

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

**FIELD AND DEPOT MAINTENANCE MANUAL
CLEANING MACHINE, FUEL CAN AND DRUM
(BARNES MODELS 4310CA AND 15801CA)**

Headquarters, Department of the Army, Washington 25, D. C.

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CHAPTER 1**INTRODUCTION****1. Scope**

This manual is published for use by personnel responsible for field maintenance (third and fourth echelon) and depot maintenance (fifth echelon) of the Cleaning Machine, Fuel Can and Drum (Barnes Models 4310CA and 15801CA). The maintenance allocation chart is published in TM 10-4940-201-20. The Repair parts and Special Tools List is published as TM 10-4940201-35P.

2. Appendix

The appendix contains current references.

3. Maintenance Forms and Records

Maintenance forms and records appropriate to field and depot maintenance are included in TM 10-4940-201-20.

4. Using Organizations

The cleaning machine is organic to the following organizations:

- a. Quartermaster Petroleum Supply Company, Mobile (TOE 10-77).
- b. Quartermaster Petroleum Depot Company (TOE 10-377).
- c. Quartermaster Service Organization (TOE 10-500).

*This manual, together with TM 10-4940-201-10, 28 January 1960, and TM 10-4940-201-20, 27 January 1960, supersedes TM 10-1140, 24 June 1952

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CHAPTER 2

MAINTENANCE INSTRUCTIONS

5. Echelons and Categories of Maintenance

a. *Organization Maintenance.*

- (1) First echelon maintenance is that degree of maintenance performed by the user or operator in providing the proper care of the equipment as prescribed by pertinent publications and tools and parts lists.
- (2) Second echelon maintenance is that degree of maintenance, beyond the capabilities and facilities of first echelon, performed by specially trained personnel within the using organization, as authorized by pertinent technical publications.

b. *Field Maintenance.*

- (1) Third echelon maintenance is that degree of maintenance authorized by pertinent publications to be performed by specially trained units in direct support of one or more using organizations, and is limited by specified authorizations of tools, parts, and equipment. These units support the lower echelons by providing technical assistance and mobile repair crews, when necessary, or in repairing the overflow from lower echelons.
- (2) Fourth echelon maintenance is that degree of maintenance authorized by pertinent publications to be performed by units organized as semifixed or permanent shops to serve lower echelons within a geographic area, and may furnish mobile repair crews or reinforcing elements to lower echelons when required.

c. *Depot Maintenance.* Fifth echelon maintenance is that degree of maintenance authorized for overhauling major items, assemblies, parts, accessories, tools, and test equipment, and normally supplied on an overhaul-and-return-to-stock basis.

6. Cradle-Valve Assemblies

a. *Function.* The cradle-valve assembly is designed to cause a suction action when the valve is rotated to the OFF position and to cause pressure action when it is in the ON position. To understand the flow of liquid through the valve, study figure 1.

(1) *Suction.* The top portion of figure 1 illustrates the valve in the OFF position. The valve faceplate and the valve housing are bolted together and remain stationary when the valve is rotated. The faceplate is provided with a single inlet (pressure inlet) and a slot (slot P). When the valve is rotated to the OFF position, port E is open and port W is closed. Because of this alinement of ports, the incoming liquid is forced to enter the smaller opening in the venturi. The velocity of liquid passing port G is such that it creates sufficient suction at this point to evacuate, through the nozzle tip, the cleaning solvent that remained in the 5-gallon can after washing.

(2) *Flushing.* The bottom portion of figure 1 shows the flow of the liquid when the valve is in the flushing position. When the valve is rotated to the ON or flushing position, solvent is permitted to enter both port E and port W. It is then forced through the openings on the nozzle tip into the 5-gallon can. Since port F is closed there can be no suction action when the valve is in the flushing position.

b. *Maintenance.*

- (1) *Disassembly.* The same procedure as outlined in TM 10-4940-201-20 should be followed in disassembly and reassembly of the cradle valves.
- (2) *Gaskets and washers.* Gaskets and washers that are warped, cracked, or do not seal properly should be replaced. O-rings, which serve a purpose similar to gaskets and washers, should be given the same attention.
- (3) *Venturi.* The venturi should be examined very closely and if damaged or worn in any way should be replaced.
- (4) *Nozzle.* The nozzle is of lighter material than the other principal parts of the cradle-valve assembly and more subject to dents which are apt to reduce the effectiveness of pressure and suction. Nozzles in such condition should be