

9400, 9500, and 9600 Combines Repairs

**John Deere Harvester Works
TM1401 (28JUL97)**

LITHO IN U.S.A.
ENGLISH

Introduction

FOREWORD

This manual is written for an experienced technician. Essential tools required in performing certain service work are identified in this manual and are recommended for use.

Live with safety: Read the safety messages in the introduction of this manual and the cautions presented throughout the text of the manual.



This is the safety-alert symbol. When you see this symbol on the machine or in this manual, be alert to the potential for personal injury.

Technical manuals are divided in two parts: repair and operation and tests. Repair sections tell how to repair the components. Operation and tests sections help you identify the majority of routine failures quickly.

Information is organized in groups for the various components requiring service instruction. At the beginning of each group are summary listings of all applicable essential tools, service equipment and tools, other materials needed to do the job, service parts kits, specifications, wear tolerances, and torque values.

Technical Manuals are concise guides for specific machines. They are on-the-job guides containing only the vital information needed for diagnosis, analysis, testing, and repair.

Fundamental service information is available from other sources covering basic theory of operation, fundamentals of troubleshooting, general maintenance, and basic type of failures and their causes.

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All information, illustrations and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

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Section 10 GENERAL

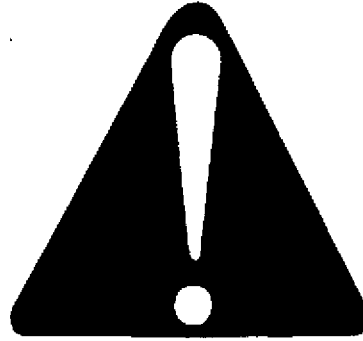
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RECOGNIZE SAFETY INFORMATION

This is the safety-alert symbol. When you see this symbol on your machine or in this manual, be alert to the potential for personal injury.

Follow recommended precautions and safe operating practices.



DX,ALERT -19-03MAR93

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05
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-UN-07DEC88
T81389

UNDERSTAND SIGNAL WORDS

A signal word—DANGER, WARNING, or CAUTION—is used with the safety-alert symbol. DANGER identifies the most serious hazards.

DANGER or WARNING safety signs are located near specific hazards. General precautions are listed on CAUTION safety signs. CAUTION also calls attention to safety messages in this manual.



DX,SIGNAL -19-03MAR93

-19-30SEP88
TS187

HANDLE FLUIDS SAFELY—AVOID FIRES

When you work around fuel, do not smoke or work near heaters or other fire hazards.

Store flammable fluids away from fire hazards. Do not incinerate or puncture pressurized containers.

Make sure machine is clean of trash, grease, and debris.

Do not store oily rags; they can ignite and burn spontaneously.



DX,FLAME -19-04JUN90

-UN-23AUG88
TS227

SPECIFICATIONS

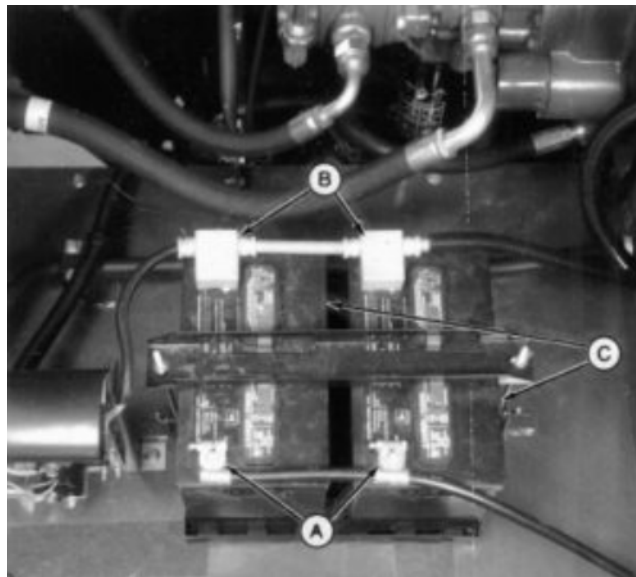
Item	Measurement	Specification
Engine:		
6359 (9400 Combine)	Approximate Weight	533 kg (1175 lb)
6068 (9400 Combine)	Approximate Weight	602 kg (1324 lb)
6076 (9500 and 9600 Combines)	Approximate Weight	816 kg (1800 lb)
Engine-to-Bell Housing Cap Screws	Torque	340 N·m (250 lb-ft)
Engine Mount Cap Screw	Torque	80 N·m (60 lb-ft)
Engine Crankcase:		
9400 Combine (6359A)	Capacity	14 L (14-1/2 qt)
(6068H)	Capacity	18.9 L (20 qt)
9500 and 9600 Combines	Capacity	25 L (26-1/2 qt)
Cooling System (With Heater):		
9400, 9500 and 9600 Combines	Capacity	36 L (38 qt)
9600 Corn Combine	Capacity	40 L (42 qt)

HX1401,2005,C -19-05DEC96

REMOVE ENGINE

1. At both batteries in the engine compartment, disconnect both negative (ground) terminal clamps (A) first. Lift the protective covers and remove both positive terminal clamps (B).

A—Negative Clamps
B—Positive Clamps
C—Batteries

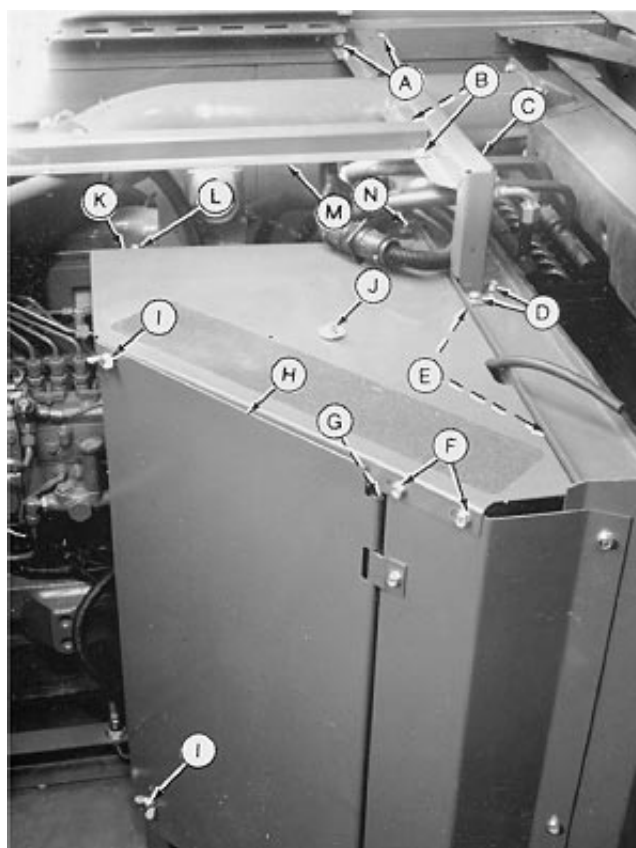
-JUN-12SEP96
H47959

HX,1401,2005,AA-19-16SEP96

NOTE: The following steps 2 through 5 reflect removal for combines: 9400 (-640100), 9500 (-640200), 9600 (-640300).

2. Open hinged access above engine.
3. Remove cap screws (A, B and D) to remove channel (C).
4. Remove cap screws (E, F, L and N) and pin (J) to remove cover sheet (K).
5. Remove wing screws (I) and pin (G) to remove fan guard door (H).

A—Cap Screw (2 used)
 B—Cap Screw (2 used)
 C—Channel
 D—Cap Screw (2 used)
 E—Cap Screw (2 used)
 F—Cap Screw (2 used)
 G—Pin
 H—Fan Guard Door
 I—Wing Screw (2 used)
 J—Pin
 K—Cover Sheet
 L—Cap Screw (2 used)
 M—Channel
 N—Cap Screw



HX,1401,2005,A -19-28AUG96

H40455 -UN-05JUN89

NOTE: The following steps 6 through 9 reflect removal for combines: 9400 (640101-), 9500 (640201-), 9600 (640301-).

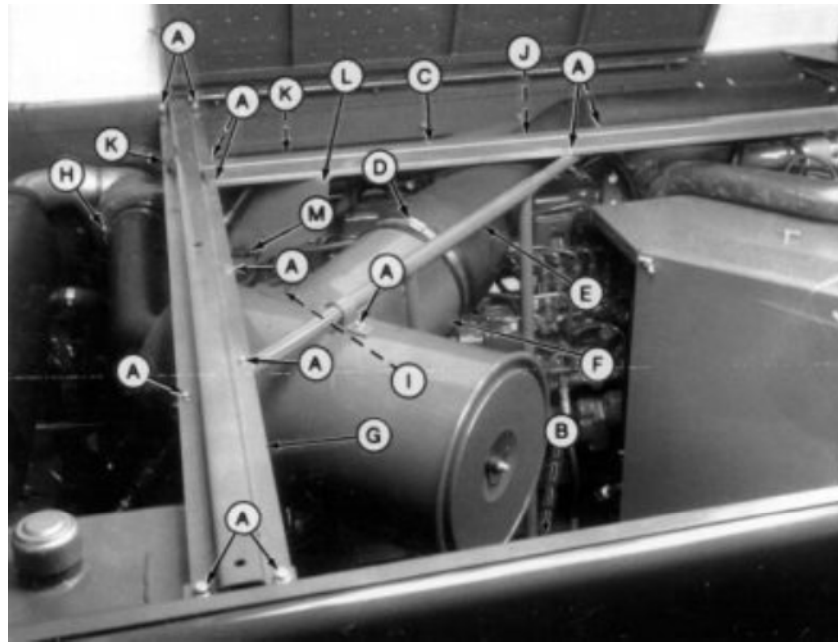
6. Open hinged access above engine.
7. Remove cap screws (A) and spacers (L).
8. Remove cap screws (B, C, I and K) and lock pin (G) to remove cover sheet (H).
9. Remove wing screws (F) and hinge pin (D) to remove fan guard door (E).

A—Cap Screw (2 Used)
 B—Cap Screw (2 Used)
 C—Cap Screw (2 Used)
 D—Hinge Pin
 E—Fan Guard Door
 F—Wing Screw (2 Used)
 G—Lock Pin
 H—Cover Sheet
 I—Cap Screw (2 Used)
 J—Channel
 K—Cap Screw and Clamp
 L—Spacer (2 Used)



1401,DV469 -19-27SEP96

H47960 -UN-12SEP96



H47961
-JUN-12SEP96

A—Cap Screws (12 used)
B—Wing Screw
C—Channel
D—Clamp

E—Brace with Ladder
F—Air Intake Tube
G—Channel

H—Clamp
I—Clamp
J—Cap Screw

K—Cap Screw (2 Used)
L—Harness Shield
M—Sensor Connector

9500 and 9600 Combines Shown

10. Remove cap screws (A and K), wing screw (B) (at ladder base) and air inlet duct cap screw (J) to remove channels (C and G), harness shield (L) and brace with ladder (E).

NOTE: Bend harness retainers, located on the underside of the channels, slightly to allow harnesses to be removed from channel.

11. Disconnect air cleaner plugged sensor connector (M).

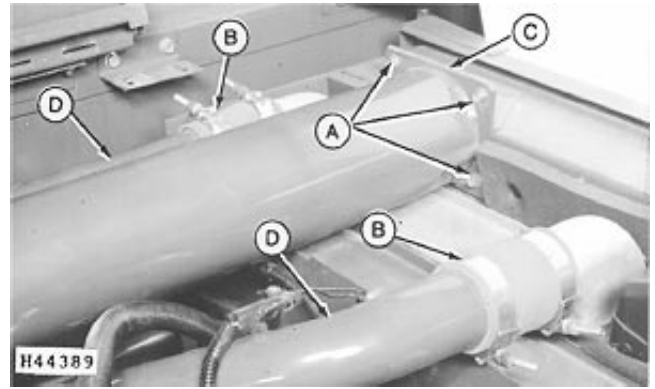
12. Remove clamps (D, H and I) to remove air cleaner intake tube (F) and air cleaner.

HX,1401,2005,BB-19-28AUG96

13. Remove four cap screws (A) from air cleaner intake tube (C).

14. (9500 and 9600 Only) Remove clamp (B) from intercooler tubes (D).

A—Cap Screws (4 Used)
B—Clamps
C—Intake Tube
D—Intercooler Tubes



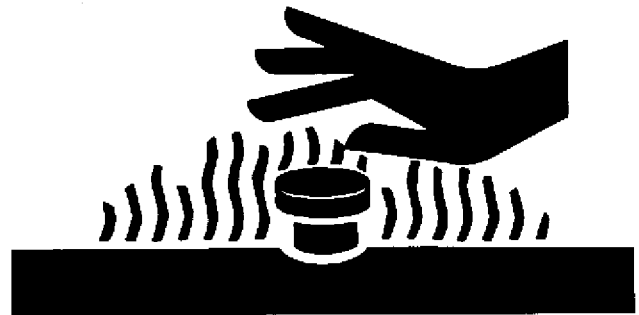
9500 and 9600 Combine Shown

HX,1401,2005,B -19-27SEP96



CAUTION: Coolant may be hot. Wait until radiator is cool to the touch before draining coolant.

15. Drain cooling system and remove radiator hoses.
(See procedure in Group 10.)

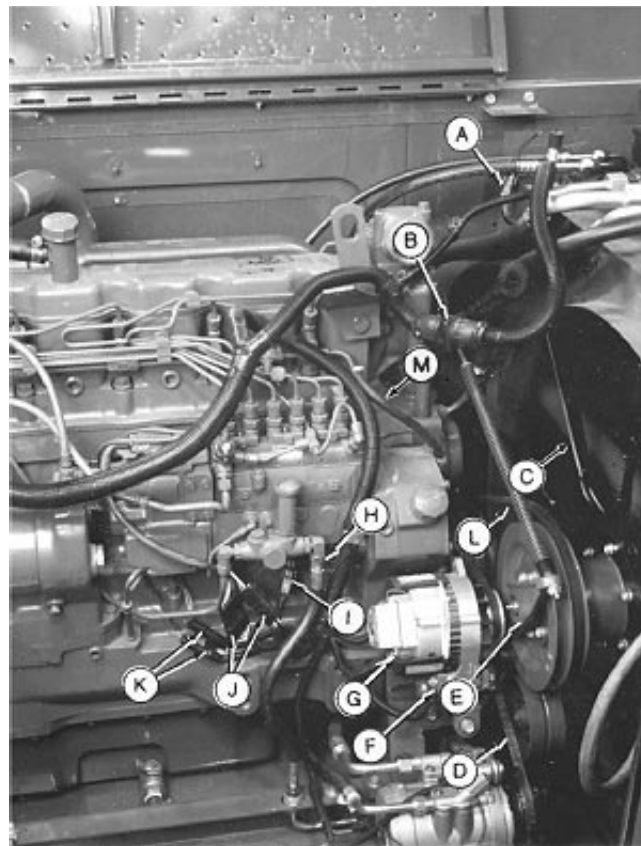


HX,1401,2005,C -19-28AUG96

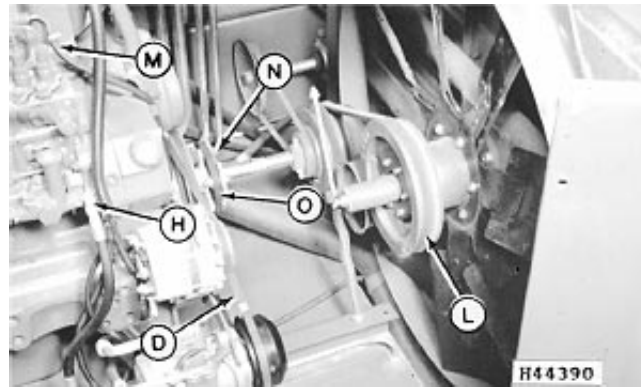
NOTE: The following steps 16 through 20 reflect removal for combines: 9400 (—640100), 9500 (—640200), 9600 (—640300).

16. Disconnect wiring leads (A, B, F, G, and I-K).
17. Remove air conditioner compressor belt (D) and fan belt (L).
18. (9400 and 9500 Only) Remove fan belt drive (E) and fan (C).
19. (9600 Only) Remove cap screws (N) from drive disk (O).
20. Remove fuel line (H) and return line (M). Put caps or covers on fittings to keep dirt from entering fuel system.

- A—Wiring Lead-to-Hydraulic Reservoir Sending Unit
- B—Main Wiring Harness Connector
- C—Fan
- D—Belt
- E—Fan Belt Drive
- F—Ground Wire
- G—Wiring Harness Lead-to-Alternator
- H—Fuel Line
- I—Wiring Harness Lead-to-Tachometer Sender Injection Pump
- J—Wiring Harness Lead-to-Governor (2 used) Injection Pump
- K—Wiring Harness Lead-to-Fuel Pump Injection Pump
- L—Fan Belt
- M—Fuel Return Line
- N—Cap Screws
- O—Drive Disk



9500 Combine Shown



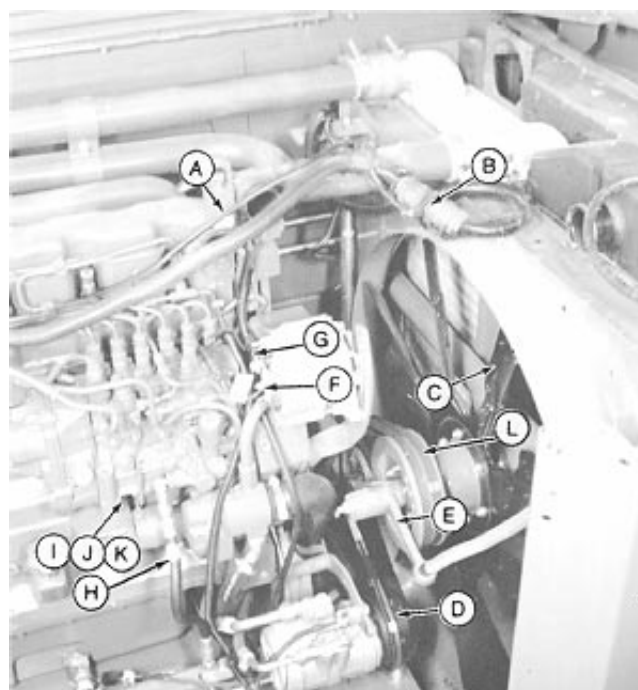
9600 Combine Shown

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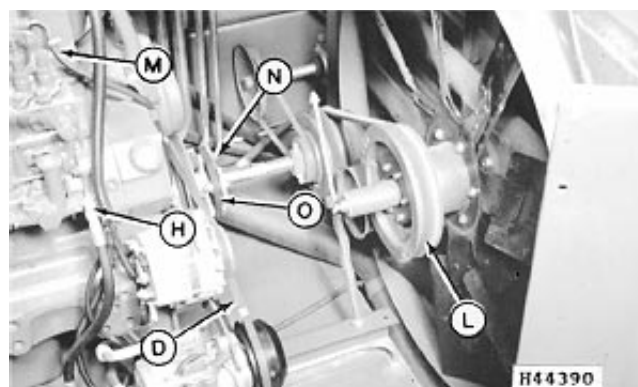
NOTE: The following steps 21 through 25 reflect removal for combines: 9400 (—650100), 9500 (—650200), 9600 (—650300).

21. Disconnect wiring leads (A, B, F, G and I-K).
22. Remove air conditioner compressor belt (D) and fan belt (L).
23. (9400 and 9500 Only) Remove fan belt drive (E) and fan (C).
24. (9600 Only) Remove cap screws (N) from drive disk (O).
25. Remove fuel line (H) and return line (M). Put caps or covers on fittings to keep dirt from entering fuel system.

- A—Wiring Lead to Hydraulic Reservoir Sending Unit
- B—Main Wiring Harness Connector
- C—Fan
- D—Belt
- E—Fan Belt Drive
- F—Ground Wire
- G—Wiring Harness Lead to Alternator
- H—Fuel Line
- I—Wiring Harness Lead-to-Tachometer Sender Injection Pump
- J—Wiring Harness Lead-to-Governor (2 used)-Injection Pump
- K—Wiring Harness Lead-to-Fuel Pump-Injection Pump
- L—Fan Belt
- M—Fuel Return Line
- N—Cap Screws
- O—Drive Disk



9500 Combine Shown



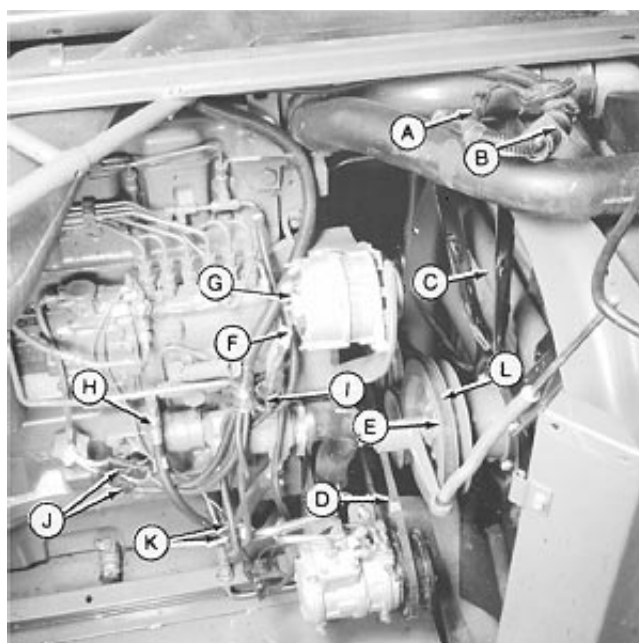
9600 Combine Shown

HX1401,2005,E -19-27SEP96

NOTE: The following steps 26 through 30 reflect removal for combines: 9400 (650101—), 9500 (650201—), 9600 (650301—).

26. Disconnect wiring leads (A, B, F, G and I-K). (Combines with Nippondenso Fuel Inj; Disconnect wiring lead to injection pump governor (J)).
27. Remove air conditioner compressor belt (D) and fan belt (L).
28. (9400 and 9500 Only) Remove fan belt drive (E) and fan (C).
29. (9600 Only) Remove cap screws (N) from drive disk (O).
30. Remove fuel line (H) and return line (M). Put caps or covers on fittings to keep dirt from entering fuel system.

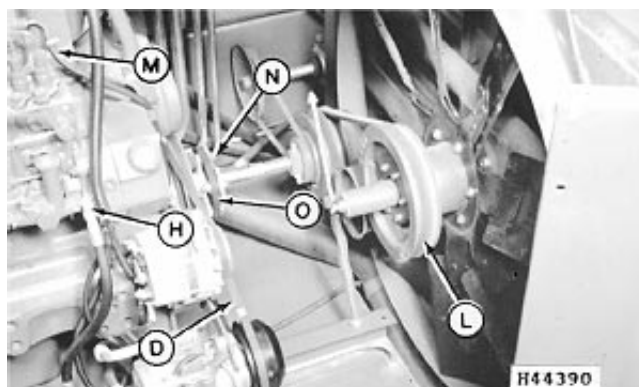
- A—Wiring Lead-to-Hydraulic Reservoir Sending Unit
- B—Main Wiring Harness Connector
- C—Fan
- D—Belt
- E—Fan Belt Drive
- F—Ground Wire
- G—Wiring Harness Lead-to-Alternator
- H—Fuel Line
- I—Wiring Harness Lead-to-Tachometer Sender-Injection Pump
- J—Wiring Harness Lead-to-Governor (2 used)-Injection Pump
- K—Wiring Harness Lead-to-Fuel Pump-Injection Pump
- L—Fan Belt
- M—Fuel Return Line
- N—Cap Screws
- O—Drive Disk



9500 W/Nippondenso Fuel Inj.

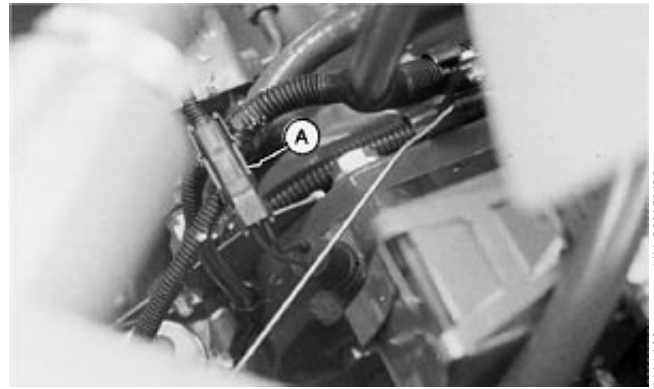


9500 W/Bosch Fuel Inj.

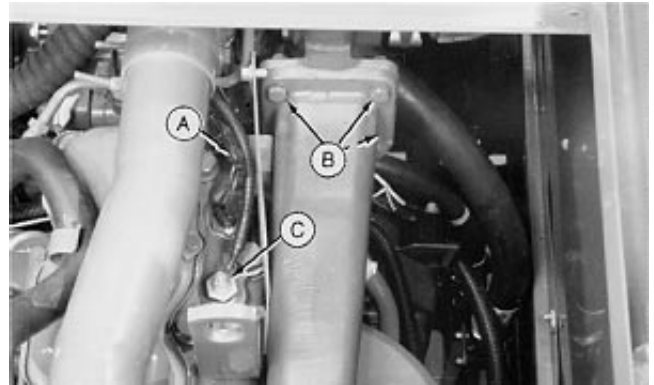


9600 Combine Shown

31. Disconnect wiring connector (A) from engine temperature switch.
32. Remove cap screws (B) from exhaust manifold.
33. Disconnect sending unit wiring lead (C).



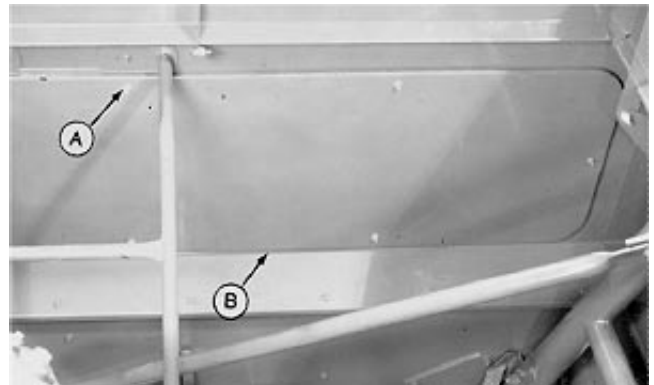
9400 Combine



9500 and 9600 Combines

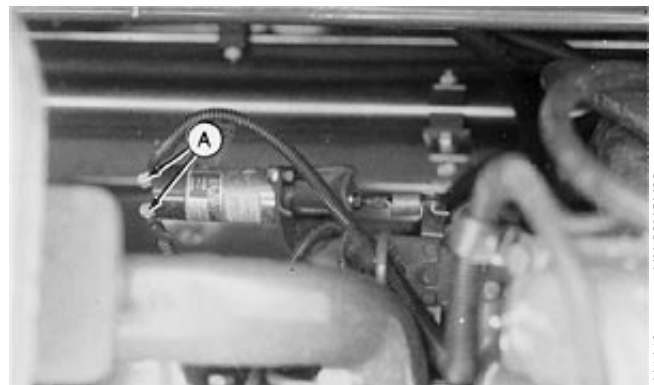
HX,1401,2005,F -19-28AUG96

34. From inside grain tank remove six cap screws (A) to remove engine access panel (B).



HX,1401,2005,G -19-28AUG96

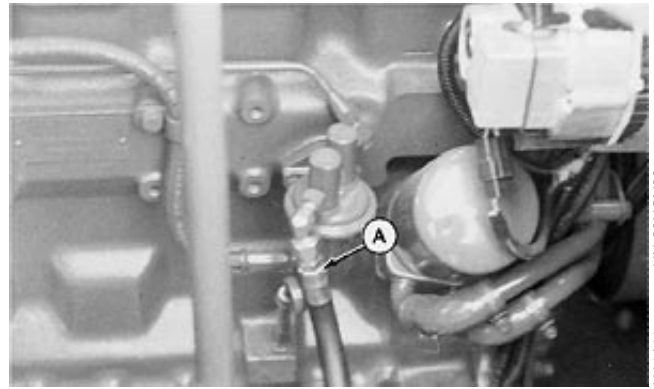
35. (9400 Only) Disconnect leads (A) from throttle control.



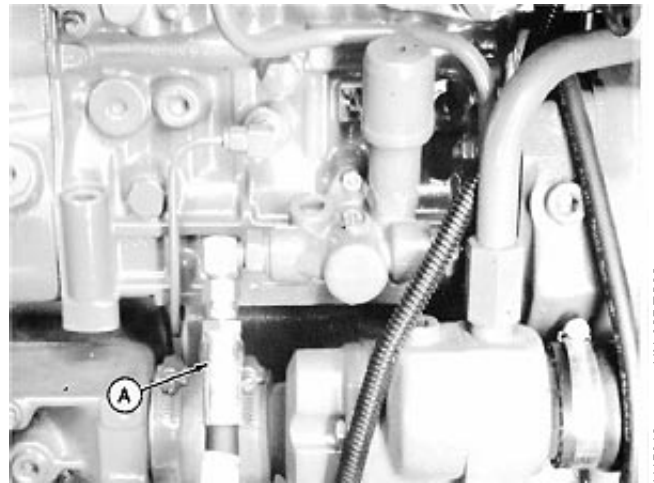
9400 Combine

HX,1401,2005,H -19-28AUG96

36. Disconnect fuel line (A) from fuel transfer pump.



9400 Combine

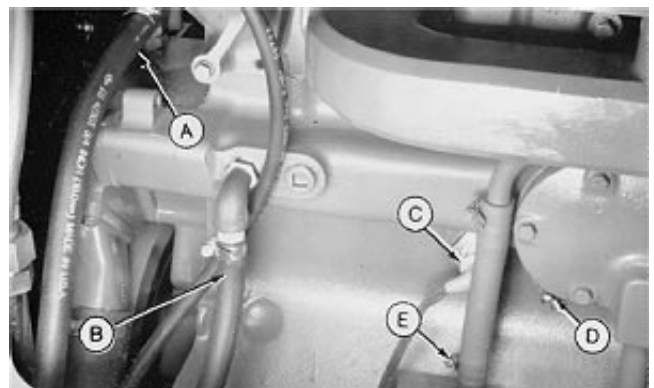


9500 Combine

HX,1401,2005,I -19-28AUG96

37. (9600) Disconnect heater hoses (A and B) and turbocharger tube (E).

- A—Heater Hose
- B—Heater Hose
- C—Block Heater
- D—Block Drain
- E—Turbocharger Tube

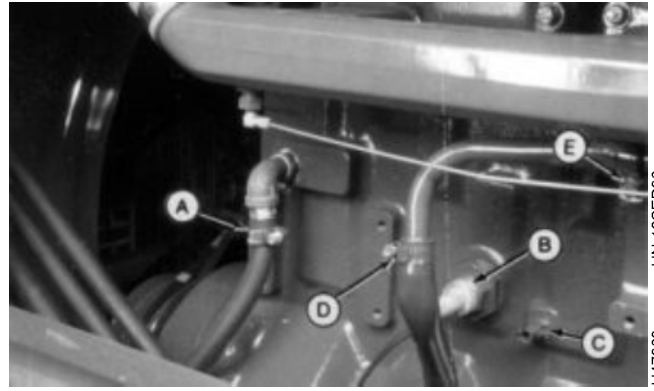


9600 Combine

HX,1401,2005,J -19-27SEP96

38. (9500) Disconnect heater hose (A) and turbocharger return oil line (D).

- A—Heater Hose
- B—Block Heater
- C—Block Drain
- D—Turbocharger Return Oil Line
- E—Turbocharger Tube Mount Clamp



9500 Combine

1401,DV699 -19-27SEP96

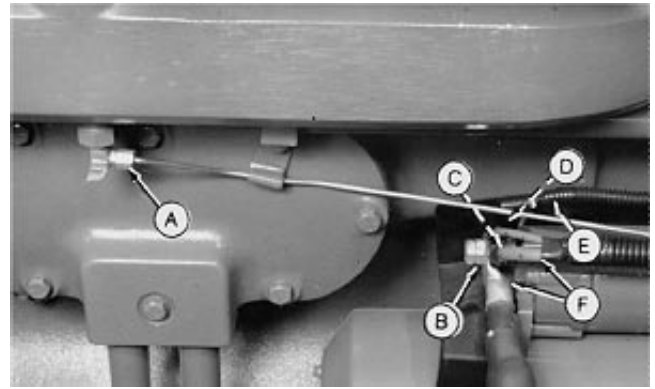
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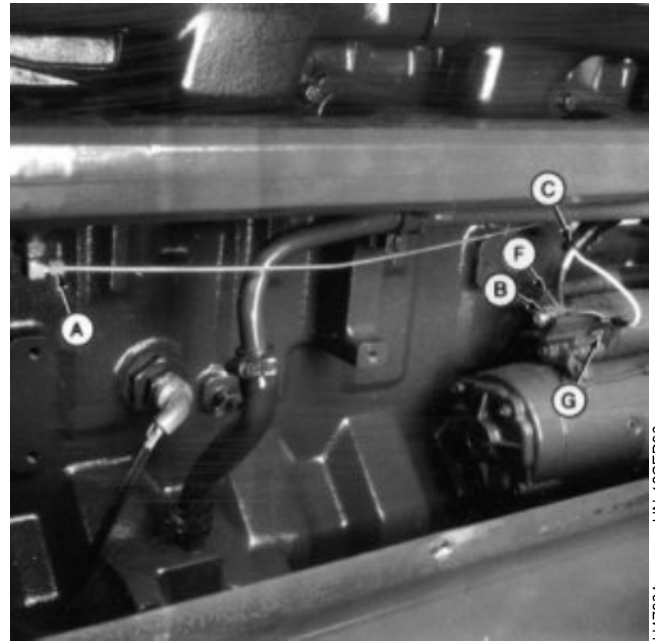
39. Disconnect cold weather starting aid line (A).

40. Remove parts (B—G) from starting motor.

- A—Starting Aid Line
- B—Nut (2 used)
- C—Main Harness
- D—Plastic Cover
- E—Wiring Harness
- F—Battery Cable
- G—Terminal Nut



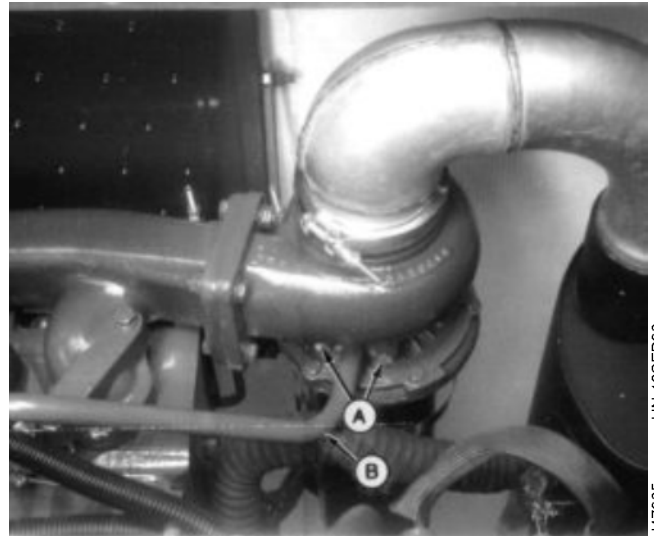
9600 Combine



9500 Combine

HX,1401,2005,K -19-28AUG96

41. On lower surface of the turbocharger remove two cap screws (A) at return oil line (B) mount flange. Remove oil line.



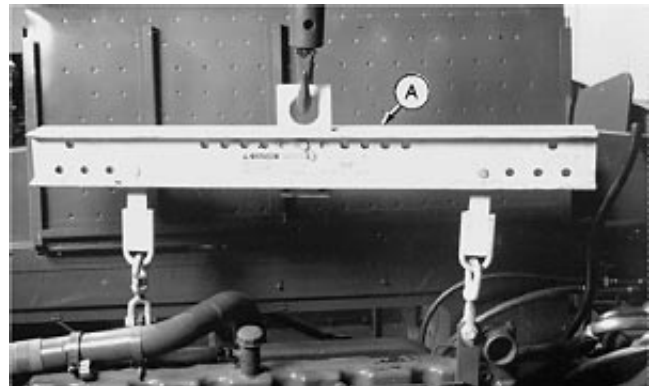
1401,DV470 -19-28AUG96



CAUTION: The approximate weight of the 6359 engine is 533 kg (1175 lbs). The approximate weight of the 6068 engine is 602 kg (1324 lbs). The approximate weight of the 6076 engine is 816 kg (1800 lbs).

IMPORTANT: Use only a lifting sling, like the JDG-23 that has a spreader bar. Other types of lift slings could damage the cylinder head.

42. Install JDG-23 engine lifting sling (A). Take up slack in lift chains before removing engine mount cap screws.



HX1401,2005,G -19-28AUG96

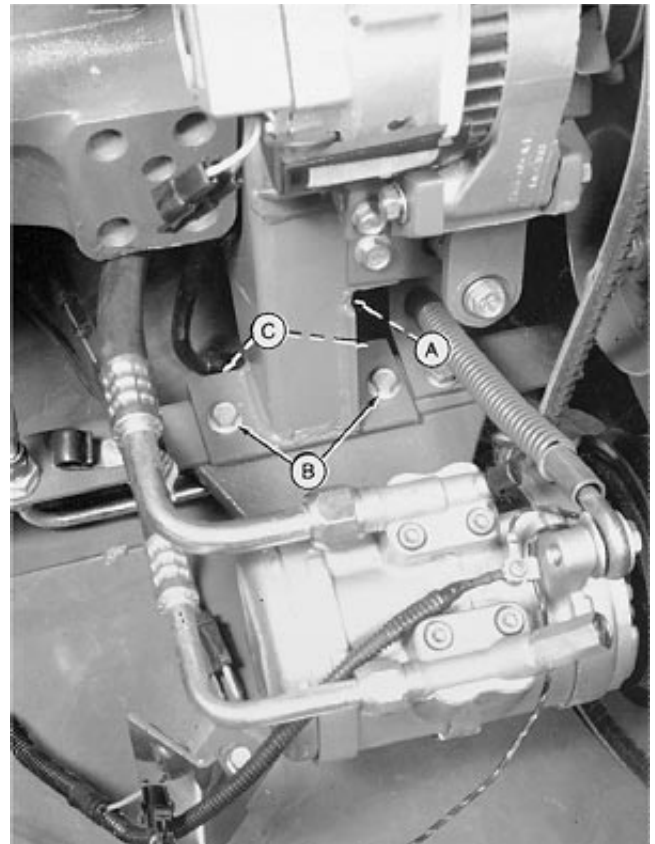
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H47965 -UN-12SEP96

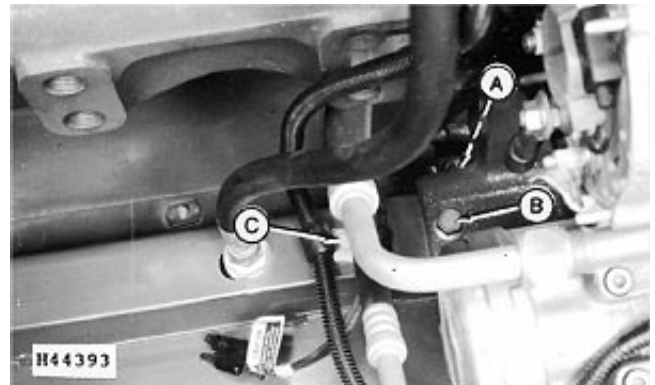
H40533 -UN-05JUN89

43. Remove front engine mount cap screws (A—C).
44. Remove front engine mount cap screws (A and B).
45. Remove cap screw(s) (C).

A—Cap Screw (2 used)
 B—Cap Screw (2 used)
 C—Cap Screw (quantity depends on mt instln)



9500(-640200) and 9600(-640300)



Later Models*



Latest Models**

* = 9500(640201 - 655551), SH9500(645201 - 655531) and 9600(640301 - 655524)

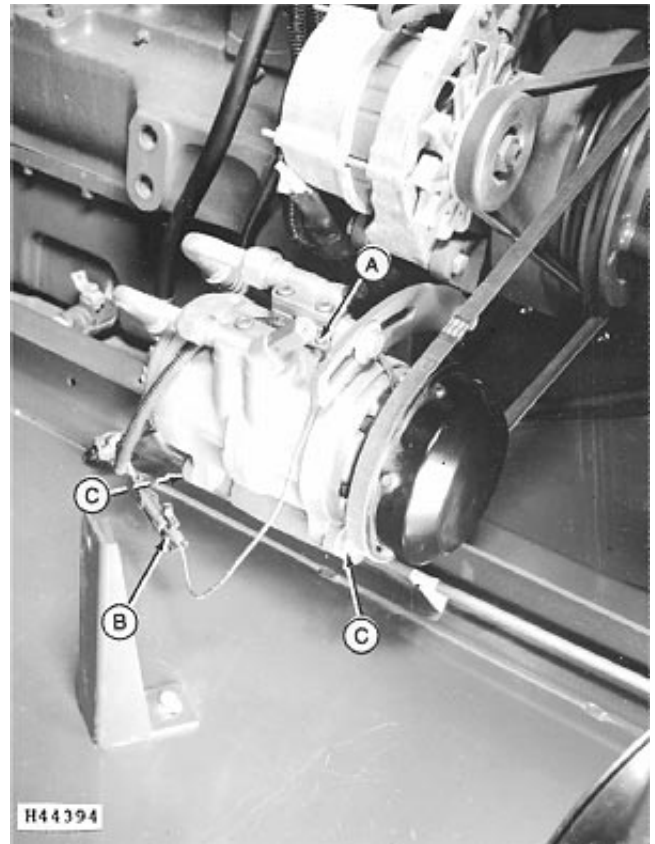
** = 9500/SH9500(655552-) and 9600(655525-)

HX,1401,2005,M -19-05DEC96

NOTE: DO NOT disconnect refrigerant lines.

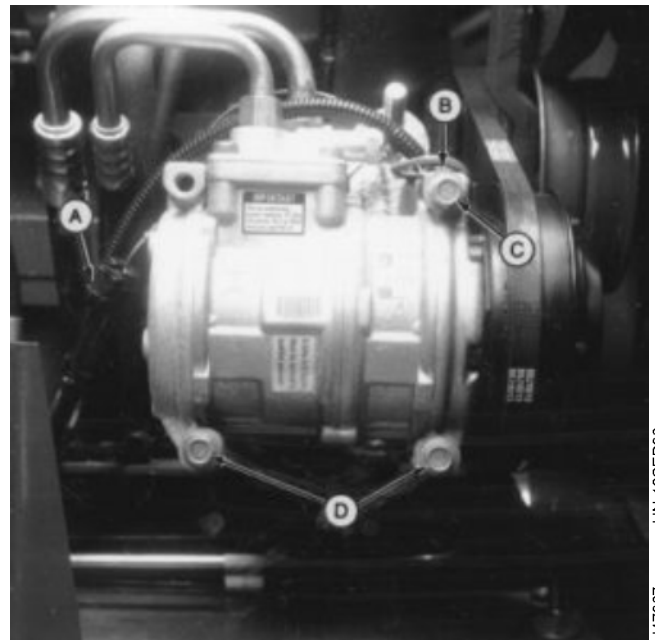
46. Remove electrical connections (A and B).

47. Remove cap screws (C and D), remove belt from pulley, and place air conditioner compressor on floor of engine compartment.



R-12 A/C Compressor Shown

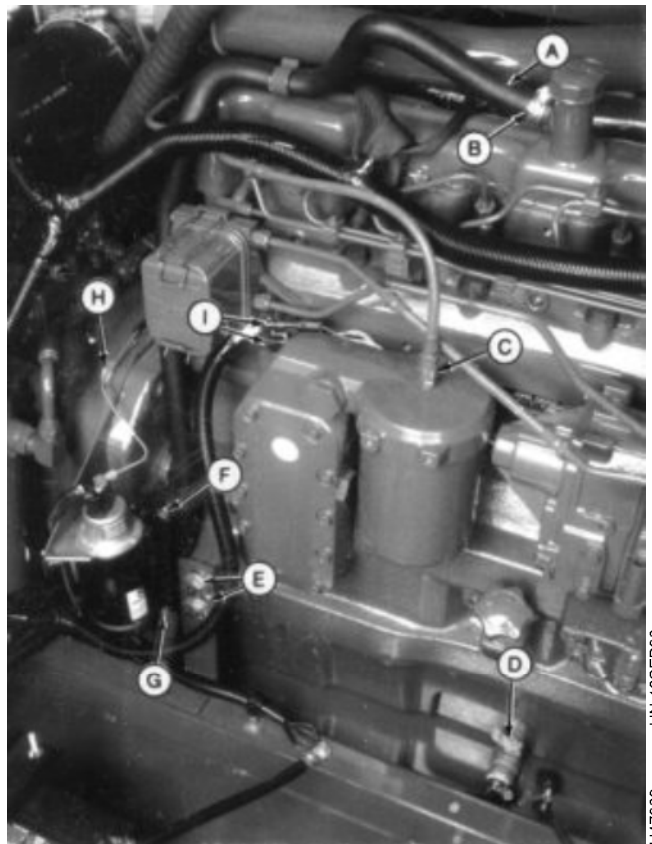
A—Electrical Connector
 B—Electrical Connector
 C—Cap Screw
 D—Cap Screw



R-134a A/C Compressor Shown

48. Remove clamp (B) to remove breather hose (A).
49. Remove turbocharger oil line (C).
50. Drain engine oil. Approximate capacity is 14 L (14-1/2 qt) for 6359 engine, 19 L (20 qt) for 6068 engine on 9400 combine and 23.2 L (24-1/2 qt) on 9500 and 9600 combines.
51. Remove engine oil drain line (D) from shut-off valve.
52. Disconnect oil pressure sending switch connector (F).
53. Disconnect fuel injector pump connectors (I) (Bosch Fuel Injection - S/N 536794-).
54. Remove rear mounting cap screws (E) on each side.
55. Remove bellhousing cap screws (H) and dust cover cap screws (G).

- A—Breather Hose
- B—Clamp
- C—Turbocharger Oil Line
- D—Oil Drain Line
- E—Cap Screw (4 used)
- F—Oil Pressure Sending Switch Connector
- G—Cap Screw (4 used)
- H—Cap Screw (4 used)
- I—Fuel Injector Pump Connectors (Bosch)



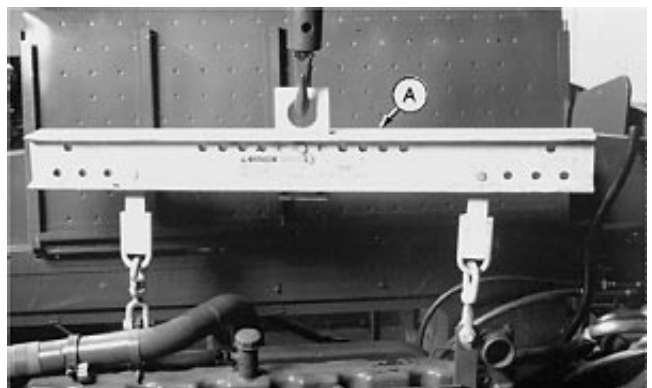
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CAUTION: Use extreme care when lifting and NEVER permit any part of the body to be positioned under a load being lifted or suspended.

56. Attach engine hoist fixture (A) to engine lift fittings. Carefully move engine away from bellhousing. Lift engine out of combine.
57. For 9400 combine, see CTM-4 or CTM-8 for engine repair; for 9500, 9600 and CTS combines, see CTM-6 or CTM-42 for engine repair.



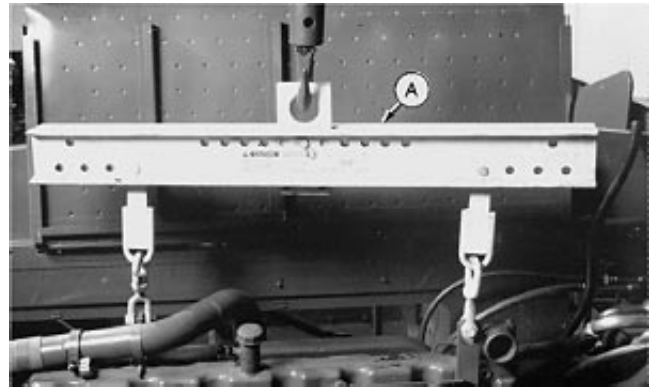
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INSTALL ENGINE

⚠ CAUTION: Use extreme care when lifting engine and **NEVER** permit any part of the body to be positioned under a load being lifted or suspended.

1. Carefully lower engine to align with bellhousing.



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Suggest:

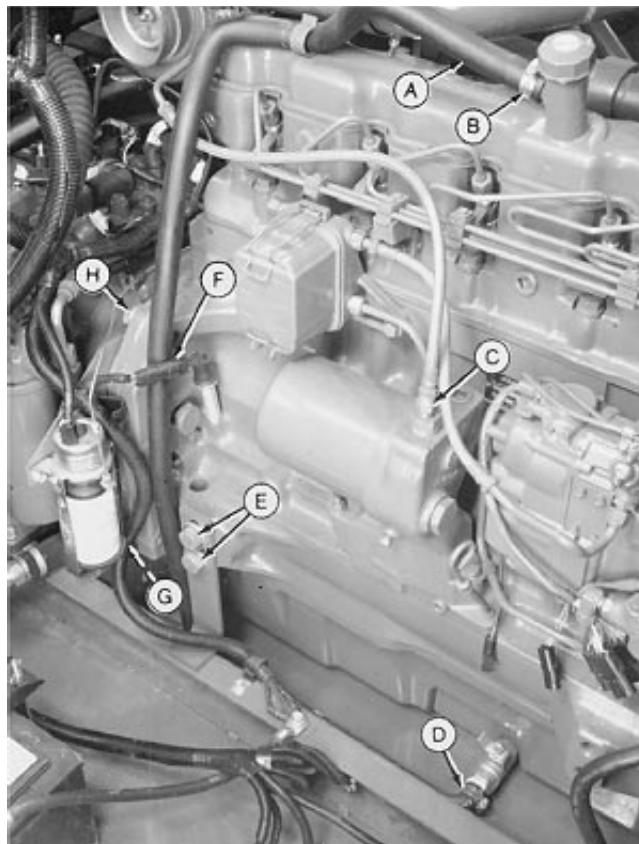
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2. Install bellhousing cap screws (H). Tighten to 340 N·m (250 lb-ft).
3. Install rear mounting cap screws (E) and tighten to 80 N·m (60 lb-ft).
4. Install dust cover cap screws (G).
5. Connect oil pressure sending switch connector (F).
6. (Bosch Fuel Inj - Eng S/N 536794-) Connect fuel injector pump connectors (I).
7. Install engine oil drain line (D) to shut-off valve.
8. Install turbocharger oil line (C).
9. Install breather hose (A). Tighten clamp (B).

A—Breather Hose
B—Clamp
C—Turbocharger Oil Line
D—Oil Drain Line
E—Cap Screw (4 used)
F—Oil Pressure Sending Switch Connector
G—Cap Screw (4 used)
H—Cap Screw (4 used)
I—Fuel Inj Pump Connectors
 (Bosch Fuel Inj-Eng S/N 536794-)



9400 Combine Shown



9500 and 9600 Combines Shown

HX1401,2005,J -19-05DEC96

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