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MANUAL PREVIEW

Caterpillar

Service Manual

D4E Crawler

S/n 27X1, 28X1, 50X1,
51X1, 52X1, 76W1

& 77W1 & up

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CT-S-D4E 27X1+

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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.

77200X2

NOTE: For Systems Operation and Testing and Adjusting, make reference to the D4E TRACTOR POWER TRAIN, Form No. SENR7631. For POWER SHIFT TRANSMISSION TESTING AND ADJUSTING see Form No. SENR7632.

NOTE: The "C" is an indication of a change from the former issue.

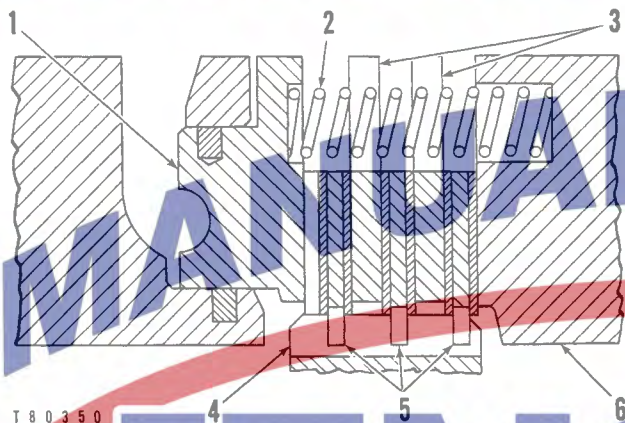
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TRANSMISSION

Clutch Operation

The transmission has three speeds FORWARD and three speeds REVERSE. It has planetary gear systems and five hydraulic clutches.



CLUTCH OPERATION
(Typical Example)

1. Piston. 2. Spring. 3. Plates. 4. Ring gear. 5. Discs. 6. Clutch housing.

The five transmission clutches are the disc type and in separate housings. Each clutch has discs (5) and plates (3). The inside teeth of discs (5) are engaged with the outside teeth of ring gear (4). Notches on the outside diameter of plates (3) are engaged with pins in the clutch housing. The pins hold the plates stationary.

In the example above, springs (2) are between clutch housing (6) and piston (1). The springs keep the clutches disengaged (not engaged). The clutches are engaged when oil is sent into the area behind piston (1). When the pressure of the oil in the area behind the piston increases, the piston moves to the right. The piston moves against the force of spring (2) and pushes the discs and plates together. The clutch is now engaged. The discs hold ring gear (4) stationary. When the clutch is released, the pressure in the area behind piston (1) decreases and the force of spring (2) moves the piston to the left. The discs and plates are now apart. The clutch is not engaged.



CLUTCH IDENTIFICATION

The two front clutches (No. 1 and No. 2) are direction clutches. The No. 2 clutch is the FORWARD direction clutch. The No. 1 clutch is the REVERSE direction clutch. The three rear clutches (No. 3, No. 4 and No. 5) are speed clutches.

A speed and a direction clutch must be engaged in the transmission before power goes through the transmission.

SPEED SELECTION CHART	
SPEED	CLUTCHES ENGAGED
NEUTRAL	4
FIRST FORWARD	2 & 5
SECOND FORWARD	2 & 4
THIRD FORWARD	2 & 3
FIRST REVERSE	1 & 5
SECOND REVERSE	1 & 4
THIRD REVERSE	1 & 3

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**WARNING**

**DISCONNECT BATTERIES
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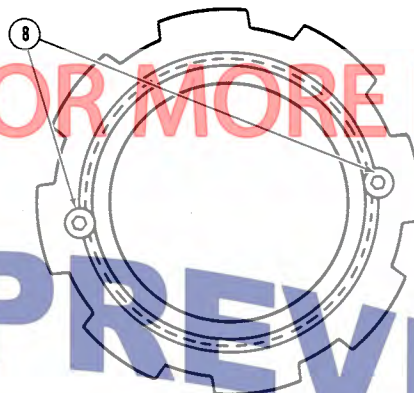
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STEERING CLUTCHES

6. Drill two 13/64 in. (5.16 mm) holes .38 in. (9.7 mm) deep opposite each other on the separation line of the nut and plate assembly.

NOTE: Keep bearing free of foreign material.

7. Use a 1/4"-20-3B NC thread tap to tap both holes .31 in. (7.9 mm) deep. Install two screws (8).



8. Install the discs (9) and disc assemblies (10) on the drum (11). Make sure discs are installed in the correct sequence.

9. Install the drum and disc assembly on the plate assembly.

10. Put the two springs (12) and the retainers (13) on each of the studs of the plate assembly.

A03875X2

A69769X2

A69776X1

11. Install tooling (C). Put pressure on springs and retainers until locks (14) can be installed on studs.

CAUTION

Put pressure on springs and retainers slowly to prevent damage to plate (7S8431) in tooling (C). Hit each stud with a hammer to make sure the locks are in the correct position on the studs.

A69775X1

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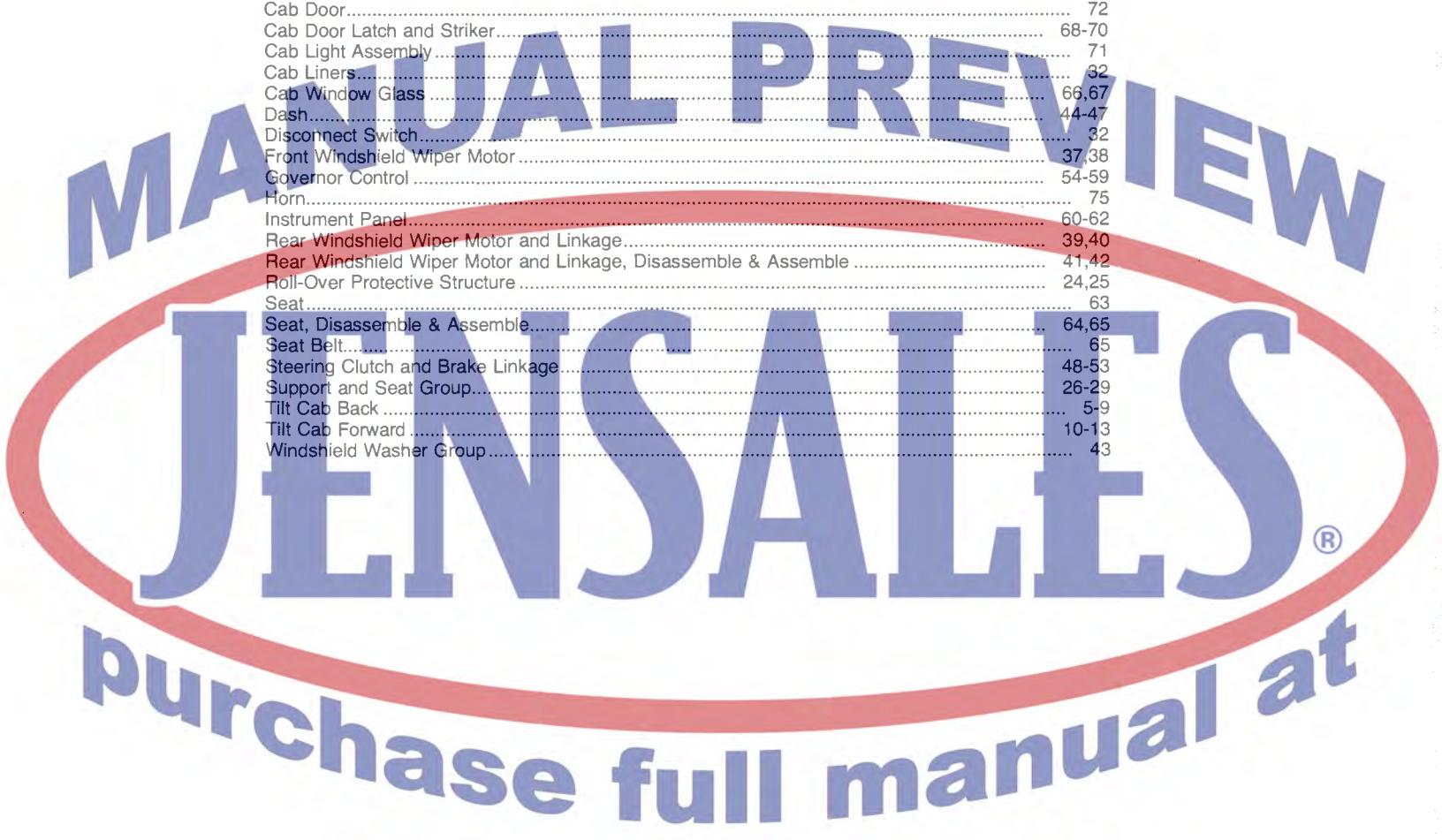
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ROLL-OVER PROTECTIVE STRUCTURE

REMOVE ROLL-OVER PROTECTIVE STRUCTURE

7323-11

1. Remove four nuts (1), bolts and washers from each front pad assembly (2).

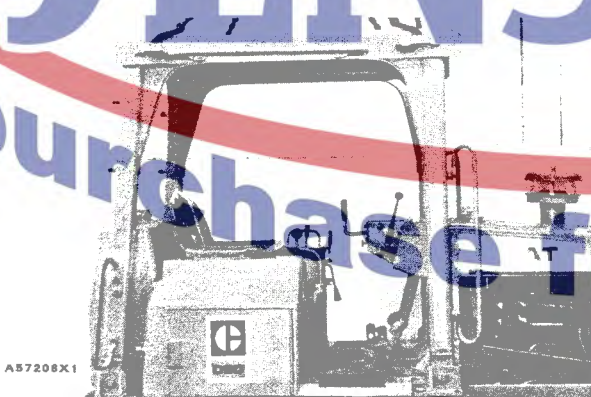


2. Remove four nuts (3), bolts and washers from each rear pad assembly (4).



3. Remove the ground wire from the left rear pad assembly. Disconnect two wires from back-up alarm (5).

4. Fasten a hoist to the Roll-Over Protective Structure and remove. The weight of the Roll-Over Protective Structure is 1150 lb. (518 kg).



INSTALL ROLL-OVER PROTECTIVE STRUCTURE

7323-12

NOTE: If the rear Roll-Over Protective Structure support assemblies have been removed from a D5B or D6D for any reason, the following installation procedure must be followed:

- a) Install the support assemblies (2) with three bolts (3) and lockwashers for each support assembly. Tighten the bolts to a torque of 420 ± 60 lb.ft. (570 ± 80 N·m).
- b) Put fender brace (5) in position on the bevel gear case. Install but do not tighten the bolts (4) and lockwashers which fasten the brace to the case.



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