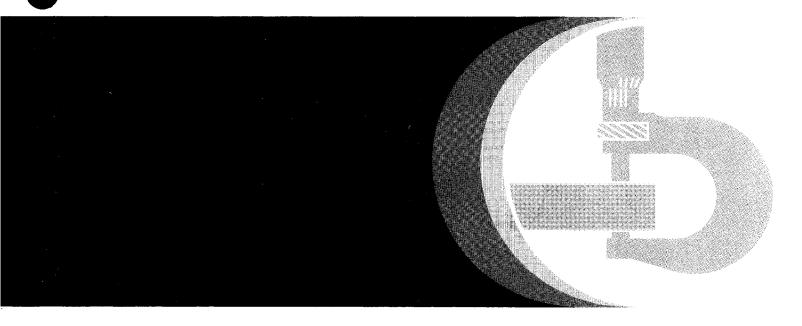
# Combines

932, 942, 952, 955, 965-H, 968-H, 975, 975 Hydro/4, 985, 985 Hydro/4, 1065, 1068-H, 1072, 1075, 1075 Hydro/4, 1085, 1085 Hydro/4









## John Deere Werke Zweibrücken TM-4387 Printed in Germany (English) Rev.

## Combines 932, 942, 952, 955, 965, 965-H, 968-H, 975 975 Hydro/4, 985, 985 Hydro/4, 1065, 1068-H, 1072, 1075, 1075 Hydro/4, 1085 and 1085 Hydro/4

Technical Manual TM-4387 (1989)

#### CONTENTS

SECTION	10 —	GENERAL
Group Group Group Group Group Group	05 - 10 - 15 - 20 -	Specifications and special tools General information Pre-delivery inspection, delivery service and after-sales inspection Lubrication and periodic service Engine and combine tune-up and adjustments Combine separation
SECTION	20 –	ENGINE REPAIR
Group Group		Specifications and special tools Cylinder head, valves, camshaft and balancer shafts (Engines 3179, 4239, 6359)*
Group Group		Cylinder head, valves and camshaft (Engine 6466)** Cylinder block, liners, pistons and connecting rods (Engines 3179, 4239, 6359)*
Group Group	11 — 15 —	Cylinder block, liners, pistons and connecting rods, (Engine 6466)** Crankshaft, main bearings and flywheel (Engines 3179, 4239, 6359)*
Group Group Group Group Group Group	20 – 21 – 25 – 27 – 26 –	Crankshaft, main bearings and flywheel (Engine 6466)** Lubrication system (Engines 3179, 4239, 6359)* Lubrication system (Engine 6466)** Cooling system (Engines 3179, 4239, 6359)* Fan drive contershaft Cooling system (Engine 6466)** Timing gear train (Engines 3179, 4239, 6359)*
SECTION	30 —	FUEL AND AIR REPAIR
Group Group Group Group	05 - 10 - 11 -	Specifications and special tools Air intake system Fuel system Fuel filter with water trap and electrical fuel transfer pump from serial no. 041201
Group Group Group Group Group Group	20 — 25 — 30 —	Roto Diesel fuel injection pump Roosa Master fuel injection pump Robert Bosch fuel injection pump Roosa Master fuel injection nozzles Robert Bosch fuel injection nozzles KDEL (21 mm) Speed control linkage
SECTION	40 —	ELECTRICAL SYSTEM
Group Group Group Group Group	05 - 10 - 15 - 20 -	Specifications and special tools Diagnosing malfunctions Electrical system components Wiring diagrams and wiring harnesses Starting motor (Bosch) Starting motor (John Deere)
Group Group Group	35 —	Alternator (Bosch) Alternator (Delcotron) Electrical leveling control system (sidehill combines)
~		* 985 combines up to serial no

C by Deere & Co., European Office, D-6800 Mannheim

\* 985 combines up to serial no. 18432 \*\* 985 combines from serial no. 18433 2

SECTION Group Group Group Group Group Group Group Group Group Group	05 - 06 - 07 - 10 - 15 - 20 - 25 - 30 - 35 -	MODIFIED ELECTRICAL EQUIPMENT ON COMBINES FROM SERIAL NO. 041201 Wiring harnesses and connectors Electrical circuits and wiring diagrams Testing individual circuits Starting motor Alternator Components Shaft low speed monitor system Harvestrak combine monitor – Functional description and tests Harvestrake combine monitor – Repair Electromagnetic transmission brake
SECTION Group Group Group Group Group Group Group Group Group Group Group Group Group Group	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	POWER TRAIN Specifications and special tools Variable ground speed drive "Posi Torq" ground drive Engine clutch and clutch linkage (932, 942, 952) Engine clutch and clutch linkage (955) Engine Clutch (955 to 1085) Clutch from Ser. No. 044137 Reverser clutch, control and linkage Hydrostatic drive Front axle (932, 942, 952) Transmission and differential (955 to 1085 Hydro/4) Final drives (955, 965, 975 to 1085 Hydro/4) Rice drives Final drive (sidehill combines) Track system
SECTION Group Group Group Group Group Group Group Group Group	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$	BRAKES AND REAR AXLE Specifications and special tools Parking brake (932, 942, 952) Parking brake (955 to 1085 Hydro/4) Footbrakes (disk brakes acting on transmission) Footbrakes (with integrated slave cylinder) Footbrakes (disk brakes acting on front wheels) Rear axle Rear axle Rear axle (sidehill combines) V-support for wide rear axle

SECTION	70 – HYDRAULIC SYSTEM
Group Group Group Group Group Group Group Group Group Group Group Group Group Group Group Group Group Group Group	<ul> <li>00 - Specifications and special tools</li> <li>05 - General information, diagnosing malfunctions</li> <li>06 - Hydraulic symbols and system layout</li> <li>10 - Pressure tests</li> <li>15 - Hydraulic oil reservoir, filter, suction and pressure lines</li> <li>20 - Hydraulic pump and flow divider</li> <li>25 - Tandem (dual-gear) hydraulic pump</li> <li>30 - Triple hydraulic pump</li> <li>35 - Single and three spool control valves</li> <li>40 - Seven spool control valve (from serial no. 041201)</li> <li>45 - Hydraulic cylinders (up to a certain serial no.)</li> <li>50 - Hydraulic cylinders (from a certain serial no.)</li> <li>55 - Nitrogen accumulators</li> <li>60 - Hydraulic brakes</li> <li>70 - Hydraulic brakes</li> <li>70 - Hydraulic clutch control</li> <li>71 - Clutch operation with integrated slave cylinder</li> <li>75 - Transmission brake</li> <li>80 - Hydraulic components (sidehill combines)</li> <li>85 - Hydraulic drive reel or belt pick-up system</li> <li>90 - Hydraulic reverser motor</li> </ul>
SECTION	80 MISCELLANEOUS
Group Group Group Group	<ul> <li>O0 — Specifications and special tools</li> <li>O5 — General information</li> <li>10 — Bearings and shafts</li> <li>15 — Belts and chains</li> </ul>
SECTION	90 — OPERATOR'S CAB
Group Group Group Group Group	<ul> <li>00 - Specifications and special tools</li> <li>05 - Cab ventilation</li> <li>10 - Air conditioning system</li> <li>15 - Air conditioning system components</li> <li>20 - Heater</li> </ul>
SECTION	95 – OPERATOR'S PLATFORM WITH SG-2 CAB ( $-044136$ )
Group Group Group Group Group Group Group	<ul> <li>00 – Specifications and special tools</li> <li>05 – Cab ventilation</li> <li>10 – Air conditioning system</li> <li>15 – Compressor</li> <li>20 – System components</li> <li>25 – Cab heating system</li> <li>30 – Operator's seat</li> <li>35 – SG2 cab</li> </ul>
SECTION	96 – OPERATOR'S PLATFORM WITH SG-2 CAB (044137 – )
Group Group Group Group Group Group Group	05 -Cab ventilation10 -Air conditioning system15 -System service20 -System testing25 -Compressor30 -System components35 -Cab heating system40 -Operator's seat45 -SG2 cab

## TM-4387 (Jan-89) L8 Printed in Germany

SECTION	100 —	CUTTING PLATFORM AND CORN HEAD
Group Group Group Group Group Group	05 — 10 — 11 — 15 — 20 —	Specifications and special tools General information, diagnosing malfunctions Cutting platform and knife drive 200-Series Platform Variable reel speed drive Corn head Corn head gear case
SECTION	110 -	FEEDER HOUSE
Group Group Group Group Group Group	10 – 15 – 20 – 21 – 25 –	General information, diagnosing malfunctions Feeder drive Feeder house (with integrated cutting platform) Feeder house (with quick-tach cutting platform) Feeder house (with quick-tach cutting platform; from serial no. 041201) Chain transmission – cutting platform drive Hydraulic reverser
SECTION	120 —	SEPARATOR AND CLEANING UNIT
Group Group Group Group Group Group Group Group	05 10 15 20 - 21 - 25 - 30 - 35 -	Specifications and special tools General information, diagnosing malfunctions Separator drive Threshing cylinder, variable cylinder drive Cylinder drive reduction gear (up to serial no. 039 866) Cylinder drive reduction gear (from serial no. 039 867) Concave Beater, beater variable drive Cross shaker Straw walkers, cleaning shoe with sieves and fan
SECTION	130 —	ELEVATORS, GRAIN TANK AND GRAIN TANK UNLOADING AUGERS
Group Group Group Group Group Group	10 – 15 – 20 – 25 –	General information, diagnosing malfunctions Elevator and auger drives Clean grain auger and elevator Lower tailings auger, elevator and upper auger Grain tank leveling auger and unloading auger Outer unloading auger and housing
SECTION	140 —	SPECIAL EQUIPMENT
Group Group Group Group	05 — 10 —	Specifications and special tools Straw chopper with centrifugal and electric clutch Straw chopper with direct drive Straw spreader

#### GENERAL

Directions, such as right-hand, left-hand, front or rear, always stand in relation to the direction of combine travel.

All information, illustrations and specifications in this technical manual are based on the latest status at time of publication and can be changed at any time without prior notice.

# Group 05 General Information

## Serial Numbers

NOTE: Please quote all the serial numbers stamped in the appropriate serial number plate when ordering replacement parts for your combine, combine engine and special equipment (e.g. operator's cab, cutting platform trailer).

The combine serial number is stamped into the name plate on the right-hand side of the operator's platform (see fig. 1).

The serial number is also stamped into the righthand angle frame of the combine if the name plate gets lost for any reason (see fig. 2).

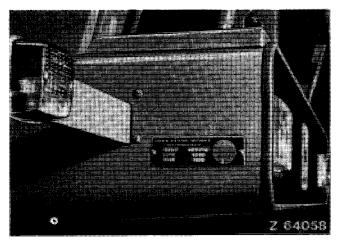


Fig. 1 – Serial Number Plate on Operator's Platform

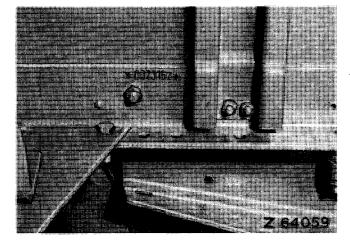


Fig. 2 – Serial Number Stamped into Angle Frame

The serial number of a John Deere engine is stamped into the name plate near the starting motor.

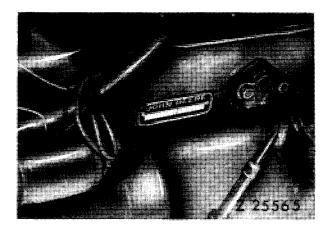


Fig. 3 -- Engine Serial Number

The serial number of the cutting platform is stamped into a plate on the outer right-hand side panel of the platform (see fig. 4).\*



Fig. 4 – Serial Number of Cutting Platform (14 ft. cutting platform shown)

*	Th	e various sized	cutting platf	orms are n	narked as follo	ws:
	_	8 ft. 5 in. 10 ft.	-	12 ft. 14 ft.		16 ft. 18 ft.

The corn head serial number is stamped into a plate on the right-hand side below the drive guard (see fig. 5).

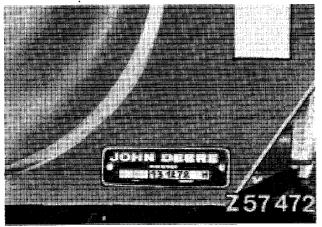


Fig. 5 -- Corn Head Serial Number

The cutting platform trailer serial number is stamped into the name plate located on the righthand side of the trailer drawbar behind the towing eye (see fig. 6).

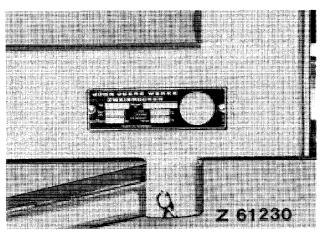


Fig. 6 - Serial Number of Cutting Platform Trailer

The operator's cab serial number is stamped into the name plate located on the left-hand inner side panel of cab (see figs. 7 and 8).

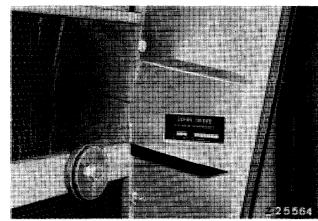


Fig. 7 – Standard Operator's Cab Serial Number

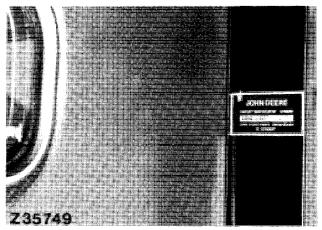


Fig. 8 – SG2 Cab Serial Number

The fuel injection pump type and serial number is stamped into the name plate located on pump housing (see figs. 9, 10, 11).

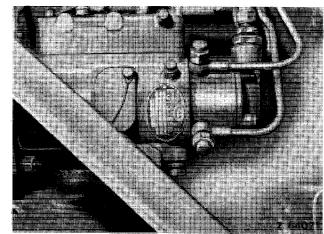
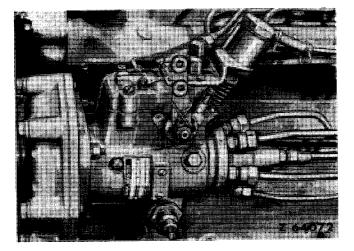
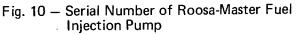


Fig. 9 – Serial Number of Roto-Diesel Fuel Injection Pump





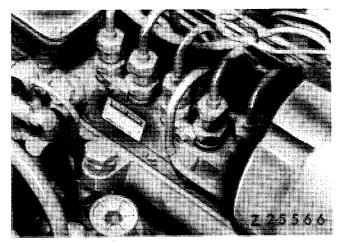


Fig. 11 – Serial Number of Robert Bosch Fuel Injection Pump

The track assembly serial number is stamped into the outer side of track frame below the front idler bracket.

Left-hand track assemblies are numbered with an odd serial number. Right-hand track assemblies have an even serial number (see fig. 12).

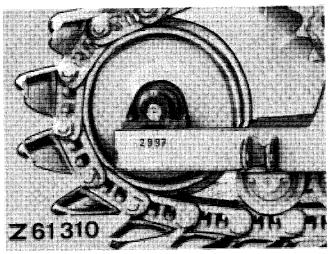


Fig. 12 – Serial Number of Track Assembly, L.H. Side

The straw chopper serial number plate is attached to the right-hand side of the chopper housing.

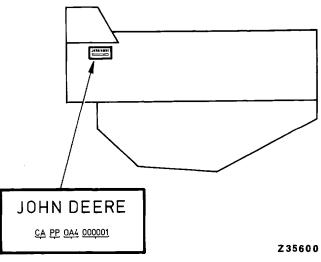


Fig. 13 – Straw Chopper Serial Number

## **Model numbers**

The fuel injection pump, injection nozzles, alternator, starting motor and the hydraulic pump have model numbers to facilitate identification of different makes of a given unit.

## **Specifications**

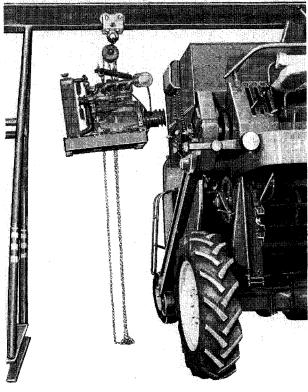
The relevant operator's manual or the different sections of this Technical Manual contain all the necessary specifications.

# Group 25 Separation

## Removal and Installation of Engine – Combines 932 and 942

## **General Information**

A hoist is required for removing engine from combine. The hoist should be high enough to lift the engine approx. 150 mm (6 in.) and to remove it sideways from combine (see fig. 1).



Z 50870

Fig. 1 – Hoist (Engine Being Removed Sideways from Combine)

IMPORTANT! Before removal mark position of engine on combine. Mark position on combine and engine mountings both laterally and longitudinally. These marks are essential for correct alignment when reinstalling the engine.

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.

## Removal

Before removing engine carry out the following:

First disconnect ground cable of battery.

Remove right-hand engine cover.

Disconnect wiring harness at connector 1 (fig. 2).

Loosen fuel line clamps of fuel lines on combine.

Remove three or four attaching cap screws 2 (depending on combine model) from right-hand engine carrier.

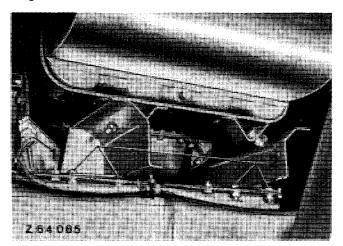


Fig. 2 – Removing Engine Connections on Radiator Side (Combine 942)

- Wiring harness
- Wiring harness
   Attaching cap screws of engine carrier

Remove fuel suction and return hose 1 (fig. 3) from fuel transfer pump and return line.

Remove engine oil drain hose 7 from left-hand combine side panel (fig. 5).

Disconnect positive cable 3 (fig. 3) from battery. Remove guard 5. Loosen attaching cap screws 2 of hydraulic pump bracket. Take off hydraulic pump drive belt and remove hydraulic pump with bracket from engine.

#### 10-25-2 Separation

Remove breather tube clamp 4 from engine block and pull breather tube out of rocker cover (necessary for later installation of lifting eyes).

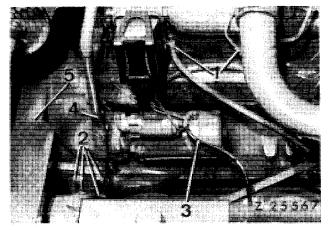
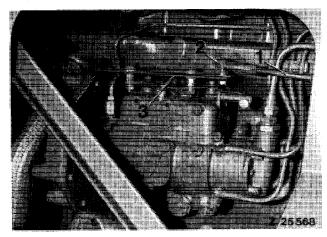


Fig. 3 – Removing Various Engine Connections Near Hydraulic Pump and Starting Motor (942 Shown)

- 1 Disconnect fuel hoses here
- 2 Attaching cap screws of
- hydraulic pump bracket 3 Positive cable
- 4 Breather tube clamp
- 5 Guard

Disconnect throttle and stop control linkage 1 (fig. 4) at ball joint 2 of fuel injection pump (remove wire clip or hex. nut).



- Fig. 4 Removing Various Engine Connections Near Fuel Injection Pump (942 Shown)
  - 1 Throttle and stop control linkage
  - 2 Ball joint
  - 3 Throttle and stop adjusting plate

Remove unloading auger drive belt 1 (fig. 5) from engine drive pulley and shift control lever of unloading auger into operating position.

Slacken ground drive belt 2 (variable ground speed drive) and remove from engine drive pulley.

Remove flat belt 3 and hydraulic pump drive belt 6.

Remove grain tank braces 5 and attaching cap screws 4 from engine carrier angle frame.

Remove flat belt tension roller from tensioner bracket.

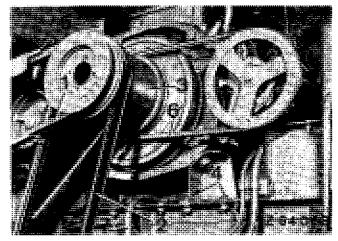


Fig. 5 – Removing Various Engine Connections Near Drive Pulley (942 Shown)

- Unloading auger drive beit
- Ground drive belt
- 3 Flat belt
- Attaching cap screws of engine carrier angle frame
- Grain tank braces
- Hydraulic pump drive belt 6 Hydraulic pump 7 Engine oil drain hose

Attach lifting eyes to engine (see fig. 6 and Special Tools) and by means of a suitable hoist lift up complete engine approx. 150 mm (6 in.), Then slide engine to the right out of combine.

IMPORTANT! On the combine 942 there are shims located under the engine carrier. Attach shims to specific carrier when engine is raised. This to ensure that original shim packs are placed under engine carriers when engine is reinstalled. This is important for engine alignment.

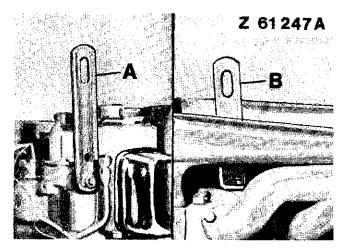


Fig. 6 – Attaching Lifting Eyes

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

## Installation

When installing the engine, reverse removal procedure.

IMPORTANT! Make sure when aligning engine that marks made on engine carrier and combine are aligned on both sides of engine.

It is absolutely essential to make sure that engine is correctly aligned for correct flat belt travel. Note and comply with instructions given under "Flat Belt Travel Path" in Section 120, Group 10,

Check crankcase oil and coolant level.

Bleed fuel system. See operator's manual for details.

Make a test run of the engine.

After the test run check all attaching cap screws for tightness. Then check all drive belts for correct adjustment, true running and tension.

Check engine speeds to make sure that beater is running at specified speed of 850<sup>+30</sup> rpm. lf necessary adjust throttle and stop control linkage.

## Removal and Installation of Engine – Combines 952 and 955

## **General Information**

A hoist is required for removing engine from combine. The hoist should be high enough to lift the engine approx. 150 mm (6 in.) and to remove it sideways from combine (see fig. 7).

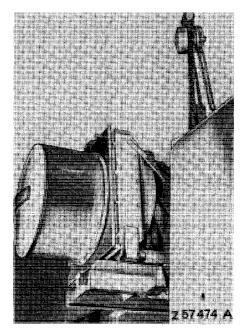


Fig. 7 – Engine Being Removed Sideways from Combine

### Removal

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.

IMPORTANT! Before removal mark position of engine on combine. Mark position on combine and engine mountings both laterally and longitudinally. These marks are essential for correct alignment when reinstalling the engine.

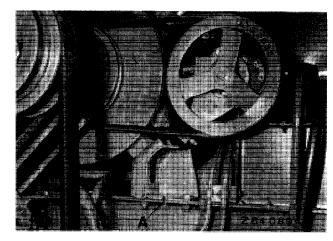


Fig. 8 - Marking Position of Engine to Combine

A Mark between engine carrier and combine frame

## BEFORE REMOVING ENGINE CARRY OUT THE FOLLOWING:

First disconnect ground cable and then positive cable of battery. Disconnect engine wiring harness at disconnecting point A 29 (see wiring diagram in section 40 and fig. 9).

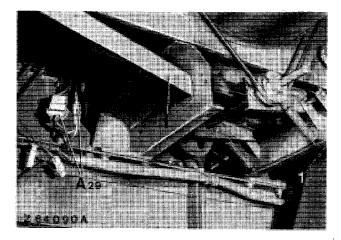
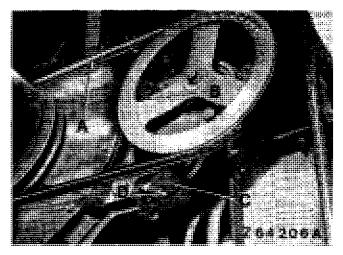


Fig. 9 – Engine Wiring Harness Disconnecting Point A29 Engine wiring harness disconnecting point 1 Engine carrier supports

On engines with a Thermostart cold weather starting aid, disconnect cable from burner at intake manifold. Remove both engine carrier supports 1 (fig. 9) and right-hand engine guards, Also remove the right-hand rear engine covers. Disconnect fuel suction and return lines from fuel transfer pump and return line.

Loosen square-headed hydraulic pump drive belt adjusting screw B. Remove V-belt A from pulley and finally remove hydraulic pump complete with adjusting lever C from bracket after having removed clamping screw D,

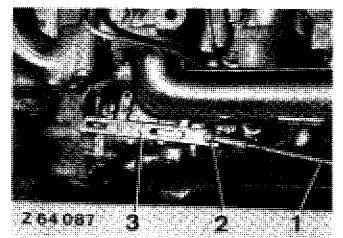


- Fig. 10 Removal of Hydraulic Pump (955 Shown)
  - A V-belt
  - Adjusting screw В
  - C Adjusting lever Ď
  - Clamping screw

Remove engine breather hose 1 (fig. 12) from lefthand side of engine.

Remove engine oil drain hose 2 (fig. 12) from lefthand side of combine,

Disconnect throttle and stop control linkage 1 (fig. 11) at ball joint 2 from fuel injection pump (disconnect wire clip).



#### Fig. 11 - Removing Various Engine Connections Near Fuel Injection Pump

- Throttle and stop control linkage
- Ball joint
- 3 Throttle and stop adjusting plate

Remove unloading auger drive belt 4 (fig. 12) from engine drive pulley.

Shift control lever of unloading auger into operating position.

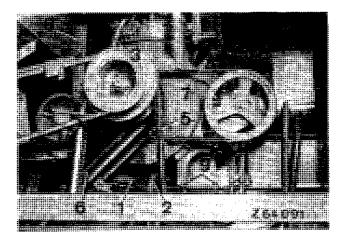
Slacken ground drive belt 5 and remove from engine drive pulley.

Remove flat belt 6 from engine drive pulley after having removed belt guide.

Remove hydraulic pump drive belt 7 from engine drive pulley.

Remove flat belt tension roller from tensioner bracket.

Disconnect grain tank braces 8 from engine carrier.



#### Fig. 12 – Removing Various Engine Connections Near Drive Pulley

- 1 Engine breather hose
- 2 Engine oil drain hose
- 3 Breather tube
- 4 Unloading auger drive belt5 Ground drive belt
- 5 Ground d 6 Flat belt
- Flat belt
   Hydraulic pump drive belt
- 8 Grain tank braces
- 9 Attaching cap screws of engine carrier supports

Remove attaching cap screws 9 of engine carrier supports.

Attach lifting eyes to engine (see fig. 13 and Special Tools). By means of a suitable hoist lift up complete engine approx. 150 mm (6 in.) and slide engine to the right out of combine.

IMPORTANT! There are shims located under the engine carrier. Attach shims to specific carrier when engine is raised. This to ensure that original shim packs are placed under engine carriers when engine is reinstalled. This is important for engine alignment.

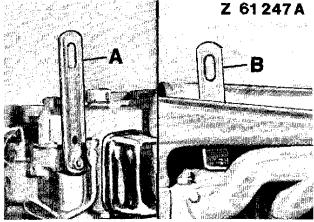


Fig. 13 – Attaching Lifting Eyes

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

### Installation

When installing the engine, reverse removal procedure.

IMPORTANT! Make sure when aligning engine that marks made on engine carrier and combine are aligned on both sides of engine.

Check crankcase oil and coolant level.

Bleed fuel system. See operator's manual for details.

Make a test run of the engine.

After the test run check all attaching cap screws for tightness. Then check all drive belts for correct adjustment, true running and tension.

Check engine speeds to make sure that beater is running at specified speed of  $850\pm^{30}_{0}$  rpm. If necessary, adjust throttle and stop control linkage.

At full load speed adjusting plate 3 should lightly contact stop. If not, adjust control linkage 1 (fig. 11).

## 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 of 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.

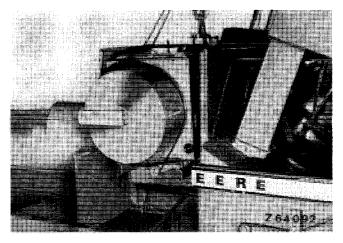


Fig. 14 – Engine Being Removed Sideways from Side of Combine

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.

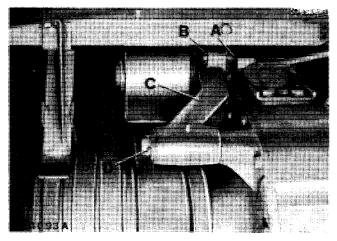


Fig. 15 – Removing Cutting Platform Throw-Out Device

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

#### 10-25-8 Separation

General

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

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

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

Disconnect all belts from engine drive pulley.

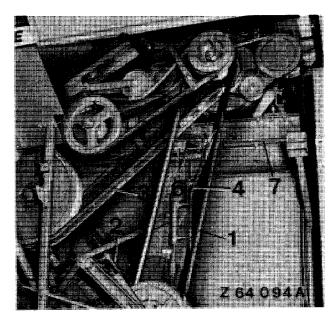


Fig. 16 - Preparing to Remove Engine (Combines with Variable Ground Speed Drive)

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

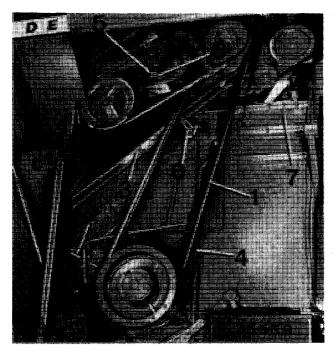
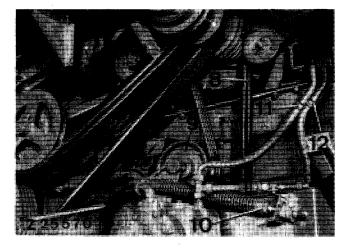


Fig. 17 -- Preparing to Remove Engine (Combines with Posi-Torq Drive)

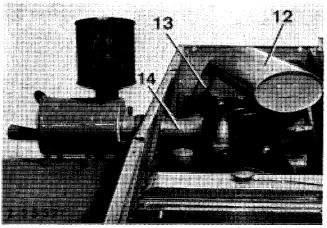
- Transmission drive belt
- Tensioner 2 3 4 5
- Power band guide Engine breather tube
- Pin
- 6 Bracket
- Engine mouting bracket
- 8 Connecting plates

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
  - Tensioner pulley 9
  - 10 Tensioner Disconnect point 11
  - 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)
  - Muffler 12 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.

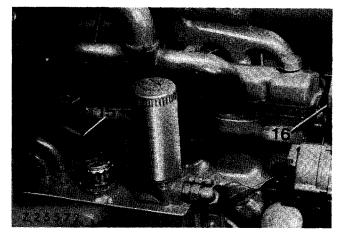


Fig. 20 – Preparing to Remove Engine

- 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.

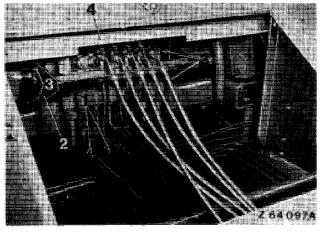


Fig. 21 – Preparing to Remove Engine at Control Valve

- Hose connections 12
- Bowden cable bracket
- 3 4 Cap screws 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).

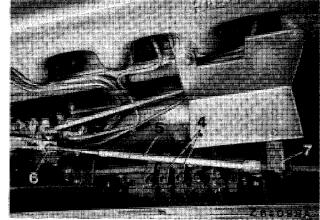


Fig. 22 - Preparing to Remove Engine at Roto-**Diesel Fuel Injection Pump** 

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

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

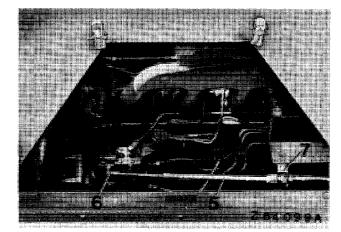


Fig. 23 - Preparing to Remove Engine at Roosa-Master Fuel Injection Pump

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

General

#### 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.

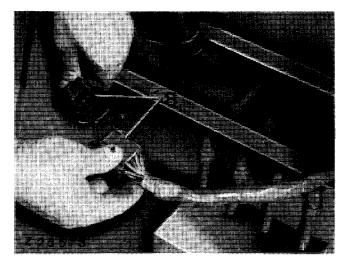


Fig. 24 – Wiring Harness Plug next to Operator's Seat (Seat Removed)

8 Wiring harness plug

Disconnect wiring harness plug 8 (fig. 24) at righthand 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.

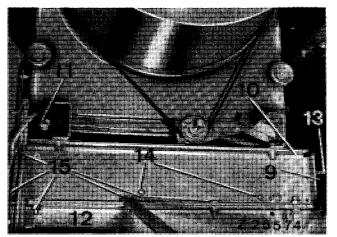


Fig. 25 — Removing Right-Hand Engine Mounting Bracket

- 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 s

15 Attaching screws

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

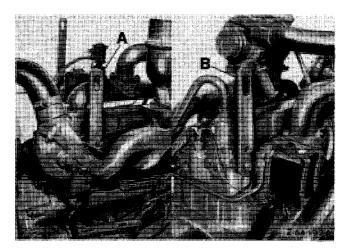


Fig. 26 - Attaching Lifting Eyes

- 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 ir 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.

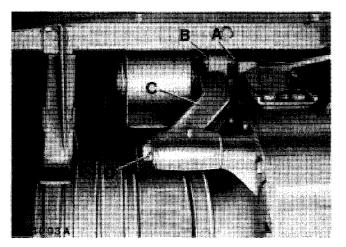


Fig. 27 – Removing Cutting Platform Throw-Out Device

- 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.

<sup>\*</sup> From Serial No. 018433

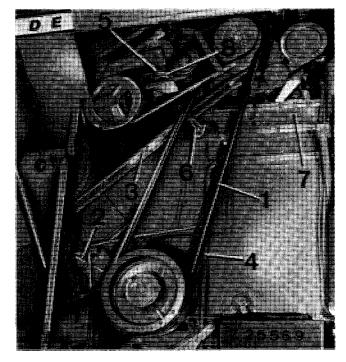
Thank you very much for your reading. Please Click Here. Then Get COMPLETE MANUAL. NO WAITING



# NOTE:

If there is no response to click on the link above, please download the PDF document first and then click on it.

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



#### Fig. 28 – Preparing to Remove Engine

Transmission drive belt

- 2 Tensioner
- 3 Power band guide 4 Engine breather tube
- Pin 5
- Bracket 6
- 7 8 Engine mounting bracket
- 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.

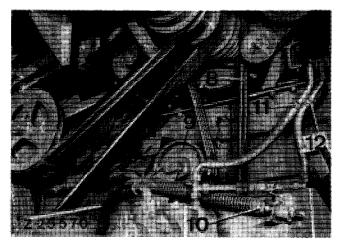


Fig. 29 - Preparing to Remove Engine (Combine with Hydrostatic Drive)

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

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

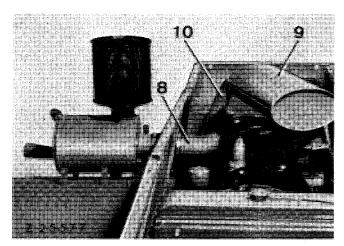


Fig. 30 - Preparing to Remove Engine (985 Combine Shown)

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.

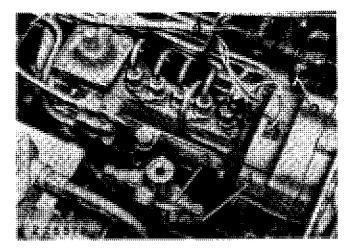


Fig. 31 - Preparing to Remove Engine

- 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 value 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.

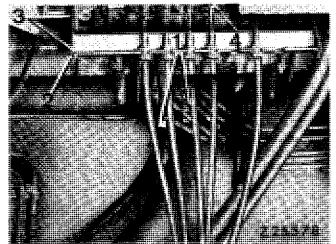


Fig. 32 – Preparing to Remove Engine at Control Valve

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

annast baurdan anbla braakat 2 (fir

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.

### 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.

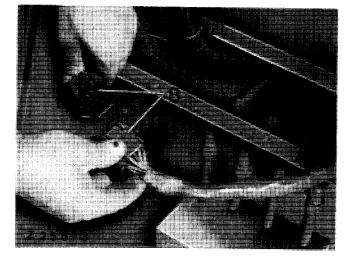


Fig. 33 – Wiring Harness Plug next to Operator's Seat (Seat Removed)

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.

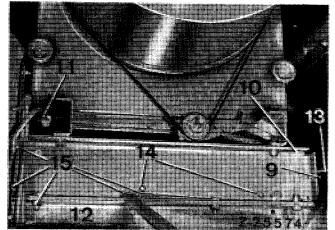


Fig. 34 – Removing Right-Hand Engine Mounting Bracket

- 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).