TM 9-1725

WAR DEPARTMENT TECHNICAL MANUAL

ORDNANCE MAINTENANCE

Ordnance Engine Model R975-C4 (Continental)

WAR DEPARTMENT • 27 JANUARY 1944

FOR ORDNANCE PERSONNEL ONLY

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*This manual includes pertinent information from TB 1700-4, dated 1 January 1942 and TB 1700-24, dated 15 May 1943.

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TM 9-1725, Ordnance Maintenance: Ordnance Engine Model R975-C4 (Continental), is published for the information and guidance of all concerned.

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Chief of Staff.

OFFICIAL:
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Major General,
The Adjutant General.

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

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ORDNANCE MAINTENANCE — ORDNANCE ENGINE
MODEL R975-C4 (CONTINENTAL)

CHAPTER 1

INTRODUCTION

1. SCOPE.

a. The instructions contained in this manual are for the information and guidance of personnel charged with the maintenance and repair of the Continental R975-C4 Tank Engine. 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

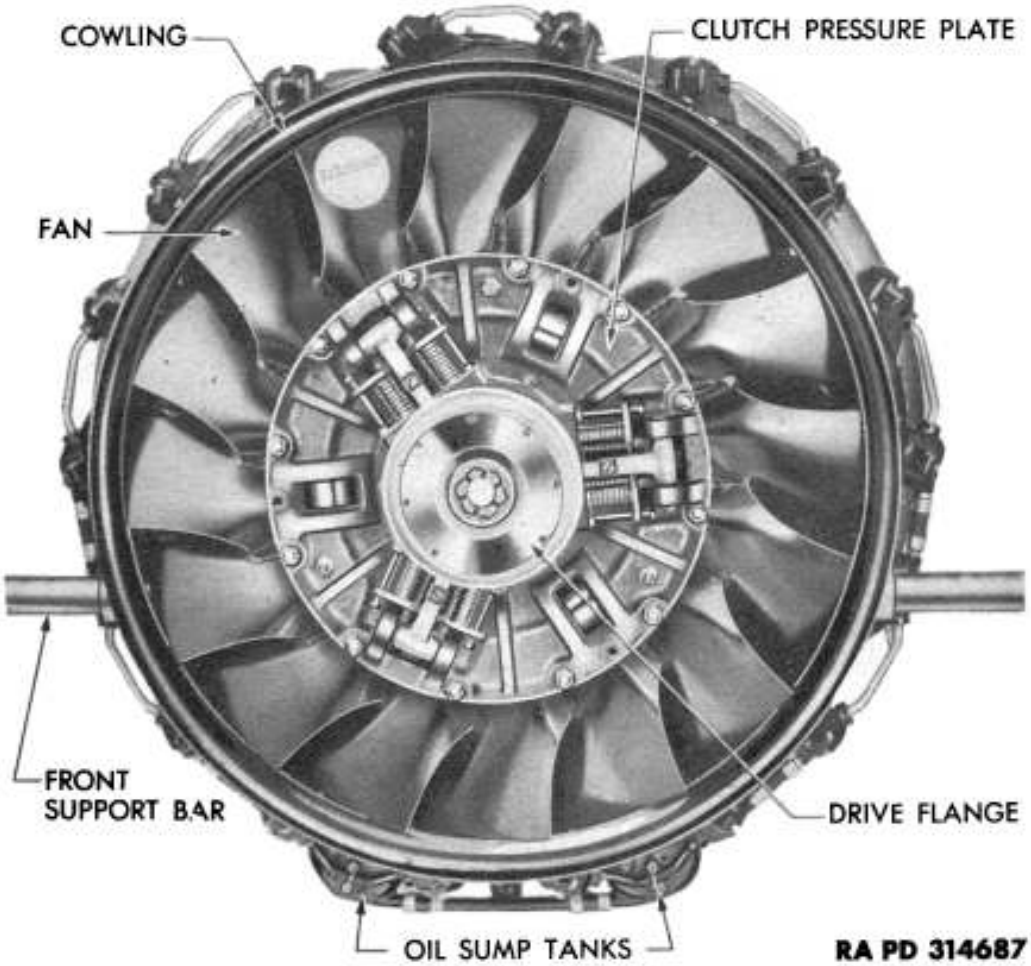

Figure 1 — Front View of Engine

Figure 2 — Front View of Engine with Cowling, Clutch, Flywheel, Fan, and Engine Front Support Bar Removed

available to ordnance maintenance personnel in 100-series TM's or FM's.

b. This manual contains a description of, and procedure for the disassembly, cleaning, inspection, repair, and assembly of this engine and its components, except accessories such as carburetor, magneto, starter, generator, and fuel pump. TM's covering these accessories are listed in paragraph 62 of this manual.

2. MODIFICATION WORK ORDER (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 in-

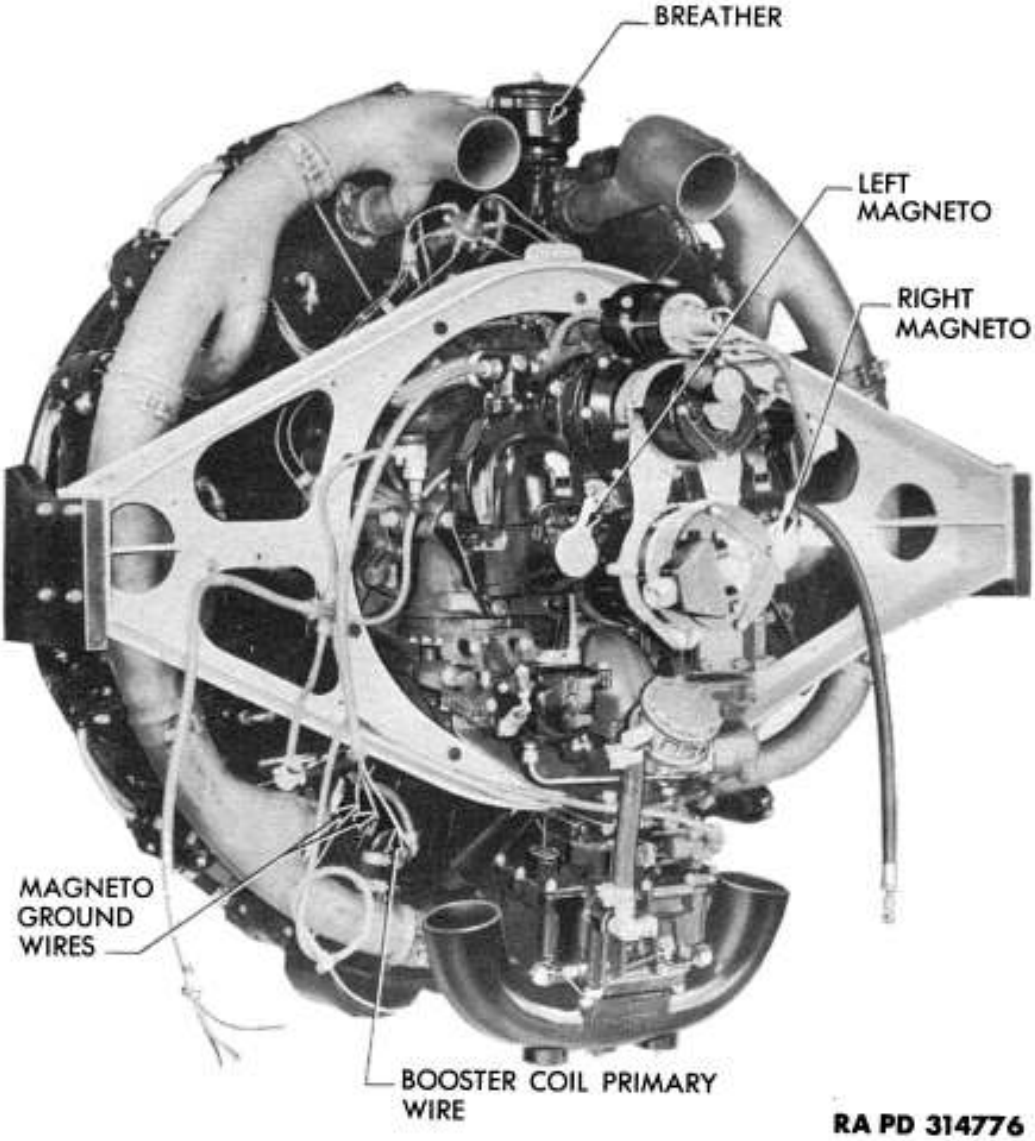

Figure 3 — Left Rear View of Engine

cludes spaces for the vehicle name and U. S. A. Registration Number, 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, and transfer cases, are re-

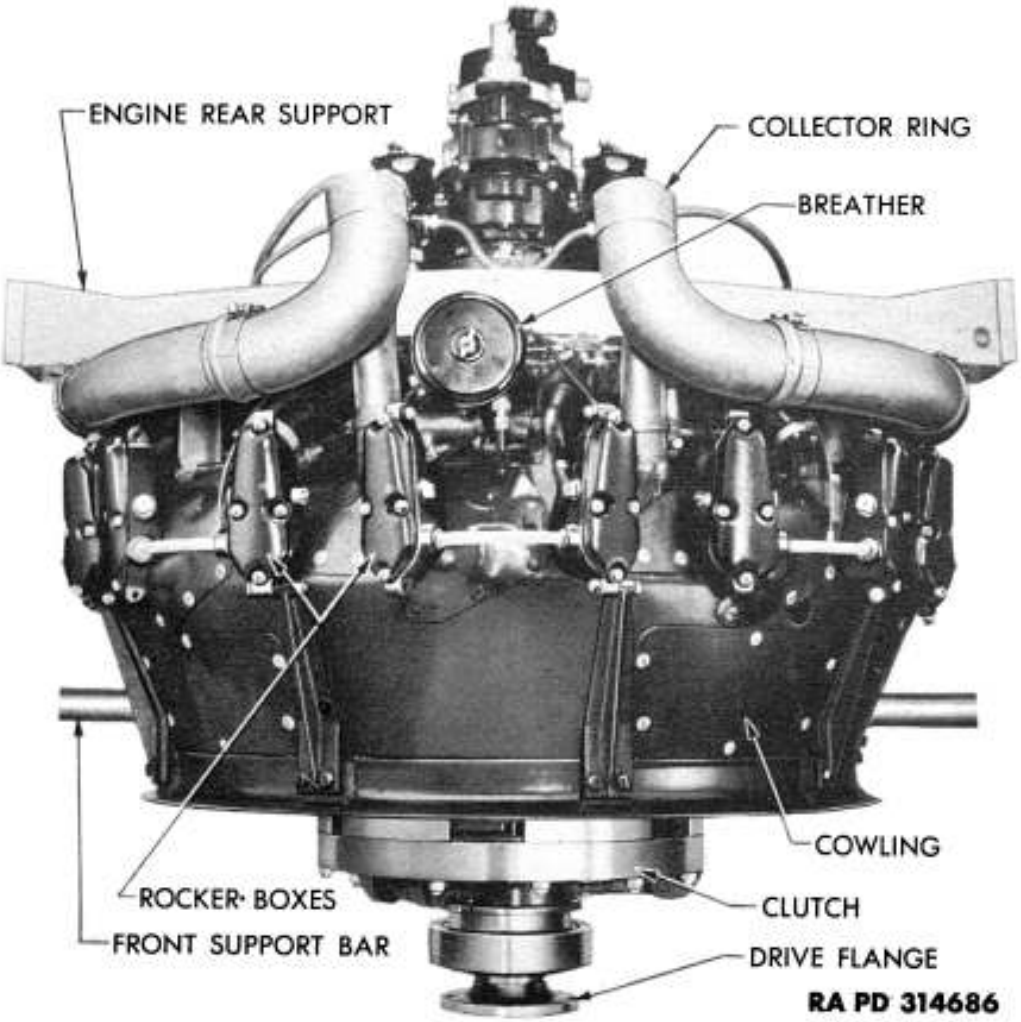

Figure 4 — Top View of Engine

placed, 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.

ORDNANCE MAINTENANCE — ORDNANCE ENGINE MODEL R975-C4 (CONTINENTAL)

CHAPTER 2

ENGINE DESCRIPTION AND DATA

3. DESCRIPTION.

a. General. The Model R975-C4 Tank Engine is a single-row, 9-cylinder, static radial, air-cooled type engine, operating on the conventional 4-stroke cycle. The engine has a 5-inch bore and a 5.5-inch stroke with a total piston displacement of 973 cubic inches. With a compression ratio of 5.7 to 1, the engine develops a brake horsepower of 485 at 2,400 revolutions per minute. The main components of the engine are the crankcase, cylinder and valve assemblies, connecting rod and crankshaft assemblies, accessory drives and accessories, and the ignition, fuel, and lubricating systems.

b. Designations. Throughout this manual the flywheel end of the engine is designated as the "front", and the accessory end as the "rear." The "right" and "left" sides of the engine are as viewed from the rear. Horizontal and vertical positions of the engine are referred to with respect to the position of the crankshaft. Directions of rotation are determined by looking from the rear toward the front of the engine, or in the case of side drives, by looking toward the crankshaft. The cylinders are numbered in a clockwise direction, the top cylinder being number one. Following this designation, the firing order of the cylinders is 1, 3, 5, 7, 9, 2, 4, 6, 8.

c. Crankcase.

(1) GENERAL. The crankcase is the main body around which the engine is built. It is composed of five flanged, cast aluminum-alloy sections secured together by studs, flat washers, and nuts, fastened with lock wire. The five components are the front, front main bearing support, main, diffuser, and rear crankcase sections.

(2) FRONT CRANKCASE SECTION. The front crankcase section is a conical-shaped casting which houses the main thrust ball bearing and the mounting clamp for the engine front support bar (fig. 5). The front cover, which serves as a retainer for the main thrust bearing, is mounted to the front crankcase section over seven studs. The cover is secured to this section by flat washers and castellated nuts fastened with lock wire.

(3) FRONT MAIN BEARING SUPPORT. This section is a flat, aluminum-alloy casting which serves as a bulkhead between the front and main crankcase sections and supports the roller-type front main bearing (fig. 5).