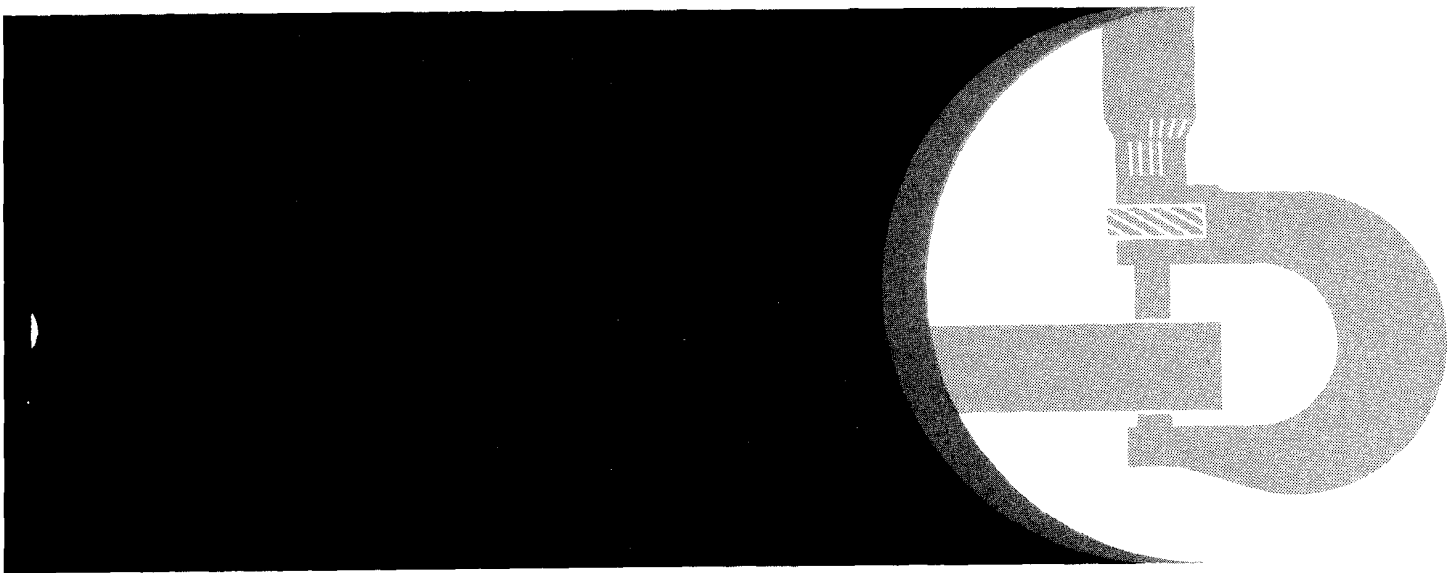
John Deere JD350 Crawler Tractors and Crawler Loaders



Service Manual

John Deere Dubuque Works
SM-2063 (Jan-74)

LITHO IN U.S.A.

SERVICE MANUAL

JOHN DEERE
JD 350 CRAWLER TRACTORS AND CRAWLER LOADERS

CONTENTS

SM-2063 (Jan-74) Litho in U.S.A.

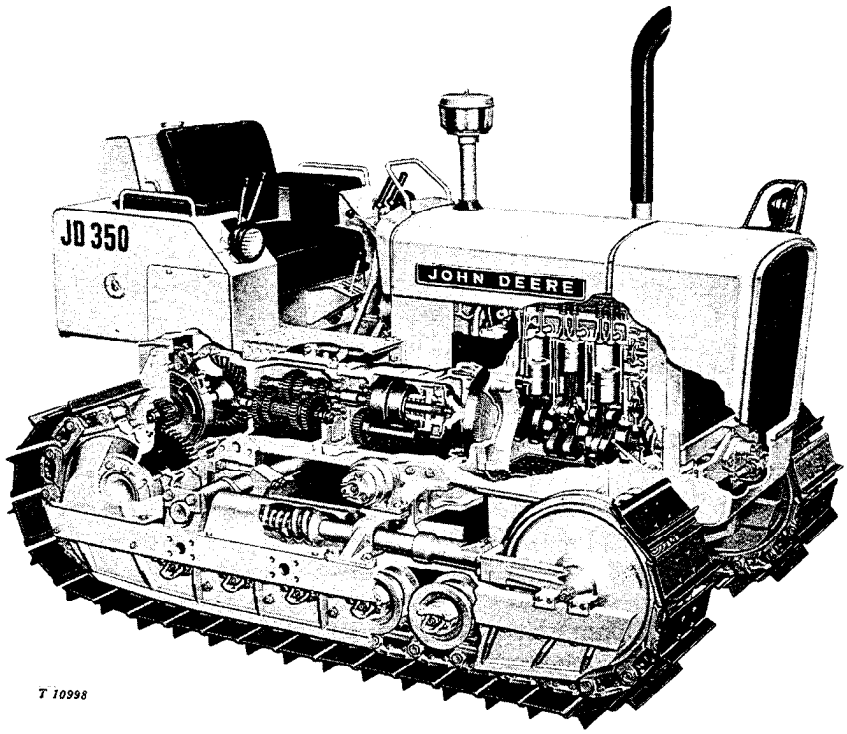
TO THE JOHN DEERE SERVICEMAN

This service manual contains maintenance instructions for John Deere JD350 Crawler Tractors and Loaders. Included are complete instructions for removal, disassembly, inspection, repair, assembly and installation of the major parts and assemblies of the tractor.

In addition, the manual contains brief descriptions of the more complicated systems of the tractor, and tells how they operate. Dimensions of many new wearing parts are given as an aid in determining when parts replacement is necessary. Tests and adjustments, required to keep the tractor operating efficiently, are explained in detail.

This manual was planned and written for the Service Department; its place is in the shop. Use the manual whenever in doubt about correct maintenance procedures. Use it as a text book for training new Service Department personnel who are unfamiliar with John Deere Tractors.

Daily use of the Service Manual as a guide for any and all service problems will reduce error and costly delay to a minimum and assure you the best in finished service work. In many instances your customer's confidence in your work will be improved when he sees you using the Service Manual. He knows you are following approved maintenance procedures and making proper adjustments. There is no guesswork when you use the manual.



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Right-Hand View of John Deere JD350 Crawler Tractor

Section 10
DESCRIPTION AND SPECIFICATIONS

Group 5
DESCRIPTION

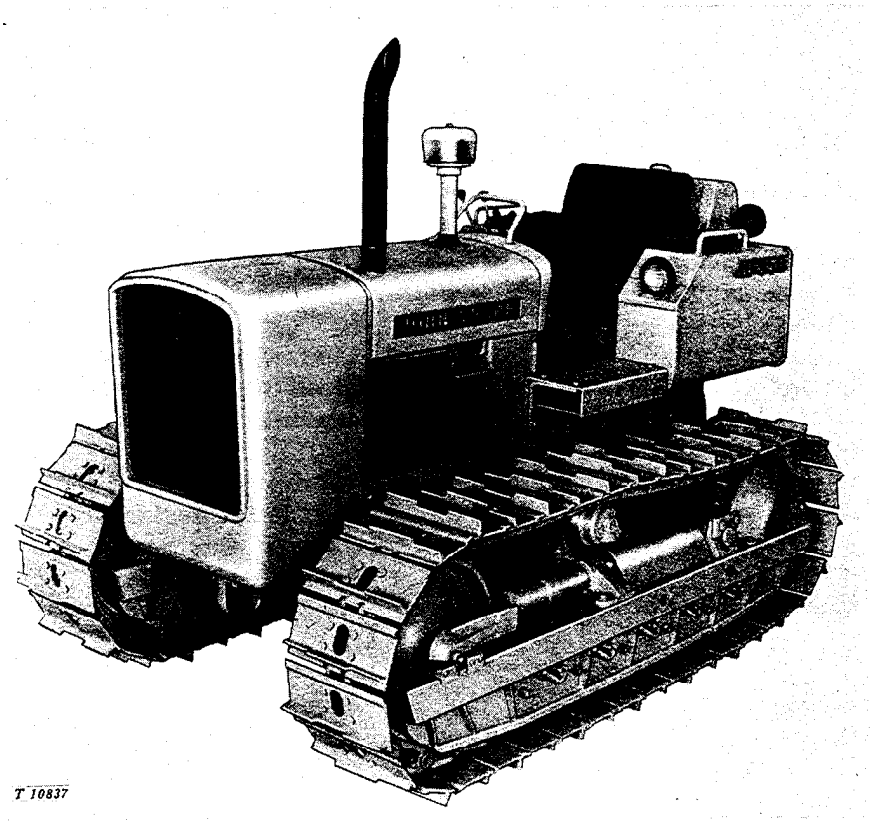


Fig. 10-5-1–Left-Hand View of JD350 Crawler Tractor

The John Deere JD350 is a heavy duty crawler tractor designed to operate with industrial equipment such as loaders and dozers and to perform various pulling and hauling jobs on construction and logging sites.

The JD350 Crawler Tractor is available with gasoline or diesel engine, and with a sliding gear transmission. A direction reverser option is also available.

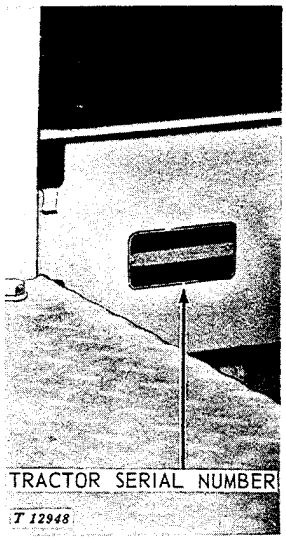
The main features of the tractor are described in the paragraphs which follow. Full descriptions of major components are given in various sections throughout this manual.

SERIAL NUMBERS

The engine serial number is stamped on a plate at the lower right side of the engine cylinder block.

The tractor serial number is located on a plate on the front panel of the operator's seat. *NOTE: When ordering tractor parts, record ALL digits on the serial number plate.*

The location of the engine and tractor serial numbers is shown on the next page. A detailed explanation of each serial number is also given.



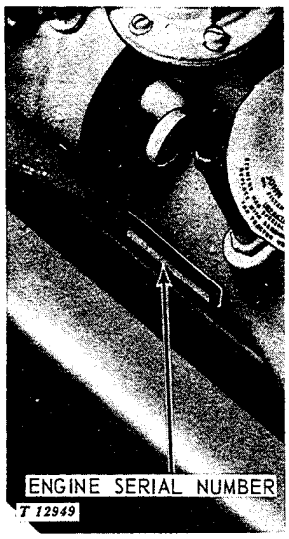


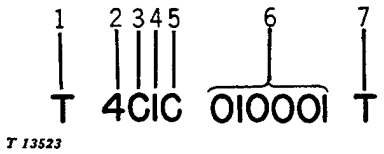
Fig. 10-5-2–Serial Number Locations

NOTE: Early model tractor and engine serial number plates have an "SN" prefix before the digits listed below.

BASIC ENGINE SERIAL NUMBER EXPLANATION

1. The first letter designates the application. . . . . M - Engine
2. This number designates the series. . . . 4 - 3-Cylinder
3. This number designates the fuel type of the engine. . . . . 1 - Gasoline
   3 - Diesel
4. Using factory . . . . . T - Dubuque
5. Application. . . . . C - Crawler
   E - Crawler-Loader
   F - Crawler-Dozer
6. Sequence serial number of six digits. . . . Differs for each engine
7. This letter designates the manufacturer. . . T - John Deere Dubuque Tractor Works

BASIC TRACTOR SERIAL NUMBER EXPLANATION



1. The first letter designates the application. . . . . T - Tractor
2. This number designates the series . . . . 4 - JD350
3. This letter designates the tractor style . . . . C - Crawler
   E - Crawler-Loader
   F - Crawler-Dozer
4. This number designates the fuel type of engine. . . . . 1 - Gasoline
   3 - Diesel
5. This letter designates the type of transmission . . . . . C - Sliding Gear
   D - Sliding Gear with reverser
6. Sequence serial number of six digits . . . . Differs for each tractor
7. This letter designates the manufacturer. . . . T - John Deere Dubuque Tractor Works

LOADER SERIAL NUMBER

The serial number plate for the loader is located on the loader frame beside the tractor instrument panel.

WINCH SERIAL NUMBER (Early Models)

The serial number plate for the winch is located on the top left side of the winch housing.

MODEL NUMBERS

The distributor and the carburetor (gasoline), the fuel injection pump (diesel), the alternator, and the main hydraulic pump have identifying model numbers.

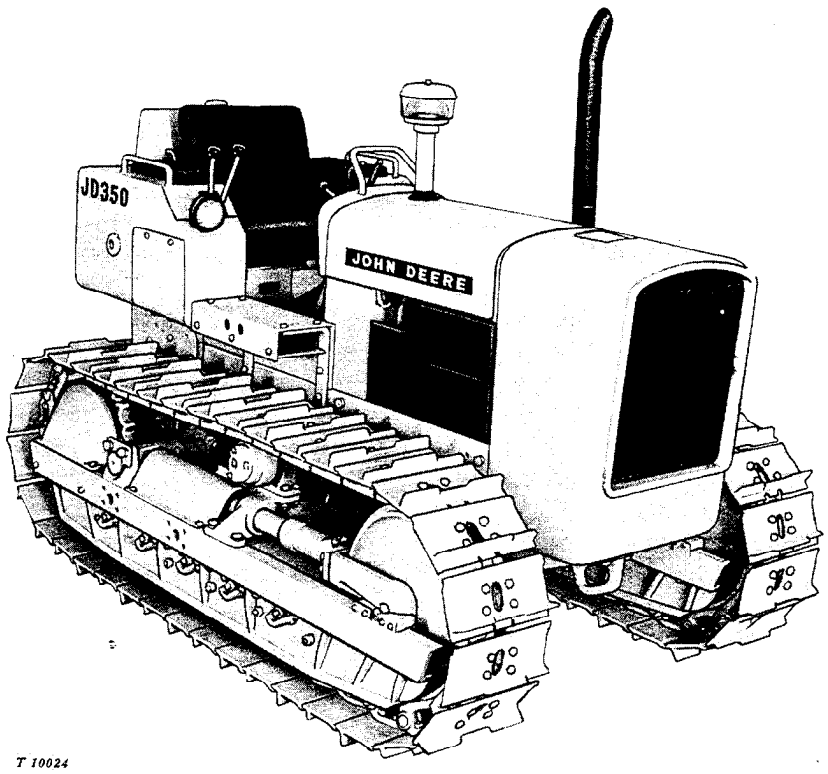


Fig. 10-5-3–Right-Hand View of JD350 Crawler Tractor

ENGINES

The vertical, 3-cylinder, valve-in-head, four-stroke cycle engine is available in either gasoline or diesel models. The engines have three in-line cylinders which use individual wet-sleeve liners of the replaceable type.

LUBRICATION SYSTEM

The engine lubrication system is a force-feed and splash type. The system has a positive displacement, gear-type oil pump, with an externally adjustable pressure regulating valve, and a full-flow oil filter.

GOVERNOR SYSTEM

Gasoline engine speeds are controlled by a flyweight type governor, driven from the engine crankshaft. Diesel engine speeds are governed by flyweights in the fuel injection pump.

COOLING SYSTEM

All engines are liquid cooled and are equipped with pressure cooling systems having a centrifugal water pump and a bypass-type thermostat.

FUEL SYSTEMS

The large-capacity fuel tank on all tractors is located behind the operator's seat.

GASOLINE

Gasoline fuel systems are fed by a fuel transfer pump driven by the engine camshaft.

A replaceable fuel line filter cleans fuel before it enters the single-throat, updraft carburetor.

DIESEL

Diesel fuel systems are fed by a fuel transfer pump driven by the engine camshaft.

Diesel fuel is filtered by two stages of replaceable micronic filter elements. Fuel sediment bowls are located under each filter.

Fuel is delivered to 9.5 MM injector nozzles by means of a distributor type fuel injection pump.

ELECTRICAL SYSTEM

All units have a 12-volt negative grounded electrical system. Current is generated by an alternator-regulator circuit. A solenoid-shift starting motor is used to start the engine.

Gasoline units may be equipped with a single 56-ampere or 90-ampere battery. Diesel units may have a single 90-ampere or two 90-ampere batteries.

LIGHTING SYSTEM

All lighting equipment is optional and includes a dash lamp, rear light, and a choice of grille-mounted or rear box-mounted headlights.

TRANSMISSION

The sliding gear transmission consists basically of the shafts which carry the gears necessary to provide four forward speeds and one reverse speed. The various speeds are selected manually while clutching.

DIRECTION REVERSER

A direction reversing mechanism, which provides reverse speed equivalent to transmission forward speed, is available as optional equipment. The direction reverser replaces the engine clutch and is controlled hydraulically—no foot clutching is required.

ENGINE CLUTCH (Tractors Without Direction Reversers)

The engine clutch is a single, dry-disk type with friction facings riveted to either side of the driven disk. When engaged, these facings contact the rear surface of the engine flywheel and the pressure plate.

POWER TAKE-OFF

The power take-off is transmission driven from the rear of the tractor and is controlled by the engine clutch and PTO control lever. Shaft speed is 540 rpm at 1620 rpm engine speed. It fully meets all ASAE-SAE standards.

BRAKES

The two tractor brakes are of the contracting-band type operated in series with the steering clutch mechanism. Both braces are operated by a single pedal located on the right-hand side of the tractor platform. A brake lock holds the brakes applied while the tractor is parked.

STEERING MECHANISM

The steering clutches are dry, multiple-disk types and each is controlled by a hand steering lever. Pulling back on a steering lever separates the drive facings and driven plates of the clutch on that side, interruption flow of power to that track sprocket. Any further rearward movement of the steering lever contracts a brake band around the drum on the clutch driven assembly, retarding or stopping motion of the sprocket and track.

Optional power steering is available. Hydraulic booster cylinders are actuated by steering lever movement to aid in easier steering.

The brake bands can also be operated by a pedal. Depressing the pedal applies both brakes; it does not disengage the steering clutches.

TRACKS AND TRACK CARRIERS

Four- or five-roller track frames are available. The track frames are fixed units of heavy unit-welded steel. Replaceable wear strips are provided on the front idler guides. Track alignment can be adjusted by shims. Track tension is adjusted by means of a hydraulic piston or mechanical screw-type mechanism. Track gauge is fixed at 48 inches.

Track shoes are bolted to hardened links which are joined by replaceable pressed-in pins and bushings. Track shoes are available in several types and sizes to meet any job condition.

WINCHES

The JD350 Crawler Tractor may be equipped with either a Manual Control winch or a Power Control winch. Both winches are gear driven from the rear of the tractor. Winch speed and pull requirements are directly related to the weight and power available in the tractor.

Group 10
SPECIFICATIONS

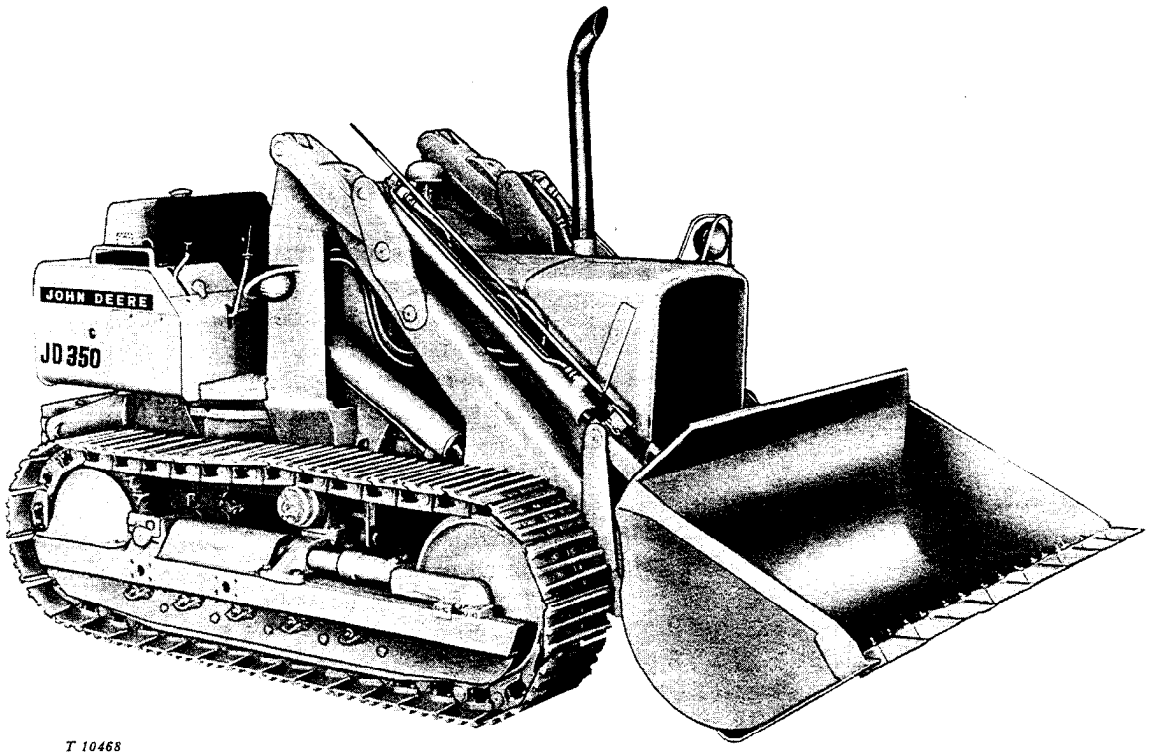


Fig. 10-10-1—Right-Hand View of JD350 Crawler Loader

TRACTOR SPECIFICATIONS

ENGINE	Diesel	Gasoline
Flywheel horsepower (observed) at 2500 rpm	42.0	42.0
Torque in ft-lbs, max. at 1300 rpm (observed) (nominal)	110.0	110.0
Number of cylinders	3	3
Bore and stroke, inches	3.86 x 4.33	3.86 x 3.86
Displacement in cubic inches	152.0	135.0
Compression ratio	16.3 to 1	7.5 to 1*
N.A.C.C. or A.M.A. Horsepower rating for tax purposes	17.88	17.88
Intake valve clearance	0.014-inch	0.014-inch
Exhaust valve clearance	0.018-inch	0.022-inch

**8.6 to 1 with high altitude pistons.*

ENGINE (Cont.)	Diesel	Gasoline
Slow-idle (rpm)	800	375 (-15905) 600 (15906-Up)
Fast-idle (rpm)	2650 (DB Pumps) 2660 (C Pumps)	2770
Governed speed range (rpm)	800-2650 (DB Pump) 800-2660 (C Pump)	375-2770 (-15905) 600-2770 (15906-)
Engine clutch	11-inch, single dry disk, foot operated.	

DIRECTION REVERSER	
Type	Hydraulic wet clutches reversing "on the go" without clutching.
TRANSMISSION	
Type	Manually selected, sliding gear type with directional reverser. 4 forward speeds and one reverse speed.

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TRAVEL SPEEDS, MPH (No Slip)

Gear	1500 RPM	2100 RPM	2500 RPM
1st	.9	1.2	1.4
2nd	1.2	1.6	1.9
3rd	2.0	2.8	3.3
4th	3.9	5.5	6.5
Rev.	1.2	1.6	1.9

STEERING

System type. . Manually or hydraulically operated clutch and brake type
Clutch type. . . . . Dry multiple disk
No. of friction surfaces (each clutch. 16
Brake type . . . . . Contracting band
Turning clearance circle. . . . . 156 in. (tractor) 234 in. (loader)

CAPACITIES (U.S. Standard Measures)

Fuel tank . . . . . 22 gals.
Cooling system . . . . . 3-1/4 gals.
Engine crankcase (including filter) . . . . . 9 qts.
Transmission case. . . . . 9 qts.
Hydraulic system. . . . . 4 gals. (min.) 12-1/2 gals. (loader)
Direction reverser case . . . . . 3 gals.
Final drives, each . . . . . 3 qts.
Rockshaft housing . . . . . 1 pt.

DIMENSIONS

Maximum height (inches) (with exhaust stack). . . . . 76 inches
Height to top of hood. . . . . 52 inches
Over-all width (at bucket) . . . . . 66 inches
Over-all length (5 roller). . . . 99-1/8 inches 159-3/16 inches (loader)
(4 roller). . . . 96-5/8 inches
Ground clearance at rear crossbar . . . . . 13-1/4 inches
Drawbar height (above ground) . 13-3/16 inches
Total weight (approx.) 7895 lbs. (diesel tractor) 11,570 lbs. (diesel loader)

TRACK EQUIPMENT

Track frame. . . . . 4 or 5 roller (tractor) 5 roller only (loader)
Diameter of track roller. . . . . 8-3/8 inches
Type of bushing. . . . . Bronze
Diameter of track carrier (5 roller) . . . . . 5-7/8 inches
Type of bushing. . . . . Bronze
Track shoes (types and sizes)
open center notched grouser (snow shoe) . . . . . 12 or 14-inch
all-purpose semi-grouser . . . . . 12 or 14-inch*
open center grouser . . . . . 12 or 14-inch
grouser . . . . . 10, 12, or 14-inch
rubber. 10-inch*

**Crawler loader track options.*

Track gauge (center to center) . . . . . 48 inches (fixed)
Number of track shoes (each side):
Four-roller type. 32
Five-roller type. 36
Total ground contact area (sq. in.):

	4-Roller	5-Roller
10-inch shoes	1226	1350
12-inch shoes	1357	1628
14-inch shoes	1588	1904
Ground pressure (lbs. per sq. in. with 12-inch shoes) . .	5.5	4.6*
Length of track on ground (inches). .	57-3/4	69-1/4

**7.1 on loader units*

FINAL DRIVES

Type . . . Induction hardened pinion and final drive spur gears.
Gear reduction ratio in first gear (engine to axle). . . . . 112 to 1
Gear reduction ratio in high gear (engine to axle). . . . . 24 to 1

WINCHES (Manual and Power Types)

Drum speed (at 2100 rpm engine speed). . . . . 57-1/2 rpm
Drum diameter . . . . . 6 inches
Drum capacity (no allowance for looseness or uneven spooling)
(with 1/2-inch cable) . . . . . 195 feet
(with 5/8-inch cable) . . . . . 125 feet
Cable speed (at 2100 rpm engine speed)
(with full drum) . . . . . 157 fpm*
(with bare drum) . . . . . 98 fpm*
Cable pull (at 2100 rpm engine speed)
(with bare drum). . . . . 10,600 lbs.
(with full drum) . . . . . 6,650 lbs.

**With 5/8-inch cable.*

(Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with IEMC Standards.)

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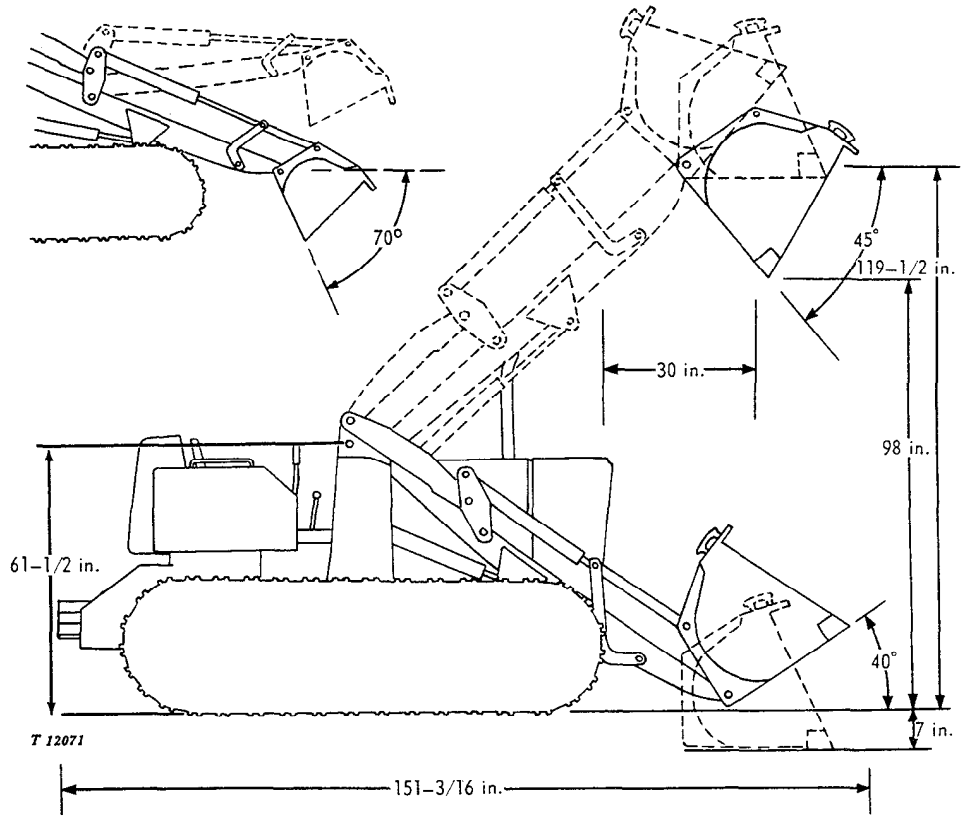

Fig. 10-10-2–Loader Dimensions

LOADER SPECIFICATIONS

LOADER DIMENSIONS

Dumping reach (full height)	30 in.
Dumping clearance (full height)	98 in.
Digging depth below ground (bucket level)	7 in.
Bucket width (3/4 cu. yd. size)	66 in.
Dump angle (full height)	45°
Bucket roll-back (ground level)	40°
Grading angle	70° from horizontal
Height to eccentric pin	61-1/2 in.
Height to bucket hinge pin at max. lift	119-1/2 in.

LOADER OPERATING INFORMATION

System pressure (at 2500 engine rpm)	2000 psi (-600) 2250 psi (601-Up)
Bucket capacities	3/4 or 1-1/4 cu. yd.
Breakout capacity	9000 lbs.
Lift (full height)	4000 lbs.
Raising time	6 sec.
Lowering time	4 sec.
Dumping time	1-1/2 sec.

(Specifications and design subject to change without notice. Wherever applicable, specifications are in accordance with IEMC Standards.)

Section 20
TRACTOR SEPARATION

Group 5
ENGINE REMOVAL AND INSTALLATION

ENGINE REMOVAL

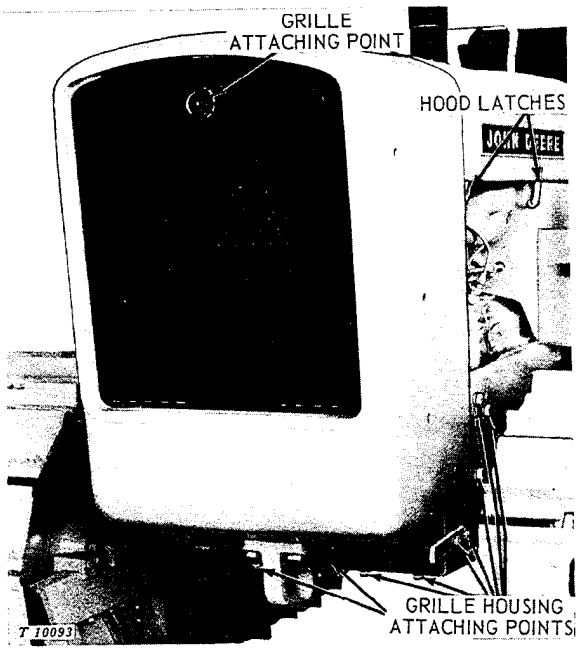

Fig. 20-5-1–Hood and Grille Housing Attaching Points

Disconnect battery ground straps for safety.

On crawler-loaders, support loader boom (Group 30 of this Section).

Remove engine side shields if equipped.

1. On each side of hood, unhook latches attaching hood to radiator and cowl supports. Remove muffler stack and lift off hood.

2. Remove grille by unscrewing knob (Fig. 20-5-1). Attach chain hoist to grille housing (Fig. 20-5-2).

3. Disconnect front light leads from headlights.

4. Remove cap screws attaching grille housing to bottom plate and side frames (Fig. 20-5-1). With the aid of a chain hoist remove grille housing (Fig. 20-5-2).

5. Drain radiator and disconnect water inlet and outlet hoses (Fig. 20-5-3). On units with direction reverser, also disconnect oil cooler lines.

6. Remove cap screws which secure upper radiator support to radiator.

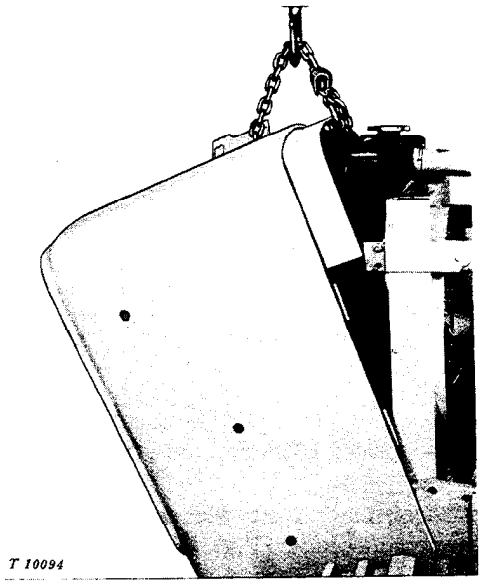

Fig. 20-5-2–Removing Grille Housing

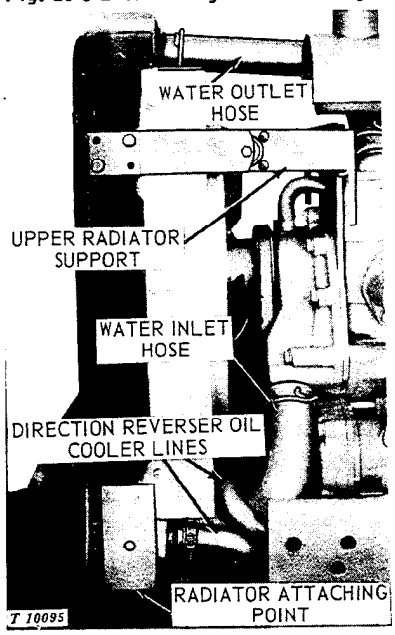

Fig. 20-5-3–Removing Radiator

7. Remove two hex. nuts which secure radiator to front end support mounts. Lift radiator from tractor. Remove front end support from engine if necessary.

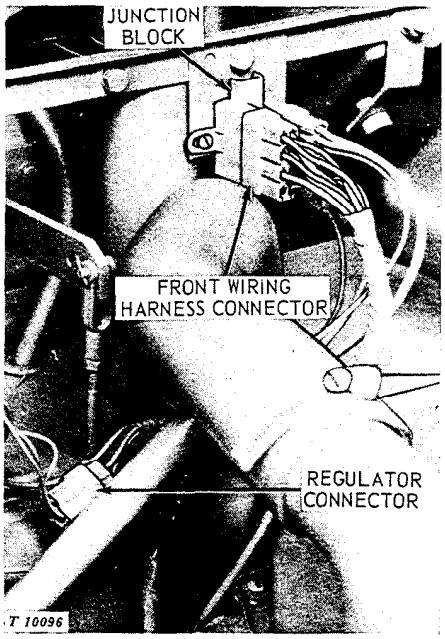

Fig. 20-5-4—Disconnecting Wiring

8. Disconnect battery cable at starter.

9. Disconnect front wiring harness connector at junction block (Fig. 20-5-4).

10. Disconnect wiring harness connector from voltage regulator connector.

11. Disconnect throttle rod from injection pump (diesel) or bellcrank (gasoline engines). Also disconnect choke cable (gasoline).

12. Disconnect air cleaner hose to air intake manifold (diesel) or to carburetor (gasoline).

13. On diesel engines, disconnect starting fluid line from manifold (if equipped).

14. Disconnect and remove tachometer cable from right rear of engine. Remove rubber gasket from tachometer cable (gasket may remain in clutch housing) and inspect for damage. Gasket should be replaced if any indication of damage is found.

15. Disconnect fuel inlet line from fuel transfer pump. Also free fuel return line from rear of nozzle leakoff assembly (diesel).

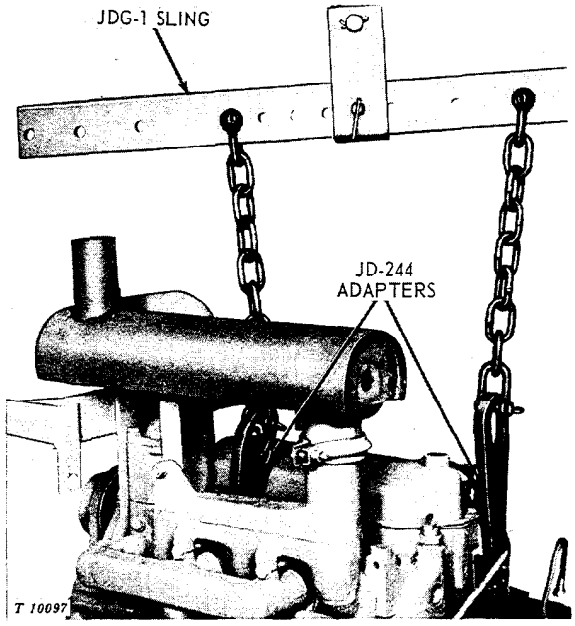

Fig. 20-5-5—Sling for Lifting Engine

16. Install two JD-244 adapter tools on engine cylinder head (Fig. 20-5-5).

17. Place JDG-1 sling on a hoist and attach sling to engine adapter tools as shown in Fig. 20-5-5.

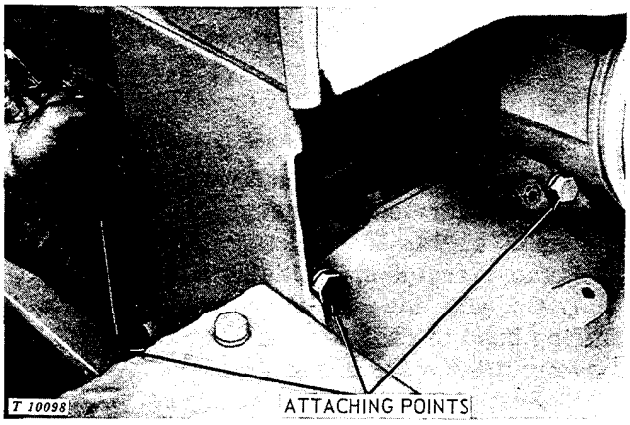

Fig. 20-5-6—Engine Attaching Points

18. Remove cap screws attaching floor plates to transmission top cover. Remove plates.

19. Remove two cap screws under cowl support attaching clutch housing to engine (Fig. 20-5-6).

20. Reach through from front of engine, parallel with side frames, and remove cap screws securing engine to clutch housing.

Using a hoist, pull engine forward off clutch housing mount. Lift engine from tractor.

ENGINE INSTALLATION

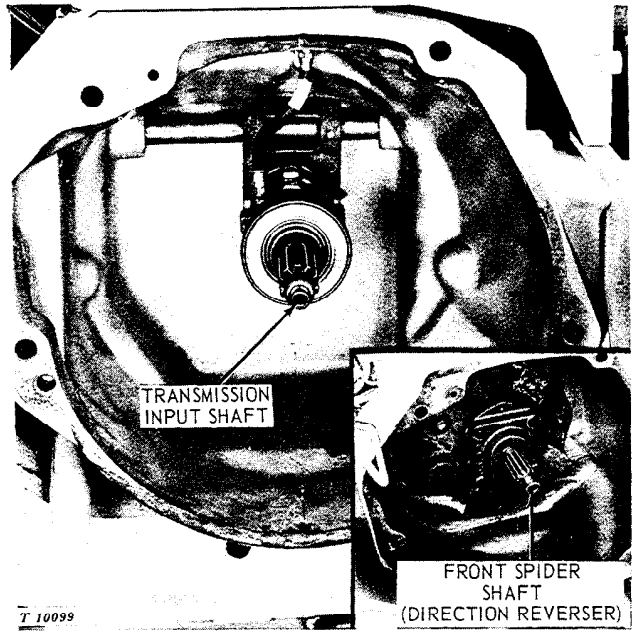

Fig. 20-5-7—Transmission Input Shaft Indexing Point

To install engine correctly, line up cap screw holes of engine with those of clutch housing. Bar engine over, holding it in a horizontal position and exert a steady pressure on the engine toward the clutch housing until the engine clutch indexes with transmission input shaft or front spider shaft (direction reverser). Refer to Fig. 20-5-7.

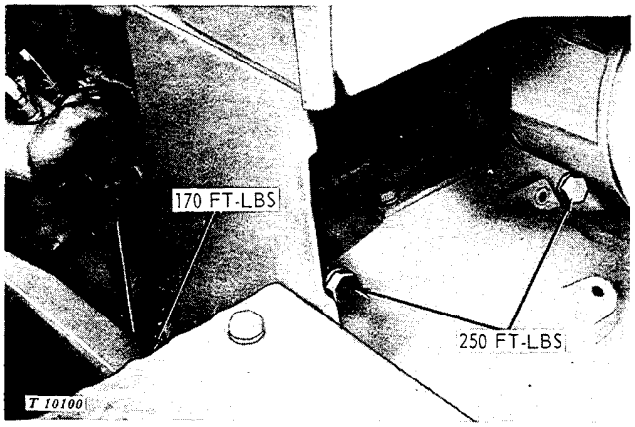

Fig. 20-5-8—Tightening Engine Attaching Cap Screws

Install clutch housing to engine cap screws (Fig. 20-5-8). Tighten the lower cap screws to 170 ft-lbs and the upper screws to 250 ft-lbs torque.

On diesel engines, connect starting line to manifold (if equipped).

Connect air cleaner hose to air intake manifold (diesel engines) or to carburetor (gasoline engines).

Attach throttle control rod to fuel injection pump (diesel engines) or to bellcrank (gasoline engines). Also attach choke cable to carburetor (gasoline engines).

Connect fuel inlet line to fuel transfer pump. On diesel engines, also connect fuel return line to injector pump.

Connect tachometer cable to tachometer drive at right rear of engine. Be sure sealing gasket is in place on cable. Index slot in cable to drive and tighten connector finger tight. Then tighten so that no oil leaks form around cable. **Do not tighten too tight or gasket will be damaged and oil leaks will develop.**

Connect front wiring harness to junction block. Connect battery cable to starter.

Connect wiring harness connector to voltage regulator connector.

Position front end support in line with mounting points on front of engine if removed.

Install radiator on front end support and secure with stop nuts. Secure radiator to top of radiator support with cap screws and hex. nuts.

Connect radiator inlet and outlet hoses to the radiator. On units with direction reversers, connect oil cooler lines to the radiator.

Fill cooling system with clean soft water. Add John Deere Summer Engine Coolant Conditioner or antifreeze solution as required (Section 80). Install radiator cap.

Fill engine crankcase with oil of proper weight and quality (Section 30).

Connect batteries (Section 100, Group 35).

CAUTION: Batteries are NEGATIVE ground only. Never attempt to polarize alternator-equipped tractors.

Start engine and allow it to warm up. Check for oil and water leaks.

Install grille housing over front end support with all baffling in place. Secure front end support to bottom plate and side frames.

Connect light leads to headlights.

Install grille screen in grille housing.

Install hood and muffler stack.

Group 10

DIRECTION REVERSER CASE OR CLUTCH HOUSING REMOVAL AND INSTALLATION

REMOVAL

NOTE: On crawler-loader units, alternate method of removing clutch housing or reverser case is to leave loader and cowl support intact. Remove engine from tractor (Group 5), then remove clutch pedal from lever and roll lever back. Disconnect all wiring and control linkage from clutch housing or reverser case. Remove cap screws securing clutch housing or reverser case to cowl support, to side frames and to transmission. With the aid of a hoist, remove clutch housing or reverser case by sliding forward off transmission studs and out under loader and cowl support.

Remove engine (Group 5 of this Section).

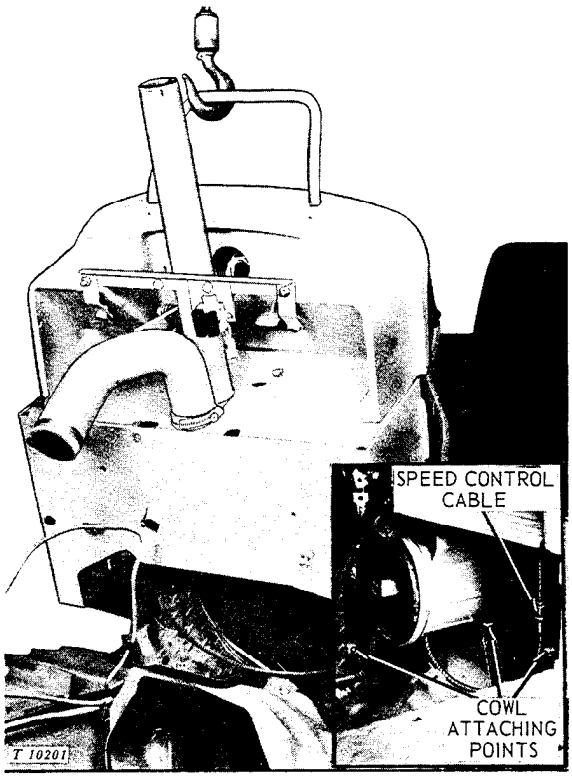

Fig. 20-10-1—Removing Cowl Support (Tractors without Loaders)

1. Disconnect rear wiring harness connector at junction block on front of cowl.

2. Disconnect all wiring and speed control linkage from cowl.

3. Disconnect reverser control cable from lever and from clamp on cowl support (tractors equipped with direction reverser).

4. Remove two cap screws under cowl attaching cowl support to clutch housing or reverser case (see inset in Fig. 20-10-1).

5. Remove two cap screws attaching right and left fenders to cowl support.

6. Pull brake lock lever from dowel on right side of cowl support.

7. With the aid of a chain hoist, lift cowl with support from tractor as shown in Fig. 20-10-1.

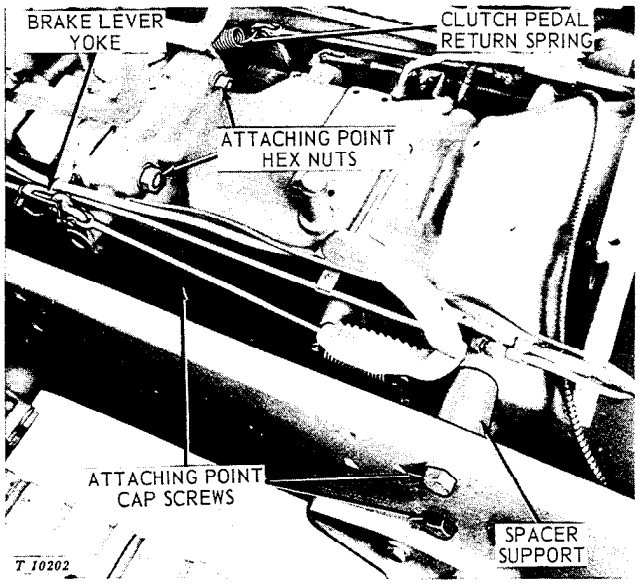

Fig. 20-10-2—Reverser Case or Clutch Housing Attaching Points

8. Disconnect clutch pedal return spring (Fig. 20-10-2).

9. Disconnect rear yokes from brake levers.

10. Install two JD-244 adapter tools on front and rear of clutch housing or reverser case (Fig. 20-10-4).

11. Support JDG-1 sling in a hoist and attach chains to adapter tools.

12. Remove two hex. nuts from clutch housing or reverser case-to-transmission top studs (Fig. 20-10-2).

13. Remove two cap screws from bottom of clutch housing or reverser case-to-transmission case.

14. Remove one cap screw from left side frame-to-clutch housing or reverser case cap screw.

15. Remove two cap screws from bottom of left side frame to reverser case or clutch housing.

16. Remove two cap screws from bottom of front crossbar through right side frame-to-spacer support.

17. Remove two right side frame cap screws which secure spacer to clutch housing or reverser case (Fig. 20-10-2).

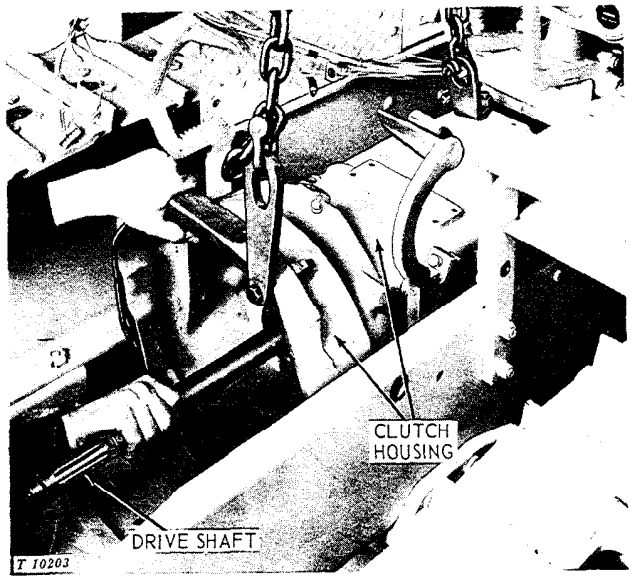

Fig. 20-10-3—Removing Input Shaft (Tractors Without Direction Reverser)

18. On tractors without direction reverser, remove grease hose from throw-out bearing carrier. Remove return spring from throw-out bearing carrier and pull input shaft forward out of coupler.

19. With the aid of a hoist, remove reverser case or clutch housing by sliding it forward off transmission studs and input shaft (Fig. 20-10-4). Be careful not to allow clutch throw-out bearing and carrier to fall out.

INSTALLATION

With the aid of a hoist, sling and adapters, slide reverser case or clutch housing onto transmission studs and input shaft (refer to Fig. 20-10-4). Be sure that throw-out bearing is correctly positioned.

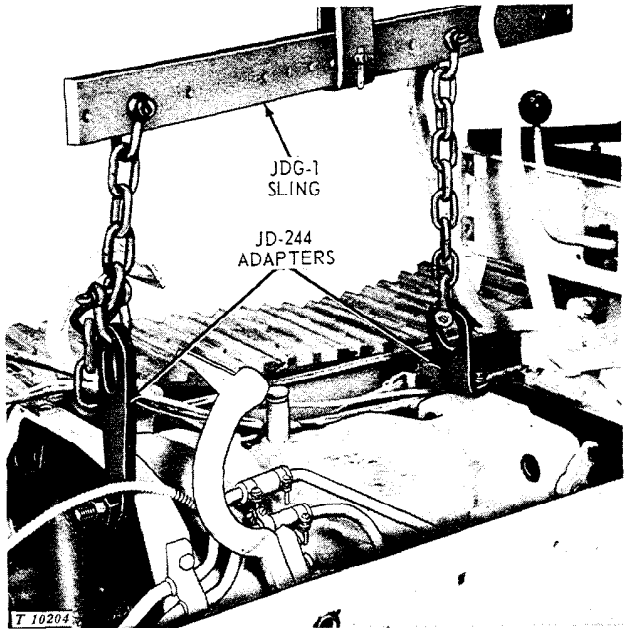

Fig. 20-10-4—Removing Reverser Case (or Clutch Housing)

NOTE: If coupler remained on transmission input shaft when reverser case or clutch housing was removed, pull coupler off and place it on end of clutch or drive shaft for easier installation. Lubricate splined ends of parts with grease.

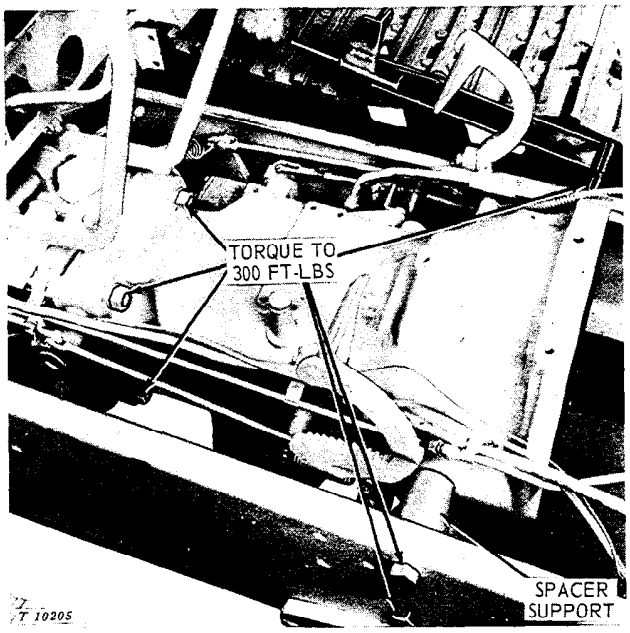

Fig. 20-10-5—Torquing Attaching Hex. Nuts and Cap Screws

Install housing attaching hex. nuts and cap screws. Torque to 300 ft-lbs (Fig. 20-10-5).

Torque axle through right side frame to spacer support cap screws to 170 ft-lbs.

Remove lifting sling and adapters from housing.

Using a chain hoist, install cowl support and secure with attaching cap screws (Fig. 20-10-1).

Connect direction reverser control cable to lever and clamp onto cowl support (tractors equipped with direction reverser).

Connect wiring and speed control linkage to cowl support.

Install throw-out bearing carrier on input shaft. Attach return spring and grease hose to throw-out bearing carrier.

Refer to Section 110, Group 10 for clutch control adjustment.

Install engine (Group 5 of this Section).

Group 15
FINAL DRIVE REMOVAL AND INSTALLATION

REMOVAL

To separate the final drives from the steering clutch housing, proceed as follows:

1. Remove cap screws attaching sprocket shield to roller frame and remove shield (Fig. 20-15-1).

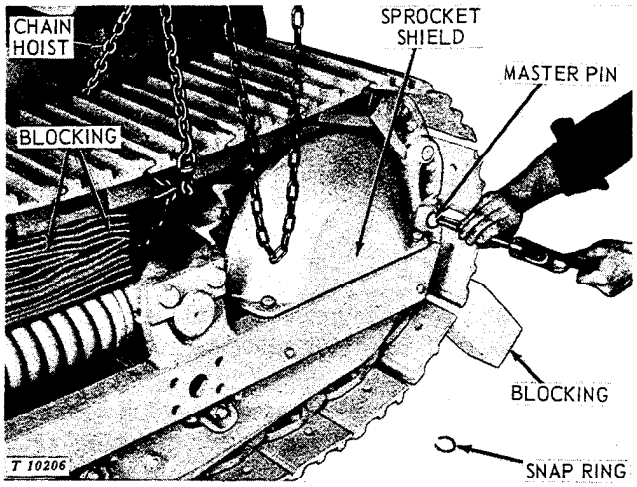

Fig. 20-15-1—Removing Track Master Pin to Separate Track

2. Raise one side of tractor by placing floor jack securely under front cross member. Start engine and shift transmission into first gear. Pull back on steering lever that controls track not raised off floor (this disengages steering clutch and applies brake to that side). Engage engine clutch, permitting raised track to rotate until master pin has moved around drive sprocket and is approximately 6 inches from floor (Fig. 20-15-1).

CAUTION: Be sure that track to be rotated is clear of floor and that opposite track is locked in position so that tractor does not move.

3. On tracks having mechanical-type track adjustment, release all tension from track by backing off jam nut and turning track adjusting tube. On tracks having hydraulic-type adjustment, release tension by loosening jam nut and set screw in relief port until grease runs out hole in bottom of cylinder.

4. Place blocking under track near drive sprocket to loosen track for easier separation.

5. Remove snap ring and drive master pin from track (Fig. 20-15-1). Using a chain hoist, pull track up and toward front of tractor until clear of drive sprocket.

CAUTION: Keep hands and feet away from track during separation.

6. Remove drain plug from underside of final drive oil pan and drain oil from final drive case.

Fig. 20-15-2—Loosening Steering Clutch Brake Band

7. Remove seat cushion from tractor.

8. Remove steering clutch housing top cover and loosen brake adjusting screw to release tension from brake band (Fig. 20-15-2).

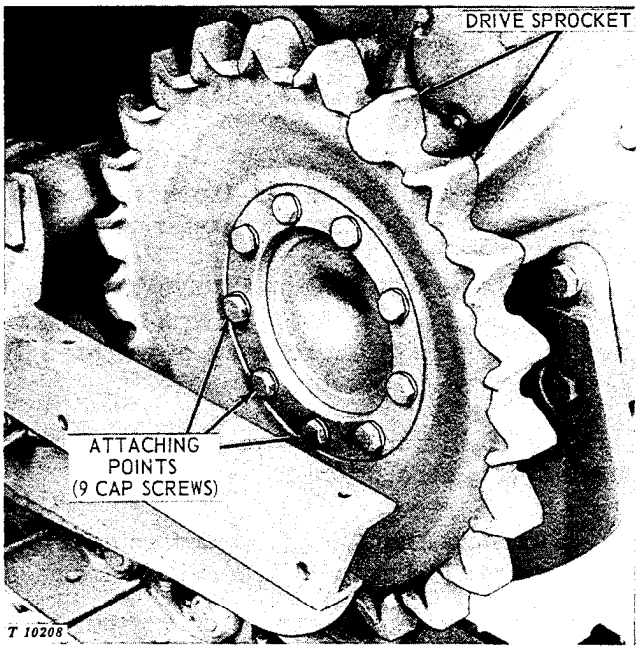

Fig. 20-15-3–Removing Drive Sprocket

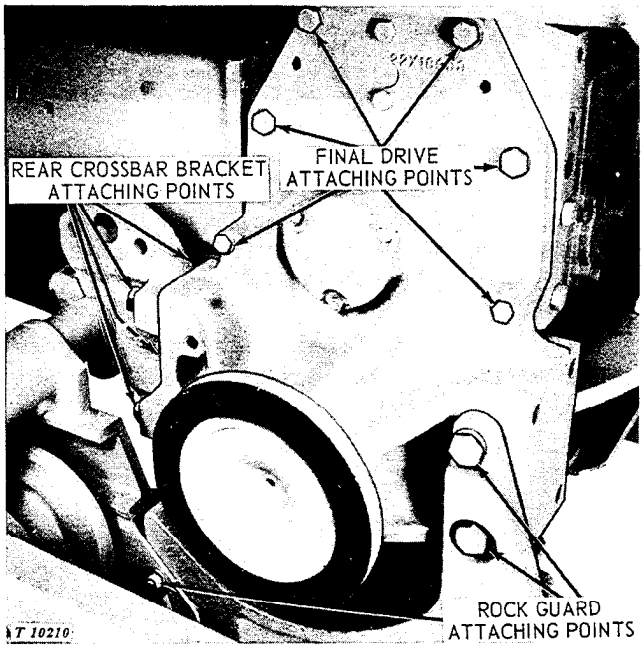

Fig. 20-15-5–Final Drive Attaching Points

9. Block up rear of tractor and remove track drive sprocket by removing cap screws attaching drive sprocket to flanged axle (Fig. 20-15-3). Tap drive sprocket free from flanged axle.

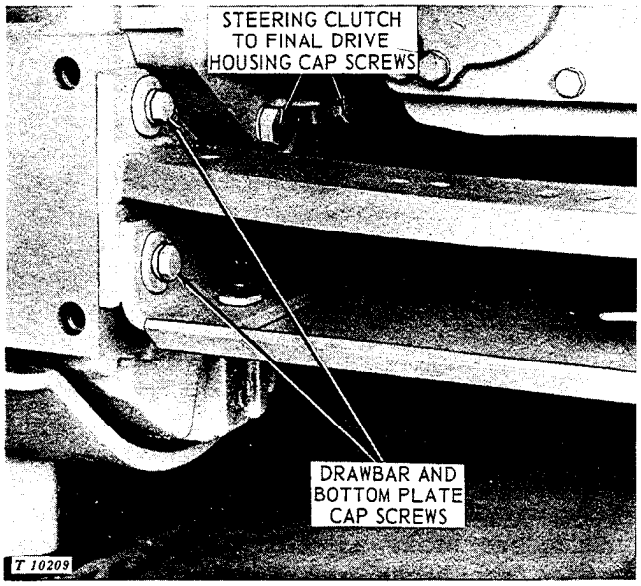

Fig. 20-15-4–Removing Drawbar and Steering Clutch Housing Attaching Cap Screws

10. Remove cap screws which attach drawbar quadrant and bottom plate to final drive housing (Fig. 20-15-4).

11. Under tractor, remove two inner cap screws attaching steering clutch housing to final drive (Fig. 20-15-4).

12. Remove cap screws attaching oil pan rock guard to final drive and roller frame (Fig. 20-15-5).

13. Remove outer cap screws which hold final drive housing to steering clutch housing (Fig. 20-15-5).

14. Remove four special cap screws which attach final drive housing to rear crossbar bracket (Fig. 20-15-5).

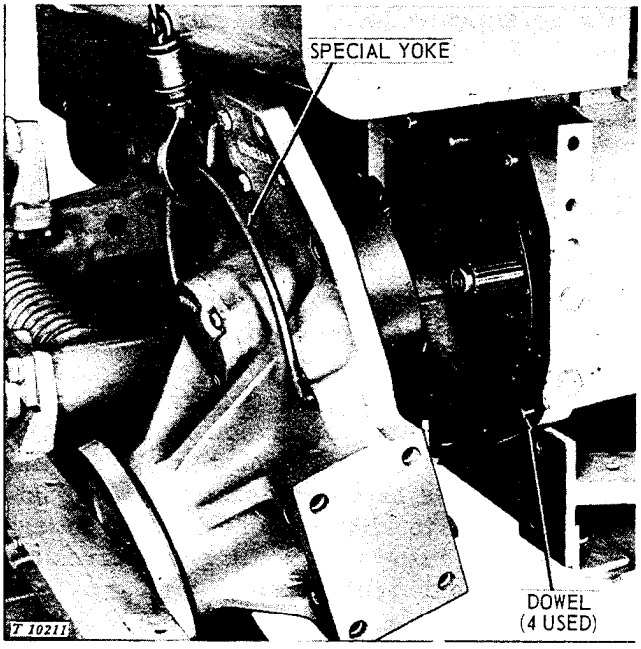

Fig. 20-15-6–Removing Final Drive

15. Using a chain hoist, lift final drive assembly away from steering clutch housing (Fig. 20-15-6). The special yoke shown can be constructed from 1/2-inch round stock and will facilitate removal of the final drive assembly.

If brake band binds on drum, work it back into position as assembly is lifted away.

INSTALLATION

Fill steering lever shaft bearing hole in upper part of final drive housing about one-eighth full with grease and apply a small amount of grease to steering clutch drive shaft.

Coat machine mounting surface of final drive housing with joint sealing compound and install final drive assembly on mounting dowels using a hoist and special yoke (Fig. 20-15-6)

NOTE: If side tanks are still attached to tractor, use floor jack to lift final drive into position.

CAUTION: Do not allow steering clutch drive shaft to rest on throw-out bearing carrier sleeve.

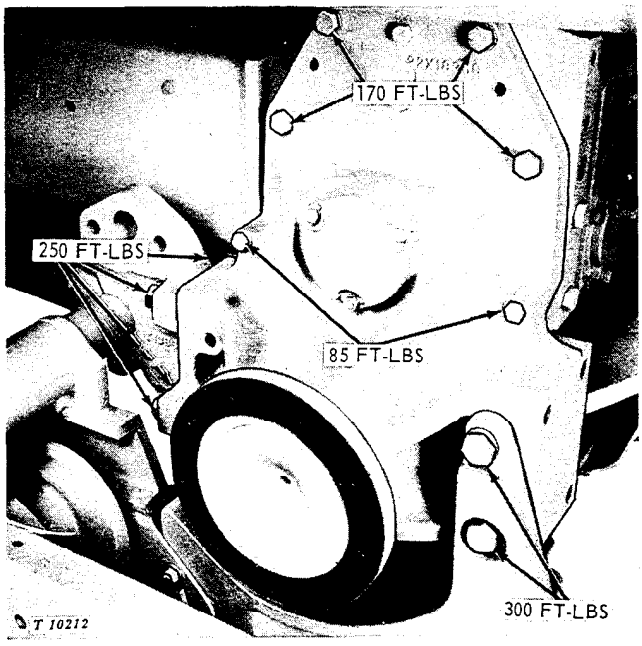

Fig. 20-15-7—Torquing Attaching Cap Screws

Attach final drive housing to rear crossbar brackets with special cap screws (Fig. 20-15-7). Coat cap screws with lubriplate and tighten to 250 ft-lbs.

Install final drive to steering clutch housing cap screws (Fig. 20-15-7). Tighten upper cap screws to 170 ft-lbs and lower cap screws to 85 ft-lbs.

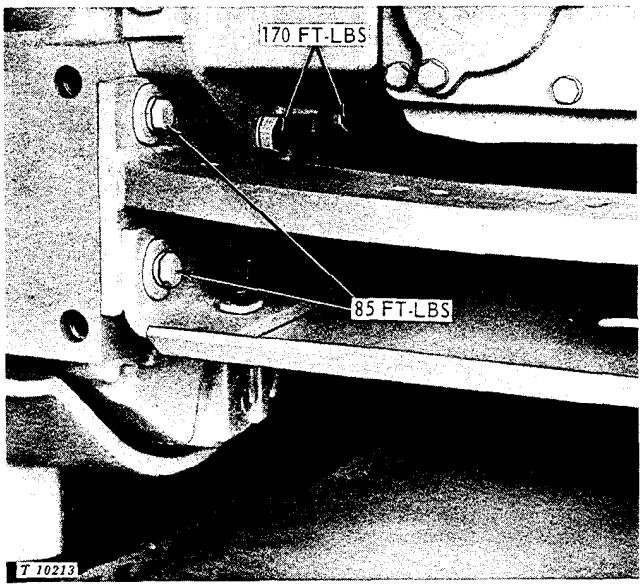

Fig. 20-15-8—Torquing Attaching Cap Screws

Under tractor, install two inner cap screws attaching steering clutch housing to final drive (Fig. 20-15-8). Torque to 170 ft-lbs.

Attach drawbar quadrant (Fig. 20-15-8), making sure that hollow dowels are in place between quadrant and final drive housing. Torque to 85 ft-lbs.

Attach oil pan rock guard to final drive and roller frame (Fig. 20-15-7). Torque large rear cap screws to 300 ft-lbs.

Install sprocket and tighten the sprocket to axle attaching cap screws to 130 ft-lbs (Fig. 20-15-3).

Using a chain hoist, pull track from front of tractor up over idler wheel and sprocket. Place a block of wood between upper portion of track and carrier assembly to take out sag (Fig. 20-15-1).

Line up master pin hole and drive master pin in place, making certain T-head on master pin fits into locking slot on master link (Fig. 20-15-1). Install snap ring.

Align track and adjust tension according to instructions in Section 180, Group 5.

Adjust steering clutch and brake according to instructions in Section 140, Group 5.

Install steering clutch housing cover and seat cushion.

Fill final drive housing with lubricant to proper level. See Section 30 of this manual for proper quantity and viscosity of lubricant.

Group 20
STEERING CLUTCH REMOVAL AND INSTALLATION

REMOVAL

To gain access to steering clutches, first remove rear tank unit from tractor as follows:

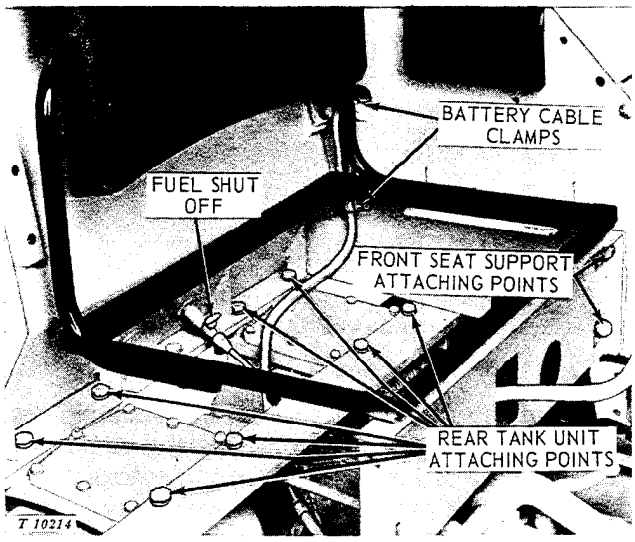

Fig. 20-20-1–Rear Tank Unit Attaching Points

1. Raise battery box lid and disconnect battery cables from batteries. Also disconnect cable clamps from battery box and free cable from rear tank unit.

2. Remove seat cushion. Close fuel shut-off and disconnect fuel line (Fig. 20-20-1). Also disconnect fuel return line (diesel).

3. On crawler-loader units, disconnect hydraulic tank lines. Refer to Group 30 of this Section.

4. Remove cap screws attaching front seat support to side tank (Fig. 20-20-1). Free support from shift lever. Remove cap screws securing fuel tank support and bottom seat support to steering clutch housing as shown.

5. Attach a chain hoist to lift bars and lift rear tank unit from tractor (Fig. 20-20-2).

6. Remove final drive from steering clutch housing as instructed in Group 15 of this Section.

7. With final drive removed, detach brake anchor pin from brake anchor by removing cotter pin and washer (Fig. 20-20-3). Remove brake adjusting screw from brake band.

8. Detach steering clutch spring from upper carrier screw. Remove the two carrier special cap screws attaching bearing carrier to clutch

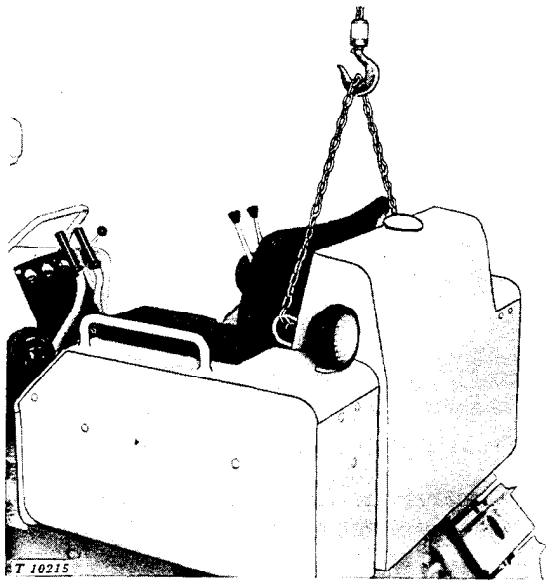

Fig. 20-20-2–Removing Rear Tank Unit

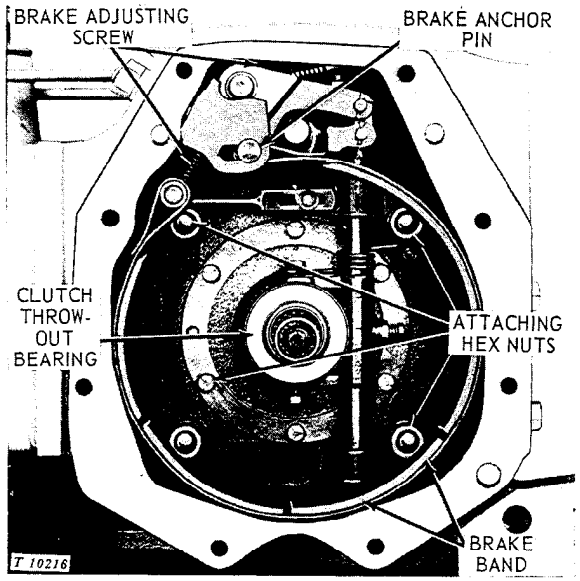

Fig. 20-20-3–Removing Brake Band

fork (Fig. 20-20-3). Slide clutch throw-out bearing and carrier off sleeve.

9. Remove cotter pin and pin attaching steering control lever rod to yoke on steering shaft.

10. Remove cap screws attaching floor plate to transmission top cover. Remove the cotter pin, washer and pin attaching brake rod yoke to brake lever shaft (Fig. 20-20-4).

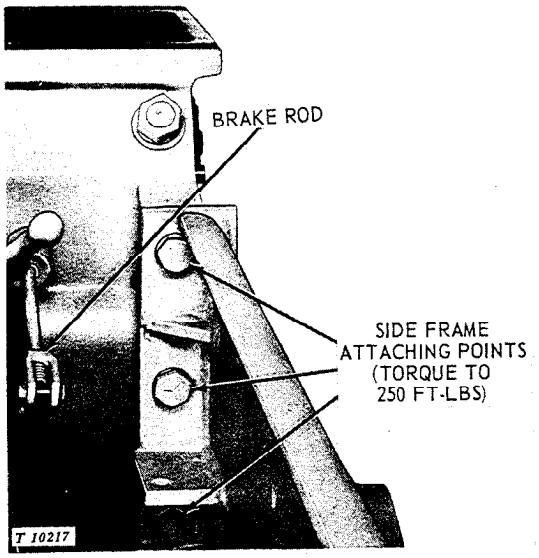

Fig. 20-20-4—Removing Side Frame Cap Screws

11. Remove the three cap screws attaching side frame to clutch housing (Fig. 20-20-4).

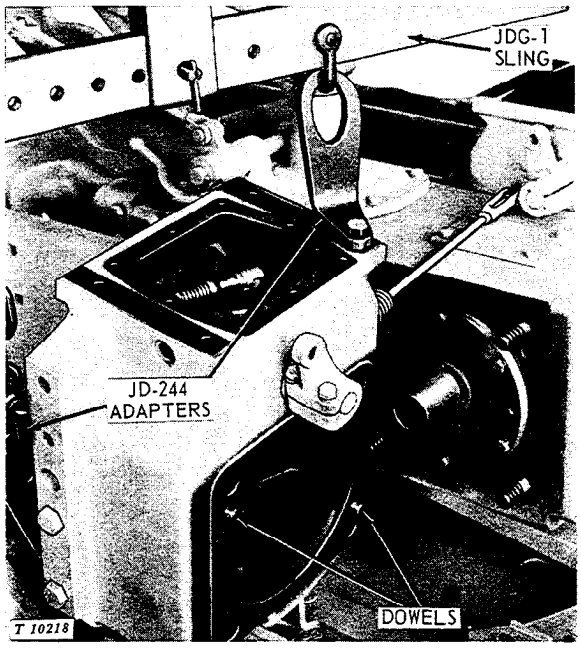

Fig. 20-20-5—Removing Steering Clutch Housing

12. Secure JD-244 adapter tools to steering clutch housing as shown in Fig. 20-20-5.

13. Place JDG-1 sling on a hoist and attach sling to adapter tools as shown in Fig. 20-20-5.

14. Remove the four hex. nuts attaching steering clutch housing to transmission case (Fig. 20-20-3). Using hoist as shown in Fig. 20-20-5, remove housing from transmission case.

INSTALLATION

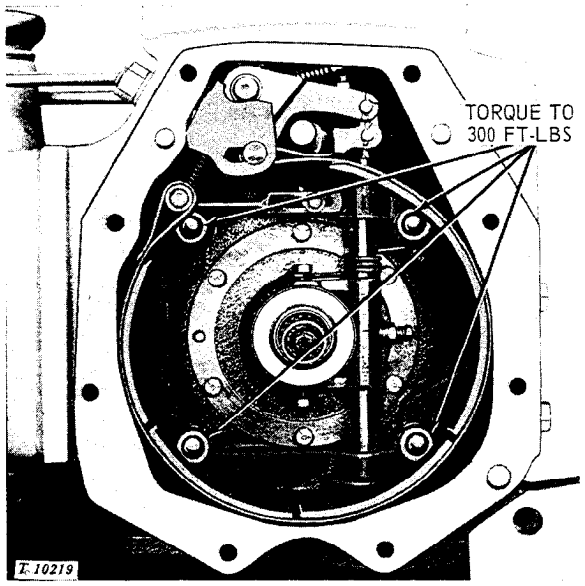

Fig. 20-20-6—Torquing Steering Clutch Hex. Nuts

Before installing steering clutch housing, coat mounting surfaces with joint sealing compound. With the aid of hoist, sling, and adapters, position steering clutch housing on transmission case studs (Fig. 20-20-5). Be sure mounting dowels are in place on steering clutch housing. Install hex. nuts with washers on inner studs and tighten to 300 ft-lbs torque (Fig. 20-20-6).

Attach side frame to steering clutch housing and tighten to 250 ft-lbs torque (Fig. 20-20-4).

Secure steering lever rod to yoke on steering shaft with pin and cotter pin (Fig. 20-20-6).

Install steering clutch throw-out bearing and carrier on sleeve (Fig. 20-20-6). Secure bearing carrier to clutch fork with two special cap screws. Hook clutch spring to upper carrier screw.

Install brake band and attach it to brake anchor with anchor pin, cotter pin and washer.

Secure brake rod yoke to brake lever shaft with pin, cotter pin and washer (Fig. 20-20-4). Install floor plate on tractor.

With the aid of a chain hoist, install rear tank unit on tractor (Fig. 20-20-2). Secure rear tank unit to steering clutch housing as shown in Fig. 20-20-1. Connect battery cables to POSITIVE battery terminals. NEGATIVE TERMINALS ARE GROUNDED. NEVER ATTEMPT TO POLARIZE AN ALTERNATOR-EQUIPPED UNIT.

Install final drive on steering clutch housing as instructed in Group 15 of this Section.