

5440 and 5460 Self-Propelled Harvesters



TECHNICAL MANUAL 5440 and 5460 Self-Propelled Harvesters

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5440 AND 5460 SELF-PROPELLED HARVESTERS

Technical Manual TM-1177 (Apr-77)

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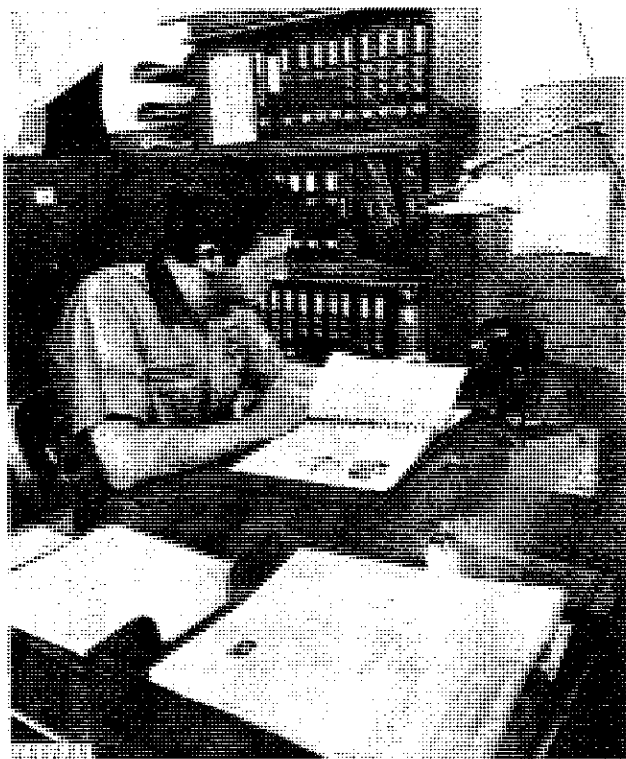
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INTRODUCTION



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.

SAFETY AND YOU

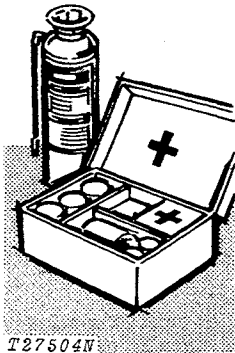
AVOID FIRE HAZARDS



T27999N

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.

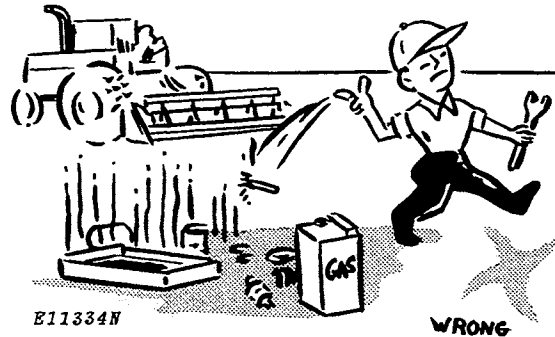
SERVICE AREA

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.

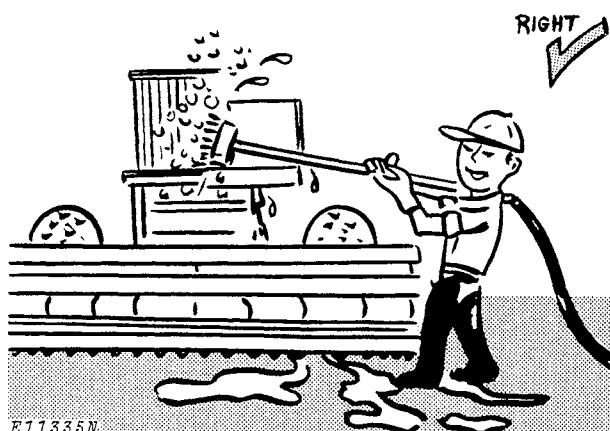
Never check fuel, battery electrolyte or coolant levels with an open flame.

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 micronic 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, reuseable, 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, reuseable, 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.

Click on the image link below for the full version of the service manual

