



Caterpillar

Service Manual

DW21



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Service Manual

CT-S-DW21

Table of Contents

	Page
Specifications	4
General Instructions	7
Diesel Engine	
Hood Removal	15
Radiator	15
Removing and Installing the Diesel Engine	17
Starting Engine Removal with Diesel Engine in Place	23
Dash	26
Power Transmission Units	
Flywheel Clutch	31
Transmission	44
Bevel Gear	77
Differential	83
Final Drive	89
Axles and Wheels	94
Air System and Brakes	
Operation	103
Air Compressor	112
Compressor Governor	126
Valves	129
Pressure Gauge	148
Reservoirs	149
Air Brake Chamber	150
Slack Adjuster	154
Brakes	156
Flywheel Clutch Air Booster System	159

TABLE OF CONTENTS—Continued

	Page
Hydraulic Steering System	
Positive Hydraulic Steering	167
Operation	171
Hydraulic Pump	176
Steering Control Valve	181
Follow-up Linkage	188
Steering Gear	194
Hydraulic Oil Supply Tank, Expansion Tank and Tubes	207
Hydraulic Cylinders	212
Timing Gear, Timing Gear Shaft and Gear Segments	217
Operation of the Steering Mechanism	219
Timing	222
 Chassis	
Crankcase Guard	245
Bumper	246
Windshield	246
Fuel Tank	247
Fenders	248
Seat	248
 Index	 251

SPECIFICATIONS

POWER TRANSMISSION UNITS

Flywheel Clutch

Pressure springs	
Lbs. pressure	251-295
When compressed to	4 ¹ / ₄ -in.
Release lever-to-bearing cage clearance	3/16-in.
Release arm-to-plug clearance	.015 - .020 -in.

Transmission

Bevel gear and pinion backlash	As marked on bevel gear or .008 - .010 -in.
Differential bearing pre-load	.010 -in.
Reverse idler gear backlash	.010 - .015 -in.
Oil pump drive gear backlash	.013 -in.
Clearance between gears and separator plates (oil pump)	.002 - .004 -in.

AIR SYSTEM AND BRAKES

Air Compressor (Bendix-Westinghouse)

Capacity	7 ¹ / ₄ cu. ft.
Valves	
Unloading valves	
Maximum stem wear	.002 -in.
Clearance (between end of stem and unloader lever)	.010 - .015 -in.
Discharge valves	
Maximum groove where valves contact seats	.003 -in.
Cylinder block	
Bore wear limit (out-of-round)	.003 -in.
Bore wear limit (taper)	.003 -in.
Pistons (clearance between piston and cylinder block)	.002 - .004 -in.
Piston rings	
Clearance between ring and ring groove	.0015- .0025-in.
Ring gap	.010 - .015 -in.
Connecting rods	
Clearance between side of rod and cheek of crankshaft (Maximum)	.015 -in.
Clearance between rod journal and connecting rod bearing	.001 - .002 -in.
Piston pin	
Clearance in rod bushing	.0005- .001 -in.
Crankshaft	
Oil seal ring gap	.008 - .015 -in.
Crankshaft journals wear limit (out-of-round)	.001 -in.

General Instructions

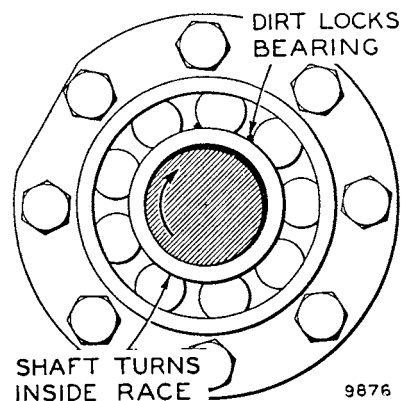
These general instructions will be extremely helpful in following the detailed instructions in the main sections of the book. They should be read and then kept in mind while assembling or disassembling the machine.

KEEP DIRT OUT

The most important single item in preserving the long life of the machine is to keep dirt out of vital working parts. Caterpillar Tractor Co. has taken precautions to safeguard against dirt entering working parts. Enclosed compartments, seals and filters have been provided to keep the supply of air, fuel, and lubricants clean. It is highly important that the effectiveness of these safeguards be maintained. Filters should be replaced or cleaned regularly. Worn seals or broken gaskets should be replaced immediately.

Anti-friction bearings, properly lubricated with clean lubricant, will last indefinitely. Abrasives in the lubricant will cause rapid wear on the extremely hard races and balls or rollers. Dirt in an anti-friction bearing can cause the bearing to lock, with the result that the shaft will turn in the inner race or the outer race will turn within the cage. Dirt and abrasives in lubricants will embed in bushing-type bearings and act like fine sandpaper against the shaft, causing extremely rapid wear.

EFFECT OF DIRT IN BEARING



Lubricant must be changed at recommended intervals. Use clean containers. Before removing a filler cap, brush away the dirt with the brush provided in the tool kit.

Wear on fuel injection pumps and other parts of the fuel system will be almost negligible if the fuel is perfectly clean.

Utmost care must also be exercised in keeping the hydraulic and air equipment clean during reconditioning. Foreign material carelessly introduced into these systems can cause serious trouble.

CLEANING AND INSPECTION

Clean all parts thoroughly after they are removed and inspect them. Be sure all lubricant passages and oil holes are open. Badly worn or damaged parts should not be put back in the machine. Cover all parts to keep them clean until they are installed.

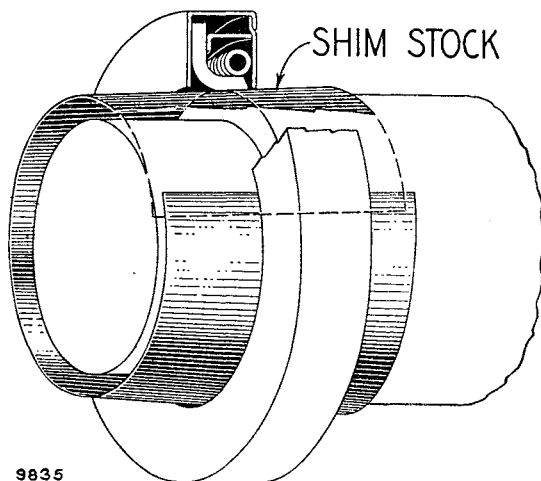
Anti-friction bearings should receive special handling. As soon as a bearing is removed, cover it to keep out dirt and abrasives. Wash bearings in non-inflammable cleaning solution and inspect the races and balls or rollers. Discard the bearings if they are pitted, scored, or burned. If the bearing is serviceable, coat it with light oil and wrap it in clean paper. Do not unwrap new bearings until ready to install them.

ASSEMBLY

Clean the rust preventive compound from all machined surfaces of new parts before installing them. Be sure to install parts in the proper location and position.

When one part is pressed into another, use white lead or a suitable prepared compound to lubricate the mating surfaces. Tapered parts, however, should be assembled dry. Before assembling parts with tapered splines, be sure the splines are clean, dry and free from burrs. Then press the parts together tightly.

When possible, soak new leather seals in warm oil for a half hour before installing. Install the seal with the wiping edge turned in the direction recommended. Be careful not to cut the leather seal as it is installed or when installing a shaft through the seal. Use shim stock if necessary to protect the seal from shoulders or sharp edges during installation. Packing-type seals should always be renewed if the contacting part is removed.



PROTECTING SEAL DURING
INSTALLATION