

**Service
Manual
750
Crawler**

9-72152

**Service
Manual
750
Crawler**

9-72152

All Binders
4.75 in

Large Binder
2.85 in

Small Binder
1.63 in

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MODEL A-267D DIESEL ENGINE

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**be careful.....
avoid accidents**



SECTION 1

GENERAL DESCRIPTION

The description given herein and the information contained in this manual pertain to the "J. I. CASE" MODEL 750 tractor.

Model 750 tractors are 18,575 pound, track-type units (with bucket and counterweight), powered by a 4 cylinder "CASE" Model A-267D diesel engine.

Power from the engine is transmitted through the flywheel to the torque converter, which automatically multiplies the engine torque to meet the varying load requirements. In the same manner, shock loads transmitted through the power train are absorbed by the fluid coupling effect of the torque converter before they can reach the engine. The power is transmitted from the torque converter to the transmission through a driveshaft universal joint assembly. From the transmission the power is transmitted through the hydraulic steering clutches to the final drives and the track drive sprockets.

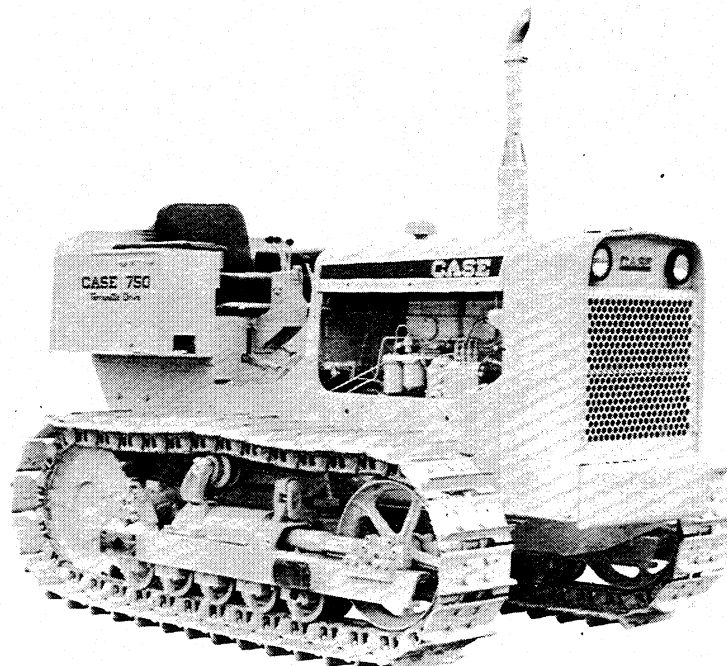
On Model 750 Tractors, the torque converter in combination with the transmission provides 4 forward speeds and 4

reverse speeds. This is the smoothest, most efficient type unit available.

Hydraulically operated brakes controlled by foot pedals are provided for pivot turns and stops. When one or both brakes are engaged, the transmission is neutralized, stopping the flow of power to the corresponding track or tracks. A hand brake is provided for parking and holding the machine on inclines.

A torsion bar suspension system provides greater traction by allowing a higher degree of track oscillation. Dozer blades and loader buckets can be kept level on uneven ground. Shock loads normally transferred to the engine frame, and consequently throughout the tractor, are absorbed by the suspension system providing a longer life for your tractor.

Each unit includes such features as 24 volt electrical system, self lubricating track rollers, finger tip control system, adjustable seats, and complete wrap-around protection for the radiator.



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Figure 1 - Case 750 Crawler Tractor

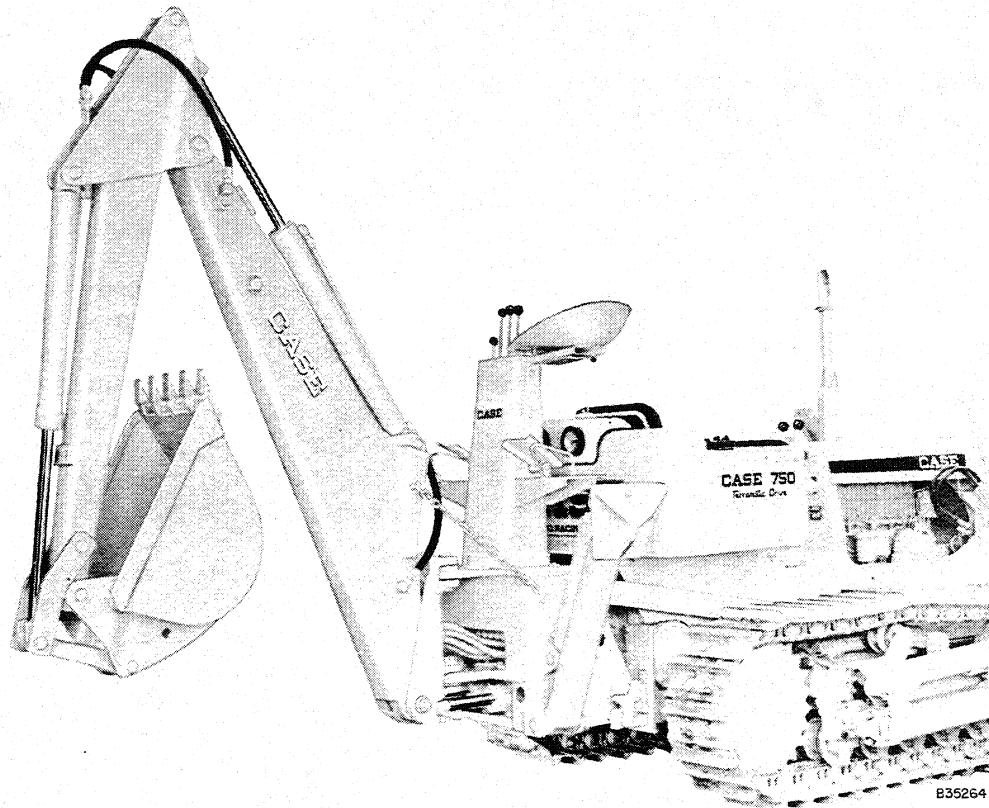


Figure 2 - Case 750 Crawler with Backhoe

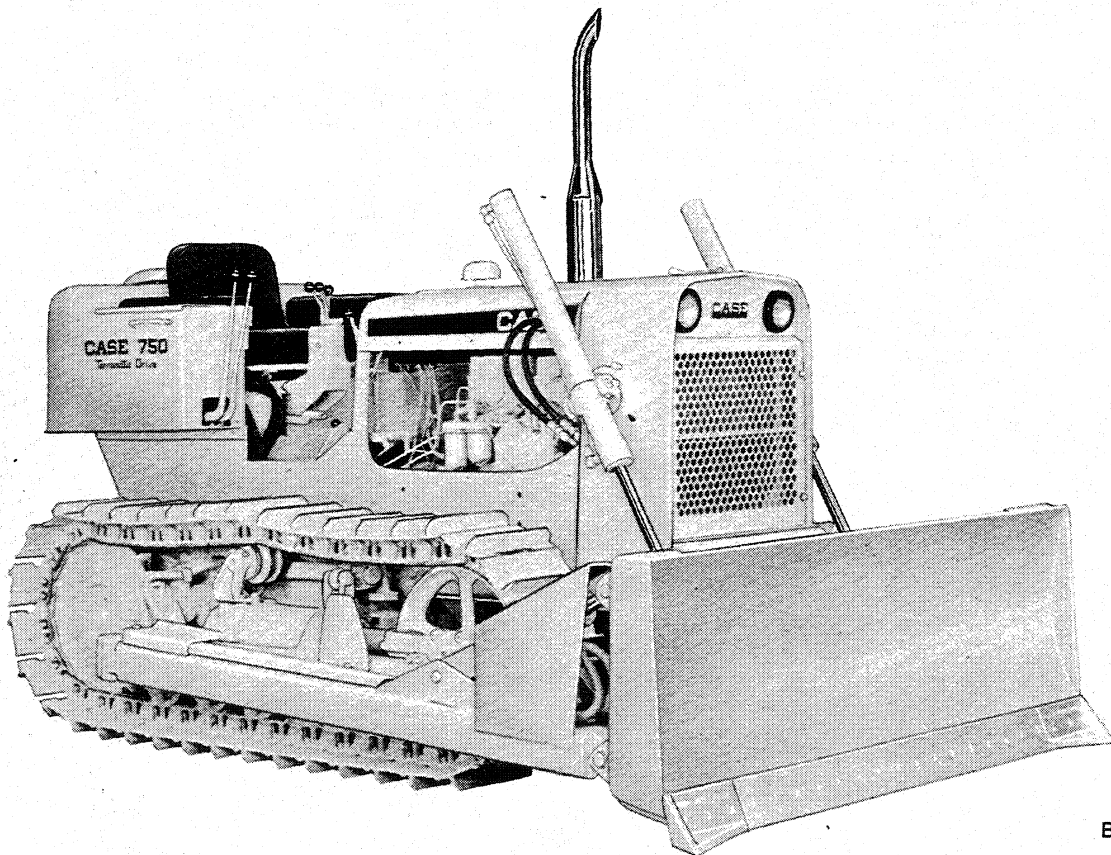
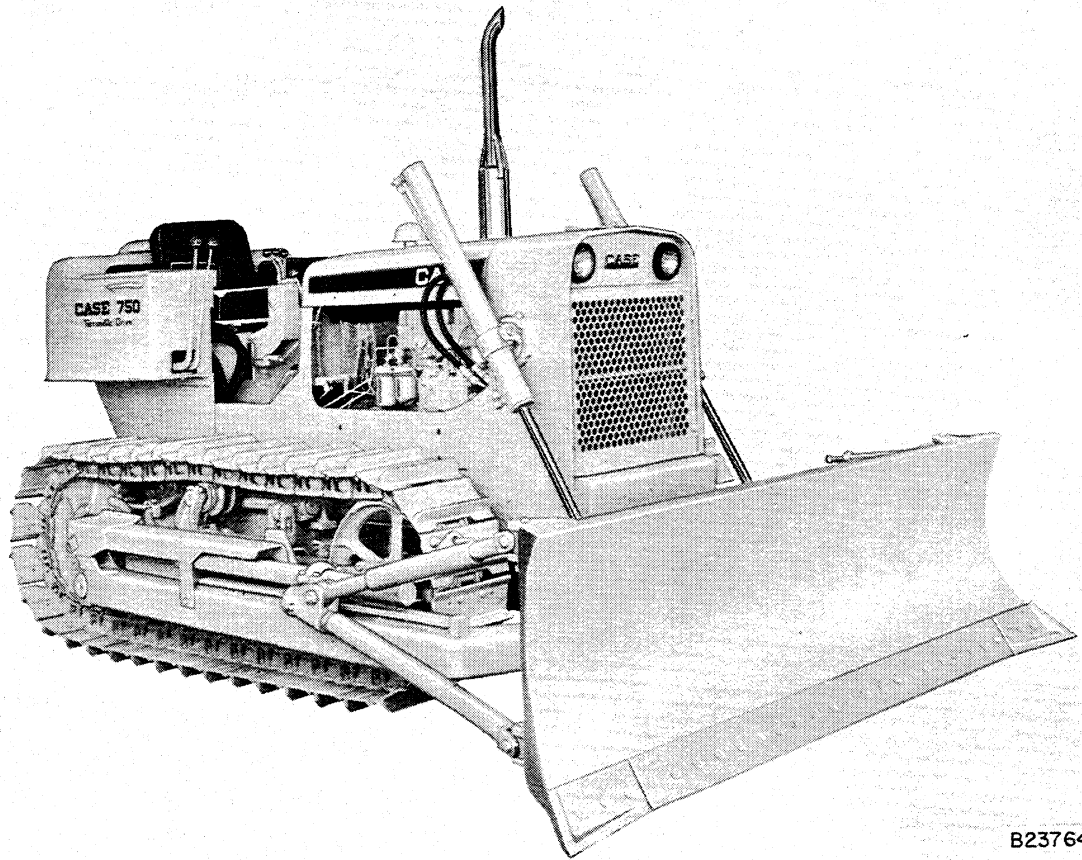
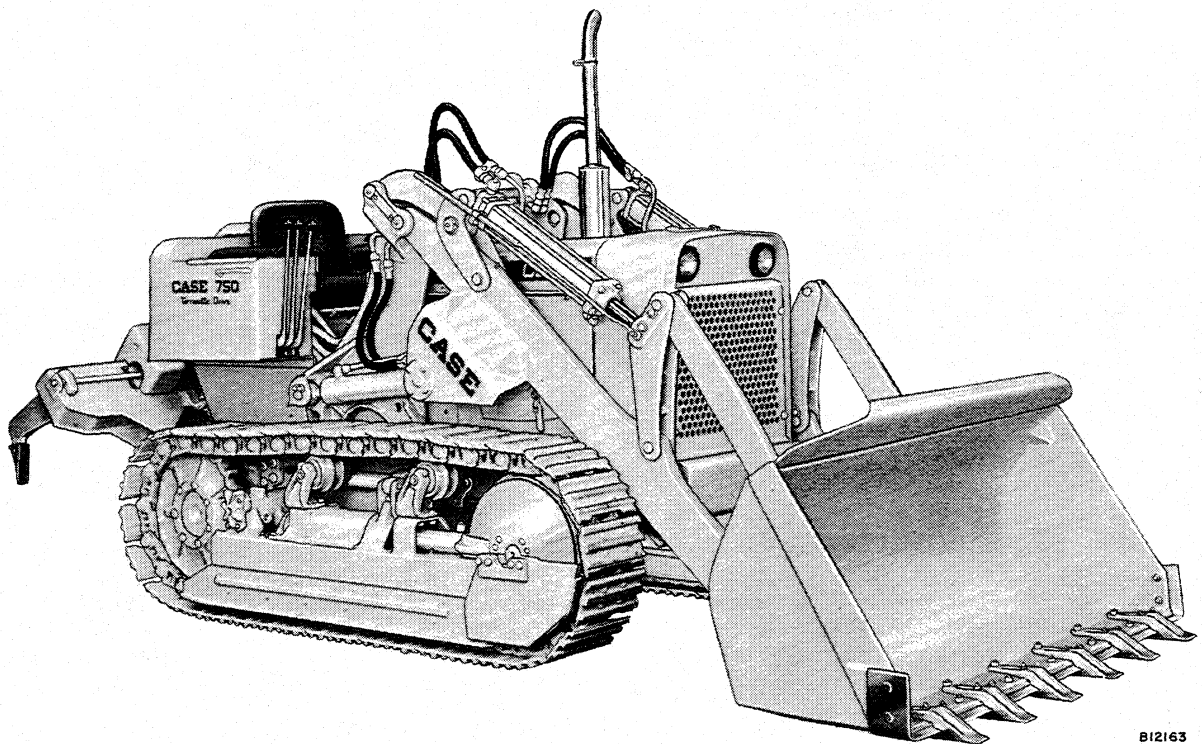


Figure 3 - Case 750 Hydraulic Tilt Dozer



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Figure 4 - Case 750 Hydraulic Angling Dozer



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Figure 5 - Case 750 Loader-Ripper

SECTION 2 SPECIFICATIONS

GENERAL DIMENSIONS AND WEIGHTS

Overall Length

Basic Tractor (without drawbar)	9 ft. 8 in.
Basic Tractor (with drawbar)	10 ft. 4 in.
Tilt Crown Dozer (with drawbar)	12 ft. 2 in.
Tilt Crown Dozer and Ripper (ripper in carry position)	14 ft. 3-3/4 in.
Hydraulic Angle Dozer (blade straight)	12 ft. 11 in.
Hydraulic Angle Dozer (blade angled)	14 ft. 9 in.
Hydraulic Angle Dozer and Ripper (ripper in carry position)	15 ft. 1 in.
Loader and Counterweight (bucket on ground and level)	14 ft. 9-3/4 in.
Loader and Ripper (bucket on ground and rolled back) ripper in carry position)	16 ft. 8 in.
Backhoe and Hydraulic Angle Dozer (blade straight-backhoe in transport) ..	20 ft. 6 in.

Overall Height

All Models with Stack	8 ft. 1-1/2 in.
Basic Tractors (without stack)	5 ft. 7 in.
All Dozers (without stack)	5 ft. 7 in.
All Loaders (without stack)	5 ft. 6 in.

Overall Width

*Basic Tractor	5 ft. 8 in.
Tilt Crown Dozer	7 ft. 4 in.
Hydraulic Angle Dozer (blade straight)	9 ft. 4 in.
Hydraulic Angle Dozer (blade angled)	8 ft. 8 in.
All Loaders	6 ft. 4-1/4 in.

*If extra wide track shoes are used, these figures would need revision.

Ground Clearances

Loader Model, with drawbar	9-1/4 in.
Loader Model, less drawbar	13 in.
Dozer and Drawbar Models, with drawbar	10-1/2 in.
Dozer and Drawbar Models, less drawbar	14 in.

Drawbar Data

Drawbar Height (to center of hitch)	12-3/8 in.
Lateral Drawbar Movement	24-3/8 in.

Weights (Approximate)

Basic Tractor	11,700 lbs.
Hydraulic Tilt Crown Dozer	14,380 lbs.
Hydraulic Tilt Crown Dozer and Ripper	15,000 lbs.
Hydraulic Angle Dozer	15,300 lbs.
Hydraulic Angle Dozer and Ripper	15,935 lbs.
Loader and Counterweight	18,575 lbs.
Loader and Ripper	18,330 lbs.
Hydraulic Angle Dozer and Backhoe	18,557 lbs.

TRACKS

Track Shoe Width (standard) Dozer and Drawbar Model	14 in.
Track Shoe Width (standard) Loader Models	12 in.
*Track Shoe Width (maximum available)	18 in.
Number Track Links Per Side, Dozer and Drawbar Models	36
Number Track Links Per Side, Loader Models	38
Length of Track on Ground, Dozer and Drawbar Models	6 ft. 1 in.
Length of Track on Ground, Loader Models	6 ft. 7-1/8 in.
Track Pitch	6-1/4 in.
Height of Grouser	2-1/16 in.
Pin Diameter	1-1/4 in.
Bushing Diameter	1-7/8 in.
Bolt Diameter	1/2 in.
Track Rollers (number per side) Dozer and Drawbar Models	5
Track Rollers (number per side) Loader Models	6
Track Roller Diameter	7-1/4 in.
Sprocket Teeth (number)	25

*Extra wide shoes materially decrease the life of any track assembly. Shoes wider than standard should be used only when requirements will justify the resulting decreased life of the track.

OPERATING SPECIFICATIONS AND DIMENSIONS

Tilt Crown Dozer

Blade Size	88 x 31 in.
Moldboard Lift Above Ground	31 in.
Moldboard Drop Below Ground	12 in.
Moldboard Crown Adjustment	13 in.
Ground Pressure (standard track shoes)	7.0 P.S.I.
Hydraulic Lift Cylinders (2)	3 in. dia. x 31-1/2 in. stroke
Lift Cylinder Piston Rod Diameter	1-1/2 in.
Crowning Cylinder (1) diameter and stroke	3-1/2 in. x 4-1/16 in.
Crowning Cylinder Piston Rod Diameter	2 in.
Hydraulic Pump Capacity	28.5 gal. @ 1900 R.P.M.
Hydraulic System Relief Pressure	1250±100 P.S.I.

Angledozer

Blade Size	116 in. x 30 in.
Moldboard Lift Above Ground	33 in.
Moldboard Drop Below Ground	15 in.
Moldboard Crown Adjustment	13 in.
Moldboard Angle Adjustment (hydraulic)	0° to 25°
Ground Pressure (standard track shoes)	7.5 P.S.I.
Hydraulic Lift Cylinders (diameter and stroke)	3 in. x 31-1/2 in.
Lift Cylinder Piston Rod Diameter	1-1/2 in.
Hydraulic Angling Cylinders (diameter and stroke)	2-1/2 in. x 40 in.
Angling Cylinder Piston Rod Diameter	1-1/2 in.
Hydraulic Pump Capacity	28.5 gal. @ 1900 R.P.M.
Hydraulic System Relief Valve Pressure	1250±100 P.S.I.

Loader

Bucket Capacity (SAE Rated)	1-1/8 cu. yd.
Overall Operating Height (maximum lift)	12 ft. 10 in.
Clearance - Fully Raised and Fully Dumped	8 ft. 1 in.
Reach - 84" Clearance (45° dump angle)	45-3/8 in.
Height to Hinge Pin (fully raised)	10 ft. 3 in.
Maximum Dumping Angle (fully raised)	45°
Maximum Digging Depth Below Ground (at 8-1/2° angle)	9 in.
Reach - Fully Raised (45° dump angle)	34-3/4 in.
Bucket Rollback (at ground level) breakout angle	40°
Bucket Rollback (carry position at 18")	44°
Bucket Rollback (fully raised)	56°
Breakout Force (at ground level)	11,300 lbs.
Lift Capacity (at ground level)	15,400 lbs.
Lifting Time to Full Height (bucket heaped)	6.0 sec.
Lift Capacity (fully raised)	4,900 lbs.
Dumping Time (bucket heaped)	1.9 sec.
Lowering Time (bucket empty)	4.0 sec.
Hydraulic Lift Cylinders (2) diameter and stroke	4 in. x 28-15/16 in.
Lift Cylinder Piston Rod Diameter	2 in.
Hydraulic Dump Cylinders (2) diameter and stroke	4 in. x 21-13/16 in.
Dump Cylinder Piston Rod Diameter	2 in.
Hydraulic Pump Capacity	28.5 G.P.M. @ 1900 R.P.M. @ 1875 P.S.I.
Hydraulic System Main Relief Valve Pressure	1800-1900 P.S.I.
Secondary Relief Valve Pressures	
(Lift cylinder - valve lift)	2300-2500 P.S.I.
(Dump cylinder - dump)	1200-1300 P.S.I.
(Dump cylinder - rollback)	2300-2500 P.S.I.

Ripper

Length Maximum (from c/1 sprocket)	4 ft. 7-5/16 in.
Width	5 ft. 6-1/2 in.
Ground Clearance Under Teeth (fully raised)	18-1/4 in.
Maximum Penetration	12-1/8 in.
Hydraulic Lift Cylinder (diameter and stroke)	3-1/2 in. x 14-5/16 in.
Lift Cylinder Piston Rod Diameter	1-3/4 in.
Number of Teeth Mounting Brackets	5
Number of Teeth (standard)	3
Tooth Spacing (3 teeth)	30-5/16 in.
Width of Tooth	2-1/2 in.
Ripper (with 3 teeth)	1210 lbs.
Ballast Weight	580 lbs.

Backhoe

(See Backhoe Section, page 190).

ENGINE

Make	Case Diesel
Model	A-267-D
Type	4 cylinder, 4 cycle valve in head
Fuel	Number 2 Diesel
Horsepower (gross)	70

Number of Cylinders	4
Bore	4-1/8 in.
Stroke	5 in.
Crankshaft Rotation (from fan end)	clockwise
Number of Main Bearings	5
Piston Displacement	267 cu. in.
Low Idle Speed	750-800 R.P.M.
Full Governed Speed at No Load	1970-2050 R.P.M.
Governed R.P.M. (full load)	1900 R.P.M.
Maximum Torque at 1300 R.P.M.	217 ft. lbs.
Firing Order	1-3-4-2
Compression Ratio	15-1
Cylinder Sleeves	Removable Wet Type
Lubrication System	Forced Circulation
Oil Pressure (idle)	15 P.S.I.
Oil Pressure (rated R.P.M.)	40-45 P.S.I.
Valve Tappet Clearance:	
Intake (cold)	.025 in.
Exhaust (cold)	.025 in.
Intake Valve Opens BTDC	21°
Intake Valve Closes BTDC	143°
Intake Valve Open - Duration	238°
Exhaust Valve Opens ATDC	131°
Exhaust Valve Closes ATDC	9°
Exhaust Valve Open - Duration	238°
Injection Pump	Robert Bosch, Type PES (Multiple Plunger)
Fuel Injectors	Robert Bosch, Throttling Pintle Type
Injection Pump Timing (before top dead center)	33°
Cooling System	Pressurized
Cooling System Pressure	7.0 P.S.I.
Starting	24 Volt Electric
Batteries (4 required, dry charge)	6 volt, 110 amp hr, Group 3 N
Thermostat Opens	180° F.
Thermostat Fully Open	200° F.

TORQUE CONVERTER

Make	Twin Disc
Type	Single Stage
Diameter	13 in.
Stall Speed	1650-1750 R.P.M.
Torque Ratio Increase (at stall)	2.92-1
Engine Connection	Flex Plate
Number of Flex Plates	3
Operating Pressure (low idle)	30-40 P.S.I.
Operating Pressure (governed R.P.M.)	70-80 P.S.I.
Type Oil Used	Case Hi-Lo TCH Oil
Stall Speed	1650-1750 R.P.M.

CAPACITIES

Fuel Tank	36 gal.
Cooling System	10 gal.
Hydraulic Oil Reservoir (equipment hydraulics)	8-1/2 gal.
Transmission and Converter	32 qts.
Crankcase (with filter change)	12 qts.
Final Drive (each side)	7 qts.

Master Brake Cylinder (total)	1-1/2 pts.
Track Roller Reservoir (each side) Dozer and Drawbar Models	13 pts.
Loader Models	15 pts.
Air Cleaner Cup	1-1/2 qts.

TRACTOR STEERING

Method	Clutches
Controls	Hydraulic

Transmission

Model	Case A601T
Type	Power-Shift
Oil	Case Hi-Lo TCH

TRACTOR SPEEDS

Forward Speeds

Low Range - Low Gear	2.13 M.P.H.
High Range - Low Gear	2.98 M.P.H.
Low Range - High Gear	4.08 M.P.H.
High Range - High Gear	5.67 M.P.H.

Reverse Speeds

Low Range - Low Gear	2.34 M.P.H.
High Range - Low Gear	3.27 M.P.H.
Low Range - High Gear	4.49 M.P.H.
High Range - High Gear	6.24 M.P.H.

Drawbar Pull (Maximum Stall)

Low Range - Low Gear	28,000 lbs.
High Range - Low Gear	19,000 lbs.
Low Range - High Gear	12,000 lbs.
High Range - High Gear	8,000 lbs.

ILLUSTRATED DIMENSIONS

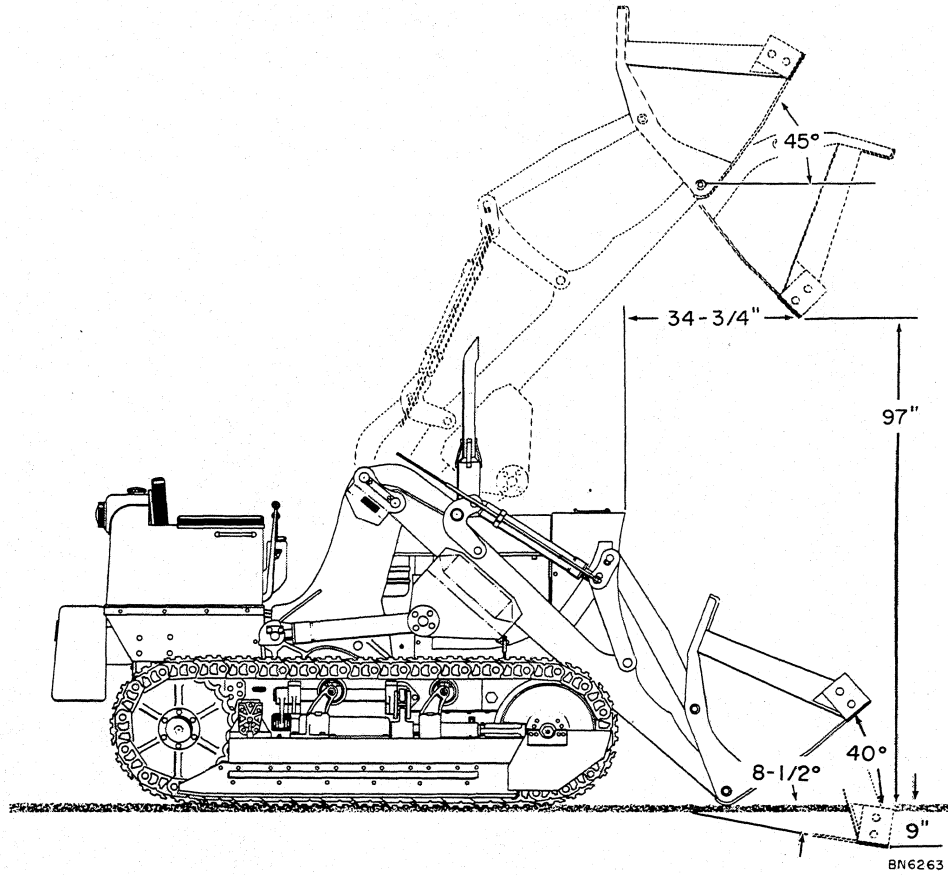


Figure 6 - Loader Dimensions

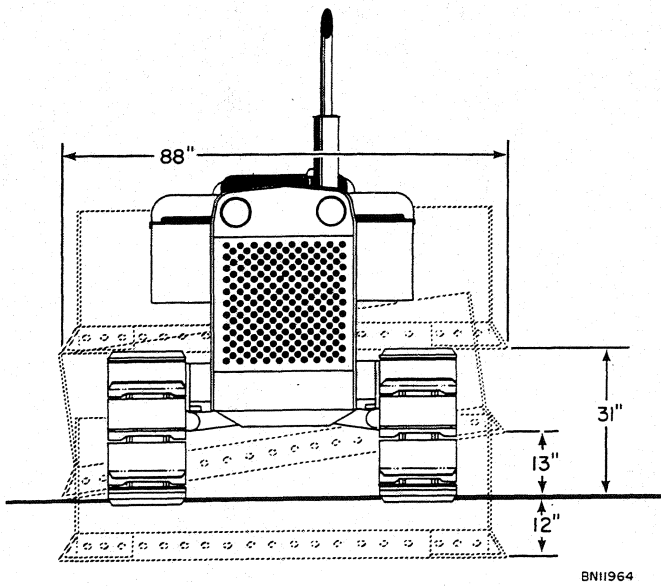


Figure 7 - Crown Tilt Dozer Dimensions

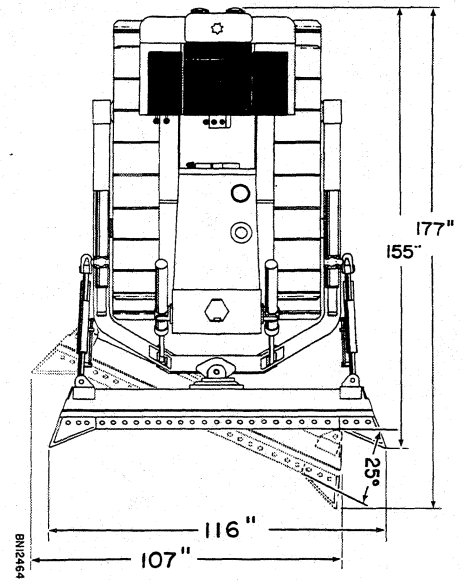


Figure 8 - Angle Dozer Dimensions

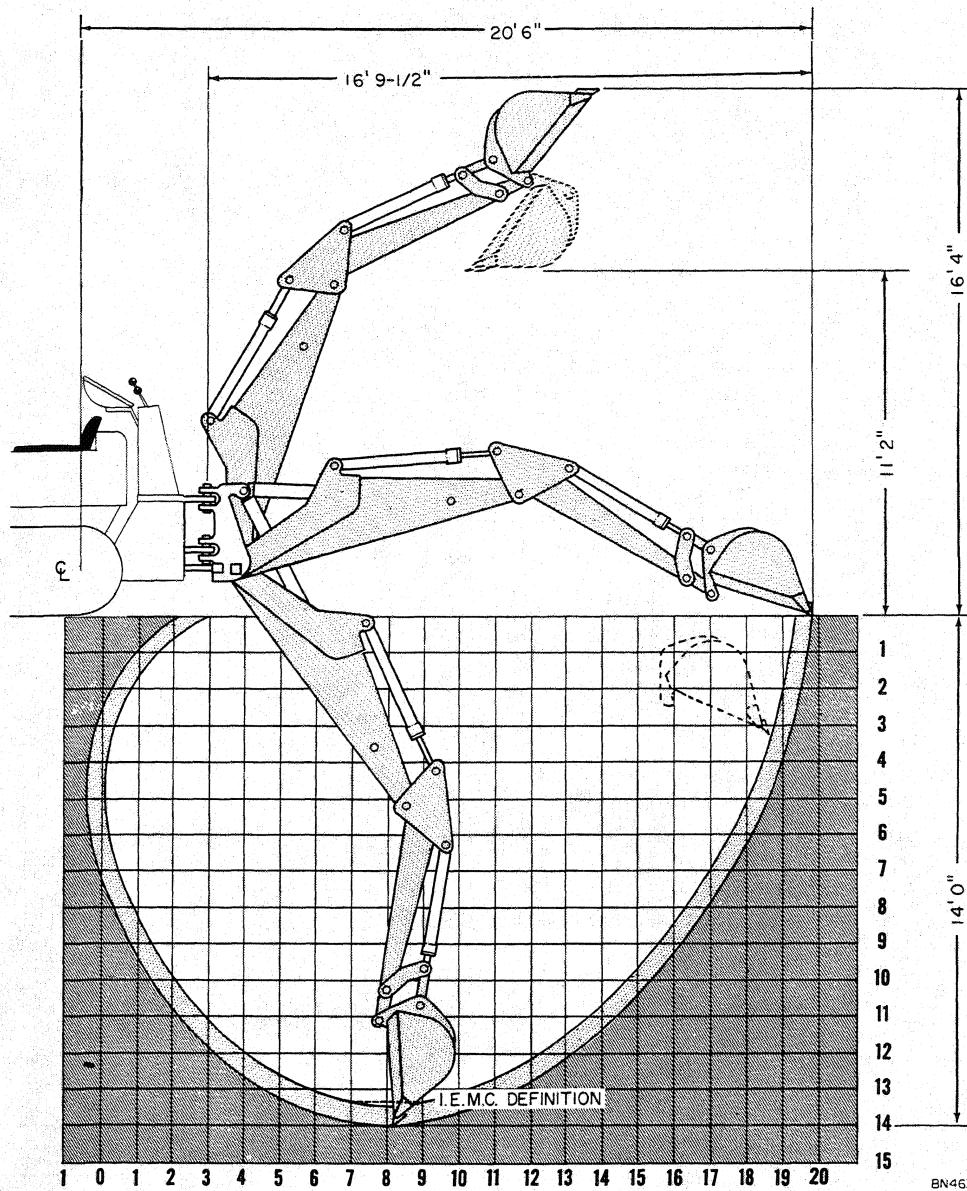


Figure 9 - Backhoe Dimensions

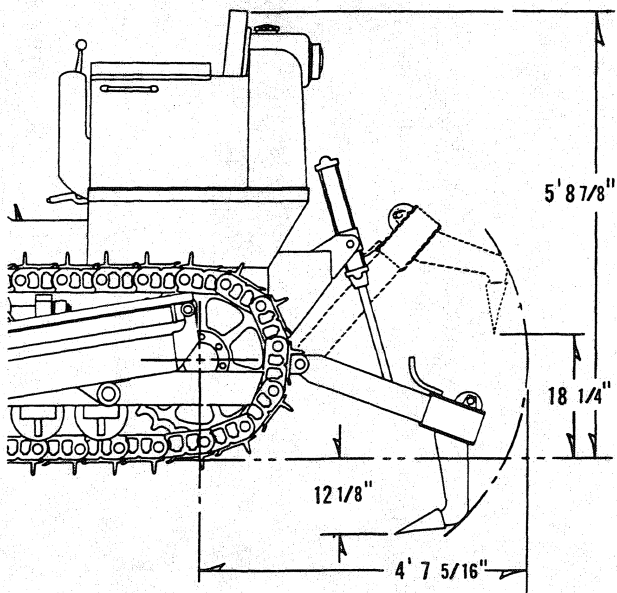


Figure 9A - Ripper Dimensions

FUEL SPECIFICATIONS

The Case Diesel Engine is designed to operate most efficiently when using a Number 2 Diesel Fuel.

"DIESEL" fuels are distilled with different properties and additives to produce certain specified reactions. "DIESEL" fuel not only supplies the energy for all the work performed by the engine, but it must cool and lubricate the fuel injection system as well. Because engines have been designed to deliver a specified performance on a specific fuel, it is important that the proper fuel be used. Use of fuels other than those specified by the manufacturer could result in expensive repairs to the engine and fuel injection components.

The POUR POINT of a fuel must be at least 10° F. below the prevailing ambient temperature to obtain adequate fuel flow through the lines and filters; also, to prevent forming waxes and clogging filters

A.P.I. GRAVITY of a fuel varies with its specific gravity. Lower gravity fuels contain more heat units (work energy) per gallon.

The FLASH POINT of a fuel is important with respect to the storage and handling of the fuel.

A high volatility is necessary to insure complete vaporization of fuel so there will be a minimum amount of residue remaining in the combustion chamber.

The CETANE NUMBER of a fuel is an

expression of ignition quality of the fuel. The higher the cetane number, the higher the quality of the fuel.

The DIESEL INDEX is a field method used to approximate the cetane number or ignition quality of a fuel.

It is imperative that the "DIESEL" fuel used be within the specifications for water and sediment content as well as ash and carbon content or excessive damage can occur to engine parts.

The "CASE" A-267-D engine has been designed and developed to use Grade #2 "DIESEL" Fuel Oil having the following characteristics:

A.P.I. GRAVITY (min.)	32-39
FLASH POINT	Legal Minimum Limit or Higher

VOLATILITY

INITIAL BOILING POINT (min.) .	320°F
50% CONDENSED	475°-555°F
FINAL BOILING POINT (max.) .	675°F
DISTILLATION RECOVERY (min.)	97%

S.U. VISCOSITY (at 100°F) .	34-39 seconds
CETANE (min.)	45(45-55 for winter use)
DIESEL INDEX	43
WATER & SEDIMENT (max.)05 to 1%
ASH (max.)02 to 1%
TOTAL SULFUR (max.)40 of 1%
CONRADSON CARBON02 to 1%
COPPER STRIP CORROSION	Pass
ALKALI AND MINERAL ACID . .	Neutral

FUEL STORAGE

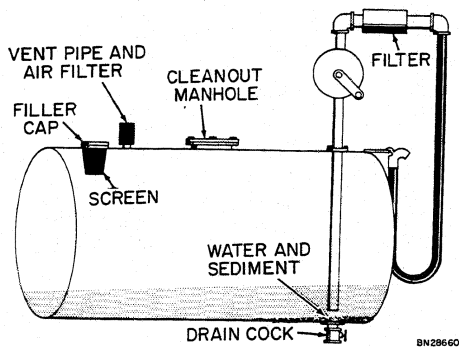


Figure 10- Recommended Fuel Storage Tank

The importance of proper fuel handling and storage cannot be too strongly emphasized. Storage tanks must be kept free from rust, scale, sediment, and other foreign matter that will contaminate fuel. The specific gravity of diesel fuel is such that foreign matter will remain in suspension for long periods of time. For this reason, it is important that diesel fuel be allowed to settle for at least 24 hours without being disturbed in any way before it is put into the fuel tank. The motion of a tractor in opera-

tion will keep the foreign matter in contaminated fuel from settling, and some of this material will be transported into the fuel injection system. The abrasive action of fuel contaminants on precision parts in the injection pump and spray nozzles will result in a loss of engine power and eventual failure of these parts. Torque converter failures can often be attributed to erratic engine performance resulting from contaminated fuel.

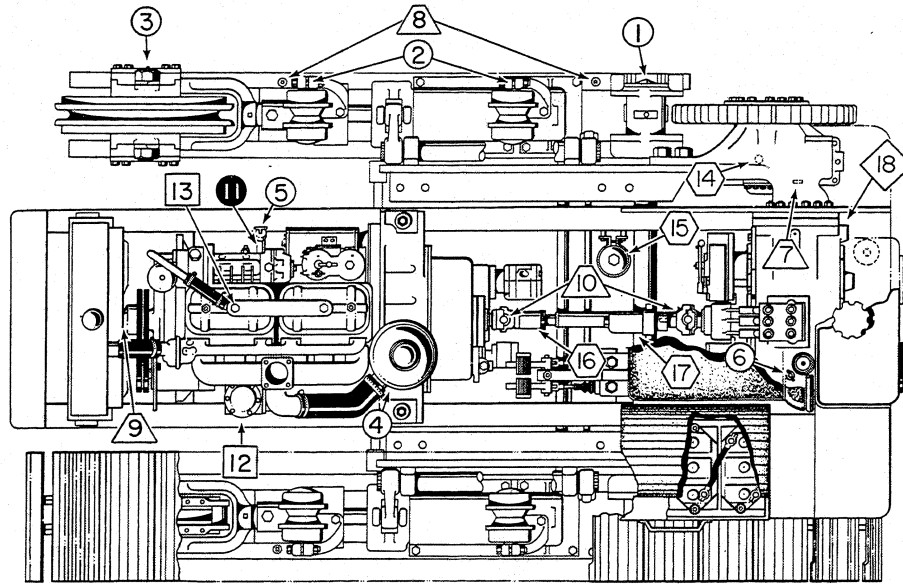
Any water that might find its way into diesel fuel, either through moisture condensation or by other means, will unite with the sulphur to form destructive acids. For this reason, it is also highly important that special attention be paid to methods of protecting diesel fuel from water while storing and handling.

1. A rust-proof storage tank similar to the one illustrated in Fig. 10 provides a good permanent storage tank. Main storage tanks of this type should be provided with a shelter so fuel can be kept as cool as possible.
2. A pump equipped with a long hose and nozzle and mounted in the top of the storage tank will provide a means of transferring fuel directly to the tractor fuel tank without contamination resulting from the use of dirty buckets or funnels.

The intake pipe of such a pump should be raised high enough from the bottom of the tank so as to avoid picking up any water or foreign matter that might have settled there. Fuel also should be filtered between the fuel tank and the dispensing hose.

3. A water trap and drain should be provided in the bottom of any fuel storage tank so that water and foreign matter can be drained daily.
4. A vent pipe and an air filter should be provided in the top of the tank to supply air necessary for extracting the fuel. An air filter protects against foreign matter that would otherwise enter the tank through this opening.
5. A cleanout manhole should be provided in the top of the tank so that the tank can be periodically drained and thoroughly cleaned. The manhole cover should be water tight, and it should only be removed when cleaning the tank.
6. An opening should be provided in the top of the tank for refilling. This opening should be covered with a water tight cap, and a screen should be installed to protect against dirt particles that would otherwise enter when refilling.

LUBRICATION SPECIFICATIONS AND PROCEDURES



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Figure 11 - Lubrication Points (See schedule next page)

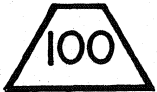
Recommended Lubricants					
LUBRICATION POINTS	APPROX. CAPACITIES (U.S. Measure)	DAYTIME AIR TEMPERATURES			
		ABOVE 80° F.	80° F. to 32° F.	32° F. to -20° F.	-20° F. and below
ENGINE CRANKCASE (with filter change)	10 qts. 12 qts.	SAE 30	SAE 20-W	SAE 10-W	SAE 5W-20
AIR CLEANER CUP	1-1/2 qts.	SAE 40	SAE 30	SAE 10	SAE 10
TRANSMISSION TORQUE CONVERTER HYDRAULIC SYSTEM	32 qts.	CASE HI-LO TCH OIL (ALTERNATE: TYPE "A" AUTO-MATIC TRANSMISSION FLUID)			
FINAL DRIVES	7 qts. each side	SAE 90 MILD TYPE EXTREME PRES-SURE GEAR LUBRICANT			
TRACK ROLLERS Loader Dozer and Drawbar	15 pts. each side 13 pts. each side	SEMI-FLUID GREASE			
UNIVERSAL JOINTS AND SPLINE SHAFT	1/4 lb.	SAE 250	STRAIGHT MINERAL GEAR LUBRICANT		
* ALL OTHER PRESSURE FITTINGS		LITHIUM "SOAP-BASE" GREASE #1 - winter #2 - summer #3 - tropical areas			
*Use only #1 LITHIUM "SOAP-BASE" GREASE on the fan shaft bearing.					

Lubrication Schedule



Every 10 Hours or Daily

1. Pivot Axle — 1 Fitting Each Side Grease
2. Upper Carrier Rollers — 2 Drawbar and Dozer Models
4 Loader Models Grease
3. Front Idler — 1 Fitting Each Side Grease
4. Air Cleaner Oil Cup Clean and Refill
5. Engine Oil Level Gauge Check (add if needed)
6. Transmission Oil Level Gauge Check (add if needed)



Every 100 Hours or Twice a Month

7. Final Drives Check (add if needed)
8. Track Roller Reservoir Check (add if needed)
9. Fan Shaft Bearing Grease
- *10. Universal Joints Lubricate



Every 120 Hours

11. Crankcase Oil Drain and Refill



Every 240 Hours

12. Engine Oil Filter Replace
13. Engine Breather Filter (early production models) Replace
(Late production models - no service required)



Every 500 Hours

14. Final Drives Drain and Refill
- *15. Transmission Oil Filter Replace
- *16. Universal Spline Shaft Lubricate
- *17. Transmission Oil Screen Clean



Every 1200 Hours

18. Transmission Drain and Refill

*Access to these points by removing floor boards.

Diesel Engine Lubrication

It is extremely important that a stable, high quality engine lubricating oil be selected for use in the Case Diesel Engine. It is also extremely important that the correct weight (SAE Viscosity Rating) of oil be selected for the prevailing air temperature.

Using lubricating oils of the recommended SAE Viscosity Rating assures you that the oil will remain fluid or free flowing within the specified temperature ranges. The use of either heavier or lighter body oils than recommended may seriously affect engine lubrication and performance. Too

light an oil used during warm temperatures may result in high oil consumption and is apt to cause increased engine wear. Using too heavy an oil during cold weather will affect starting, and may result in a poor rate of lubricant distribution, causing increased wear.

Engine Oil Recommendations (SAE Viscosity Rating)

Average Daytime Air Temperature

SAE 30 (SERVICE DS)	... Above 80° F.
SAE 20-W (SERVICE DS)	From 80° F. to 32° F.
SAE 10-W (SERVICE DS)	.. From 32° F. to -20° F.
SAE 5W-20 (SERVICE DS)	.. *-20° F. and below

*NOTE: If the Crawler is to operate under a heavy, constant load during extremely cold weather, it is advisable to use SAE 10-W oil. It may then be necessary to drain the oil while it is still cold and preheat it to approximately 100° F., before pouring it back into the crankcase, just prior to starting.

Engine Oil Service Designations

To simplify the selection of a suitable engine lubricating oil to meet Diesel engine service conditions, the American Petroleum Institute (composed of most major oil companies and refineries) has adopted three service designations for Diesel engine service use:

SERVICE "DS" (DIESEL - SEVERE) - Recommended for all types of operation. Series 3 oil is also acceptable.

SERVICE "DG" (DIESEL - GENERAL) - Not recommended for Model 750 Crawler engine use.

SERVICE "DM" (DIESEL - MEDIUM) - Not recommended for Model 750 Crawler engine use.

ADDITIVE TYPE OIL

The terms, "Heavy Duty" and "Extra Heavy Duty", do not refer to the weight or body (SAE Viscosity) of an oil. Heavy Duty or Extra Heavy Duty oils are additive type oils to which chemicals have been added in order to:

1. Make the oil more resistant to oxidation and corrosive substances, such as sulphur;
2. Improve some property of the oil, such as its pour point or ability to withstand heat and pressure;
3. Give the oil the ability to aid in preventing harmful deposits by holding carbon, sludge, etc. in suspension in the oil.

IMPORTANT: Change the crankcase oil frequently when severe operating conditions exist. The oil will eventually become saturated with contaminants and lose its protective properties.

Checking Crankcase Oil Level

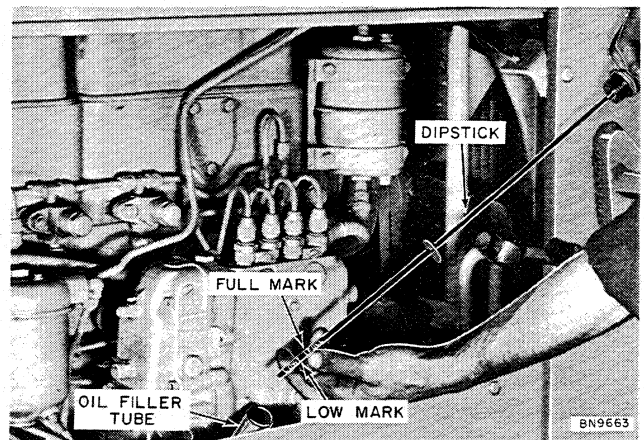


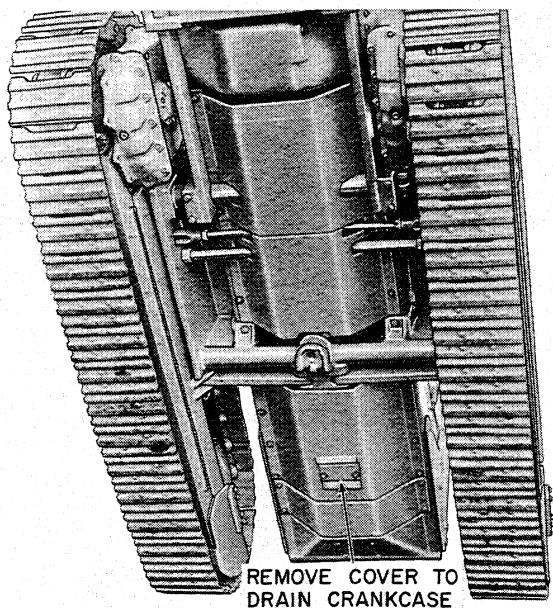
Figure 12 - Checking Engine Oil Level

Check engine oil level daily, before starting the day's work, by means of the dipstick, see Figure 12. The dipstick has "FULL" and "LOW" marks. Add sufficient oil through filler opening to bring the oil level just to the "FULL" mark. **DO NOT OVERFILL THE CRANKCASE.**

When adding oil, allow sufficient time for the oil to run down before rechecking the oil level. Never attempt to check crankcase oil level when the engine is running.

Crankcase Oil Change

Crankcase Capacity 10 U.S. Quarts
(with Filter change) 12 U.S. Quarts
Change Frequency After the first 20 hours
and at least every 120
hours thereafter.



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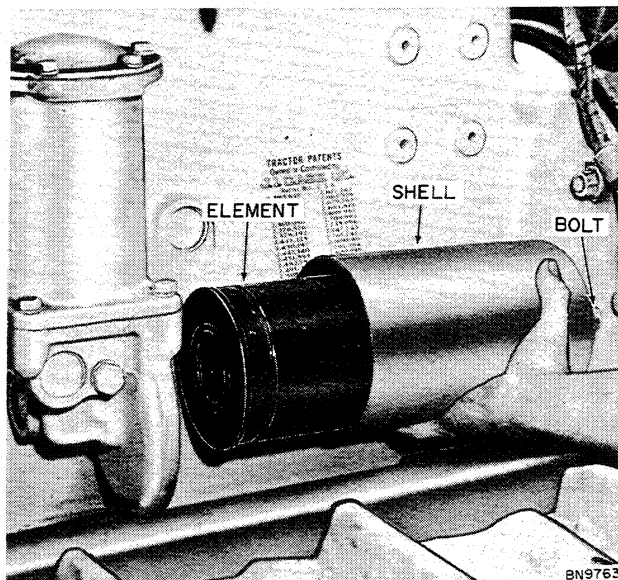
Figure 13 - Crankcase Drain Location

1. Drain oil, while hot, after the first 20 hours of operation; also change the filter element. See Figure 13 for the location of the drain plug. After the initial oil change, change the oil at least every 120 hours. Allow the oil to drain for several minutes, replace the plug (with the copper gasket in place), and tighten securely.
2. Fill crankcase with correct oil, see chart on page 13 and Figure 12. Always use service DS (Series 3) oil in this Diesel engine. Fill to full mark on dipstick.

Engine Oil Filter

Change the oil filter element after the first 20 hours operation and at least every 240 hours thereafter. Never attempt to change an oil filter when the engine is running. Install the new Case Filter Element as follows:

1. Before removing the filter shell, be sure to clean all traces of dirt from the area around the filter base and shell.
2. Loosen the hex head bolt on the filter shell until the shell and element can be lifted off the base together as shown in Figure 14.
3. Pull the contaminated element out of the shell.
4. Flush the shell and filter base with clean Diesel fuel.
5. Remove the old rubber gasket and install the new one provided with the kit.
6. Install a new Case filter element, rotating the element as you push it onto the bolt to assure a perfect seal. Be careful not to push the rubber seals out of either end of the element or to damage them with the bolt.



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Figure 14 - Removing Engine Oil Filter

7. Install the new filter base gasket provided with the new element.
8. Position the shell and element on the base and tighten bolt just enough to form a seal. **DO NOT OVERTIGHTEN.**
9. Operate the engine and check for leakage. **NOTE:** If leakage is noticed between the shell and bolt a new aluminum shell must be installed.

Air Cleaner



Figure 15 - Air Cleaner Cup

The air cleaner oil cup must be removed, cleaned, and refilled exactly to the "Oil Level" mark every 4 to 10 hours depending upon the operating conditions.

Loosen the clamps and remove the oil cup. Empty the dirty oil and clean both the inner and outer cups in solvent. Refill the cup to the "Oil Level" mark with 1-1/2 quarts of oil of the following viscosity. **DO NOT OVERFILL THE OIL CUP.**

Freezing Weather	SAE 10
Warm Weather	SAE 30
Hot Weather	SAE 40

Oil of the same viscosity as that used in the crankcase may be used.

Replace the cup and tighten the clamps.

Upper Carrier Rollers

The upper carrier rollers, two on draw-bar and dozer tractors and four on loader tractors, are equipped with a pressure fitting in the shaft of the roller. These rollers should be lubricated daily or every 10 hours, until clean grease can be seen around the dust shield. Two or three strokes of pressure lubricant should be sufficient.

Front Idler

The front idlers are lubricated by a pressure fitting located in the end of the shaft. Fill with lubricant until clean grease can be seen around the dust shield. Two or three strokes of pressure lubricant should be sufficient.

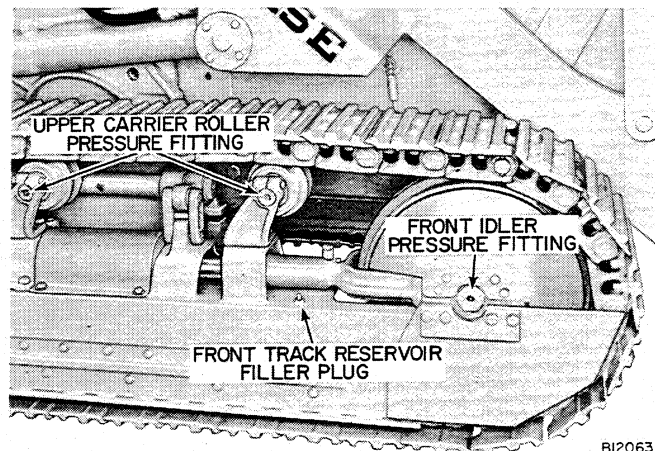


Figure 16 - Carrier Roller, Front Idler, and Track Roller Lubrication Points

Track Rollers

The track roller reservoirs are designed to give a continuous flow of lubricant to the lower track rollers. They should be checked and filled after every 100 hours operation (more often if operating in water or mud).

To check and fill the track roller reservoir:

1. Remove the two filler plugs from each reservoir, Figures 16 and 17.

2. Fill until the lubricant flows in a continuous flow from the other filler plug;
3. Replace one filler plug and continue filling until the lubricant can be seen around the roller seal;
4. Replace the remaining filler plug.

Because the lubricant reaches the roller by gravity, it is necessary to use a semi-fluid grease. A semi-fluid grease meeting the requirements used below is available from most nationally known oil companies. The requirements for a semi-fluid track roller grease are:

Appearance . . . Transparent (Not specified)
 Consistency . . . Semi-Fluid, Tacky, Adhesive
 Channeling Characteristics . Non-Channel at 30° F.

Penetration

@ 0° F. (worked, standard cone) 145-175
 @ 77° F. (worked, aluminum, tapered hole cone). 310-340
 Dropping Point (min.) 200° F.
 Corrosion . No discoloration of a bright copper strip after 24 hours submersion
 Soap . . . Lithium preferred (Not necessary)
 Mineral Oil Contents (min.) 90%
 Viscosity, S.U. 100° F. (min.) 280 seconds
 Flash Point (min.) 350° F.
 Pour Point (max.) 0° F.

Pivot Axle

The pivot axle is lubricated by a pressure fitting located in the end cap, see Figure 17. Lubricate until clean grease can be seen around the edges of the end cap or at the rear of the pivot axle housing. Two or three strokes of pressure lubricant should be sufficient.

Fan Shaft Bearing

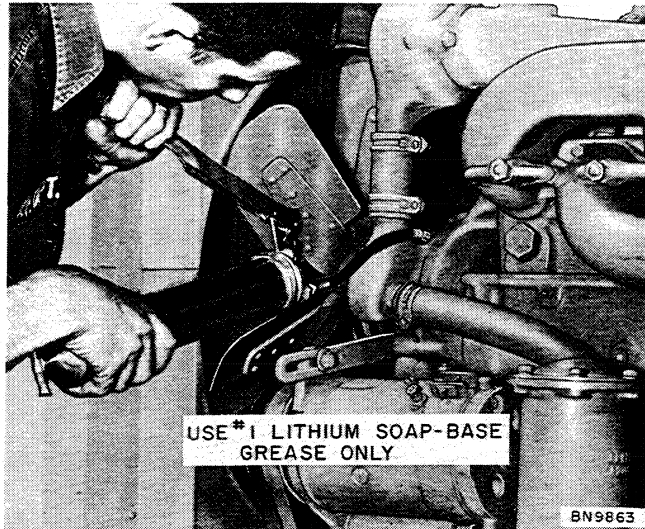


Figure 18 - Lubricating Fan Shaft Bearing

The fan shaft bearing is lubricated by a grease fitting on the water pump housing. Two strokes of #1 grease from a pressure gun after every 100 hours is sufficient.

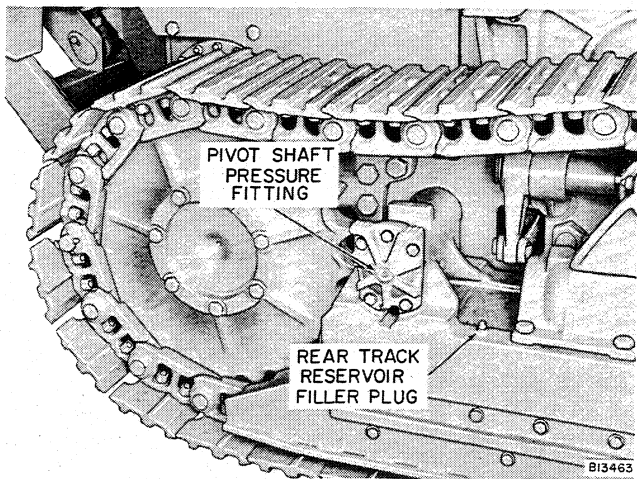


Figure 17 - Pivot Axle and Track Roller Lubrication Points

Universal Joints

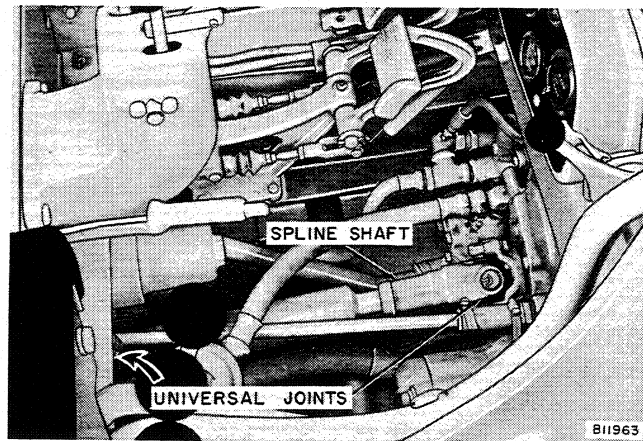


Figure 19
 Universal Joint Lubrication Points

The universal joints must be lubricated after every 100 hours of operation. Use an SAE 250 grease. A lithium soap-base grease used in other pressure fittings is not adequate for the universal joints. After every 500 hours operation, remove the pipe plug on the spline shaft and fill with SAE 250 grease.

The universal joints are lubricated as follows:

1. Remove the rear floor board;
2. Turn the drive shaft until the pressure fittings are in the right position;
3. Lubricate until a clean grease appears around the seals. Two or three strokes of lubricant should be sufficient. **DO NOT USE A HIGH PRESSURE GUN;**
4. Replace the rear floor board.

Transmission and Torque Converter Hydraulic System

The transmission oil level gauge is located on the top of the transmission under the operator's seat. The oil level should be checked after every 10 hours operation or daily to be sure it is to the full mark on the dipstick.

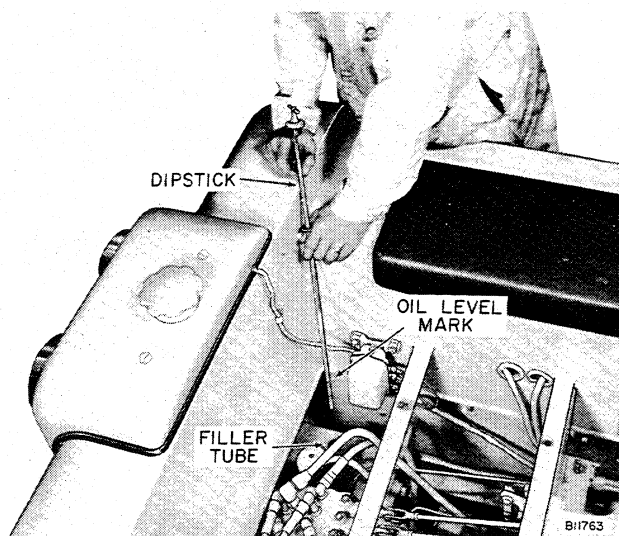


Figure 20 -
Checking Transmission Oil Level

Since the transmission and torque converter are lubricated by a common hydraulic oil system in which the transmission serves as a common reservoir for both units, the choice of oil is limited to one best suited to the dual application.

Case Hi-Lo TCH Oil should always be used when possible, because of its ability to fulfill the requirements of both the torque converter and the transmission. However, type "A" automatic transmission fluid is an acceptable substitute.

After each 1200 hours or at least once a year, the transmission - torque converter hydraulic system should be drained, the filter changed, and the system refilled with a new supply of Case Hi-Lo TCH Oil. To do this:

1. Remove the transmission oil level gauge to provide an air inlet for faster drainage.
2. Position a drain pan to receive the oil from the transmission drain plug.
3. Remove the transmission drain plug and allow the system to drain completely, see figure 21.

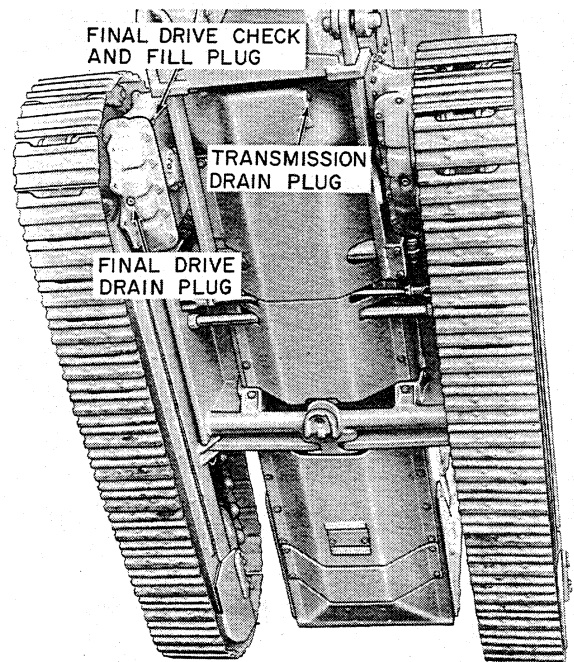


Figure 21
Location of Drain and Check Plugs

4. Remove the filter element.
5. Clean the filter body and install a new filter element, see page 91, Operator's Instruction Manual.
6. Replace and tighten the transmission drain plug.
7. Clean the transmission oil screen.
8. Refill with Case Hi-Lo TCH Oil until the level of the oil reaches the mark on the dipstick.
9. Replace the dipstick and the cap on the filler tube.

Final Drives

Final Drives Capacity 7 U.S. quarts each side
 Oil Recommendation . . Mild Type Extreme
 Pressure Gear Lu-
 bricant
 Viscosity Recommendations #90EP

Check the final drive oil levels every 100 hours. With the Crawler on level ground, remove the oil level plug located on each final drive housing, see Figure 21, and inspect the oil level. The oil level must be even with the plug.

If it is necessary to add oil, pour the #90EP mild type extreme pressure gear lubricant into the filler opening, until the oil is even with the level plug opening. **THE OIL MUST BE ADDED SLOWLY TO INSURE THE PROPER OIL LEVEL IS REACHED.**

Drain the final drives after every 500 hours operation, or twice a year, whichever occurs first. See Figure 21 for the location of the drain plugs.

After the oil has been completely drained, replace the drain plugs, and refill the final drives with the proper lubricant as indicated above.

SERIAL NUMBERS

On all parts orders and all correspondence, it is necessary that both the tractor and the engine serial numbers be given. This information will properly identify the particular tractor or engine and will help assure obtaining the correct replacement part.

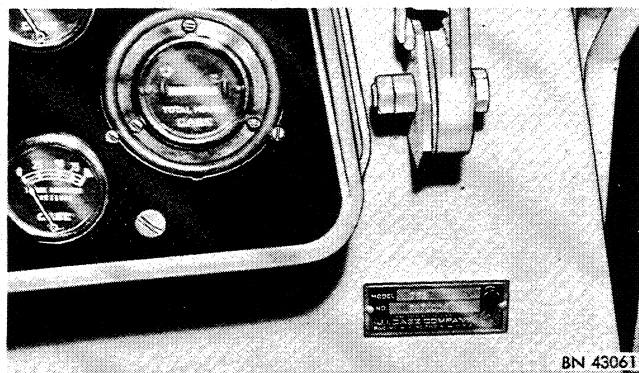


Figure 22 -
Crawler Serial and Model Numbers

When requesting parts or service information on component units of a tractor, it is advisable, when possible, to furnish the serial number of the component unit

itself. This is particularly true in the case of a tractor which is several years old.

Tractor Serial Number

The tractor serial number plate is fastened to the lower right side of the engine cowl, fig. 22. In the event this plate should be lost, the serial number is also stamped on the engine frame directly over the left hand final drive assembly, fig. 23.

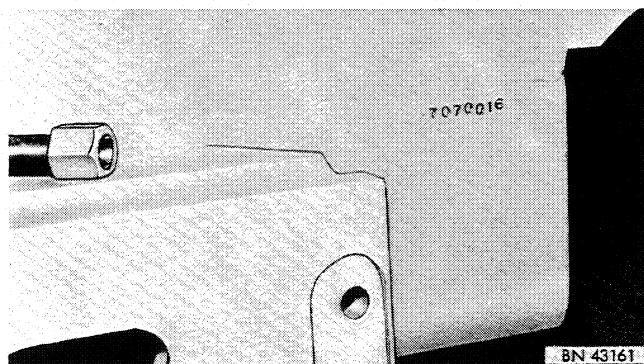


Figure 23 -
Serial Number Stamped on Engine Frame



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Engine Serial Number

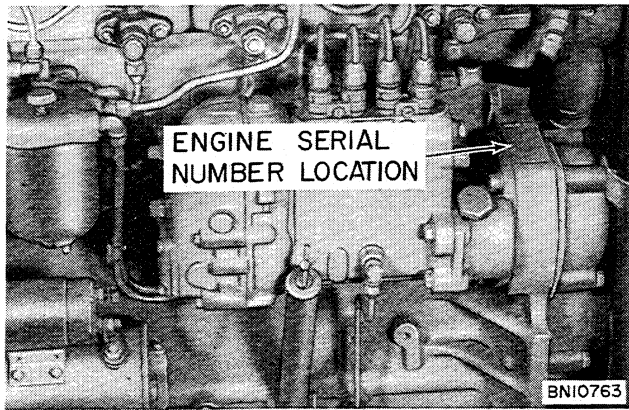


Figure 24 - Engine Serial Number

The engine serial number plate is attached to the right side of the engine block, just to the front of the fuel injection pump, fig. 24. If this plate should be lost, the serial number is stamped on the left rear rib of the crankcase, fig. 25.

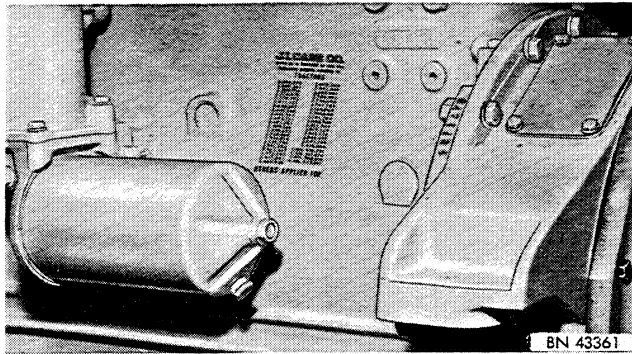


Figure 25 - Engine Serial Number Stamped on Crankcase

Loader Serial Number

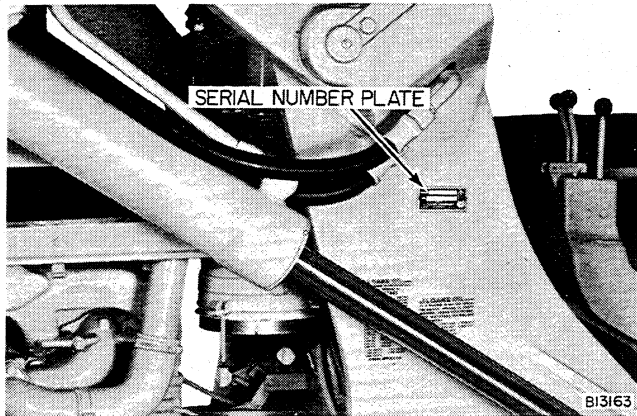


Figure 26 - Loader Serial Number

The loader serial number plate is attached to the upright frame assembly midway up the left side of the frame, fig. 26. If this plate should be lost, the serial number is also stamped on the frame.

Dozer Serial Number

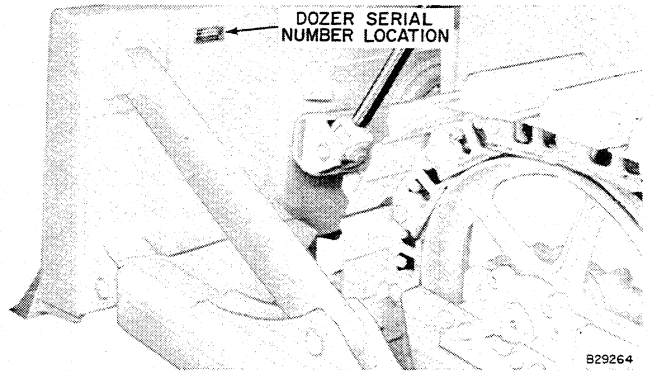


Figure 27 - Dozer Serial Number

The dozer serial number plate is attached to the upper rear left hand corner of the dozer blade, figure 27. The serial number is also stamped in the blade directly above this plate. The serial number location is the same for both tilt crown and angle dozers.

Ripper Serial Number

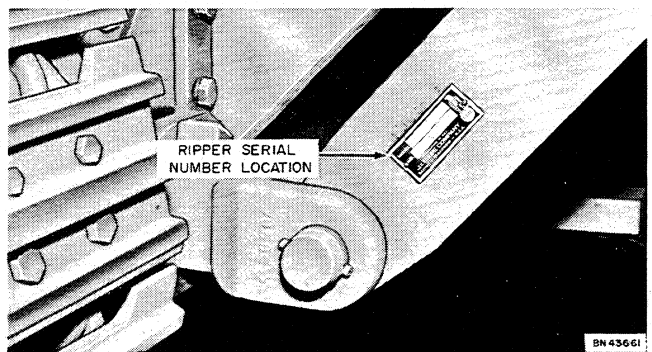


Figure 28 - Ripper Serial Number

The ripper serial number plate is attached to the left arm of the ripper frame. The serial number is also stamped into the frame above the serial number plate for reference if this plate should be lost, fig. 28.

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