UNIT, DIRECT SUPPORT, AND GENERAL SUPPORT MAINTENANCE MANUAL

FOR

DISTRIBUTOR, WATER, SELF-PROPELLED,

2500 GALLON CAPACITY, SECTIONALIZED AND NON-SECTIONALIZED MODELS

613BWDS AND 613BWDNS

NSN 3825-01-143-1213
NSN 3825-01-143-1212

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Approved for public release; distribution is unlimited.

HEADQUARTERS, DEPARTMENT OF THE ARMY

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TECHNICAL MANUAL
No. 5-3825-226-24

HEADQUARTERS
DEPARTMENT OF THE ARMY
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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2, located in the back of this manual, direct to: Commander, U.S. Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, MI 48397-5000. A reply will be furnished to you.

This technical manual is an authentication of the manufacturer's commercial literature and does not conform with the format and content specified in AR 25-30, Military Publications. This technical manual does, however, contain available information that is essential to the operation and maintenance of the equipment.

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HOW TO USE THE TECHNICAL MANUAL

Introduction

The 613B Series Tractor-Water Distributor is available in two configurations:

- 613BWDNS Type I - Non-Sectionalized
- 613BWDS Type II - Sectionalized

The Type I configuration is air transportable by three methods:

- Drive On/Drive Off*
- Low Altitude Parachute Extraction (LAPES)
- Low Velocity Air Drop (LVAD)

* Requires load transfer (weight distribution).

The Type II configuration, in addition to the three methods above, may be sectionalized (divided into two sections) and transported by helicopter.

Volume Identification

- Operation and Lubrication information, see TM 5-3825-226-10.
- Tractor Maintenance information, see Chapters 1-3 and Appendix B of this manual.
- Water Distributor Maintenance information, see Chapters 4-6 and Appendix B of this manual.
- Tractor Parts information, see TM 5-3825-226-24P.
- Water Distributor Parts information, see TM 5-3825-226-24P.
- Sectionalization Unique Information, see Chapter 7 of this manual.

Part Number Identification

The part numbers identified in this manual may not always represent the most current RPSTL part numbers. ALWAYS verify given part numbers against the current RPSTL, TM 5-3825-226-24P.

REMEMBER!

This manual is a guide for the new mechanic and a reference for the experienced mechanic.

Illustrations will guide you through the procedures for maintaining the vehicle and attachments.

Your safety and the safety of others depends upon care and judgment in the maintenance of this vehicle. A careful mechanic is good insurance against an accident. Most accidents, no matter where they occur, are caused by someone's failure to observe and follow simple, fundamental rules or precautions. For this reason, most accidents can be avoided by recognizing hazards and taking steps to avoid them before an accident occurs.

CHAPTER 1
SPECIFICATIONS (TRACTOR)

1-1

INTRODUCTION

The specifications given in this chapter are on the basis of information available at the time the book was written. These specifications give the torques, operating pressure, measurements of new parts, adjustments and other items that will affect the service of the product.

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.

NOTE:

The specifications given for "use again" and "permissible" are Intended for guidance only and Caterpillar Tractor Co. hereby expressly denies and excludes any representation, warranty or implied warranty of the reuse of any component.

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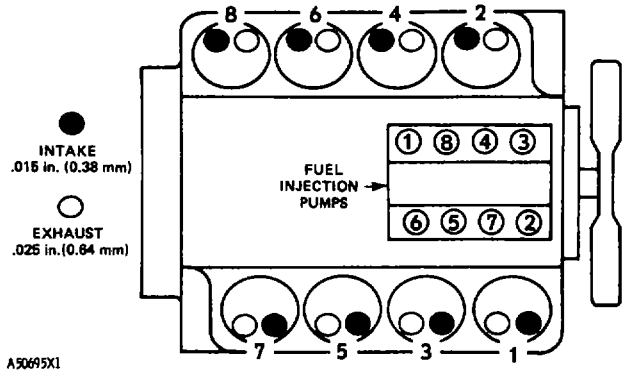
SECTION 1
SPECIFICATIONS
3208 VEHICULAR ENGINE

1-5

ENGINE DESIGN

Bore .....4.5 in. (114.3 mm)
Stroke .....5.0 in. (127.0 mm)
Number of Cylinders 8
Cylinder Arrangement .....90°V
Firing Order (Injection Sequence).....1, 2, 7, 3, 4, 5, 6, 8
Direction of Rotation (As Seen From
Flywheel End) ..... Counterclockwise



CYLINDER, VALVE AND INJECTION PUMP LOCATION

ENGINE SETTINGS

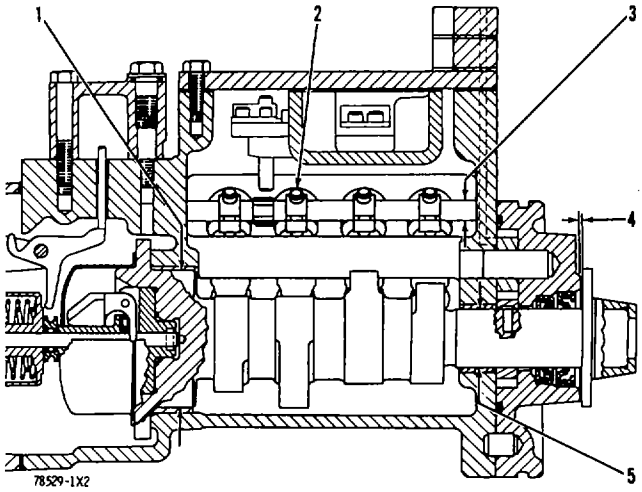
Model Description Serial Number	Altitude (In Feet)	Brake Horsepower W/O Fan	W/Fan	Full Load RPM	High Idle Engine Only	In Vehicle	Static Fuel Setting (In mm.)	Rated Fuel Rate (Lb/Min)	In Vehicle BSFC	Torque Spring and Spacer (Thickness in Inches)	Torque Conv. Stall Speed
613 Tractor Veh. S/N	0- 2,500	164	150	2200	2385	2340	2.49 mm	1.027	.411	*56S2619(.010") **4N7777(.010")	2110
38W1-Up	2,500- 5,000	142	135	2200	2355	2310	2.14 mm				2035
	5,000- 7,500	131	125	2200	2335	2290	190 mm				1985
	7,500-10,000	121	115	2200	2315	2270	1.68 mm				1940
	10,000-12,500	110	105	2200	2295	2250	1.44 mm				1880
	12,500-15,000	100	95	2200	2275	2230	1.22 mm				1835

*Torque spring **Spacer

GENERAL NOTES:

Low idle in vehicle is 700 ± 10 RPM.
Fuel injection timing (static) is 160 BTC, .127 inch of piston travel.

FUEL INJECTION PUMP



Firing order (injection sequence) 1, 2, 7, 3, 4, 5, 6, 8
Injection timing before TC (top center): 16 ± 1°

Torque for the nuts that hold the fuel lines
(Use 5P144 Fuel Line Socket).....30 ± 5 lb. ft. (40 ± 7 N-m)

(1) Bore in the rear bearing for the camshaft (new)2.3750 ± .0005 in. (60.325 ± 0.013 mm)
Diameter of rear bearing surface (journal) of the camshaft (new) ..... 2.3720 ± .0005 in. (60.249 ± 0.013 mm)
Maximum permissible clearance between the bearing and the camshaft bearing surface (journal) (worn) ..... .006 in. (0.15 mm)

(2) Torque for screws that hold sleeve control levers ..... 24 ± 2 lb. in. (2.8 ± 0.2 Nom)

(3) Bore in the housing for the fuel control shaft (new) .... 3543 ± .0005 in. (8.999 ± 0.013 mm)
Diameter of sleeve control shaft (new) .. . .3530 ± .0003 in. (8.966 ± 0.008 mm)
Maximum permissible clearance between the bore In the housing and the sleeve control shaft (worn).....003 in. (0.08 mm)

(4) End play for camshaft with sleeve installed (new) ..... .023 ±.018 in. (0.58 ± 0.46 mm)

NOTE: When installing sleeve on end of camshaft, support the camshaft to prevent damage to parts inside of injection pump and governor housing

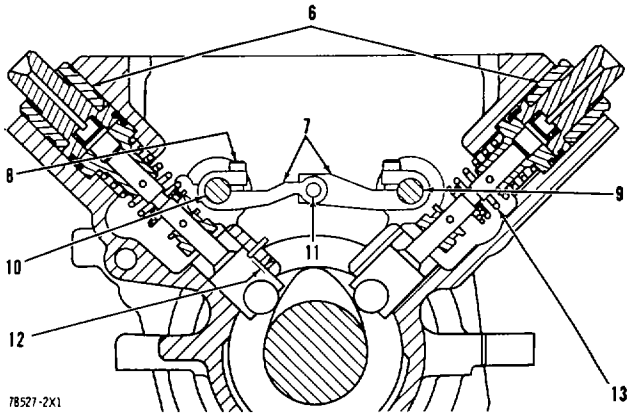
(5) Bore in the front bearing for the camshaft (new) ..... 1.0005 .± .0005 in. (25.413 ± 0.013 mm)
Diameter of front bearing surface (journal) of the camshaft (new) .9990 ± .0005 in, (25.375 ± 0.013 mm)
Maximum permissible clearance between the bearing and the camshaft bearing surface (journal) (worn) ..... .004 in. (0.10 mm)

(6) Torque for bushing ..... 60 ± 5 lb, ft. (80 ± 7 N-m)

(7) Crossover levers.

NOTE: For adjustment of crossover levers, see the TESTING AND ADJUSTING SECTION

(8) Torque for screws that hold crossover levers .....24 ± 2 lb. in. (2.8 ± 0.2 N-m)



(9 and 10) Fuel control shafts.

(11) Dowel pin (linkage between crossover levers).

(12) Distance guide pin extends into bore ..... .047 ± .004 in. (1.20 + 0.10 mm)

NOTE: Install guide pin with slot towards the top of the lifter bore.

(13) 9N5862 Spring for injection pump:
Length under test force ..... 1.348 in. (34.24 mm)
Test force ..... 12.5 ± 1.3 lb. (55.5 ± 5.8 N)
Free length after test ..... 1.566 in. (39.78 mm)
Outside diameter ...728 ± 010 in. (18.49 ± 0.25 mm)