DEPARTMENT OF THE ARMY TECHNICAL MANUAL

FIELD AND DEPOT MAINTENANCE MANUAL
DEGREASER MX-1760/G

Headquarters, Department of the Army, Washington 25, D. C.
15 January 1962

WARNING

DANGEROUS VOLTAGES EXIST IN THIS EQUIPMENT

Be careful when working on the 115-volt motor circuit. Serious injury or death may result from contact with this circuit. Turn off the power before making any connections or replacing any parts inside the equipment.

DON'T TAKE CHANCES!

CHAPTER 1
THEORY

Section I. GENERAL

1. Scope

a. This manual covers field and depot maintenance for Degreaser MX-1760/G (degreaser). It includes instructions appropriate to third, fourth, and fifth echelons for testing and repairing the equipment and replacing maintenance parts. It also lists tools, materials, and test equipment for third, fourth, and fifth echelon maintenance. Detailed functions of the equipment are covered in paragraphs 3 and 4.

b. The complete technical manual for this equipment includes TM 11-4940-204-12 and TM 11-4940-204-15P.

c. Forward comments concerning this manual to the Commanding Officer, U.S. Army Signal Materiel Support Agency, ATTN: SIGMS-PA2d, Fort Monmouth, N. J.

Note:
For applicable forms and records, see paragraph 2, TM 11-4940-204-12.

2. Index of Equipment Publications

Refer to DA Pamphlet 310-4 to determine what changes to or revisions of this publication are current.

Section II. MECHANICAL AND CIRCUIT THEORY

3. Mechanical Theory

Degreaser MX-1760/G contains a centrifugal pump (a below) which draws Cleaning Compound (Federal stock No. 7930-396-3420) from an integral reservoir and sprays the cleaning compound under pressure against a turntable which is free to rotate. The cleaning compound loosens grease and dirt from parts placed on the turntable and the force of the spray rinses the parts clean. The centrifugal pump is driven by an electric motor (b below) that is controlled by an electrical switch timer (c below).

Warning:
Cleaning compound is flammable and its fumes are toxic. Do not use near a flame; provide adequate ventilation.

a. Centrifugal Pump (fig. 3). A centrifugal pump is used to build up pressure. The impeller draws cleaning compound from the reservoir through the intake of the casing (22), and applies it under pressure through the outlet (23) to the sprays. A conventional stuffing box packed with graphite-impregnated asbestos forms a seal between the shaft and the casing.

b. Ac Motor (fig. 1). The 5.7-ampere reversible alternating current (ac) motor used in the degreaser requires single phase, 115-volt, 60-cycle-per-second power for operation. The motor is rated at 1/3 horsepower at 1,725 revolutions per minute (rpm). A 4-inch single-grooved pulley for a V-belt is mounted on the motor shaft.

c. Electrical Switch Timer (fig. 1). The electrical switch timer consists of a clock mechanism and contact points. The electrical switch timer operates the ac motor for a selected time period of up to 30 minutes maximum. If the automatic cutoff feature is not desired, the electrical switch timer consists be manually operated to the HOLD position, as long as necessary, by the rotation of the control knob, and then to the 0 position for cutoff.

4. Circuit Theory

(fig. 1)

The ac input power is applied from one terminal of Connector Plug UP-121/M to terminal 1 of the electrical switch timer, through the switch contacts to terminal 2

of the electrical switch timer, to terminal 3 of the ac motor, through the motor windings to terminal 4 of the motor, and returns through the opposite terminal of the UP-121/M. The center terminal of the and UP-121/M is grounded for safety.

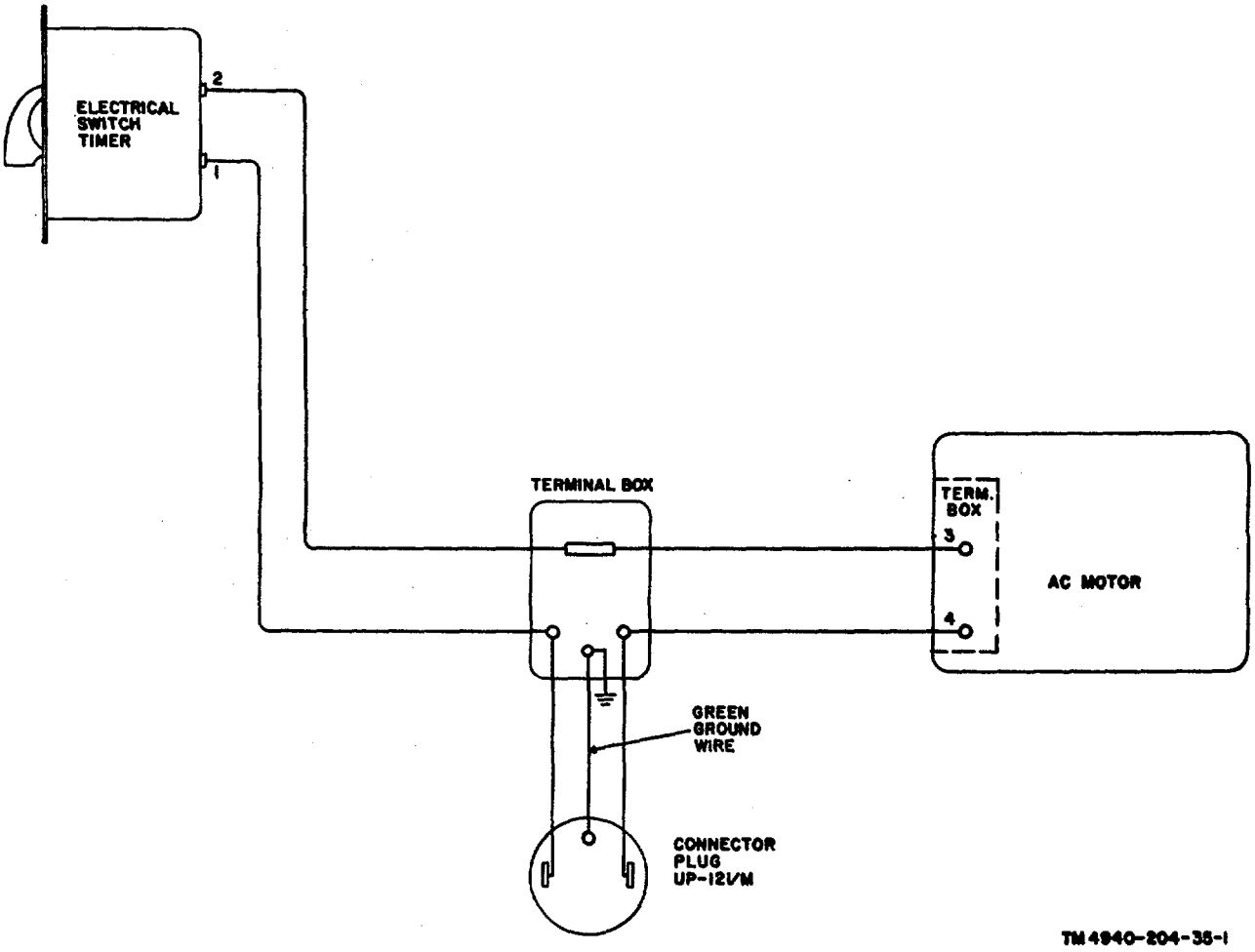


Figure 1. Degreaser MX-J760/G, wiring diagram.

CHAPTER 2
REPAIR AND FINAL TESTING

5. Tools, Test Equipment, Shop Equipment, and Repair Parts

a. Tools and Test Equipment.

(1) Wrench TL-111.
(2) Wrench, pipe, 14-inch.
(3) Screwdriver TL-358/U.
(4) Pliers, slip joint, 10-inch.
(5) Multimeter AN/URM-105 or equivalent.

b. Shop Equipment. In addition to the tools listed above, depot repair requires metal working tools and equipment (such as lathes and welding equipment).

c. Repair Parts. The repair parts available for field and depot maintenance are listed in TM 11-4940-204-15P.

6. General Repair Techniques

To repair the degreaser (fig. 2), proceed as follows:

a. Disconnect ac power from the degreaser before beginning any repairs.

b. Remove the cabinet cover and thoroughly steam-clean the interior before attempting any welding operations.

c. Refer to paragraphs 7 through 11 for repair procedures.

d. When all repairs are completed, lubricate the degreaser as described in TM 11-4940-204-12.

7. Removal and Replacement of Ac Motor

Except for replacing a defective power cable, no attempt should be made to repair a defective ac motor. If the ac motor overheats, loses power, and gives off odors of burned insulation, replace the ac motor.

a. Removal.

(1) Operate the electrical switch timer to 0 position and pull the ac power cable plug (26, fig. 2) from the power source receptacle.

(2) Disconnect the power supply cable wires from the ac motor; note the ac motor terminal from which each wire was removed (fig. 1).

(3) Remove the ac motor mounting bolts (17, fig. 2) and remove the V-belt (25).
(4) Remove the ac motor (16).
(5) Loosen the pulley setscrew (35) and remove the ac motor pulley (27).

b. Replacement.

(1) To replace the ac motor, reverse the procedures described in *a(*2) through (5) above.
(2) Align the ac motor pulley (27, fig. 2) with the centrifugal pump pulley (28) and tighten the V-belt (25) by sliding the ac motor (16) away from the centrifugal pump (18) before final tightening of the ac motor mounting bolts (17, fig. 2).
(3) Insert the ac power cable plug (26) into the power source receptacle.

8. Repair of Centrifugal Pump

a. Removal (fig. 2).

(1) Operate the electrical switch timer to the 0 position and pull the ac power cable plug (26) from the power source receptacle.
(2) Disconnect the intake union (20) and outlet union (21).
(3) Remove the intake nipple (32) and outlet nipple (33) from the centrifugal pump (18).
(4) Remove the centrifugal pump mounting bolts (19) and slip the V-belt (25) off the pulleys.
(5) Remove the centrifugal pump (18).
(6) Loosen the pulley setscrew (29) and remove the centrifugal pump pulley (28).

b. Disassembly (fig. 3).

(1) Remove the casing capscrews (4), the casing (1), and the casing gasket (6).

Note:

The casing gasket must be kept moist while it is out of the pump.

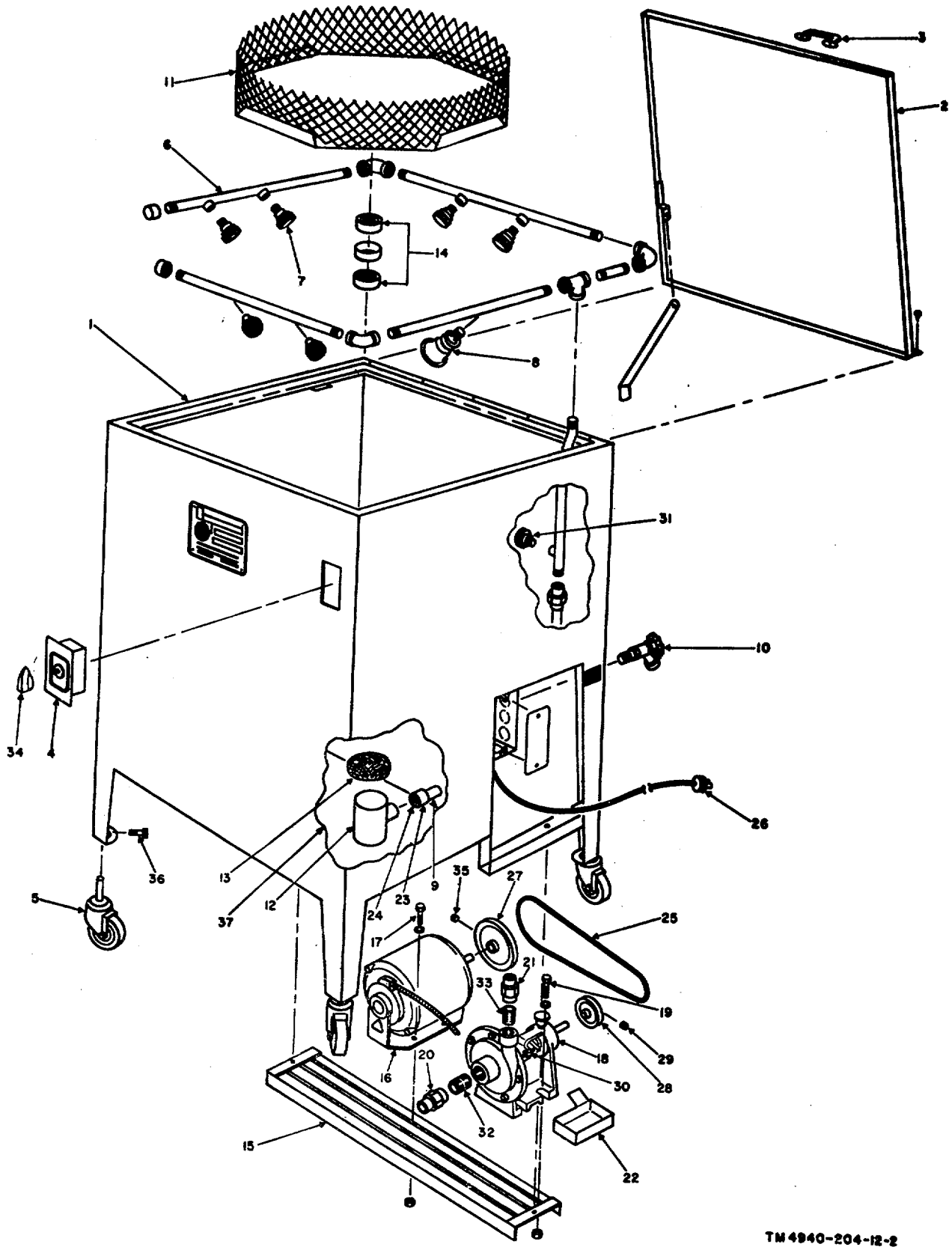


Figure 2. Degreaser MX-1760/G, exploded view.

1 Cabinet
2 Cabinet lid
3 Cabinet lid handle
4 Electrical switch timer
5 Caster wheel
6 Outlet line
7 Fixed spray
8 Adjustable spray
9 Intake line
10 Drain cook
11 Turntable with screen
12 Intake filter holder
13 Plastic, fluid filter
14 Turntable bearing
15 Motor pump mounting
16 Ac motor
17 Ac motor mounting bolt
18 Centrifugal pump
19 Centrifugal pump mounting bolt
20 Intake union
21 Outlet union
22 Drip pan
28 Intake coupling
24 Into filter screen
25 V-belt
26 Ac power cable plug (Connector Plug UP-121/M)
27 Ac motor pulley
28 Centrifugal pump pulley
29 Pulley setscrew
30 Packing gland bolt mad nut
31 Turntable spray
32 Intake nipple
33 Outlet nipple
34 Knob
85 Pulley setscrew
86 Caster screw
87 Reservoir

Figure 2. Continued.

(2) Remove the grease cups (13) and (14).
(3) Remove the bearing cover screws and washers (19) and the bearing cover (18).
(4) Remove the stuffing box gland bolts and nuts. (11) from the box, gland box gland (8).
(5) Loosen the collar setscrews (17) in the collar of the ball bearing (16).
(6) Brace the support head (12) and tap lightly on the pulley end of the shaft (3). Remove the shaft (3) and impeller (2) as a unit. Remove the slinger (7) and stuffing box gland (8) from the end of the shaft (3) as the shaft is pulled through the stuffing box (20).
(7) Press out the stuffing box and bearing packing (9) and bearing bushing (10) toward the pulley end of the stuffing box (20).
(8) Remove the ball bearing with collar (16) by pulling on the bearing collar. Press the Welsh plug (15) out of the bearing chamber (21) if the Welsh plug is defective.
(9) Remove the drain plug (5) and the pipe from the intake (22) and outlets (23) in the casing (1) if necessary.

c. Repairs. Clean and inspect the parts of the centrifugal pump and replace unserviceable parts (TM 11-4940-204-15P).

d. Reassembly.

(1) Press the tapered end of the bearing bushing (10) into the pulley end of the stuffing box (20) until the groove in the bushing is under the opening for the grease cup (13).
(2) Insert the shaft (3) with its Impeller (2) attached into the support head (12).
(3) If the Welsh plug(15) was removed, insert it into the bearing chamber (21).
(4) Push the ball bearing with collar (16) into the bearing chamber (21). Replace the bearing cover (18) and fasten it with the bearing cover screws and washers (19).
(5) Replace the grease cups (13) and (14).
(6) Cut four rings of new stuffing box and bearing packing (9) so that when wrapped around the shaft, the ends do not quite touch. Tamp each ring into position around the shaft; stagger the joints about 180° apart. Turn the shaft after tamping each ring.
(7) Position the stuffing box gland (8) and slinger (7) on the shaft and

replace the stuffing box gland bolts and nuts (11). Tighten the nuts to seat the packing, and then loosen until the shaft can be turned easily by hand. Force Lubricating Oil, General Purpose (LO) into the stuffing box by rotating the cap of the grease cup (13) several turns.

(8) With the collar setscrews (17) loose in the ball bearing with collar (16), move the shaft until the impeller (2) touches the support head (12). Move the shaft until the impeller (2) just turns freely without rubbing on the support head (12). Position the collar setscrews (17) over the flats on the shaft and tighten the setscrews. Turn the shaft by hand several times to be certain that it turns freely without the impeller rubbing. Readjust if necessary.

(9) Coat the casing gasket (6) with oil (LO), and install it between the casing (1) and the support head (12). Position the casing (1) and secure it with the casing capscrews (4).

(10) Check to see that the shaft (3) moves freely. If it does not, reset the position of the shaft with the collar setscrews ((8) above).

e. Replacement (fig. 2).

(1) Mount the centrifugal pump pulley (28) on the centrifugal pump shaft and tighten the pulley setscrew (29).

(2) Mount the centrifugal pump in position (18) and stretch the V-belt (25) between the ac motor pulley (27) and centrifugal pump pulley (28). Temporarily tighten the centrifugal pump mounting bolts (19).

(3) Install the intake nipple (32) and outlet nipple (33) in the centrifugal pump.

Caution:

Be careful not to crack the centrifugal pump by overtightening the nipples.

(4) Loosen the centrifugal pump mounting bolts (19) and align the mating parts of the intake union (20) and outlet union (21).

(5) Tighten the unions; then tighten the centrifugal pump mounting bolts (19).

Caution

If pulleys do Dot align with each other or If the V-belt Is too loose, make the adjustments with the ac motor mounting bolts (17) (para 7*b* (2)).

(6) Insert the ac power cable plug (26) into the power source receptacle.

9. Removal and Replacement of Electrical Switch Timer

With the exception of replacing the control knob (4, fig. 2), repair of the electrical switch timer is not required. To replace an electrical switch timer, use the procedures in a and b below.

a. Removal. Remove the screws that hold the electrical switch timer to the case. Remove the electrical wires from the electrical switch timer terminals and remove the electrical switch timer.

b. Replacement. To replace the electrical switch timer, reverse the procedures given in a above.

10. Removal and Replacement of V-Belt

a. Removal.

(1) Pull the ac power cable plug (26, fig. 2) from the power source.

(2) Loosen the ac motor mounting bolts (17).

(3) Slip the V-belt (25) off the ac motor pulley (27) and the centrifugal pump pulley (28).

b. Replacement.

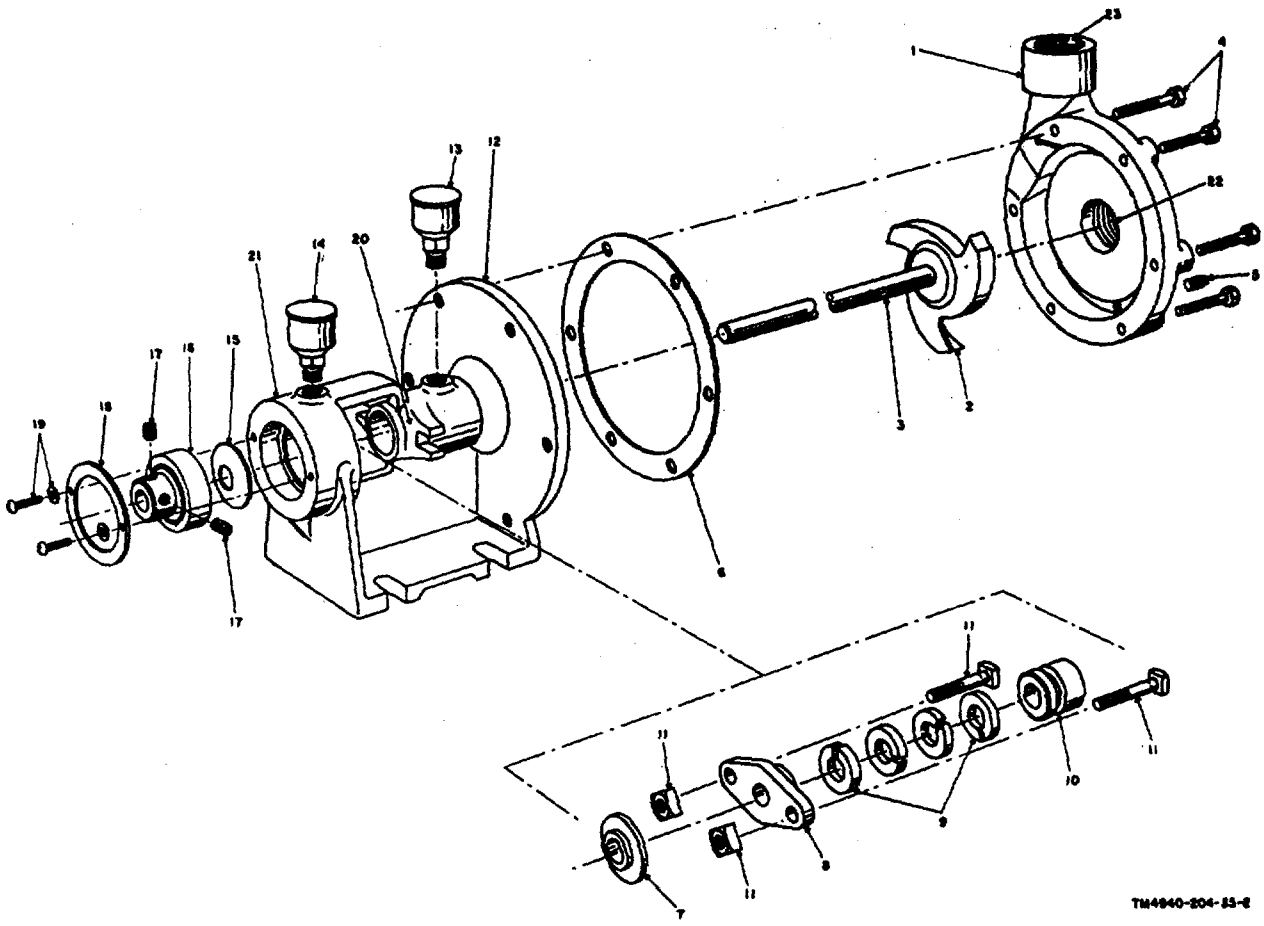
(1) Install the V-belt (25) on both pulleys.

(2) Align the ac motor pulley (27) with the centrifugal pump pulley (28) and tighten the V -belt by sliding the ac motor (16) away from the centrifugal pump. Tighten the ac motor mounting bolts (17).

Caution:

Do not adjust the V-belt tension by attempting to reposition the centrifugal pump.

(3) Insert the ac power cable plug (26) into the ac power source.



1 Casing
2 Impeller
3 Shaft
4 Casing capscrews
5 Drain plug
6 Casing gasket
7 Slinger
8 Stuffing box gland
9 Stuffing box and bearing packing
10 Bearing bushing
11 Stuffing box gland bolt and nut
12 Support head
13 Grease cup (ball check)
14 Grease cup (plain)
15 Welsh plug
16 Ball bearing with collar
17 Collar setscrews
18 Bearing cover
19 Bearing cover screw and washer
20 Stuffing box
21 Bearing chamber
22 Intake
23 Outlet

Figure 3. Centrifugal pump, exploded view.

11. Repair of Fixed Spray

Note:
A fixed spray with Its parts is illustrated in TM 11-4940-204-12.

To replace the parts in a fixed spray (7 or 31, fig. 2), proceed as follows:

a. Remove the shower head cap from the shower spray body.

b. Remove the internal parts of the spray.

c. Replace the internal parts of the spray into the shower spray body in the following sequence: filter screen (many holes), fiber gasket, and shower head disk (few holes).

d. Replace the shower head cap on the shower spray body.

Note:
Refer to. TM 11-4940-204-12 for adjustment procedures of the spray angle of the fixed spray (7) and the turntable spray (31, fig. 2).

12. Final Testing

Assemble and lubricate the degreaser; fill the reservoir with cleaning compound (TM 11-4940-204-12). Insert the power cord plug into the power source. Operate the electrical switch timer knob to HOLD for 5 minutes. The knob should not move, the cleaning compound should spray from all sprays, and the turntable should revolve slowly. If the cleaning compound leaks excessively from the stuffing box (20, fig. 3), tighten the stuffing box gland bolts and nuts (11) until the cleaning compound barely drips from the packing. Stop all other leaks by tightening the connections. Operate the electrical switch timer knob to 5. The degreaser should operate for 5 minutes, and then stop automatically.

APPENDIX I
REFERENCES

The following publications are applicable and available to field and depot maintenance repairmen of Degreaser MX-1760/G.

DA Pamphlet 310-4	Index of Technical Manuals, Technical Bulletins, Supply Bulletins, Lubrication Orders, and Modification Work Orders.
TM 11-4940-204-12	Operator and Organizational Maintenance Manual, Degreaser MX-1760/G.
TM 11-4940-204-15P	Operator's, Organizational, Field and Depot Moint4e.noe Repair Parts and Special Tools List and Maintenance Allocation Chart: Degreaser MX-1760/G.

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NG: State AG (3).
USAR: None.
For explanation of abbreviations used see AR 320-50.

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