5200 and 5400 Self-Propelled Forage Harvester

JOHN DEERE

TECHNICAL MANUAL

5200 and 5400 Self-Propelled
Forage Harvester

TM1066 (01MAY76) English

John Deere Ottumwa Works
TM1066 (01MAY76)

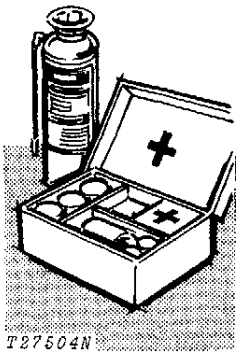
LITHO IN U.S.A.
ENGLISH

SAFETY AND YOU

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.



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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.

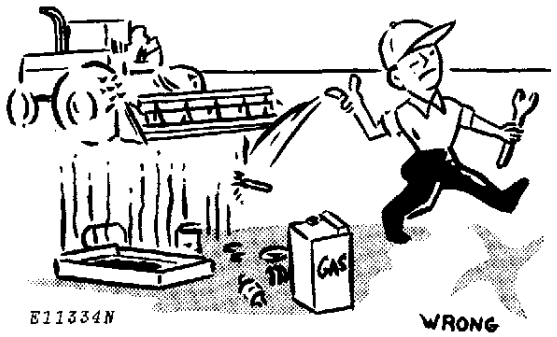
Make sure the service area is adequately vented.

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.

AVOID FIRE HAZARDS



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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.

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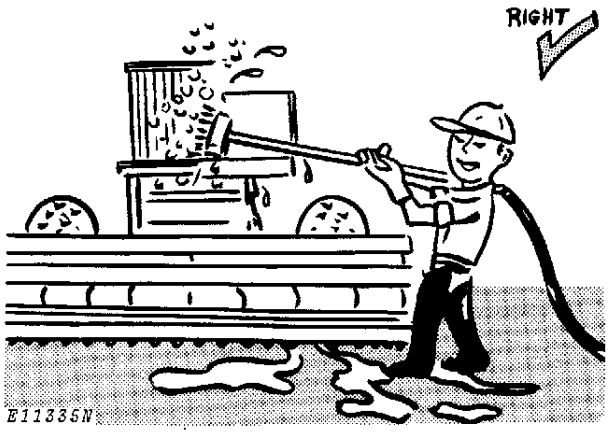
CLEANING THE HARVESTER



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 MEN—one, the operator, at the controls, the other checking where the operator can see him. 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.

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Section 10
GENERAL

CONTENTS OF THIS SECTION

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Group 5
SPECIFICATIONS

ENGINE
- Horsepower:
  - 5200 (-124495) ..... 160 (119 kW)*
    135 (101 kW)**
  - 5200 (124496-) ..... 175 (130 kW)*
    150 (112 kW)**
  - 5400 ..... 212 (158 kW)*
    185 (138 kW)**
- Type ..... 6-cylinder, in-line valve-in-head, diesel, turbo-charged and inter-cooled
- Bore and stroke
  - 5200 ..... 4-1/4 in. x 4-3/4 in. 10.8 cm x 12.1 cm
  - 5400 ..... 4-3/4 in. x 5 in. 12.1 cm x 12.7 cm
- Displacement
  - 5200 ..... 404 cu. in. (6620 cm^3)
  - 5400 ..... 531 cu. in. (8701 cm^3)
- Compression ratio
  - 5200 (-124495) ..... 16.8 to 1
  - 5200 (124496-285,000) ..... 15.5 to 1
  - 5200 (285,001-) ..... 14.7 to 1
  - 5400 ..... 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 - 5200 ..... TDC
  5400 ..... 24°BTDC
- 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:
  - 5200 (-124495) ..... Inlet metering, distributing type
  - 5200 (124496-) and 5400 ..... 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:
  - 5200 ..... 12-volt, 55-amp, with integral transistorized regulator.
  - 5400 ..... 12-volt, 55-amp capacity
  - 5200 and 5400 (with air conditioned cab) 72-amp

MAIN CLUTCH (Blower Fan and Cutterhead Drive):
- Type ..... Over-center, dry, metallic button, adjustable
- Number of disks 2
- Diameter ..... 12 in. (30.5 cm)
- Actuated ..... Hand lever

TRANSMISSION:
- Type ..... Automotive spur gear with four speeds. Transmission is equipped with neutral safety switch.

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 and 16.9-26 Tires	
1st	0-1.64 (2.6)	0-1.64 (2.6)
2nd	0-3.77 (6.1)	0-3.55 (5.7)
3rd	0-6.86 (11.0)	0-6.46 (10.4)
4th	0-16.80 (27.0)	0-14.90 (24.0)

Gear	Power Rear Wheel Drive With 18.4-26 and 16.9-26 Tires	
1st	0-1.40 (2.3)	0-1.40 (2.3)
2nd	0-2.80 (4.5)	0.2.65 (4.3)
3rd	0-4.35 (7.0)	0-4.10 (6.6)
4th	0-6.95 (11.2)	0-6.15 (9.9)

**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 cm^3) per revolution
- Charge Pump:
  - Type ..... Gear
  - Speed ..... 2100 rpm
  - Displacement ..... 1.1 cu. in. (18.0 cm^3) 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 cm^3) per revolution
- Relief pressure ..... 5000 psi (34500 kPa)
- 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 ..... 2000 psi (13800 kPa)
- Flow rate: Steering
  - (Priority) ..... 2.75 gpm (10.4 lpm)
  - Total ..... 10.2 gpm (38.6 lpm)
- Speed ..... 2100 rpm

STEERING:
- Type ..... Full power hydraulic

TIRE OPTIONS:
- Front Wheels: (8-ply rated)
  - 5200 ..... (-285,000) 16.9-26; 8 pr. 18.4-26; 10 pr.
  - 5400 ..... 18.4-26; 10 pr.
- Rear Wheels: (6-ply rated, 3-rib implement)
  - 5200 ..... (-285,000) 7.50-18; 6 pr. 11.00-16; 6 pr.
  - 5400 ..... 11.00-16; 6 pr.
- Power rear wheel drive ..... 11.2-24 (4-ply rated, cleat type)

BRAKES:
- Type: 12-inch (30.48 cm) hydraulically actuated shoe-type. Individual brakes controlled by separate pedals.

CUTTERHEAD:
- Type ..... Helical
- Diameter ..... 24 in. (60.96 cm)
- Width ..... 22 in. (55.88 cm)
- 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. (81.3 cm)
- Number of paddles 4
- Speed ..... 1020 rpm

AUGERS:
- Number 2
- Drive ..... Chain from cutterhead
- Diameter ..... 10 in. (25.4 cm)
- 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:
5200 ..... 11 U.S. gals. (41.6 l)
5400 ..... 15 U.S. gals. (56.8 l)
Engine crankcase (including oil filter)
5200 ..... 17 U.S. qts. (16.1 l)
5400 ..... 26 U.S. qts. (24.6 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 .....2 U.S. gals. (7.6 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 4-1/2 gals. [15.1 l] to capacity if equipped with Power Rear Wheel Drive) .....7 U.S. gals. (26.5 l)

OPERATOR'S CAB

Cab Glass..... 46 square feet (4.27 m^2)
Pressure Fans (Blower)
Capacity . 435 cubic feet (10.42 m^2) 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 300 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.
Radio..... 2 Amp.
Dome Light ..... 7.5 Amp.
Windshield Wiper ..... 7.5 Amp.
Condenser Fans ..... 30 Amp.
Pressurizer Fans (Blower) ..... 30 Amp.

Lamps:
Head ..... 15 Amp.
Tail..... 15 Amp.
Warning..... 15 Amp.
Spout..... 15 Amp.

TIRE INFLATION PRESSURES:

Front Wheels ..... 26 psi (179 kPa)
Torque to 300 ft-lbs (407 Nm)

Rear Wheels..... 20 psi (138 kPa)
Torque to 90 ft-lbs (122 Nm)

Pickup Gauge Wheels ..... 30 psi (207 kPa)

WEIGHT:
5200 with cab and power rear axle ....12375 lbs (5569 kg)

5400 with cab and power rear axle ....12982 lbs (5842 kg)

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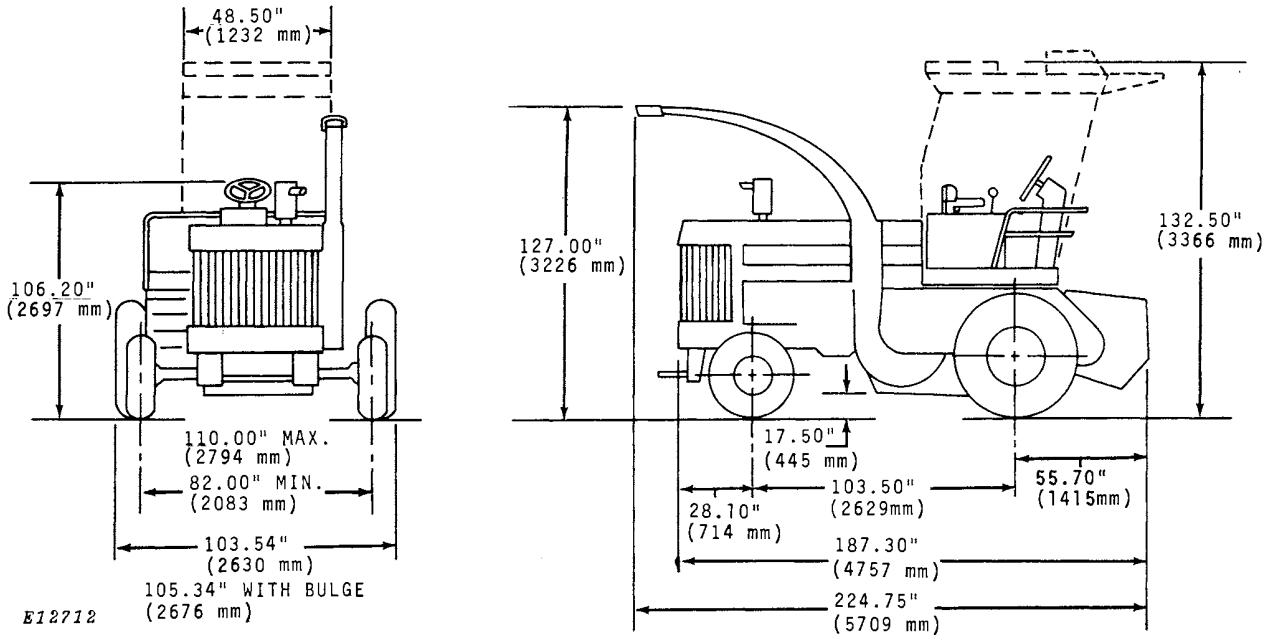

Fig. 1-Dimensions of 5200 and 5400 Self-Propelled Harvesters With 18.4 x 26 Front Tires and 11.2 x 24 Rear Tires

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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 all tires to inflation pressure. Shown on page 10-15-3.

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

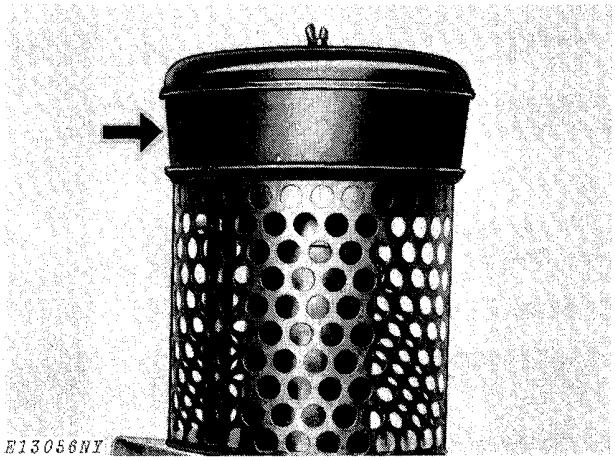


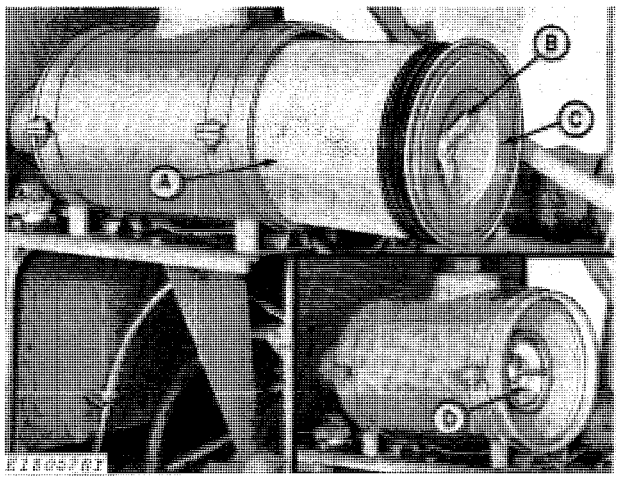
Fig. 1-Pre-cleaner

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.

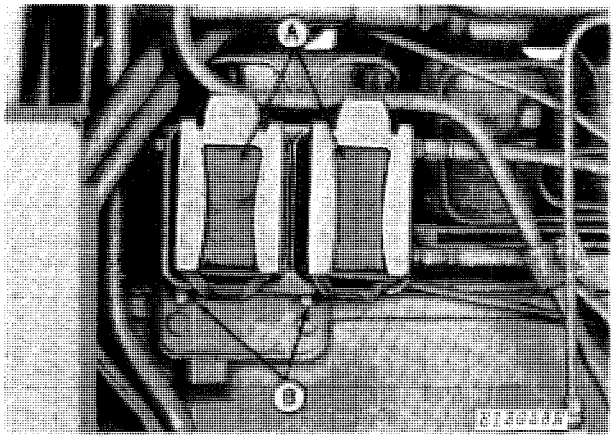


A—Primary Filter Element
B—Wing Nut
C—Air Cleaner Cover
D—Safety Filter Element

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)

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

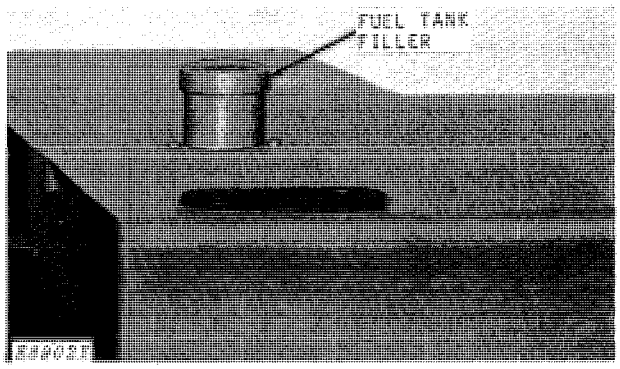


Fig. 4-Fuel Tank Filler Cap

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

Fuel tank level *Full 1/2 Full Empty*

6. Fuel Tank Sump

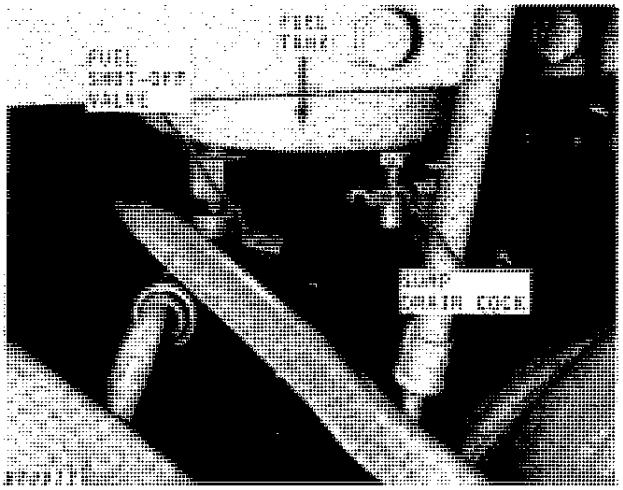


Fig. 5-Fuel Tank Sump

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

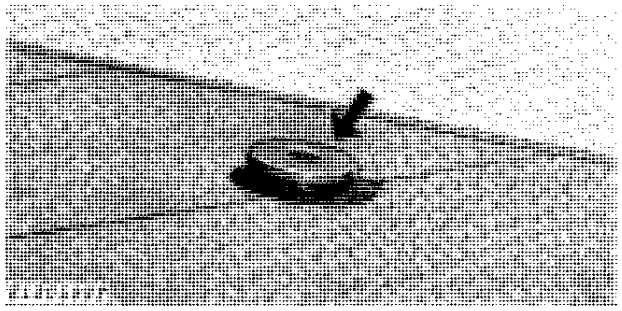


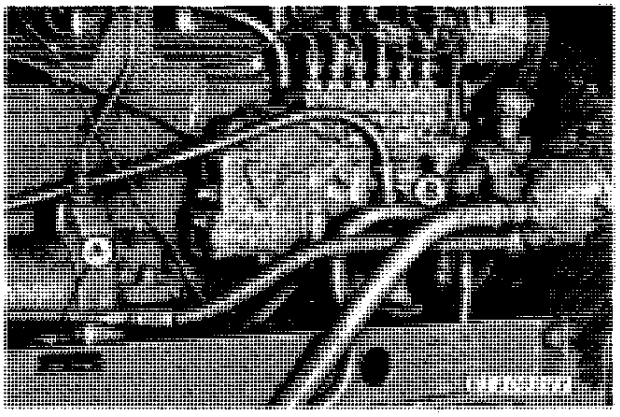
Fig. 6-Radiator Filler Cap

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



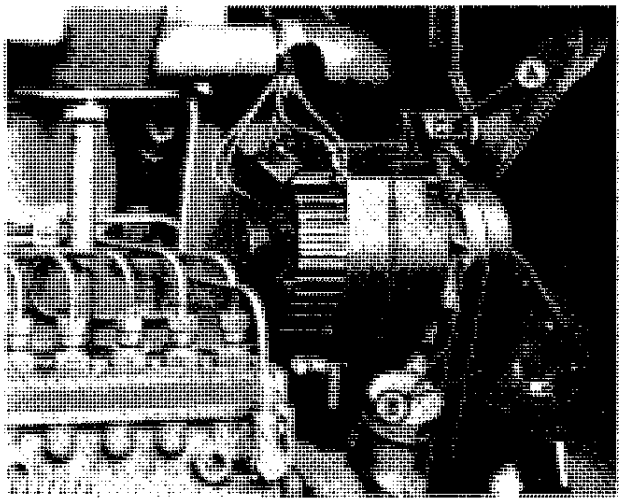
A—Dipstick **B—Oil Filler Cap**

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 10-30-2 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

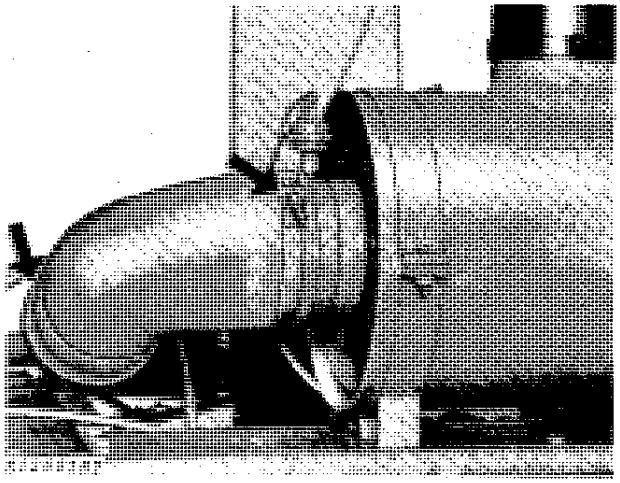


Fig. 9-Air Intake Hose

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.

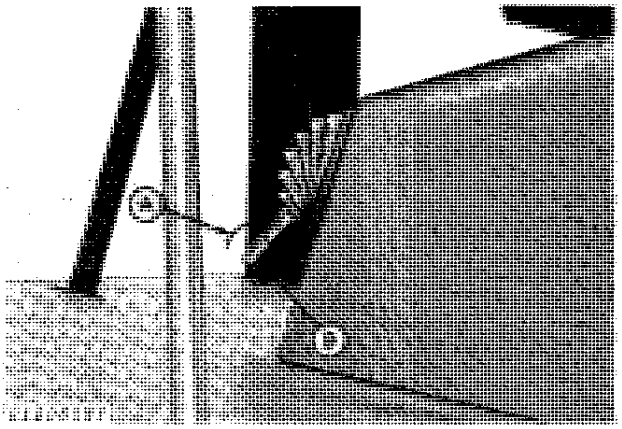
NOTE: Engine should be at operating temperature for the following adjustments.

See Section 30 for complete speed adjustment coverage.

Engine speeds checked Yes_____

12. Parking Brake

Adjusting Parking Brake



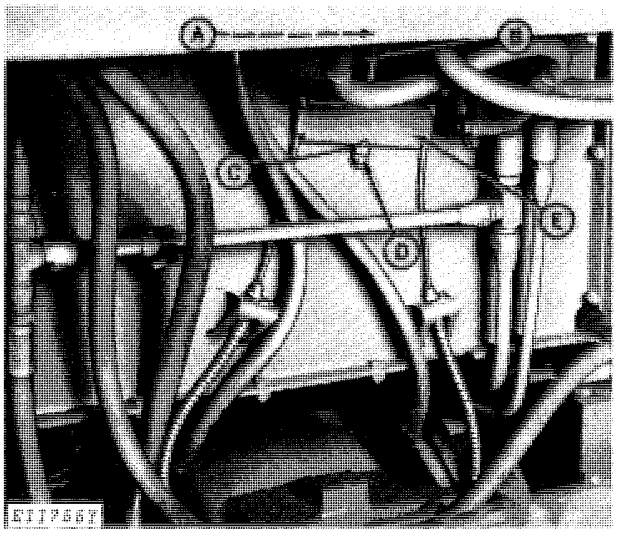
A—Loosen Cable B—Tighten Cable

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.



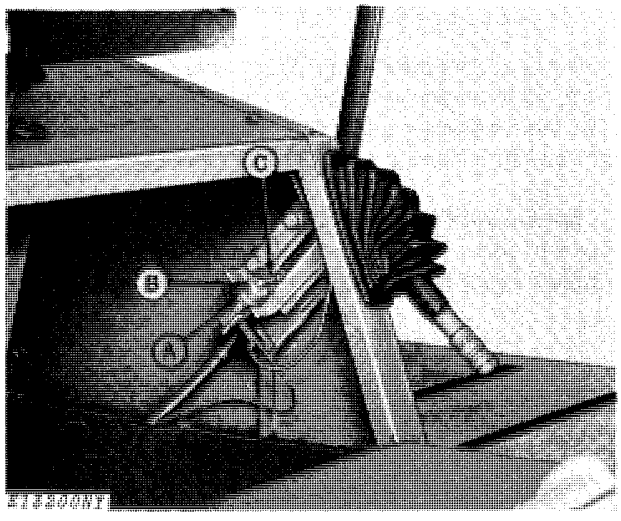
A—Cable Housing **D—Cable Nut**
B—Cable **E—Equalizer**
C—1/8-In. (3 mm)

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.

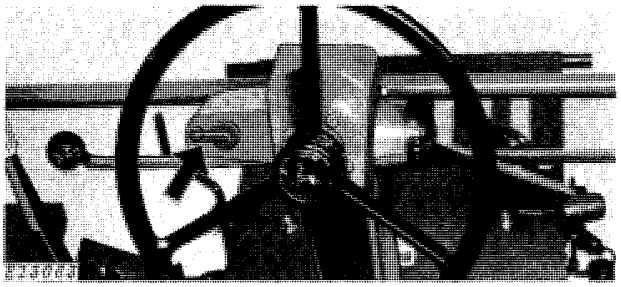
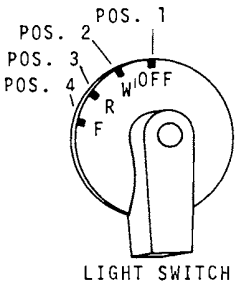


Fig. 13-Turn Signal Switch (285,001-)



POSITION	WARNING LAMPS	SPOUT LAMP	HEAD LAMPS	TAIL LAMPS	TURN SIGNAL
1	OFF	OFF	OFF	OFF	OFF
2	ON	OFF	OFF	OFF	ON
3	ON	OFF	ON	ON	ON
4	OFF	ON	ON	OFF	OFF

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Fig. 14-Light Switch

All Lights checked *Yes*_____

14. Check Transmission Shifting

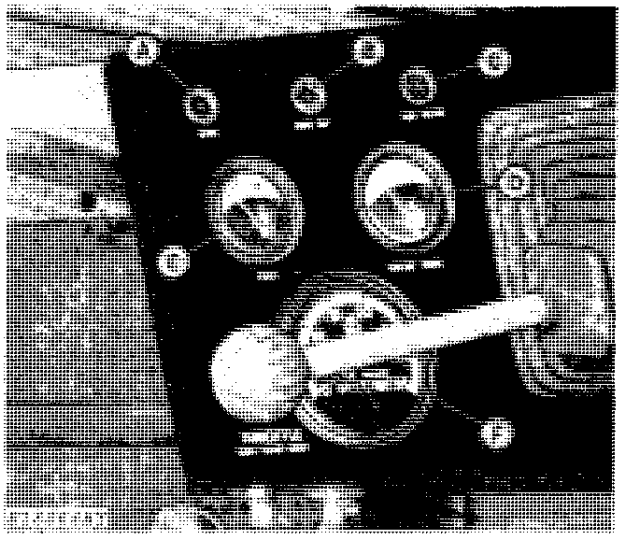
The harvester has four speed ranges. The gearshift lever is used to shift transmission into desired range.

⚠ 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

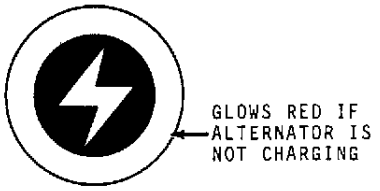


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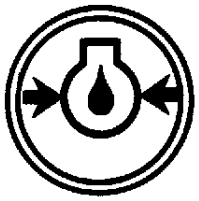
Fig. 16-Alternator Indicator Lamp

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.

Water Temperature Gauge

This gauge indicates coolant temperature. Normal operating temperature is 180°F (82°C) to 200°F (93°C) (indicated by white band on dial). If temperature is 220°F (104°C) or above (indicated by red band on dial), stop engine and determine cause. At approximately 225°F (107°C) the automatic high-temperature warning device will activate the horn. Stop operation at once and determine cause of overheating.

IMPORTANT: If horn activates while harvester is operating and temperature gauge needle is in red band on dial, stop harvester and let engine run at idle speed. Check for cause of overheating. Failure to do so will result in serious engine damage.

Fuel Gauge

The fuel gauge indicates the quantity of fuel in the fuel tank. Fuel tank capacity is 72 gallons (273 l).

Gauges and Indicators Operational *Yes*_____

16. Checking Tire Pressure and Wheel Torques

Check the air pressure in all the tires with an accurate gauge having 1-pound (0.45 kg) graduations.

IMPORTANT: All tires must be inflated to the same pressure.

Adjust pressure in tires to the following specifications:

Front Wheels ..... 26 psi (179 kPa)
Torque to 300 ft-lbs (407 Nm)

Rear Wheels..... 20 psi (138 kPa)
Torque to 90 ft-lbs (122 Nm)

Pickup Gauge Wheels ..... 30 psi (207 kPa)

17. Hydraulic Brakes

Check brake operation.

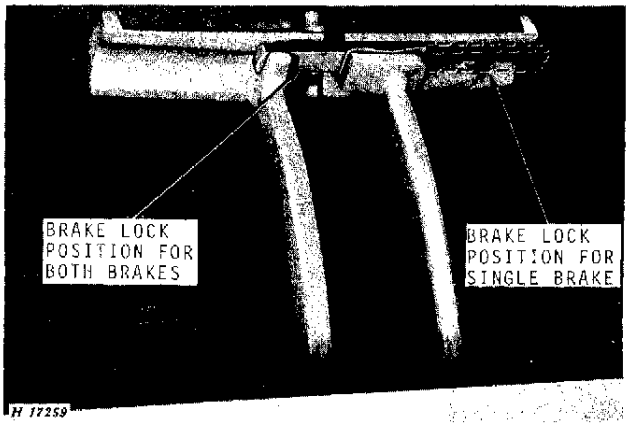


Fig. 18-Brake Pedals

Brakes operational *Yes*_____

CHECK ALL GREASE FITTINGS AND FLUID LEVELS

Check all grease fittings for proper lubrication. Grease if necessary. See the operators manual.

CAUTION: To avoid possible injury, and to insure best results, always stop engine operation and lower all units to the ground before lubricating.

Grease fittings lubricated and fluids checked *Yes*_____

18. Steering

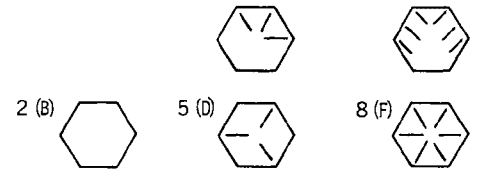
Start the engine and operate the steering wheel. Steering should be free and easy with engine running.

Steering operational *Yes*_____

19. Accessible Hardware Torque Values

Check all accessible bolts and nuts for proper tightness. If hardware seems loose, tighten it to the proper torque. The table below gives correct torque values for various bolts and cap screws. Most hardware used is high-strength (note dashes on hex. heads).

RECOMMENDED TORQUE IN FT-LBS (Nm)
COARSE AND FINE THREADS



Bolt Diameter	Plain Head	Three Dashes	Six Dashes
1/4	Not used	10 (14)	14 (19)
5/16	Not used	20 (27)	30 (41)
3/8	Not used	35 (47)	50 (68)
7/16	35 (47)	55 (75)	80 (108)
1/2	55 (75)	85 (115)	120 (163)
9/16	75 (102)	130 (176)	175 (237)
5/8	105 (142)	170 (230)	240 (325)
3/4	185 (251)	300 (407)	425 (576)
7/8	160 (217)	445 (603)	685 (929)
1	250 (339)	670 (908)	1030 (1396)
1-1/8	330 (447)	910 (1234)	1460 (1979)
1-1/4	480 (651)	1250 (1695)	2060 (2793)

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Fig. 19-Torque Chart

The types of bolts and cap screws are identified by head markings as follows:

Plain Head: regular machine bolts and cap screws.

3-Dash Head: tempered steel high-strength bolts and cap screws.

6-Dash Head: tempered steel extra high-strength bolts and cap screws.

Machine bolts and cap screws 7/8-inch and larger are sometimes formed hot rather than cold, which accounts for the lower torque.

All accessible hardware torqued Yes_____

20. Check Main Clutch Operation

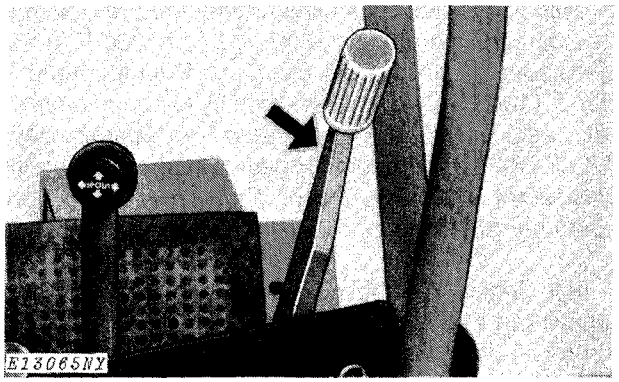


Fig. 20-Main Drive Clutch Lever

Place gearshift lever in desired gear range. Engage feedroll drive lever before engaging main drive clutch.

In normal operation the main clutch should be used to start and stop the harvesting unit and feedrolls. The machine should then be permitted to clean out prior to disengaging main clutch.

The feedroll drive clutch should be disengaged only if plugging or an emergency situation occurs. Disengage main drive clutch before re-engaging feedroll drive clutch. This prevents damage to the feedroll drive clutch components.

IMPORTANT: Do not use the feedroll drive clutch for convenience. For example, traveling across windrows with cutterhead still running but harvesting unit not. Either disengage main clutch or leave harvester operating.

IMPORTANT: The main clutch should normally be engaged when the engine is running below half speed. However, when material is in the machine, it is necessary to engage the clutch at full engine speed to prevent plugging.

Move the main clutch lever forward over-center, engaging the main clutch to operate the fan and cutterhead. This will also engage the feed rolls and harvesting unit, since the feed roll and harvesting unit drive lever is already engaged. Check to see that all components are running freely.

IMPORTANT: Always engage main clutch lever firmly. Do not hesitate while engaging clutch or damage to clutch may occur.

Main clutch operates properly Yes_____

21. Check Feed Roll Shift Lever

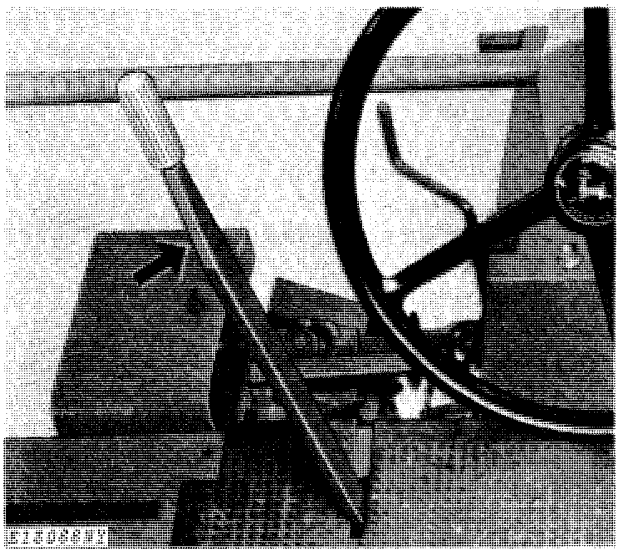
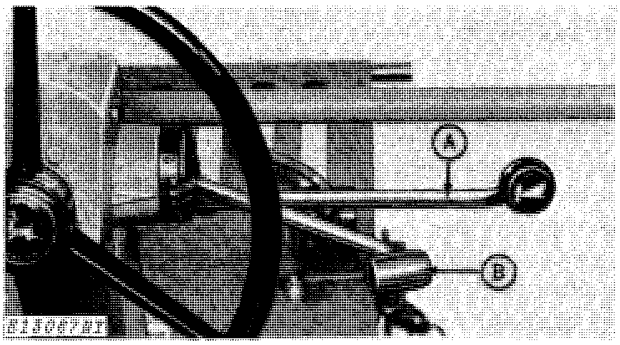


Fig. 21-Feed Roll Shift Lever

This lever allows forward drive and reversing of the feed rolls and harvesting unit. To engage the feed rolls and harvesting unit, move lever forward for normal feeding and rearward to reverse direction of the feed rolls and harvesting unit.

Feed roll shift lever operates properly *Yes*_____

22. Check Hydrostatic Drive Operation and Header Lift Lever



A—Header Lift Lever **B—Hydrostatic Drive Lever**

Fig. 22-Drive and Spout Levers

Hydrostatic Drive Lever

This lever, along with the transmission, controls the ground speed. To move forward, push lever forward. To move rearward, raise lever and move lever rearward.

Header Lift Lever

The header lift lever allows complete movement of the cutterhead and harvesting unit from the operator's seat. To raise the head pull lever rearward. To lower the head push the lever forward.

Levers operate properly *Yes*_____

23. General Checks

Make the following general checks of the harvester before delivery.

All moving parts are working freely.

Cutterhead knives are properly adjusted.

Feed roll drive chain idler is adjusted.

Grinder stone tightened against stone door. Strip coating has been removed from stone shaft.

Make sure all slip clutches will slip.

Discharge spout cap control cable properly installed.

After pickup, row-crop, corn head unit, stalker or mower bar has been installed, run harvester for one-half hour and make sure bearings are not heating.

Tighten accessible nuts and cap screws.

Clean harvester and touch up paint.

24. Final Check

The final predelivery procedure is the overall clean-up of the unit. Make the unit LOOK like a new machine with the proper touch-up of chipped paint and a good wash job. Deliver to the customer a machine he will be proud to own.