TM 5-3895-265-14

DEPARTMENT Of THE ARMY TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DS AND GS MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

HAMMER, PILE DRIVER, SELF-POWERED; DIESEL DRIVEN, W/FUEL OIL TANK AND LUBRICATING OIL TANK (LINK-BELT SPEEDER MODEL 180M) FSN 3895-014-0583

HEADQUARTERS, DEPARTMENT OF THE ARMY
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TECHNICAL MANUAL
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WASHINGTON, D.C., *23 September 1969*

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Current as of 11 March 1969

***This manual supersedes TM 5-3895-265-15, 23 April 1965.**

LIST OF ILLUSTRATIONS

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

a. These instructions are published for the use of personnel to whom the diesel pile driver hammer (figs. 1-1 and 1-2), Link-Belt Speeder Model 180M is issued. Chapters 1 through 4 provide information on the operation, preventive maintenance checks and services, and organizational maintenance of the equipment, accessories, components, and attachments. Chapters 5 and 6 provide information for direct and general support maintenance. Also included are descriptions of main units and their function in relationship to other components.

b. Numbers in parentheses on illustrations indicate quantity.

1-2. Forms and Records

a. DA Forms and records used for equipment maintenance will be only those prescribed in TM 38-750.

b. Report of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should he submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to the Commanding General, U. S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Boulevard, St. Louis, Mo. 63120.

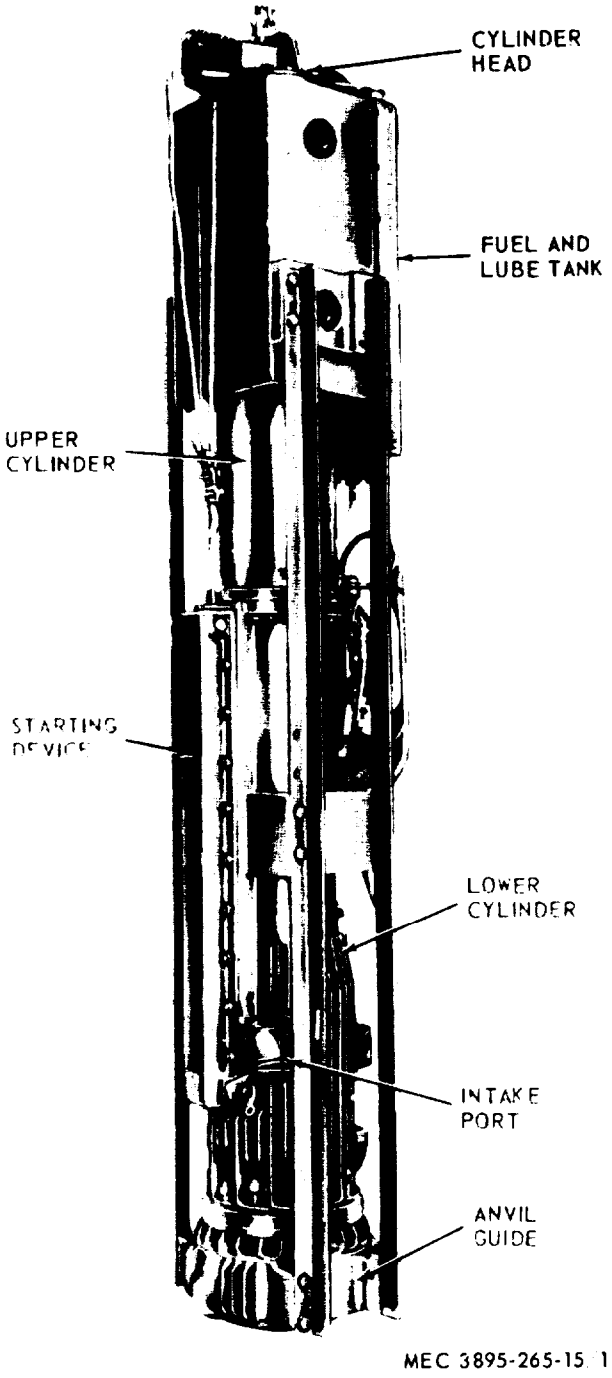

Figure 1-1. Diesel pile hammer, right-rear, three quarter view.

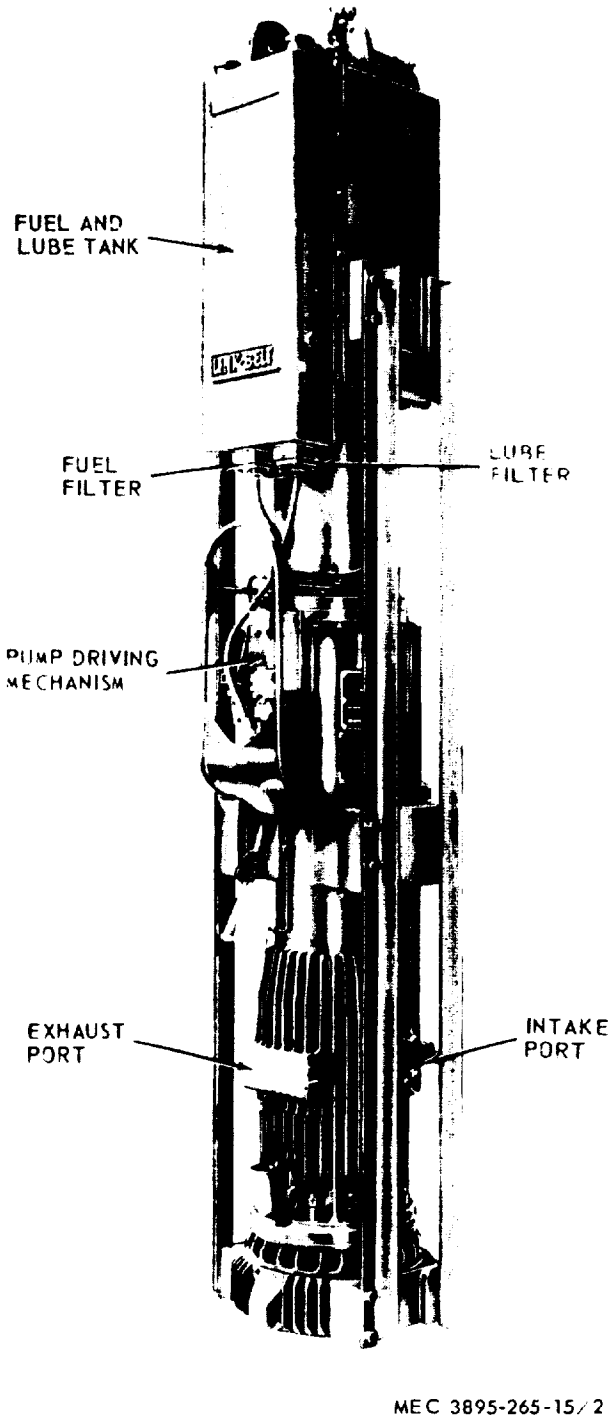

Figure 1-2. Diesel pile hammer, left-front, three quarter view.

Section II. DESCRIPTION AND DATA

1-3. Description

a. General. The Link-Belt Diesel Pile Hammer, model 180 M, is a self-contained free piston, compression-ignition machine, operating on the two-cycle principle. The hammer consists of the upper and lower cylinders, cylinder head, ram, anvil guide, recoil dampener, mechanical starting device, lubrication system, fuel injection equipment, hydraulic control system, and driving head and adapter assembly. As the ram is lifted inside the cylinder with a crane hoist line, air is compressed in the bounce chambers located on the side of the upper cylinder. The starting device is tripped and disengaged from the ram, which in turn free-falls in the cylinder. As the ram descends in the cylinder, the compressed air in the bounce chambers expands giving added velocity to the downward travel of the ram. As the ram nears the end of its downstroke, atomized fuel is injected into the combustion chamber. These combustive gases ignite (due to high compression temperatures) and explode and expand, driving the ram upward and the pile downward. As the ram rises it uncovers the exhaust ports, allowing the gases to "blow down". Then it draws fresh air through the intake ports as it continues upward. At the same time the rising ram compresses air in the bounce chambers.

b. Cylinder. The cylinder is manufactured in two parts, the upper and the lower cylinder. Both parts enclose the ram, and the upper cylinder furnishes space for the compressed air which is given back to the ram, pushing it and accelerating it on its downward stroke. The lower cylinder contains the intake and exhaust ports.

c. Cylinder Head. The cylinder head allows the air compression and gives the ram and cylinder bore protection from the elements and any foreign matter which may drop from the boom point or hoist cables.

d. Ram. The ram is a free piston and is the means by which the work output of the hammer is delivered to the pile.

e. Anvil. The anvil is located at the bottom of the cylinder and relays the energy from the ram to the pile.

f. Recoil Dampener. The recoil dampener is of a material that absorbs the shock loadings to the cylinder. It rides on the top part of the anvil flange just below the cooling ring, which vents the recoil dampener.

g. Mechanical Starting Device. The starting device is an off-center linkage mechanism designed to engage with a machined shoulder on the ram for lifting the ram and starting the hammer.

h. Lubrication System. The ram and fuel pump are lubricated by a single plunger lubrication oil pump. Lubrication oil is supplied to the pumps by gravity flow from the oil tank, passing through a screen filter inside the tank.

i. Fuel Injection System. Fuel oil is contained in a tank mounted on the upper cylinder and is supplied to the fuel injection pump by gravity flow, passing through a filter and a fuel hose. A high pressure fuel line delivers the fuel from the fuel pump to the injector.

j. Hydraulic Control System. The hydraulic control system consists of a transmitter, double relief valve, high pressure hose, and a receiver. The system is used to control the fuel pump rack which varies the amount of fuel delivered by the fuel pump to the injector.

k. Driving Head and Adapter Assembly. An adapter assembly is used in conjunction with the driving head. Although the adapter assembly affords protection to the pile, its express purpose is to protect the hammer.

14. Identification and Tabulated Data

a. Identification. The hammer has three major identification plates. The information contained on these plates is given below:

(1) The Corps of Engineers identification plate specifies the name of the manufacturer, make, model number, date of manufacture, serial number, and the Federal stock number of the hammer. It is located on the right side of the unit.

(2) The manufacturer's name plate specifies the model number, serial number, weight, and patents covering the hammer. It is located on the right side of the unit.

(3) The manufacturer's instruction plate specifies operating instructions and cautions to be observed while operating the hammer. It is located on the right side of the unit.

b. Tabulated Data.

(1) *Diesel pile hummer.*

Manufacturer	Link-Belt Speeder
Model	180M