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Caterpillar

Service Manual

D17000 Engines

Locomotive, Electric Set

Industrial, Marine

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CT-S-ENG17000

Service Manual

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Valves

Clearance (Hot)	.012 -in.
Exhaust valves:	
Stem clearance in bushing	.006 - .008 -in.
Maximum permissible clearance in bushing	.012 -in.
Valve seat angle	45°
Inlet valves:	
Stem clearance in bushing	.005 - .007 -in.
Maximum permissible clearance in bushing	.012 -in.
Valve seat angle	45°

Valve Timing

Exhaust opening	50° BBC
Exhaust closing	22° ATC
Inlet opening	12° BTC
Inlet closing	30° ABC

Valve Spring—Outer

Pounds pressure	71-79
When compressed to	3 $\frac{1}{8}$ -in.

Valve Spring—Inner

Pounds pressure	9-11
When compressed to	2 $\frac{13}{32}$ -in.

Rocker Arm Bushings

Clearance between shaft and bushing	.002 - .003 -in.
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Oil Pump

Clearance between gears and separator plate	.002 - .004 -in.
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Fuel Injection Pump Lifter Setting

Camshafts 2A4511 and 3F1670	1.721-in.
Camshaft 2A5716	1.736-in.

Fuel Pump Plunger

Length	2.6575-2.6577-in.
Maximum wear	.005 -in.

Flywheel Housing

Bore run-out	
Electric set	.007 -in.
All others	.010 -in.
Face run-out	
Electric set	.007 -in.
All others	.010 -in.
Capscrew torque	1800 in.-lb.

Flywheel Run-Out

Outside diameter (Maximum)	.006 -in.
Face (Maximum)	.006 -in.

Cylinder Head

Tighten nuts numerically:	
First time	750 in. lb.
Second time	1200 in. lb.
Expected tightness after run-in	850 in. lb.

Accessory Shaft

End clearance	.003 - .007 -in.
Maximum	.012 -in.

Step-Voltage Control (Delco-Remy 5901)

Cut-out Relay	
Air gap	.015-in.
Point opening	.020-in.
Closing voltage	12.5—14.0-V.
Step-Voltage Control	
Flat spring tension	3/4-oz.
Air gap	.030-in.
Armature travel	.030-in.
Contact point opening	.010-in.
Opening voltage	14.0—15.5-V.
Closing voltage	12.5—14.0-V.
Minimum difference between opening and closing voltage	1.5-V.

Generator (Delco-Remy 1102734)

Brush spring tension	28-oz.
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Regulator (Delco-Remy 1118377)

Cutout Relay	
Air gap	.020-in.
Point opening	.020-in.
Closing voltage	5.9—6.8-V.
Voltage Regulator	
Air gap	.075-in.
Voltage setting (8-10 amperes)	7.0—7.7-V.
Current Regulator	
Air gap	.075-in.
Current setting	17-21-Amp.

Generator (Leece-Neville 1960 G 15235)

Ampere output regulated by third brush.	
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Voltage Regulator Control Unit

(Leece-Neville 3204-R12)

Voltage Regulator	
Contact point gap	.020-.025-in.
Open circuit voltage	28.4-28.6-V.
Cutout Relay	
Contact gap	.070-.075-in.
Auxiliary contact gap	.040-.045-in.
Hinge gap	.005-.010-in.
Closing voltage	22.0-22.5-V.

Generators

(Leece-Neville 24 Volt 1910G 15272)

(Leece-Neville 32 Volt 1912G 15272)

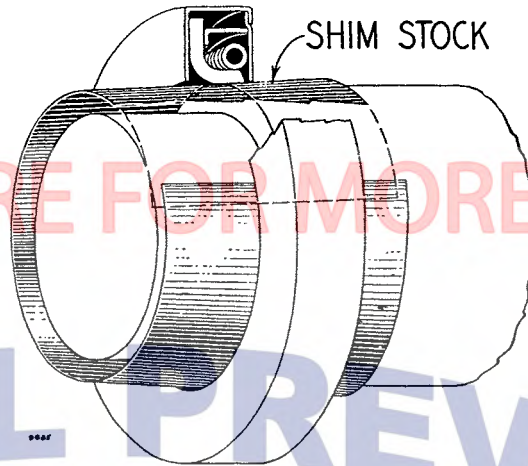
Ampere output regulated by third brush.	
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Voltage Regulator Control Unit

(Leece-Neville 3192-R12)

Voltage Regulator	
Contact point gap	.020-.025-in.
Open circuit voltage	28.4-28.6-V.
Cutout Relay	
Contact gap	.070-.075-in.
Auxiliary gap	.040-.045-in.
Hinge gap	.005-.010-in.
Closing voltage	22.0-22.5-V.

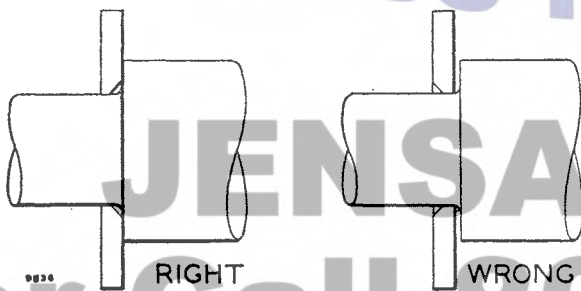
PROTECTING SEAL DURING INSTALLATION



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.

When installing a bearing, spacer, or washer against a shoulder on a shaft, be sure the chamfered side is toward the shoulder. If the washer is turned in the wrong direction the radius may interfere and prevent the washer from seating against the shoulder.

Do not install bushings by driving them in with a hammer. Use a press if possible and be sure to apply the pressure directly in line with the bore. If a bushing must be driven in, use a bushing driver or a bar with a smooth flat end. If the bushing has an oil hole, be sure it is lined up with the oil hole in the part in which it is assembled.



HOW TO INSTALL SPACER AGAINST SHOULDER ON SHAFT

Install gaskets where required and use new ones if necessary. Never use cork or felt gaskets or seals a second time. Be sure the holes in the gaskets correspond with the lubricant passages in the mating parts. If it is necessary to make gaskets, select stock of the proper type and thickness and be sure to cut sufficient holes in the right places. Blank gaskets can cause serious damage.