

TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE MANUAL

PUMPING ASSEMBLY, FLAMMABLE LIQUID,
BULK TRANSFER, GED, 350 GPM CAPACITY,
275 FEET TOTAL HEAD, WHEEL MOUNTED
(GORMAN-RUPP MODEL 04A12C-MVG4D)

NSN 4320-00-600-7590

This copy is a reprint which includes current
pages from Changes 1,2and 3

HEADQUARTERS, DEPARTMENT OF THE ARMY

OCTOBER 1975

**OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT
 AND GENERAL SUPPORT MAINTENANCE MANUAL**

**PUMPING ASSEMBLY, FLAMMABLE LIQUID,
 BULK TRANSFER, GED, 350 GPM CAPACITY,
 275 FEET TOTAL HEAD, WHEEL MOUNTED
 (GORMAN-RUPP MODEL 04A12C-MVG4D)
 NSN 4320-00-600-7590**

		Paragraph	Page
Chapter	1. INTRODUCTION		
Section	I. General	1-1	1-1
	II. Description and data	1-7	1-1
Chapter	2. OPERATING INSTRUCTIONS		
Section	I. Operating procedures	2-1	2-1
	II. Operation under unusual conditions	2-12	2-5
Chapter	3. OPERATOR'S MAINTENANCE INSTRUCTIONS		
Section	I. Lubrication instructions	3-1	3-1
	II. Preventive maintenance checks and services	3-4	3-3
	III. Troubleshooting	3-6	3-4
	IV. Maintenance procedures	3-8	3-9
Chapter	4. ORGANIZATIONAL MAINTENANCE INSTRUCTIONS		
Section	I. Service upon receipt of materiel	4-1	4-1
	II. Movement to a new worksite	4-3	4-2
	III. Repair, parts, special tool, and equipment	4-4	4-2
	IV. Lubrication instructions	4-7	4-2
	V. Preventive maintenance checks and services (monthly and quarterly)	4-9	4-2
	VI. Troubleshooting	4-11	4-4
	VII. Radio interference suppression	4-13	4-21
	VIII. Maintenance of cylinder head	4-15	4-21
	IX. Maintenance of muffler and manifold	4-17	4-22
	X. Maintenance of fuel system	4-19	4-25
	XI. Maintenance of electrical system	4-26	4-32
	XII. Maintenance of non-elctrical gages	4-31	4-43
	XIII. Maintenance of engine cooling system	4-34	4-45
	XIV. Maintenance of wheels and hubs	4-36	4-47
	XV. Maintenance of pump	4-36	4-49
	XVI. Maintenance of accessmy items	4-39	4-53
Chapter	5. DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS		
Section	I. Repair parts, special tools and equipment	5-1	5-1
	II. Troubleshooting	5-3	5-1
	III. General maintenance	5-5	5-5
	IV. Removal and installation of major components and assemblies	5-9	5-6
Chapter	6. REPAIR OF ENGINE		
Section	I. General	6-1	6-1
	II. Engine overhaul and repair	6-4	6-2
Chapter	7. REPAIR OF CENTRIFUGAL PUMP	7-1	7-1
	8. REPAIR OF FRAME ASSEMBLY	8-1	8-1
Appendix	A. REFERENCES	A-1	A-1
	B. MAINTENANCE ALLOCATION CHART	B-1	B-1
Index		I-1	I-1

LIST OF ILLUSTRATIONS

<i>Number</i>	<i>Title</i>	
1-1	Pumping assembly, right front, three-quarter view	1-2
1-2	Pumping assembly, left rear, three-quarter view	1-3
1-3	Identification plates	1-4
1-4	Wiring diagram	1-6
2-1	Instrument and control panel	2-1
2-2	Fuel hand primer lever	2-2
2-3	Right side view of pumping assembly showing controls	2-3
2-4	Performance of pump unit pumping fuel at 0.75 specific gravity	2-5
3-1	Lubrication order	3-2
3-2	Engine lubrication	3-3
3-3	Fuel strainer	3-6
3-4	Air cleaner	3-8
3-5	Oil filter	3-10
3-6	Fuel strainer	3-11
3-7	Towing attachment	3-12
3-8	Suction strainer	3-13
4-1	Battery and battery box	4-5
4-2	Starting motor	4-7
4-3	Ignition system	4-9
4-4	Magneto-to-spark plug connections	4-10
4-5	Magneto	4-11
4-6	Magneto timing	4-13
4-7	Fuel pump	4-15
4-6	Fuel strainer	4-16
4-9	Suction piping assembly	4-18
4-10	Air eliminator assembly	4-20
4-11	Cylinder head	4-22
4-12	Muffler	4-23
4-13	Manifold assembly and carburetor	4-24
4-14	Air cleaner and piping	4-26
4-15	Fuel tank, lines, and fittings	4-27
4-16	Fuel strainer	4-26
4-17	Fuel pump	4-29
4-18	Carburetor adjustments	4-30
4-19	Carburetor removal	4-31
4-20	Governor and carburetor linkage	4-32
4-21	Battery and battery box	4-34
4-22	Magneto breaker point removal	4-36
4-23	Magneto removal	4-37
4-24	Magneto timing	4-36
4-25	Magneto-to-spark plug connections	4-39
4-26	Starting motor and brush removal	4-40
4-27	Instrument panel and gages	4-42
4-28	Tachometer-hour meter	4-44
4-29	Engine air shroud	4-46
4-30	Wheel assembly and hub	4-48
4-31	Suction piping and Y strainer	4-50
4-32	Discharge piping	4-52
4-33	Tool box and reflector	4-54
5-1	Cylinder head head valve removal	5-2
5-2	Cylinder head tightening sequence	5-3
5-3	Pump assembly	5-4
5-4	Axle assembly	5-7
6-1	Governor assembly	6-3
6-2	Governor adjustment	6-4
6-3	Flywheel shroud	6-5
6-4	Flywheel	6-5
6-5	Gear cover and idler shaft	6-6
6-6	Idler gear and shaft removal	6-7
6-7	Oil pan removal	6-8
6-8	Oil pump removal	6-6
6-9	Crankshaft and piston	6-9
6-10	Piston ring placement	6-11
6-11	Cylinder block and valves	6-12

<i>Number</i>	<i>Title</i>	<i>Page</i>
6-12	Crankcase and camshaft	6-15
6-13	Flywheel alternator	6-18
7-1	Pump assembly	7-2
7-2	Pump tolerances and wear limits	7-3
8-1	Axle assembly	8-2
8-2	Frame assembly	8-4

CHAPTER 1 INTRODUCTION

Section I. GENERAL

1-1. Scope

This manual is for your use in operating and maintaining the Pumping Assembly, Flammable Liquid, Bulk Transfer, GED, 350 GPM Capacity, 275 Feet Total Head Wheel Mounted (German-Rupp Model 04A12C-MVG4D).

1-2. Reporting of Errors

You can help to improve this manual by calling attention to errors and by recommending improvements. Your letter, DA Form 2028 (Recommended Changes to Publications), and DA Form 2028-2 (Recommended Changes to Equipment Technical Manuals) may be used. Copies of DA Form 2028-2 are attached in the back of the manual for your use. Please mail your recommended changes directly to Commander, U.S. Army Troop Support Command, ATTN. AMSTS-MPP, 4300 Goodfellow Blvd., St. Louis, Mo. 63120. A reply will be furnished directly to you.

1-3. Maintenance Forms and Records

Maintenance forms, records, and reports that you are required to use are listed in TM 38-750.

1-4. Equipment Serviceability Criteria (ESC)

This pumping assembly is not covered by an ESC.

1-5. Destruction of Army Materiel to Prevent Enemy Use

a. Using an axe, pick, mattock, sledge, or any other heavy implement, damage all vital elements such as controls, engine fuel pump, switches or any other major assemblies.

b. Add sand to oil in engine crankcase, and drop nuts and bolts into pump case. Run engine until pump fails.

c. Demolition with explosives. Place as many charges as time permits. Place charges in vital areas such as under the engine, control box, under and around the pumps. Use a suitable detonator to blow all charges simultaneously.

1-6. Administrative Storage

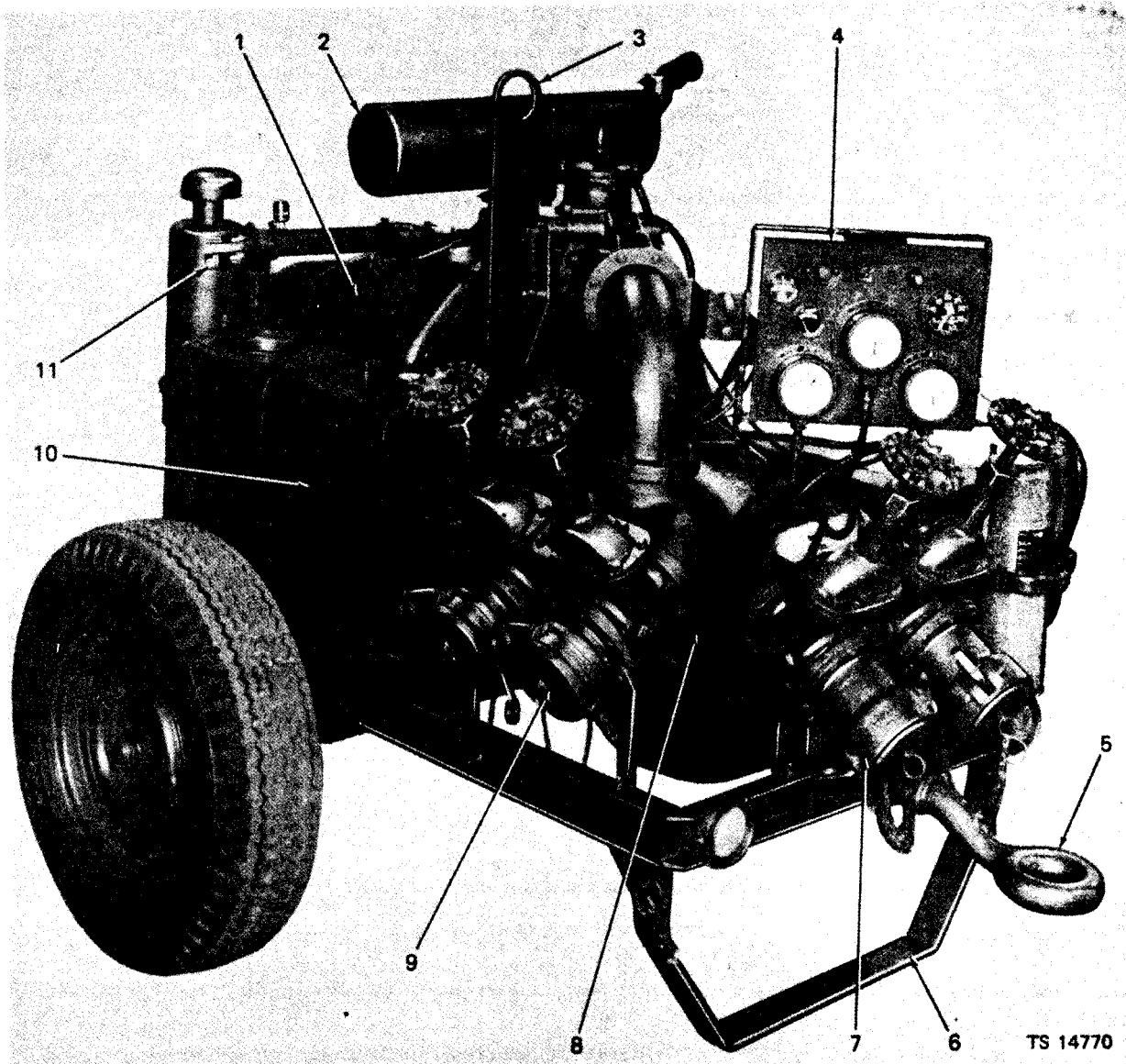
This pumping assembly is prepared for administrative storage according to instructions provided in TM 740-90-1.

Section II. DESCRIPTION AND DATA

1-7. Description

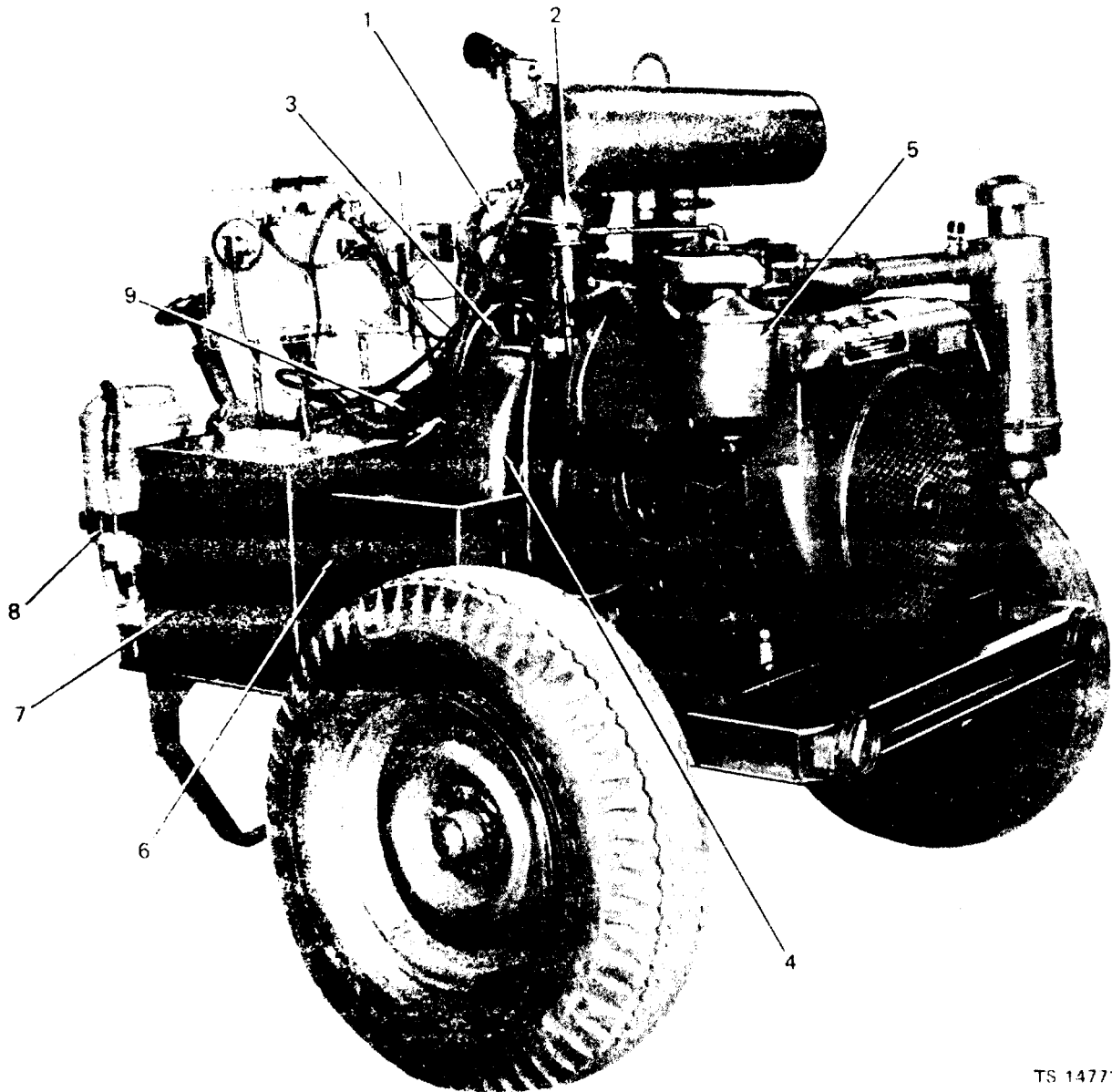
a. General. The pumping assembly is a self-contained unit consisting primarily of a centrifugal pump powered by a gasoline engine directly coupled to the pump. The pump and engine are secured to a wheel-mounted welded frame. The unit is designed

for pumping gasolines, jet fuels, light liquid petroleum fuels, and water. A right front, three-quarter view and a left rear, three-quarter view of the pumping assembly are shown in figures 1-1 and 1-2, respectively.



- | | |
|------------------|----------------------------|
| 1. Engine | 7. Suction pipe assembly |
| 2. Muffler | 8. Pump drain valve |
| 3. Lifting bail | 9. Discharge pipe assembly |
| 4. Control panel | 10. Fuel tank |
| 5. Drawbar | 11. Air cleaner |
| 6. Front stand | |

Figure 1-1. Pumping assembly, right front, three-quarter view.



TS 14771



- | | |
|-------------------------|----------------------|
| 1. Check valve assembly | 6. Battery box |
| 2. Oil filler cap | 7. Tool box |
| 3. Primer fill cap | 8. Fire extinguisher |
| 4. Pump | 9. Strainer |
| 5. Oil filter | |

Figure 1-2. Pumping assembly Left rear, three-quarter view.

b. Pump. The centrifugal pump is a conventional type, self-priming unit designed to deliver 350 gallons per minute (gpm) with a 270-foot dynamic head. The pump impeller is threaded onto the engine crankshaft. The piping arrangement includes a 4-inch (10-cm) suction assembly consisting primarily of a strainer, manifold, and two gate valves and a 4-inch (10-cm) discharge assembly consisting primarily of an air eliminator, check valve, manifold, and two gate valves. Female couplers secured to the gate valves in

the suction assembly and male adapters secured to the gate valves in the discharge assembly provide for quick-connecting/disconnecting of hose assemblies.

c. Engine. The engine is a V-type, four-cylinder, four-cycle unit with an L-head. It is pressure-lubricated and is cooled by a flow of air which is circulated over the cylinders and heads of the engine by a combination fan-flywheel encased in a sheet metal shroud. The engine uses an electrical starting motor and has magneto ignition. Engine speed is controlled