40 Cruz-Air Series D

Service Manual

S406259M2

CASE

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IMPORTANT: Always install new decals whenever the old decals are destroyed, lost, painted over, or illegible. When individual parts are replaced that have decals attached, be sure to install a new decal with the new part. Replacement decals are available from your DROTT dealer.

Information in this manual was current at time of printing. DROTT reserves the right to make improvements in design or changes in specifications without incurring any obligation relating to such changes.

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SERVICE CHART

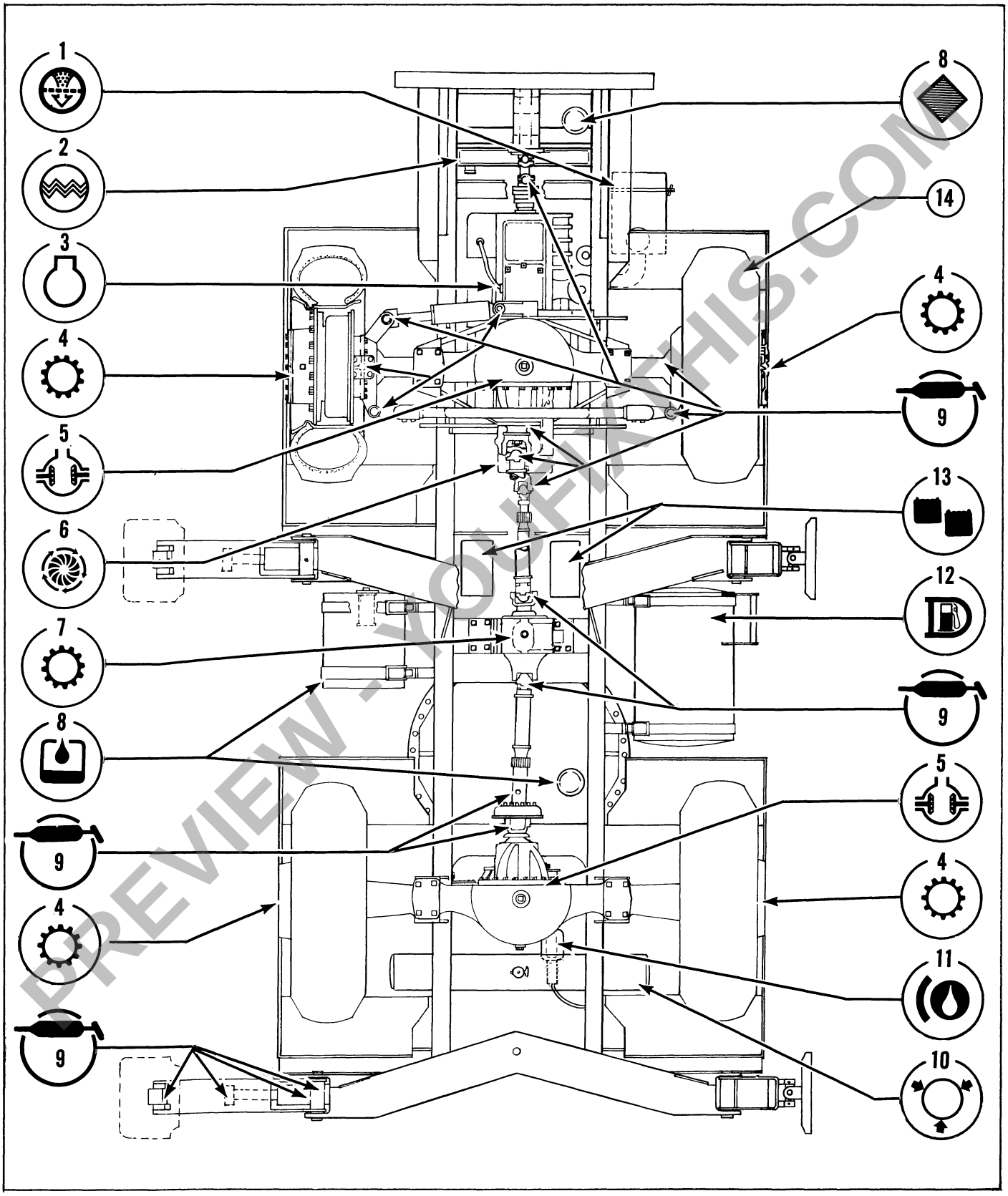


Figure 4. Service Points on Lower Structure

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SECTION 1

SCHEDULED PREVENTIVE MAINTENANCE

INTRODUCTION

Scheduled preventive maintenance is essential to keeping the machine in top operating condition. Decide from the start upon a maintenance schedule that will best suit your particular needs. The type of work being done, the size of loads, ground and weather conditions should all be taken into consideration when establishing a schedule.

Use the hourmeter, along with a calendar and checklist to ensure that all recommended maintenance is performed at prescribed intervals. Our recommendations are based upon average operating conditions, and should be considered as the MINIMUM requirements.

Depart from the recommended intervals only when conditions warrant shortening them, or when changes in ambient temperature require it. The recommended intervals should be shortened whenever the machine is operated under extreme conditions, such as on a dusty job site, in extreme heat or cold, under intermittent operation or extremely heavy loads.

LUBRICANTS

It is not DROTT policy to publish lists of approved lubricants or to guarantee lubricant performance. The responsibility for the quality of any lubricant rests completely with the distributor or manufacturer of the lubricant.

In various paragraphs of this manual, you will find the statement "Use (lubricant brand name) or functional equivalent". This statement does not constitute an unconditional guarantee of the performance of the brand of oil mentioned; it is intended only as a guide to the type of lubricant recommended for a given application.

SPARK ARRESTORS

Laws of some states or provinces may require that this unit be equipped with a SPARK ARRESTOR or SPARK ARRESTING MUFFLERS. The State of California, as an example, is one state which has such regulations for agricultural and forestry applications, plus a regulation for construction applications in forest-covered, brush-covered or grass-covered lands.

Typically, such laws and regulations require spark arresting devices to be maintained in good working order and typically to be attached to the exhaust system on naturally aspirated engines (engines without a turbo-charger).

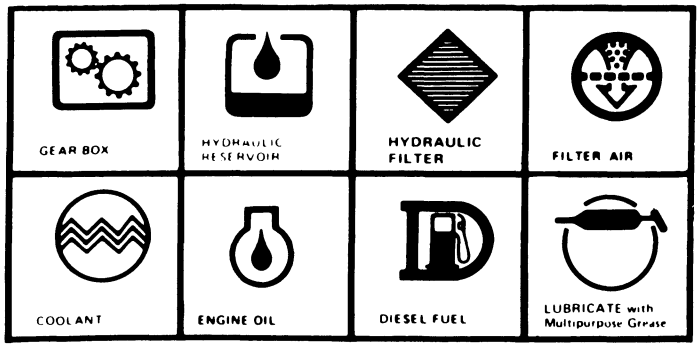
CLEANING SOUNDPROOFING INSULATION

Care must be taken when cleaning Cab interiors which have soundproofing insulation installed. To clean the insulating material, use only a vacuum cleaner, or damp cloth with plain water, or mild detergent solution.

DO NOT steam clean, wash, or rinse with a water hose, etc., since only a slight wetting of the insulation will substantially reduce its soundproofing ability.

EXPLANATION OF INTERNATIONAL SYMBOLS

Symbols speak a universal language. International symbols are used in this manual to help identify components requiring service.



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5. To disassemble the Stator and One Way Clutch assembly, remove the snap rings which hold the stator washers, inner and outer cones, and the One Way Clutch in place.

6. To gain access to the impeller hub seal, remove the eight capscrews and lockwashers which fasten hub to impeller.

Disassembly of Pump, Oil Manifold and Filter (Refer to figure 48)

NOTE: Pump, manifold and filter can be removed as a unit if these components do not require repair.

1. Remove oil filter cover stud, stud seal, cover, filter and "o" rings.

2. Loosen and remove sump-to-pump oil tube and its two seals.

3. Disconnect high pressure line to control valve.

4. To remove manifold, remove the four 5/16" x 4-1/2" capscrews and seal washers which fasten manifold to pump.

5. Remove the two capscrews and seal washers which mount the pump to the converter housing. Remove pump, drive gear and gasket seal.

NOTE: Field repair of pump is not recommended. Either replace entire pump, or return to DROTT Manufacturing for necessary repairs.

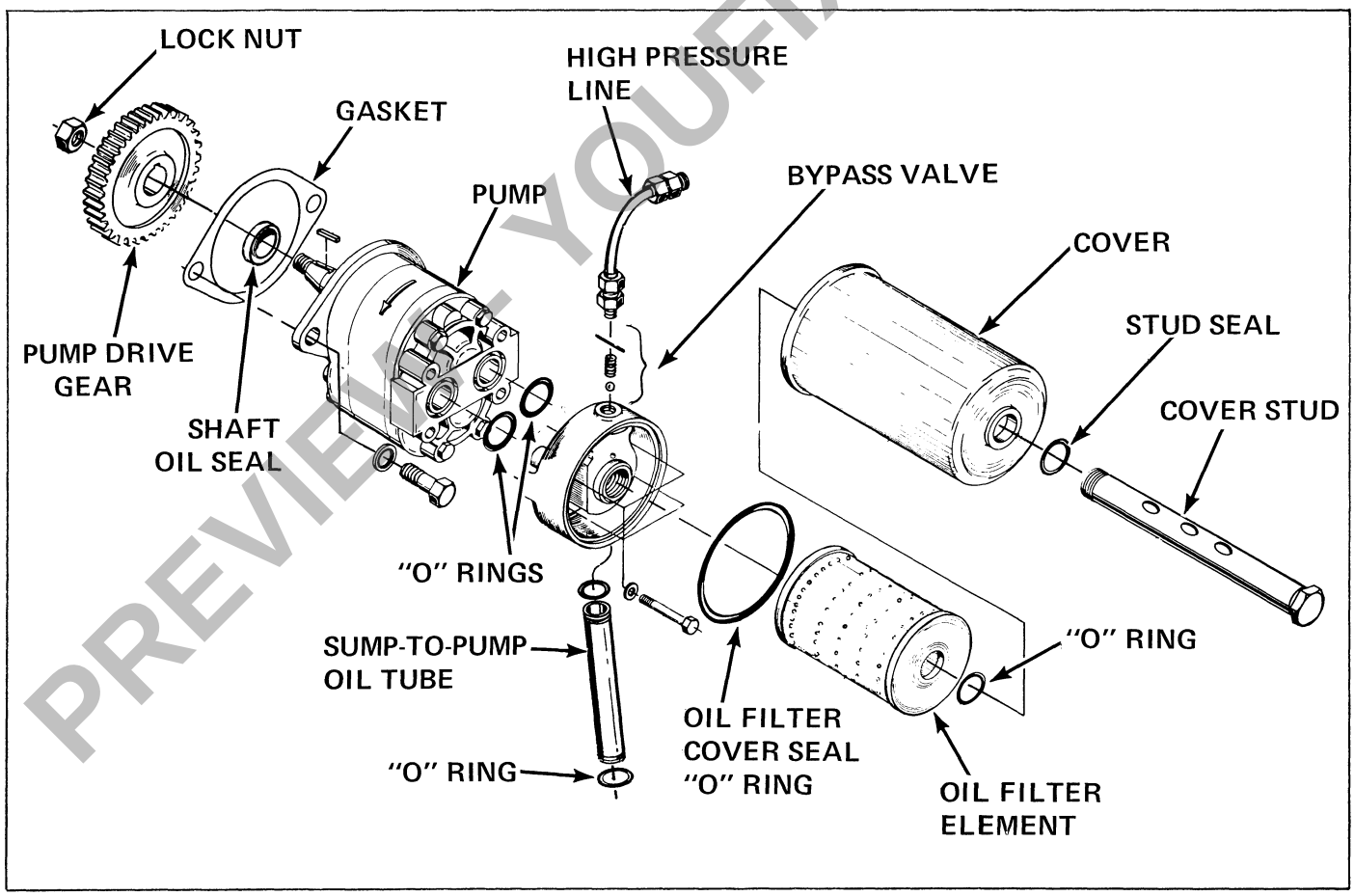


Figure 48. Pump, Oil Manifold and Filter

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Performance and Stall Test

If all preliminary checks are satisfactory, make a performance and stall test as described below.

1. Run the engine at 1000-1200 rpm with the unit in neutral until normal engine operating temperature is reached.

2. Attach a tachometer to the engine and position the instrument so that it can be read from the driver's seat.

3. Apply the service and parking brakes firmly.

4. Engage the forward clutch. With a steady pressure, depress the accelerator pedal to the wide open throttle position. Observe the tachometer reading. The engine should turn up to the governed rpm (see chart on page 18). If engine speed is low, it is an indication that the engine is not operating at peak efficiency. Take all necessary steps to correct the engine deficiency, and again perform the test. Check the rpm with the reverse clutch engaged. The engine speed should be the same as above.

5. Next, put the transmission in high gear, leaving all brakes applied.

   If the engine speed is over the stall rpm as shown on the chart, or if engine runaway is apparent, release the accelerator pedal and shift to Neutral immediately to prevent possible damage to the transmission. This is an indication of transmission malfunction, and should be checked out per the TROUBLESHOOTING GUIDE instructions following. Repeat the same test, with the reverse clutch engaged and accelerator pressed to the wide open throttle position.

   Stall test tachometer readings require careful interpretation. During a stall test, the engine, torque converter, and hydraulic clutches are all under test at the same time.

ATTENTION: Because of the rapid rise in oil temperature, the stall condition should be maintained only long enough for the tachometer reading to stabilize. Five seconds is usually adequate time for an accurate reading. Under no circumstances should the stall period exceed 30 seconds at a time. Between test, run the engine for at least (2) two minutes at 1000-1200 rpm with the Reverse-O-Matic in neutral. This will permit the converter oil to flow into the heat exchanger and back to the transmission sump.

Overheating of Torque Converter

Overheating and possible failure of the torque converter can be caused by:

1. Over speeding on a down grade.

2. Rapid shifting from forward to reverse without coming to a complete stop.

3. Holding the unit in a stall condition for too long a period during a stall test.

The following recommendations are made to help prevent turbine failure:

1. To keep from over speeding on down grades, use the foot brake to control converter rpm.

2. Come to a complete stop before reversing travel. Engage forward and reverse clutches at idle speed only.

3. Do not stall more than 5-10 seconds at a time and under no circumstances more than 30 seconds. Make sure torque converter temperature does not go above 250° F (120° C). Stop the vehicle or the stall test immediately if temperature increases above 250° F. Put the forward-reverse switch in neutral position and run engine at 1000-1200 rpm until temperature returns to normal.

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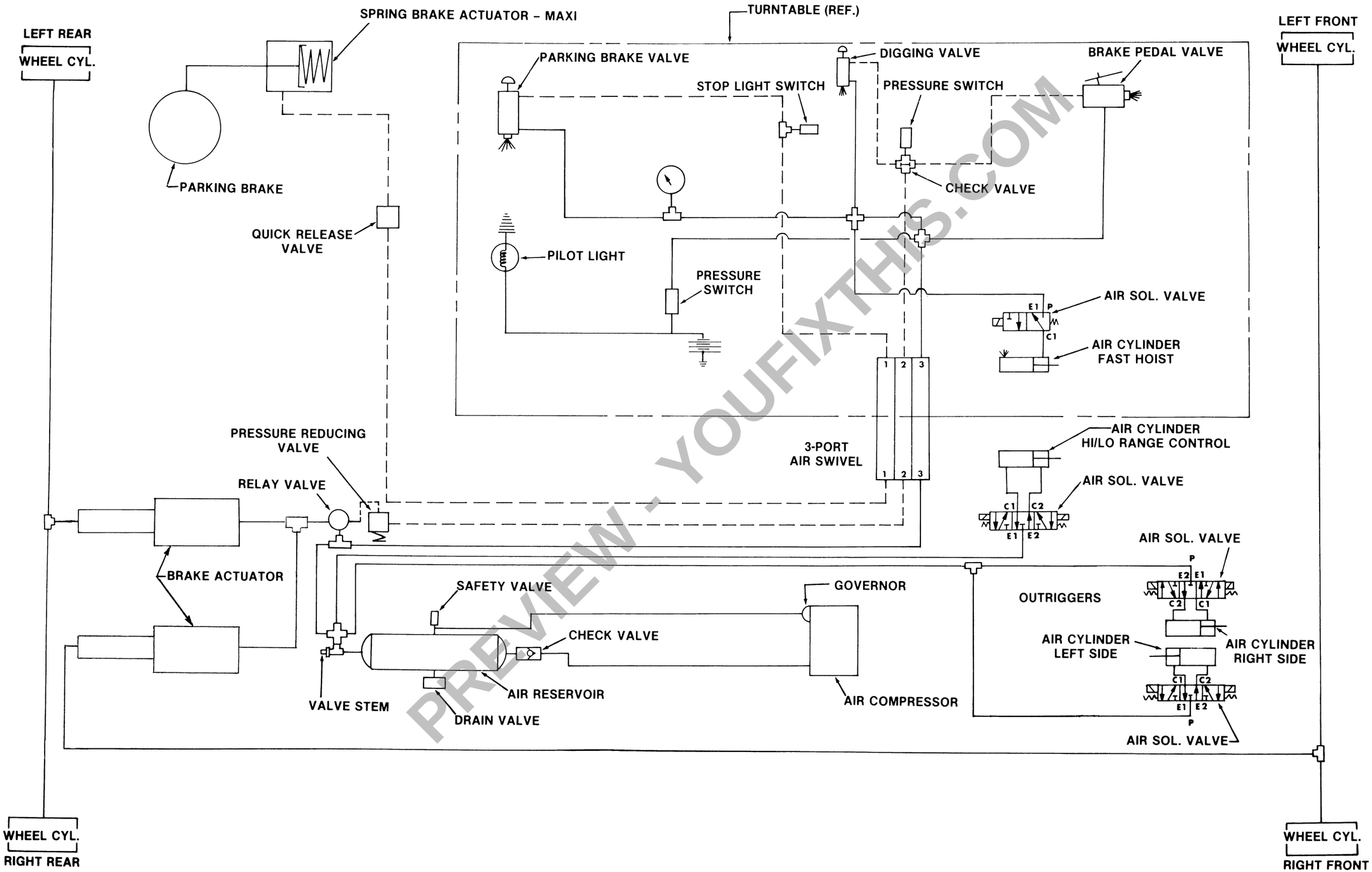
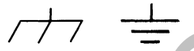
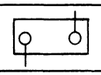
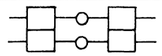
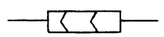
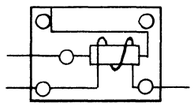


Figure 196B. Air Schematic - Machines PIN 6292929 and After

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GRAPHIC SYMBOLS FOR ELECTRICAL DIAGRAMS

	GROUND
	FUSE
	SWITCH SINGLE POLE
	SWITCH PUSH BUTTON
	LAMP
	BATTERY
	CIRCUIT BREAKER
	MOTOR
	COLLECTOR RING
	SEPARABLE CONNECTOR
	RELAY
SOL.	SOLENOID
	HORN

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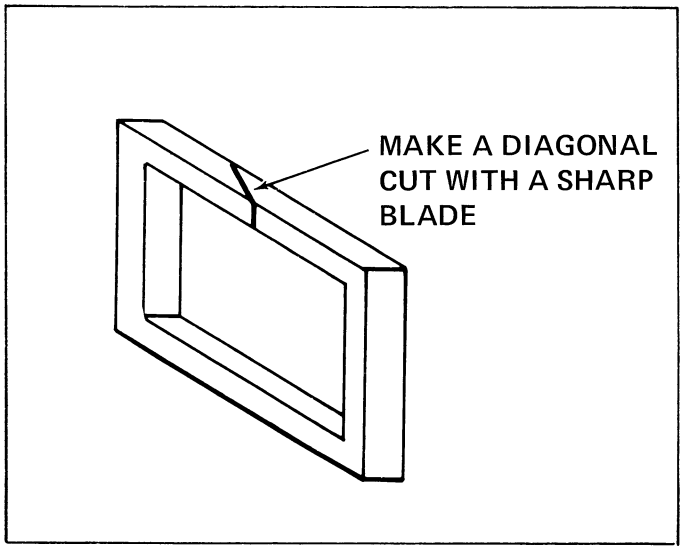


Figure 195. Cutting Vane Seal for installation on abutment.

Place the vane seal in position on the abutment. The diagonal cut must be on side of abutment next to the body. Apply a liberal coating of petroleum jelly to the vane seal.

10. Rotate the wingshaft until the vane is 90° from the centerline of the abutment position. Place a .005" shim stock against the inside and outside faces of the abutment vane seal that contacts the body. Slide the abutment into position. When the abutment is approximately two thirds into the body, remove the shim stock and slide abutment into position. A sharp blow on end of abutment may be required to seat the dowel pins in the end.

IMPORTANT: The shim stock protects the vane seal from being cut or nicked during installation. Do not allow the seal to be damaged as this permits internal leakage during operation.

11. Apply a liberal coat of petroleum jelly to the hub seal (10) in the unported end, sufficient to hold the seal in place when inverted.

12. Wrap a single layer of transparent tape over shaft splines and lubricate liberally with petroleum jelly. This will protect the teflon shaft seals from being cut or damaged during installation of the unported end (19).

13. Carefully invert end (19) and press over wingshaft.

IMPORTANT: Do not hammer on the end or allow the hub seal to become dislodged during installation. If necessary, install two bolts 180° apart and tighten evenly to pull the ends together. Extreme care must be taken to avoid cocking the end as this may result in tearing or wrinkling the shaft seal.

14. Install dowel pins (20). Apply a small amount of Loctite (BLUE) to threades of bolts (21), then install nuts. Tighten nuts evenly to 100 lb-ft (135 Nm).

Testing and Installation

1. Before installing actuator on machine, perform the following two tests.

   a. Apply 50 psi (345 kPa) air or hydraulic pressure to one of the inlet ports. The applied pressure should move the wingshaft until it is stopped by the abutment.

   b. Lock the wingshaft in the center of its angular travel and apply 2050 psi (14 134 kPa) pressure to one of the ports. Check for leakage at opposite port.Leakage should not exceed 0.10 gpm (.037 l/m). Reverse the fluid flow and recheck the internal leakage. If leakage exceeds the above amount, it is likely that the seals are not fully seated. Cycle the actuator five or six times and recheck for internal leakage. Finally pressurize both ports and check for external leakage. No external leakage is allowed.

2. If all tests are satisfactory, install unit on machine. If not, disassemble and inspect for cause of problems.

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Scheduled Maintenance

Check oil level in Drop Box Transmission at least once a week or every 50 hours. To check oil, remove cap on fill pipe (figure 27). Oil level should be even with top of pipe. If low, add SAE 90 gearlube.

The transmission should be drained and refilled after the first 50 hours or first week of operation, whichever occurs first. Thereafter, drain and refill the transmission semi-annually or every 1500 hours, whichever occurs first. At each oil change, or at each overhaul of the unit, the breather located on top of transmission should be checked and cleaned. Check the magnetic plug for metal particles, chips or slivers which might indicate an internal failure. Clean and test the plug before reinstalling it. Remagnetize or replace if necessary.

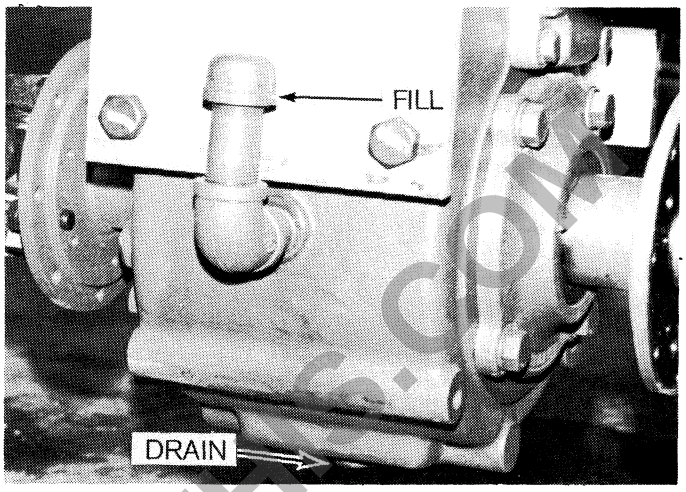


Figure 27. Check Points on Transmission

Transmission Shift Linkage

The shifting linkage to the Drop Box Transmission is completely mechanical. It consists of two cables, connected on one end to the shifting handles in the Cab Instrument Panel and on the other end to two bellcranks located above the Center Swivel (see figure 28). Each bellcrank controls the VERTICAL movement of one of the hollow shift tubes which run down through the swivel. The shift tubes connect at the base of the swivel to a second set of bellcranks which connect to the transmission shift rods. This linkage arrangement allows the transmission to be shifted through the complete range of gears and speeds with the cab facing any direction.

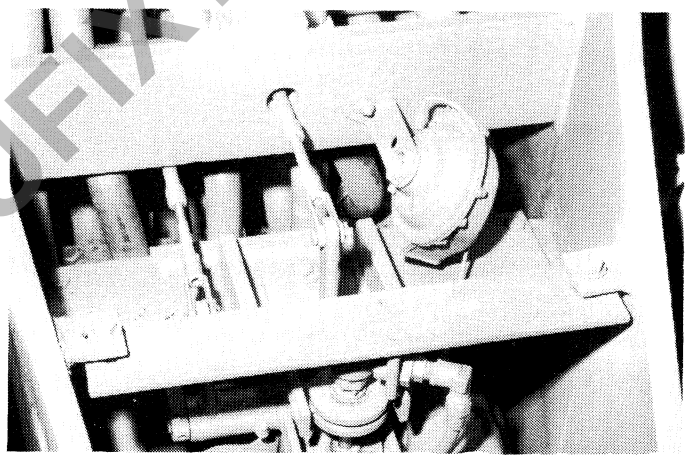


Figure 28. Shift Linkage above Center Swivel

Linkage Maintenance

The shift tubes which run through the Center Swivel should be lubricated periodically with a dry lubricant, such as Dri-Slide or functional equivalent, to keep them sliding freely. Do NOT use oil or grease as a lubricant, as these will accumulate dirt and cause the linkage to bind.

Each bellcrank contains a lube fitting, and should be greased once a week or every 50 hours (See Pictorial Listing on Page 13).

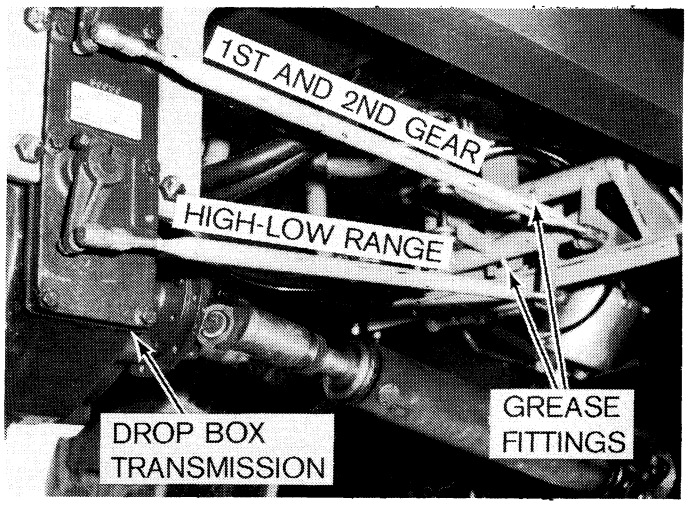


Figure 29. Shift Linkage Below Center Swivel

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16. Tools and Attachments

Wrist-O-Twist Disassembly and Repair

1. Remove bucket or tool from lower hinge.
2. Relieve line pressure, then disconnect hydraulic lines at the Wrist-O-Twist flow control valves. Remove Wrist-O-Twist cylinder and hydraulic lines.
3. Disconnect tool link from Wrist-O-Twist.
4. Attach hoist, pull pivot pin and remove Wrist-O-Twist.
5. Remove lower hinge.

Inspect lower hinge and all pins for wear. Replace if necessary. For repair of cylinder or flow control valves, refer to Hydraulic Section. Reassemble in reverse order of disassembly.

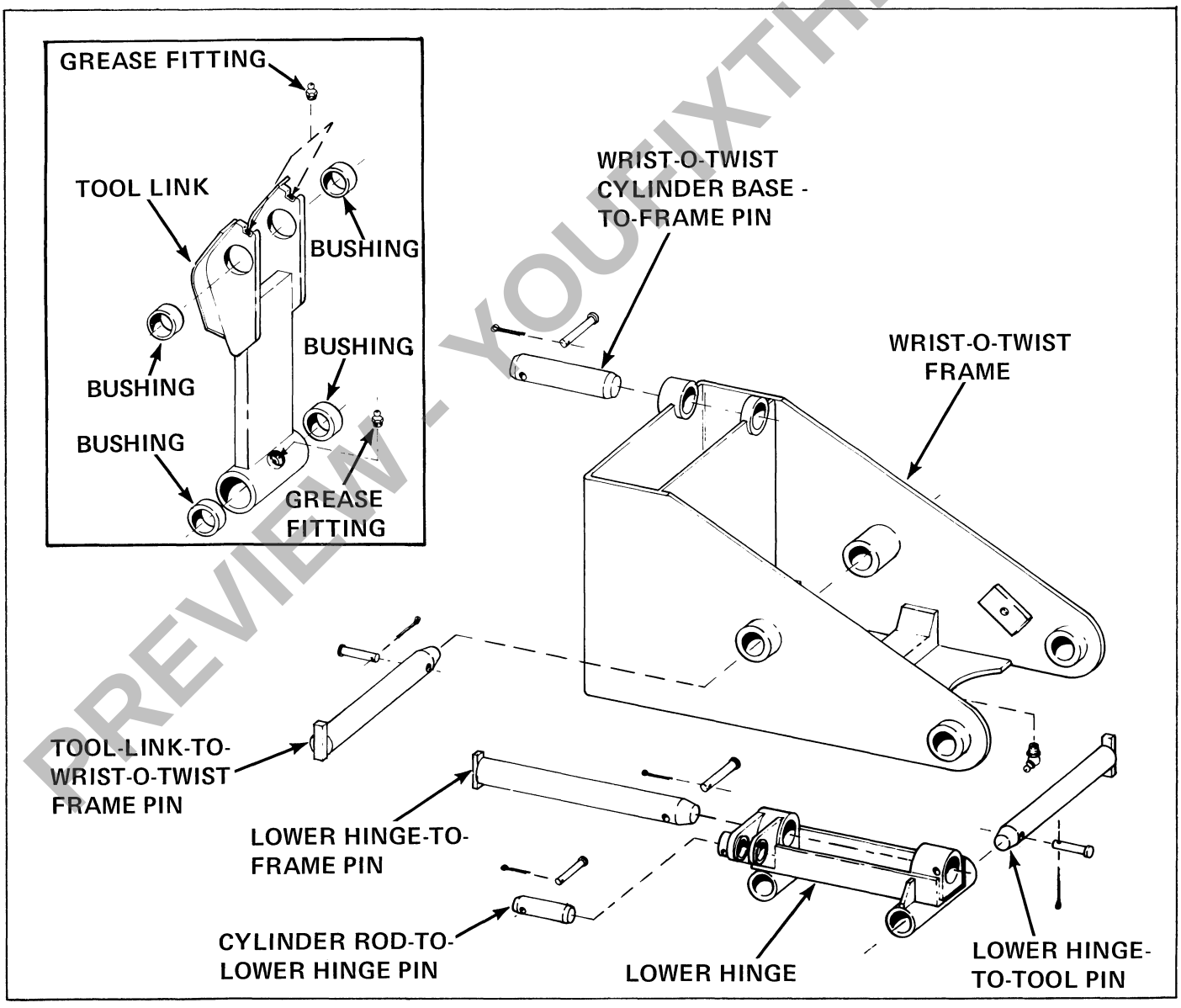


Figure 91. Wrist-O-Twist

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