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Caterpillar

Service Manual

621B & 627B Tractor

Scraper S/N 31V1, 35V1,

36V1, & 45P1 & UP

Volume 1 of 2

or Call 800-443-0625

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CT-S-621B,627B

Service Manual

SERVICE MANUAL CONTENTS

Contains:

SYSTEMS OPERATION

TESTING & ADJUSTING SPECIFICATIONS

Covers all aspects of the vehicle engine, or engines within the following: Air Induction System, Fuel System, Lubrication System, Electrical System, and Basic Engine Components.

ENGINE

Contains:

SYSTEMS OPERATION

TESTING & ADJUSTING SPECIFICATIONS

Covers all components involved in the power flow between the engine flywheel and the ground. Includes topics as applicable on: torque converters, transmissions, transfer gears, bevel gear & pinion, differentials, final drives and wheels. Steering clutches, brakes, and undercarriage topics for track-type vehicles are included here.

POWER TRAIN

Contains:

SYSTEMS OPERATION

TESTING & ADJUSTING SPECIFICATIONS

Covers all remaining systems of the vehicle not discussed in the Engine or Power Train sections. Examples of coverage where applicable are: Hydraulic Systems, Air Systems, Steering Systems, Brake Systems, Suspension System, Power Control, Cushion Hitch, and Push-Pull Hydraulics.

VEHICLE
SYSTEMS

Contains:

GENERAL INSTRUCTIONS

STEP-BY-STEP PROCEDURES

The General Instructions is a review of many procedures. Proper installation of lip-type seals, Duo-Cone floating seals, and locks are examples. As the title implies, the instructions are general and do not apply to any specific vehicle.

Detailed disassembly and assembly instructions are, in most cases, omitted from the initial printing to allow earlier Service Manual release. As soon as these instructions are available, they will be announced in PREVIEW.

DISASSEMBLY
& ASSEMBLY

Contains:

A GUIDE TO EQUIPMENT CARE

The publications included in this section provide information concerning service intervals, fuels and lubricants, capacities and adjustment procedures.

LUBRICATION &
MAINTENANCE

INTRODUCTION

The specifications given in this book are on the basis of information available at the time it was written. The specifications torques, pressures of operation, measurements, adjustments and other items can change at any time. These changes can effect the service given to the product. Get the complete and most current information before you start any job. Caterpillar Dealers have the most current information which is available. For a list of the most current modules and form numbers available for each Service Manual, see the SERVICE MANUAL CONTENTS MICROFICHE REG1139F.

When the words "use again" are in the description, the specification given can be used to determine if a part

can be used again. If the part is equal to or within the specification given, use the part again.

When the word "permissible" is in the description, the specification given is the "maximum or minimum" tolerance permitted before adjustment, repair and/or new parts are needed.

A comparison can be made between the measurements of a worn part, and the specifications of a new part to find the amount of wear. A part that is worn can be safe to use if an estimate of the remainder of its service life is good. If a short service life is expected, replace the part.

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SPECIFICATIONS

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SYSTEMS OPERATION AND TESTING AND ADJUSTING

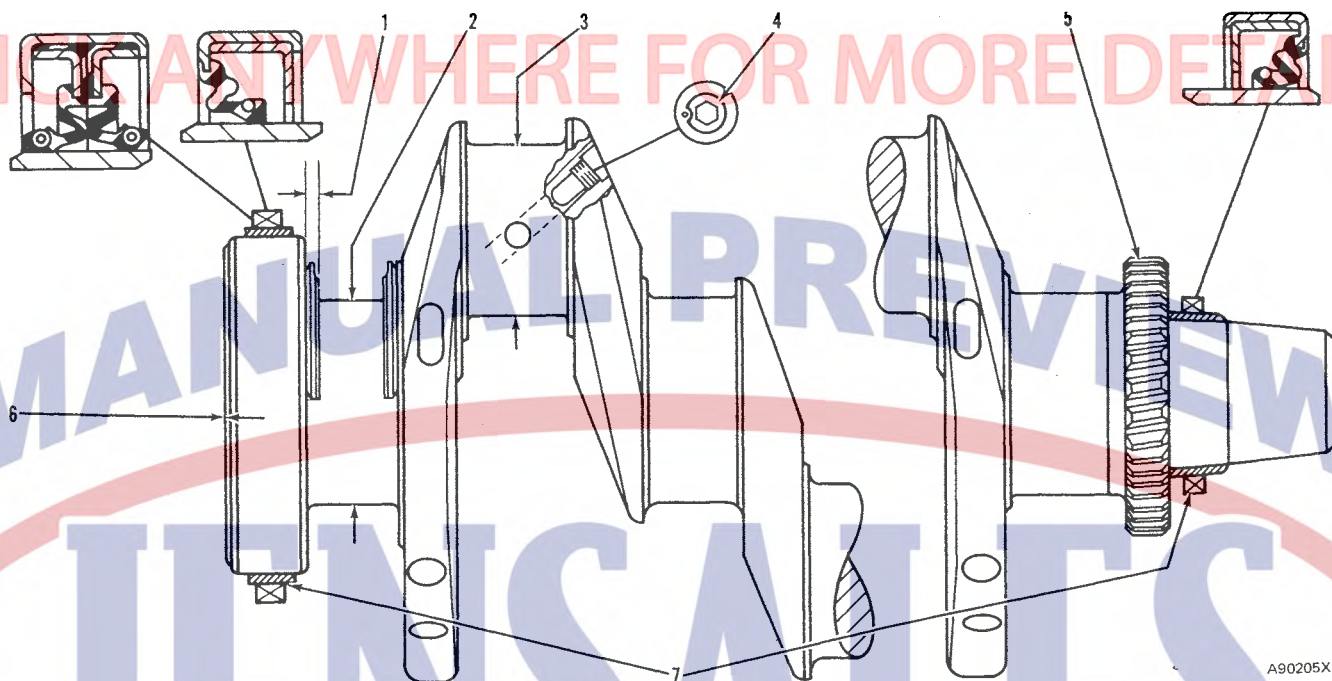
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NOTE: The disassembly and assembly in this supplement was done on a 3306 Engine, but the basic procedures also apply for the 3304 Engine.

CRANKSHAFT



Special Instruction, Form No. SEHS6713 has complete specifications and procedures for crankshaft reconditioning.

- (1) Thickness of thrust plates with tabs (new):

7N93422150 ± .0015 in. (5.461 ± 0.038 mm)

7N93432620 ± .0015 in. (6.655 ± 0.038 mm)

NOTE: Make reference to THRUST PLATE USAGE CHART for the correct thrust plate to use.

- (2) Make reference to MAIN BEARINGS and BEARING SURFACE (JOURNAL) FOR MAIN BEARINGS.

- (3) Make reference to CONNECTING ROD BEARINGS and BEARING SURFACE (JOURNAL) FOR CONNECTING RODS.

- (4) Tighten plugs to 17 ± 3 lb. ft. (23 ± 4 N·m)
Then "stake" the crankshaft to hold plugs in place. "STAKE" use a center punch and a hammer to change the shape of the hole as shown.

- (5) Crankshaft gear:

Do not heat gear to more than 600° F (316° C).

- (6) End play for crankshaft (new)0025 to .0145 in. (0.064 to 0.368 mm)

Maximum permissible end play for crankshaft (worn)025 in. (0.64 mm)

- (7) Wear sleeve and seal installation:

Push wear sleeve and seal into position with correct tooling. Make reference to Special Instruction, Form No. SMHS7100 for instructions and the correct tooling for installing wear sleeves and seals.

THRUST PLATE USAGE CHART

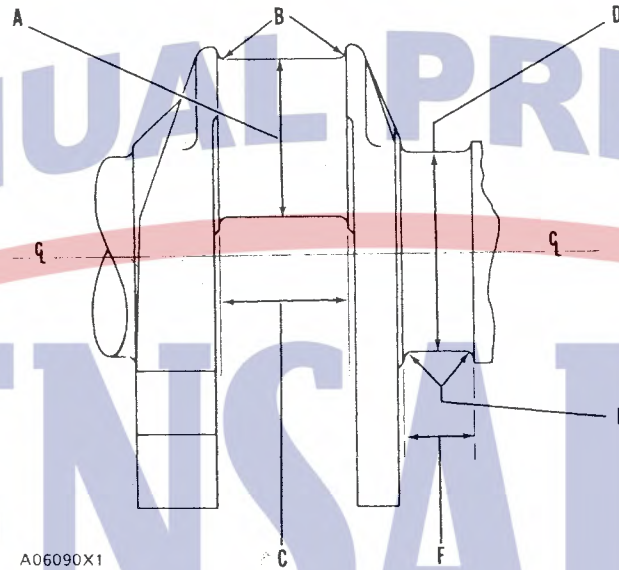
CRANKSHAFT JOURNAL WIDTH	THRUST PLATE PART NO.	
	COUNTERBORE BLOCK	SPACER PLATE BLOCK
*1.5935 +.0055 - .0025 in. (40.475 +0.140 - 0.064 mm)	6N8940	7N9342
**1.6875 ± .0025 in. (42.863 ± 0.064 mm)	9S3037	7N9343

*Current Production Engines

**Earlier Engines

CLICK ANYWHERE FOR MORE DETAILS

BEARING SURFACE (JOURNAL)
FOR MAIN BEARINGS



Special Instruction, Form No. SEHS6713 has complete procedures and specifications for crankshaft reconditioning.

BEARING SURFACE (JOURNAL) FOR MAIN BEARINGS

	ORIGINAL SIZE JOURNAL	.010 in. (0.25 mm) UNDERSIZE (SMALLER) JOURNAL	.020 in. (0.51 mm) UNDERSIZE (SMALLER) JOURNAL	.030 in. (0.76 mm) UNDERSIZE (SMALLER) JOURNAL
(D) Diameter of Journal	3.4992 ± .0008 in. (88.880 ± 0.020 mm)	3.4892 ± .0008 in. (88.626 ± 0.020 mm)	3.4792 ± .0008 in. (88.372 ± 0.020 mm)	3.4692 ± .0008 in. (88.118 ± 0.020 mm)
Surface finish on diameter of journal	10 micro inches or smoother (0.25 micrometre)			
* (E) Radius	.226 ± .008 in. (5.74 ± 0.20 mm)			
Surface finish in radius	63 micro inches or smoother (1.6 micrometres)			
(F) Maximum width of journals, except front and rear journal	1.712 in. (43.485 mm)			
Width of rear journal	1.5935 + .0055 - .0025 in. (40.475 + 0.140 - 0.064 mm)			
Surface finish on thrust faces of rear journal	18 micro inches or smoother (0.46 micrometre)			

*Radius must blend smoothly (have no sharp edges) with the machined surfaces of the journals.

MAIN BEARINGS AND CONNECTING ROD BEARINGS

Make reference to GUIDELINE FOR REUSABLE PARTS: MAIN BEARINGS AND CONNECTING ROD BEARINGS, Form No. SEBF8009.

CONNECTING ROD BEARINGS

	ORIGINAL SIZE JOURNAL	.010 in. (0.25 mm) UNDERSIZE (SMALLER) JOURNAL	.020 in. (0.51 mm) UNDERSIZE (SMALLER) JOURNAL	.030 in. (0.76 mm) UNDERSIZE (SMALLER) JOURNAL
Diameter of crankshaft journal (bearing surface) for connecting rod.	2.9992 ± .0008 in. (76.180 ± 0.020 mm)	2.9892 ± .0008 in. (75.926 ± 0.020 mm)	2.9792 ± .0008 in. (75.672 ± 0.020 mm)	2.9692 ± .0008 in. (75.418 ± 0.020 mm)
Clearance between bearing and journal (new)	.0030 to .0066 in. (0.076 to 0.168 mm)			
Maximum permissible clearance between bearing and journal.	.010 in. (0.25 mm)			

MAIN BEARINGS

	ORIGINAL SIZE JOURNAL	.010 in. (0.25 mm) UNDERSIZE (SMALLER) JOURNAL	.020 in. (0.51 mm) UNDERSIZE (SMALLER) JOURNAL	.030 in. (0.76 mm) UNDERSIZE (SMALLER) JOURNAL
Diameter of crankshaft journal (bearing surface) for main bearings.	3.4992 ± .0008 in. (88.880 ± 0.020 mm)	3.4892 ± .0008 in. (88.626 ± 0.020 mm)	3.4792 ± .0008 in. (88.372 ± 0.020 mm)	3.4692 ± .0008 in. (88.118 ± 0.020 mm)
Clearance between bearing and journal (new)	.0030 to .0065 in. (0.076 to 0.165 mm)			
Maximum permissible clearance between bearing and journal.	.010 in. (0.25 mm)			