Group 25
SEPARATING ASSEMBLIES

SEPARATING BETWEEN ENGINE AND TRACTOR FRONT END

REMOVAL

For safety disconnect ground strap (cable) from battery.

Remove front end weights (if equipped).

Remove radiator and fuel tank caps. Remove radiator side grilles and hood. Install radiator and fuel tank caps.

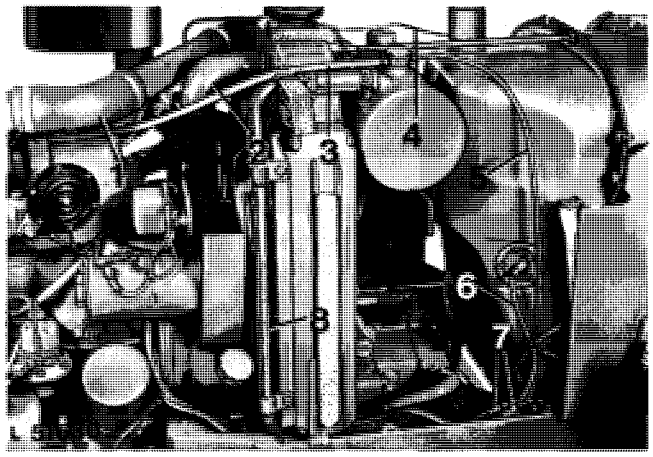

Fig. 1 — Separating between Tractor Front End and Engine

1 Air intake hose
2 Upper water hose
3 Leak-off and vent line
4 Fuel return line
5 Leak-off and vent line
6 Cable of fuel gauge sending unit
7 Distributor
8 Hydraulic line (on tractors without oil cooler)

Disconnect air intake hose (see 1, fig. 1) at engine intake manifold and air cleaner.

Disconnect leak-off and vent lines 3 and 5 at hydraulic oil reservoir.

Remove support rod at top of radiator. Disconnect fuel return line 4 at fuel tank.

Disconnect headlight wires at distributors 7.

Drain coolant and disconnect upper and lower water hoses at radiator.

Only on tractors without oil cooler: Disconnect hydraulic oil line (see 8, fig. 1) at top and bottom hose and remove.

Only on tractors equipped with oil cooler: Remove hose elbow between hydraulic oil reservoir and oil cooler at oil cooler end. Disconnect return oil line at bottom of oil cooler.

NOTE: Plug lines and openings immediately with plugs or caps to prevent loss of oil and entering of dirt into the system.

Remove screws securing fan shroud to radiator and slide over fan to the rear.

Remove screws securing radiator to front axle support and lift out radiator to the left of tractor.

Close fuel shut-off valve at bottom of fuel tank.

Disconnect fuel inlet line at fuel tank and fuel transfer pump. Remove transfer pump and fuel inlet line.

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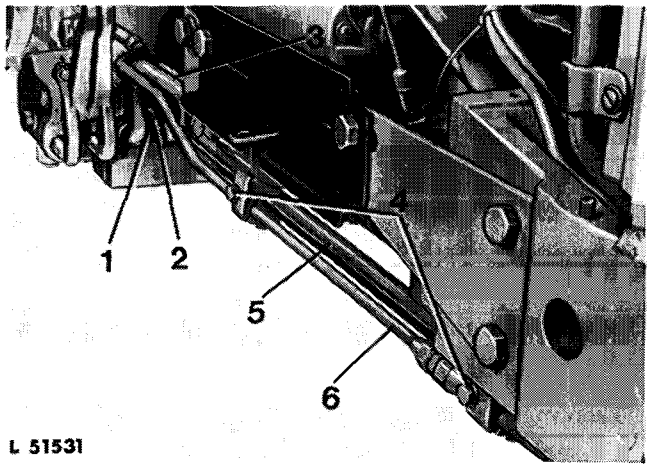

Fig. 2 — Disconnecting Hydraulic Lines

1 Retainer
2 Cap screw
3 Return line to transmission case
4 Pipe clamps
5 Hydraulic pump inlet line
6 Hydraulic pump pressure line

Remove side frames.

Remove pipe clamps (see 4, fig. 2).

Unscrew cap screw 2 and remove retainer 1 which supports the hydraulic pump inlet line 5 and return line 3 of oil cooler (oil reservoir if not equipped with oil cooler).

On tractors not equipped with HIGH-LOW transmission: Take care that the check valve installed in hydraulic pump inlet line 5 is not lost when the inlet line is removed.

Disconnect pressure line 6 at connector situated at front of engine.

Disconnect drag link at bell crank.

Remove securing screw of hydraulic pump drive shaft.

Securely support rear of tractor under clutch housing by placing assembly stand 19.58-90.619 under transmission case.

Insert wooden blocks between front axle and front support to prevent the latter from slipping sideways.

Suspend front of tractor to a suitable hoist or support with assembly stand 19.58-90.618.

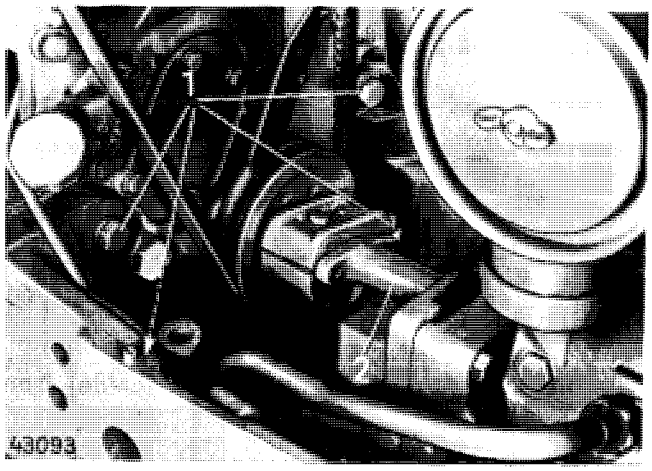

Fig. 3 — Attaching Points of Tractor Front End

1 Attaching screws of front axle support
2 Hydraulic pump drive shaft

Remove cap screws (see 1, fig. 3) of front support and separate front end from engine. Take measures to prevent front of tractor from tipping forwards. (Drain fuel tank if it contains too much fuel or support front end of tractor).

INSTALLATION

Make sure woodruff key is installed in shaft of hydraulic pump.

Move front of tractor towards engine.

Engage pump shaft in hydraulic pump drive shaft and at the same time connect return line of oil cooler (reservoir if not equipped with oil cooler). Slide hydraulic pump inlet line into clutch housing and tighten both lines (see fig. 2). Tighten cap screw (see 2, fig. 2) securing retainer 1 to the specified torque.

CAUTION: On tractors not equipped with HIGH-LOW transmission: Ensure check valve is inserted in hydraulic pump inlet line before it is installed.

Attach front end of tractor to engine, using cap screws (see 1, fig. 3). Tighten cap screws to specified torque. Tighten hydraulic pump drive shaft cap screw to specified torque.

NOTE: Do not tighten securing screw of hydraulic pump drive shaft until tractor front end is secured to engine.

Install fuel transfer pump and connect fuel lines.

Make sure transfer pump inlet line is behind and below fuel pressure line.

Open fuel shut-off valve.

Connect cable to fuel gauge sending unit.

Connect headlight cables to junctions.

Lift and slide radiator into location from the left side of tractor. Slide fan shroud forward over radiator, insert and tighten set screws. Secure radiator to front axle support. Install upper and lower water hoses.

Only on tractors not equipped with oil cooler: Connect oil line to oil reservoir and tighten both hose clamps (see fig. 1).

Only on tractors equipped with oil cooler: Connect hose elbow between hydraulic oil reservoir and oil cooler at top of oil cooler and return line at bottom of oil cooler.

Connect air vent lines to hydraulic reservoir.

Connect hydraulic pump pressure line and install line clamps (see fig. 1).

Connect air intake pipe at manifold and air filter.

Attach drag link to bell crank and tighten castellated nut to specified torque.

Install hood and radiator side grilles.

Fill radiator with clear, soft water, adding an anti-freeze-rust inhibitor mixture (see operators manual).

Connect ground strap to battery.

CAUTION: Always connect ground strap to negative(-)pole of battery.

Start engine and check fuel lines, hydraulic lines and water hoses for leaks.

REMOVING AND INSTALLING ENGINE

NOTE: For most engine service operations the engine need not be removed. However, if the crankshaft has to be removed or in case of major overhaul, remove engine.

REMOVAL

For safety disconnect ground strap (cable) from battery.

Separate front of tractor from engine, as explained previously.

On tractors equipped with power steering: Disconnect power steering pressure line at steering housing and hydraulic pump pressure line.

On tractors equipped with an alternator: Disconnect cable between alternator and regulator by removing plug at alternator. Immediately connect terminals D+, D and DF with bridge piece supplied with the tractor. Disconnect terminal B+ at alternator.

On tractors equipped with a generator: Disconnect cable to starter and generator indicator lamp at regulator.

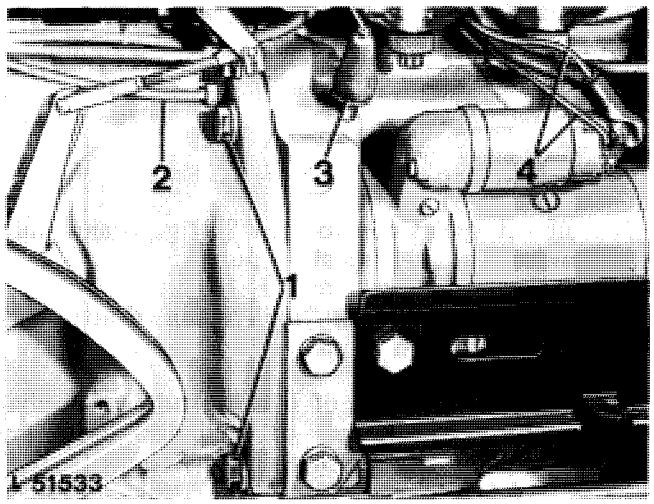

Fig. 4 — Separating between Engine and Clutch Housing, R.H. Side

1 Engine attaching screws
2 Flexible shaft of tractormeter
3 Oil pressure switch
4 Starter cable

Disconnect all cables at starter (see fig. 4). Disconnect oil pressure switch cable 3 and cable at signal horn.

Disconnect flexible shaft of tractormeter 2 at clutch housing and camshaft. If necessary, renew gasket.

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On tractors equipped with starting fluid adapter: Disconnect starting fluid line at intake manifold.

On tractors equipped with Thermostart aid: Disconnect cable at heater of intake manifold.

Disconnect air vent line of hydraulic oil reservoir at cylinder head cover.

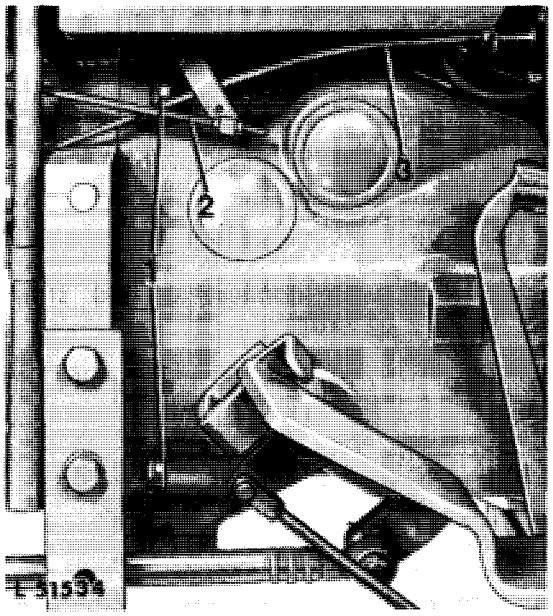

Fig. 5 — Separating between Engine and Clutch Housing, L.H. Side

1 Engine attaching screws
2 Speed control rod
3 Shut-off cable

Disconnect speed control rod 2 (fig. 5) and shut-off cables 3 at fuel injection pump.

On tractors with muffler facing downwards: Remove muffler.

Screw retaining screw of flexible tube of coolant temperature gauge out of cylinder head and withdraw from cylinder head.

Remove left dash panel as well as both batteries.

Remove cap screws attaching dashboard to flywheel housing.

Attach JD 244-1 and 244-2 engine lifting eyes to cylinder head and attach engine to a suitable hoist.

Remove cap screws 1 (figs. 4 and 5) attaching flywheel housing to clutch housing and both cap screws securing oil pan to clutch housing.

Lift engine out to the front by means of the hoist.

CAUTION: Move engine properly in line with drive shaft and hollow drive shaft until these shafts come loose of the driven disks of the engine dual-stage clutch, or free of driven disk and torsion damper if tractor is equipped with a single-stage clutch.

INSTALLATION

Align engine properly with drive shaft and hollow drive shaft. Move engine towards rear of tractor. Align splines of both shafts with internal splines of driven disks (tractor with dual-stage clutch), or (if equipped with a single-stage clutch) with splines of driven disk and torsion damper. Align screw holes of flywheel housing with holes in clutch housing. Slide engine evenly towards clutch housing. Engage two dowels of flywheel housing in bores of clutch housing until engine is in full contact with clutch housing.

CAUTION: Make sure flywheel housing is flush against clutch housing before tightening cap screws to specified torque.

Secure oil pan to clutch housing, tightening both cap screws to the specified torque.

Attach dashboard to flywheel housing.

Connect speed control rod and shut-off cable to fuel injection pump.

Insert flexible tube of coolant temperature gauge in cylinder head and tighten retaining screw.

On tractors equipped with an alternator: Disconnect bridge piece from terminals D+, D- and DF and connect harness plug to terminals. Connect cable from starter to terminal B+ on alternator.

On tractors equipped with a generator: Connect cables from starter and generator indicator lamp to regulator.

Connect cables to starter.

Connect cables to signal horn and oil pressure warning switch.

Install both batteries.

CAUTION: Connect battery cable to positive poles of batteries.

Lubricate rubber seal of tractormeter flexible shaft and attach shaft to clutch housing (see 2, fig. 4). Make sure driving tab of flexible shaft engages in slot of camshaft. Do not tighten excessively to avoid damage to the seal resulting in leakage.

On tractors equipped with starting fluid adapter: Connect starting fluid line to intake manifold.

On tractors equipped with Thermostart aid: Connect Thermostart aid wire to heater in intake manifold.

On tractors equipped with muffler facing downward: Install muffler.

Secure oil reservoir bleed line to cylinder head cover.

Attach front of tractor to engine.

CAUTION: Connect ground strap of batteries to negative (-) poles.

NOTE: If engine has been overhauled, tune up engines as explained in group 20.

REMOVAL AND INSTALLATION OF CLUTCH HOUSING

NOTE: Separating and attaching of engine and clutch housing as well as of clutch housing and transmission case is explained below. Where the tractor is to be separated depends on the individual repair operation. If, e.g., repair work has to be carried out on the transmission, separation between the clutch housing and the transmission case will be sufficient.

REMOVAL

Disconnect battery ground strap.

Drain transmission oil.

Separate engine from clutch housing as explained under "REMOVING ENGINE", the tractor front end may remain attached to the engine.

Disconnect drag link at steering arm.

Disconnect hydraulic oil reservoir vent line (see 5, fig. 6) at connector on gear shift cover.

Remove pipe clamps (see 4, fig. 2), screws 2 and retainer 1 which secure suction line 5 of hydraulic pump and return line 3 of oil cooler (oil reservoir if not equipped with oil cooler) to front side of clutch housing.

On tractors not equipped with HIGH-LOW transmission and independent PTO: Take care not to lose check valve installed in hydraulic pump pressure line when latter is removed.

On tractors equipped with power steering: Disconnect power steering pressure line at connectors.

Remove clamp (see 6, fig. 6) and hydraulic pump pressure line 3.

Insert wooden blocks between front axle and front support to prevent front support from tipping sideways.

Suspend tractor front end and engine to a suitable hoist or support under the engine by means of assembly stand 19.58-90.618. Similarly the rear of tractor should be suspended to a suitable hoist or be supported under the transmission case by means of assembly stand 19.58-90.619.

Roll engine and tractor front end away from clutch housing.

CAUTION: Move engine properly in line with drive shaft until these shafts come loose of the driven disks of the engine dual-stage clutch, or on tractors with single-stage clutch, free of driven disk and torsion damper.

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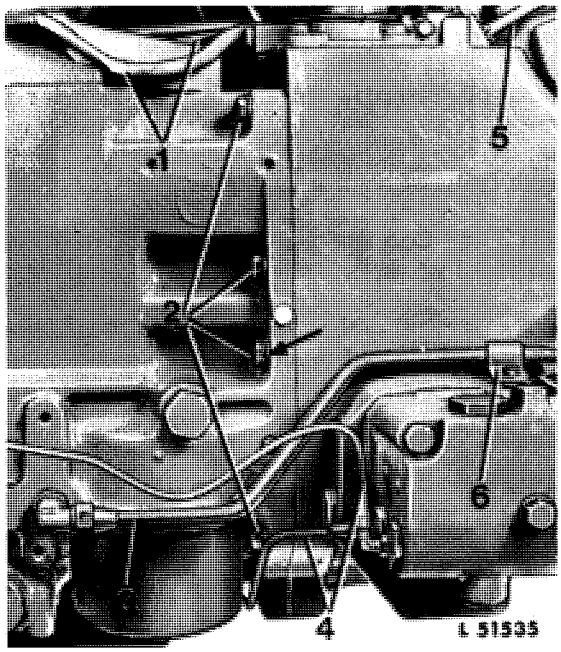

Fig. 6 — Separating between Clutch Housing and Transmission Case, R.H. Side

1 Wiring harness
2 Attaching screws
3 Hydraulic pump pressure line
4 Brake lines
5 Hydraulic oil reservoir vent line
6 Line clamp

Disconnect brake line (see 4, fig. 6) at master cylinder.

Remove transmission cover.

Disconnect both harnesses to rear fenders at connectors. Disconnect cable at starter safety switch and cables at stop light switch.

On tractors equipped with HIGH-LOW transmission: Remove screws (see 3, fig. 7). Disconnect connecting rod from lever shaft and remove cover 4 complete with lever shaft and control arm.

On tractors equipped with independent PTO: Before removing cover (see 4, fig. 7), move PTO shift lever in engaged position. After cover 4 has been removed, do not move PTO shift lever otherwise lock balls and springs will drop out of cover.

Remove screws attaching transmission shift cover to clutch housing. Remove gear shift cover complete with shift levers.

Remove transmission oil filter.

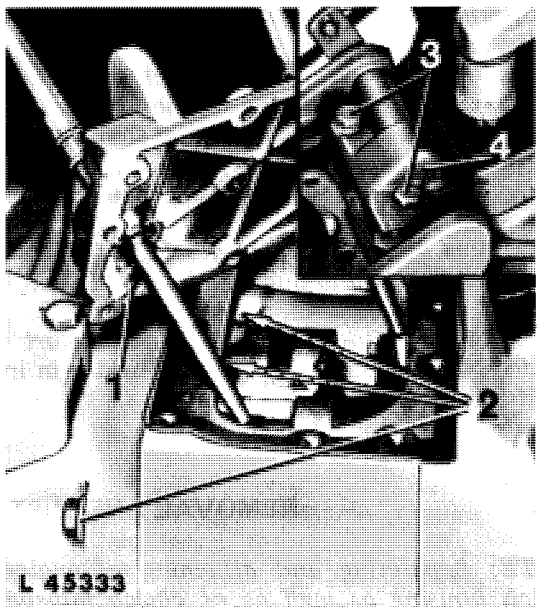

Fig. 7 — Removing Gear Shift Cover

1 Shift cover
2 Clutch housing attaching points
3 Attaching screws
4 Cover

Remove cap screws 2 (figs. 6 and 7) securing clutch housing to transmission case, and separate clutch housing from transmission case.

Discard seal rings provided between the two housings.

On tractors with continuous-running PTO: Be sure ball and spring provided on some PTO shaft types do not get lost (see section 50, group 30).

INSTALLATION

Install new seal rings in clutch housing front facing transmission case.

Slide clutch housing against transmission case.

Slide PTO drive shaft into needle bearing sleeve of front PTO shaft or, if front PTO is not provided, into needle bearing sleeve of bearing cover.

On tractors with continuous-running PTO: Make sure, spring and ball provided on some powershaft types are installed in PTO drive shaft, bearing housing or front powershaft. Align clutch housing with centerline of PTO drive shaft and slide against transmission case. Mesh powershaft gears with splines of hollow PTO drive shaft.

Make sure clutch housing is flush against transmission case before tightening cap screws to the specified torque.

NOTE: Before inserting the third retaining screw in clutch housing (see arrow, fig. 6) coat it with a film of oil-resistant sealant.

NOTE: If clutch housing has also been separated from engine, assemble as explained under "Installation of Engine."

Insert hydraulic pump inlet line (see 5, fig. 2) and oil cooler return line 3* in bore of clutch housing and secure by means of screw and retainer. Tighten screw to correct torque.
* Oil reservoir when not equipped with oil cooler.

On tractors not equipped with HIGH-LOW Shift unit: Ensure check valve is installed in feed line to hydraulic pump before connecting.

Connect hydraulic pump pressure line.

On tractors equipped with power steering: Connect power steering pressure line.

As regards further installation operations reverse removal procedure.

CAUTION: Connect ground cable of batteries to negative(-)poles.

REMOVAL AND INSTALLATION OF FINAL DRIVES

REMOVAL

NOTE: The removal of both final drives is explained below. If only one final drive is to be removed, remove only one wheel, wiring harness etc.

For safety disconnect ground strap at batteries.

Lift up rear of tractor by means of a suitable jack or hoist and remove rear wheels.

CAUTION: Support transmission safely to prevent tipping of tractor.

Disconnect both rear wiring harnesses at connectors.

Remove rear fenders and roll-over guard.

Disconnect cables at stop light switch located in left-hand rear axle housing.

Disconnect brake lines on both brake housings.

On tractors equipped with selective control valve(s): Disconnect hydraulic lines and remove two screws securing the bracket* or hydraulic manifold** onto the right-hand final drive assembly.

Cover connections and exposed openings with plastic plugs or caps to prevent particles of dirt from entering the system.

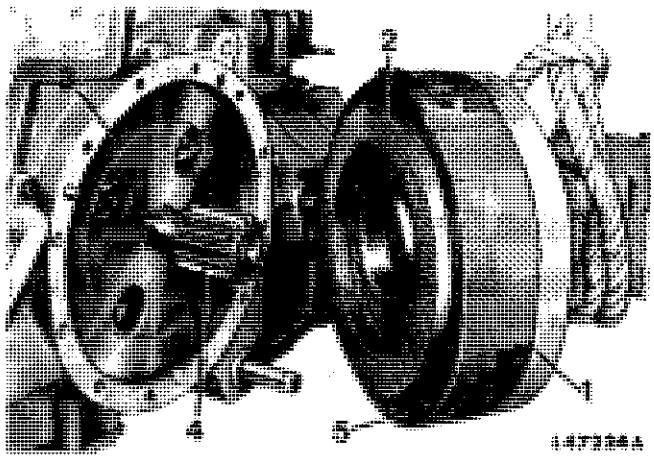

Fig. 8 — Removing Final Drive

1 Final drive housing
2 Pressure ring
3 Brake disk
4 Final drive shaft
5 Brake housing

Remove selective control valve(s).

* On earlier tractors
** On later tractors

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