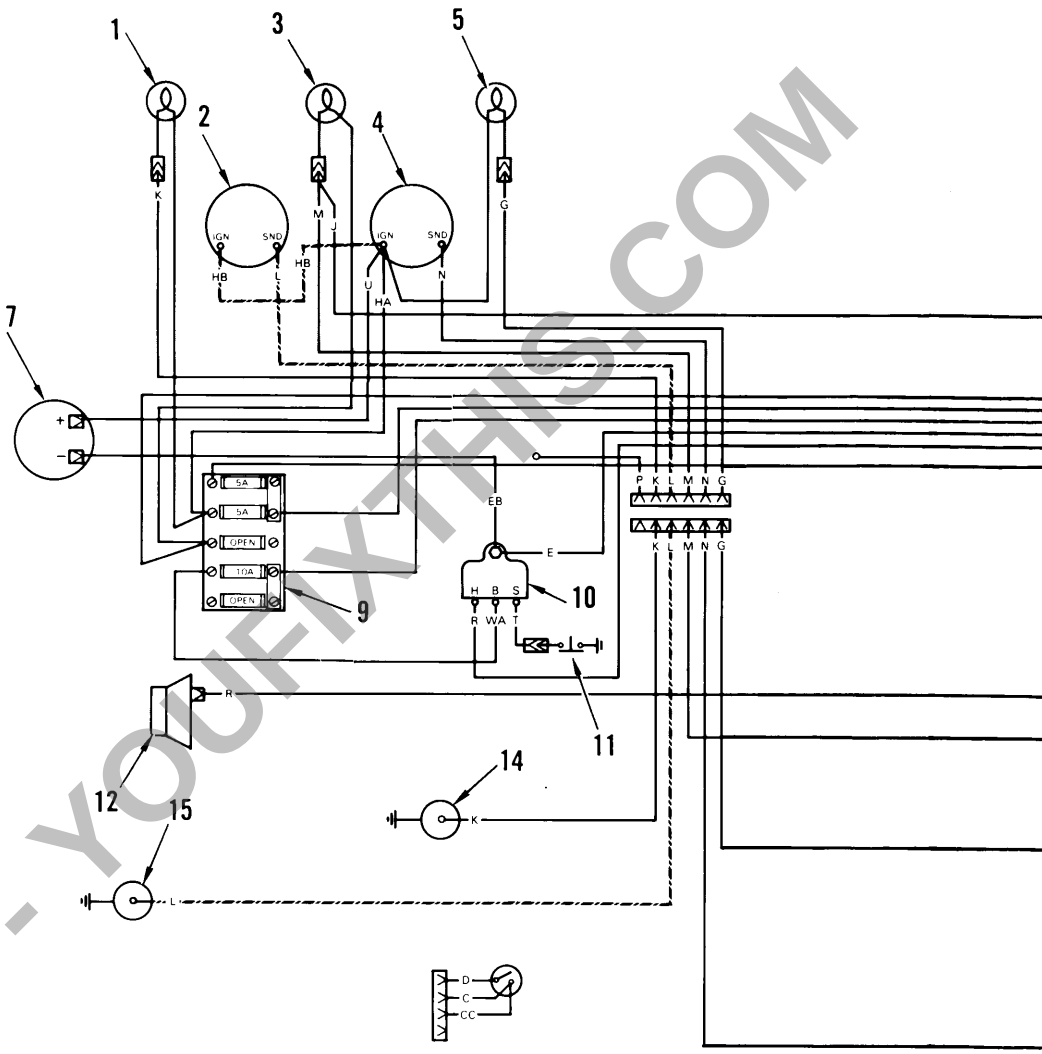
WIRE	COLOR	GAGE (AWG)
A	RED	12
B	GREEN	16
C	YELLOW	12
D	WHITE	12
E	BLACK	14
F	BROWN	16
G	ORANGE	16
H	BLUE	16
J	BLACK	16
K	RED	16
L	GREEN	16
M	YELLOW	16
N	WHITE	16
P	BLUE	12
R	YELLOW	16
S	GREEN	12
T	ORANGE	16
U	RED	16
V	ORANGE	16
W	BROWN	16
Y	RED	12
Z	YELLOW	12
AA	RED	12
EA	BLACK	14
EB	BLACK	14
EC	BLACK	14
HA	BLUE	16
HB	BLUE	16
SB	GREEN	12
SC	GREEN	12
WA	BROWN	16
AB	RED	12
BCC	RED	12
CD	BLACK	14
DA	WHITE	12
ED	BLACK	14
EE	BLUE	16
JJ	WHITE	12
HM	YELLOW	16
PM	BLACK	16
XM	RED	16
WX	YELLOW	12
LL	WHITE	12



DIRECTION CONTROL LEVER
NEUTRAL START SWITCH
DETAIL "A"

USED ON GASOLINE LIFT TRUCKS ONLY

1. LIGHT, ENGINE OIL PRESSURE
2. GAUGE, FUEL LEVEL
3. LIGHT, TRANSMISSION OIL TEMPERATURE
4. GAUGE, WATER TEMPERATURE
5. LIGHT, DISCHARGE INDICATOR
6. DISTRIBUTOR
7. HOURMETER
8. SPARK PLUGS
9. FUSE PANEL
10. HORN RELAY
11. HORN SWITCH
12. HORN
13. FUEL SHUT OFF

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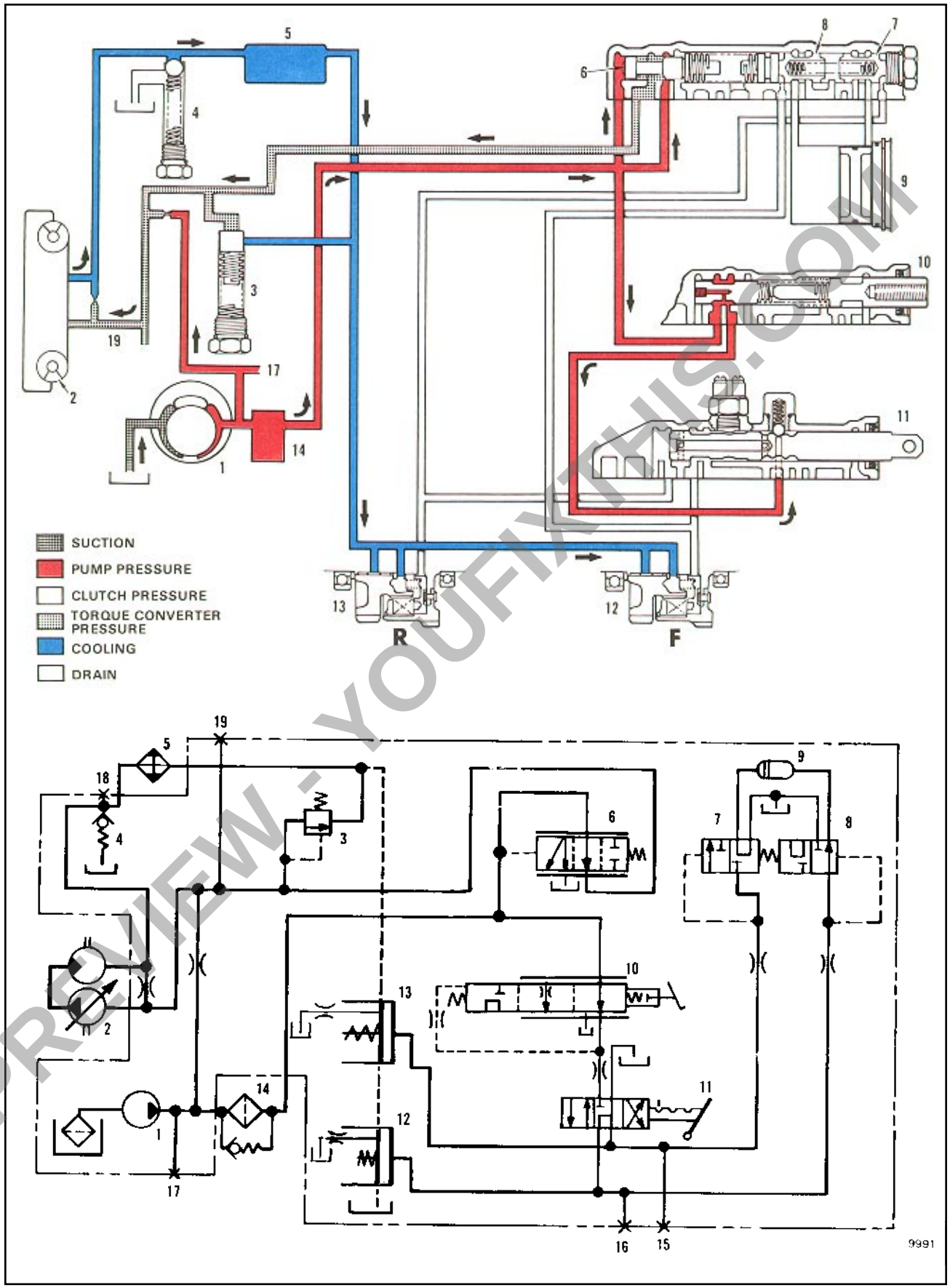


FIGURE 16. OIL FLOW IN NEUTRAL

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MAZDA M4–121G ENGINE

1. FILL CAP FOR ENGINE OIL
2. ROCKER ARM COVER
3. VALVES AND HEAD ASSEMBLY
4. CYLINDER BLOCK
5. CAMSHAFT
6. CRANKSHAFT
7. PISTON AND CONNECTING ROD ASSEMBLY
8. FLYWHEEL HOUSING
9. OIL SUMP
10. DRAIN PLUG, ENGINE OIL
11. FAN

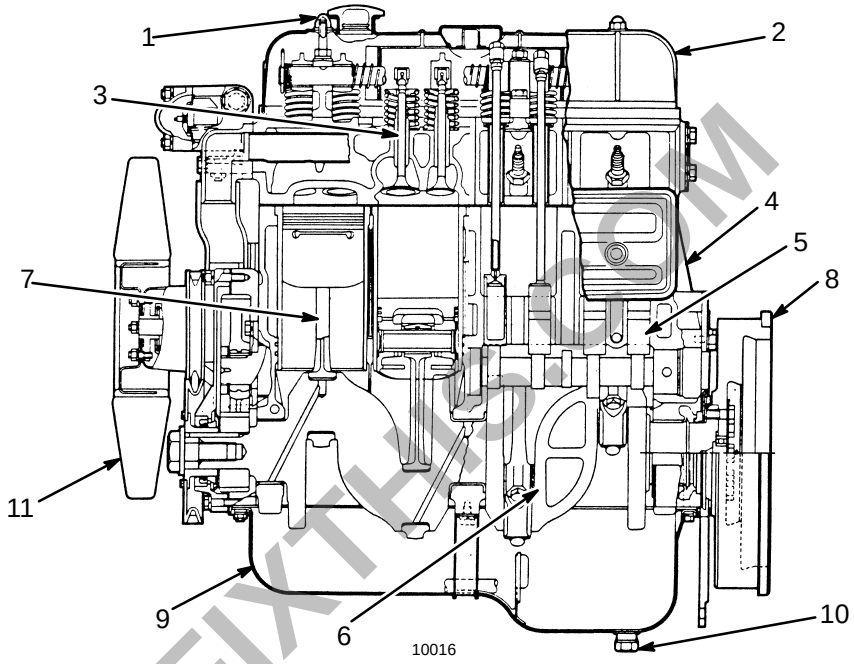


FIGURE 1. MAZDA ENGINE

GENERAL

This section has the repair instructions for the engine. Removal, disassembly, repair, assembly, installation, checks and adjustments, and trouble–shooting are included. The specifications are given at the end of the section.

Additional information about the fuel system can found in the following sections:

THE CARBURETOR, 900 SRM 129

THE LPG FUEL SYSTEM, 900 SRM 15

Mazda engines installed in lift trucks before April 1990 all have distributors with contact points. Some Mazda engines installed in lift trucks after April 1990 have a high energy ignition (HEI) distributor which does not have contact points. Additional information about the electrical system can be found in the section **MAZDA ELECTRICAL SYSTEM, 2200 SRM 132.**

⚠ WARNING

Some gaskets used in this engine can contain dangerous fibers. Breathing dust from these fibers is a cancer or lung disease hazard. Do not create dust!

Use vacuum equipment for asbestos or follow the cleaning procedure described below.

- **Make sure the gasket material is wet with water or oil to prevent particles in the air.**
- **Use a hand scraper to remove old gasket material. Do not use a power tool or compressed air.**
- **Discard all asbestos material in a closed container while it is still wet.**

Put a "DANGEROUS FIBERS" warning label on the container. Discard dangerous fiber material safely.

⚠ CAUTION

Disconnect the battery cables before doing any disassembly and repair to the engine or parts of the electrical system.

The diodes and resistors in the electrical system can be damaged if the following cautions are not followed:

- **Do not disconnect the battery when the engine is running. The voltage surge can damage the diodes and resistors.**
- **Do not disconnect an electric wire before the engine is stopped and the switches are "OFF".**

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TORQUE SPECIFICATIONS

Cylinder Head	81 to 88 N.m (60 to 65 lbf ft)
Inlet manifold	30 to 51 N.m (22 to 38 lbf ft)
Exhaust manifold	30 to 51 N.m (22 to 38 lbf ft)
Main Bearing Cap	81 to 88 N.m (60 to 65 lbf ft)
Connecting Rod Cap	48 to 52 N.m (35 to 38 lbf ft)
Crankshaft Pulley	137 to 157 N.m (101 to 116 lbf ft)
Flywheel Housing	28 to 41 N.m (20 to 30 lbf ft)
Flywheel	58 to 64 N.m (43 to 47 lbf ft)
Camshaft Gear	118 to 137 N.m (87 to 101 lbf ft)
Camshaft Thrust Plate	16 to 23 N.m (12 to 17 lbf ft)
Cooling Fan	16 to 23 N.m (12 to 17 lbf ft)
Water Pump	16 to 23 N.m (12 to 17 lbf ft)
Rocker Arm Brackets	28 to 41 N.m (21 to 30 lbf ft)
Oil Sump	7 to 9 N.m (5 to 7 lbf ft)
Oil Pressure Switch	12 to 17 N.m (9 to 13 lbf ft)
Coolant Pump	16 to 23 N.m (12 to 17 lbf ft)
Alternator	13 to 20 N.m (18 to 27 lbf ft)
Starter	87 to 117 N.m (64 to 87 lbf ft)
Distributor	7 to 9 N.m (5 to 7 lbf ft)
Spark Plug	15 to 23 N.m (11 to 17 lbf ft)
Motor Mount to Engine	56 N.m (41 lbf ft)
Motor Mount to Frame	53 N.m (39 lbf ft)

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2. Use the following procedure to adjust the hood latch (see FIGURE 2.):

a. Install the floor plate and tighten the capscrews.

b. Install the latch striker in the highest slot position on the floor plate. Check that the latch striker is in the center of the jaws of the hood latch.

c. Close the hood to the fully closed position. The hood latch has two positions. The hood is fully closed after two clicks of the latch.

d. Loosen the capscrews for the latch striker just enough to let the striker move. Push the hood down until the hood just touches the rubber bumpers on the frame. Make sure the latch striker is still in the center of the hood latch. Tighten the capscrews for the latch striker.

e. Check the operation of the hood latch. Have an operator sit in the seat. Make sure that the hood is fully closed (two clicks). Also check that the hood touches the rubber bumpers. If necessary, repeat Step d.

OPERATOR RESTRAINT SYSTEM (See FIGURE 2. and FIGURE 3.)

The seat belt, hip restraint brackets, seat and mounting, hood, latches and floor plates are all part of the operator restraint system. Each item must be checked to make sure it is attached securely, functions correctly and is in good condition.

The seat belt must latch securely. Make sure the seat belt extends and retracts smoothly and is not frayed or torn. If the seat belt can not be pulled from the retractor assembly, remove the screw that keeps the cover on the retractor. Push the bar to release the spool. Straighten the belt so that it pulls out and retracts smoothly. The seat belt must latch securely. (See FIGURE 3.)

Make sure the seat rails and latch striker are not loose. The seat rails must lock securely in position, but move freely when unlocked. The seat rails must be securely attached to the mounting surface. The hood latch must be fully engaged with the latch striker. The floor plate must be installed securely to the lift truck frame. Lift on the hood to make sure it is closed and will not move.

Adjust the hood, hood latch and latch striker when any of the parts of the operator restraint system are installed or replaced. See the repair procedures for the HOOD.

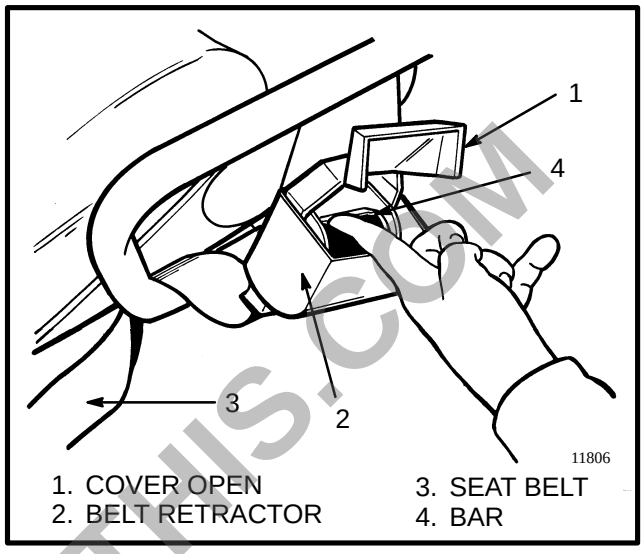


FIGURE 3. RELEASE A JAMMED SEAT BELT

ENGINE

Removal

⚠ WARNING

Always disconnect the battery cables of the battery before making any repairs to the engine. Disconnect the negative cable first.

NOTE: The engine can be removed with or without the transmission. To remove just the engine, follow steps 1 to 7. To remove the engine and transmission as an assembly, follow steps 1 to 4 and 8.

1. Remove the overhead guard, hood and counterweight as described in the procedures for the counterweight. Remove the radiator and hoses. Remove the floor plates.

2. Disconnect the cables at the battery. Remove the battery and battery holder. Disconnect the wires and wiring harness at the batery holder. Remove the air cleaner assembly from the frame.

3. Disconnect the hydraulic lines at the hydraulic pump. Remove the capscrews from the mount for the hydraulic filter. Disconnect the hydraulic line from the filter to the main control valve.

4. Disconnect the exhaust pipe at the engine. Close the fuel valve at the tank and disconect the fuel line. Dis-

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TROUBLESHOOTING

PROBLEM	CAUSE
When the ignition switch is in the "START" position, the crankshaft does not operate.	The battery has a problem.
	The battery is not fully charged.
	The connections at the battery are loose or they have corrosion.
	The ignition switch is worn or damaged.
	The starter system has a problem.
	There is a seizure of parts in the engine.
The engine will not start.	The fuel tank is empty.
	The battery is not fully charged.
	The valves are damaged.
	The piston rings are worn or damaged.
	The ignition system has a problem.
	The fuel system is not operating.
	The ignition timing is not correct.
	The choke system does not work.
The engine does not run smoothly.	The valves are not adjusted correctly.
	The head gasket leaks.
	The cylinder head has cracks.
	There is a leak in the inlet system.
	The spark plugs have a problem.
	The ignition system has a problem. (See **THE ELECTRICAL SYSTEM, 2200 SRM 132** for more information.
The engine does not have enough power.	The air filter is dirty.
	The fuel is the wrong type.
	The ignition timing is not correct.
	The valve mechanism needs adjustment.
	The piston assemblies are damaged.
	The spark plugs are the wrong type or they are not installed correctly.
	The valve timing is not correct.
	The exhaust system has restrictions.

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adjust the clearance, loosen the lock nut and turn the adjustment screw.

NOTE: During adjustment of the valves, check the position of the balls that are in the ends of the rocker arms. The flat surface of the ball must be in contact with the stem of the valve. See FIGURE 8.

2. Rotate the crankshaft clockwise 180 degrees. Now adjust the valves for the number three cylinder.

3. Rotate the crankshaft clockwise 180 degrees. Now adjust the valves for the number four cylinder.

4. Rotate the crankshaft clockwise 180 degrees. Now adjust the valves for the number two cylinder.

5. If the valves are adjusted when the engine is cold, check the adjustments again after the engine is warm.

ADJUST THE THROTTLE LINKAGE

See **THE CARBURETOR, 900 SRM 129** for the adjustment of the throttle linkage

ENGINE SPECIFICATIONS

Engine Data

Type	4 – stroke, gasoline or LPG
Firing order	1–3–4–2
Displacement	1985 cm# (121.12 in#)
Bore	82 mm (3.22 in)
Stroke	94 mm (3.70 in)
(Lift trucks with serial codes A177 and A187) Compression ratio	8.0 : 1
(Lift trucks with serial codes A177 and A187) Compression pressure @ 200 rpm:	1075 kPa (156 psi)
(Lift trucks with serial codes B177, C177 and B187) Compression ratio	8.5 : 1
(Lift trucks with serial codes A177 and A187) Ignition timing	13° BTDC @ 625 rpm
(Lift trucks with serial codes B177, C177 and B187) Ignition timing	9° BTDC (gasoline) @ 625 rpm 18° BTDC (LPG) @ 625 rpm
(Governor speed	2600 to 2700 rpm [when installed in S/H1.25–1.75XL (S/H25–35XL) lift trucks]
(Governor speed	2700 to 2800 rpm [when installed in S2.00–3.00XL (S40–60XL) lift trucks]
(Governor speed	2900 to 3000 rpm [when installed in H2.00–3.00XL (H40–60XL) lift trucks]
Idle speed	600–650 rpm
Valve clearance adjustment (warm engine)	Inlet 0.30 mm (0.012 in) Exhaust 0.30 mm (0.012 in)

Cooling System

Thermostat	82°C (180°F)

Cylinder Head And Valve Mechanism

Maximum distortion of cylinder head. (See FIGURE 48.)	0.15 mm (0.006 in)

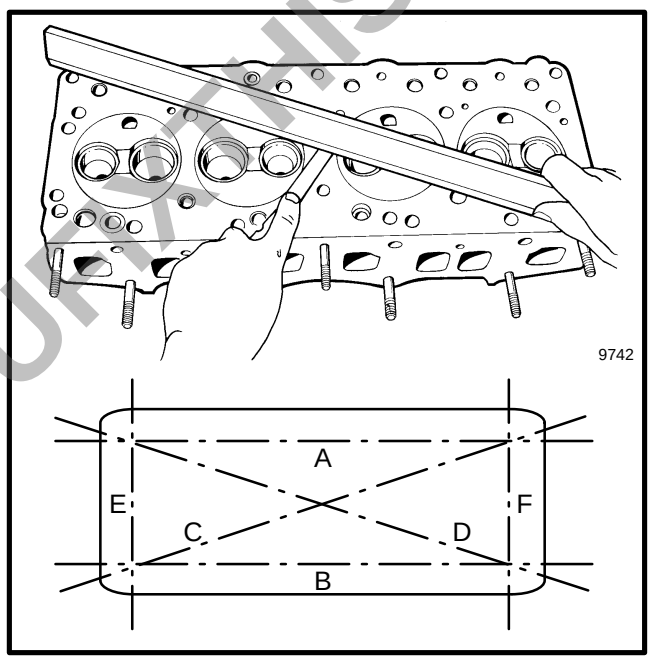
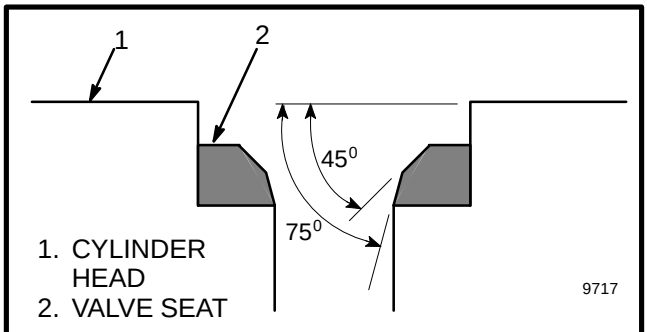


FIGURE 48. CHECK THE CYLINDER HEAD FOR DISTORTION

Valve seat specifications: See FIGURE 49.



NOTE: Inlet valves have 45° and 75° angles on the valve seats.
Exhaust valves only have a 45° on the valve seats.

FIGURE 49. VALVE SEAT SPECIFICATIONS

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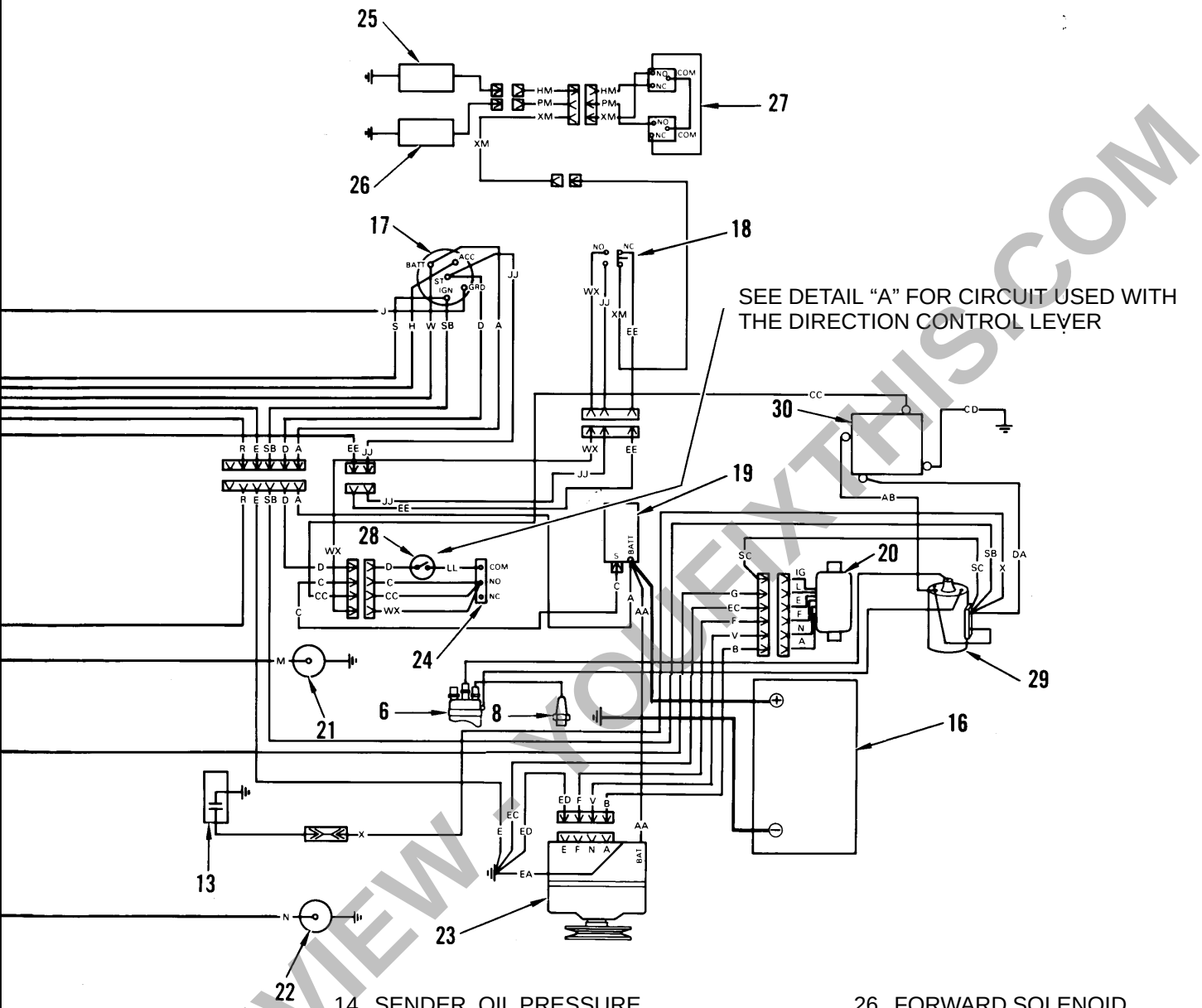
ITEM NO.	ITEM	8 Hr./ Daily	250 Hr./ 6 wk.	1000 Hr./ 6 mo.	2000 Hr./ 1 yr.	PROCEDURE OR QUANTITY	SPECIFICATION
1	ENGINE OIL Mazda 4–121G (Gasoline and LPG)	X	C			5.2 litre (5.5 qt)	API CC/SE/SF/SG, MIL–L–46152 30°C (85°F) and up SAE 30 15–30°C (60–85°F) SAE 30 0–15°C (32–60°F) SAE 20 less than –10°C (15°F) SAE 10W
1	ENGINE OIL GM 4–181 and GM 4–153 (Gasoline and LPG)	X	C			4.3 litre (4.5 qt)	API CC/SE/SF/SG, greater than –18°C (0°F) SAE 10W–30
1	ENGINE OIL Isuzu C240 (Diesel) Isuzu 4JB1 (Diesel)	X	C			5.2 litre (5.5 qt) 6.5 litre (6.9 qt)	API CC/SE/SF/SG, 27°C (80°F) and up SAE 40 0–32°C (32–90°F) SAE 30 less than –7°C (20°F) SAE 10W
2	DRIVE BELTS	X				Check Condition	See Parts Manual
	CHECK FOR LEAKS— FUEL, OIL, WATER	X				Check for Leaks	
3	COOLANT HOSES	X				Check Condition	See Parts Manual
4	COOLING SYSTEM S/H1.25–1.75XL (S/H25–35XL) Mazda 4–121G Isuzu C240 S2.00–3.00XL (S40–60XL) Mazda 4–121G GM 4–181 and GM 4–153 Isuzu C240 H2.00–3.00XL (H40–60XL) Mazda 4–121G GM 4–181 Isuzu C240 Isuzu 4JB1	X			C	 7.8 litre (8.2 qt) 8.1 litre (8.6 qt) 7.6 litre (8.0 qt) 11.4 litre (12.0 qt) 8.5 litre (9.0 qt) 11.1 litre (11.8 qt) 11.0 litre (11.7 qt) 11.4 litre (12.0 qt) 11.0 litre (11.7 qt)	 50% Water with 50% Ethylene Glycol
5	BATTERY ELECTROLYTE	X				Check Level	
6	FUEL FILTER, DIESEL	X		C		Clean or Replace See NOTE 1	See Parts Manual
7	FUEL TANK S/H1.25–1.75XL (S/H25–35XL) S2.00–3.00XL (S40–60XL) H2.00–3.00XL (H40–60XL)	X				 25.0 litre (6.5 gallon) 38.6 litre (10 gallon) 43.5 litre (11.5 gallon)	85 Octane — Gasoline Diesel No. 2 LPG — HD–5
8	AIR FILTER	X				Clean or Replace See NOTE 2	See Parts Manual
9	TRANSMISSION OIL S/H1.25–1.75XL (S/H25–35XL) S2.00–3.00XL (S40–60XL) H2.00–3.00XL (H40–60XL	X			C	 9.0 litre (9.5 qt) 10.4 litre (11 qt) 9.0 litre (9.5 qt)	Hyster Part No. 336831

X= Check C=Change L=Lubricate

NOTE 1: Check indicator light during operation (Lift trucks with serial codes B/C177 and B187 only).
NOTE 2: Very dirty conditions will require daily check and clean.

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14. SENDER, OIL PRESSURE
15. SENDER, FUEL GAUGE
16. BATTERY
17. KEY SWITCH
18. PARKING BRAKE SWITCH (MONOTROL)
19. STARTER
20. REGULATOR
21. SENDER, TRANSMISSION OIL TEMPERATURE
22. SENDER, WATER TEMPERATURE
23. ALTERNATOR
24. SWITCH, NEUTRAL START
25. REVERSE SOLENOID
26. FORWARD SOLENOID
27. MONOTROL PEDAL
28. SWITCH, SERVICE BRAKES
29. IGNITION COIL
30. RELAY

FIGURE 5. GASOLINE/LPG ENGINE WIRING DIAGRAM (G and LPG Rating)

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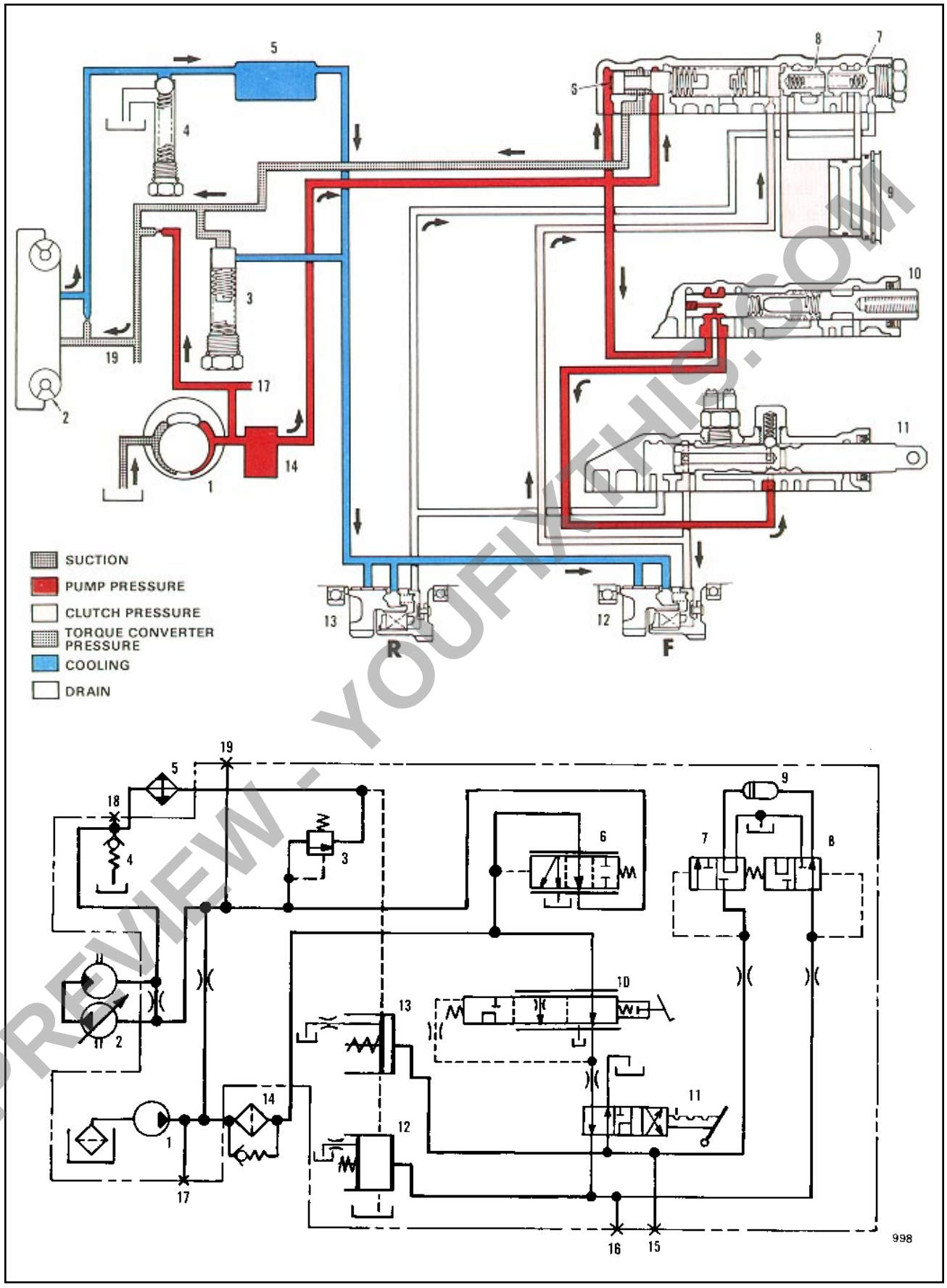


FIGURE 17. OIL FLOW IN FORWARD

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- **Do not cause a short circuit by connection of the electric wires to the wrong terminals. Make sure a correct identification is made of the wire before it is connected.**
- **Make sure a battery is the correct voltage and polarity before it is connected.**
- **Do not check for current flow by making a spark because the transistors can be damaged.**

DESCRIPTION

The Mazda engine is a four cylinder engine that has a displacement of 1985 cm^3 (121.1 in^3). The firing order is 1–3–4–2. It is available with either a gasoline or an LPG fuel system. The number one cylinder is toward the end of the engine with the cooling fan. The serial number of the engine is found near the bottom of the crankcase and near the fuel pump.

A camshaft in the cylinder block operates the overhead valves with push rods. The valve seats and valve guides can be replaced during an engine overhaul.

The crankshaft has three main bearings. The main bearing in the center of the crankshaft is also the thrust bearing.

The pistons are aluminum alloy and have three piston rings. Each of the two compression rings have a special shape designed for its position on the piston. The third piston ring is the oil control ring.

REMOVAL AND INSTALLATION OF THE ENGINE

NOTE: The removal and installation procedures for the engine are not included in this section. See the section for **THE FRAME** for more information.

CYLINDER HEAD AND VALVE MECHANISM

Cylinder Head, Removal

1. Disconnect the connections at the battery.

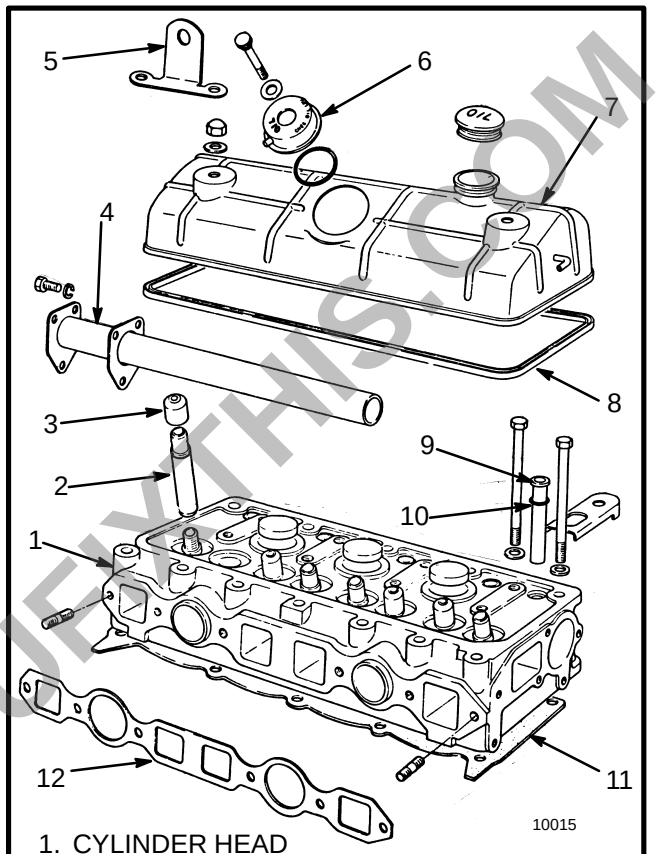
2. Drain the coolant system.

3. Remove the air cleaner, the carburetor linkage, the inlet and exhaust manifolds.

4. Remove the coolant hoses.

5. Remove the coolant pump as described in COOLANT PUMP, Removal.

6. See FIGURE 2. Remove the rocker arm cover.



1. CYLINDER HEAD
2. VALVE GUIDE
3. VALVE SEAL (INLET)
4. COOLANT DISTRIBUTION TUBE
5. BRACKET
6. BREATHER
7. ROCKER ARM COVER
8. GASKET
9. PUSH ROD TUBE
10. O–RING
11. CYLINDER HEAD GASKET
12. MANIFOLD GASKET

FIGURE 2. CYLINDER HEAD

7. Remove the rocker arm assembly and the push rods. Keep the push rods in the correct order so that they will be installed in the same positions.

8. Remove the bolts that hold the cylinder head to the crankcase. Remove the bolts in the sequence shown in FIGURE 3.

9. Lift the cylinder head from the crankcase.

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TORQUE SPECIFICATIONS

ITEM	SPECIFICATION
FRAME	
Counterweight Capscrews	320 N.m (235 lbf ft)
Engine Mount to Frame	53 N.m (39 lbf ft)
ENGINE (ISUZU C240)	
Cylinder Head Capscrews	78 N.m (58 lbf ft)
Crankshaft Pulley Capscrew	167 N.m (123 lbf ft)
Connecting Rod Cap Capscrews	81 N.m (60 lbf ft)
Flywheel Capscrews	108 N.m (80 lbf ft)
Main Bearing Capscrews	160 N.m (120 lbf ft)
Camshaft Gear Capscrew	108 N.m (80 lbf ft)
Camshaft Thrust Plate Capscrew	19 N.m (14 lbf ft)
Idler Gear Capscrew	26 N.m (19 lbf ft)
ENGINE (MAZDA M4–121G)	
Cylinder Head Bolts	88 N.m (65 lbf ft)
Main Bearing Cap	81 to 88 N.m (60 to 65 lbf ft)
Rod Bearing Cap	47 to 52 N.m (35 to 38 lbf ft)
Timing Gear Case	16 to 23 N.m (12 to 17 lbf ft)
Flywheel	58 to 64 N.m (43 to 47 lbf ft)
Rocker Arm Support	28 to 41 N.m (21 to 30 lbf ft)
Engine Mount to Engine	56 N.m (41 lbf ft)
TRANSMISSION	
Drive Plate to Torque Converter	45 N.m (33 lbf ft)
Torque Converter Housing to Engine	38 N.m (28 lbf ft)
Differential Housing to Transmission	38 N.m (28 lbf ft)
Torque Converter Housing to Transmission	
3/8 in capscrews	37 to 43 N.m (27 to 32 lbf ft)
7/16 in capscrews	57 to 68 N.m (42 to 50 lbf ft)
DRIVE AXLE	
Back Plate to Axle Mount Capscrews	122N.m (90 lbf ft)
Axle Mount to Frame Bolts and Nuts	325 to 380 N.m (240 to 280 lbf ft
Axle Housing to Differential Housing	65 N.m (49 lbf ft)
Wheel Nut Studs	155 N m (115 lbf ft)
Wheel Nuts	155 N.m (115 lbf ft)
Axle Capscrews (S–Series)	155 N.m (115 lbf ft)
Axle Capscrews (H–Series)	20 N.m (15 lbf ft)
STEERING AXLE	
Pivot Lock Bolt	66 N.m (50 lbf ft)
Steering Cylinder End Plug	407 to 475 N.m (300 to 350 lbf ft
Cylinder Mount Capscrews	130 N.m (96 lbf ft)
King Pin Nuts	90 N m (66 lbf ft) Initial 34 N.m (25 lbf ft) Final
Wheel Bearing Nut	200 N.m (150 lbf ft) Initial 34 N.m (25 lbf ft) Final
Wheel Nuts (H–Series)	237 to 305 N.m (175 to 225 lbf ft)
BRAKES	
Back Plate to Axle Mount Capscrews	122 N.m (90 lbf ft)

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connect the throttle cable and engine stop cable or choke cable.

5. Put a block under the transmission housing. The block must support the transmission after the engine is removed.

⚠ WARNING

Make sure the lifting device can lift 500 kg (1000 lb).

6. Connect a lifting device to the engine. Remove the nuts and bolts from the engine mounts. Remove the cover from the torque converter housing. Remove the capscrews that hold the drive plate to the flywheel. Remove the nuts and bolts that hold the torque converter housing to the engine.

7. Carefully push the engine from the torque converter. Lift the engine from the lift truck. Make sure all wires and hoses are disconnected during removal.

8. Do the following steps when removing the engine and transmission together:

a. Put blocks under the frame so that the drive wheels are raised from the floor. Drain the oil from the differential housing.

b. Remove the drive wheels and axle shafts as described in the section for the **DRIVE AXLE (1400 SRM 219)**.

c. Connect a lifting device to the engine. Remove the nuts and bolts from the engine mounts. Remove the clamps at the transmission for the parking brake cables. Remove all wires and hoses connected at the transmission.

d. Remove the capscrews that hold the transmission housing to the differential housing.

e. Carefully lift the engine and transmission from the lift truck. Make sure all wires and hoses are disconnected during removal.

Installation (Engine Only)

1. Connect a lifting device to the engine. Apply Never–Seez to the pilot bushing in the flywheel. Install the engine mounts in the frame. (See FIGURE 4.)

2. Install the torque converter in the transmission. Make sure the torque converter hub is correctly engaged in the pump for the transmission.

⚠ CAUTION

The pump for the transmission can be easily damaged if the torque converter hub is not correctly engaged. When the engine and torque converter housing are joined, check the clearance between the torque converter and flywheel. If the torque converter hub is correctly engaged, there is approximately 7 mm (0.25 in) clearance between the torque converter and the flywheel.

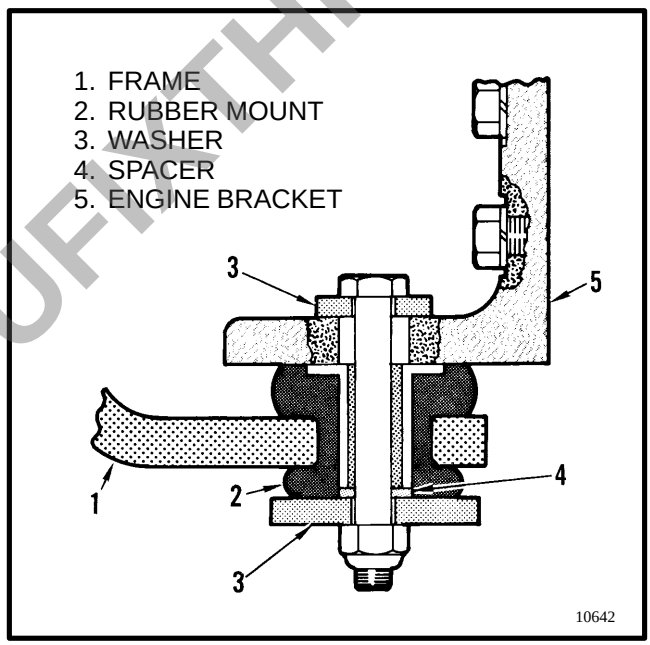


FIGURE 4. ENGINE MOUNTS

3. Install the engine in the lift truck. Install the nuts and bolts or capscrews that hold the torque converter housing to the engine. Tighten the nuts or capscrews to 40 N.m (30 lbf ft).

4. Install the nuts, bolts and washers for the engine mounts. Tighten the nuts to 55 N.m (40 lbf ft). Instal the capscrews that hold the drive plate to the flywheel. Tighten the capscrews to 45 N.m (35 lbf ft). Install the cover in the torque converter housing.

5. Connect the hydraulic lines at the pump. Install the hydraulic filter and connect the lines.

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TROUBLESHOOTING

PROBLEM	CAUSE
There is noise inside the engine.	The main bearings are worn or damaged.
	The bearings for the connecting rods are worn or damaged.
	The pistons are worn or damaged.
	The engine is too hot.
	There is not enough oil in the engine.
	The flywheel is loose.
	A connecting rod is bent.
	There is a leak in the exhaust system.
	A cam follower has a problem.
	The valves are not adjusted correctly.
There is noise in the engine during acceleration.	The spark plugs are dirty.
	The spark plugs are the wrong type.
	The ignition timing is not correct.
	The fuel is the wrong type.
	There is too much carbon in the combustion chamber.
	The engine is too hot.
	The carburetor is not adjusted correctly.
The engine gets too hot.	There is not enough coolant in the cooling system.
	The belt for the water pump is worn or not adjusted correctly.
	The thermostat does not open correctly.
	The cooling system has restrictions.
	The water pump does not operate correctly
	The radiator is dirty.
	The exhaust system has restrictions.
The bearings in the engine are damaged.	There is not enough oil in the engine.
	The oil in the engine is the wrong type.
	The oil pump is worn or damaged.
	The connecting rod(s) are bent or damaged.
	The camshaft is damaged.
	The passages for oil have restrictions.
	The bearings are not installed correctly.
	The oil in the engine is dirty.

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LIFT TRUCK WEIGHTS*

UNIT	kg	lb
S1.25XL (S25XL)	2480	5466
S1.50XL (S30XL)	2670	5890
S1.75XL (S35XL)	2850	6285
H1.25XL (H25XL)	2530	5570
H1.50XL (H30XL)	2700	5950
H1.75XL (H35XL)	2895	6385

*Lift trucks equipped with overhead guard, 3264 mm (128.5 in) mast, 1219 mm (48 in) forks, carriage, load backrest extension, gasoline engine and operator.

CAPACITIES

ITEM	QUANTITY
ENGINE OIL with Filter	
Mazda M4–121G	5.2 litre (5.5 qt)
Isuzu C240	5.2 litre (5.5 qt)
COOLING SYSTEM	
Mazda M4–121G	7.8 litre (8.2 qt)
Isuzu C240	8.1 litre (8.6 qt)
HYDRAULIC SYSTEM	26.0 litre (6.9 gal)
HYDRAULIC TANK	22.7 litre (6.0 gal)
TRANSMISSION	9.0 litre (9.5 qt)
DIFFERENTIAL	8.2 litre (6.8 qt)
FUEL TANK	43.5 litre (11.5 gal)
BRAKE FLUID	0.2 litre (0.5 pt)

MAST SPEEDS

UNIT	LIFTING								LOWERING			
	All Units		S/H1.25XL (S/H25XL)		S/H1.50XL (S/H30XL)		S/H1.75XL (S/H35XL)					
	NO LOAD		RATED LOAD						NO LOAD		RATED LOAD	
	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min
VISTA TWO–STAGE	.51	100	.44	87	.43	85	.41	81	.59	116	.59	116
VISTA FREE–LIFT	.45	87	.39	77	.38	75	.36	71	.51	100	.51	100
VISTA THREE–STAGE	.47	93	.40	79	.39	77	.38	77	.54	106	.54	106

ELECTRICAL SYSTEM

ITEM	MAZDA M4–121G	ISUZU C240
All Models	12 volt, Negative Ground	12 volt, Negative Ground
Alternator Output Hot	35Amps @ 2600 rpm	37 Amps @ 2600 rpm
Ignition System Point Setting	0.4 to 0.5 mm (0.016 to 0.020 in) Later Units, N/A[1]	N/A
Spark Plugs Type	NGK BP–2E or ND W9EPR	N/A
Gap	0.7 to 0.8 mm (0.028 to 0.032 in)	

[1] Electronic Ignition System N/A = Not Applicable

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ITEM NO.	ITEM	8 Hr./ Daily	250 Hr./ 6 wk.	1000 Hr./ 6 mo.	2000 Hr./ 1 yr.	PROCEDURE OR QUANTITY	SPECIFICATION
10	HYDRAULIC SYSTEM (TANK) S/H1.25–1.75XL (S/H25–35XL) S2.00–3.00XL (S40–60XL) H2.00–3.00XL (H40–60XL)	X			C	 18.9 litre (20 qt) 30.3 litre (32.0 qt) 31.8 litre (33.6 qt)	–18°C (0°F) and Above SAE 10W API CC or CC/SE/SF/SG
11	TIRES, TIRE PRESSURE	X				See Nameplate	
12	MAST, CARRIAGE, LIFT CHAINS	X				Check Condition	See Parts Manual
13	FORKS	X	X			Check Condition	
	SAFETY LABELS	X				Replace as Necessary	See Parts Manual
	SEAT BELT AND SEAT RAILS	X				Check Condition	
	HOOD AND SEAT LATCHES	X				Check Condition	
	HORN, GAUGES, LIGHTS, ALARMS	X				Check Operation	
14	SERVICE BRAKES AND PARKING BRAKE	X			X	Check Operation Check Condition	
	STEERING & POSITION LATCH	X				Check Operation	
15	TRANSMISSION	X				Check Operation	
16	BRAKE FLUID		X			0.2 litre (0.4 pt)	SAE J–1703
2	DRIVE BELTS		X			Adjust or Replace	See Parts Manual
	BRAKE, INCHING/BRAKE PEDALS		X			Adjust as Required	
1	ENGINE OIL FILTER		C			See NOTE 3	See Parts Manual
10	HYDRAULIC TANK BREATHER		X			Clean or Replace	See Parts Manual
	GOVERNOR OIL, MAZDA 4–121G		C			200 ml (6.8 oz)	Engine Oil
17	MAST PIVOTS SLIDING SURFACES AND LOAD ROLLER SURFACES		 L L			 2 Fittings As Required	 Multi–Purpose Grease See NOTE 4 Multi–Purpose Grease
12	LIFT CHAIN		X, L			As Required	Engine Oil
18	WHEEL NUTS DRIVE WHEELS S/H1.25–1.75XL (S/H25–35XL) S2.00–3.00XL (S40–60XL) H2.00–3.00XL (H40–60XL) STEER WHEELS H2.00–3.00XL (H40–60XL) SPACERS IF DUAL WHEELS ARE INSTALLED (ALL)		X			Check Torque	 155 N.m (115 lbf ft) 240 to 305 N.m (175 to 225 lbf ft) 610 to 680 N.m (450 to 500 lbf ft) 237 to 305 N.m (175 to 225 lbf ft) 98 N.m (80 lbf ft)

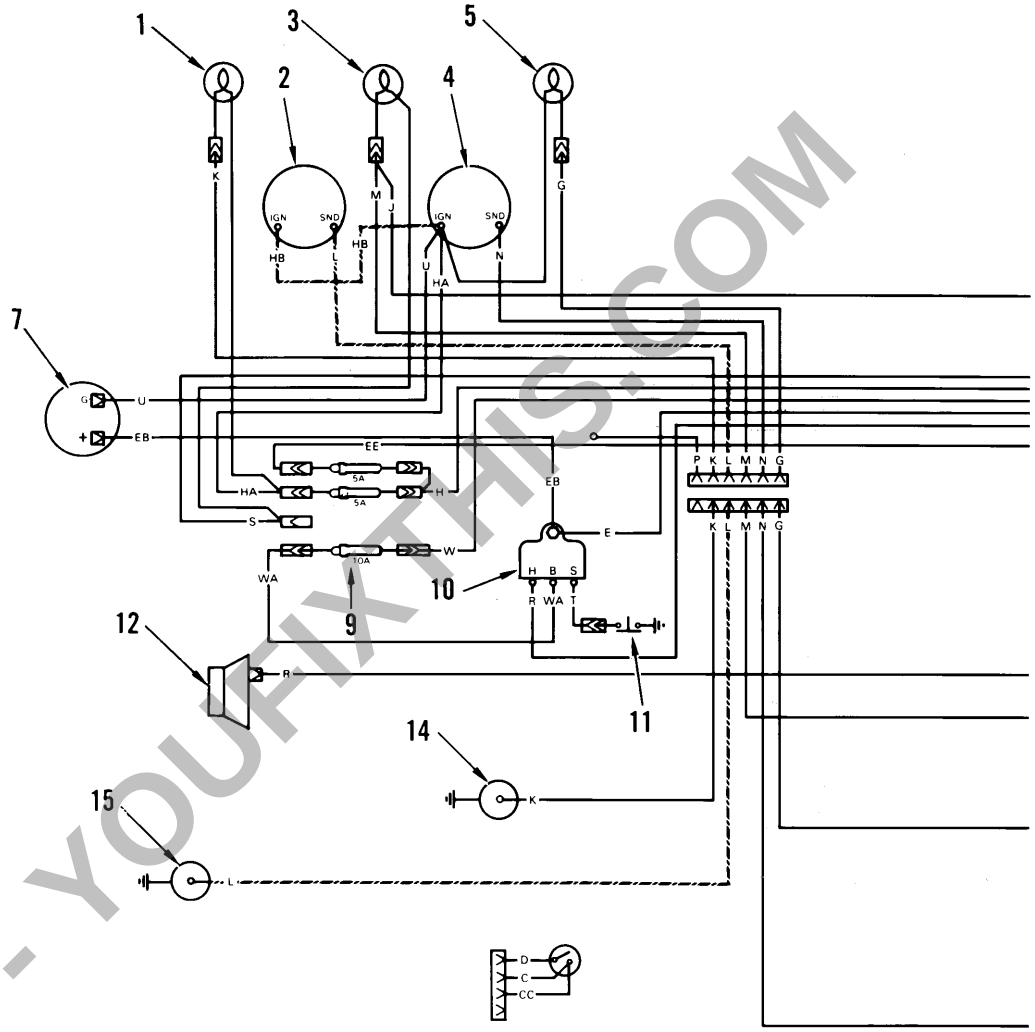
X= Check C=Change L=Lubricate

NOTE 3: Change filters on new lift trucks after first 100 hours.
NOTE 4: Multi–Purpose Grease with 2 to 4% Molybdenum Disulfide.

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WIRE	COLOR	GAGE (AWG)
A	RED	12
B	GREEN	16
C	YELLOW	12
D	WHITE	12
E	BLACK	14
F	BROWN	16
G	ORANGE	16
H	BLUE	16
J	BLACK	16
K	RED	16
L	GREEN	16
M	YELLOW	16
N	WHITE	16
P	BLUE	12
R	YELLOW	16
S	GREEN	12
T	ORANGE	16
U	RED	16
V	ORANGE	16
W	BROWN	16
Y	RED	12
Z	YELLOW	12
AA	RED	12
EA	BLACK	14
EB	BLACK	14
EC	BLACK	14
HA	BLUE	16
HB	BLUE	16
SB	GREEN	12
SC	GREEN	12
WA	BROWN	16
AB	RED	12
CC	RED	12
CD	BLACK	14
DA	WHITE	12
ED	BLACK	14
WW	RED	16
AC	PURPLE	
AD	RED/PURPLE	
EE	BLUE	16
JJ	WHITE	12
HM	YELLOW	16
PM	BLACK	16
XM	RED	16
WX	YELLOW	12
LL	WHITE	12



DIRECTION CONTROL LEVER
NEUTRAL START SWITCH
DETAIL "A"

USED ON GASOLINE LIFT TRUCKS ONLY

1. LIGHT, ENGINE OIL PRESSURE
2. GAUGE, FUEL LEVEL
3. LIGHT, TRANSMISSION OIL TEMPERATURE
4. GAUGE, WATER TEMPERATURE
5. LIGHT, DISCHARGE INDICATOR
6. DISTRIBUTOR
7. HOURMETER
8. SPARK PLUGS
9. IN–LINE FUSES
10. HORN RELAY
11. HORN SWITCH
12. HORN
13. FUEL SHUT OFF

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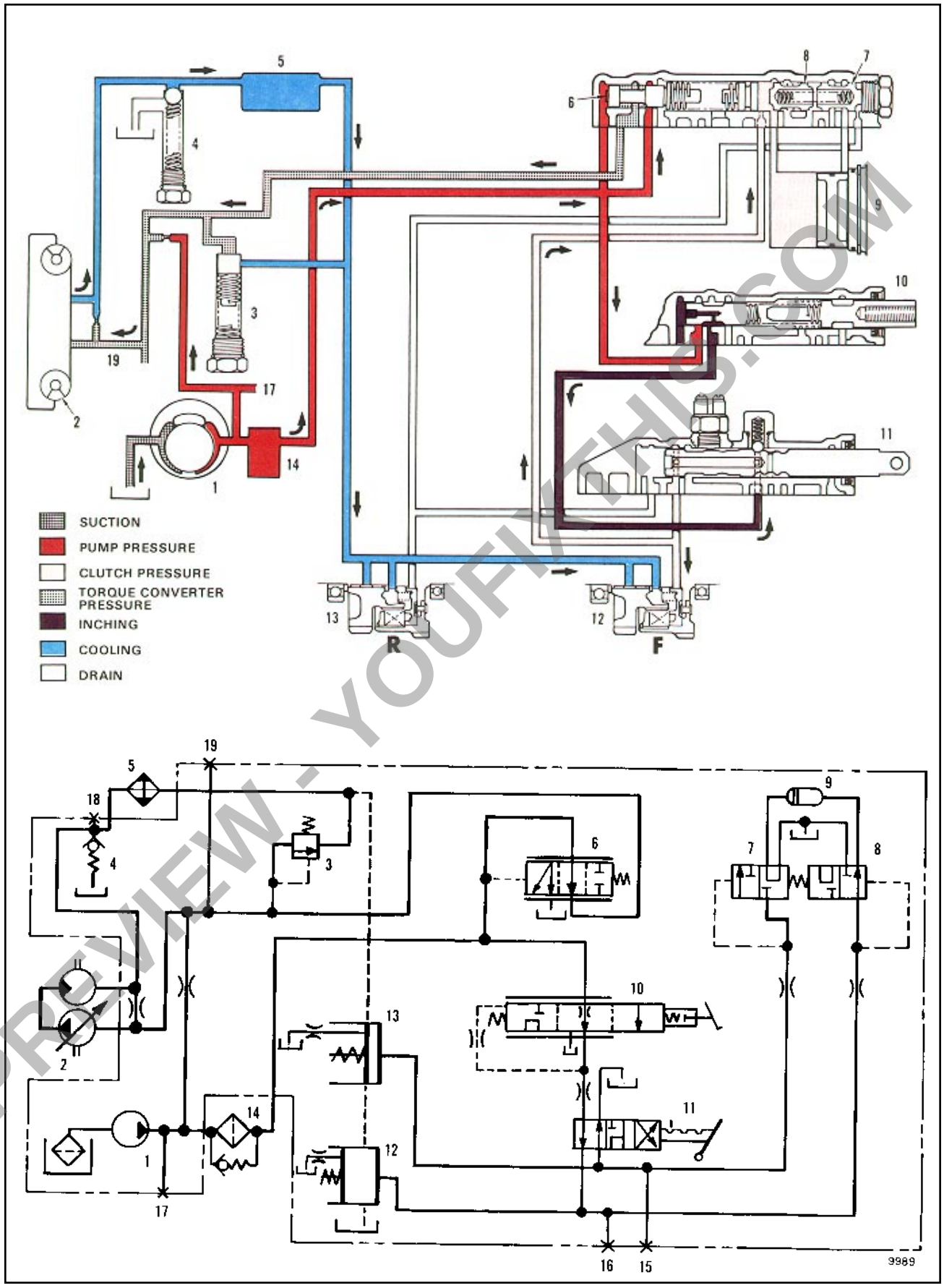


FIGURE 18. OIL FLOW IN FORWARD-INCHING

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