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Group 5 GENERAL TRACTOR SPECIFICATIONS

HORSEPOWER:*

Syncro-Range	135
Power Shift	135

ENGINE:

Type	6-cylinder, in-line, valve-in-head, diesel, turbocharged
Bore and stroke	4-1/4 in. x 4-3/4 in.
Displacement	404 cu. in.
Compression ratio	16.8 to 1
Firing order	1-5-3-6-2-4
Valve clearance	Intake-0.018 in. Exhaust-0.028 in.

Injection pump timing

Engine Speeds:

Working range	1500 to 2200 rpm
Maximum transport speed	2500 rpm
Engine speeds:	
Slow idle	800 rpm
1900 rpm load	2150 rpm idle
2200 rpm load	2400 rpm idle
2500 rpm load	2650 rpm idle

LUBRICATION SYSTEM:

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

* Factory observed hp. measured at the PTO at 2200
engine rpm
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FUEL SYSTEM:

Type	Direct injection
Filter	Two-stage with replaceable impregnated paper element.
Injection pump type	Inlet metering, distributing type
Air cleaner	Dry type, with safety element

COOLING SYSTEM:

Type	Pressurized with centrifugal pump
Temperature control	Heavy-duty thermostats

CAPACITIES:

Fuel tank	50 U.S. gals.
Cooling system	28 U.S. qts.
Crankcase (with filter change)	17 U.S. qts.
Transmission-hydraulic system (add 4-1/2 gals. to capacity if equipped with Power Front -Wheel Drive):	
Syncro-Range Transmission	18 U.S. gals.
Power Shift Transmission	16 U.S. gals.

SYNCRO-RANGE TRANSMISSION:

Type	Syncro-Range, constant mesh
Clutch	14-3/4 in. plate, foot operated foot operated
Gear selections	8 forward and 2 reverse
Shifting	4 stations, synchronized shifting within forward gears

8. Disconnect battery cable from starter (Fig. 5).
9. Remove starter circuit relay from clutch housing and disconnect wire to battery from relay.
10. Disconnect steering pipes.
11. Remove engine temperature bulb from engine.
12. Disconnect ether starting aid pipe.
13. Disconnect hydraulic pump inlet pipe.

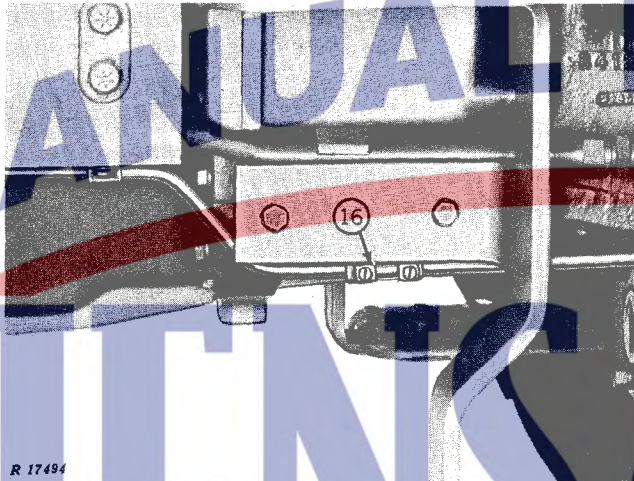


Fig. 6-Power Front-Wheel Drive Drain Pipe

14. Disconnect Power Front-Wheel Drive drain pipe (Fig. 6).

Use JDG-2M rear stand at the drawbar front support. Install front support stand JDG-2C.

Remove cap screws securing engine to clutch housing and roll rear half of tractor away.

ASSEMBLY

Apply a light coating of Permatex to the engine and clutch housing mating surfaces.

Move both halves of tractor together. Never use excessive force.

Tighten clutch housing-to-engine cap screws to specified torque and remove support stands.

Reverse the numbered separation procedures.

Fill the engine cooling system. Connect battery ground (tap cable on battery post first). Check engine crankcase and transmission oil levels.

Disconnect injection pump electrical shut-off solenoid wire. Crank the engine with starter until the engine oil pressure indicator light goes out. Do not over-heat the starter. After the indicator light goes out, reconnect injection pump shut-off solenoid wire and start the engine.

Bleed steering system (Section 70, Group 20).

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After checking for leaks, install tractor sheet metal and muffler.

SEPARATING CLUTCH HOUSING FROM POWERSHIFT TRANSMISSION CASE

Separate the engine from the clutch housing as previously instructed.

Open right-hand brake bleed screw and discharge the brake accumulator. See page 25-2.

Drain the transmission.

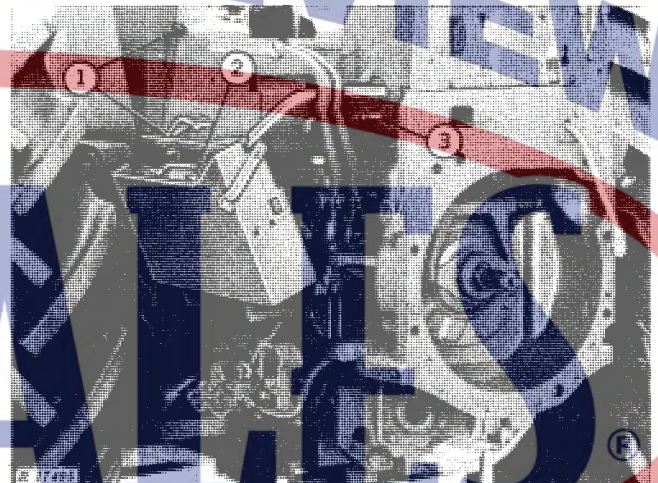


Fig. 7-Rear Portion of Tractor

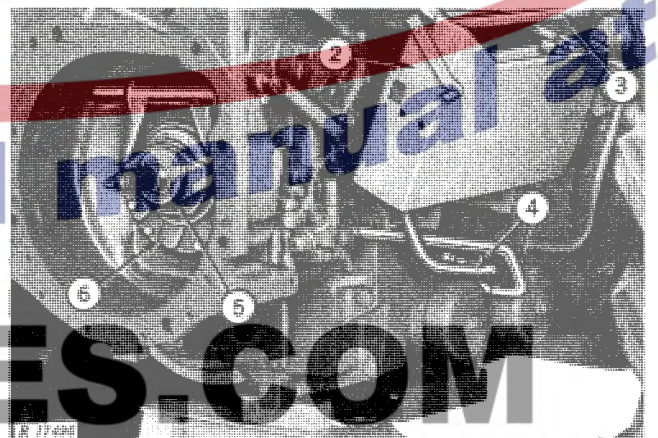


Fig. 8-Left-Hand Side of Clutch Housing

1. Remove differential lock pedal pivot pin (Fig. 7). Do not remove differential lock return valve. Remove rockshaft selector lever knob.

2. Remove batteries (Figs. 7 and 8), and disconnect wiring from dimmer switch.

3. Remove front platform support screws and platform.

4. Remove transmission filter inlet pipe and hydraulic filter-to-clutch pressure regulator housing pipe.

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Group 5 DIAGNOSING MALFUNCTIONS

General Information

The following is a guide for diagnosing fuel system malfunctions. For specific diagnosis of fuel system components, refer to the groups which cover complete servicing.

Fuel Not Reaching Injection Nozzles

- Filter clogged.
- Fuel line clogged or restricted.
- Electrical shut-off does not work.
- Fuel too heavy at low temperatures.
- Low transfer pump pressure.
- High pump housing pressure.
- Air in system.
- Fuel tank valve shut off.
- Return line restricted.

Engine Starts Hard or Won't Start

- Air leak on suction side of system.
- Fuel too heavy at low temperatures.
- Injection nozzles faulty or sticking.
- Incorrect timing.
- Automatic advance is faulty or not operating.
- Water in fuel.
- Filter clogged.
- Injection pump return fuel line or fittings restricted.
- Low cetane fuel.

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Fig. 4-Start-Safety Switch

REPAIR

If tractor has a cab, remove lower left front trim panel and left front cab panel at rear of side shield.

Disconnect battery ground cable. Detach circuit breaker and starter circuit relay support.

Disconnect starter. Cut nylon band and pull cable rearward out of way.

A 9/16-in. offset box end wrench may be used to remove nut behind starter. Removing solenoid will allow more hand room behind starter or facilitate use of a universal socket.

If excessive length of starter mounting stud interfered with starter removal, cut stud to 1-1/8 inch.

Disassembly

Disconnect field connector and remove solenoid.

Remove thru bolts, commutator end frame, and field frame.

Note position of nose housing on lever housing (scribe a mark at their joint). Remove nose housing.

Drive pinion stop toward clutch. Remove retaining ring and pinion stop. Pull armature from clutch as-

sembly, brake washer, lever housing, and thrust washer.

Remove large expansion plug, retaining clip, pin, and solenoid plunger (Fig. 6). To remove shift lever, remove small expansion plugs.

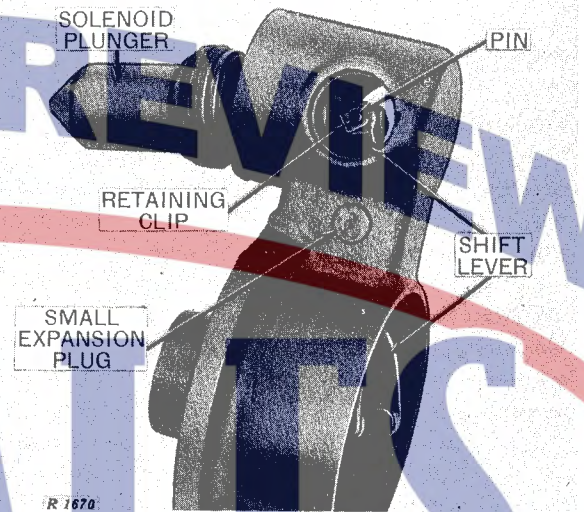


Fig. 6-Solenoid Linkage

Solenoid Switch

Remove nuts and sealing washers from solenoid motor and "S" terminals when removing switch cover.

Replacement "S" terminal clips and motor terminal studs are soldered to winding leads. Use new sealing washers when assembling the solenoid.

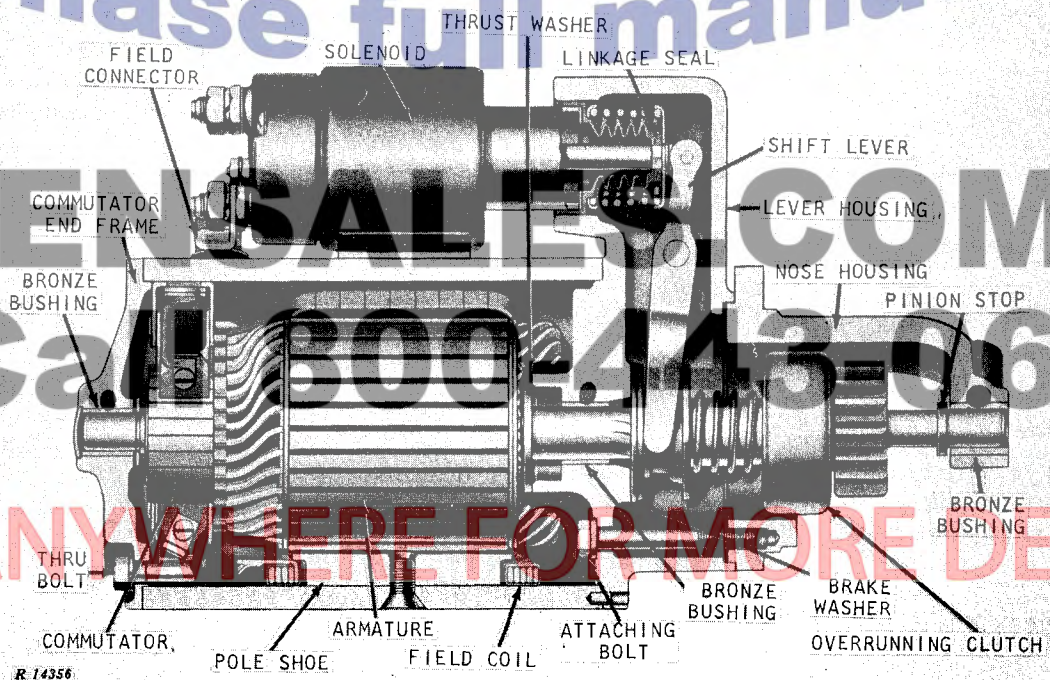


Fig. 5-Sectional View of Starter

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Group 5 CONVENTIONAL FRONT AXLE

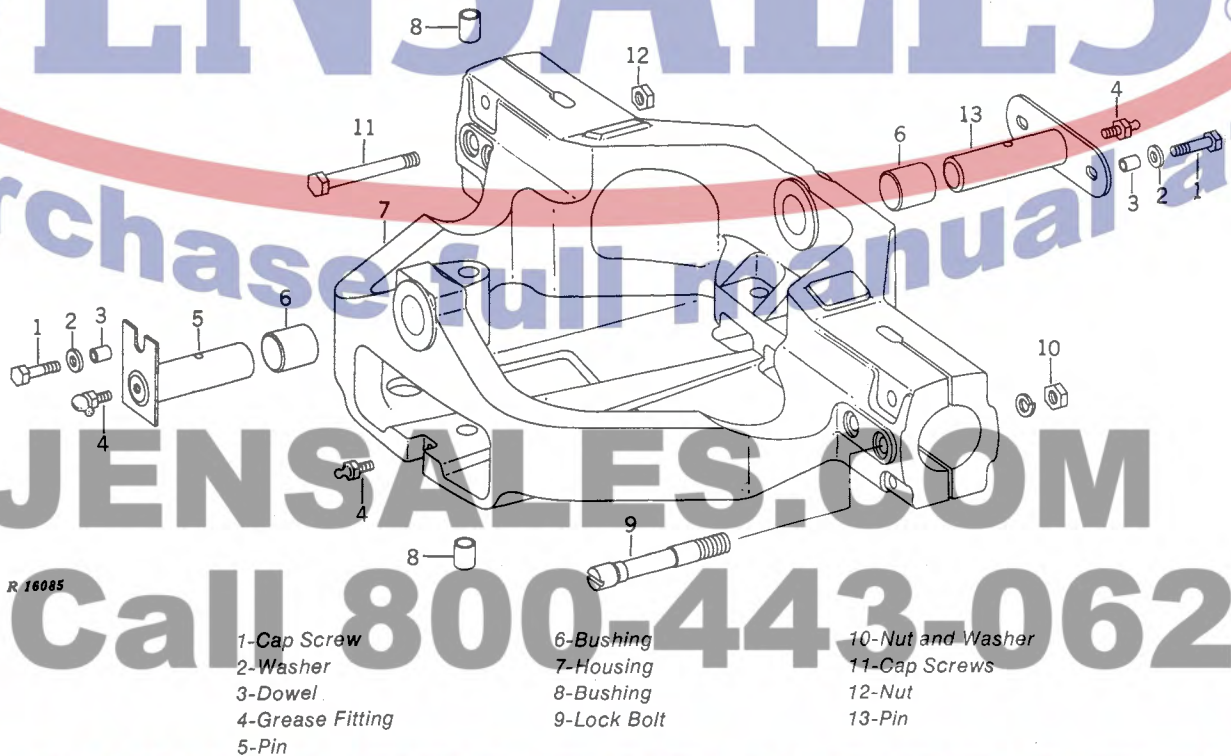


Fig. 1-Exploded View of Front Axle Housing