

# TM 9-1826A

WAR DEPARTMENT TECHNICAL MANUAL

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*ORDNANCE MAINTENANCE*

## Carburetors (Carter)

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*WAR DEPARTMENT • 11 FEBRUARY 1944*

**FOR ORDNANCE PERSONNEL ONLY**



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(For explanation of symbols, see FM 21-6.)

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## CHAPTER 1

## INTRODUCTION

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**1. SCOPE.**

a. The instructions contained in this manual are for the information and guidance of personnel charged with the maintenance and repair of Carter carburetors. These instructions are supplementary to field and technical manuals prepared for the using arms. This manual does not contain information which is intended primarily for the using arms, since such information is available to ordnance maintenance personnel in 100-series technical and field manuals.

b. This manual contains a description of, and procedure for disassembly, inspection, repair, and reassembly of the Carter carburetors listed below.

Model Number	Type
420S, 483S, 515S, 556S, 570S, 574S	W-1
450S, 539S, 567S, 572S	W-0
D6A2, D6B2, D6C2, D6G1, DTA2, DTB2, DTC1, ETP2, ETR1, ETT1, EL1	Ball and ball (downdraft)
447S, 489S, 517S, 6C2, 6D1, 6E1, 6F1, 6G1, 6J1, 6K1, BB1A	Ball and ball (updraft)
T1-A, T2-A, T3-A, T4-A, T5-A, T1B, T2B, T3B, T4B, T5B, TD1, TD2, TX-1, TX-2, TX-3, TX-4, TX-5, 561S, 577S, ETWI	Ball and ball (with built-in governor)
553S, 564S, 566S	WCD

**2. MWO AND MAJOR UNIT ASSEMBLY REPLACEMENT RECORD.**

a. **Description.** Every vehicle is supplied with a copy of AGO Form No. 478 which provides a means of keeping a record of each MWO completed or major unit assembly replaced. This form includes spaces for the vehicle name and U. S. A. Registration Number,

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instructions for use, and information pertinent to the work accomplished. It is very important that the form be used as directed and that it remain with the vehicle until the vehicle is removed from service.

**b. Instructions for Use.** Personnel performing modifications or major unit assembly replacements must record clearly on the form a description of the work completed and must initial the form in the columns provided. When each modification is completed, record the date, hours and/or mileage, and MWO number. When major unit assemblies, such as engines, transmissions, transfer cases, are replaced, record the date, hours and/or mileage and nomenclature of the unit assembly. Minor repairs and minor parts and accessory replacements need not be recorded.

**c. Early Modifications.** Upon receipt by a third or fourth echelon repair facility of a vehicle for modification or repair, maintenance personnel will record the MWO numbers of modifications applied prior to the date of AGO Form No. 478.



## CHAPTER 2

### GENERAL DESCRIPTION AND OPERATION

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#### Section 1

### PURPOSE AND PRINCIPLE OF OPERATION

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#### 3. PURPOSE OF A CARBURETOR.

a. The purpose of the carburetor is to supply the correct mixture of fuel and air for any and all conditions of speed and/or load imposed upon the engine. The engines of present day vehicles must be completely flexible in speed range from approximately 500 revolutions per minute to more than 3,000 revolutions per minute. At any point in this range, the vehicle may be subjected to a comparatively light load or a very heavy load. It must adapt itself immediately to any change of load or speed imposed upon it, within the limits of its maximum power output.

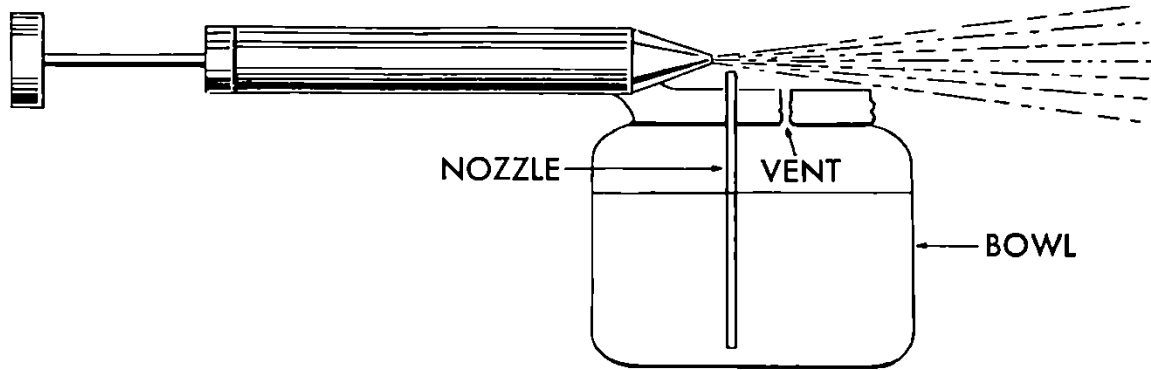
b. The carburetor must function throughout this range to secure maximum power with optimum economy. A mixture which is too rich not only wastes fuel, but may damage the engine through crank-case dilution. On the other hand, a lean mixture will result in a loss of power and, under certain conditions, may damage the engine through excessive heat. Therefore, it is apparent that complete and careful service must be given the carburetor after use, if it is to operate within the close limits necessary in the present day engine.

#### 4. BASIC PRINCIPLE.

a. The fuel is delivered from the carburetor to the engine because a greater pressure exists in the carburetor bowl than in the engine manifold. The higher pressure in the bowl actually pushes the fuel through the metering jet into the low pressure air stream in the throat of the carburetor.

b. A common example of this operation is the conventional insecticide gun, illustrated in figure 1. The spray gun bowl contains a liquid and is comparable to a carburetor fuel bowl. The bowl is covered to prevent spilling and is equipped with a vent, as is a carburetor bowl. The nozzle (a small tube open at both ends) is inserted below the fuel level, and extends well above the liquid. The stream of air is directed across the exposed end of the nozzle by

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**Figure 1 – Basic Principle of Operation**

means of a hand pump. The velocity of this stream of air over the tip of the nozzle reduces the pressure at this point. Atmospheric pressure admitted to the bowl through the vent, pushes the liquid up the tube to the low pressure point, where it is picked up by the air stream. Obviously, the same principle applies even though the nozzle is inserted on an angle, as it is in most carburetors.

**Section II**

**THE FIVE CARBURETOR CIRCUITS**

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**5. INTRODUCTION.**

a. In order to more easily understand the operation of the carburetor, and to provide the repair man with a more satisfactory method of carburetor overhaul, it has been found practical to consider the carburetor to be made up of five circuits or systems.

These are:

- (1) Float circuit.
- (2) Idle or low speed circuit.
- (3) High speed circuit.
- (4) Pump circuit.
- (5) Choke circuit.