

5440 and 5460 Self-Propelled Harvesters



TECHNICAL MANUAL 5440 and 5460 Self-Propelled Harvesters

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ENGLISH



5440 AND 5460 SELF-PROPELLED HARVESTERS Technical Manual TM-1177 (Apr-77)

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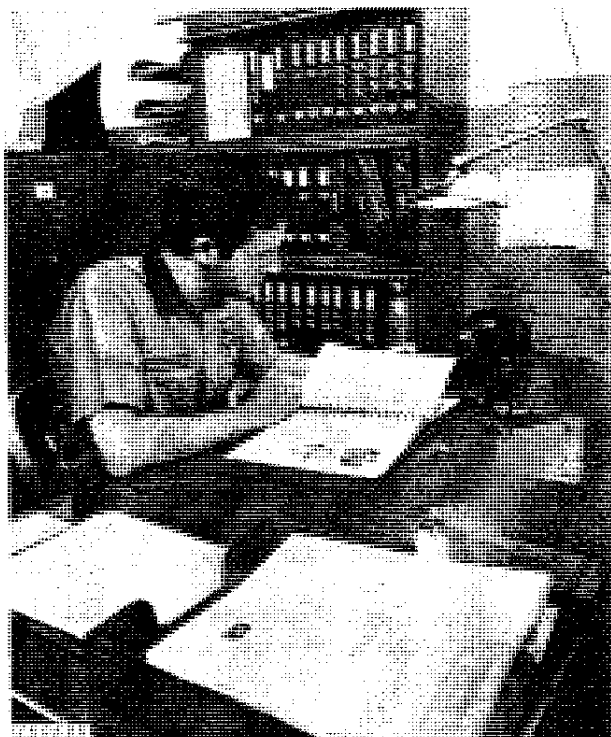
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INTRODUCTION



Use FOS Manuals for Reference

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 personnel and for reference by experienced technicians.

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



When a technician 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.



Use Technical Manuals for Actual Service

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—an experienced 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.

Because John Deere sells its products world-wide, U.S. units of measure are shown with their respective Metric equivalents throughout this operator's manual. These equivalents are the SI (International System) Units of Measure.

**Thanks very much for your reading,
Want to get more information,
Please click here, Then get the complete
manual**

JustClickHere 

NOTE:

**If there is no response to click on the link above,
please download the PDF document first, and then
click on it.**

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SAFETY AND YOU

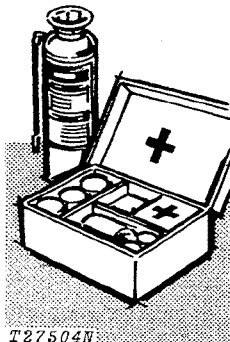
AVOID FIRE HAZARDS



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INTRODUCTION

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



T27504N

Be prepared if an accident or fire should occur. Know where the first aid kit and the fire extinguishers are located—know how to use them.

SERVICE AREA

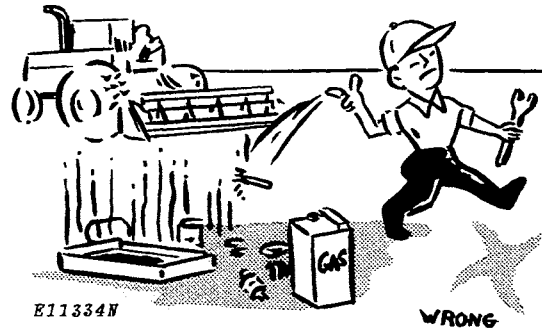
Keep the service area clean and dry. Wet or oily floors are slippery. Wet spots can be dangerous when working with electrical equipment.

Make sure the service area is adequately vented.

Periodically check the shop exhaust system for leakage. Engine exhaust gas is dangerous.

Be sure all electrical outlets and tools are properly grounded.

Use adequate light for the job at hand.



Don't smoke while refueling or handling highly flammable material.

Engine should be shut off when refueling.

Use care in refueling if the engine is hot.

Don't use open pans of gasoline or diesel fuel for cleaning parts. Good commercial, nonflammable solvents are preferred.

Provide adequate ventilation when charging batteries.

Don't check battery charge by placing metal objects across the posts.

Don't allow sparks or open flame near batteries.

Don't smoke near battery.

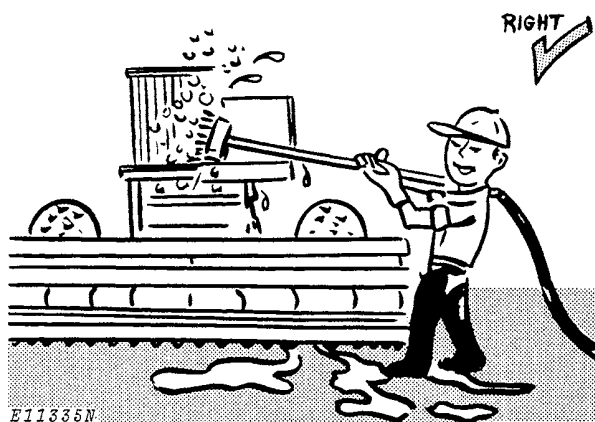
Never check fuel, battery electrolyte or coolant levels with an open flame.

Never use an open flame to look for leaks anywhere on the equipment.

Never use a open flame as a light anywhere on or around the equipment.

When preparing engine for storage, remember that inhibitor is volatile and therefore dangerous. Seal and tape openings after adding the inhibitor. Keep container tightly closed when not in use.

CLEANING THE HARVESTER



Always stop the engine before cleaning the harvester.

Keep the operator's platform clean. Do not use it as a storage area.

Keep the radiator screen free of foreign matter. Avoid a possible fire hazard.

Keep all equipment free of dirt and oil. In freezing weather, beware of snow and ice on ladder steps and operator's platform.

FLUIDS UNDER PRESSURE

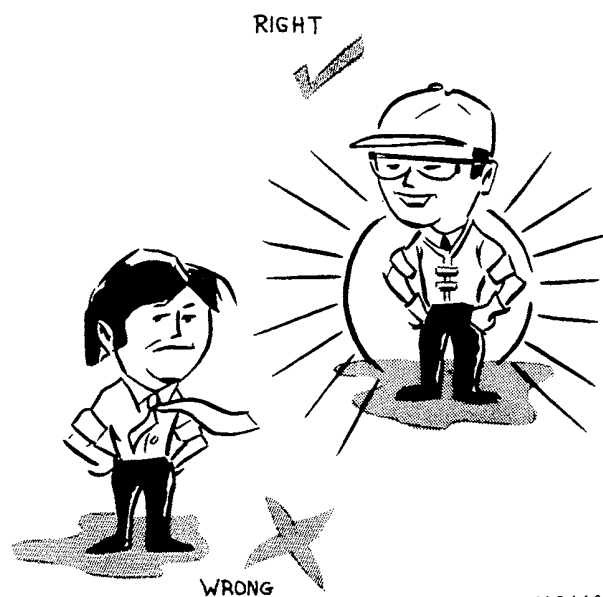
Escaping fluid under pressure can have sufficient force to penetrate the skin, causing serious personal injury. Before disconnecting lines, be sure to relieve all pressure. Before applying pressure to the system, be sure all connections are tight and that lines, pipes and hoses are not damaged. Fluid escaping from a very small hole can be almost invisible. Use a piece of cardboard or wood, rather than hands, to search for suspected leaks.

If injured by escaping fluid, see a doctor at once. Serious infection or reaction can develop if proper medical treatment is not administered immediately.

Don't forget the hydraulic system or diesel fuel injection system may be pressurized! To relieve pressure, follow the instructions in this technical manual.

When checking hydraulic pressure, be sure to use the correct test gauge for the pressure in the particular system.

PERSONAL SAFETY



Always avoid loose clothing or any accessory—flopping cuffs, dangling neckties and scarves—that can catch in moving parts and put you out of work. Always wear your safety glasses while on the job.

Keep transmission and brake control units properly adjusted at all times. Before making adjustments, stop engine.

Before removing any housing covers, stop engine. Take all objects from your pockets which could fall into the opened housings. Don't let adjusting wrenches fall into opened housings.

Don't attempt to check belt tension while the engine is running.

Don't adjust the fuel system while the machine is in motion.

Before repairing the electrical system, or performing a major overhaul, make sure the batteries are disconnected.

Avoid working on equipment with the engine running. If it is necessary to make checks with the engine running, **ALWAYS USE TWO PEOPLE**—one, the operator, at the controls, the other checking where the operator can see the person. Also, put the transmission in neutral, set the brake, and apply any safety locks provided. **KEEP HANDS AWAY FROM MOVING PARTS.**

Use extreme caution in removing radiator caps, drain plugs, grease fittings, or hydraulic pressure caps.

Section 10 GENERAL

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Group 5 SPECIFICATIONS

ENGINE

Horsepower:	
5440	178 (133 kW)* 150 (112 kW)**
5460	255 (190 kW)* 225 (168 kW)**
Type	6-cylinder, in-line valve- in-head, diesel, turbo- charged and inter-cooled
Bore and stroke	
5440	4.25 in. x 4.75 in. 108 mm x 121 mm
5460	5.12 in. x 5 in. 130 mm x 127 mm
Displacement	
5440	404 cu. in. (6620 cm ³)
5460	619 cu. in. 10143 cm ³)
Compression ratio	
5440	15.5 to 1
5460	15.4 to 1
Firing order	1-5-3-6-2-4
Valve clearance	Intake-0.018 in. (0.46 mm) Exhaust-0.028 in. (0.71 mm)
Injection pump timing	TDC
Engine Speeds	
Working speed	2100 rpm
Slow idle	800 rpm
Fast idle (Full load)	2100 rpm
(No load)	2300 rpm

LUBRICATION SYSTEM Full pressurized with full-flow micron oil filter, water-cooled oil cooler, and bypass valves for filter and cooler.

*Factory observed net horsepower at flywheel less fan measured at 85°F (30°C), 29.3 in. Hg. operating at 2100 rpm.

**Factory observed net horsepower at cutterhead drive sheave operating at 2100 rpm.

FUEL SYSTEM:

Type	Direct injection
Filter	Two-stage with replaceable impregnated paper element.
Injection pump type	Multiple plunger, in line
Air cleaner	Dry element with self-cleaning precleaner and safety element

COOLING SYSTEM:

Type	Pressurized with centrifugal pump
Temperature control	Heavy-duty thermostats

ELECTRICAL SYSTEM:

Type	12-volt, negative grounded
Batteries	Two, 6-volt 87-plate 204- ampere-hour, 7D type, connected in series
Alternator:	
5440	12-volt, 72-amp capacity
5460	12-volt, 72-amp capacity

MAIN CLUTCH (Blower Fan and Cutterhead Drive):

Type	Over-center, dry, metallic button, adjustable
Number of disks	2
Diameter	12 in. (305 mm)
Actuated	Hand lever

TRANSMISSION:

Type	Automotive spur gear with four speeds. Transmission is equipped with neutral start switch.
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FINAL DRIVE:

Type	Pinion and ring gear
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Ground Speeds In mph (kmh)*
(2100 engine rpm)

Gear	2 Wheel Drive With 18.4-26 Tires
1st	0-1.64 (2.6)
2nd	0-3.77 (6.1)
3rd	0-6.86 (11.0)
4th	0-16.80 (27.0)
Gear	Power Rear Wheel Drive With 18.4-26 Tires
1st	0-1.40 (2.3)
2nd	0-2.80 (4.5)
3rd	0-4.35 (7.0)
4th	0-6.95 (11.2)

*Reverse Ranges: (Ground travel speeds are approximately one-half the forward range.)

Hydrostatic System (Ground Drive):

Pump:
 Type Variable displacement
 Sunstrand 23 Series
 Speed 2100 rpm
 Displacement 0-5.43 cu. in. (89 cm³)
 per revolution

Charge Pump:
 Type Gear
 Speed 2100 rpm
 Displacement 1.1 cu. in. (18.0 cm³)
 per revolution
 Flow rate 10 gpm (37.9 lpm) at 2100 rpm

Motor:
 Type Fixed displacement
 Sunstrand 23 Series
 Speed 0-2100 rpm
 Displacement 5.43 cu. in. (88.98 cm³)
 per revolution
 Relief pressure 5000 psi (345 bar)
 (350 kg/cm²)
 Flow rate 49 gpm (185 lpm) at 2100 rpm

Hydraulic System (Machine Functions):

Type: Open-center, constant-flow system. Includes power steering, header lift, spout rotation, cutterhead reverse grinder drive, and breakaway coupler (Optional)

Pump Gear-type
 Relief pressure 2250 psi (155-bar)
 (158 kg/cm²)

Flow rate: Steering
 (Priority) 2.75 gpm (10.4 lpm)
 Total 11.25 gpm (42.6 lpm)
 Speed 2100 rpm

Steering:

Type Full power hydraulic

Tire Options:

Front Wheels: (10-ply rated) 18.4-26; 10 PR
 Rear Wheels: (6-ply rated,
 3-rib implement) 11.00-16; 6 PR
 Power rear wheel drive 11.2-24 (4-PR,
 cleat type)

Brakes:

Type: 12-inch (304.8 mm) hydraulically actuated shoe-type. Individual brakes controlled by separate pedals.

Cutterhead:

Type Helical
 Diameter 24 in. (609.6 mm)
 Width 22 in. (558.8 mm)
 Knives Nine, J-style, tungsten carbide edge
 Speed 850 rpm
 Drive Three matched C-section belts

Cutterhead Reverse Grinder:

Drive Hydraulic motor
 Speed 425 rpm

Blower:

Type Lagged Radial Paddle
 Diameter 32 in. (813 mm)
 Number of paddles 4
 Speed 1020 rpm

Augers:

Number 2
 Drive Chain from cutterhead
 Diameter 10 in. (254 mm)
 Speed 558 rpm
 Discharge Side flow to blower fan

Power Rear Wheel Drive (Optional):

Type Hydrostatic motor driven with planetary gear reduction in wheel hub, uses pressure oil from hydrostatic system
 Controls Solenoid operated control valves, by electric switch on console
 Planetary disconnect Hydraulic wet brake on ring gear releases when drive is disengaged

CAPACITIES:

Fuel tank	72 U.S. gals. (272.5 l)
Cooling system:	
5440	11 U.S. gals. (41.6 l)
5460	15 U.S. gals. (56.8 l)
Engine crankcase (including oil filter)	
5440	17 U.S. qts. (16.1 l)
5460	24 U.S. qts. (22.7 l)
Transmission	11 U.S. qts. (10.4 l)
Feed roll drive case	3 U.S. qts. (2.8 l)
Final drives (two)	8 U.S. qts. ea. (7.6 l)
Main gear case	10 U.S. qts. (9.5 l)
Hydraulic system (including oil lines and cylinders)	3 U.S. gals. (11.3 l)
with hydraulic outlet	5 U.S. gals. (19 l)
Hydraulic brake master cylinder	1 U.S. Pt. (0.5 l) (approx.)
Hydrostatic drive system (including lines and components) (add 4 gals. [15.1 l] to capacity if equipped with Power Rear Wheel Drive)	7 U.S. gals. (26.5 l)

TIRE INFLATION PRESSURES:

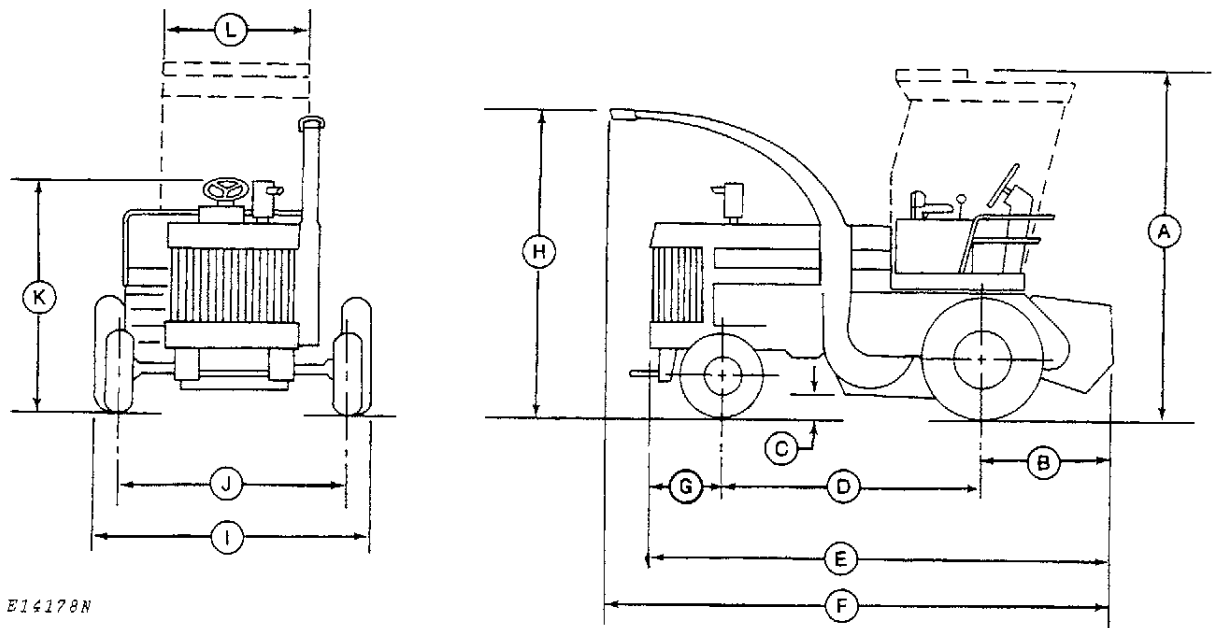
Front Wheels	26 psi (1.8 bar) (1.8 kg/cm ²)
	Torque to 300 ft-lbs (407 Nm)
Rear Wheels	20 psi (1.4 bar) (1.4 kg/cm ²)
	Torque to 120 ft-lbs (163 Nm)
Pickup Gauge Wheels	30 psi (2.1 bar) (2.1 kg/cm ²)

WEIGHT:

5440 with cab and standard axle	11900 lbs (5398 kg)
5460 with cab and standard axle	12400 lbs (5625 kg)

OPERATOR'S CAB

Cab Glass	49 square feet (4.55 m ²)
Pressure Fans (Blower)	
Capacity	435 cubic feet (10.42 m ³) per minute
Filter	Removable, re-useable, dry-type, paper element; 37 x 6-1/8 x 2-3/16 in. (940 x 156 x 56 mm)
Heater	
Capacity	18,000 BTU 3000 cubic feet (8.50 m ³) per minute
Air conditioner	
Capacity	20,000 BTU 300 cubic feet (8.50 m ³) per minute
Refrigerant	Refrigerant 12
Filters	Removable, re-useable, urethane foam; one each in normal and maximum air recirculators.
Fuses:	
Electric Clutch	7.5 Amp.
Dome Light	7.5 Amp.
Windshield Wiper	7.5 Amp.
Pressurizer Fans (Blower)	30 Amp.
Lamps:	
Head	15 Amp.
Tail	15 Amp.
Warning	15 Amp.
Spout	15 Amp.



E14178N

A—132.50 in. (3 366 mm)
 B—55.70 in. (1 415 mm)
 C—17.50 in. (445 mm)
 D—103.50 in. (2 629 mm) 5460
 90.50 in. (2 200 mm) 5440

E—187.30 in. (4 757 mm) 5460
 177.40 in. (4 674 mm) 5440
 F—224.75 in. (5 709 mm)
 G—28.10 in. (714 mm) 5460
 30.90 in. (763 mm) 5440
 H—127.00 in. (3 226 mm)

I—103.54 in. (2 630 mm)
 105.34 in. (2 676 mm) with Bulge
 J—110.00 in. (2 794 mm) MAX
 82.00 in. (2 083 mm) MIN
 K—106.20 in. (2 697 mm)
 L—48.50 in. (1 232 mm)

Fig. 1—Dimensions of 5440 and 5460 Self-Propelled Harvesters

Group 10

PREDELIVERY, DELIVERY AND AFTER-SALE SERVICES

TEMPORARY UNIT STORAGE

After receiving your unit from the factory and before putting the machine into temporary storage, perform the following checks.

For long term storage (over 30 days) information, consult your operator's manual.

1. Check battery electrolyte level and charge the battery, if necessary.
2. Check the level of coolant in the radiator. The coolant should be maintained at a level 2 inches (51 mm) above the baffle.
3. Fill the fuel tank.
4. Check crankcase oil level. Oil should be above bottom mark of dipstick after machine has been shut down for 10 minutes.
5. Relieve hydraulic pressure by stopping engine and operating control levers until system fails to respond.
6. Reduce shipping pressure of front tires to 26 psi (1.8 bar) (1.8 kg/cm²) and rear tires to 20 psi (1.4 bar) (1.4 kg/cm²).
7. Cover unit for protection and cleanliness.

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 and the customer.

NOTE: A protective cover is placed over the muffler outlet to prevent turbocharger rotation during transit. Remove protective cover before unloading harvester. Reinstall protective cover before transporting the harvester to the customer if machine is to be moved at highway speeds.

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

Use the following list when preparing a unit for delivery to the customer.

1. Pre-Cleaner

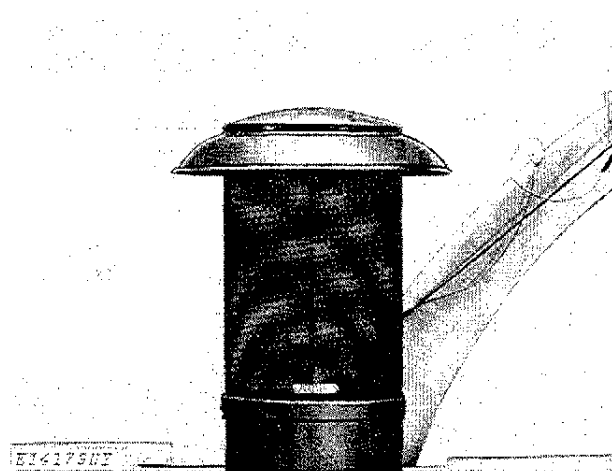


Fig. 1-Pre-cleaner

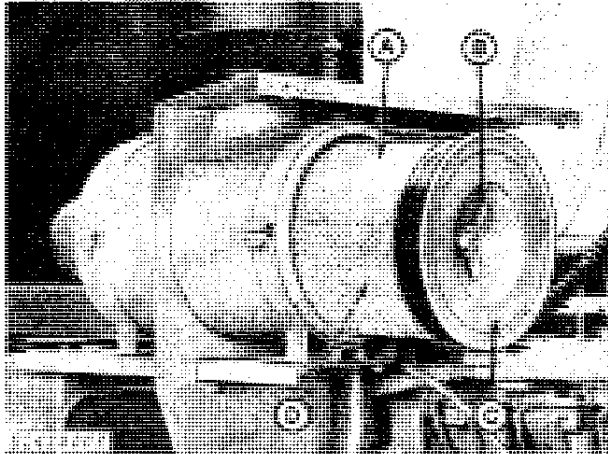
Check and clean pre-cleaner bowl.

Pre-cleaner checked and cleaned.

Yes _____

2. Air Cleaner

Check air cleaner restriction indicator lamp on instrument panel. If indicator shows red, check and clean both primary and safety filter elements. Replace elements, if necessary.

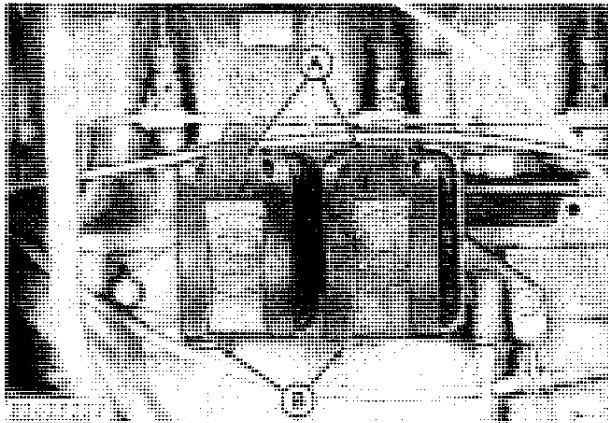


A—Outer Element
B—Wing Nut
C—Outer Element Cover
D—Inner Element

Fig. 2—Air Cleaner

Air Cleaner checked Yes _____
Filters Replaced Yes _____

3. Fuel Filters



A—Fuel Filters
B—Drain Plugs

Fig. 3—Fuel Filters

Check fuel filters and drain any sediment that is present. (See Section 30)

Fuel filters checked Yes _____
Sediment present in filters Yes _____

4. Batteries

Check battery electrolyte level. If distilled water is not available, use clean soft water. Avoid use of hard water. Remove foreign material from top of battery and coat terminals with petroleum jelly. Clean vent holes in battery caps.

IMPORTANT: Never add water to battery in freezing weather unless engine is to be run long enough (2 or 3 hours) to assure mixing of water and electrolyte.

Check battery connection.
Punch date code on battery.

Battery Connections checked Yes _____
Water added Yes _____

5. Fuel Tank

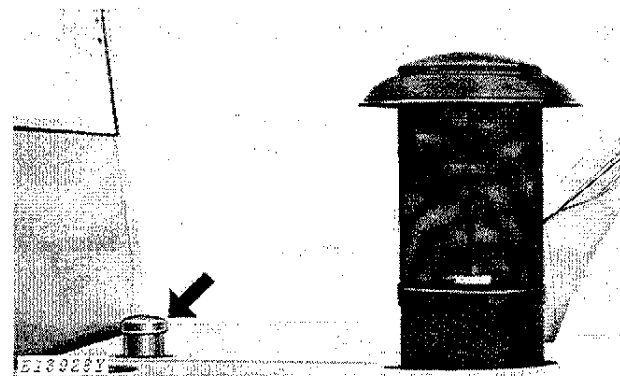
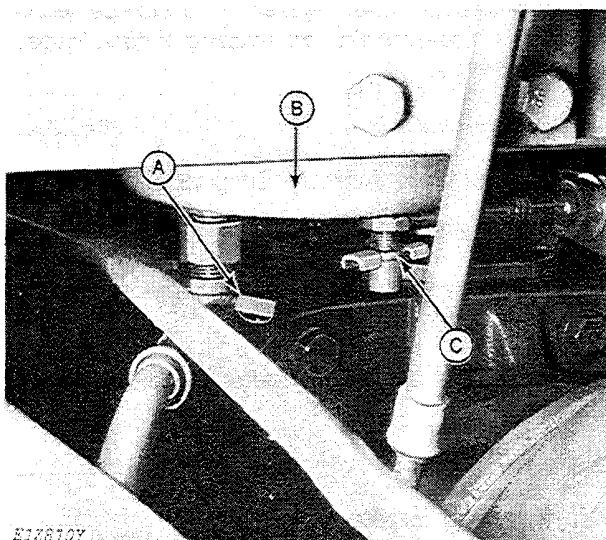


Fig. 4—Fuel Tank Filler Cap

Check the fuel gauge. If fuel gauge indicates a low supply of fuel, fill the tank (arrowed). Fuel tank capacity is 72 U.S. gals (273 l).

Fuel tank level Full 1/2 Full Empty

6. Fuel Tank Sump



A—Fuel Shut Off Valve C—Sump Drain Cock
B—Fuel Tank

Fig. 5-Fuel Tank Sump

IMPORTANT: Sediment will settle over extended periods of transport or storage.

Open the sump drain cock. Allow fuel to drain out for approximately three seconds to allow moisture and sediment to drain out.

NOTE: Fuel tank sump drain is located on the bottom of the fuel tank.

Fuel sump drained Yes _____

7. Radiator

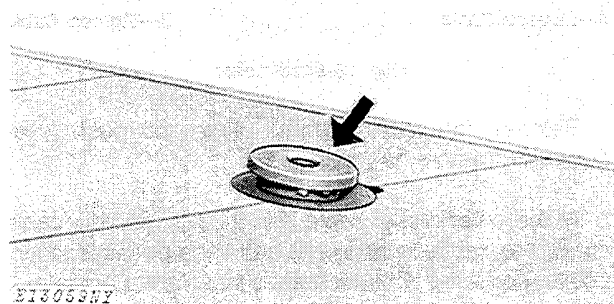


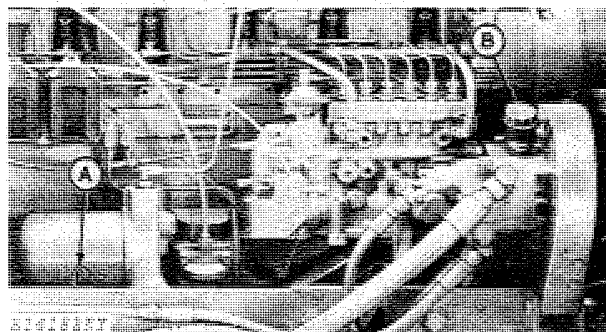
Fig. 6-Radiator Filler Cap

CAUTION: Remove the radiator filler cap only when the coolant temperature is below the boiling point. Then loosen the cap slightly to the stop to relieve pressure before removing the cap completely.

Check the level of coolant in the radiator. Coolant should be maintained at a level 2 inches (51 mm) above the baffle. Add permanent type antifreeze if cold weather is anticipated.

Radiator coolant level checked Yes _____
Coolant or antifreeze added Yes _____

8. Crankcase Oil Level



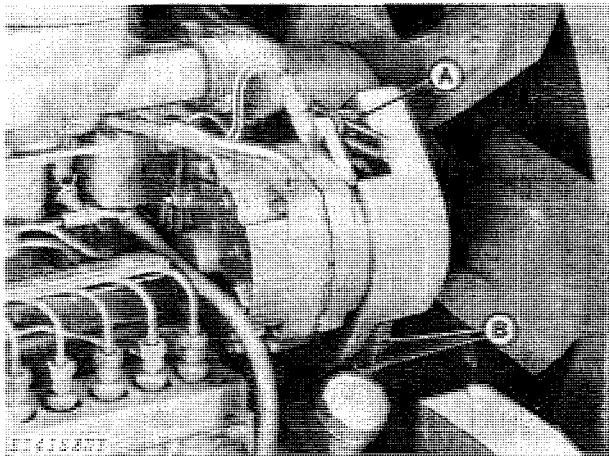
A—Dipstick B—Oil Filler Cap

Fig. 7-Crankcase Oil Level

Check crankcase oil level with machine on level ground and engine off. If oil level is at or below bottom mark on dipstick, add sufficient oil of the proper viscosity and type specified on page 10-20-2 to bring oil level to between marks on dipstick. Do not operate engine with oil level below the bottom mark.

Crankcase oil level checked Yes _____
Oil added, if any qts (l)

9. Alternator-Fan Belt Tension



A—Cap Screw

B—Belts

Fig. 8-Alternator-Fan Belt Tension

Check the tension on the alternator and fan belts.

The belts should have 1-inch (25 mm) flex when 25 pounds (111 N) of force is applied to the belt midway between the two pulleys.

IMPORTANT: Do not pry on rear alternator housing as this may damage the alternator.

Alternator belt tension checked Yes _____
 Fan belt tension checked Yes _____

10. Check Air Intake Hoses

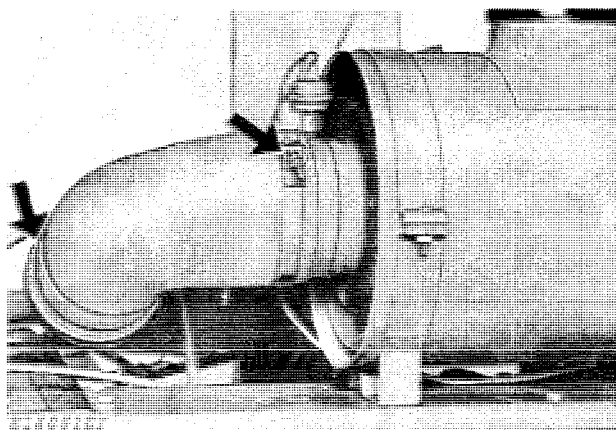


Fig. 9-Air Intake Hose

Check clamps on hose which connect air cleaner and turbocharger tube. Tighten hose clamps where necessary to prevent dirt from entering engine. Inspect hose for cracks.

Connections checked Yes _____

11. Check and Adjust Engine Speeds

Check engine speeds and adjust if necessary.

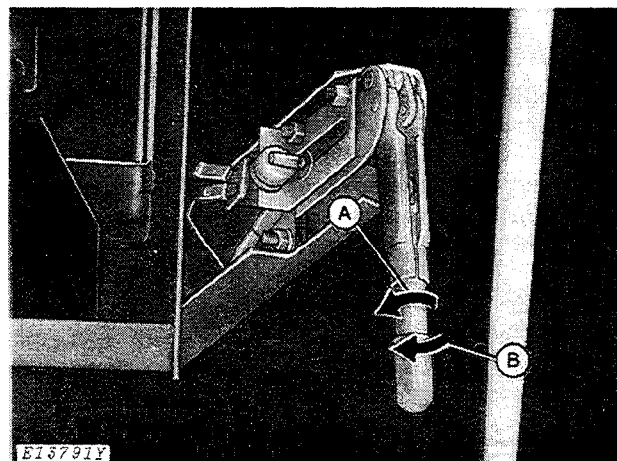
NOTE: Engine should be at operating temperature for the following adjustments.

See Section 30 for complete speed adjustment coverage.

Engine speeds checked Yes _____

12. Parking Brake

Adjusting Parking Brake



A—Loosen Cable

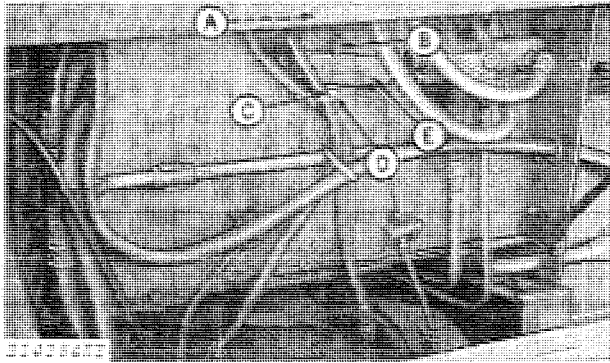
B—Tighten Cable

Fig. 10-Brake Lever

Release the parking brake lever and push lever downward as far as possible.

At the lower end of cable (B, Fig. 11.), pull the cable out of the cable housing (A) as far as possible; then, pull on equalizer (E) until brakes just start to actuate. A 1/8-inch (3 mm) space (C) should exist between the cable nut (D) and the equalizer (E).

If correct space does not exist, thread cable nut (D) on or off cable (B) until the space is correct.



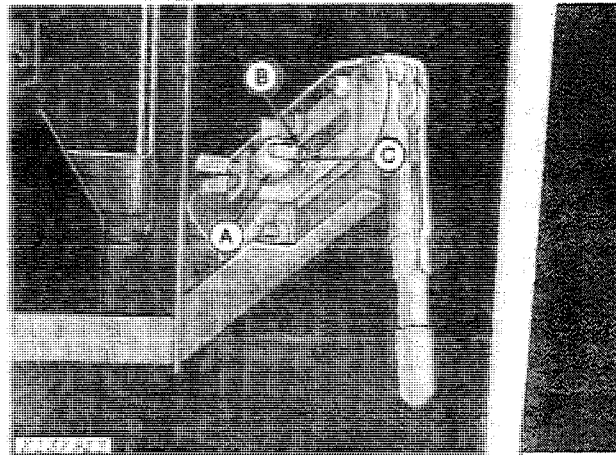
A—Cable Housing
 B—Cable
 C—1/8-In. (3 mm)
 D—Cable Nut
 E—Equalizer

Fig. 11-Parking Brake Adjustment

Tighten or loosen cable by twisting lever handle in the proper direction (as shown, in Fig. 10) until lever actuation will cause sufficient braking for parking. At the proper adjustment, approximately 30 pounds (133 N) pull will be required to lock the brakes.

IMPORTANT: Damage to the brake linkage will result if the lever handle is tightened to the extent that excessive pull is required to lock the brakes.

Adjusting the Parking Brake Horn Switch



A—Nuts
 B—Switch Button
 C—Pin

Fig. 12-Adjusting Parking Brake Horn Switch

Whenever the parking brake is disengaged, make certain the warning horn is off. If horn is not off, adjust the following:

Adjust nuts (A) until the switch button (B) contacts the parking brake lever pin (C) when the lever is disengaged.

Parking brake checked Yes _____
 Horn switch checked Yes _____

13. Check Light Operation

Check operation of the following lights.

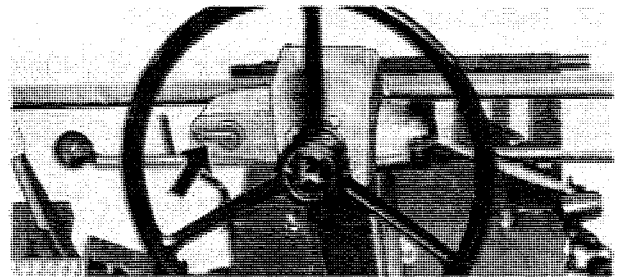
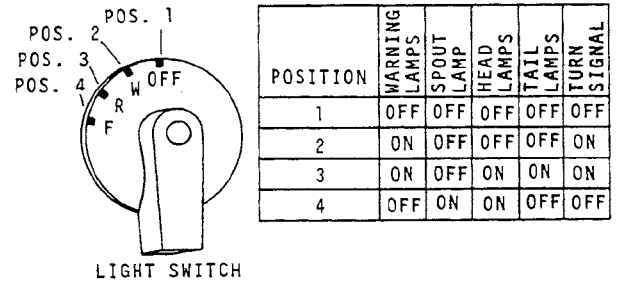


Fig. 13-Turn Signal Switch



E12680

Fig. 14-Light Switch

All Lights checked Yes _____

14. Check Transmission Shifting

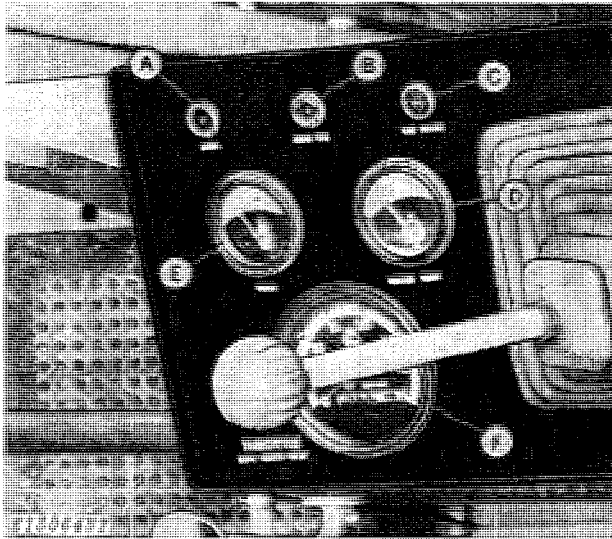
The harvester has four speed ranges. The gearshift lever is used to shift transmission into desired range.

CAUTION: Make certain the gearshift lever and speed range control lever are in neutral position before starting engine.

IMPORTANT: Move the speed range control lever to neutral before attempting to shift gears. Do not attempt to shift gears "on-the-go."

Transmission operational Yes _____

15. Indicator Lamps and Gauges



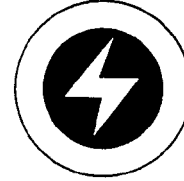
- A—Alternator Lamp
- B—Oil Indicator Lamp
- C—Air Restriction Lamp
- D—Water Temperature Gauge
- E—Fuel Gauge
- F—Tachometer

Fig. 15-Indicator Lamps and Gauges

Air Restriction Indicator

The red lamp in the restriction indicator will glow whenever the air cleaner element is dirty and needs servicing.

Alternator Indicator



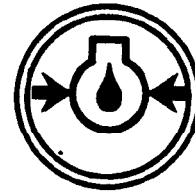
E13472

Fig. 16-Alternator Indicator Lamp

This alternator lamp glows when the alternator is not charging. If the lamp goes on while the engine is running, stop engine and determine cause. Operation of this light is checked by turning the key to the "IGNITION" position with the engine stopped.

IMPORTANT: If indicator lamp glows when both switch and engine are "OFF", disconnect battery cables (negative cable first) then see section 40.

Oil Indicator



E 7713

Fig. 17-Oil Indicator Lamp

If the oil indicator lamp glows when engine is running, stop engine immediately and determine cause. The lamp will glow even though engine isn't running if the switch is turned to "IGNITION."

IMPORTANT: If indicator lamp glows when both switch and engine are "OFF", disconnect battery cables (negative cable first) then see section 40.