:1
4: LU-R:1
5: N:1
6: B:1.5
7: Y-U:0.5
8: O-B:1
9: U-Y:1
10: LU-R:1
11: G:1



12: R-G:1
13: LU-Y:1
14: R-G:1
15: W-U:1
16: B:1.5
17: W-R:1
18: W/R:1
19: O-U:1
20: S-B:1
21: O-W:1
22: S-R:1
23: W-R:1

C019

1: W-B:1
2: U-R:1
3: LU-W:1
4: LU-R:1
5: N:1
6: B:1.5
7: Y-U:0.5
8: O-B:1
9: U-Y:1
10: LU-R:1
11: G:1



12: R-G:1
13: LU-Y:1
14: R-G:1
15: W-U:1
16: B:1.5
17: W-R:1
18: W/R:1
19: O-U:1
20: S-B:1
21: O-W:1
22: S-R:1
23: W-R:1

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Figure 3-121

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Input Shaft Disassembly (Front Support End)

IMPORTANT: When using a bearing puller, be very careful to ensure it doesn't touch the tip of the gear teeth, as they may become chipped or broken.

1. Support the shaft vertically (rear support end) in a soft jawed vice and remove the sealing ring. Attach a three-legged puller, 1, to the underside of the forward primary gear, 2, and remove the forward clutch gear hub, thrust bearing, thrust washer and roller bearing from the shaft. Then remove the two needle bearings, bearing spacer and thrust washer.

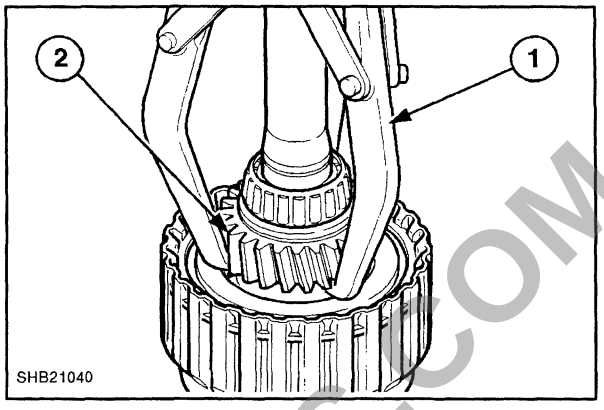


Figure 4-72

2. Pry the snap ring, 1, out of the groove and remove it. The retaining plate, friction discs and clutch plates can now be removed.

   The friction discs and clutch plates must be flat and not discolored in any way. If in doubt, replace them.

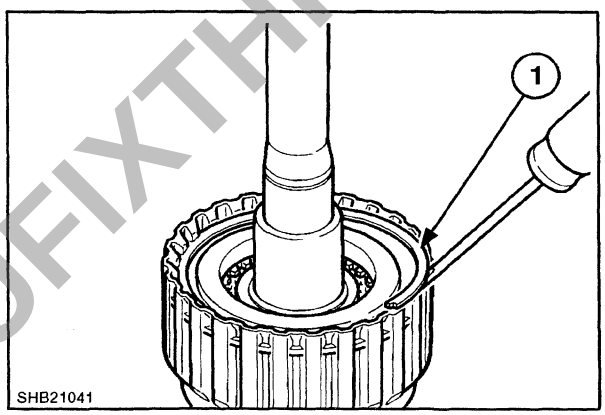


Figure 4-73

3. Using a press and compression tool No. NH01251, 1, compress the return spring, 2, to enable the release of the snap ring, 3. Carefully release the pressure on the spring. Remove the snap ring, spring retainer and return spring.

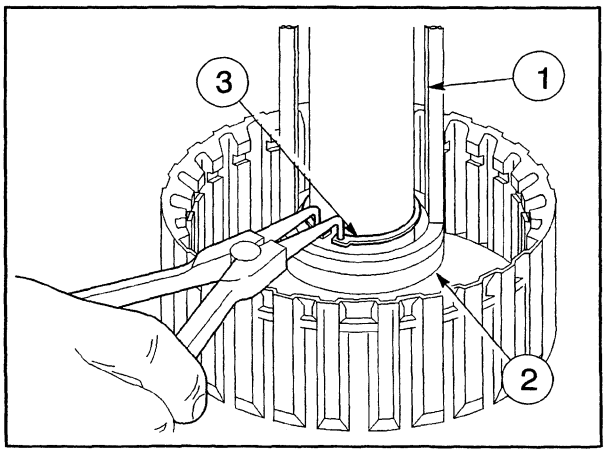


Figure 4-74

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Separating Engine From Transmission with assembly removed from the vehicle

1. Place the engine/transmission assembly on a suitable splitting stand.
2. Remove the starter motor assembly.
3. Remove the torque convertor attaching bolts accessed through the starter motor aperture (1), Figure 4-171.
4. Remove the engine timing tab (2).
5. Remove the bell housing bolts.
6. Gently slide the transmission with the torque convertor from the engine.

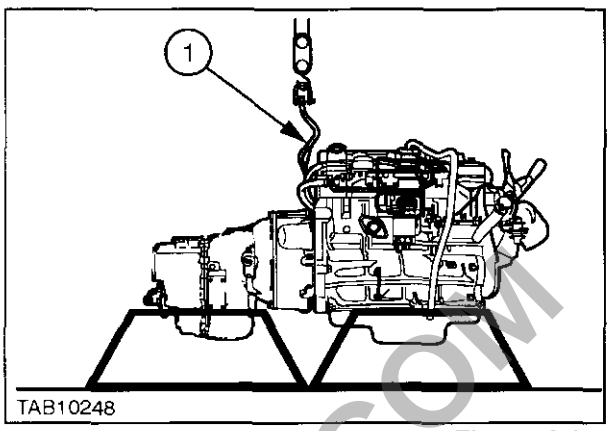


Figure 4-170

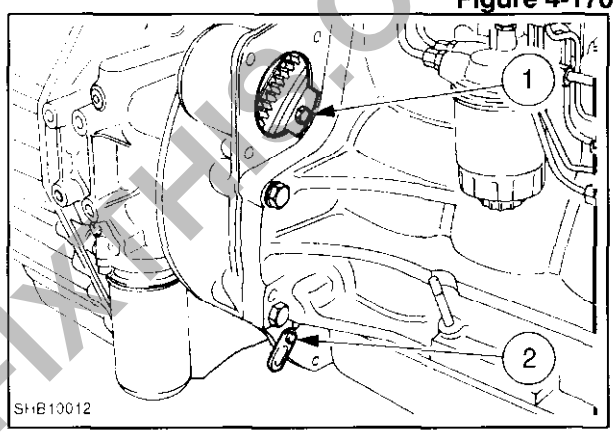


Figure 4-171

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Reassembly forward low clutch

Install clutch piston friction seal. Note: Ring must be sized before installing in clutch drum. Sealing ring must be flush with friction diameter of piston. Install clutch piston steel seal.

Reassemble in reverse order as for disassembly:

Install clutch piston in clutch drum, use caution not to *damage sealing rings and install:*
- clutch piston wear plate on piston
- Install clutch piston spring
- clutch piston spring retainer
- clutch spring retainer snap ring

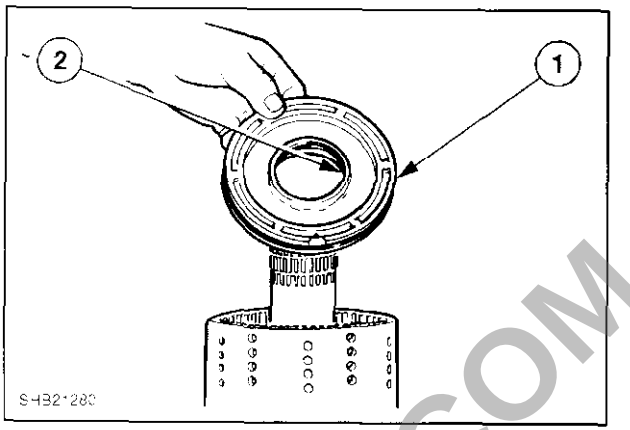


Figure 4-288

Using tool no NH 01251 compress spring refit circlip.

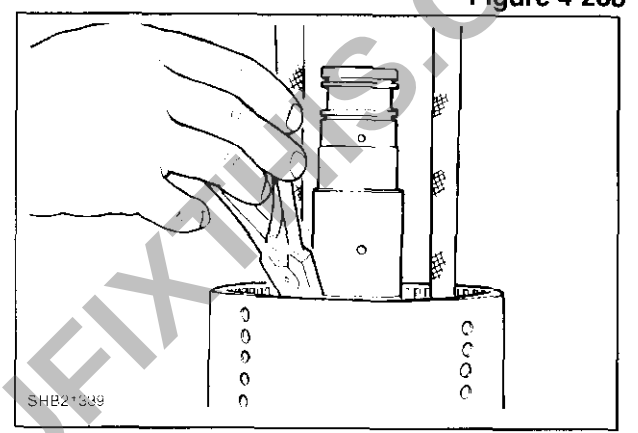


Figure 4-289

Install one friction half disc (4), with friction material away from the piston.
Install one steel disc (2). Alternate friction and steel discs until the 9 steel discs and 8 friction discs are installed. First and last discs are steel.
Install one half disc (1) with friction material down.

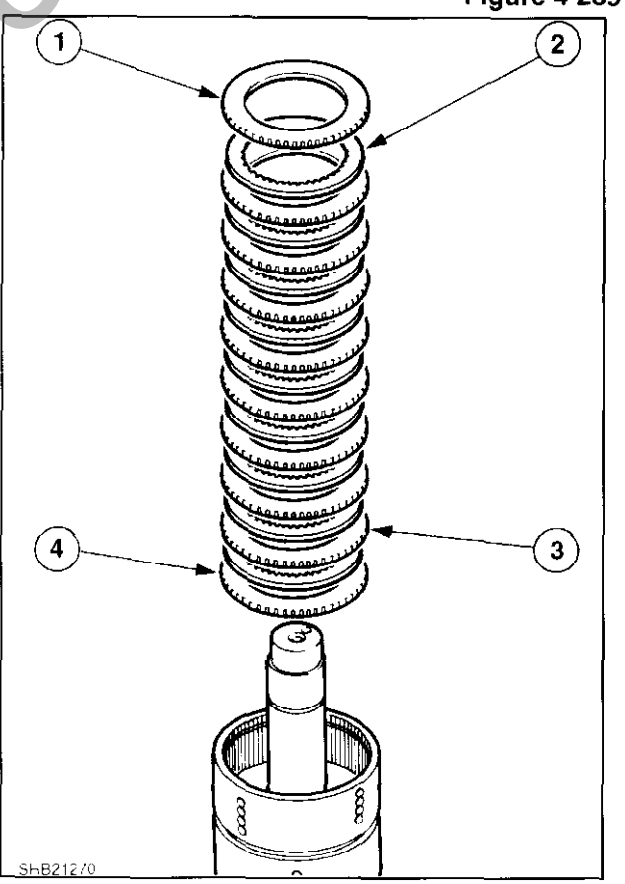


Figure 4-290

- Install backing plate snap ring.
- Spacer.
- Spacer snap ring.
- steel bearing snap ring.
- Clutch gear steel bearing.

See Figure 4-282.

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Axle Shaft Bearing Preload Adjustment

Adjustable shims, 1, are located between the inner end of the axle shaft and the planet gear carrier.

1. Install a 0.081" (2.06 mm) shim p.n. 81803509.
2. Replace the planetary gear assembly.
3. Tighten the axle shaft retaining bolt to 160 ft. lbs. (217 N·m).

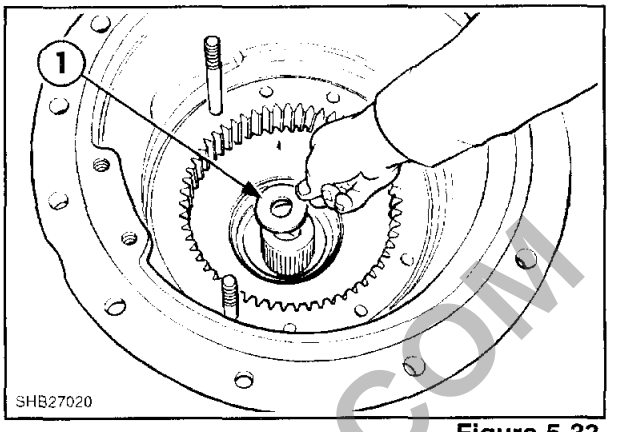


Figure 5-33

4. Support the axle housing vertically with the axle shaft flange anchored in a wheel center disc or other suitable fixture to prevent the housing from falling over and injuring someone.

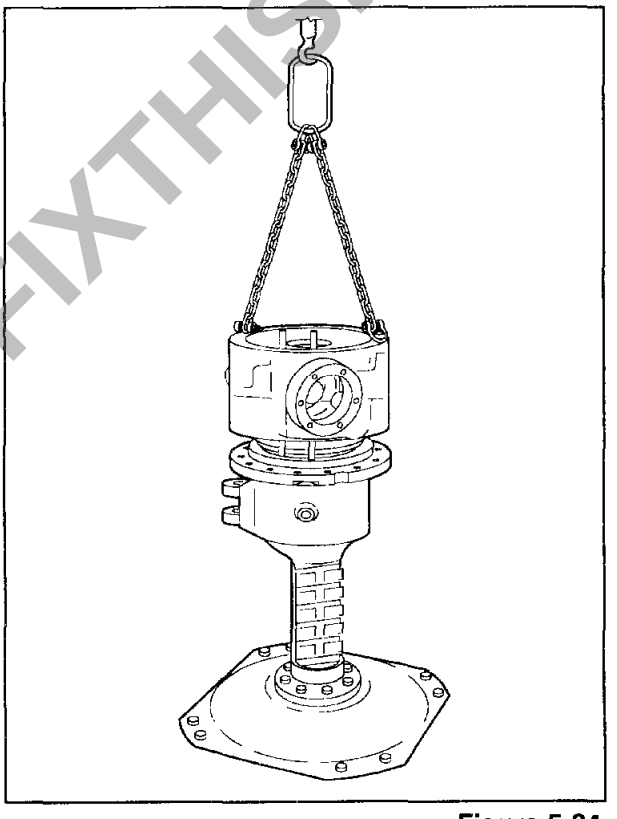


Figure 5-34

5. Mount the dial indicator base on the lower end of the trumpet housing and put the indicator rod on the axle flange. Measure the endplay by moving the housing up and down with a pry bar. Example : 0.016" (0.406 mm).

   Do not move the axle shaft more than 0.020" (0.508 mm) or the seal can be damaged.

   If no endplay is found, go to step 9.

6. Subtract the step 5 endplay measurement from the shim installed in step 1.
   Example : 0.081 – 0.016" = 0.065".
7. Select the appropriate shim from the following table.
   Example: the 0.065" calculation would require shim p.n. 81803505.

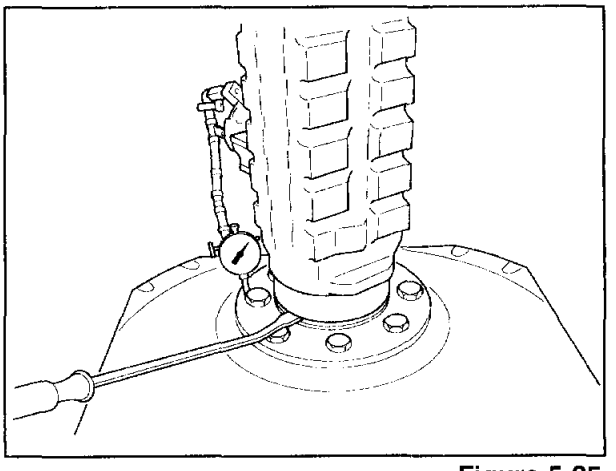


Figure 5-35

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NOTE: Observe master dowel.

1. Jacking Bolt
2. Planetary Ring Gear
3. Master Dowel

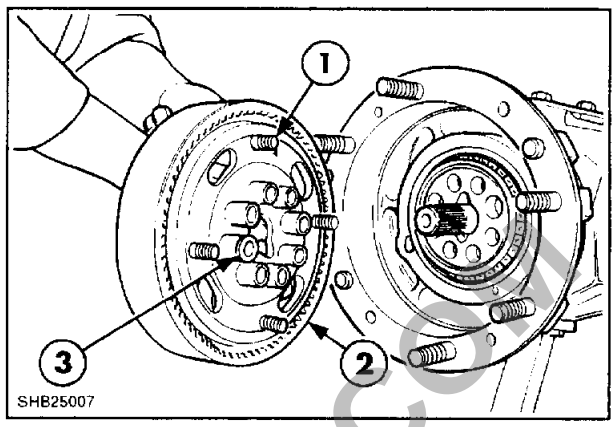


Figure 6-55

Planetary Disassembly

Remove the retaining ring and disassemble the planetary ring gear.

1. Ring Gear
2. Carrier
3. Retaining Ring

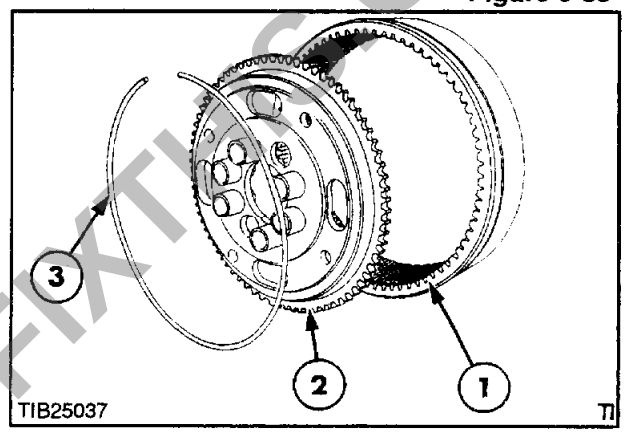


Figure 6-56

Remove the Hub Assembly

Using a soft faced mallet, carefully withdraw the hub from the axle.

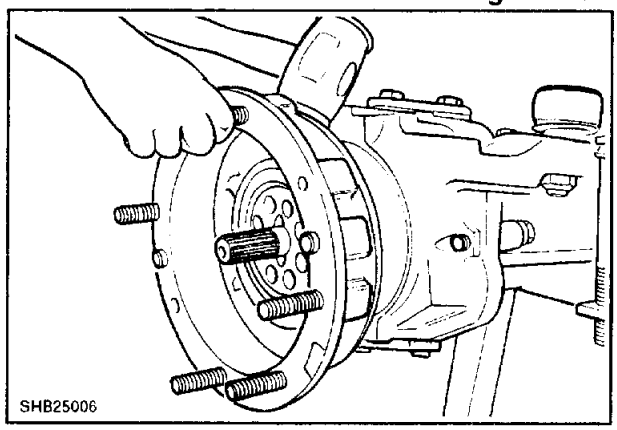


Figure 6-57

Final Reduction Hub Assembly

Check the oil seal and the inner and outer bearing cups for wear and damage.

1. Oil Seal
2. Inner Bearing Cup
3. Outer Bearing Cup

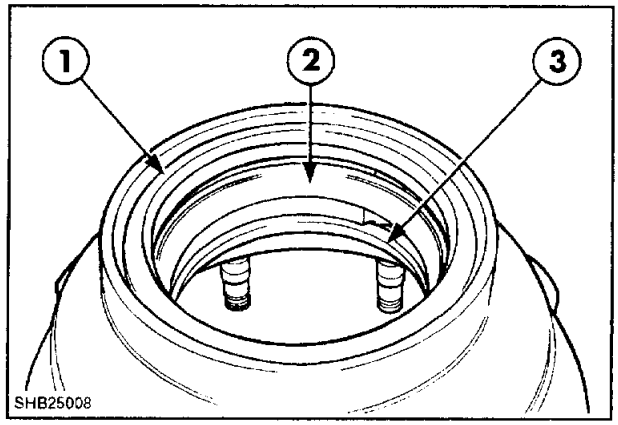


Figure 6-58

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COMPONENT OVERHAUL (EXCLUDING COMPRESSOR)

GENERAL

⚠ WARNING ⚠

Before disconnecting components in the air conditioning system, the refrigerant gas must be discharged and recovered using a certified recovery system. Refer to "Discharging the System" earlier in this section. ***Do Not*** *discharge the gas into the atmosphere.*

If an air conditioning component is to be replaced during a system overhaul, it is necessary to drain any refrigerant oil that has collected in the component being replaced into a clean calibrated container.

A volume of clean refrigerant oil equivalent to that removed from the replaced component must then be added to the new item before being installed onto the tractor.

Upon completion of the repair, evacuate, recharge, leak test and performance test the system to ensure correct operation.

EXPANSION VALVE

The expansion valve is not a serviceable item and must be replaced if defective.

1. Fully discharge the air conditioning system.
2. Remove the seat to gain access to the valve.
3. To gain access to the expansion valve, partially lift the evaporator core from its position in the cab floor.
4. Remove the Allen screw securing the inlet and outlet connections to the valve and pull valve from tubing.
5. Replace the O ring seals and lubricate with refrigerant oil prior to installing the valve using the disassembly procedure in reverse.
6. Evacuate, leak test, and recharge the system.

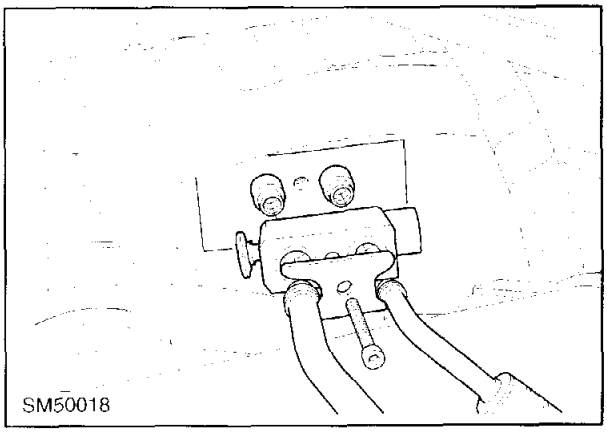


Figure 7-58

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Disassembly

1. Prior to disassembly the valve should be thoroughly cleaned using an approved degreasant.

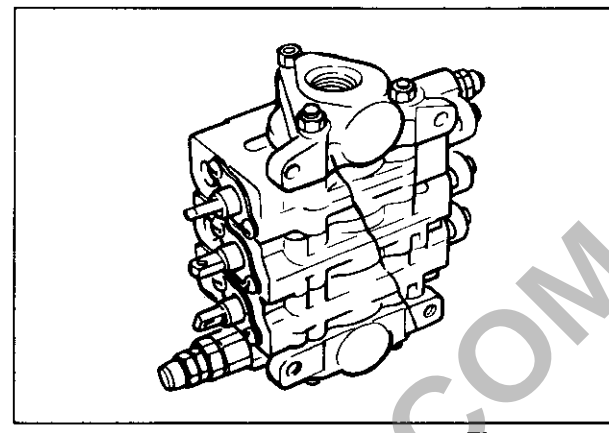


Figure 8-51

2. Scribe a diagonal line across the valve sections to aid reassembly.

3. Remove outlet end cover and each valve section.

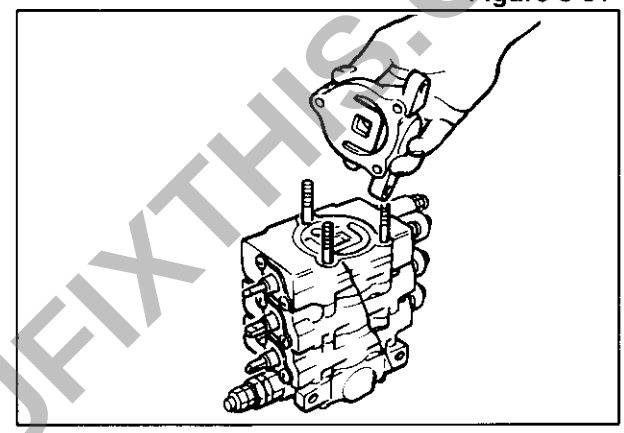


Figure 8-52

NOTE: The check valve is only installed in the extendable dipper valve section.

4. Disassemble the valve sections with reference to pages 8-28 and 8-29.

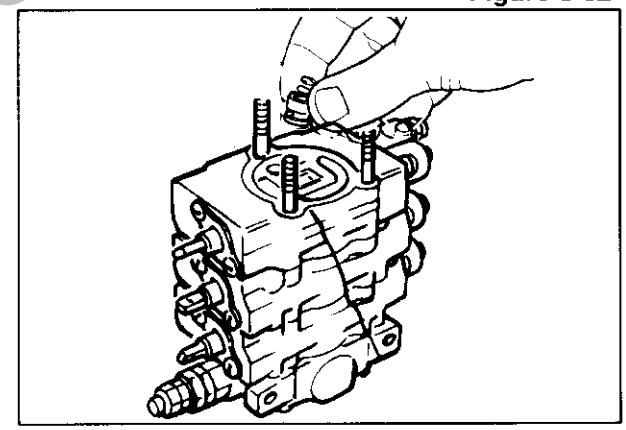


Figure 8-53

5. When reassembling the valve stack, progressively tighten the two smaller tie bar retaining nuts to a torque of 14 ft. lbs. (19 N·m).

   Tighten the larger tie bar nut to a torque of 33 ft. lbs. (45 N·m).

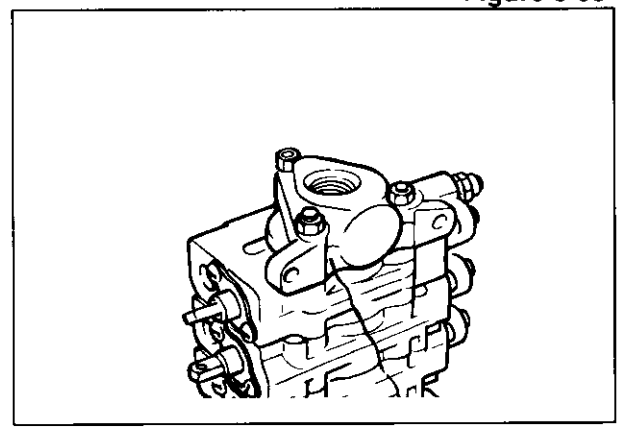


Figure 8-54

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Troubleshooting

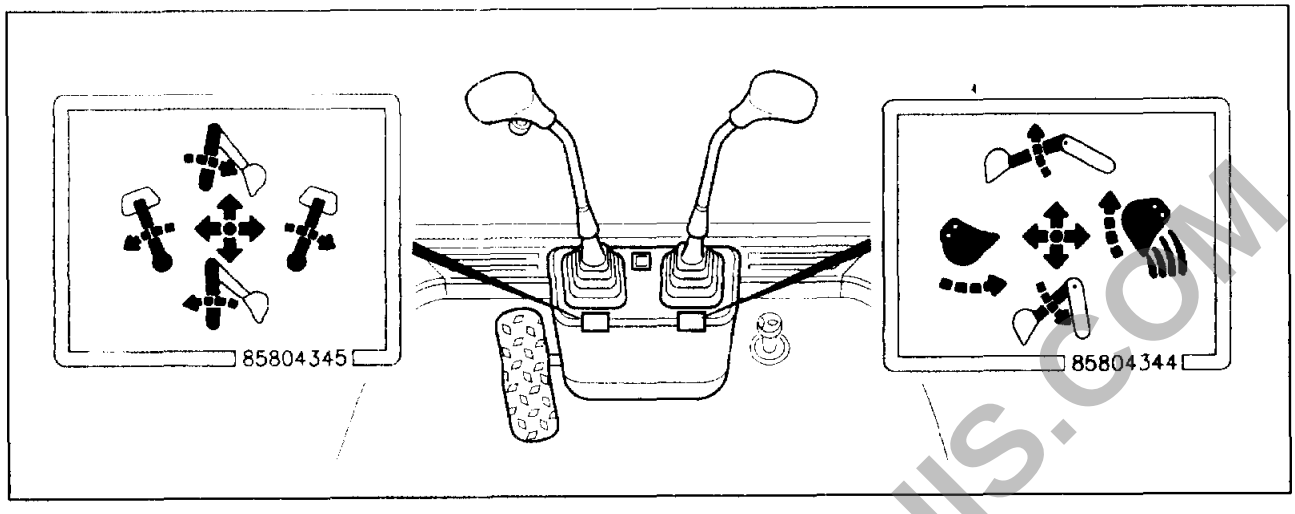
Backhoe

Refer to the following Backhoe Troubleshooting Chart after first considering the preceding charts. The backhoe chart should only be referred to if the supply circuit is performing normally, thereby confirming that the pump and hydraulic supply circuits are functioning to specification. See also "Troubleshooting Hydraulic Pump".

PROBLEM	POSSIBLE CAUSES	CORRECTION
Lift fails to operate, is slow, has loss of power or is not holding	1. Lift circuit relief valve stuck open, set too low or seat is leaking	1. Pressure test lift circuit relief valve
	2. Valve spool leakage	2. Examine lift section of backhoe control valve assembly for wear and scoring
	3. Piston seal leaking or cylinder barrel damaged	3. Examine/reseal piston and gland
Crowd fails to operate, is slow, has loss of power	1. Crowd circuit relief valve (piston end) stuck open, set too low or seat is leaking	1. Pressure test crowd circuit relief valve
	2. Valve spool leakage	2. Examine crowd section of backhoe control valve assembly for wear and scoring
	3. Piston seal leaking or cylinder barrel damaged	3. Examine/reseal piston and gland
Bucket fails to operate, is slow, has loss of power	1. Bucket circuit relief valve (rod end) stuck open, set too low, or seat is leaking	1. Pressure test bucket circuit relief valve
	2. Valve spool leakage	2. Examine bucket section of backhoe control valve assembly for wear and scoring
	3. Piston seal leaking or cylinder barrel damaged	3. Examine/reseal piston and gland
Extendable dipstick fails to operate, is slow, has loss of power or is not holding	Refer to Extendable Dipper Troubleshooting Chart	
All backhoe circuits fail to operate, are slow or have loss of power	1. Regenerative check valve in control valve outlet end cover stuck open or seat is leaking	1. Examine regenerative check valve
Right or left direction swing fails to operate, is slow, or has loss of power	1. Swing circuit relief valves not seating, set too low or seat is leaking	1. Swing circuit relief valve test
	2. Valve spool leakage	2. Examine swing section of backhoe control valve assembly for wear or scoring
	3. Piston seal leaking or cylinder barrel damaged	3. Examine/reseal piston and gland
Swing fails to slow (cushion arrest) at end of travel	1. Integral sliding restrictor damaged	1. Disassemble and inspect
	2. Piston seal leaking or cylinder barrel damage	2. Examine/reseal piston and gland

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9

Install the control lever cover and boots and affix the new control lever pattern decals.

Operate the backhoe to confirm operation.

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