TM 5-4940-225-34

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

TECHNICAL MANUAL

DIRECT AND GENERAL SUPPORT AND DEPOT MAINTENANCE MANUAL SHOP EQUIPMENT, ORGANIZATIONAL REPAIR TRUCK MOUNTED (SOUTHWEST TRUCK BODY MODEL SEORL) FSN 4940-169-3041 (SOUTHWEST TRUCK BODY MODEL SEORLT) FSN 4940-164-4719

HEADQUARTERS, DEPARTMENT OF THE ARMY

JANUARY 1972

WARNING

Before performing any maintenance procedures on the electrical system, see that all external power is disconnected from the shop set and stop the truck engine.

Do not operate the equipment until it has been properly grounded.

TECHNICAL MANUAL
NO. 5-4940-225-34

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. *5 January 1972*

DIRECT AND GENERAL SUPPORT AND DEPOT MAINTENANCE MANUAL

SHOP EQUIPMENT, ORGANIZATIONAL REPAIR, TRUCK MOUNTED

(SOUTHWEST TRUCK BODY MODEL SEORL)

FSN 4940-169-3041

(SOUTHWEST TRUCK BODY MODEL SEORLT)

FSN 4940-164-4719

LIST OF ILLUSTRATIONS

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1-1. Scope

The following instructions are provided for the use of direct and general support and depot maintenance personnel. They contain information on the maintenance of the equipment which is beyond the scope of the tools, equipment, personnel or supplies normally available to organizational maintenance facilities.

1-2. Forms and Records

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

1-3. Reporting of Errors

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

Section II. DESCRIPTION AND DATA

1-4. Description

A complete description of the shop set and components is given in TM 5-4940-225-12.

1-5. Difference in Models

The difference in models is given in TM 5-4940-225-12.

1-6. Tabulated Data

a. Dynamotor- Welder.

Manufacturer . . . . . Hobart Brothers Co.
Model SMR-300

(1) *DC generator.*

Volts 40
Kilowatts 12
Amperes 300
Rpm (revolutions per minute) 1500/1800
Duty cycle 60percent

(2) AC *generator.*

Voltage 220
Amperes 56
Kilowatts 12
Power factor 0.8
Phase. 3
Cycle 50/60
Rpm 1500/ 1800
Duty cycle . . . . . 100 percent

(3) *Motor*

Voltage 240
Amperes 56
Phase 3
Cycle 50/60
Rpm 1500/ 1800
Horsepower 25

b. Dynamotor-Welder Repair and Overhaul Data.

(1) DC (direct current) welder armature winding.

Number of coils 33
Number of slots 33
Number of turns per coil 1
Coil pitch . . . . . 1 to 9
Commutator pitch . . . . . .1 to 50
Number of commutator bars. 99
Wire size . . . . . 3/32 in. (inch) X 3/8 in.
Wire type . . . . . Copper, Type T, heavy synthetic resin-coated per Military Specification MIL-W-583A
Winding type . . . . . Wave

(2) *Motor-alternator revolving field winding.*

Number of coils 4
Turns per coil 520
Turns parlayer. 36
Wire size . . . . . No. 1.5 AWG (American Wire Gage)
Type of wire Copper. Type T. heavy synthetic resin-coated per Military Specification MIL-W-783A

(3) *DC exciter armature winding.*

Number of coils 43
Number of slots 43
Turns percoil. 6
Coil pitch . . . . . 1 to 11
Commutator pitch 1 10 43
Number of commutator bars 85

Wire size . . . . . No. 17 AWG
Wire type . . . . . Copper. Type T, heavy synthetic resin-coated per Military Specification MIL-W-683A
Winding type . . . . . Wave

(4) *Treatment schedule of armature.* The following baking treatment should be accomplished in a recirculating, forced-exhaust type bake oven. Baking times and temperatures may vary depending on the recommendations of the manufacturer of the varnish being used.

(a) Preparation. Mask both commutators, the sliprings, and the shaft with a suitable masking tape to prevent adherence of varnish to these parts.

(h) Dipping and draining. Immerse the armature in varnish, Military Specification MIL-V-1137A, Type AN, grade CB, for 3 minutes. Remove and drain for 10 minutes. Rotate armature to prevent puddling of varnish.

(c) *Wiping.* Remove masking tape. Wipe previously masked surfaces with cloth dampened with an approved cleaning solvent to clean these surfaces of any trace of varnish.

(d) Baking. Bake for 1 ½ hours at 320° F.

(e) *Second treatment.* Remove from oven and allow armature to cool to approximately 140° F. Repeat *(a)* through (c) above, but with a baking time of 4 hours at 320° F.

(f) Fungicidal treatment. Allow armature to cool to ambient temperature. Repeat *(a)* above. Immerse in a fungicidal varnish which meets Military Specification MIL-V-173. Repeat (c) above and allow armature to air-dry for 15 minutes at a temperature of 70° F.

(5) *DC welder commutation winding.*

Numbrer of coils 4
Turns per coil 15
Type of wire . . . . . Copper, Type T. heavy synthetic resin-coated per Military Specification MIL-W-.583A
Type of winding . . . . . Edge Wound

(6) *Treatment schedule for interpole winding.* The following baking treatment should be accomplished in a recirculating, forced-exhaust type bake oven. Baking times and temperatures may vary depending on the recommendations of the manufacturer of the varnish being used.

(a) Dipping and draining. Dip the coil in and out of the varnish which meets Military Specification MIL-V-1137A, Type AN, grade CB. Drain for 10 minutes. Rotate the coil to prevent puddling of the varnish.

(b) Baking. Bake the coil for 1 ½ hours at a temperature of 320° F.

(c) *Furtgicidal treatment.* Allow coil to cool to ambient temperature. Immerse in a fungicidal varnish which meets Military Specification MIL-V-173. Allow coil to air-dry at a temperature of 70° F, for 15 minutes.

(7) *DC welder excitation field windings.*

Number of coils 2
Turns per coil 1500
Wire size . . . . . No. 17 AWG
Type of winding Random

NOTE: If field is larger because of random condition, a maximum of 40 turns may be removed.

Resistance per coil . . . . . 13.67 ohms

(8) *DC exciter shunt field winding.*

Number of coils 4
Turns per coil 1400
Resistance per coil 16.31 ohms
Type of winding . . . . . Random
Wire size . . . . . No. 21 AWG
Type of wire Copper . . . . . Type T, heavy synthetic resin-coated per Military Specification MIL-W-583A

(9) *Treatment schedule for the DC welder excitation field and the DC exciter shunt field.* The following baking treatment should be accomplished in a recirculating, forced-exhaust type bake oven. Baking times and temperatures may vary with the recommendations of the manufacture of the varnish being used.

(a) Dipping and draining. Immerse the coil in varnish which meets Military Specification MIL-V-1137A, Type AN, grade CB for 3 minutes. Remove and drain for 10 minutes. Rotate coil during drainage to prevent varnish from puddling.

(b) Baking. Bake the coil for 1 ½ hours at a temperature of 320° F.

(c) *Fungicidal treatment.* Allow the coil to cool to ambient temperature. Immerse in a fungicidal varnish which meets Military Specification MI L-V-1 73. Allow coil to air-dry at a temperature of 70° F, for 15 minutes.

(10) *Motor-alternator stator windings.*

Number of poles 4
Number of slots 48
Number of coils 48
Coil span 1-12
Turns per coil 10
Wire size . . . . . No. 15 AWG
Type of wire . . . . . HNF(heavy, nylon, flat band metallic armor)

(11) *Treatment schedule for the motor-alternator windings.* The following baking treatment should be accomplished in a recirculating, forced-exhaust type bake oven. Baking times and temperatures may vary with the recommendations of the manufacturer of the varnish being used.

(a) Preheating. Preheat stator assembly for 1 hour at a temperature of 140° F.

(b) Dipping and draining. Immerse stator in varnish which meets Military Specification MI L-V-1137A, Type AN, grade CB, for a period of 10 minutes. Drain for 10 minutes. Rotate the stator to prevent the varnish from puddling.

(c) *Wiping.* Wipe the machine metallic surfaces clear of varnish with a cloth moistened in a suitable solvent.

(d) Baking. Bake the stator for 1 ½ hours at a temperature of 320° F. Remove from oven and allow stator to cool to 140° F.

(e) *Second treatment.* Repeat *(b)* above for 3-minute duration. Repeat *(c)* above. Repeat *(d)* above, but for a baking time of 4 hours.

(f) Fungicidal treatment. Allow stator to COO] to ambient temperature. Immerse stator in varnish which meets Military Specification MIL-V-173. Remove stator and wipe metallic surfaces clear of varnish with a cloth moistened with a suitable solvent. Allow stator to air-dry for 15 minutes at a temperature of 70° F.

c. *Air Compressor Repair and Replacement Standards.* Refer to table 1-1 for a list of manufacturer's tolerance, desired clearances, and maximum allowable wear and clearance.

Table 1-1. Air Compressor Repair and Replacement Standards

Component	Manufacturer's dimensions and tolerances		Desired clearance		Maximum allowable wear	Maximum allowable clearance
	Minimum	Maximum	Minimum	Maximum		
Cylinders:						
L. P. (low pressure):						
Bore	3.375	3.377			0.002	
Taper		0.001				
Out-of-round		0.0005				
H. P. (high pressure):						
Bore	1.8760	1.8769			0.002	
Taper		.0005				
Out-of-round		.0005				
Crankcase:						
Bearing bore	2.717	2.718			±0.0000	
Crankshaft:						
Journal:						
Size	1.3755	1.3765			0.0000	
Note. Inner cone of tapered roller bearing press fitted to crankshaft. Bearing adjustment is made by removing or adding shims at small crankcase end plate.						
Taper		0.0005				
Out-of-round		0.0005				
Throw:						
Outside diameter	1.3750	1.3755			0.001	
Length	1.510	1.515				
Taper		0.0002				
Out-of-round		0.0001				
Pistons, Pins, and Rings:						
Note. Pistons are cam ground: (Not round) .008" dia less across pin boss.						
L. P. Piston:						
Size at top	3.356	3.360				
Size at bottom	3.372	3.373			0.003	
H. P. Piston:						
Size at top	1.858	1.862				
Size at bottom	1.874	1.875			0.0025	
L. P. Piston Pin:						
Diameter	.8749	0.8751	0.0001	0.0003	0.0000	0.0003
Length	3.115	3.135				
H. P. Piston pin:						
Diameter	.8749	0.8751	0.0001	0.0003	0.0000	0.0003
Length	1.584	1.604				
L. P. Piston rings:						
Side clearance:						
Compression			0.002	0.004		
Oil			0.0015	0.003		
Gap clearance			0.004	0.014		
H. P. Piston rings:						
Side clearance:						
Compression			0.002	0.004		
Oil			0.002	0.004		
Gap clearance			0.003	0.010		

Table 1-1. Air Compressor Repair and Replacement Standard.~—Continued.

Component	Manufacturer's dimensions and tolerances		Desired clearance		Maximum allowable wear	Maximum allowable clearance
	Minimum	Maximum	Minimum	Maximum		
Connecting Rods and Bearings:						
L. P. Connecting rod:						
Pin bearing id.	().8750	().8755	0.0001	.0006	.0009	.0015
Rod bearing id	1.3753	1.3763	.0002	.0013		
Rod bearing length	1.495	1.500	0.010	0.020		
Rod twist		0.001 TIR (Total Indirector Reading)				
Rod bend		0.0003TIR				
H. P. Connecting rod:						
Pin bearing id	0.8750	0.8755	0.0001	.0006	00009	001 5
Rod bearing id	1.3753	1.3763	.0002	.0013		
Rod bearing length	1.495	1.500	0.010	0.020		
Rod twist		0.001 TIR				
Rod bend		0.003 TIR				

***d. Wiring* Diagrams. For 24-volt and 110-volt schematic wiring diagrams, refer to TM 5-4940 - 225-12**

Figure 1-1. Schematic wiring diagram (dynamotor-welder).
(Located in back of mannual)

Figure l-2. Schematic wiring diagram (dynamotor-welder).
(Located in back of manual)

e. Compressor Torque Data.

Connecting rod bolts . . . . .14 to 16 ft-lb (foot-pounds)
Cylinder bead bolts. . . . . 24 to 26 ft-lb
Main bearing plate bolts 24 to 26 ft-lb

CHAPTER 2

GENERAL MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS, SPECIAL TOOLS AND EQUIPMENT

2-1. Special Tools and Equipment

No special tools or equipment are required by direct support, general support. or depot maintenance personnel.

2-2. Direct Support, General Support, and Depot Maintenance Repair Parts

Direct support, general support, and depot maintenance repair parts are listed in TM 5-4940 - 225-34P (when published).

2-3. Specially Designed Tools and Equipment

No specially designed tools or equipment are required for maintenance of the shop set by direct support, general support, or depot maintenance personnel.

Section Il. TROUBLESHOOTING

2-4. General

This section provider information useful in diagnosing and correcting unsatisfactory operation or failure of the shop set, or any of its components. Each malfunction stated is followed by a list of probable causes of trouble. The corrective action recommended is described opposite the probable cause.

2-5. Troubleshooting

Refer to table 2-1 for troubleshooting.

Table 2-1. Troubleshooting

Malfunction		Corrective Action
1. Dynamotor-welder noisy.	Bearings defective.	Replace bearings (para 3.14)
2. Dynamotor-welder does not develop welding current.	a. Interpole coils defective.	*a*. Repair or replace interpole coils (para 3.15).
	b. Compound coils defective.	*b*. Replace compound coils (para 3-15).
	c. Welder brushes burned or badly worn.	*c*. Adjust brush spring tension or replace brushes. TM .5-4940-225 - 12.
	d. Brush tension improper.	*d*. Adjust tension TM 5-4940-225-12.
	e. Field coils defective.	*e*. Repair or replace coils (para 3-15).
	f. Commutator dirty.	*f*. Clean commutator (para 3-15).
	g. DC resistance element defective.	g. Replace element (para 3-1.5).
	h. No excitation voltage to field coil (105 to 115 Volts.	*h*. Repair or replace exciter field coils (para 3-1 5). Adjust exciter brush tension or replace brushes TM 5-4940-225-12.
	i. Armature defective,	*i*. Replace armature (para 3-14).
3. Dynamotor-welder does not furnish alternating current.	a.. No excitation voltage to rotating field coils.	a. Repair or replace exciter coils (para 3-15). Adjust exciter brush tension or replace exciter brushes TM 5-4940-225-12. Adjust DC brush tension or replace DC brushes. Replace armature (para 3-14).
	b. Rotating fied defective.	*b*. Repair or replace rotating field coils (para 3-1 5).
	c. Stator coils defective.	c. Repair or replace coils para 3-15).
4. Dynamotor-welder will not function as a motor (external power).	a. Stator coils defective.	a. Repair or replace coils (para 3-15).
	b. Armature defective.	*b*. Replace armature (para 3.14).
	c. Main contactor switch defective.	c. Repair or replace switch (para 3-17).

Table 2-I. Troubleshooting—Continued

Malfunction	Probable Cause	Corrective Action
5. Dynamotor-welder exciter does not furnished excitation voltage or voltage is below required level.	*a.* Field coils defective.	a. Repair or replace coils (para 3-15).
	b. Brushes burned or badly worn.	*b.* Adjust brush spring tension or replace brushes TM 5-4940-225-12.
	c. Armature defective	*c.* Replace armature (para 3-14).
	d. Commutator dirty.	*d.* Clean commutator (para 3-15).
6. Abnormal fluctuation of dynamotor-welder output current.	*a.* Brushes worn.	a. Replace brushes TM 5-4940 -225-12.
	b. Too little pressure of brushes on commutator.	*b.* Increase brush tension TM 5-4940-225-12
	c. Rheostat contact dirty.	c. Clean rheostat.
7. Compressor overheats.	*a.* Main or connecting rod bearings defective.	a. Replace bearings.
	b. Internal leakage.	*b.* Replace defective parts or gaskets.
	c. Cylinder head gasket defective.	c. Replace gasket (para 3-25).
8. Compressor knocks.	a. (crankshaft bearings worn.	*a.* Replace bearing (para 3-1) .
	b. Piston pin and bearing worn.	*b.* Replace pin and bearing (para 3-1).
	c. Valve plates loose or broken.	c. Tighten or replace valve plates (para 3-1).
	d. Connecting rod bearings worn.	*d.* Replace connecting rod bearings (para 3-1).
9. Compressor fails to deliver full capacity.	a.Cylinder head gasket defective.	a. Replace gasket (para 3-1).
	b. Piston and piston rings worn.	*b.* Replace piston or rings (para 3-1).
	c. Valve plates defective.	*c.* Replace waive plates (para 3-1).
10. Compressor oil consumption excessive.	*a.* Piston rings worn.	a. Replace piston rings (para 3-1).
	b. Cylinder worn.	b. Replace cylinder (para 3-1).
11. Intercooler pop-off valve opens while running under load.	High pressure suction or discharge valve defective.	Replace defective part.
12. Intercooler pop-off valve opens while running unloaded.	*a.* Low pressure unloader valve stuck in loaded position.	*a.* Clean unloader valve (para 3-1).
	b. Defective high pressure discharge valve.	*b.* Replace defective valve (para 3-1).
13. Side doors do not operate properly.	*a.* Side lifting hydraulic pump defective.	a. Repair side lifting hydraulic pump (para 3-38).
	b. Door hinge broken.	*b.* Replace hinge para 3-36).
	c . Cylinder defective.	c. Repair cylinder (para 3-37).
14. Personnel heater fails to ignite.	See TM .5-4520 -209-15.	See TM 5-4520-209-15.

Section III. RADIO INTERFERENCE SUPPRESSION

2-6. General Methods Used to Attain Proper Suppression

Essentially, suppression is attained by providing a low resistance path to ground for the stray currents. The methods used include shielding the ignition and high-frequency wires, grounding the frame with bonding straps, and using capacitors and resistors.

2-7. Interference Suppression Components

a. *Primary Suppression Components.* The primary suppression components are those whose primary function is to suppress radio interference. These components are described and located in figure 2-1.

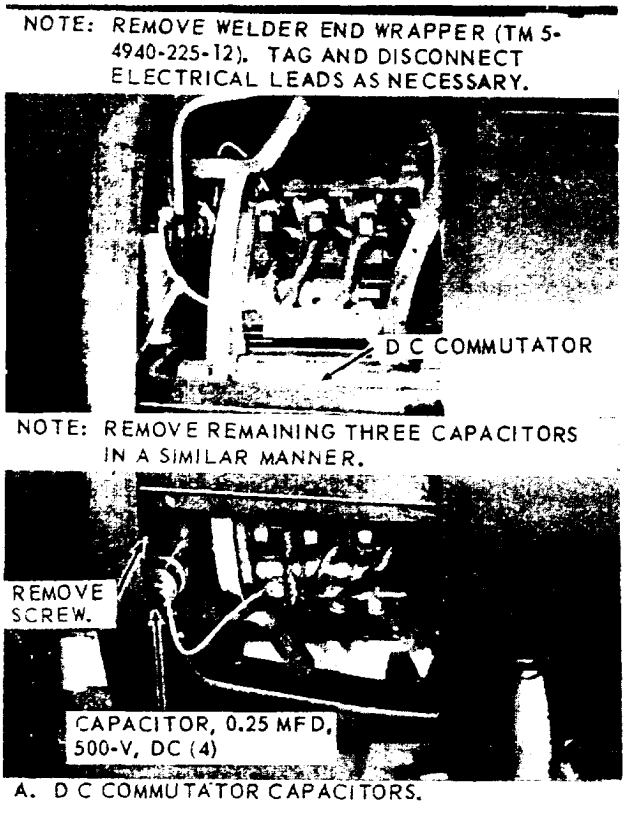
b. Secondary Suppression Components. These components have radio interference suppression functions which are incidental or secondary to their primary function.

2-8. Replacement of Suppression Components

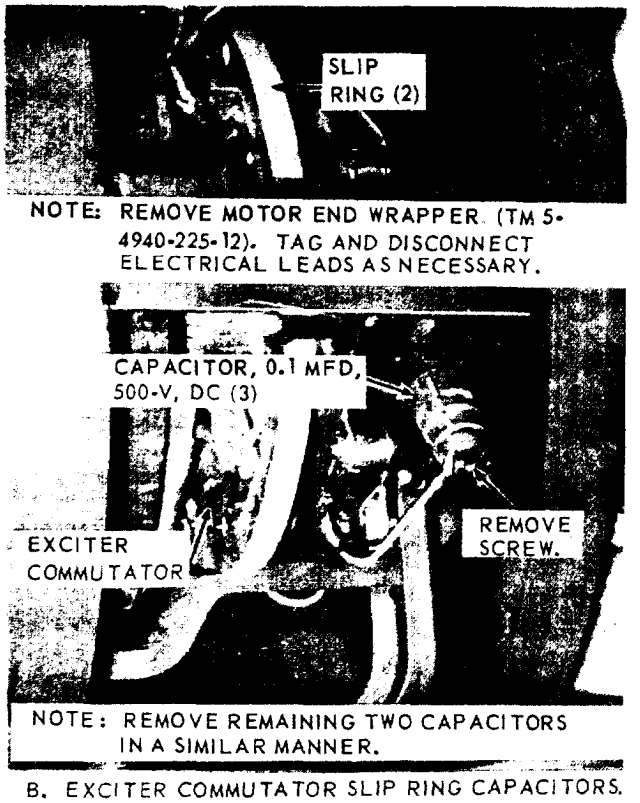
Refer to figure 2-1 and replace the radio interference suppression components.

2-9. Testing of Radio Interference Suppression Components

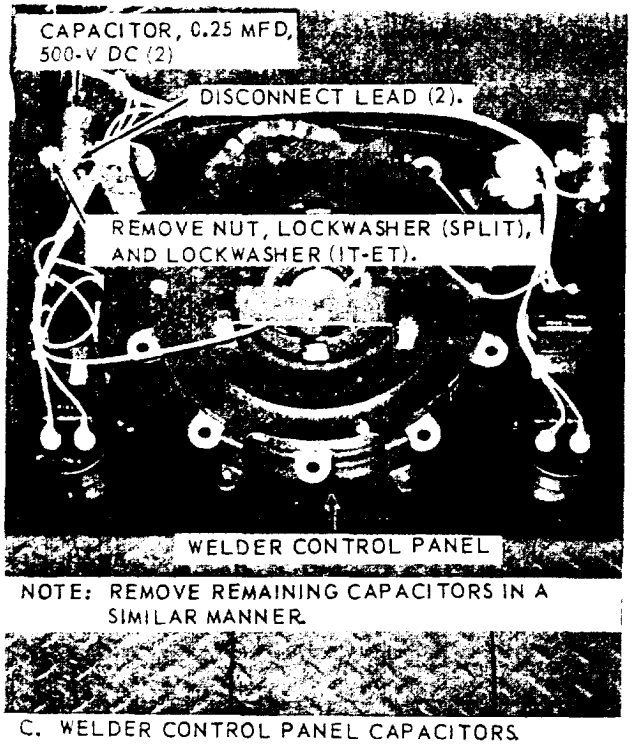
Test the capacitors for leaks and shorts on a capacitor testor; replace defective capacitors. If test equipment is not available, and interference is indicated, isolate the cause of interference by the trial and error method of replacing each capacitor in turn until the cause of interference is located and eliminated.



A. D C COMMUTATOR CAPACITORS.



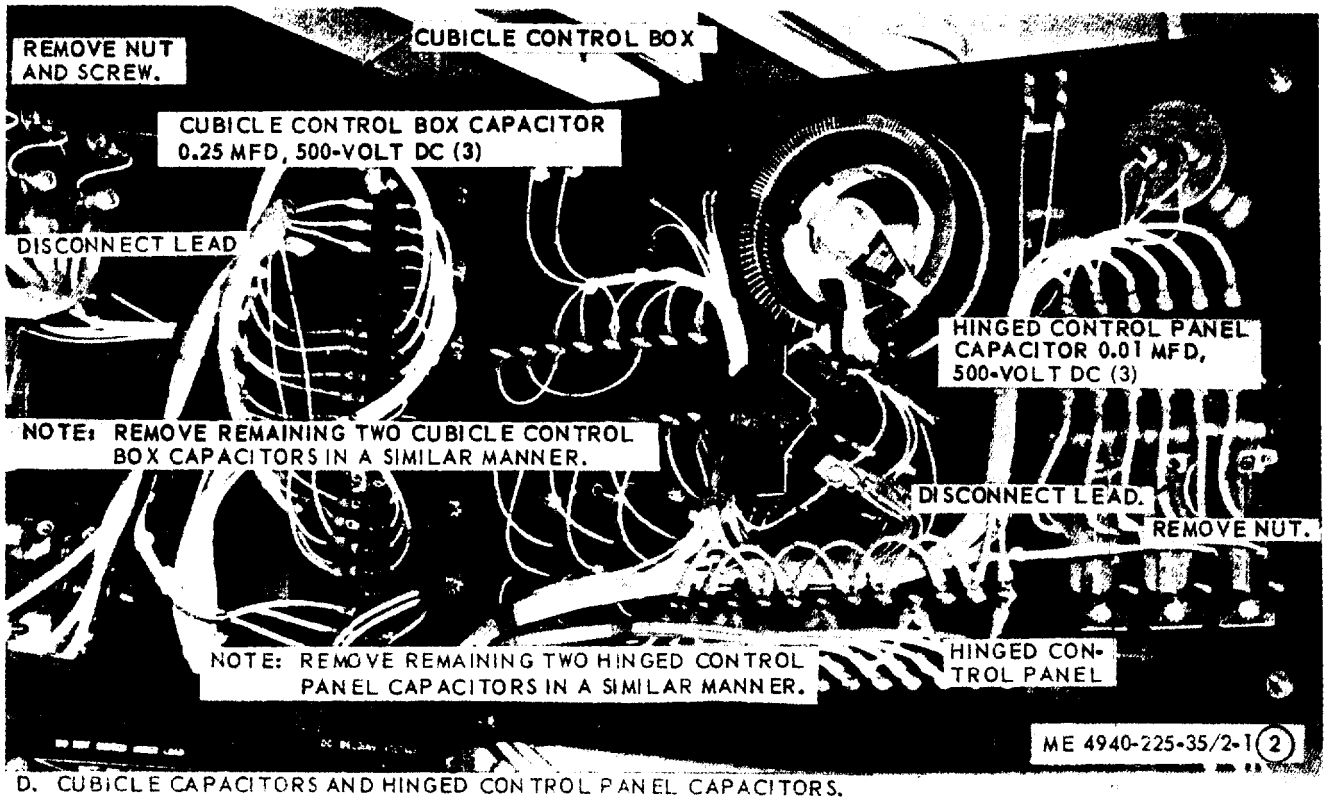
B. EXCITER COMMUTATOR SLIP RING CAPACITORS.



C. WELDER CONTROL PANEL CAPACITORS.

ME 4940-225-35/2-1 (1)

Figure 2-1. Interface suppression components, removal and installation (Sheet 1 of 2).



D. CUBICLE CAPACITORS AND HINGED CONTROL PANEL CAPACITORS.

Figure 2-1. Interference suppression components. removal and installation (sheet 2 of 2).

Section IV. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS

2-10. Dynamotor-Welder

a. Removal

(1) Remove the personnel heater (para 3-38).

(2) Remove the dynamotor-welder work table (para 3-10).

(3) Remove the dynamotor-welder drive belts (para 3-11).

(4) Remove the dynamotor-welder as illustrated in figure 2-2.

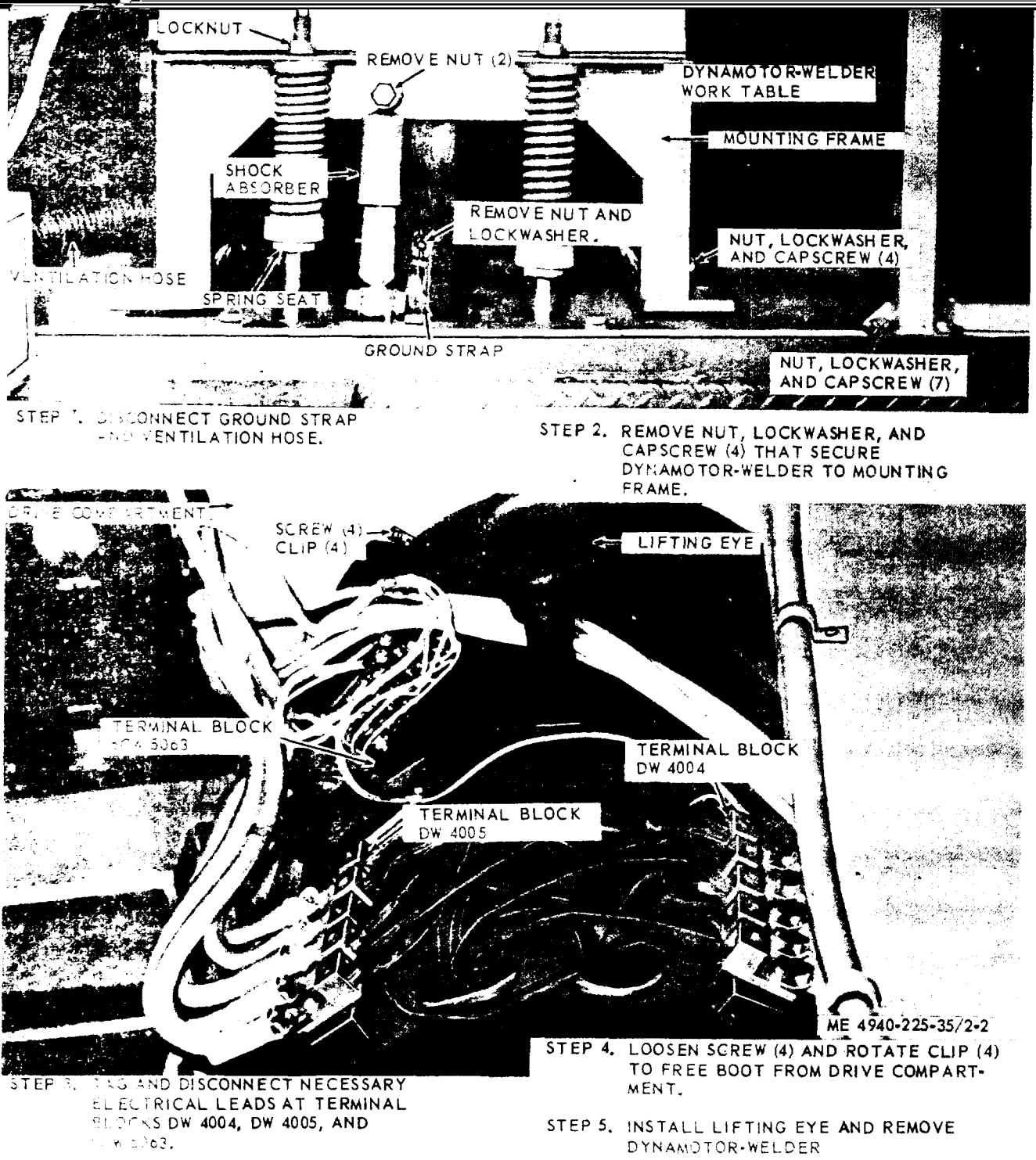
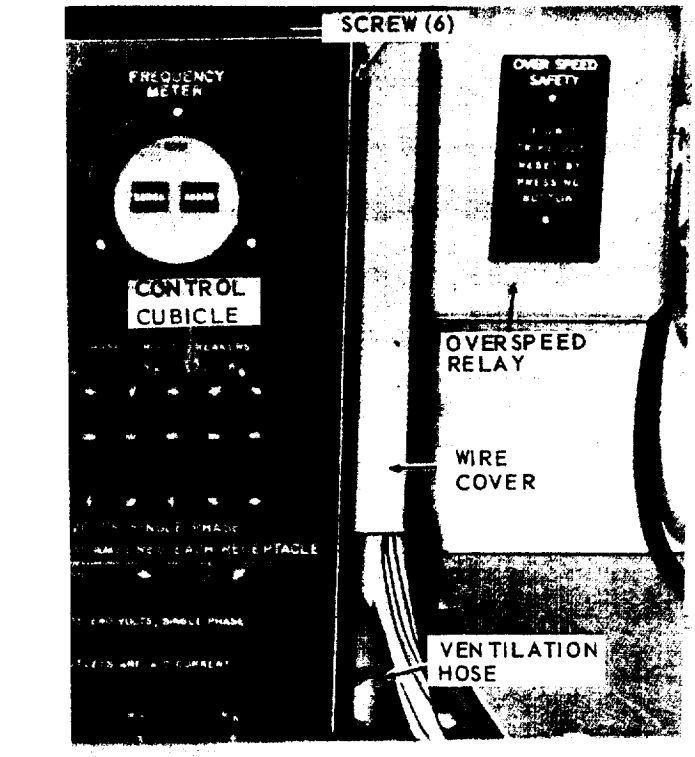


Figure 2-2. Dynamotor-welder, removal and installation.

2-11. Control Cubicle Assembly

a. Removal. Remove the control cubicle assembly as illustrated in figure 2-3.

b. Installation. Install the control cubicle as illustrated in figure 2-3.



STEP 1. DISCONNECT VENTILATION HOSE FROM CONTROL CUBICLE.

STEP 2. REMOVE SCREW (6) AND REMOVE WIRE COVER.

STEP 3. DISCONNECT 120-VOLT PLUG FROM EMERGENCY POWER PANEL. DISASSEMBLE PLUG AND TAG AND DISCONNECT 120-VOLT EXTERNAL POWER ELECTRICAL LEAD (3).

STEP 4. DISCONNECT OVERSPEED RELAY.

STEP 5. REMOVE SCREW (4) AND REMOVE THE WELDER CONTROL PANEL.

STEP 6. OPEN THE CUBICLE CONTROL PANEL.

STEP 7. TAG AND DISCONNECT ALL ELECTRICAL LEADS WHICH EXTEND THRU OPENING IN CONTROL CUBICLE AND CONNECT TO WELDER CONTROL PANEL COMPONENTS.

STEP 8. WITHDRAW ALL TAGGED LEADS FROM OPENINGS IN CONTROL CUBICLE.

STEP 9. REMOVE NUT, LOCKWASHER, AND CAPSCREW (4) THAT SECURE CONTROL CUBICLE TO TOP OF CABINET, REMOVE CONTROL CUBICLE.

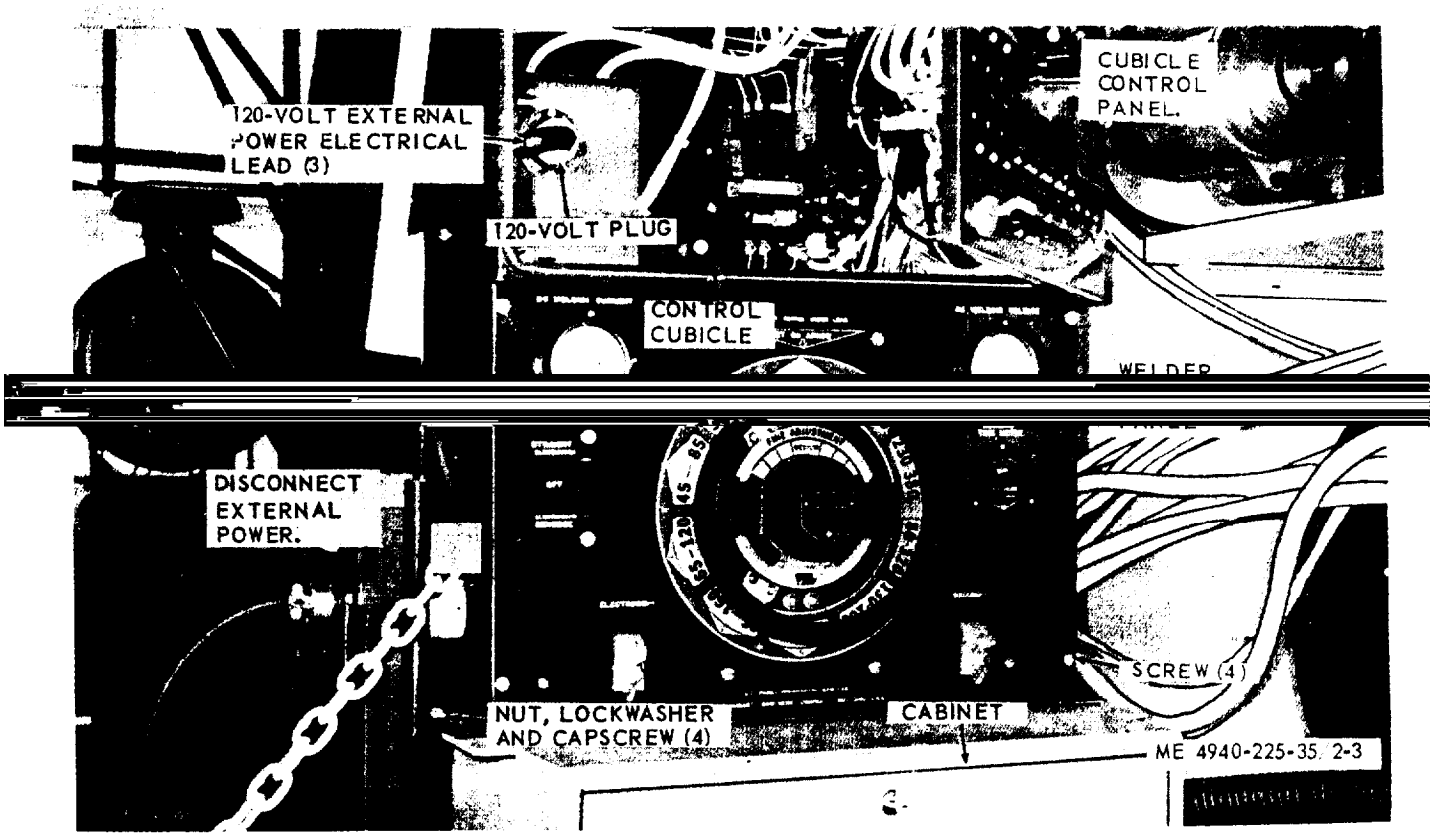


Figure 2-3. Control cubicle, removal and installation

2-12. Van Body

a. Removal.

(1) Tag and disconnect electrical leads (8) from 24-volt wiring harness located under van body at left rear of truck frame.

(2) Disconnect overspeed safety switch electrical lead to engine.

(3) Disconnect heater fuel line at fuel tank.

(4) Remove dynamotor-welder drive belts (para 3-11).

(5) Remove the van body as illustrated in figure 2-4.

b. Installation. Install in reverse order of *a* above.

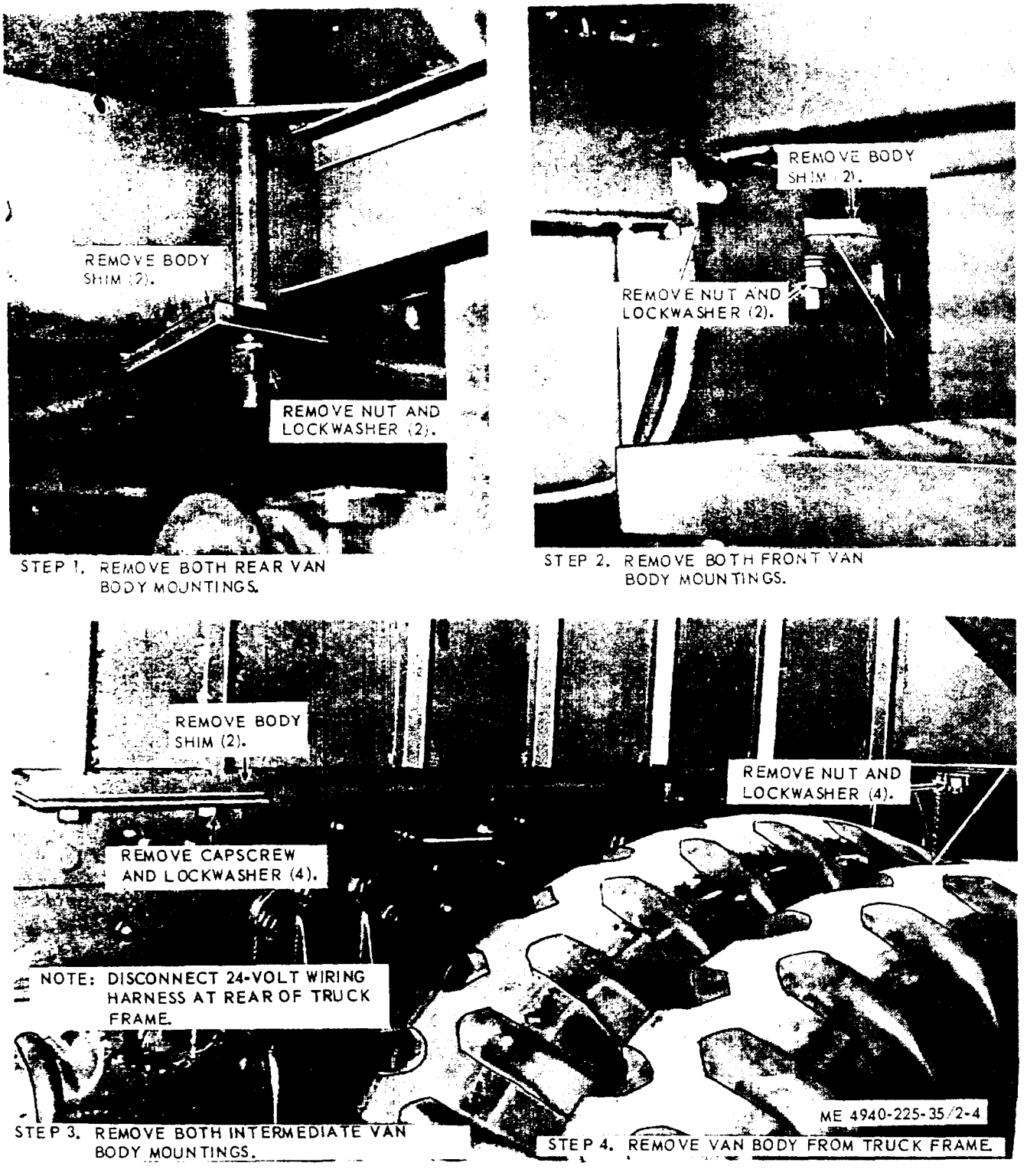


Figure 2-4. Van body, removal and installation.

CHAPTER 3

REPAIR INSTRUCTIONS

Section I. AIR COMPRESSOR AND RELATED PARTS

3-1. Air Compressor

a. *General.* This section covers repair instructions for the air compressor, drive motor, starter, and pressure switch. The motor is rated at 2 horsepower and operates from a power source of 220-volt, 60 cycle, 3-phase alternating current. The starter provides a means of opening or closing the circuit between the motor and control cubicle and trips automatically to open the circuit in the event of an overload. The pressure switch automatically starts the motor when the air pressure drops ***to*** 125 psi and stops the motor when the air pressure reaches 150 psi.

b. Removal. Refer to TM 5-4940.225-12 for removal of the air compressor.

c. *Disassembly.* Disassemble the air compressor as illustrated in figure 3-1.

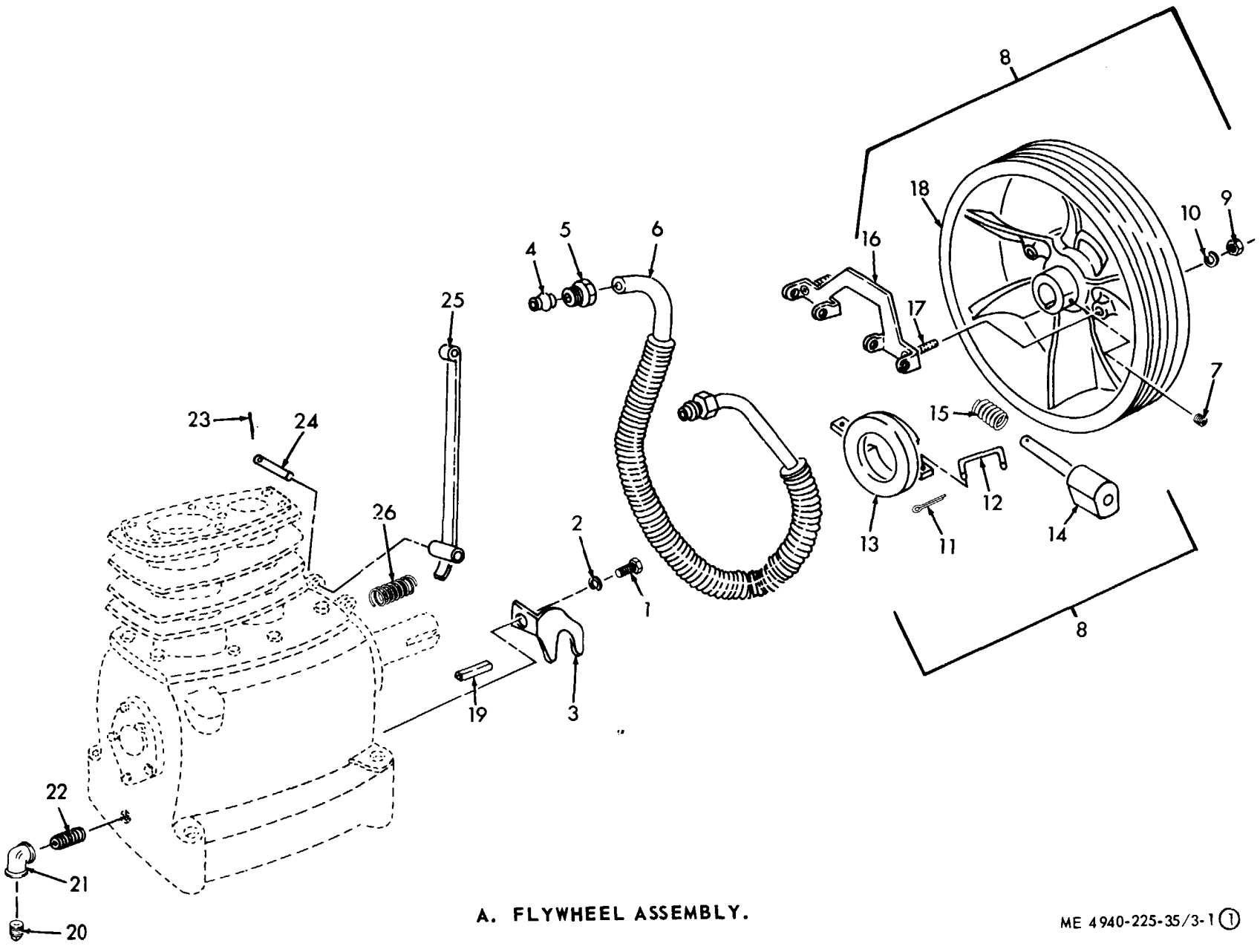


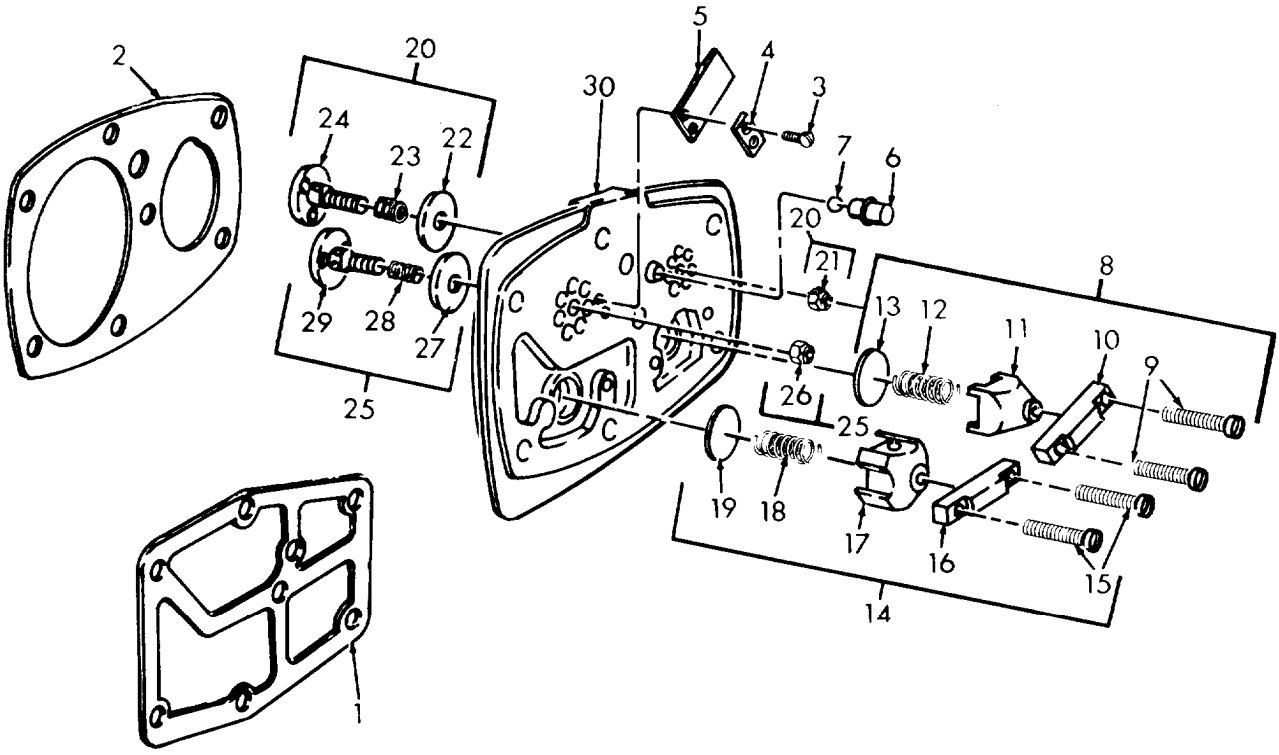
Figure 3-1. Air compressor, disassembly and reassembly (sheet 1 of 4).

KEY to Figure 3-1 ①

1 Screw
2 Washer
3 Support
4 Sleeve
5 Nut
6 Intercooler
7 Setscrew
8 Flywheel assembly
9 Nut
10 Washer
11 Pin, cotter
12 Link
13 Collar
14 Weight
15 Spring
16 Frame
17 Stud
18 Flywheel
19 Key
20 Plug
21 Elbow
22 Nipple
23 Pin, cotter
24 Pin
25 Lever
26 Spring

KEY to Figure 3-1 ②

1 Gasket
2 Gasket
3 Screw
4 Stiffener
5 Valve
6 Seat
7 Ball
8 Valve
9 Screw
10 Bar
11 Retainer
12 Spring
13 Disc
14 Valve
15 Screw
16 Bar
17 Retainer
18 Spring
19 Disc
20 Valve
21 Nut
22 Disc
23 Spring
24 Guide
25 Valve
26 Nut
27 Disc
28 Spring
29 Guide
30 Plate



B. VALVE PLATE ASSEMBLY ME 4940-225-35/3-1 ②

Figure 3-1. Air compressor, disassembly and reassembly (sheet 2 of 4).

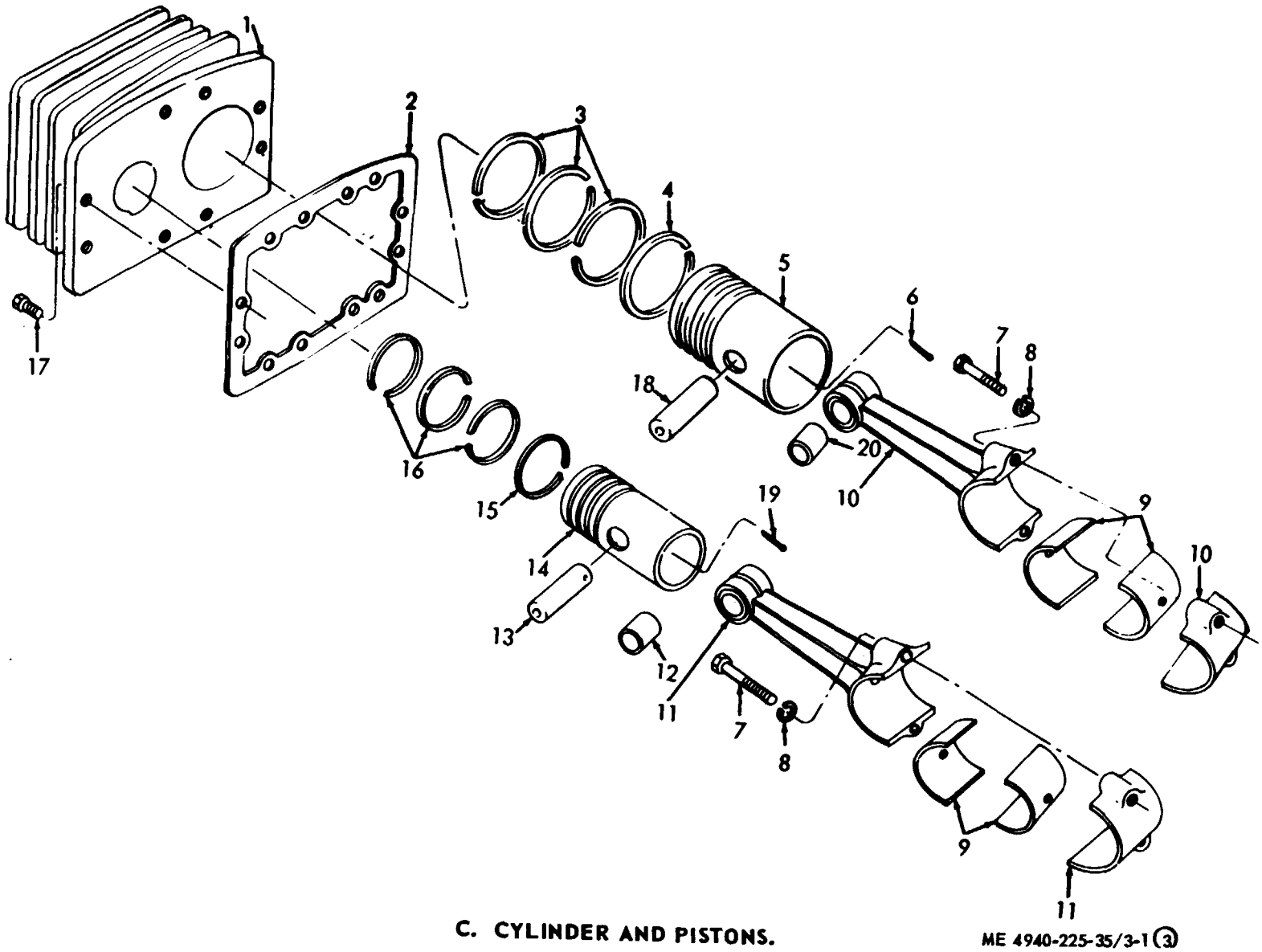


Figure 3-1. Air compressor, disassembly and reassembly (sheet 3 of 4).

KEY to Figure 3-1 (3)

1 Cylinder
2 Gasket
3 Ring
4 Ring
5 Piston. low pressure
6 Pin. cotter
7 Screw
8 Lockwasher
9 Bearing, half
10 Rod assembly
11 Rod assembly
12 Bearing, sleeve
13 Pin, piston
14 Piston, high pressure
15 Ring
16 Ring
17 Screw
18 Pin. piston
19 Pin. cotter
20 Bearing, sleeve

KEY to Figure 3-1 (4)

1 Screw
2 End plate
3 Shim
4 Cup. bearing
.5 Gasket
6 Crankcase
7 Bearing
8 Crankshaft
9 Ring
10 Gasket
11 End plate
12 Screw
13 Baffle. side
14 Baffle. center
13 Pin, cotter

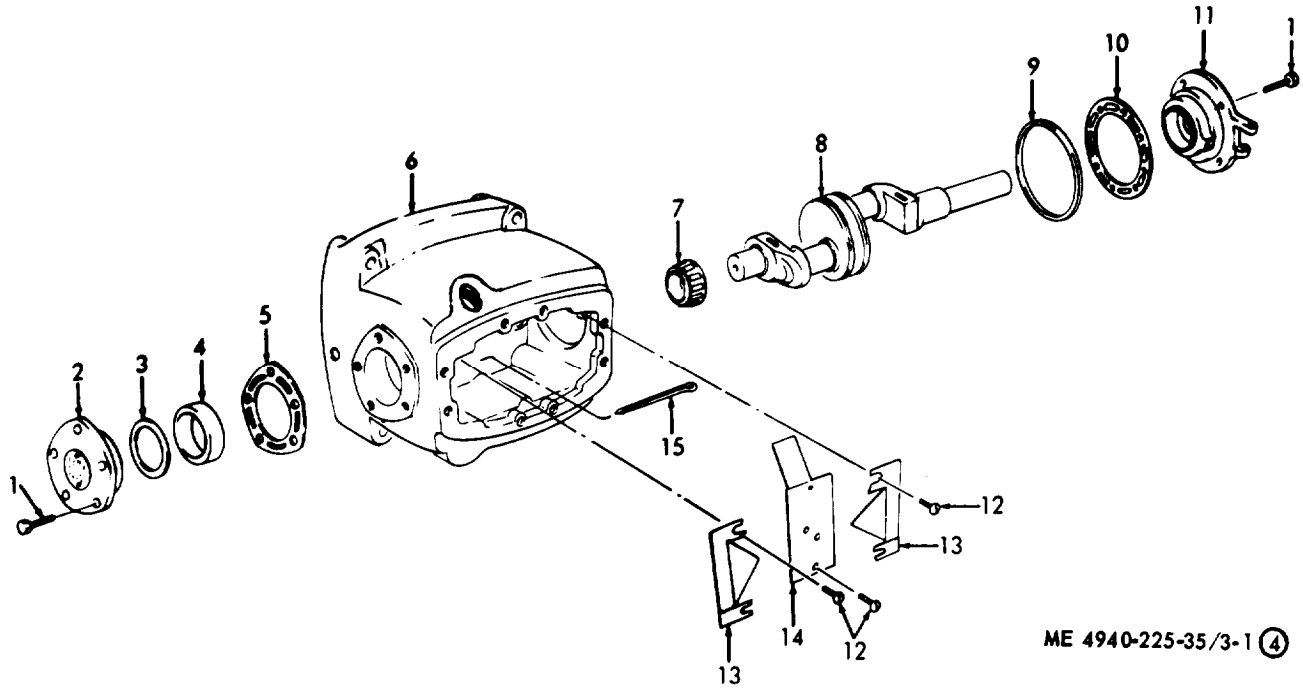


Figure 3-1. Air compressor, disassembly and reassembly (sheet 4 of 4).

d. Cleaning, Inspection and Repair.

(1) Clean all parts with approved cleaning solvent and dry thoroughly. Refer to table 1-1 for tolerances.

(2) Inspect the intercooler for cracks, breaks, and dam aged fins.

(3) Inspect the cylinders and crankshaft bearings for cracks, breaks, scoring, wear, warpage, and other damage or defects.

(4) Inspect the cylinder head for cracks, breaks, warpage, and other damage.

(5) Inspect the valve plate and valves for wear and defects.

(6) Inspect the crankcase for cracks, breaks, and damaged threads.

(7) Inspect the pistons, rings, and pins for dam age and defects.

(8) Replace all unserviceable parts as necessary. Weld minor breaks and cracks.

e. *Reassembly.*

(1) Reassemble the air compressor as illustrated in figure 3-1.

(2) Use a piston ring compressor to install the pistons in the cylinder head.

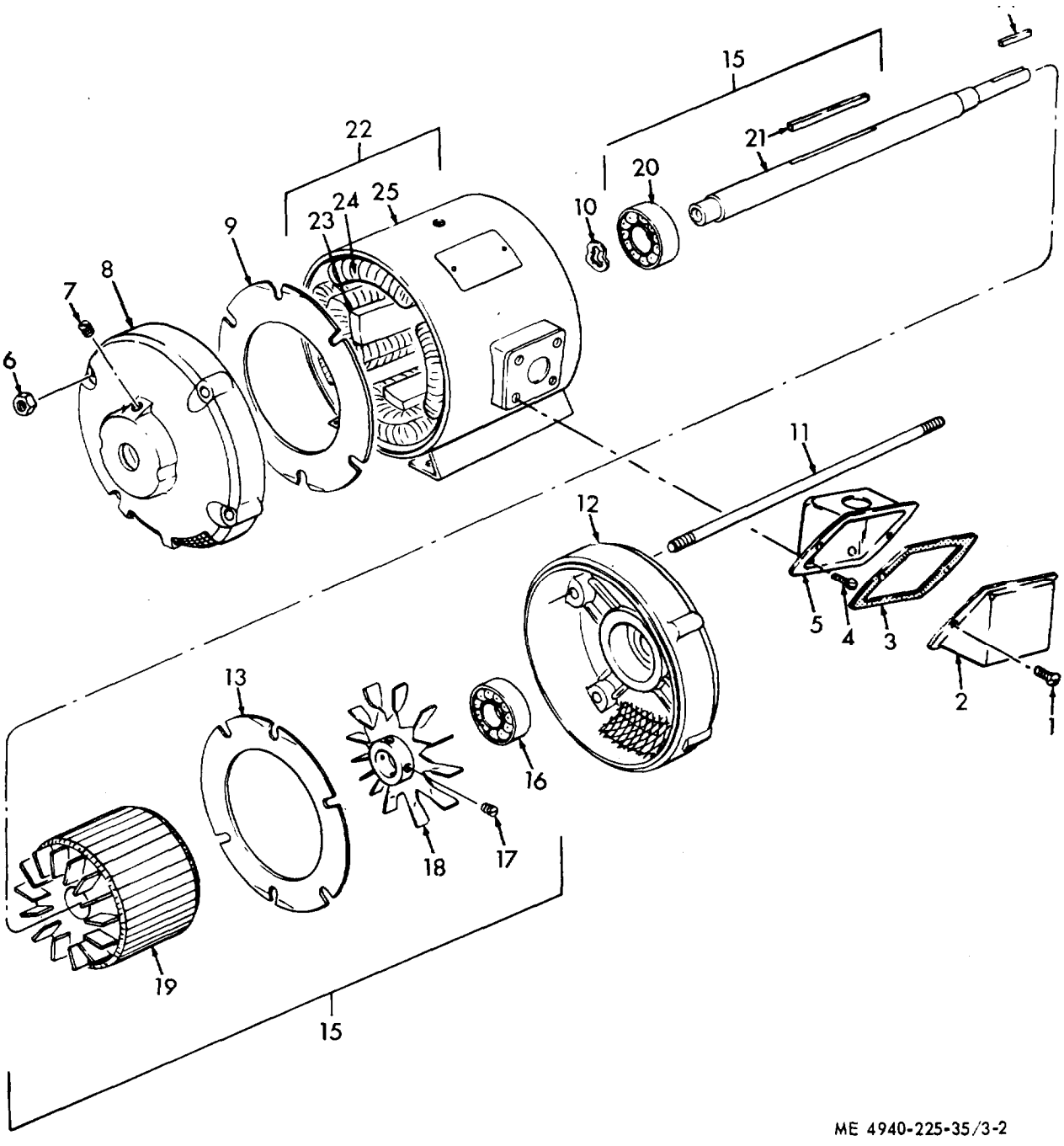
(3) The crankshaft bearing adjustment is made by removing or adding shims at the small crankcase end plate (table 1-1).

f. Installation. Install the air compressor (TM 5-4940-225-12).

3-2. Air Compressor Drive Motor

a. Removal. Remove the drive motor (TM 5-4940-225-12).

b. Disassembly. Disassemble the drive motor as illustrated in figure 3-2.



1 Screw	6 Nut	11 Stud	16 Bearing	21 Shaft
2 Cover	7 Plug	12 End bell	17 Setscrew	22 Body assembly
3 Gasket	8 End bell	13 Baffle	18 Fan	23 Stator assembly
4 Screw	9 Baffle	14 Key	19 Rotor core	24 Winding
5 Box	10 Spring	15 Rotor assembly	20 Bearing	25 Frame assembly

Figure 3-2. .4ir compressor drive rnotor, disassembly and reassembly.

c. Cleaning, Inspection, and Repair.

(1) Clean parts with approved cleaning solvent and dry thoroughly.

(2) Inspect for cracks, pitting, burning, excessive wear, and other damage.

(3) Replace defective parts or a defective motor that is damaged beyond repair.

d. Testing After Disassembly. Test the motor for open or shorted circuits, and for insulation resistance (TM 5-764).

e. Reassembly. Reassemble the drive motor as illustrated in figure 3-2.

f. *Instal[ation.* Install the motor (TM 5-4940-225-12).

3-3 Pressure Switch

a. Removal.

(1) Remove screw and remove cover on pressure switch (fig. 3-3).

(2) Disconnect air line to pressure gage (fig. 3-3).

(3) Tag and disconnect electrical leads from pressure switch.

(4) Remove two conduit locknuts and remove pressure switch from the starter box.

b. Installation. Install in reverse order of *a* above.

c. *Adjustment.* Refer to TM 5-4940-225-12 for adjustment.

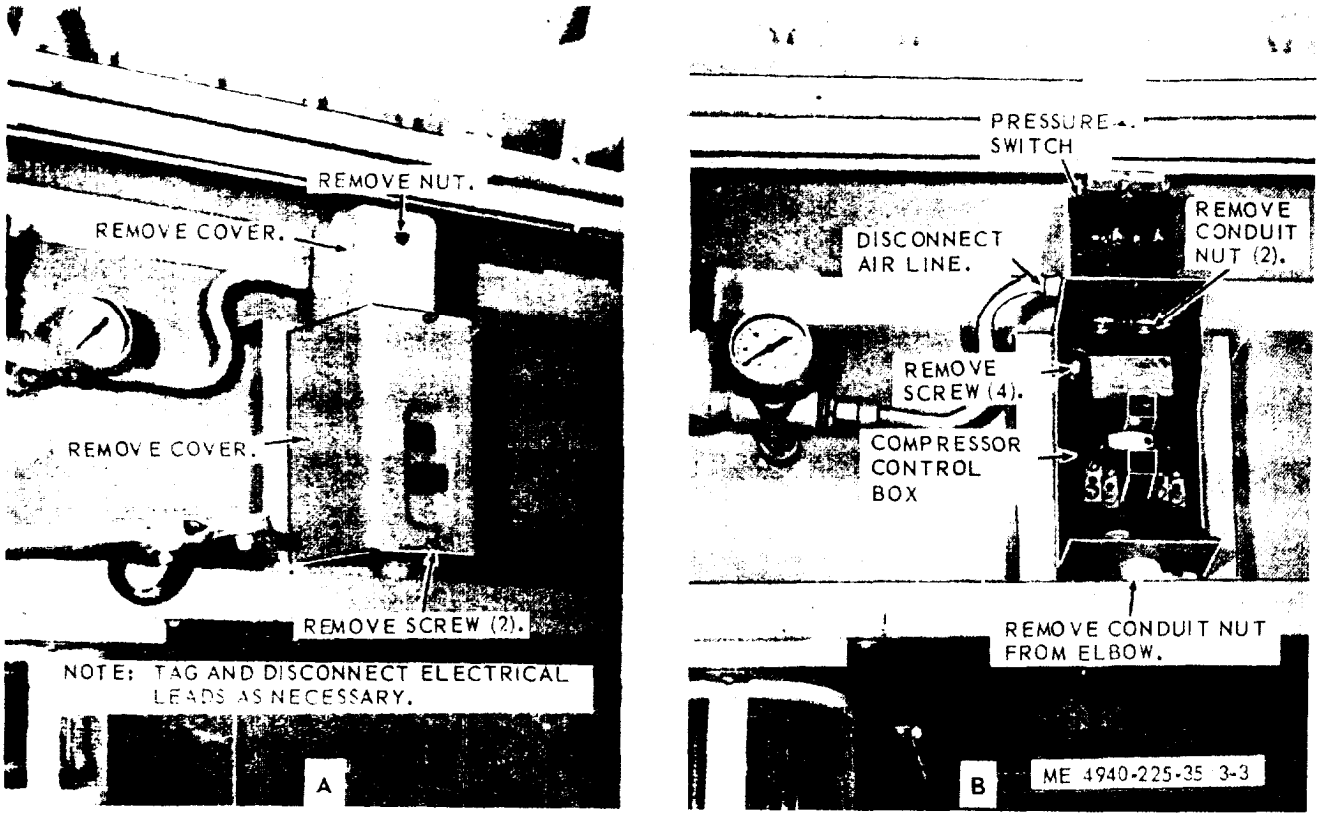


Figure 3-3. Air compressor pressure and starter control box, removal and installation.

3-4. Air Compressor Starter Control Box

a. Removal.

(1) Remove pressure switch (para 3-3).

(2) Tag and disconnect electrical leads (fig. 3-3).

(3) Remove conduit nut from elbow.

(4) Remove four screws and remove starter control box from bracket.

b. Installation. Install in reverse order of *a* above.

Section II. DYNAMOTOR-WELDER

3-5. General

On-equipment electrical test procedures (para 3-9) determine the necessity and extent of electrical repair of the dynamotor-welder. When making on-equipment tests, refer to the practical wiring diagram in figure 1 and figure 2. Note that the direct current welder generator, commutator, and brushes are located at the non-drive end of the dynamotor-welder. The exciter, its commutator and brushes, and the alternator, with its sliprings and brushes, are located at the drive end.

Warning: **Before performing any maintenance procedures on the electrical system, see that all external power is disconnected from the shop set and stop the truck engine.**

3-6. Overspeed Linkage (Model SEORL Only)

a. *General.* The truck engine provides mechanical power for driving the dynamotor-welder, and the operating speed is 1000 or 1200 rpm to furnish 50 or 60 cycle alternating current. The overspeed linkage which prevents engine overspeed after the power take-off lever is engaged, is accessible by removing the truck cab center floorboard.

b. Removal. Refer to figure *3-4* and remove overspeed linkage.

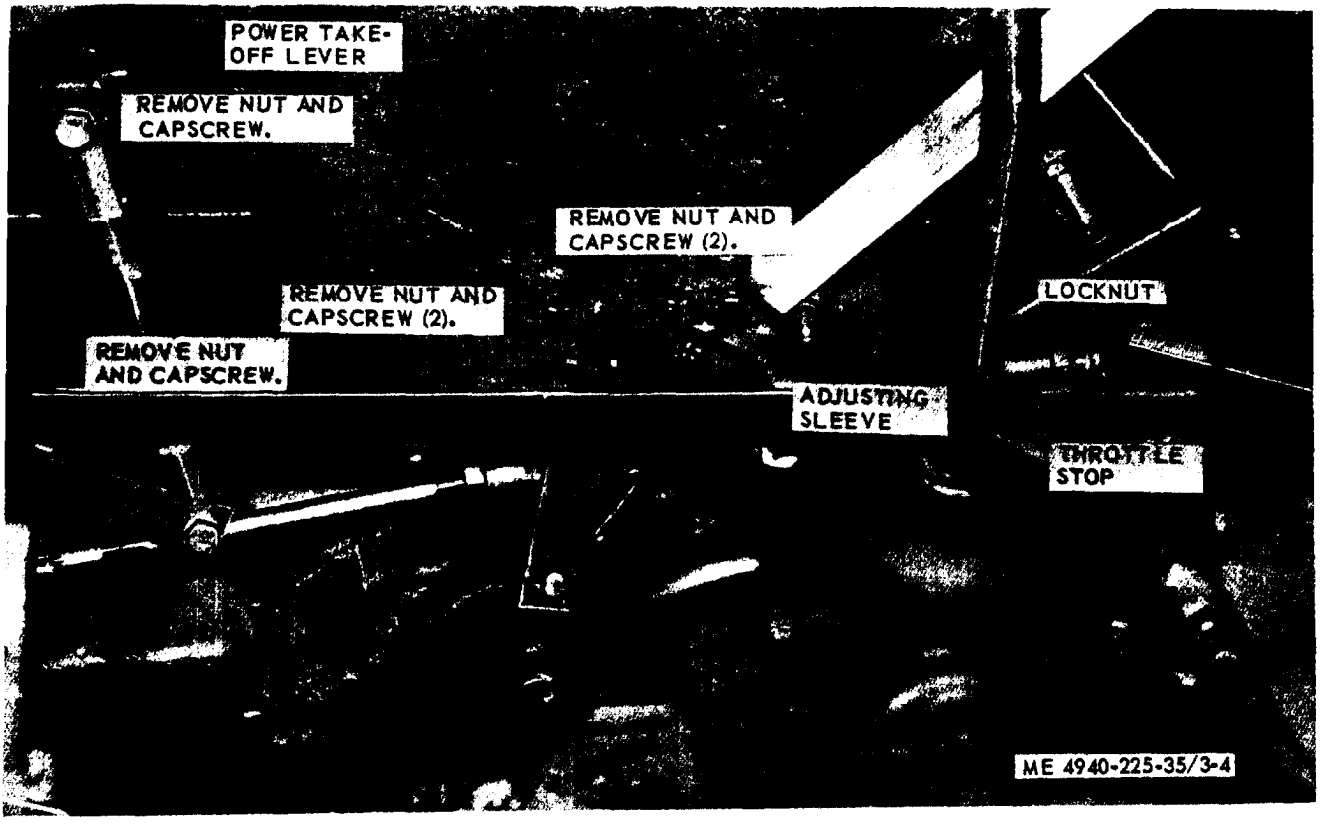


Figure 3-4. Overspeed linkage. removal and installation. (Model SEORL Only/

c. Adjustment.

(1) Start engine and engage power take-off (TM 5-4940-225-121.

(2) With transmission in fifth gear position. slowly depress accelerator until accelerator linkage makes contact with throttle stop.

(3) At full throttle tachometer reading should he 1200 rpm for 60 cycle and 1000 rpm for 50 cycle electricity y.

(4) To adjust engine speed, loosen locknut and turn throttle stop in or out of adjusting sleeve. Turn throttle stop clockwise to increase speed and counterclockwise to decrease speed.

(5) After proper engine speed is obtained, tighten locknut against adjusting sleeve.

Note. If further adjustment is required. loosen the locknuts on both ends of the adjusting sleeve and change position of the sleeve as required.

d. Installation. Install in reverse order of *b* above.

3-7. Overspeed Safety Switch (Model SEORLT Only)

a. On-Equipment Testing.

(1) Tag and disconnect all electrical leads at the resistor and the solenoid coil lead at the terminal strip.

12) Use a multimeter and test the resistor for smooth increments in resistance from 0 to 1,000 ohms. Replace a defective resistor.

(3) Use a multimeter to measure the resistance of the 300 ohm coil. If the variance is greater than plus or minus 2 percent, replace the coil.

(4) Connect a multimeter to circuits 115 and 116: continuity should not be indicated. Activate the overspeed switch by hand: if continuity is not indicated, replace the microswitch.

(5) Connect previously tagged leads as necessary.

b. Adjustment. Refer to figure 3-5 and adjust the overspeed safety switch assembly.

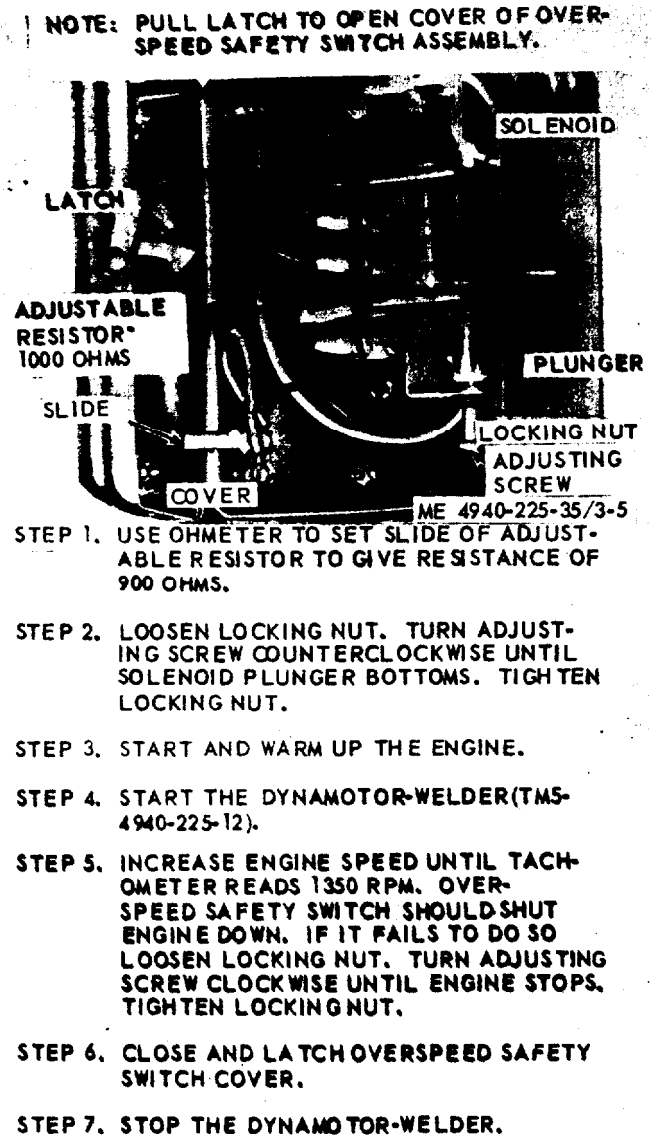


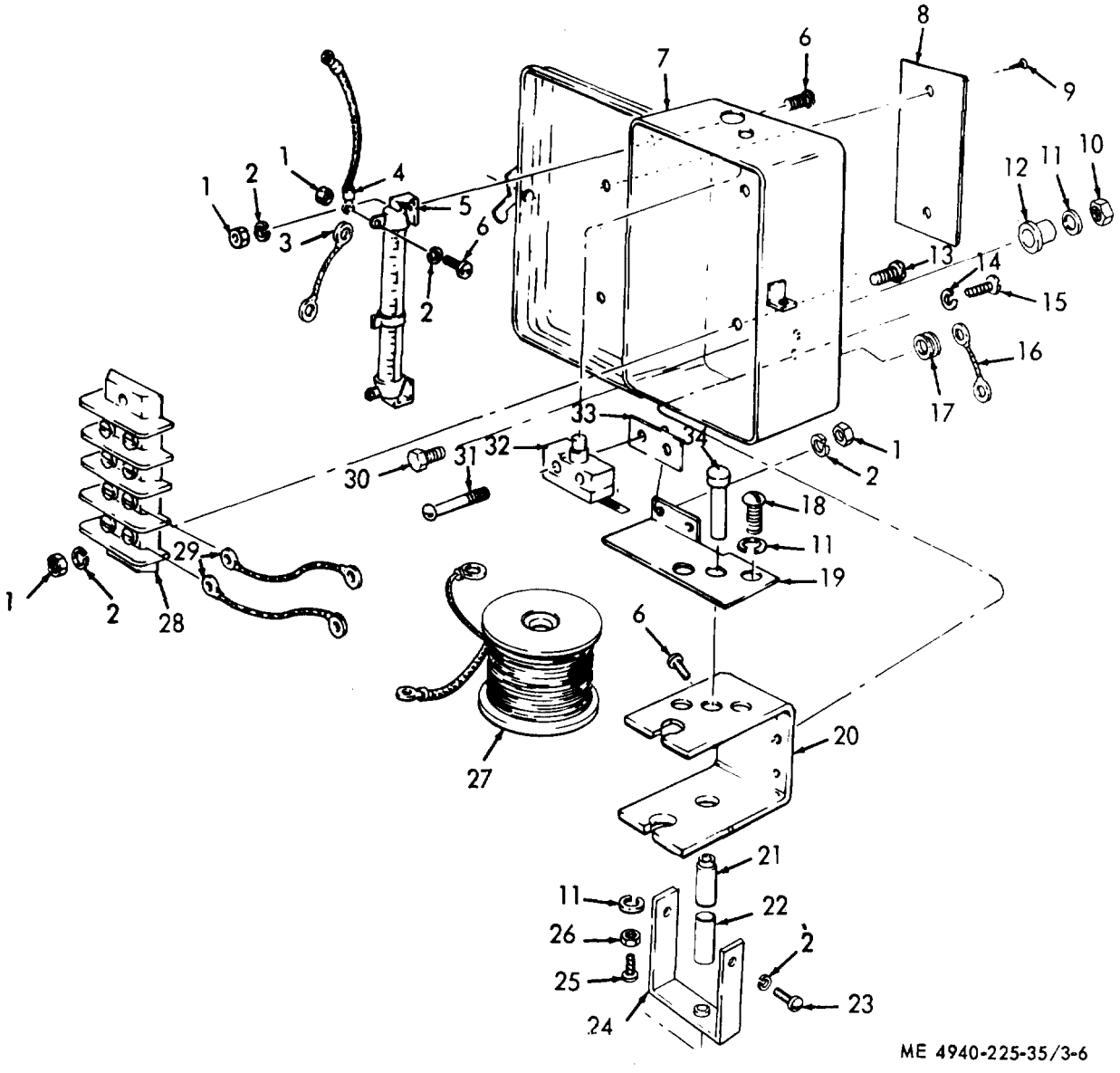
Figure 3-5. Overspeed safety switch, Adjustment.

c. Removal.

(1) Tag and disconnect the electrical leads.

(2) Remove attaching hardware and remove the switch and box.

d. Disassembly. Refer to figure 3-6 and disassemble the overspeed safety switch assembly.



1 Nut
2 Washer
3 Lead
4 Lead
5 Resistor
6 Screw
7 Box, relay
8 Name plate
9 Screw
10 Nut
11 Washer
12 Spacer
13 Screw
14 Washer
15 Screw
16 Lead
17 Grommet
18 Screw
19 Bracket
20 Frame
21 Plunger
22 Stop
23 Screw
24 Core
25 Screw
26 Nut
27 Coil
28 Block
29 Lead
30 Screw
31 Sc.rew
32 Switch
33 Insulation
34 Pin

Figure 3-6. Ovwespeed safety switch. disassembly and reassembly.

e. Cleaning and Inspection.

(1) Clean all electrical components with a clean, dry brush.

(2) Clean all metal parts in an approved cleaning solvent and dry thoroughly.

(3) Inspect all parts for excessive wear. Check the coil for continuity. the solenoid for free movement and the microswitch for no continuity until switched by hand, then continuity should be indicated.

(1) Replace all defective parts.

f. Reassembly and Installation.

(1) Reassemble in reverse order of *d,* above.

(2) Install safety switch in reverse order of c, above.

(3) Adjust the switch after installation as in b above.

3-8. Governor (SEORLT Only)

a. *Removal.* Remove governor as illustrated in figure 3-7.

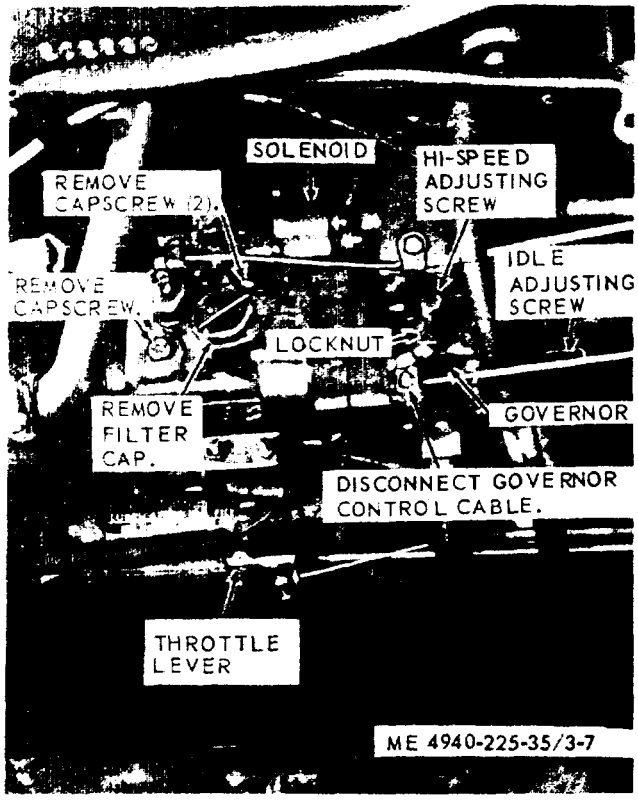


Figure 3-7. Governor, removal and installation.

b. Adjustment.

(1) Loosen locknut and turn Hi-speed adjusting screw counterclockwise all the way.

(2) Open throttle lever to a maximum position.

(3) Turn Hi-speed adjusting screw clockwise until rpm is reduced slightly. tighten locknut.

(4) Place throttle lever in idle position.

(5) Loosen locknut on idle adjusting screw.

(6) Turn idle adjusting screw clockwise until engine rpm increases, then back off one-half turn.

(7) Tighten locknut.

Note. For hydraulic test stand calibration adjust to 176 psi @ 340 on flow meter at 2100 rpm.

c. Installation. Install in reverse order of *a* above.

3-9. On-Equipment Electrical Tests

a. Alternating Current Stator.

(1) Tag and disconnect motor leads at terminal board 5CW5063 (fig. 2-2).

(2) Use a multimeter to te.
tween stator leads B and lB, 2B and 3B, A and 1A, 2A and 3A, C and 1C, 2C and 3C. If continuity is not indicated, the alternating current stator must be replaced.

(3) Use a multimeter to test insulation resistance between the dynamotor-welder frame and motor leads A and 2A, B and 2B, C and 2C. If any reading of the multimeter is less than 0.5 megohm, faulty insulation is indicated and the dynamotor-welder must be removed for further testing.

(4) Use a multimeter to test insulation resistance between stator lead 1B and leads 3B, C, 2C. A. 2A; between stator lead 3B and leads C, 2C, A, 2A; between stator lead C and leads 2C, A, 2A; between stator lead 2C and leads A, 2A; between stator leads A and 2A. A reading of less than 0.5 megohm indicates faulty insulation and the dynamotor-welder must be removed for further testing.

b. Revolving Fields.

(1) R sise the revolving field brushes from the sliprings.

(2) Use a multimeter to test resistance between the two sliprings. A resistance greater than 10 percent above or below 45 ohms indicates faulty winding and the rotor must be removed for further testing.

(3) Use a multimeter to test resistance between either slipring and the rotor shaft. A resistance reading of less than 0.5 megohm indicates faulty insulation and the rotor must be removed for further testing.

c. *Exciter Armature.*

(1) R sise the exciter brushes from the exciter armature.

(2) Use a multimeter to test insulation resistance between the rotor shaft and one of the exciter commutator bars; repeat this, using at least two other bars around the commutator. If any reading is less than 0.5 megohm, faulty insulation is indicated and the dynamotor-welder must be removed for further testing.

d. Exciter Field.

(1) Tag and disconnect exciter field leads at terminal hoard 5CW5063 (fig. 2-2).

(2) Raise the brushes from both sliprings and the exciter commutator.

(3) Use a multimeter to teat the resistance between exciter leads 104 and 105. If the resistance is greater than 10 percent above *or* below 65 ohms, the field winding is faulty and the field frame must be removed for further testing.

(4) Use a multimeter to test insulation resistance between the field and any one of the field leads. A resistance reading of less than 0.5 megohm indicates faulty insulation and the field frame must be removed for further testing.

e. *Shunt Field (Welder Generator).*

(1) Tag and disconnect shunt field lead, at terminal boards DW 4004 and DW 4005 (fig. 2-2).

(2) Use a multimeter to test resistance between leads 101 and 102. A resistance reading of more than 5 percent above 27.5 ohms indicates a faulty winding and the field frame must he removed for further testing.

(3) Use a multimeter to test insulation resistance between the field frame and any one of the field leads. A resistance reading of less than 0.5 megohm indicates faulty insulation and the field frame must be removed for further testing.

3-10. Dynamotor-Welder Work Table

a. Removal. Remove nut, lockwasher and nut (7) (fig. 2-2), that secures work table to lathe table and van body.

b. Installation. Install in reverse *order* of a above.

3-11. Drive Belts and Shock Absorber

a. Removal

(1) Remove four screws from the milling and grinding attachment base and remove cover base (TM 5-4940-225-12).

(2) Remove the two nuts that secure the shock absorber (fig. 2-2) and remove the shock absorber.

(3) Loosen locknut (fig. 2-2) and turn adjusting screw counterclockwise while holding spring seat in position, and lower the welder.

(4) Remove drive belts from welder and power take-off sheaves as shown in figure 3-8.

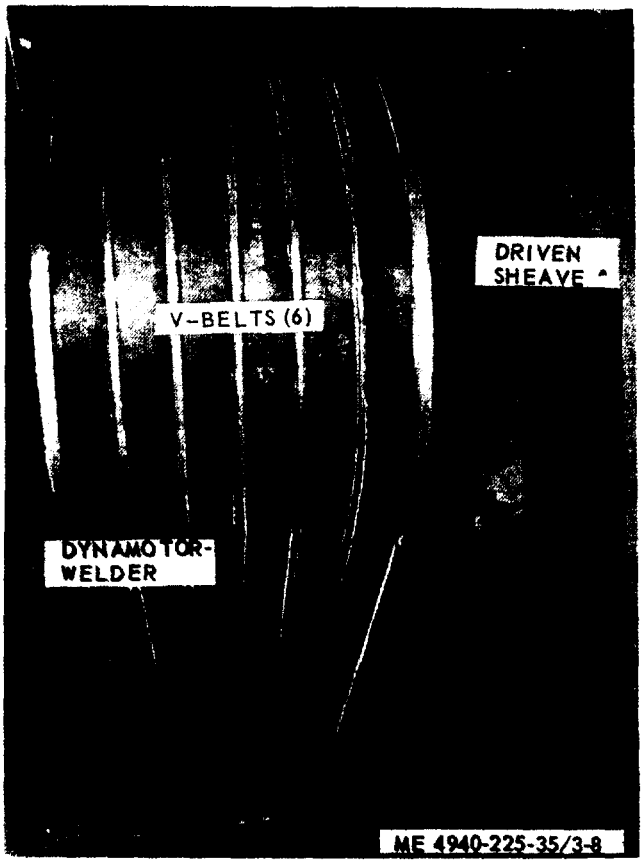


Figure 3-8. Drive belts, removal and installation.

b. Installation. Install in reverse order of a above.

c. Adjustmemt.

(1) Loosen locknut (fig. 2-2).

(2) Hold spring seat in position and turn adjusting screw clockwise to raise welder.

(3) Proper belt adjustment is 1 inch deflection midway between sheaves.

(4) Tighten locknut.

3-12. Drive Sheave

a. Removal. Remove drive sheave as illustrated in figure 3-9.

b. Alignment. Use a straight edge to align driven sheave with drive sheave.

c. Installation. Install drive sheave as illustrated in figure 3-9.

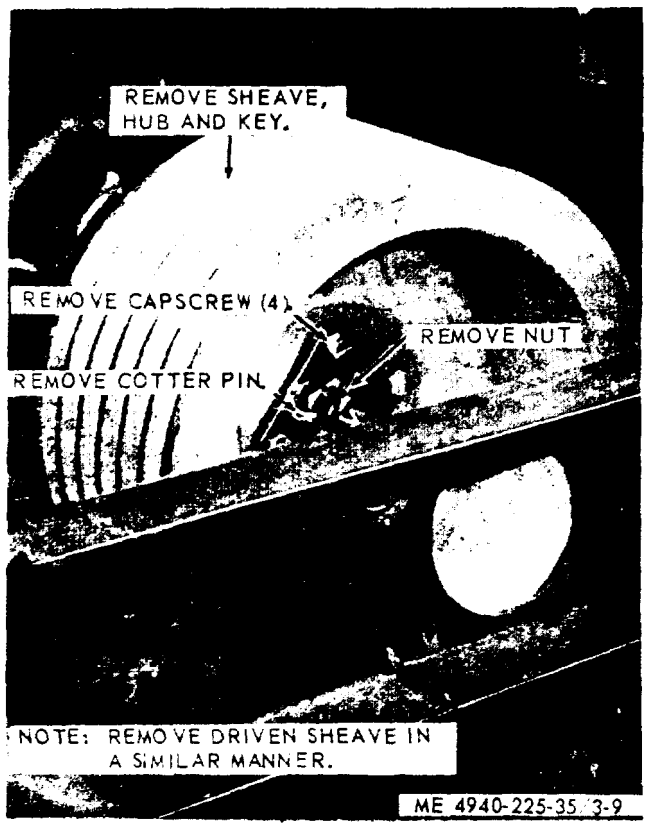


Figure 3-9. Drive sheave, removal and installation.

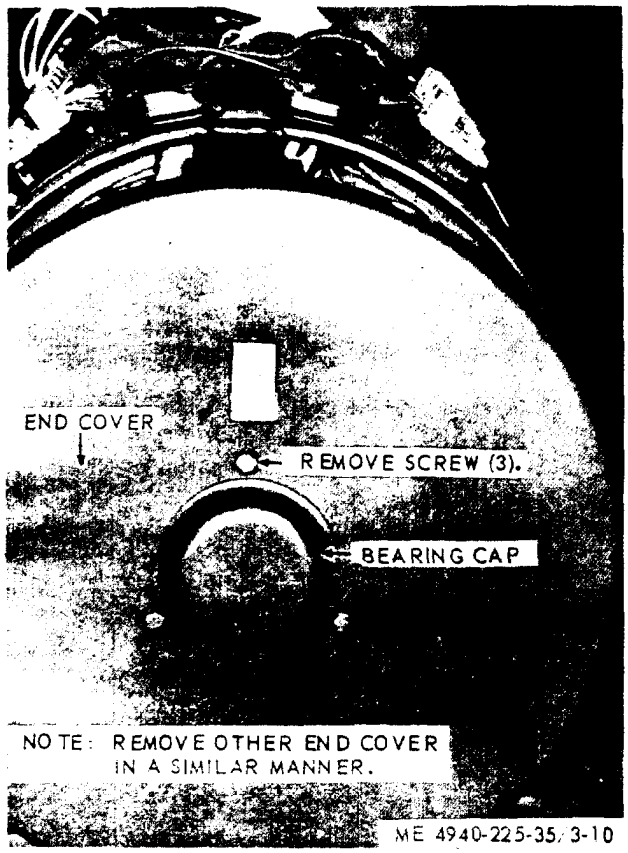


Figure 3-10. End cover and bearing cap, removal and installation.

3-13. End Cover and Bearing Cap

a. Removal.

(1) Remove dynamotor-welder end wrappers (TM 5-4940-225-12).

(2) Remove end cover and bearing cap as illustrated in figure 3-10.

b. Installation.

(1) Install the end cover and bearing cap as illustrated in figure 3-10.

(2) Install dynamotor-welder end wrappers (TM 5-4940-225-12).

3-14. Armature and Bearings

a. Removal.

(1) Remove dynamotor-welder brushes (TM 5-4940-225-12).

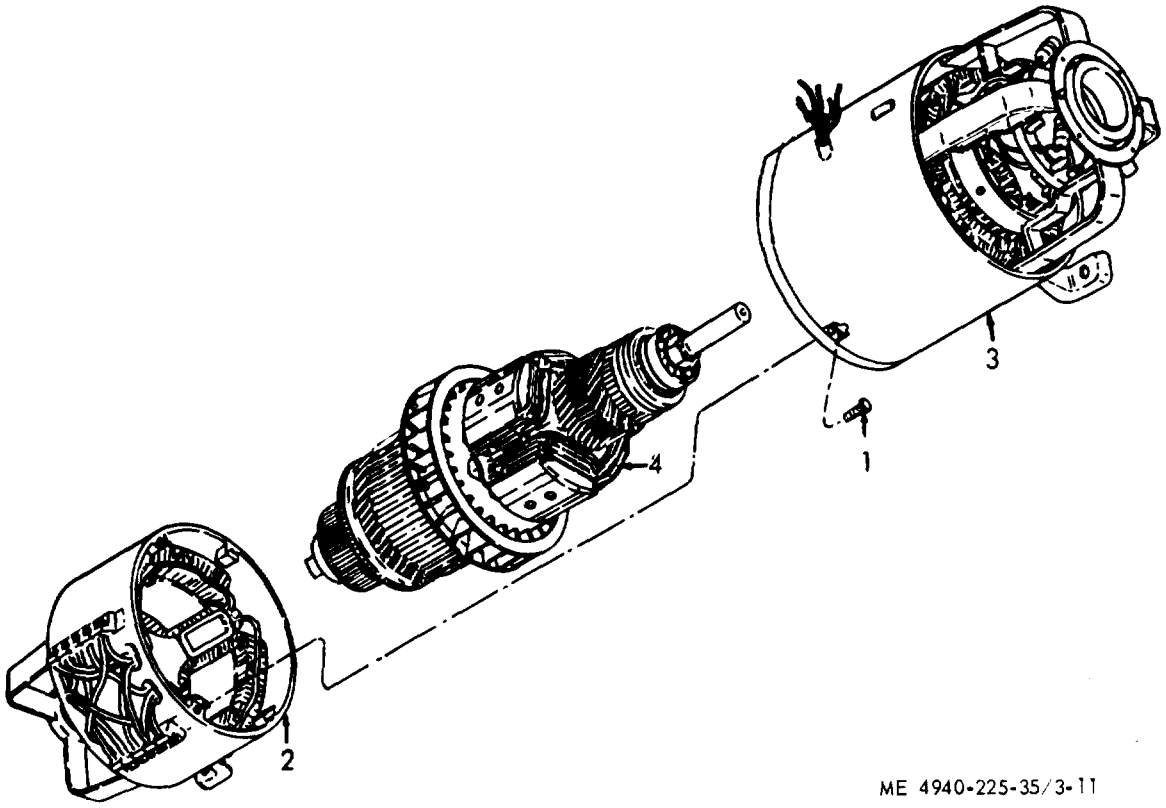
(2) Remove the armature as illustrated in figure 3-11.

b. Testing.

(1) Test the windings of the exciter and direct current welder portions of the armature for in-

sulation resistance, open circuits, and short circuits, as directed in TM 5-764. Resistance between any two commutator bars of either exciter or welder portion should be 0.25 ohm.

(2) Tag and disconnect the wiring leads from the armature sliprings and test the windings of the alternator portion of the armature for insulation resistance of 10 ohms, plus or minus 10 percent, open circuits, and short circuits, as directed in TM 5-764.

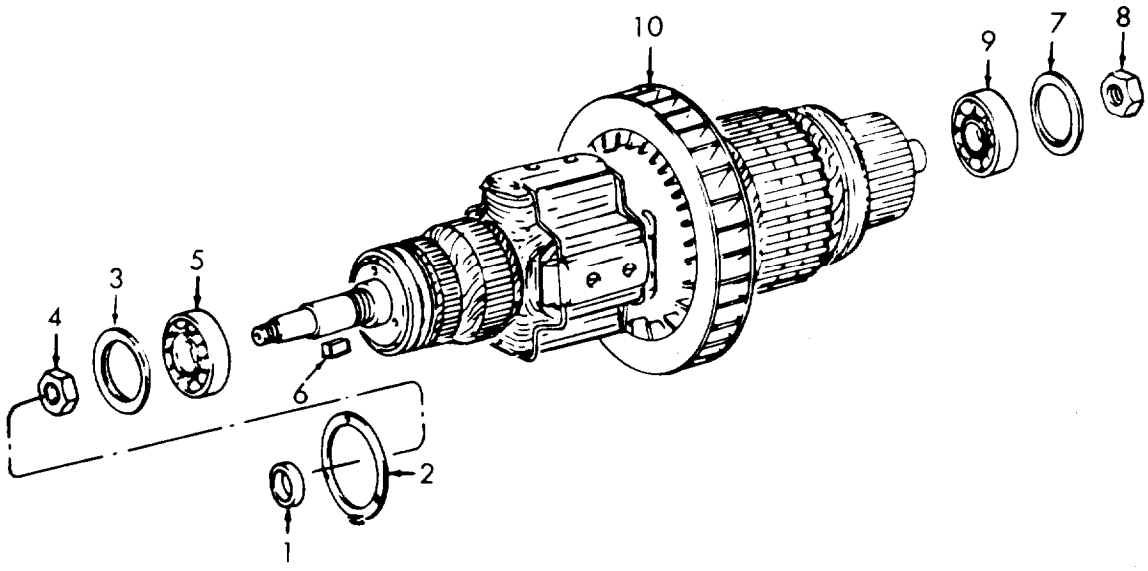


1 Screw
2 Motor housing
3 Motor housing
4 Armature

Figure 3-11. Dynamotor armature, removal and installation.

c. Disassembly. Refer to figure 3-12 and disassemble armature in numerical sequence.

d. Reassembly. Refer to figure 3-12 and reassemble armature in reverse numerical sequence and manner. Before reassembly, clean and repack bearings with grease. automotive and artillery (Military Symbol GAA).



ME 4940-225-35/3-12

1 Washer
2 Gasket
3 Gasket
4 Nut
5 Bearing
6 Key
7 Gasket
8 Nut
9 Bearing
10 Armature

Figure 3-12. Dynamotor-welder armature, disassembly and reassembly.

3-15. Field Coils, Pole Shoes, Brush Holders, and Mounting Rings

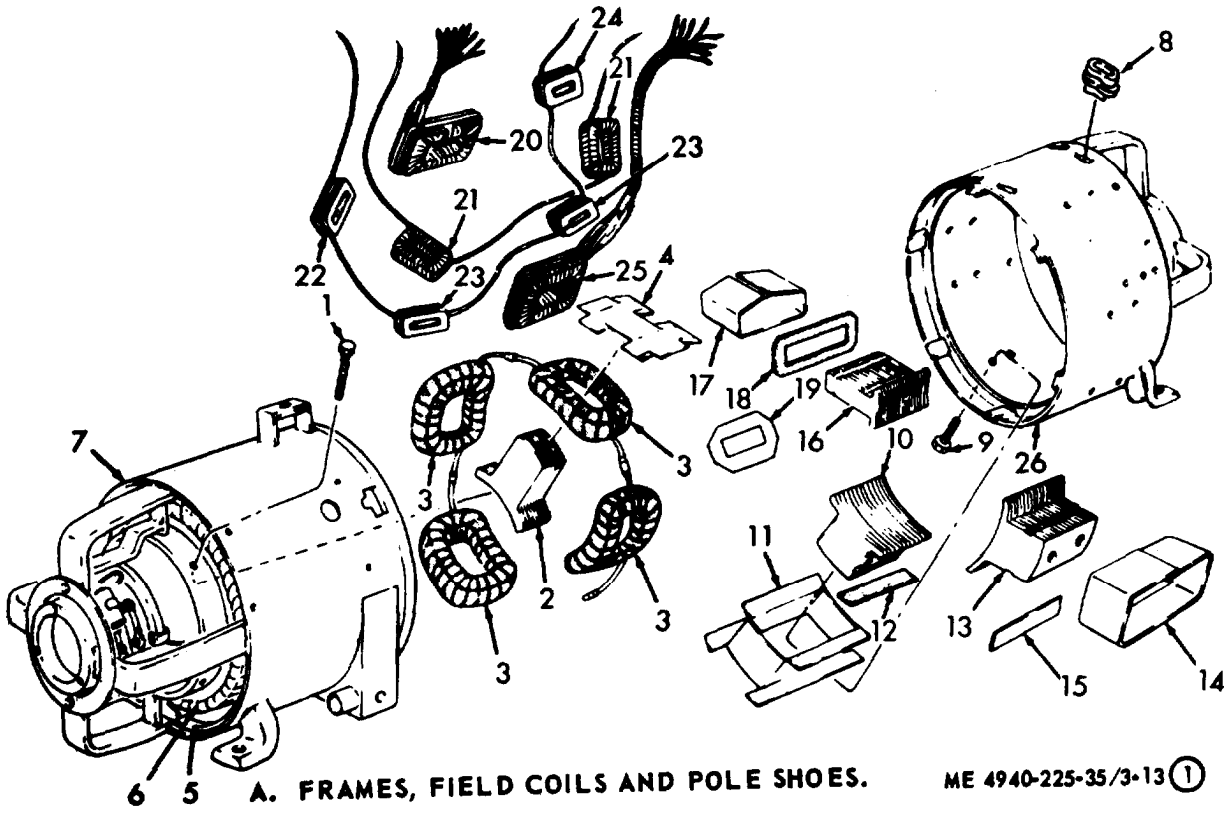
a. Testing, Test the exciter field coils, alternator and direct current field and interpole coils as directed in TM 5-764.

b. Removal and Installation, Disassembly and Reassembly.

(1) Refer to paragraph 3-14 for removal and installation of the dynamotor-welder armature.

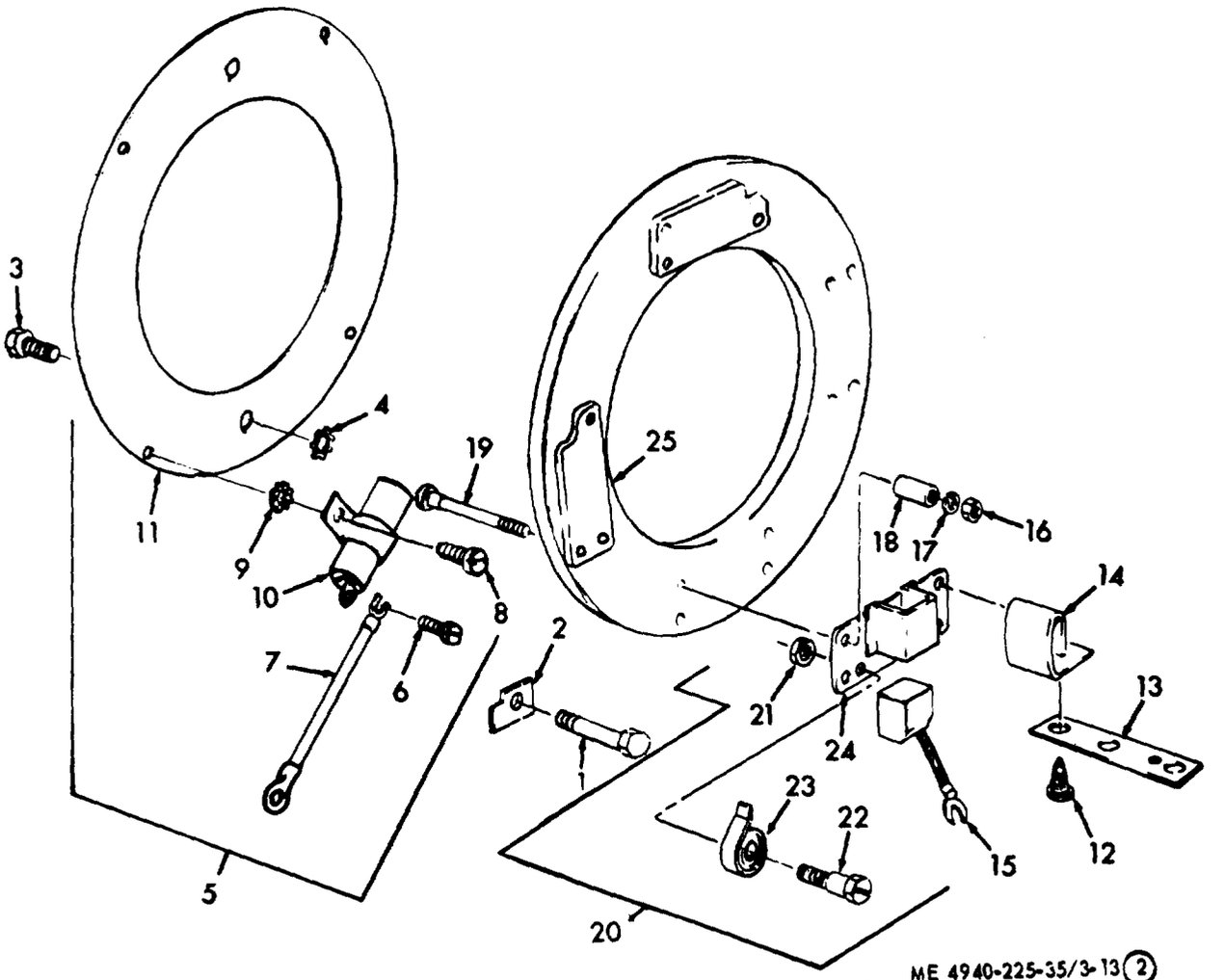
(2) Refer to figure 3-13 and disassemble dynam[otor~wel(der frames, field coils, pole shoes, brush holders. and mounting rings in numerical sequence.

(3) Refer to figure 3-13 and reassemble dynamotor-welder frames, field coils, pole shoes, brush holders, and mounting rings in reverse numerical sequence and manner.



1 Screw
2 Pole piece
3 Winding
4 Isulator
5 Core
6 Winding
7 Housing, motor
8 Grommet
9 Screw
10 Pole piece
11 Insulation
12 Insulation
13 Pole piece
14 Wrapper
15 Insulation
16 Pole piece
17 Insulator
18 Collar
19 Collar
20 Compound
21 Winding
22 Coil, top
23 Coil, right
24 Coil, left
25 Compound
26 Housing, generator

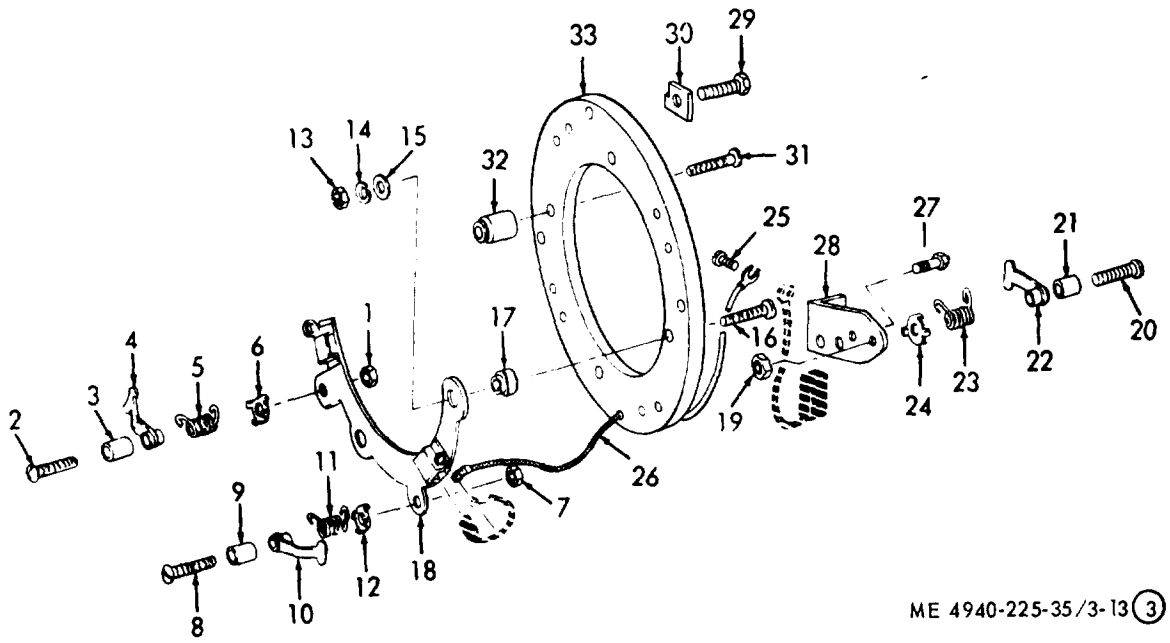
Figure 3-13, Dynamotor-welder frames, field coils, pole shoes, brush holders, and mounting rings, removal and installation, disassembly and reassembly (sheet 1 of 3).



B. DIRECT CURRENT BRUSH HOLDERS AND MOUNTING RING.

1 Screw
2 Clamp
3 Screw
4 Washer
5 Shield assembly
6 Screw
7 Lead
8 Screw
9 Washer
10 Capacitor
11 Ring
12 Screw
13 Bus bar
14 Spacer
15 Brush
16 Nut
17 Washer
18 Spacer
19 Bolt
20 Plate assembly
21 Nut
22 Adapter
23 Spring
24 Plate
25 Ring mounting

Figure 3-13. Dynamotor-welder frames, field coils, pole shoes, brush holders, and mounting rings, removal and installation, disassembly and reassembly (sheet 2 of 3).



C. EXCITER COMMUTATOR AND ALTERNATOR SLIPRING BRUSH HOLDERS AND MOUNTING RING.

1 Nut
2 Screw
3 Bushing
4 Arm
5 Spring
6 Washer
7 Nut
8 Screw
9 Bushing
10 Arm
II Spring
12 Washer
13 Nut
14 Washer
15 Washer
16 Screw
17 Spacer (shorn
18 Holder
19 Nut
20 Screw
21 Bushing
23 Arm
23 Spring
24 Washer
2.5 Screw
26 I.ead
27 Screw
28 Holder
29 Screw
30 Clamp
31 Screw
32 Spacer (long)
33 Ring

Figure 3-13, L)yrramotor-welder frames, field coils, pole shoes, brush holders. and mounting rings. removal and installation, disassembly and reassembly (sheet 3 of 3).

3-16. Rotary Switch (10-Range)

a. Removal.

(1) Remove four screws (fig. 2-3) and remove welder control panel.

(2) Tag and disconnect electrical leads as necessary.

(3) Remove four screws and lockwashers and remove rotary switch.

b. Disassembly. Refer to figure 3-14 and disassemble rotary switch.

c. Reassembly. Refer to figure 3-14 and reassemble rotary switch.

d. Installation. Install in reverse order of *a* above.

KEY to figure 3-14.
1 Rheostat assembly
2 Setscrew
3 Handle
4 Screw
5 Dial
6 Case
7 Screw
8 Washer
9 Spring
10 Screw
11 Receptacle
12 Rheostat
13 Screw
14 Switch assembly
15 Screw
16 Hand wheel
17 Screw
18 Washer
19 Bracket
20 Screw
21 Dial assembly
22 Screw
23 Washer
24 Washer
25 Disc
26 Bushing
27 Contact
28 Insulator
29 Ring
30 Nut
31 Screw
32 Link
33 Spring
34 Nut
35 Washer
36 Screw
37 Plug
38 Screw
39 Washer
40 Bracket
41 Screw
42 Washer
43 Screw
44 Washer
45 Clip
46 Housing
47 Ring
48 Pigtail
49 Finger
50 Ring

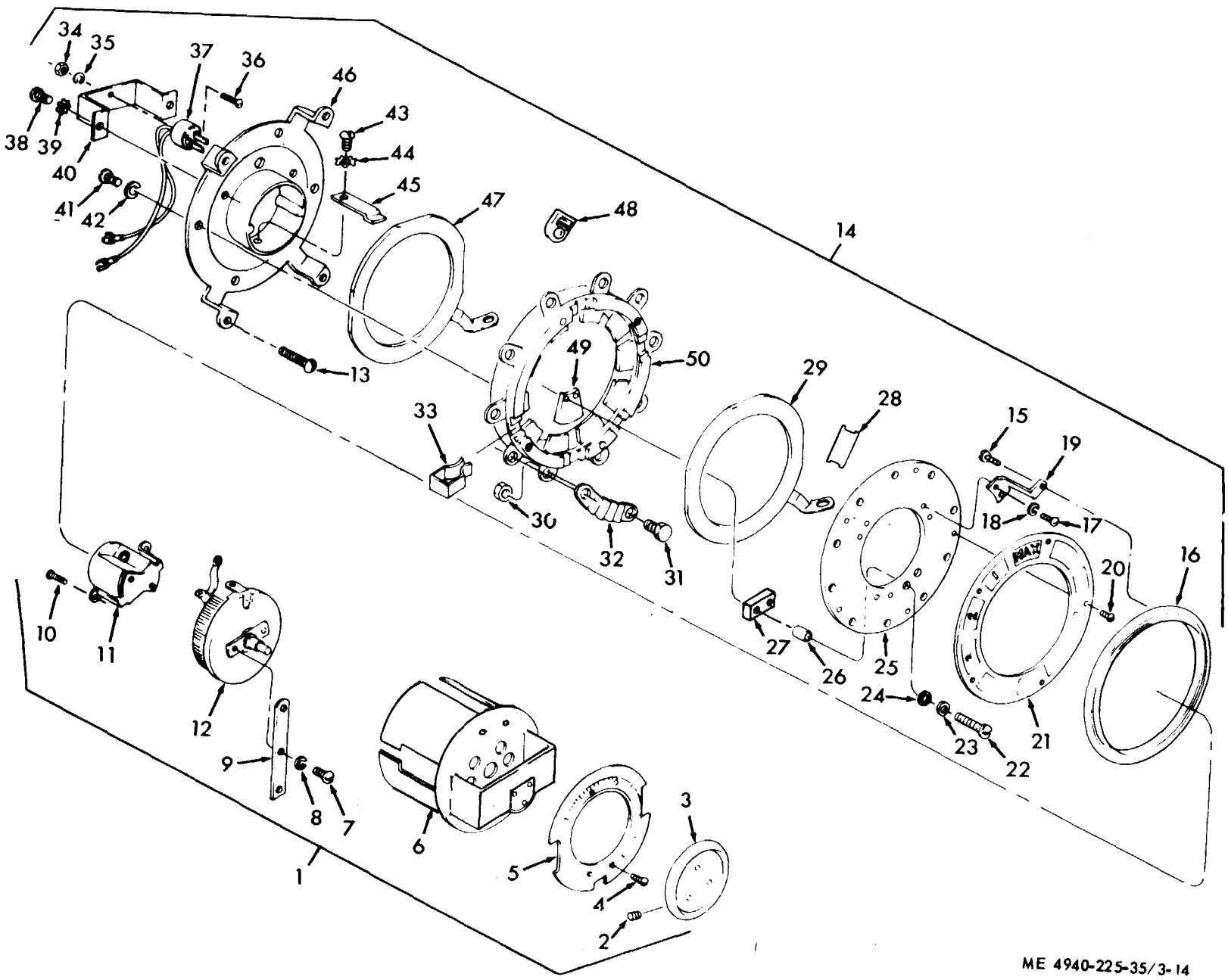


Figure 3-14. Rotary switch (10-Range), disassembly and reassembly.

3-17. Generator Output Contactor

a. Removal. Remove generator output contactor as illustrated in figure 3-15.

b. Disassembly. Refer to figure 3-16 and disassemble generator output contactor.

c. *Reassembly,* Refer to figure 3-16 and reassemble generator output contactor.

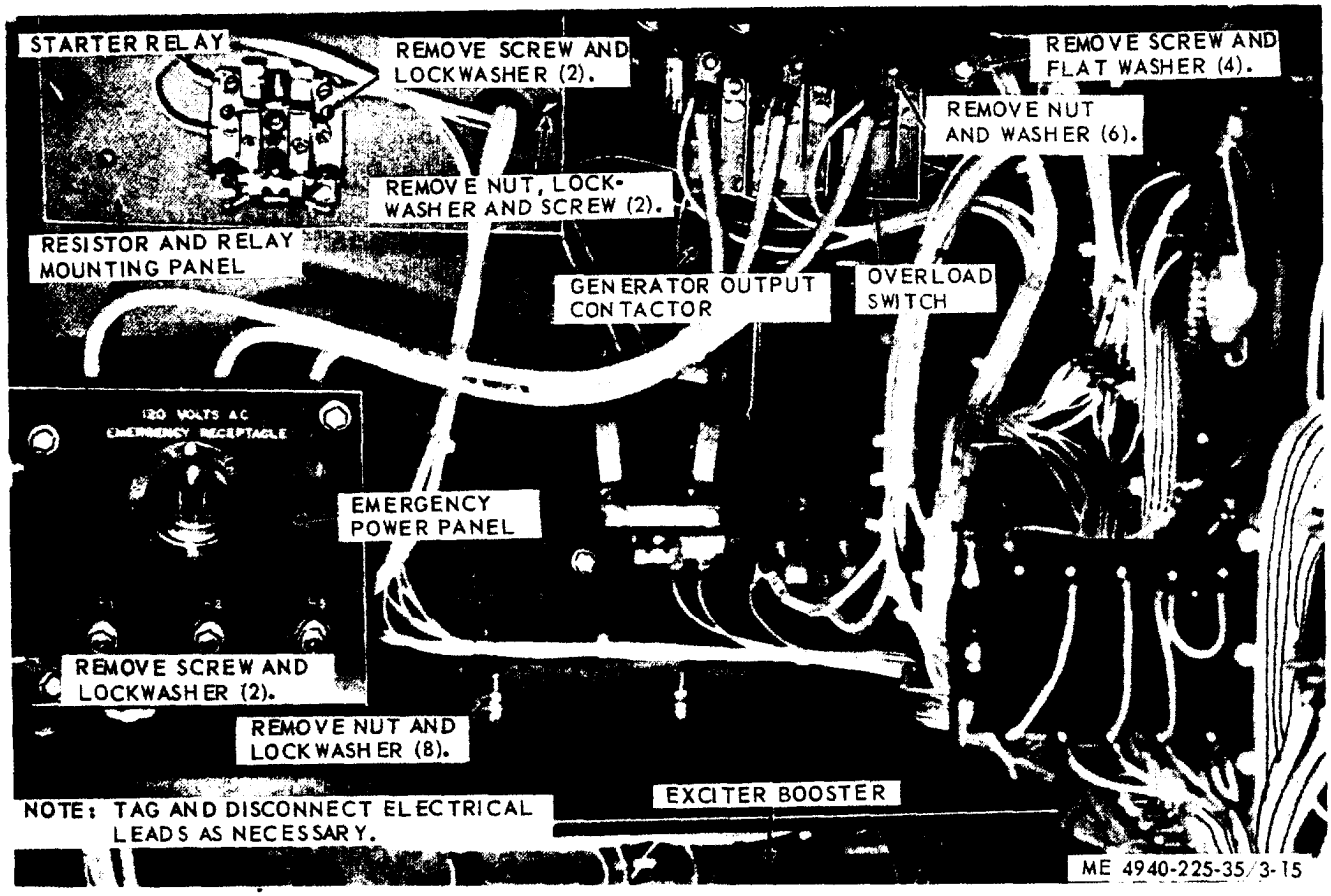


Figure 3-15. Cubicle control components, removal and installation.

d. Installation. Install the generator output contactor as illustrated in figure 3-15.

KEY to Figure 3-16.

1 Screw
2 Washer
3 Screw
4 Washer
5 Washer
6 Spacer
7 Shield assembly
8 Shield
9 Shield
10 Screw
11 Holder
12 Holder
13 Screw
14 Support
15 Nut
16 Washer
17 Washer
18 Screw
19 Screw
20 Washer
21 Washer
22 Contact
23 Shaft
24 Nut
2.5 Washer
26 Washer
27 Screw
28 Contact
29 Screw
30 Link
31 Screw
32 Washer
33 Bar
34 Spacer
35 Bracket
36 Yoke
37 Coil
38 Spacer
39 Nut
40 Washer
41 Washer
42 Screw
43 Yoke
44 Not
4.3 Washer
46 Washer
47 Washer
48 Screw
49 Contact auxiliary
50 Screw
51 Washer
52 Nut
.53 Washer
.54 Washer
5.5 Screw
56 Washer
.57 Washer
.58 Contact assembly
59 Screw
60 Washer
61 Finger
62 Mount
63 Nut
64 Washer
65 Washer
66) Rod
67 Screw
68 Baffle
69 Panel

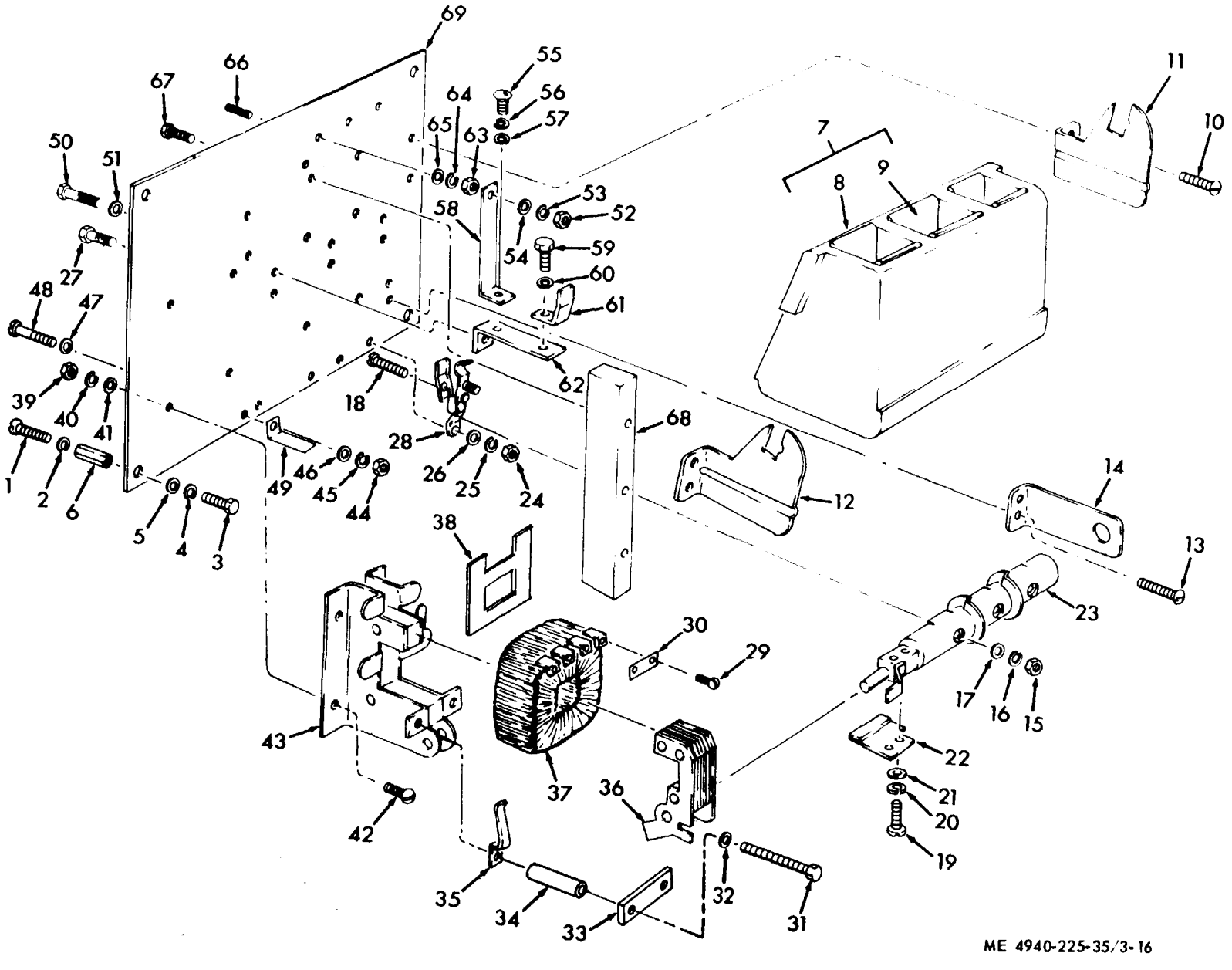


Figure 3-16. Generator output contactor, disassembly and reassembly.

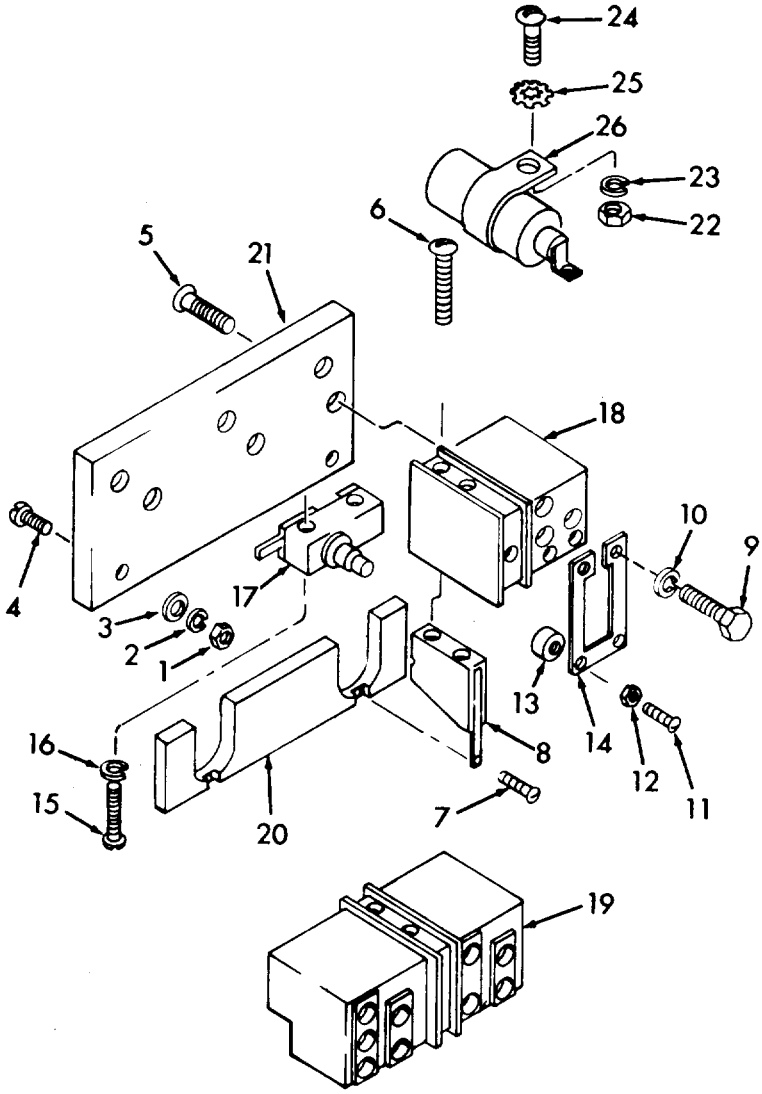
3-18. Overload Switch

a. Removal. Remove overload switch as illustrated in figure 3-15.

b. Disassembly. Refer to figure 3-17 and disassemble the overload switch.

c. Reassembly. Refer to figure 3-17 and reassemble the overload switch.

d. Installation. Install the overload switch as illustrated in figure 3-15.



1 Nut
2 Washer
3 Washer
4 Screw
5 Screw
6 Screw
7 Screw
8 Contact, movable
9 Screw
10 Washer
11 Screw
12 Nut
13 Nut
14 Element
15 Screw
16 Washer
17 Switch
18 Block
19 Block
20 Mount
21 Base
22 Nut
23 Washer
24 Screw
25 Washer
26 Capacitor

Figure 3-17. Overload switch, disassembly and reassembly.

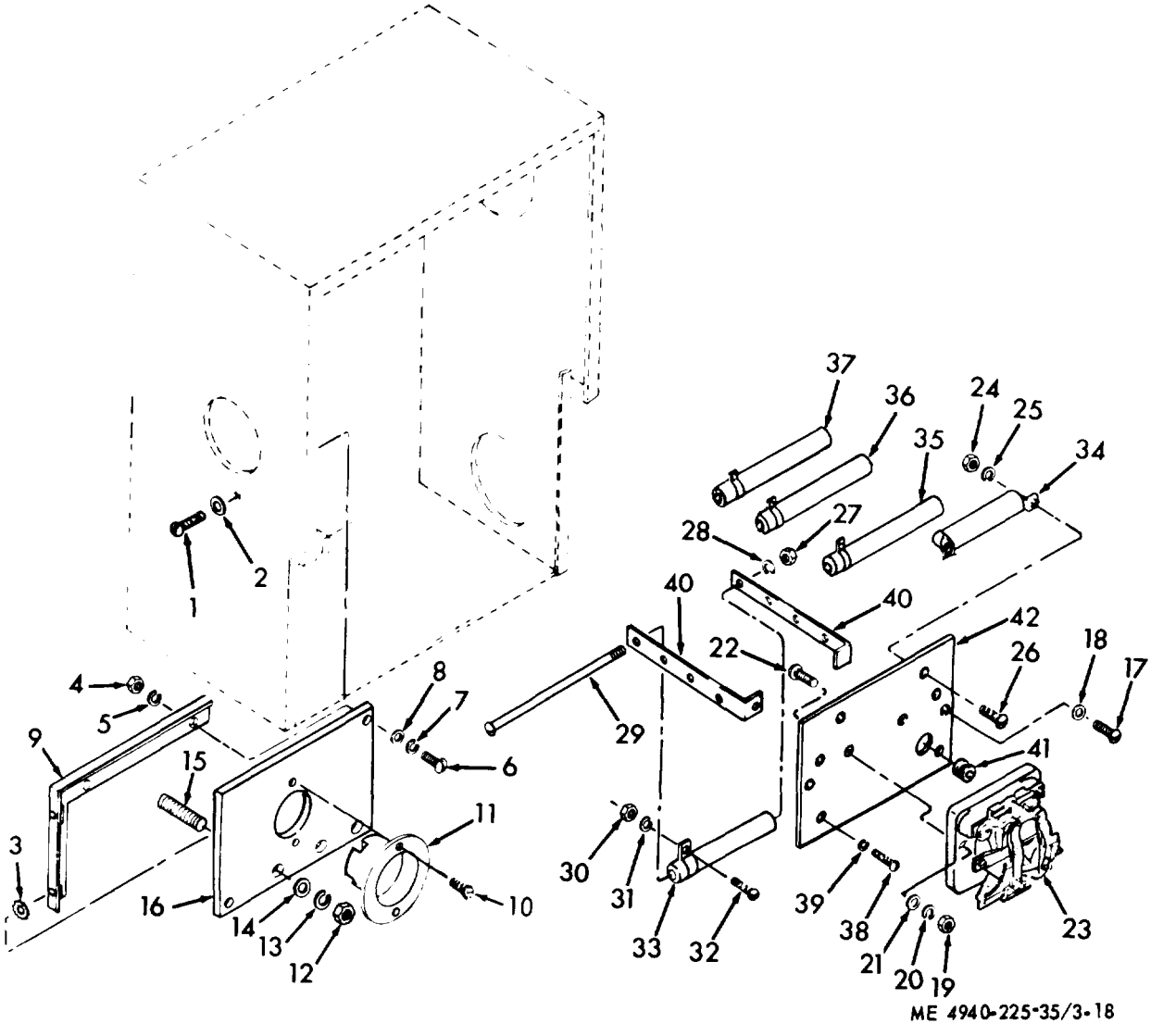
3-19. Resistor and Relay Mounting Panel, and Emergency Power Panel

a. Removal. Remove resistor and relay mounting panel and emergency power panel as illustrated in figure 3-15.

b. Disassembly. Disassemble the resistor and relay mounting panel and emergency power panel as illustrated in figure 3-18.

c. Reassembly. Reassemble the resistor and relay mounting panel and emergency power panel as illustrated in figure 3-18.

d. Installation. Install the resistor and relay mounting panel and emergency power panel as illustrated in figure 3-15.



1 Screw
2 Washer
3 Washer
4 Nut
5 Washer
6 Screw
7 Washer
8 Washer
9 Bracket
10 Screw
11 Receptacle
12 Nut
13 Washer
14 Washer
15 Stud
16 Panel
17 Screw
18 Washer
19 Nut
20 Washer
21 Washer
22 Screw
23 Relay
24 Nut
25 Washer
26 Screw
27 Nut
28 Washer
29 Screw
30 Nut
31 Washer
32 Screw
33 Resistor
34 Resistor
35 Resistor
36 Resistor
37 Resistor
38 Screw
39 Washer
40 Bracket
41 Grommet
42 Plate

Figure 3-18. Resistor and relay mounting panel, and emergency power panel disassembly and reassembly

3-20. Exciter Booster

a. Removal. Remove exciter booster as illustrated in figure 3-15.

b. Installation. Install the exciter booster as illustrated in figure 3-15.

3-21. Power Selector Switch

a. On-Equipment Test.

(1) Tag and disconnect all leads and jumper wires from the power selector switch.

(2) Use a multimeter and test for continuity as outlined in (3) thru (5) below. If continuity is not as indicated, replace the power selector switch.

(3) Turn the power selector switch to the **"GENERATOR"** position. Continuity should be indicated between terminals 1 and 4, 5 and 8, 9 and 12,13 and 16, 17 and 20, and 21 and 24.

(4) Turn the power selector switch to the **"CITY"** position. Continuity should be indicated between terminals 1 and 3, 5 and 7, 9 and 11, 13 and 15, 17 and 19, and 21 and 23.

(5) Turn the power selector switch to the **"EMERGENCY"** position. Continuity should be indicated between terminals 1 and 2, 5 and 6, 9 and 10, 13 and 14, 17 and 18, and 21 and 22.

b. Removal and Installation. Refer to figure 3-19 for removal and installation of the power switch.

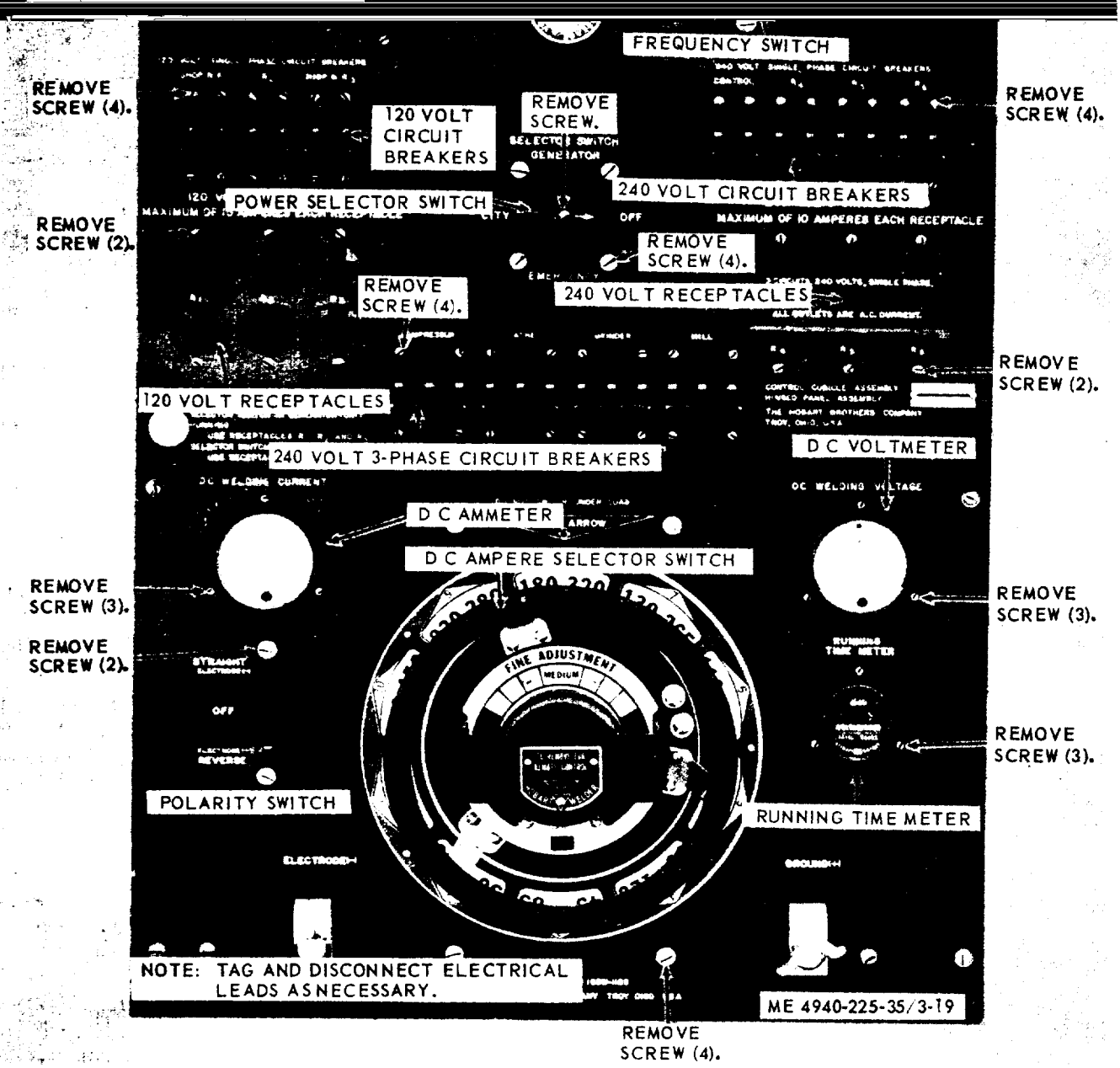


Figure 3-19. Dynamotor-welder control panel.

3-22. Wiring (control cubicle)

a. General. When disconnecting wires for maintenance. testing, repair, or replacement, always tag each wire or terminal for ready identification. The control cubicle wiring can be systematically checked out by reference to the wiring diagrams (fig. 1-1 and 1-2).

Warning: Before performing any maintenance procedures on the electrical system, see that all external power is discon-

netted from the shop set and stop the truck engine.

b. Testing. Disconnect both ends of the wire under test. Touch the probes of a multimeter to each end of the wire. If the multimeter reading indicates an open circuit, replace the wire. Always use wire of at least equal size.

3-23. A. C. Voltmeter

a. Removal. Remove the A. C. voltmeter as illustrated in figure 3-19.

b. Cleaning and Inspection.

(1) Clean the A. C. voltmeter with a clean, lint-free cloth.

(2) Inspect for broken glass, loose terminals, and other damage.

(3) Replace a defective A. C. voltmeter.

c. Installation. Install the A. C. voltmeter as illustrated in figure 3-19.

3-24. Dynamotor Switch

a. On-Equipment Testing.

(1) Tag and disconnect the leads from the switch.

(2) With the *start* button depressed, use a low-voltage test lamp circuit to test between the switch terminals. Continuity should be indicated between the top two terminals only.

(3) Press the *stop* button. Continuity should not be indicated between the bottom terminals only.

(4) Replace a defective switch.

b. Removal. Remove the dynamotor switch as illustrated in figure 3-19.

c. *Cleaning and Inspection.*

(1) Clean with a clean, dry, lint-free cloth.

(2) Inspect for cracks, and defects, and replace a defective switch.

d. Installation. Install the dynamotor switch as illustrated in figure 3-19.

3-25. D. C. Ampere Adjusting Rheostat

a. Removal. Remove the D. C. ampere adjusting rheostat as illustrated in figure 3-19.

b. Cleaning and Inspection.

(1) Clean with a clean, dry, lint-free cloth.

(2) Inspect for broken insulation, burnt wiring, and defects and loose terminals. Replace a defective rheostat. Test with a multimeter; graduated continuity should be indicated.

c. *Installation.* Install the D. C. ampere adjusting rheostat as illustrated in figure 3-19.

3-26. Frequency Meter

a. Removal Remove the frequency meter as illustrated in figure 3-19.

b. Cleaning and Inspection.

(1) Clean the frequency meter with a clean, lint-free cloth.

(2) Inspect for damage and for loose terminals. Replace a defective frequency meter.

c. Installation. Install the frequency meter as illustrated in figure 3-19.

3-27. Frequency Switch

a. On-Equipment Testing.

(1) Tag and disconnect electrical leads from the frequency switch.

(2) Place switch in the 50-cycle position.

(3) Use a low-voltage test lamp circuit or multimeter and test between the right upper terminal and its corresponding center terminal. Continuity should be indicated. Test between center and lower terminals. Continuity should not be indicated. Repeat this test on the upper left terminal.

(4) Place switch in the 60-cycle position and repeat the test in (3) above, testing between the bottom and center terminals for continuity.

b. Removal. Remove the frequency switch as illustrated in figure 3-19.

c. Cleaning and Inspection,

(1) Clean the switch with a clean, lint-free cloth.

(2) Inspect for defects and loose terminals and replace a defective frequency switch.

d. Installation. Install the frequency switch as illustrated in figure 3-19.

3-28. Circuit Breakers (120 and 240-volt)

a. *Removal.* Remove the circuit breakers as illustrated in figure 3-19.

b. Cleaning and Inspection.

(1) Clean circuit breakers with a clean, lint-free cloth.

(2) Inspect circuit breakers for cracks, loose terminals, and test for continuity across the terminals. Continuity should be indicated with the breaker ON, and not indicated with the breaker OFF.

c. *Installation.* Install the circuit breakers as illustrated in figure 3-19.

3-29. Receptacles

a. Removal. Remove the 120 and 240-volt receptacles as illustrated in figure 3-19.

b. Cleaning and Inspection.

(1) Clean receptacles with a clean, lint-free cloth.

(2) Inspect for loose terminals and damage and replace a defective receptacle.

c. *Installation.* Install the receptacles as illustrated in figure 3-19.

3-30. D. C. Voltmeter

a. Removal. Remove the D. C. voltmeter as illustrated in figure 3-19.

b. Cleaning and Inspection.

(1) Clean voltmeter with a clean. lint-free cloth.

(2) Inspect voltrneter for damage and loose terminals and replace a defective voltmeter.

c. lnstallation. Install the D. C. voltmeter as illustrated in figure 3-19.

3-31. Running Time Meter

a. Removal. Remove the running time meter as illustrated in figure 3-19.

b. Cleaning and Inspection.

(1) Clean the running time meter with a clean, lint-free cloth.

(2) Inspect for damage and loose terminals and replace a defective running time meter.

c. *lnsta/lation.* Install the running time meter as illustrated in figure 3-19.

3-32. Polarity Switch

a. On-Equipment Testing.

(1) Tag leads and note position of jumpers on polarity switch.

(2) Disconnect leads and jumpers from switch.

(3) Place switch in OFF position.

(4) Use a multimeter and test for continuity between each center terminal and all other terminals. No continuity should be indicated.

(5) Place the switch in the STRAIGHT positiion..

(6) Use a multirneter and test between each center terminal and its corresponding lower terminal. Continuity should be indicated. Then, test between each center terminal and its corresponding upper terminal. No continuity should be indicated.

(7) Place the switch in REVERSE position.

(8) Repeat tests as in (6) above. Continuity should not be indicated between the center and lower terminals and continuity *should* be indicated between the center and upper terminals.

(9) Replace a defective switch.

b. Remoual. Remove the polarity switch as illustrated in figure 3-19.

c. Cleaning and Inspection.

(1) Clean switch with a clean, lint-free cloth.

(2) Inspect for damage and loose terminals and replace a defective polarity switch.

d. Installation. Install the polarity switch as illustrated in figure 3-19.

3-33. D. C. Ammeter

a. Remova/. Remove the D. C. ammeter as illustrated in figure 3-19.

b. Cleaning and Inspection.

(1) Clean the direct current ammeter with a clean, lint-free cloth.

(2) Inspect for damage and loose terminals and replace a defective ammeter.

c. *Installation.* Install the D. C. ammeter as illustrated in figure 3-19.

3-34. A. C. Voltage Adjusting Rheostat

a. Removal. Remove the rheostat as illustrated in figure 3-19.

b. Testing. Use a multirneter and test the rheostat and the direct current resistance element for smooth operation throughout the range. 'rest the rheostat for resistance of 121.5 plus or minus 5 percent and replace a defective rheostat.

c. *Installation.* Install the rheostat as illustrated in figure 3-19. Refer to wiring diagrams (fig. 1-1 and 1-21.

Section III. SHOP BODY

3-35. Wiring

a. General. Check insulation for cracks and frayed places. Pay particular attenticn to places where, wires pass through holes in the frame or over sharp metal edges. If any wiring is found to be defective. replace it following its respective wiring diagram (TM 5-4940-225-12). Solder all terminal connrtions to insure good electrical contact. If the defective wire is part of a rubber molded wiring harness. and cannot be replaced without disassembly,. replace the harness.

b. Testing 110-Volt Wiring. Test the electrical leads for continuity. Disconnect each end of the wire from the components to which it is connected (refer to wiring diagram). Check for continuity and replace any defective wire with the same size wire at removed. Reinstall the circuit tag number.

c. Testing 24-Volt Wiring Harness. Refer to the appropriate wiring diagram and test the harness for continuity in the same manner as described in *b* above.

d. Replacement

(1) Tag and disconnect all electrical leads as necessary.

(2) To replace a wire that is not part of a wiring harness, disconnect it at each end and install a new wire of the same identification number as the one removed.

(3) If a defective wire is part of a wiring harness or cable assembly that cannot be reassembled, replace the entire harness or cable assembly.

(4) Connect lead as tagged in (1), above.

3-36. Doors and Hinges

a. General. The side and rear doors should not be removed unless absolutely necessary. In most cases, repairs can be made with the doors installed.

b. Removal. Support the door to prevent damage prior to removing hardware. Remove mounting hardware.

c. *Cleaning, Inspection, and Repair.*

(1) Clean doors with approved cleaning solvent and dry thoroughly.

(2) Inspect doors for cracks. breaks. dents. rust, and other damage or defects.

(3) Break rivets if necessary to make repairs, straighten bends, weld cracks and breaks. Replace defective hinges.

d. Installation. Install in reverse of *b* above.

3-37. Side Lifting Cylinder and Hydraulic Lines

a. *General. A* side lifting cylinder is located on each side of the shop set body. The upper end of each cylinder is attached to a rib in its respective side door. The lower end of each is connected to a removable bracket secured to the shop set floor. Hydraulic oil flows into and out of the cylinders through a flexible line connected at the bottom of each cylinder.

b. Removal. Remove the side lifting cylinder (TM 5-4940-22.5-12).

c. *Disassembly.* Refer to figure 3-20 and disassemble the side lifting cylinder.

d. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect all parts for cracks, breaks, wear and other defects. Inspect the interior surface of the cylinder for pits, roughness, and scored condition.

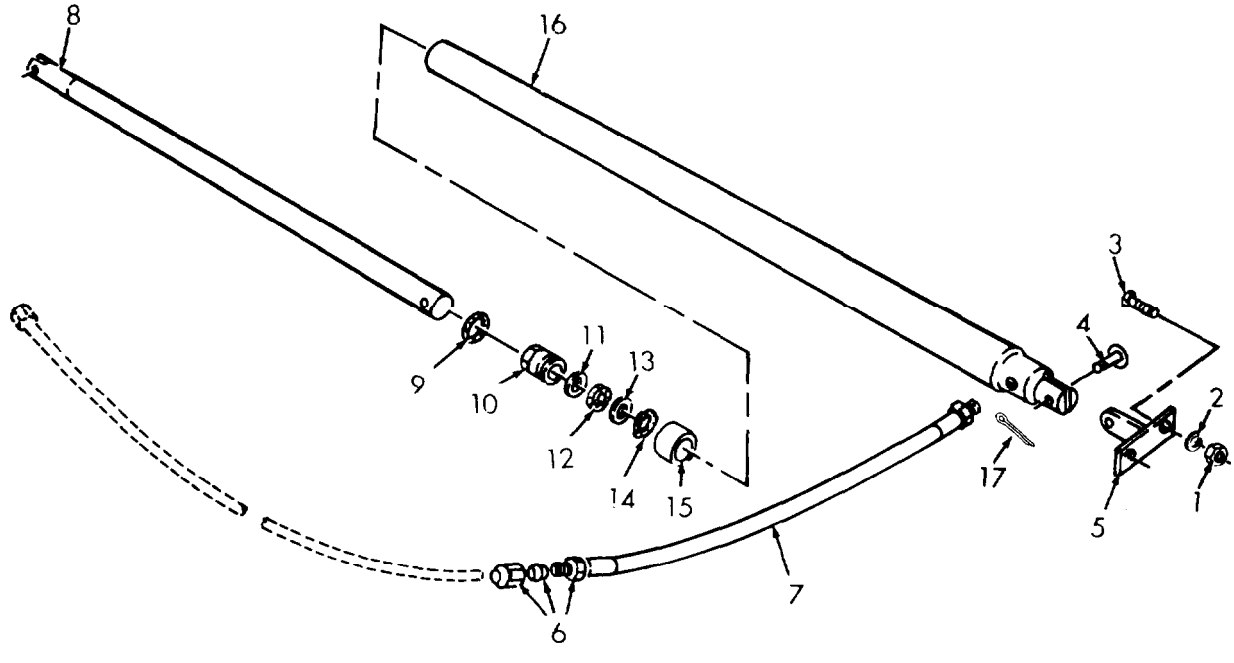
(3) Install new packing kit, which includes the wiper, O-rings, and backup washers.

(4) Replace a damaged or defective side lifting cylinder or related parts.

e. *Reassembly and Installation.*

(1) Reassemble in reverse order of c, above.

(2) Install the side lifting cylinder (TM 5-4940-225-12).



ME 4940-225-35/3-20

1 Nut
2 Washer
3 Screw
4 l'in
5 Bracket
6 Connector
7 Hose assembly
8 Rod
9 Wiper
10 Gland
11 Washer
12 O-Ring
13 Washer
14 O-Ring
15 Piston
16 Butt and tube assembly
17 Pin

Figure 3-20. Side lifting cylinder. disassembly and reassembly.

3-38. Side Lifting Hydraulic Pump

a. Removal. Remove the side lifting hydraulic Pump (TM 5-4940-225-12).

b. Disassembly. Disassemble the side lifting hydraulic pump as illustrated in figure 3-21.

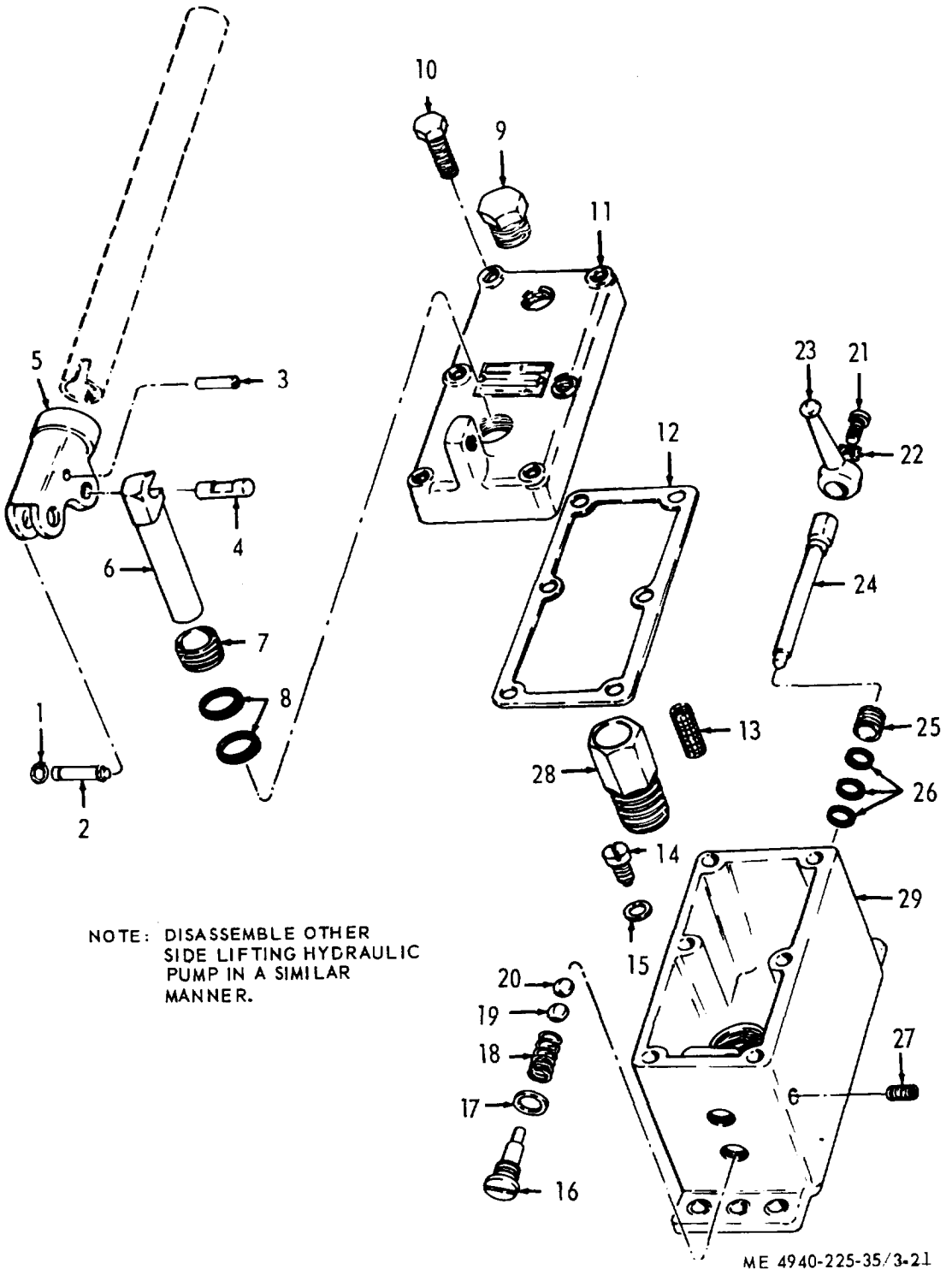
c. Cleaning, Inspection, and Repair.

(1) Clean all metal parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect all metal parts for breaks, cracks, nicks, burs, weak spring tension, damaged threads, or other damage.

(3) Remove small nicks and burs and replace all dam aged parts. Replace all packing and gaskets included in repair kit.

d. Reassembly and Installation. Reassemble and install in reverse order of *a* and *b*, above.



1 Ring
2 Pin
3 Pin
4 Pin
5 Adapter
6 Ram
7 Nut
8 O-Ring
9 Plug
10 Screw
11 Cover
12 Gasket
13 Screen
14 Screw
15 Washer
16 Plug
17 Washer
18 Spring
19 Ball
20 Ball
21 Screw
22 Washer
23 Lever
24 Valve
25 Nut
26 O-Ring
27 Plug
28 Guide
29 Housing

Figure 3-21. Hydraulic pump, disassembly and reassembly.

3-39. Personnel Heater

a. Removal. Remove heater as illustrated in figure 3-22.

b. Repair. Refer to TM 5-4520-209-15.

c. *Installation.* Install the heater as illustrated in figure 3-22.

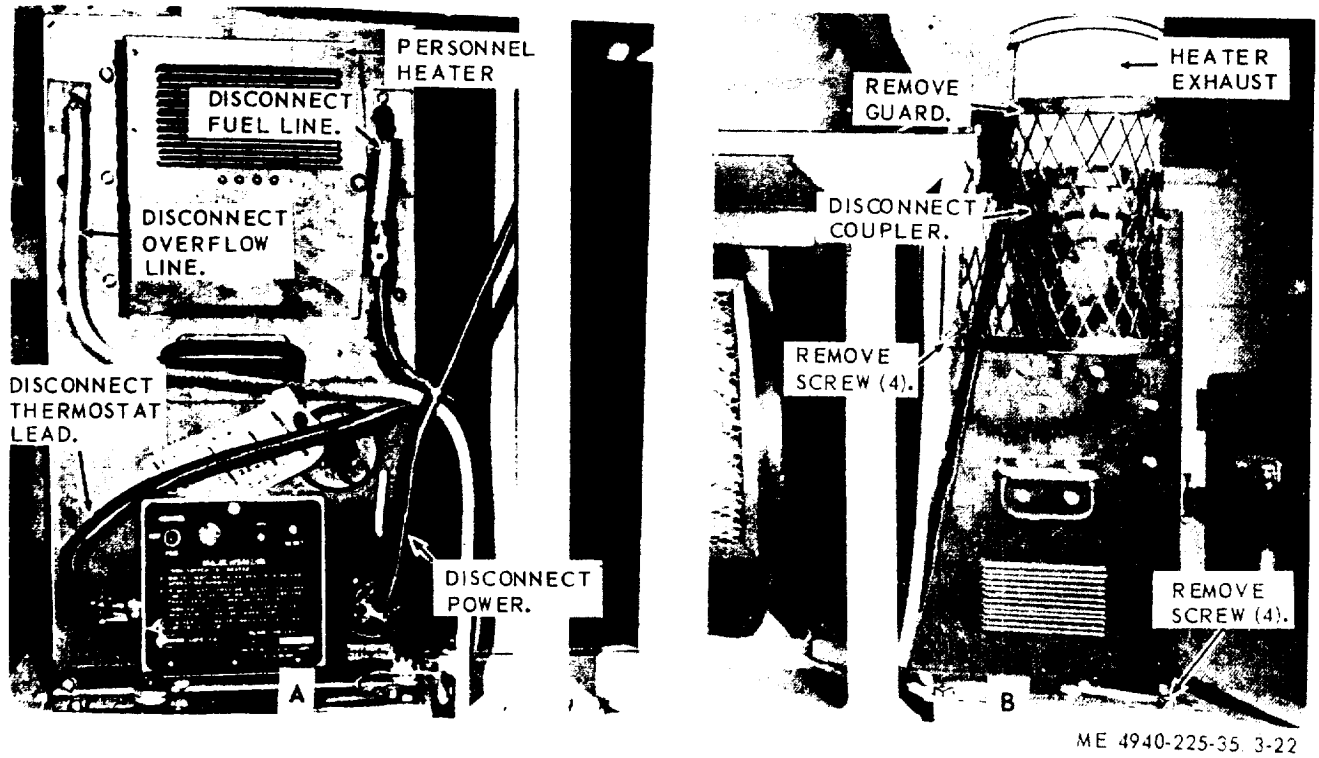


Figure 3-22. Personnel heater, removal and installation.

3-40. Lathe and Lathe Table

a. Removal. Remove the lathe and lathe table as illustrated in figure 3-23.

b. Installation. Install the lathe and lathe table as illustrated in figure 3-23.

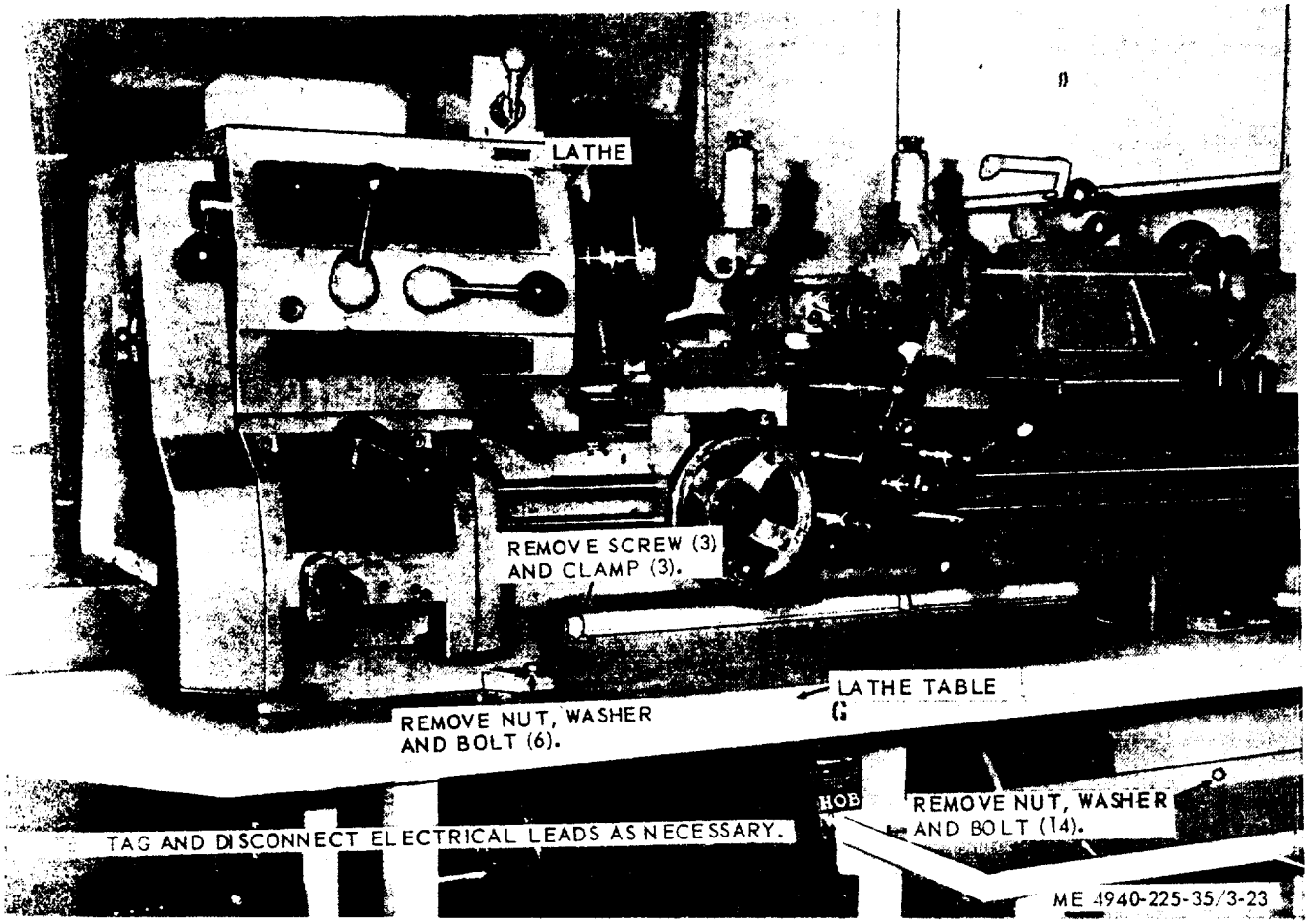


Figure 3-23. Lathe and lathe table. removal and installation.

APPENDIX A

REFERENCES

A-1. Fire Protection

TB 5-4200-200-10	Hand Portable Fire Extinguishers Approved For Army Users

A-2. Lubrication

C9100-IL	Identification List for Fuels, Lubricants, Oils and Waxes
LO 5-4940-225-12	Lubrication Order for Shop Equipment Organizational Repair

A-3. Painting

TM 9-213	Painting Instructions for Field Use

A-4. Radio Suppression

TM 11-483	Radio Interference Suppression

A-5. Maintenance

TM 9-1870-1	Care and Maintenance of Pneumatic Tires
TM 750-651	Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems
TM 38-750	The Army Maintenance Management Systems
TM 5-4940-225-12	Operator's and Organizational Maintenance Manual
TM 3-4940-225-20P (when printed)	Organizational Maintenance Repair Parts and Special Tools Lists
TM 3-4940-225-34P (when printed)	Direct Support and General Support Maintenance Repair Parts and Special Tools Lists
TM 9-6140--200-15	Operation and Organizational, Field, and Depot Maintenance: Storage Batteries, Lead Acid Type
TM 5-764	Electric Motor and Generator Repair
TM 5-4920-200-15	Operator, Organizational, Field and Depot Maintenance Manual: Engine Analyzer: Gas Turbine

A-6. Shipment and Storage

TM 740-97-2	Preservation of USAMEC Mechanical Equipment for Shipment and Storage
TM 740-90-1	Administrative Storage of Equipment

A-7. Destruction to Prevent Enemy Use

TM 750-244-3	Procedures for Destruction of Equipment To Prevent Enemy Use

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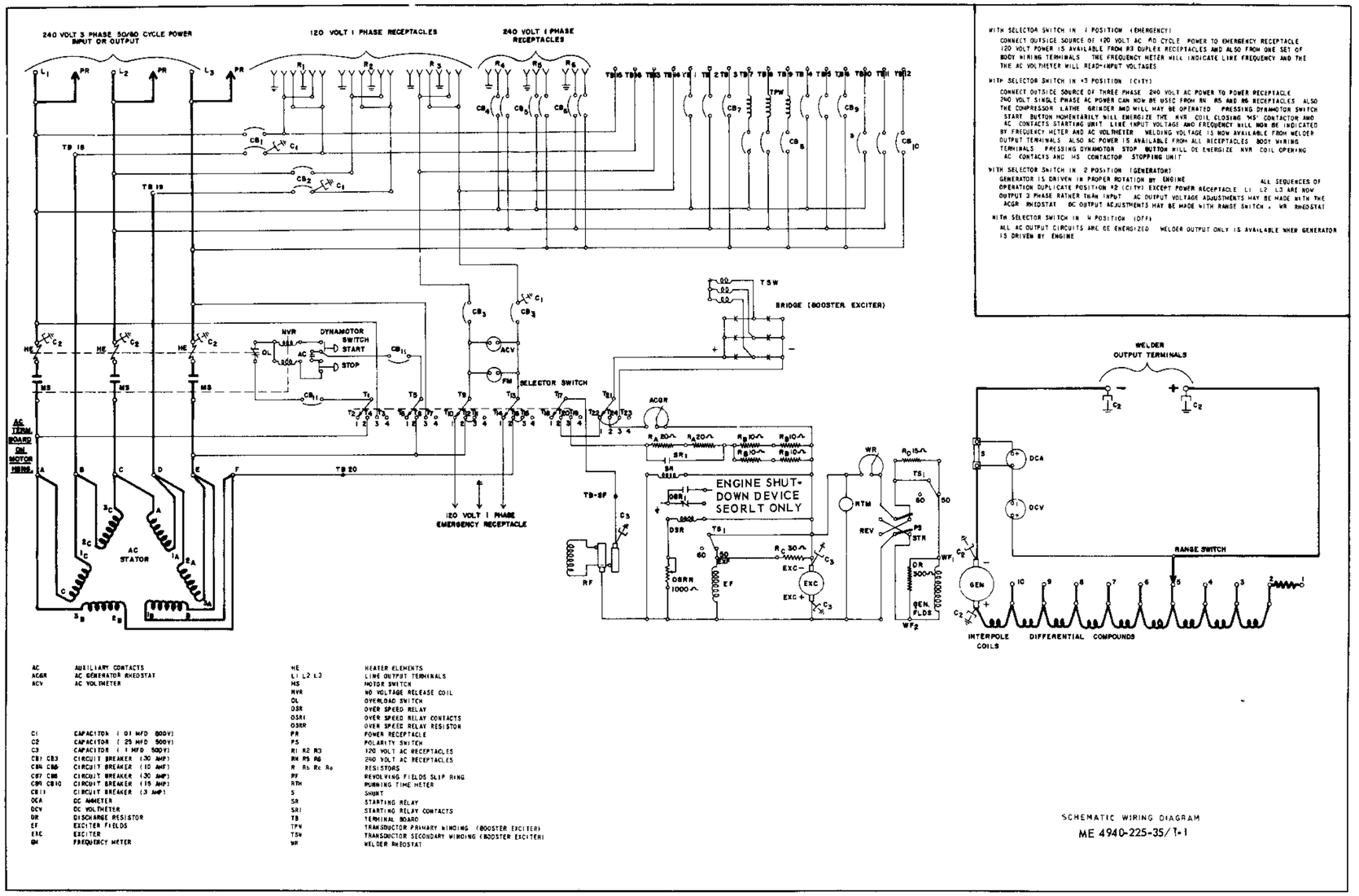

Figure 1-1. Schematic wiring diagram (dynamotor-welder)

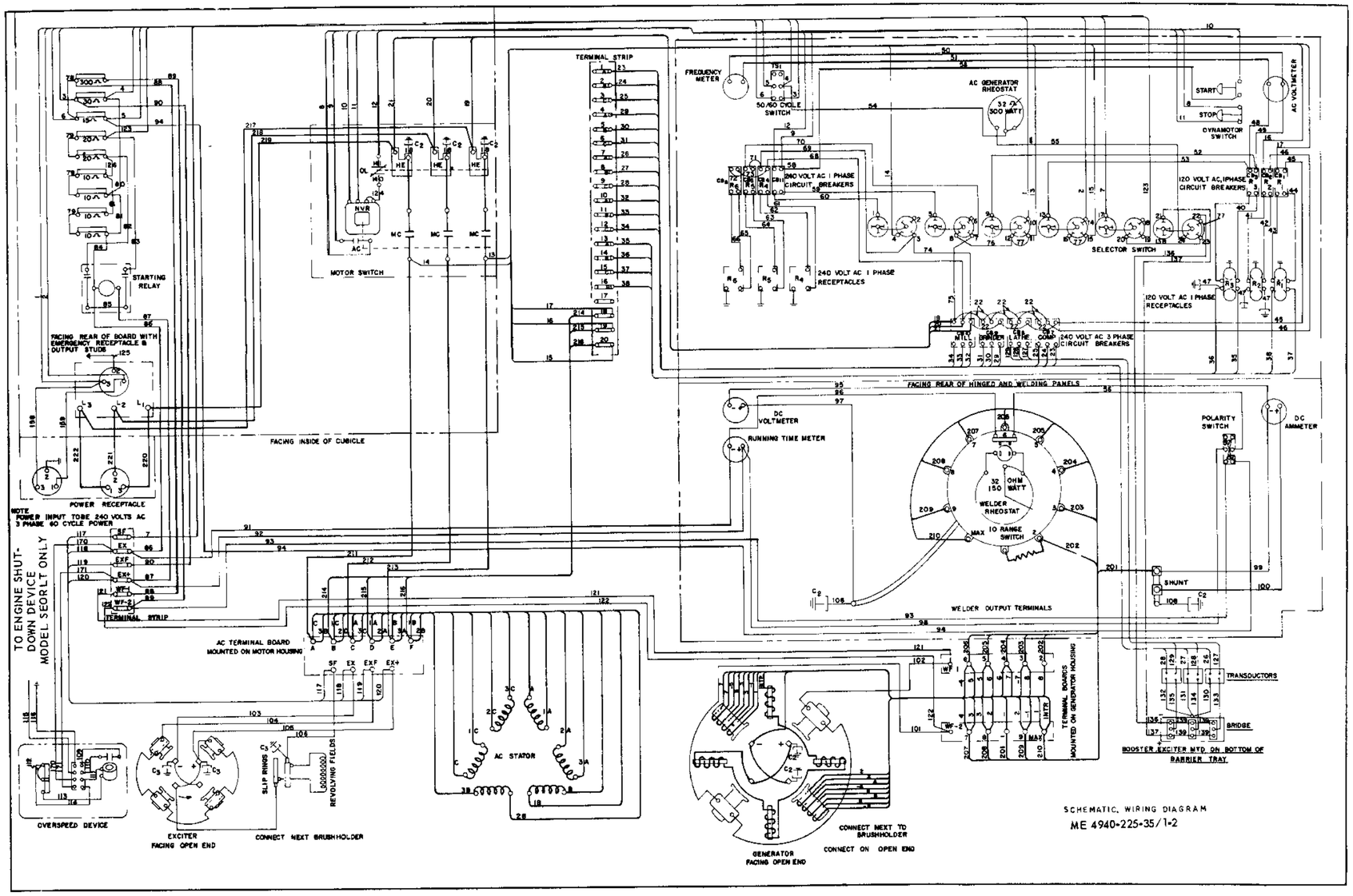

Figure 1-2 Schematic wiring diagram (dynamotor welder)

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W. C. WESTMORELAND
General, United States Army,
Chief of Staff.

Of ficial :

VERNE L. BOWERS.
Major General, United States Army,
The Adjutant General.

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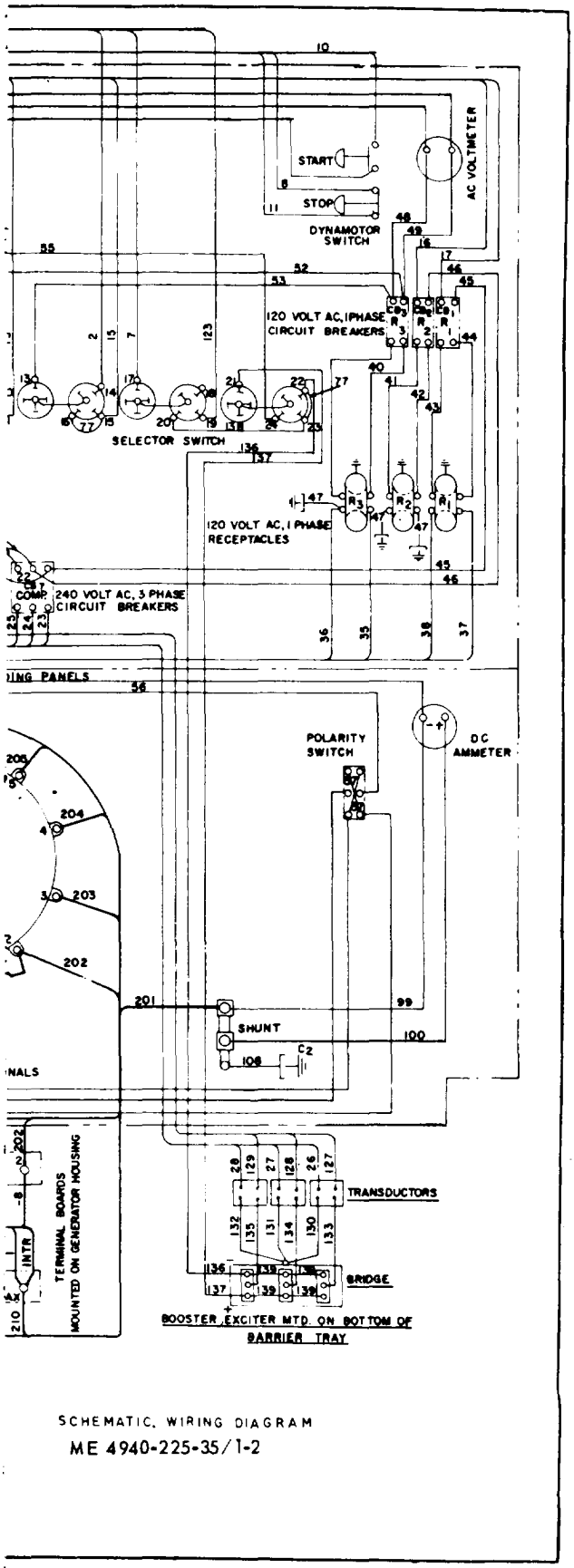

SCHEMATIC, WIRING DIAGRAM
ME 4940-225-35/1-2

am (dynamotor-welder)

Figure 1-2

TM 5-4940-225-34 SHOP EQUIPMENT, TRUCK MOUNTED- 1972