4230 TRACTOR

TECHNICAL MANUAL

TM-1056 (Jan-78)

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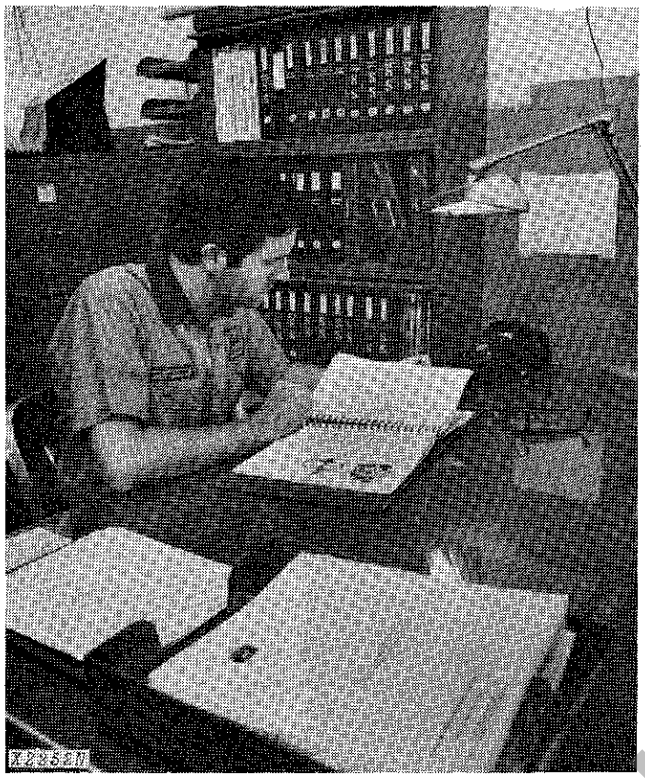
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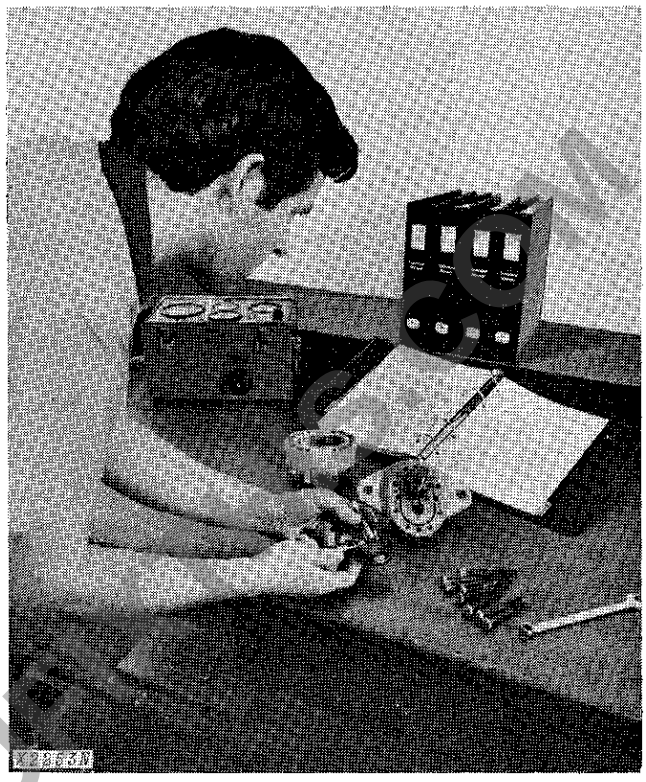
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INTRODUCTION



Use FOS Manuals for Reference



Use Technical Manuals for Actual Service

This technical manual is part of a twin concept of service:

- **FOS Manuals — for reference**
- **Technical Manuals — for actual service**

The two kinds of manuals work as a team to give you both the general background and technical details of shop service.

Fundamentals of Service (FOS) Manuals cover *basic* theory of operation, *fundamentals* of trouble shooting, *general* maintenance, and *basic* types of failures and their causes. FOS Manuals are for training new people and for reference by experienced people.

Technical Manuals are *concise* service guides for a *specific* machine. Technical Manuals are on-the-job guides containing only the vital information needed by a journeyperson mechanic.



When a serviceperson should refer to a FOS Manual for more information, a FOS symbol like the one at the left is used in the TM to identify the reference.

Some features of this technical manual:

- *Table of contents at front of manual*
- *Exploded views showing parts relationship*
- *Photos showing service techniques*
- *Specifications grouped for easy reference*

This technical manual was planned and written for you — a journeyperson mechanic. Keep it in a permanent binder in the shop where it is handy. Refer to it whenever in doubt about correct service procedures or specifications.

Using the technical manual as a guide will reduce error and costly delay. It will also assure you the best in finished service work.

⚠ This safety alert symbol identifies important safety messages in this manual. When you see this symbol, be alert to the possibility of personal injury and carefully read the message that follows.

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Section 10
GENERAL

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FUEL SYSTEM (Continued)
Gasoline .... Pressure system, diaphragm-type fuel pump, single barrel updraft carburetor with electrical shut-off

CAPACITIES
Fuel tank:
Diesel and gasoline .. 37 U.S. gals. (136.3 L)
Cooling system* ..... 24 U.S. qts. (22.7 L)
Crankcase:
Gasoline ..... 12 U.S. qts. (11.4 L)
Diesel ..... 17 U.S. qts. (16.1 L)

SYNCRO-RANGE TRANSMISSION
Type ..... Syncro-range, constant mesh
Clutch
Perma-Clutch ..... Hydraulically operated, multiple disk, wet clutch
Gear selections ..... 8 forward and 2 reverse
Shifting ..... 4 stations, synchronized forward speed shifting within stations

QUAD-RANGE TRANSMISSION
Type ... 2 speed, power shifted planetary and

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POWER FRONT-WHEEL DRIVE

Type ..... Hydraulic motor driven with planetary gear reduction in wheel hub, uses pressure oil from hydraulic system.

Torque ..... Low (series connected) and high (parallel connected)

Controls ..... Solenoid-operated control valves, synchronized with transmission controls

HYDRAULIC SYSTEM

GROUND SPEED (IN MPH, 18.4-34 REAR TIRES)

SYNCRO-RANGE AND POWER SHIFT TRANSMISSIONS

	Syncro-range		Power Shift	
Gear	**1500 rpm**	**2200 rpm**	**1500 rpm**	**2200 rpm**
1st	1.3	1.9	1.2	1.8
2nd	2.1	3.0	1.7	2.5
3rd	2.7	4.0	2.7	3.9
4th	3.5	5.1	3.5	5.1
5th	4.3	6.4	4.5	6.6
6th	5.7	8.3	5.8	8.5
7th	7.4	10.8	7.7	11.2

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DIMENSIONS

	Tractor with Roll-O-Matic less Roll-Gard	Tractor with Sound-Gard Body
Wheel base	101¼ in. (257.2 cm)	104 in. (264 cm)
Over-all length	151¾ in. (385.4 cm)	151¾ in. (385.4 cm)
Height to muffler cover	89 in. (226.1 cm)	118¾ in. (301.6 cm)
Height to steering wheel	81⅛ in. (206.1 cm)	—
Height to top of Sound-Gard Body	—	109⅞ in. (269.2 cm)
Over-all width (regular axle)	89⅝ in. (219.6 cm)	89⅝ in. (219.6 cm)
SHIPPING WEIGHT*	8006 lb. (35612.5 N)	9600 lb. (42702.9 N)

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Group 10
PREDELIVERY, DELIVERY AND AFTER-SALE SERVICE

PREDELIVERY SERVICE

Because of the shipping factors involved, plus extra finishing touches that are necessary to promote customer satisfaction, proper predelivery service is of prime importance to the dealer.

A tag pointing out the factory-recommended procedure for predelivery service is attached to each new tractor before it leaves the factory.

After completing the factory-recommended dealer checks and services listed on the predelivery tag, remove the tag from the tractor and file it with the shop order for the job. The tag will certify that the tractor has received the proper predelivery service when the portion of the customer's John Deere Delivery Receipt is completed.

Temporary Tractor Storage

Service	Specification	Reference
Check radiator for coolant loss and antifreeze protection	1½ inches above baffle.	
Drain fuel system (gasoline)		Operator's manual
Reduce shipping pressure of tires		Operator's manual
Cover tractor and tires for protection and cleanliness		

Before Delivering Tractor

COOLING SYSTEM		
Inspect radiator for coolant loss	1½ inches above baffle.	
Check antifreeze protection		
ELECTRICAL SYSTEM		
Install electrolyte and charge batteries		FOS-20
Date code battery		FOS-20
Connect Power Front Wheel Drive wiring harness at connector near control valves		Section 40, Group 5
Install light switch knob		
Clean terminals and connect battery cables		Section 40, Group 5
Check light operation and adjustment. Remove flasher if required by local governmental regulations		Operator's manual

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Before Delivering Tractor--Continued

Service	Specification	Reference
TIRES AND WHEELS		
Adjust pressure of tires		Operator's manual
Check front wheel hub bolts, rear wheel rim clamp nuts, and rear wheel retainer cap screws for tightness	Front hub bolts — 100 ft.-lbs. Rear hub bolts — 300 ft.-lbs. Rim clamp nuts — 170 ft.-lbs.	
Check installation of wheel-stop snap ring on outside ends of rear axle		

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Before Delivering Tractor--Continued

Service	Specification	Reference
OPERATION		
Shift transmission through all speeds . .	. . . . .	Operator's manual
Check Power Front Wheel Drive operation	. . . . .	Operator's manual
Check power takeoff operation	. . . . .	Operator's manual
Check differential lock operation	. . . . .	Operator's manual

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DELIVERY SERVICE

A thorough discussion of the operation and service of a new tractor at the time of delivery helps to assure complete customer satisfaction. Proper delivery should be an important phase of a dealer's program. A portion of the John Deere Delivery Receipt emphasizes the importance of proper delivery service.

Many complaints have arisen simply because the owner was not shown how to operate and service his new tractor properly. Spend enough time, at the customer's convenience, to introduce the owner to his new tractor and explain to him how to operate and service it properly.

The following procedure is recommended before the serviceman and owner complete the delivery acknowledgments portion of the delivery receipt.

Using the tractor operator's manual as a guide, be sure that the owner understands these points thoroughly:

1. Controls and instruments.
2. How to start and stop the engine.
3. The importance of the break-in period.
4. How to use liquid or cast-iron ballast.
5. All functions of the hydraulic system.
6. Using the power takeoff.
7. The importance of safety.
8. The importance of lubrication and periodic services.

After explaining and demonstrating the above features, have the owner sign the delivery receipt and give him the operator's manual.

AFTER-SALE INSPECTION

Purpose of Inspection

The purchaser of a new John Deere tractor is entitled to a free inspection within the warranty period after the equipment has been "run in." The terms of this after-sale inspection are outlined on the back of the John Deere Delivery Receipt.

The purpose of this inspection is to make sure that the customer is receiving satisfactory performance from his tractor. At the same time, the inspection should reveal whether or not the tractor is being operated, lubricated, and serviced properly.

If the recommended after-sale service inspection is followed, the dealer can eliminate a needless volume of service work by preventing minor irregularities from developing into serious problems later on. This will promote strong dealer-customer relations and present the dealer an opportunity to answer questions that may have arisen during the first few days of operation. During the inspection service, the dealer has the further opportunity of promoting the possible sale of other new equipment.

The following inspection program is recommended within the first 100 hours of tractor operation.

Inspection Procedure

Service	Specifications	Reference
COOLING SYSTEM		
Check radiator coolant level	1½ inches above baffle.	
Clean external surface of radiator core		
Check hoses and connections for leaks		
FUEL SYSTEM		
Drain contaminants from sediment bowl (Gasoline), and from filter (Diesel)		Operator's manual

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Inspection Procedure--Continued

Service	Specification	Reference
Tighten loose connections and check entire system for leaks. Correct if necessary		
Check air cleaner cover, element, and unloading valve. Clean element if necessary		Operator's manual

ELECTRICAL SYSTEM

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Inspection Procedure--Continued

Service	Specification	Reference
CLUTCHES and DIFFERENTIAL LOCK		
Shift transmission through all speeds ...	.....	Operator's manual
Check Power Front Wheel Drive operation	.....	Operator's manual
Check PTO clutch and brake operation..	.....	Section 50, Groups 45

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Remove the two cap screws from the top and three screws at front of roof. Raise roof, and remove the cover-to-housing sheet metal screws.

Remove the insulation tap from sensing bulb (Fig. D28) and expansion valve.

Disconnect sensing bulb, evaporator inlet and outlet fittings, and expansion valve equalizer line fitting. Remove sensing tube from evaporator core.

A drain hose (B, Fig. 29) at each end of the drain tray is routed down through the hollow front members of the body to remove the condensate water to the outside. Each hose is clamped at the upper end to a tube (C) that is interlocked with a bushing (D) and sealed to the condensate tray (inner roof) with rubber packing (E).

Access to the drain tube and hose assembly is obtained by removing the switch panel bezel and rear headliner from inside the body. (See Group 20

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NOTE: If the evaporator was repaired or replaced with a new one, pour 1.5 fluid oz. (112 mL) of oil into the evaporator. If there were any major leaks in the system, refer to CHECKING AND ADDING COMPRESSOR OIL (page 80-15-24).

10. Purge system with R-12 or dry nitrogen.

11. Evacuate and charge system (page 80-15-25 and 26).

4. Remove the insulation from sensing bulb and expansion valve. Fig. 28 shows the insulation removed.

5. Disconnect sensing bulb (D, Fig. 28).

6. Disconnect expansion valve (B) inlet and outlet fittings.

7. Disconnect equalizer line fittings (E).

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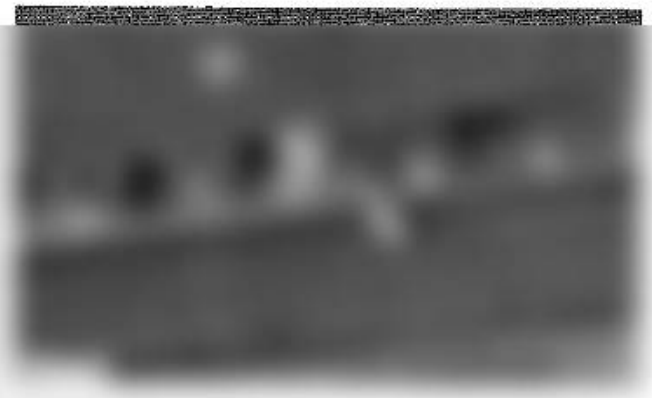
Removal

1. Disconnect battery ground cable.

2. Remove sensing tube from evaporator core (Fig. 28).

3. Remove the control panel retaining screws.

4. Remove control knob from switch.



5. Insert sensing tube into container.

6. After one minute, observe reading on ohmmeter.

7. Ohmmeter should read no continuity (contacts open).

8. Remove sensing tube and hold in hand while observing ohmmeter.

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THERMOSTATIC SAFETY SWITCH

Removal

Remove the ignition key from switch to prevent accidental operation of electric motors and switches.

Remove the side grille screen. Disconnect the wiring leads (Fig. 33).

COMPRESSOR RELIEF VALVE

General Information

The compressor relief valve is located in the rear head of compressor. To obtain information on how this valve works, see page 80-10-10.

Removal

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AIR INTAKE SYSTEM

PRESSURIZER BLOWERS AND SWITCH

General Information

The pressurizer blowers (Fig. 35) draw 20% fresh outside air through air intake openings in cab roof, pulling the air through the air intake filter, evaporator and heater cores, and discharge the conditioned air inside the Sound-Gard Body.

7. To remove blower switch, remove the air louver bezel retaining screws and bezel (if not done previously).

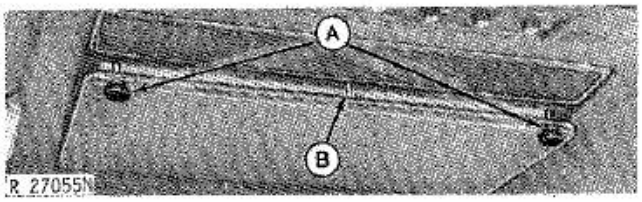
8. Remove switch control knob.



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AIR FILTERS

Removal



A—Access Knobs B—Safety Catch

Service

Clean the filters by one of the following methods:

A. Tapping

Tap filter gently on a flat surface—dirty side down.

B. Compressed Air

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Group 25
HEATING SYSTEM

SYSTEM OPERATION

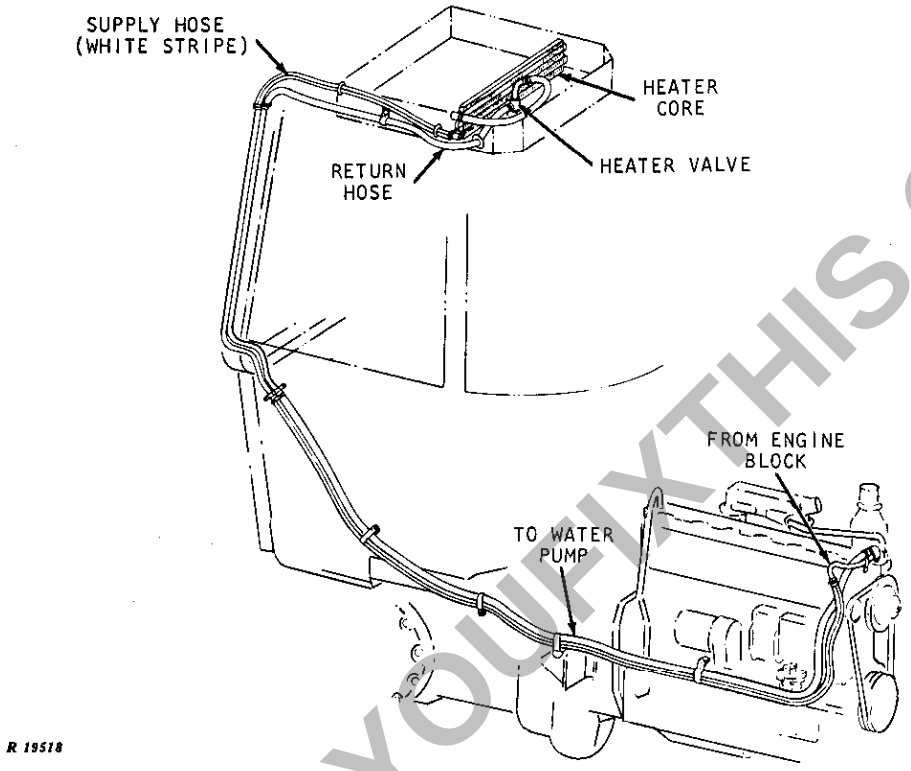


Fig. 1—Heating System

GENERAL INFORMATION

Referring to Fig. 1, coolant from the engine block or cylinder head is carried by hoses and pipes to the heater core, and then to the heater valve. The purpose of the valve is to permit or restrict flow of coolant as desired by the operator. When the valve is open, coolant returns to the water pump by-pass pipe.

The blower draws air through the heater core and directs it inside the body. On both air conditioned and non-air conditioned bodies, the blower used for heating is the same one used for pressurizing.

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DIAGNOSIS AND TESTING

DIAGNOSING MALFUNCTIONS

Proceed with the following list of symptoms and causes when the preliminary checks have been performed and the system still fails to operate properly.

Insufficient Heating
- Faulty engine thermostat
- Foreign material in heater core or hoses
- Heater valve not working properly
- Pressurizer blowers not working properly
- Obstruction in air inlet

Inadequate Removal of Ice or Fog
- Air louvers not directed properly
- Pressurizer blowers not working properly
- Heater valve not working properly

Heater Valve Not Shutting Off Coolant Flow
- Inlet and outlet hoses reversed
- Defective valve

PRELIMINARY CHECKS

When experiencing heating system problems, first perform the following preliminary checks:

1. Determine if the engine coolant is at the proper level and sufficiently warm to give the desired heating results.
2. Check system air filters for restrictions.
3. Check for drafts around doors and panels.
4. Check heater hoses for restrictions.

ELECTRICAL TESTING

When an electrically operated component in the system fails to function properly, make the following preliminary checks:

1. Determine if adequate voltage is being supplied to the malfunctioning component.
2. Visually check for a loose connection or a broken wire.

If the source of trouble has not been found after making the preliminary checks, test the system for an open circuit within each component. Use the wiring diagrams (Section 40, Group 5) as a guide for determining each circuit location.

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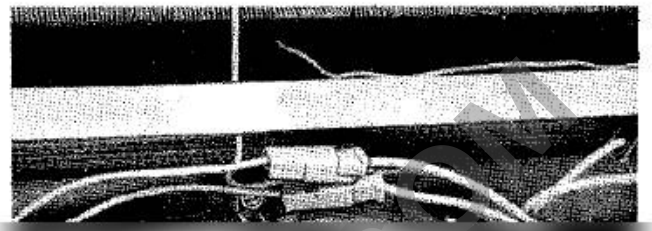
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SYSTEM COMPONENTS

HEATER VALVE

General Information

The heater valve shown in Fig. 2 is a device for controlling engine coolant circulation in the heater core. Opening the valve allows coolant to circulate through the core, while the pressurizer blowers draw in air through the heater core to



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Installation

Reverse the removal steps, being sure hose clamps are properly installed.

Fill the cooling system as required. Start the engine and run long enough to make sure that all the air has been purged from the system.

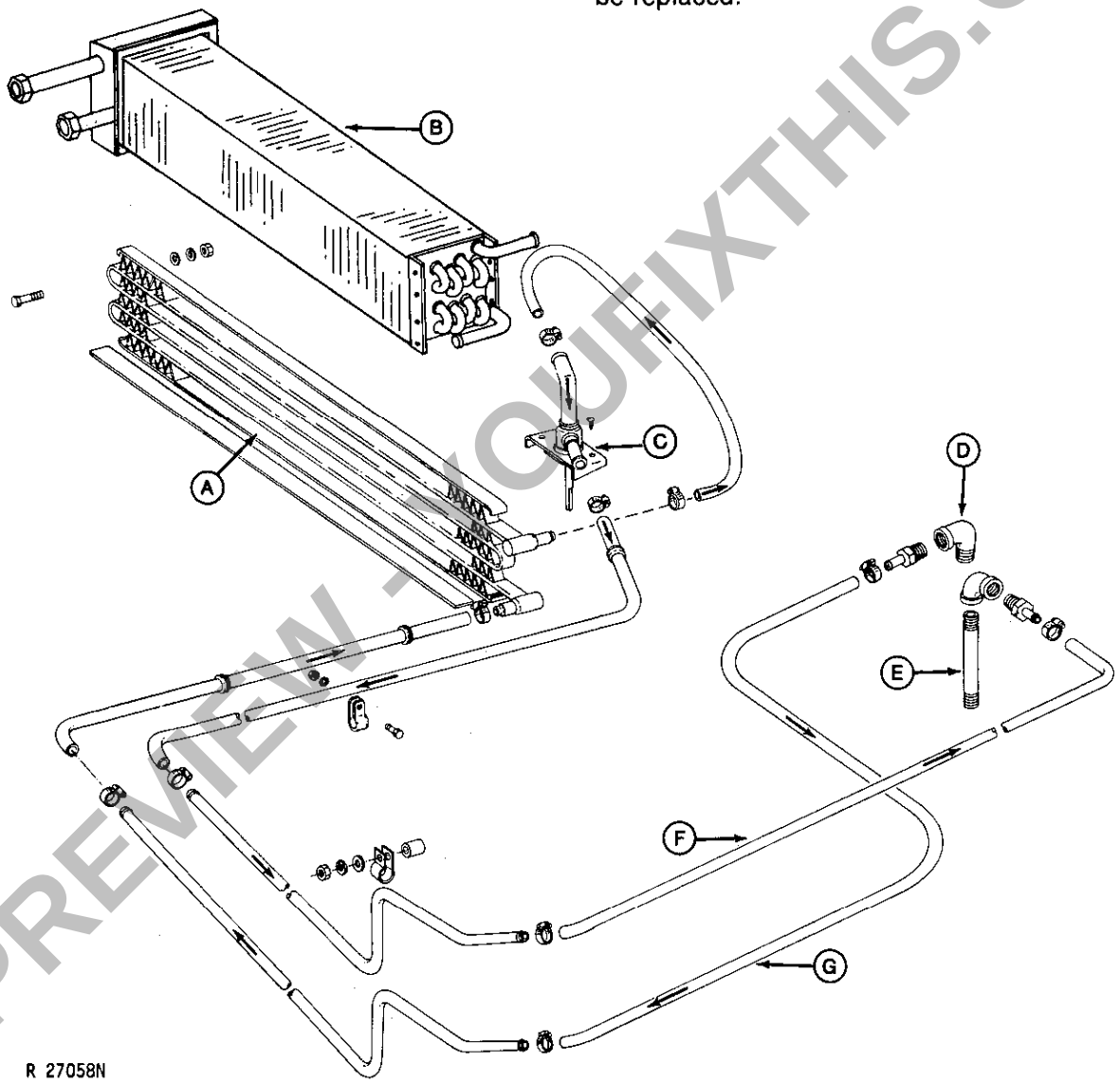
If air remains in the system, loosen one of the hoses at the heater valve and allow the air to escape. Tighten the hose clamp and finish filling cooling system to the correct level.

HEATER BLOWERS

Forced circulation of the heated air is accomplished by the pressurizer blowers. Refer to page 80-20-18.

HEATER PIPES AND HOSES

Carefully inspect the heater system pipes and hoses for possible sources of trouble whenever a repair is made on the system. All connections should be checked for prior leakage. Hoses that are frayed, or otherwise appear questionable, should be replaced.



A—Heater Core (Early Style)
B—Combination Heater Evaporator Core
C—Heater Valve
D—Supply From Water Manifold or Engine Block
E—Return To Water Pump
F—Return Hose
G—Supply Hose

Fig. 3–Heating System Hose and Pipe Installation

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Group 30
SPECIFICATIONS, AND SPECIAL TOOLS
SPECIFICATIONS

Front Axles

Item	Dimension
Toe-in adjustment	⅛—⅜ in.
Axle housing pivot pin bushings and knee bushings I.D. (assembled)	1.499+0.002 in.

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SPECIFICATIONS (Continued)

Air Conditioning System (Continued)

Item	Specification
Evaporator	
Pressure drop in core	5-7 psi.
Air flow across core	400-450 cfm
Expansion Valve	
Superheat setting	Approx. 6°F.
Thermostatic Temperature Control Switch Cold Settings	

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