

Removal and Installation of Engine – Combines 965 – 985* and 1065 – 1075 Hydro/4

General Information

A hoist is required for removing engine from combine. The hoist should be high enough to lift the engine approx. 200 mm (8 in.) and to remove it sideways from the combine (see fig. 14).

NOTE: For most service operations the engine need to be removed. Remove the engine in case of major engine overhaul or for repairs to the crankshaft.

Always remove engine from right-hand side of combine.

Removal

NOTE: When removing engine, it is not necessary to mark position of engine carrier to combine frame.

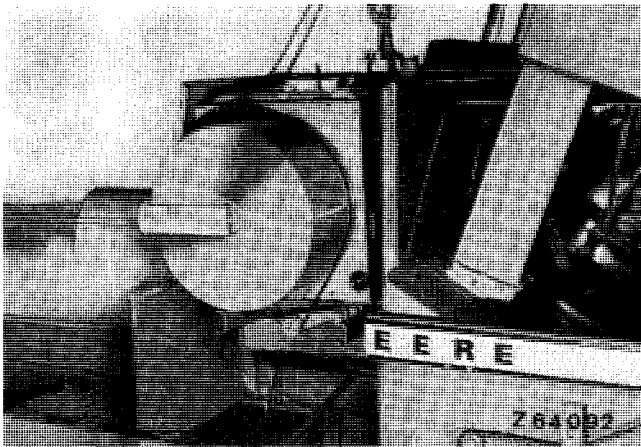


Fig. 14 – Engine Being Removed Sideways from Side of Combine

Carry out the following preparatory work to remove engine:

IMPORTANT! Lower feeder conveyor to the ground (hydraulic system now pressure-free).

Disconnect ground (-) and positive (+) cable at battery.

* up to Serial No. 018432

WORK ON LEFT-HAND SIDE OF COMBINE

Remove lower side panel.

Remove beater drive belt guard.

Slacken transmission drive belt 1 (figs. 16 and 17) at tensioner 2.

Remove power band guide 3.

Remove clamp of engine breather tube 4 and pull out tube from O-ring guide (from left-hand engine mouting frame).

Remove cotter pin and pin 5 (fig. 17) from connecting plates 8 between both arms of cutting platform throw-out device.

Using a chisel remove cotter pin (D, fig. 15) so that later, connecting link (A) can be removed from arm (C).

Remove cotter in (B, fig. 15) and remove arm (C) to the left and at the same time disconnecting link (A) from arm.

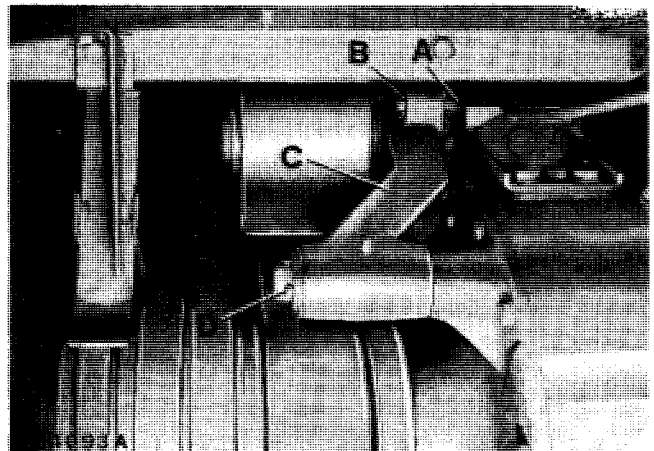


Fig. 15 – Removing Cutting Platform Throw-Out Device

- A Link
- B Cotter pin
- C Arm
- D Cotter pin

NOTE: Do not disconnect connecting link (A) at lifting plate.

Remove power band guide bracket 6 (fig. 16) from left-hand engine mounting bracket 7.

Disconnect hydraulic line and battery cable clamps from left-hand engine mounting bracket.

Disconnect all belts from engine drive pulley.

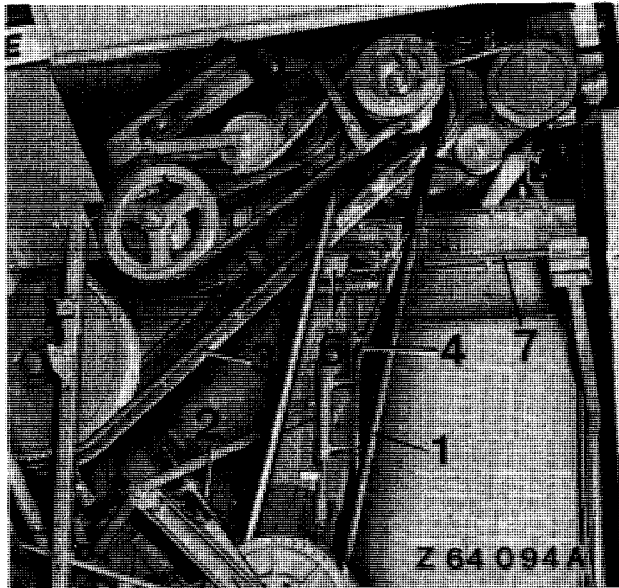


Fig. 16 – Preparing to Remove Engine (Combines with Variable Ground Speed Drive)

- 1 Transmission drive belt
- 2 Tensioner
- 3 Power band guide
- 4 Engine breather tube
- 6 Bracket
- 7 Engine mounting bracket

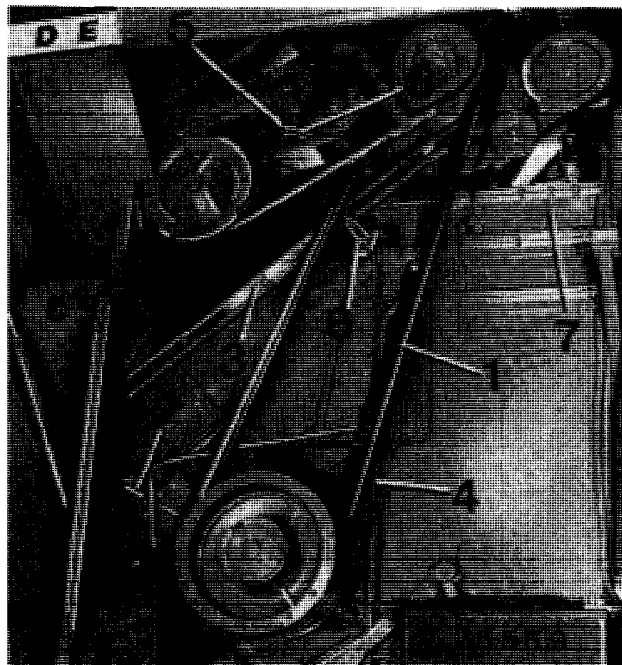


Fig. 17 – Preparing to Remove Engine (Combines with Posi-Torq Drive)

- 1 Transmission drive belt
- 2 Tensioner
- 3 Power band guide
- 4 Engine breather tube
- 5 Pin
- 6 Bracket
- 7 Engine mounting bracket
- 8 Connecting plates

On combines with hydrostatic drive, additionally carry out the following: Remove drive belt 8 (fig. 18) of hydrostatic drive variable pump after shifting tensioner pulley 9 by means of tensioner 10. Disconnect the two oil hoses from lines at points 11 and 12.

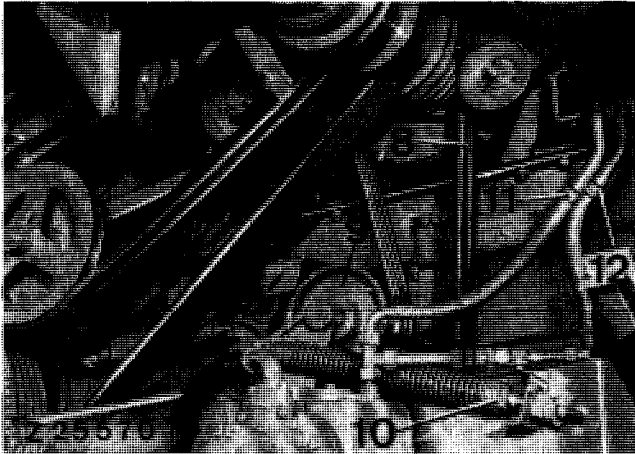


Fig. 18 — Preparing to Remove Engine (Combine with Hydrostatic Drive)

- 8 Drive belt
- 9 Tensioner pulley
- 10 Tensioner
- 11 Disconnect point
- 12 Disconnect point

Remove air intake pipe 14 (fig. 19) and muffler 12 with exhaust pipe 13.

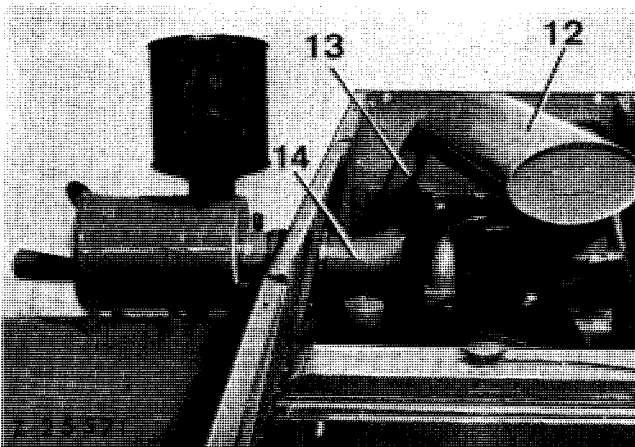


Fig. 19 — Preparing to Remove Engine (975 Combine Shown)

- 12 Muffler
- 13 Exhaust pipe
- 14 Air intake pipe

Disconnect fuel inlet line 15 (fig. 20) leading to fuel filter and fuel return line 16 leading to fuel tank at engine.

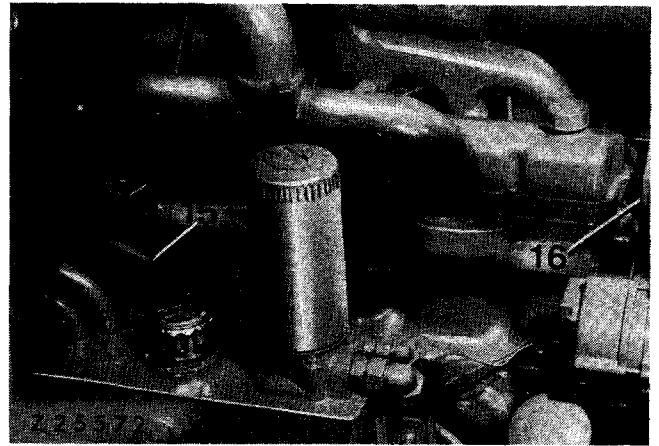


Fig. 20 — Preparing to Remove Engine

- 15 Fuel inlet line
- 16 Fuel return line

Remove bracket between hydraulic tank and rear panel of engine.

WORK AT GRAIN TANK REAR PANEL AREA

At control valve remove both inspection plates from rear panel of grain tank and from grain tank floor.

IMPORTANT! Thoroughly clean control valve area.

Remove ball joints from rocker arms 4 (figs. 21 and 22) on control valve.

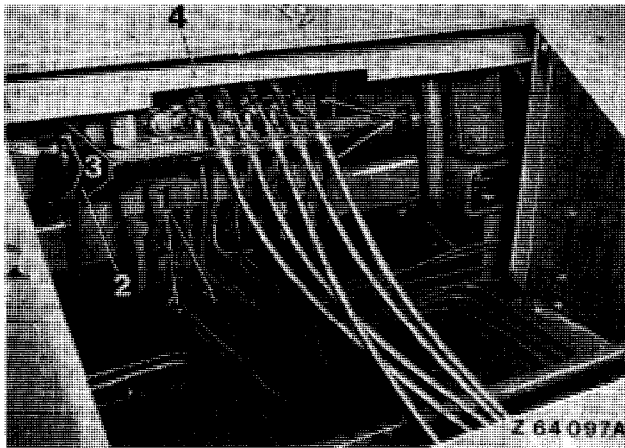


Fig. 21 — Preparing to Remove Engine at Control Valve

- 1 Hose connections
- 2 Bowden cable bracket
- 3 Cap screws
- 4 Rocker arm ball joints

Disconnect bowden cable bracket 2 from control valve by removing the four cap screws 3.

Disconnect both hose connections 1 (fig. 21) leading to the steering pump. Seal openings immediately with plastic plugs.

NOTE: Mark position of hydraulic lines to control valve before removal.

Disconnect all hydraulic lines to control valve and seal openings immediately with plastic plugs or caps.

Disconnect speed control and shut-off rod 5 from bracket 7 (fig. 22).

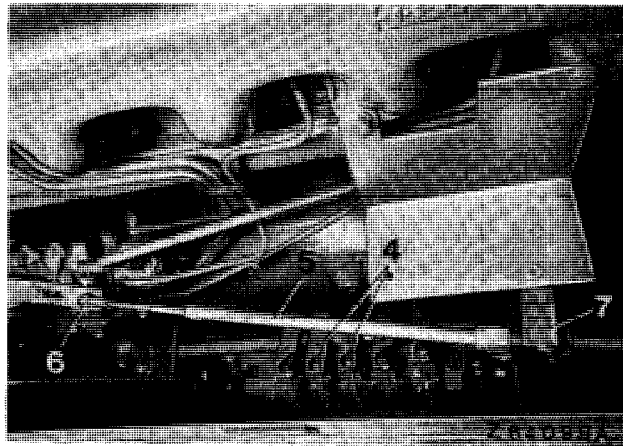


Fig. 22 — Preparing to Remove Engine at Roto-Diesel Fuel Injection Pump

- 4 Rocker arm ball joints
- 5 Speed control and shut-off rod
- 6 Ball joint
- 7 Bracket

After having removed wire seal, disconnect ball joint 6 and remove speed control rod from fuel injection pump.

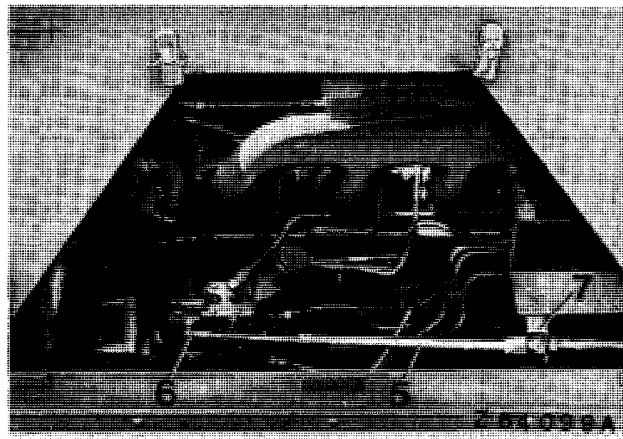


Fig. 23 — Preparing to Remove Engine at Roosa-Master Fuel Injection Pump

- 5 Speed control and shut-off rod
- 6 Ball joint
- 7 Bracket

WORK ON RIGHT-HAND SIDE OF COMBINE

Remove engine cover. Remove rear triangular plate from rear engine panel.

Disconnect the long hinged cover below the John Deere sign at the three hinges and remove.

Remove the four screws and lift off cover with John Deere sign.

Remove operator's seat. Disconnect plug 8 (fig. 24) after removing attaching clamp.

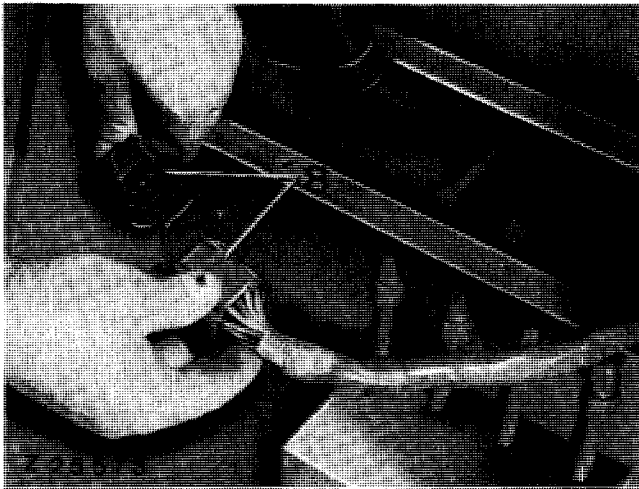


Fig. 24 — Wiring Harness Plug next to Operator's Seat (Seat Removed)

8 Wiring harness plug

Disconnect wiring harness plug 8 (fig. 24) at right-hand engine mounting bracket.

Disconnect cable to electrical fuel transfer pump at plug. Disconnect straw walker warning device cable at plug behind engine.

Loosen clamp 9 (fig. 25) attaching hydraulic line 13 of beater variable drive. Disconnect hydraulic line 13 at accumulator of variable cylinder drive. Disconnect engine floor plate at the three cap screws 14 at right and left-hand side of engine mounting bracket. Remove fuel tank brace 12 from mounting bracket.

Remove the six attaching screws 15 of right and left-hand engine mounting bracket 10.

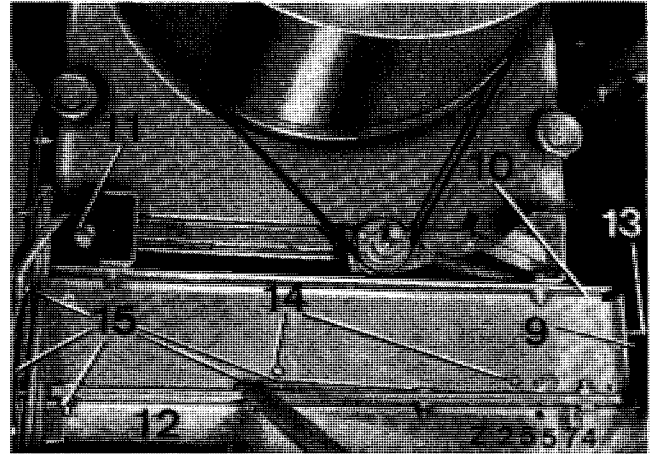


Fig. 25 — Removing Right-Hand Engine Mounting Bracket

- 9 Clamp
- 10 Engine mounting bracket
- 11 Wiring harness plug
- 12 Brace
- 13 Hydraulic line (combines with Posi-Torq cylinder drive only)
- 14 Cap screws
- 15 Attaching screws

Attach lifting eyes to engine as shown in fig. 26 (see Special Tools).

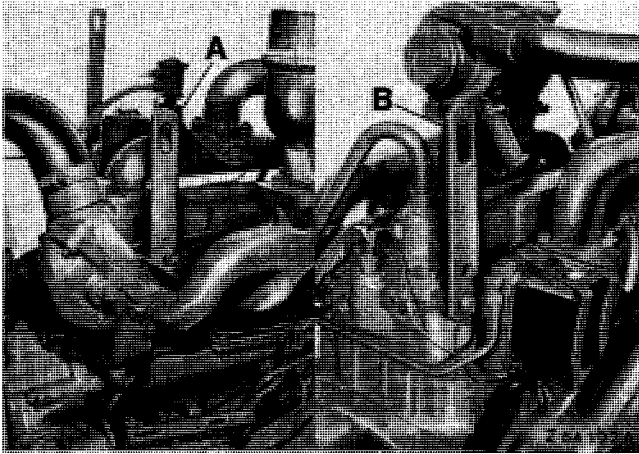


Fig. 26 – Attaching Lifting Eyes

- A Lifting eye JD 244-2
- B Lifting eye JD 244-1

By means of a suitable hoist lift up complete engine approx. 200 mm (8 in.) and slide to the right out of combine.

CAUTION! Be careful when lowering engine to the ground. Danger of accidents!

Installation

When installing engine, reverse removal procedure.

With engine installed and attaching cap screws 15 (fig. 25) tightened, check all drive belts for proper adjustment, true running and tension (especially power band, see section 120 for details).

Check the following:

- Engine oil level
- Hydraulic oil level
- Coolant level

Bleed the fuel system (see operator's manual) and make at test run of the engine.

While engine is running bleed the hydraulic system by operating all hydraulic control levers (operate until free of air). Then with hydraulic cylinders retracted again check level of hydraulic oil. If necessary, top up system to correct level with oil of specific quality and viscosity (see operator's manual).

Check control valve connections for leakage.

Having completed the engine test run check all attaching cap screws for tightness.

Check all drive belts for correct adjustment, true running and tension.

Check engine speeds and adjust, if necessary.

Removal and Installation of Engine – Combines 985*, 985 Hydro/4, 1085 and 1085 Hydro/4

General Information

A hoist is required for removing engine from combine. The hoist should be high enough to lift the engine approx. 200 mm (8 in.)

NOTE: For most service operations the engine need not be removed. Remove the engine in case of major engine overhaul or for repairs to the crankshaft.

Always remove the engine from right-hand side of combine.

Removal

NOTE: When removing engine, it is not necessary to mark position of engine carrier to combine frame.

Carry out the following preparatory work to remove engine:

IMPORTANT! Lower feeder conveyor to the ground (hydraulic system now pressure-free).

Disconnect ground (-) and positive (+) cable at battery.

WORK ON LEFT-HAND SIDE OF COMBINE

Remove lower side panel.

Remove beater drive belt guard.

Slacken transmission drive belt 1 (fig. 28) at tensioner 2.

Remove power band guide 3.

Remove clamps of engine breather tube 4 and pull out tube from O-ring guide (left-hand engine mounting frame).

Remove cotter pin and pin 5 from connecting plates 8 between both arms of cutting platform throw-out device.

Remove cotter pins (B) and (D) (fig. 27). Remove arm (C) to the left, at the same time disconnecting link (A) from arm.

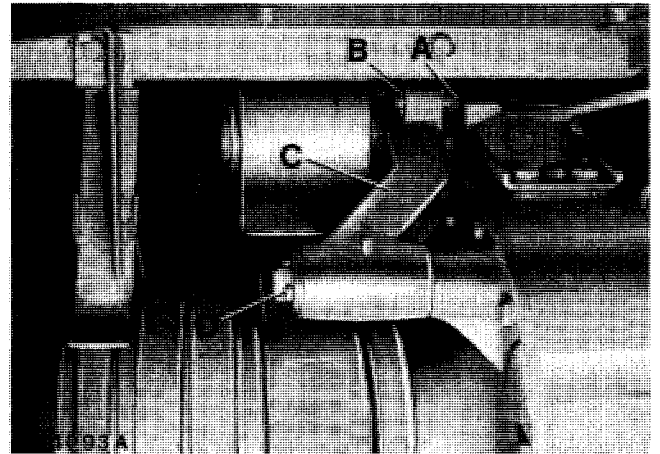


Fig. 27 – Removing Cutting Platform Throw-Out Device

- A Link
- B Cotter pin
- C Arm
- D Cotter pin

NOTE: Do not disconnect link (A) at lifting plate.

Remove power band guide bracket 6 (fig. 28) from left-hand engine mounting bracket 7.

Loosen clamps of hydraulic lines and battery cables at left-hand engine mounting bracket.

Disconnect all belts from engine drive pulley.

* From Serial No. 018433

CAUTION! Secure Posi Torq upper unit properly to prevent it from falling to the ground.

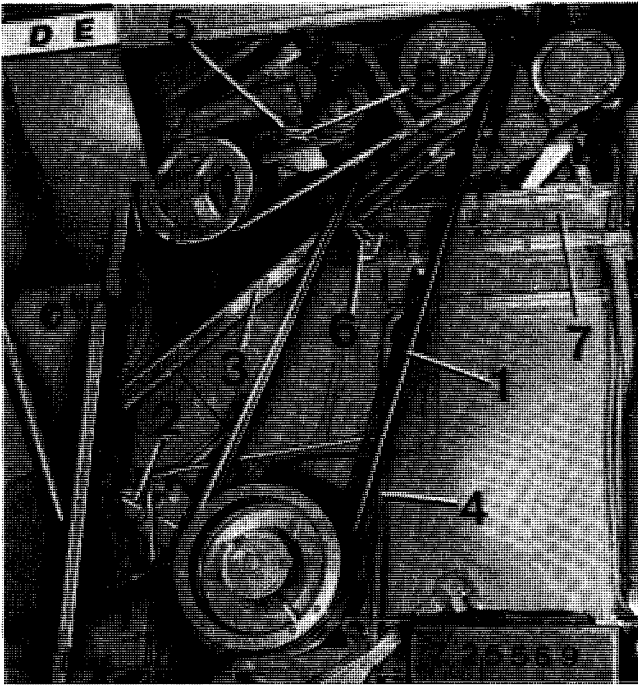


Fig. 28 – Preparing to Remove Engine

- 1 Transmission drive belt
- 2 Tensioner
- 3 Power band guide
- 4 Engine breather tube
- 5 Pin
- 6 Bracket
- 7 Engine mounting bracket
- 8 Connecting plates

On combines with hydrostatic drive, additionally carry out the following: Remove drive belt 8 (fig. 29) of hydrostatic drive variable pump after shifting tensioner pulley 9 by means of tensioner 10. Disconnect the two oil hoses from lines at points 11 and 12.

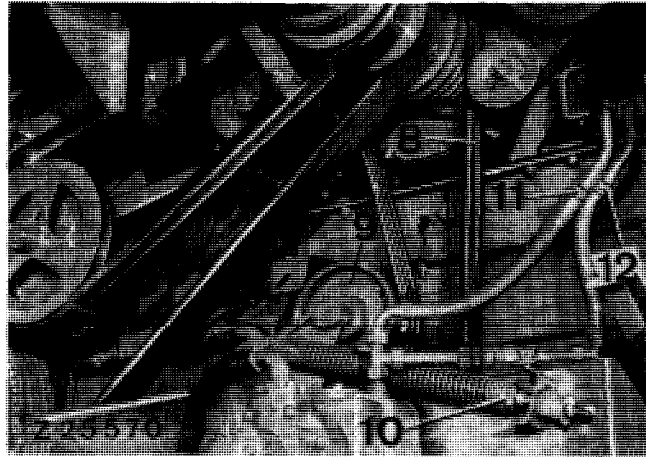


Fig. 29 – Preparing to Remove Engine (Combine with Hydrostatic Drive)

- 8 Drive belt
- 9 Tensioner pulley
- 10 Tensioner
- 11 Disconnecting point
- 12 Disconnecting point

Remove air intake pipe 8 (fig. 30) and muffler 9 with exhaust pipe 10.

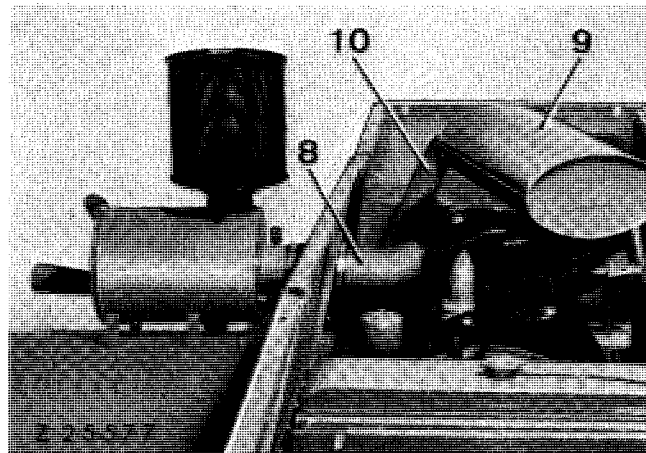


Fig. 30 – Preparing to Remove Engine (1985 Combine Shown)

- 8 Air intake pipe
- 9 Muffler
- 10 Exhaust pipe

Disconnect fuel inlet line 1 (fig. 31) at fuel transfer pump 3. Disconnect fuel return line 2 at fuel injection nozzle return line 4.

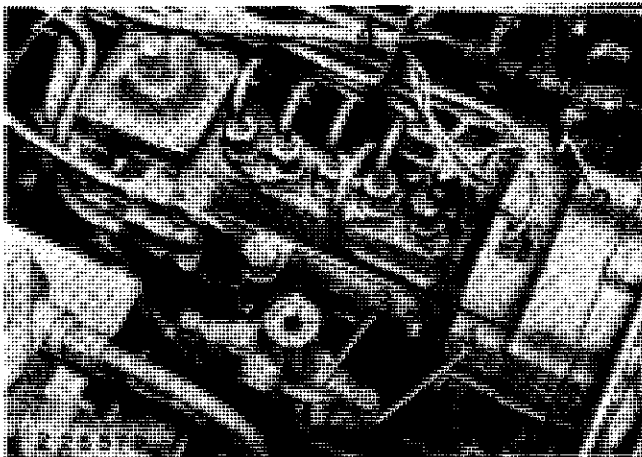


Fig. 31 — Preparing to Remove Engine

- 1 Fuel inlet line
- 2 Fuel return line
- 3 Fuel transfer pump
- 4 Fuel injection nozzle return line

Disconnect speed control cable at injection pump. Remove speed control cable bracket at engine. Disconnect shut-off cable at injection pump.

Remove bracket between hydraulic tank and rear panel of engine.

WORK AT GRAIN TANK REAR PANEL AREA

At control valve remove both inspection plates from rear panel of grain tank and from grain tank floor.

IMPORTANT! Thoroughly clean control valve area.

Remove ball joints from rocker arms 4 (fig. 32) on control valve.

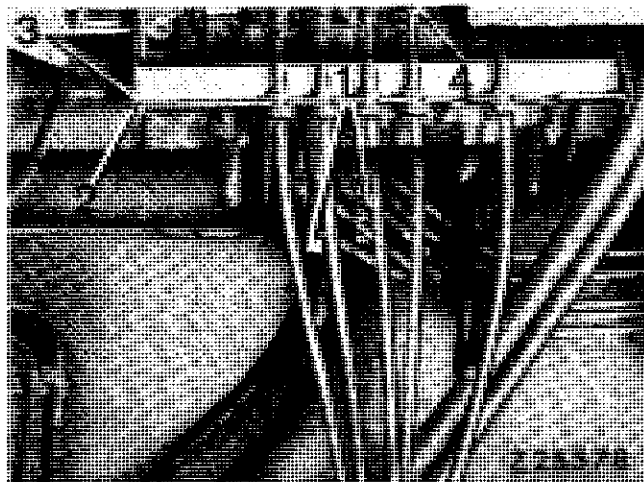


Fig. 32 — Preparing to Remove Engine at Control Valve

- 1 Hose connections
- 2 Bowden cable bracket
- 3 Cap screws
- 4 Rocker arms

Disconnect bowden cable bracket 2 (fig. 32) from control valve by removing the four cap screws 3.

Disconnect both hose connections 1 (fig. 32) leading to the steering pump. Seal openings immediately with plastic plugs.

NOTE: Mark position of hydraulic lines to control valve before removal.

Disconnect all hydraulic lines to control valve and seal openings immediately with plastic plugs or caps.



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WORK ON RIGHT-HAND SIDE OF COMBINE

Remove engine cover. Remove rear triangular plate from rear engine panel.

Disconnect the long hinged cover below the John Deere sign at the three hinges and remove.

Remove the four screws and lift off cover with John Deere sign.

Remove operator's seat. Disconnect plug 8 (fig. 33) after removing attaching clamp.

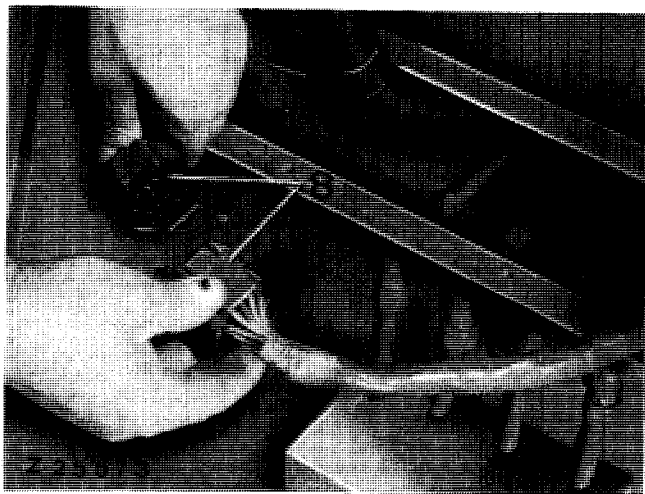


Fig. 33 — Wiring Harness Plug next to Operator's Seat (Seat Removed)

8 Wiring harness plug

Disconnect wiring harness plug 11 (fig. 34) at right-hand engine mounting bracket.

Disconnect cable to electrical fuel transfer pump at plug. Disconnect straw walker warning device cable at plug behind engine.

Loosen clamp 9 (fig. 34) attaching hydraulic line 13 of beater variable drive. Disconnect hydraulic line 13 at accumulator of variable cylinder drive. Disconnect engine floor plate at the three cap screws 14 at right and left-hand side of engine mounting bracket. Remove fuel tank brace 12 from mounting bracket.

Remove the six attaching screws 15 of right and left-hand engine mounting bracket 10.

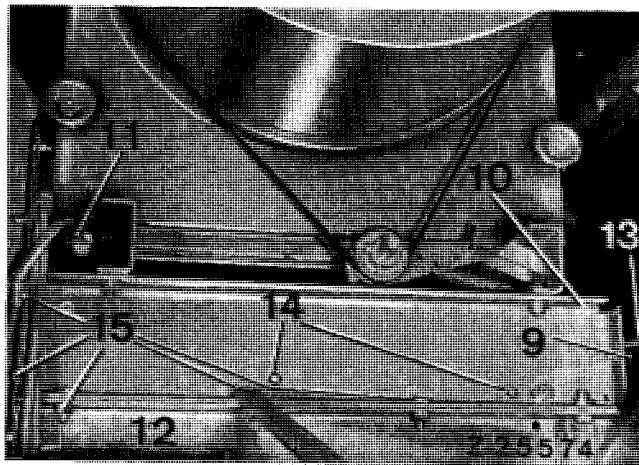


Fig. 34 — Removing Right-Hand Engine Mounting Bracket

- 9 Clamp
- 10 Engine mounting bracket
- 11 Wiring harness plug
- 12 Brace
- 13 Hydraulic line
- 14 Cap screws
- 15 Attaching screws

Attach lifting eyes to engine as shown in fig. 35 (see Special Tools).