

**Chassis  
F-544  
Tractor**

Service Manual

GSS1396

Reprinted

**CASE** 

## FOREWORD

The instructions and special tools shown in this Blue Ribbon Service Manual are for use by International Harvester Dealers and their factory trained servicemen.

The specifications as listed in this manual are current as of the printing date. Due to changes and improvements in our products, dealers are periodically issued service bulletins to keep this manual up-to-date. We suggest you refer to the most recent information when performing service work on this equipment.

International Harvester Factory Trained servicemen are best qualified to service IH equipment.

### LIBRARY FILING INFORMATION

1. File this Manual in Book 17 after Divider Tab GSS-1396. This Manual replaces GSS-1390 which should be destroyed.
2. Enter the following information in the Service Manual Index.
  - (a) In the Tractor Specifications Section, mark out the entry for GSS-1390.
  - (b) In the following Sections, print, or preferably type in, the Manual Description, Form Number, and the Book Filed in for this Manual.

Tractor Electrical System

Tractor Transmission

Tractor Differential and Final Drive

Tractor Clutch

Tractor Brakes

Tractor PTO and Belt Pulley

Tractor Chassis

Tractor Hydraulics

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## **SPECIAL SERVICE TOOLS REQUIRED**

### **SECTION 1**

FES 100            Universal Engine Lifting Chain Assembly

### **SECTION 2**

FES 11-1A        Front jack stand  
FES 11-1B        Rear Safety stand  
FES 52            Engine stand  
FES 52-1         Engine adapter plate  
FES 68-7         Hook bolt  
FES 117          Rear jack stand  
FES 122          Retaining plate

### **SECTION 3**

FES 11-1A        Front jack stand  
FES 50            Clutch adjusting tool  
FES 68-7         Hook bolt  
FES 117          Rear jack stand  
FES 122          Retaining plate

### **SECTION 4**

FES 10-6         Driving collar  
FES 10-9         Oil seal protector sleeve  
FES 10-10        Oil seal protector sleeve  
FES 10-11        Pin punch  
FES 10-12        Spanner wrench  
FES 10-15        Dummy shaft  
FES 10-16        Allen wrench  
FES 10-23        Driving mandrel  
FES 10-29        Bearing driver

Plus all Tools listed in Section 2.

### **SECTION 5**

FES 10-27        Driver  
FES 11-1A        Front jack stand  
FES 11-1B        Rear safety stand  
FES 68-7         Hook bolt  
FES 117          Rear jack stand  
FES 122          Retaining plate

## **SECTION 6**

FES 2-8	Hose
FES 2-11	Connector
FES 2-17	Plug
FES 2-27	Hose
FES 2-28	Connector
FES 6-12	Special spanner wrench
FES 11-1A	Front jack stand
FES 51	Flo-Rater
FES 52	Engine stand
FES 52-1	Engine adapter plate
FES 57-3	O-ring removing tool
FES 58-20	Connector
FES 65	O-ring protector
FES 68-7	Hook bolt
FES 94-2	Tube connector
FES 94-4	Gauge
FES 98-1	Cap
FES 98-17	Service tee
FES 122	Retaining plate

## **SECTION 7**

None Required

## **SECTION 8**

FES 63	Volt-ampere tester
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## **SECTION 9**

FES 51	Flo-Rater
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# STANDARD TORQUE DATA FOR NUTS AND BOLTS

Recommended torque, in foot pounds, for all Standard Application Nuts and Bolts, provided:





- A. All thread surfaces are clean and lubricated with SAE-30 engine oil. (See NOTE.)
- B. Joints are rigid, that is, no gaskets or compressible materials are used.
- C. When reusing nuts or bolts use minimum torque values.

NOTE: Multiply the standard torque by:

- .65 when finished jam nuts are used.
- .70 when Molykote, white lead or similar mixtures are used as lubricants.
- .75 when parkerized bolts or nuts are used.
- .85 when cadmium plated bolts or nuts are used.
- .90 when hardened surfaces are used under the nut or bolt head.

Bolt or Stud Diameter	Type 1 Studs Only		Type 1 Bolts 6" length or less		Type 1 Bolts longer than 6"		Type 2 (all lengths)		Type 3 (all lengths)		Type 4 (all lengths)			
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Only when used in cast (gray) iron		All other applications	
											Min.	Max.	Min.	Max.
1/4	5	6	5	6	3	3	9	10	11	13	11	13	12	14
5/16	12	13	12	13	6	7	19	21	24	27	24	27	27	30
3/8	21	24	21	24	11	13	33	37	43	47	43	47	45	50
7/16	35	38	35	38	19	21	53	60	69	76	69	76	75	85
1/2	52	58	52	58	29	32	80	90	104	117	104	117	115	130
9/16	70	80	70	80	41	46	115	130	150	170	150	170	165	185
5/8	98	110	98	110	57	63	160	180	210	230	210	230	220	250
3/4	174	195	174	195	100	112	290	320	350	390	350	390	400	450
7/8	300	330	162	181	162	181	420	470	570	630	570	630	650	730
1	420	470	250	270	250	270	630	710	850	950	850	950	970	1090
1-1/8	600	660	350	380	350	380	850	950	1200	1350	1200	1350	1380	1550
1-1/4	840	940	490	540	490	540	1200	1350	1700	1900	1700	1900	1940	2180
1-3/8	1100	1230	640	710	640	710	1570	1760	2300	2500	2300	2500	2600	2800
1-1/2	1470	1640	850	940	850	940	2000	2300	3000	3300	3000	3300	3300	3700
1-3/4	2350	2450	1330	1490	1330	1490	3300	3700	4700	5200	4700	5200	5300	6000
2	3500	3900	2000	2200	2000	2200	5000	5500	7000	7800	7000	7800	8000	9000

## BOLT TYPE IDENTIFICATION CHART

IH TYPE	S.A.E. GRADE	DESCRIPTION	BOLT HEAD MARKING *
1	Equivalent 1 or 2	WILL HAVE IH STANDARD MONOGRAM IN THE CENTER OF THE HEAD Low or Medium Carbon Steel Not Heat Treated	
2	5	WILL HAVE AN IH AND 3 RADIAL LINES Quenched and Tempered Medium Carbon Steel	
3	6	WILL HAVE AN IH AND 4 RADIAL LINES No longer used in production. For replacement, use Type 4 if Type 3 is not available.	
4	8	WILL HAVE AN IH AND 6 RADIAL LINES Quenched and Tempered Special Carbon or Alloy Steel	

\* The center marking identifies the bolt manufacturer. The IH monogram is currently used. Some bolts may still have a raised dot which previously identified IH bolts.

**Section 1**

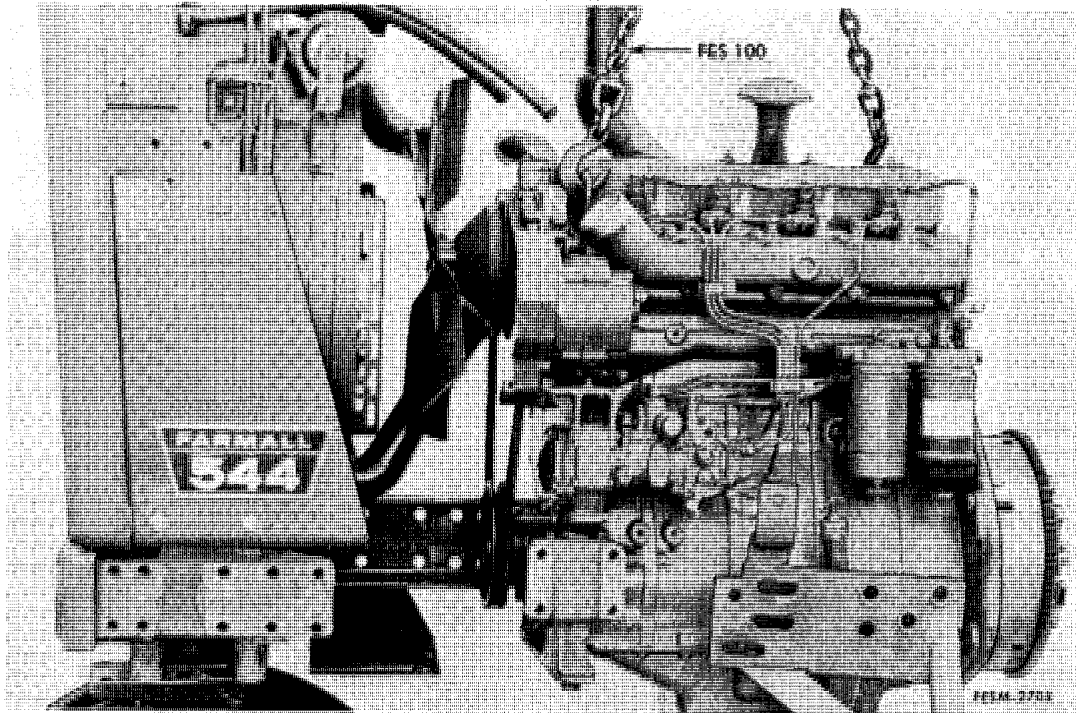
**ENGINE REMOVAL AND INSTALLATION**

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## ENGINE REMOVAL



Illust. 1-1. Removing the engine (diesel shown, gasoline similar).

1. Perform a front section split as outlined in Section 2.

2. Gasoline Engine: Remove the engine valve cover and install lift chain FES 100 (Illust. 1-1).

3. Diesel Engine: Attach the lift chain to the engine lifting eyes.

4. Attach a hoist to the lift chain and take up the slack (Illust. 1-1).

5. Remove the capscrews securing the engine front cover to the side channel.

6. Remove one of the side channels from the front bolster and remove the engine.

## ENGINE INSTALLATION

1. For engine installation, reverse the removal procedure.

2. Refer to "Recoupling the Tractor" in Section 2.



# Section 2

## SPLITTING THE TRACTOR

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### FRONT SECTION SPLIT

1. Remove the muffler, air cleaner cap, hood and side panels. Remove the air cleaner. Remove the fuel tank bracket cap-screws.

2. Drain the cooling system and the engine oil. Disconnect the radiator hoses from the engine.

3. Close the fuel tank shut-off valve. Disconnect the throttle linkage at the pivot ball joint under the fuel tank.

4. Gasoline Tractors: Disconnect the fuel line at the carburetor. Remove the coolant heat indicator from the engine.

5. Diesel Tractors: Disconnect fuel return line from the injection pump.

6. Disconnect and remove the battery. Disconnect all the necessary electrical wires.

7. Disconnect, plug and cap the steering and oil cooler lines. Be sure they are free from the oil pan.

8. Position the universal rear jack and FES 117 as shown in Illust. 2-1.

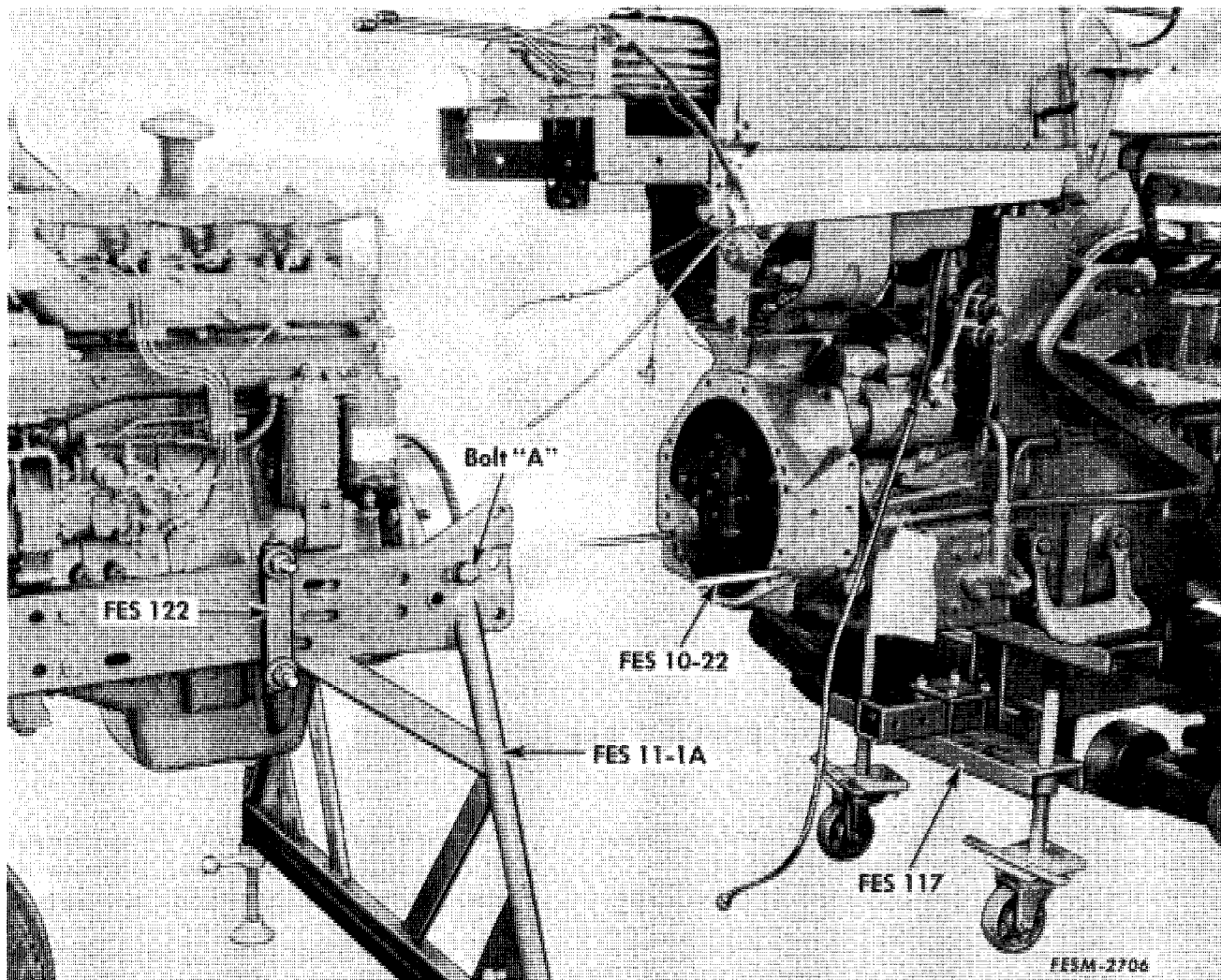
9. Remove the lower three channel-to-clutch housing capscrews. DO NOT remove the top capscrews.

10. Position the front jack stand FES 11-1A as shown in Illust. 2-2. Position a safety stand under the front bolster. Install a bolt through the front stand and

the channel ("A" Illust. 2-1) on both sides of the tractor. Install front stand plates FES 122 as shown in Illust. 2-2.

11. Remove the remaining two capscrews securing the channels to the clutch housing.

12. Remove the engine rear plate-to-clutch housing capscrews and install aligning dowels FES 10-22 (Illust. 2-1).



Illust. 2-1. Location of rear jack stand.

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