

**MIL-D-24/7B**

10 APRIL 1964

SUPERSEDING

**MIL-D-27/7A**

1 JUNE 1961

**MILITARY SPECIFICATION****DYNAMOTOR, TYPE DY-97/GRC-9**

*This specification has been approved by the Department of Defense and is mandatory for use by the Departments of the Army, the Navy, and the Air Force.*

**1. SCOPE**

1.1 This specification covers the detail requirements for type DY-97/GRC-9 dynamotors.

1.2 The dynamotor covered herein is not intended for use over 10,000 feet.

**2. APPLICABLE DOCUMENTS**

2.1 The following specifications and standards, of the issue in effect on date of invitation for bids, form a part of this specification.

**SPECIFICATIONS****MILITARY**

MIL-D-24 —Dynamotors, General Specification for.

MIL-I-11748—Interference Reduction for Electrical and Electronic Equipment.

**STANDARDS****MILITARY**

MS35436 —Terminal, Lug, Solder Type, Copper Stamping, Insulation Grip, One Hole.

MS90127—Capacitors, Fixed, Ceramic-Dielectric (General Purpose), Style CK37 (Insulated).

MS91000—Brushes, Electrical Contact, Cartridge Type.

(Copies of specifications and standards required by contractors in connection with specific procurement functions should be obtained from the procuring agency or as directed by the contracting officer.)

**3. REQUIREMENTS**

3.1 **Requirements.** Requirements shall be in accordance with Specification MIL-D-24, and as specified herein.

3.2 **Design and construction.** Dynamotors shall be of the design, construction, and physical dimensions specified on figure 1.

3.2.1 *Circuit arrangement.* The circuit arrangement shall be as specified on figure 2.

3.2.2 *Rated voltages and currents (nominal).* The nominal rated voltages and currents shall be as follows:

**Input:**

Voltage . . .7, 14, or 28 direct-current volts (vdc).

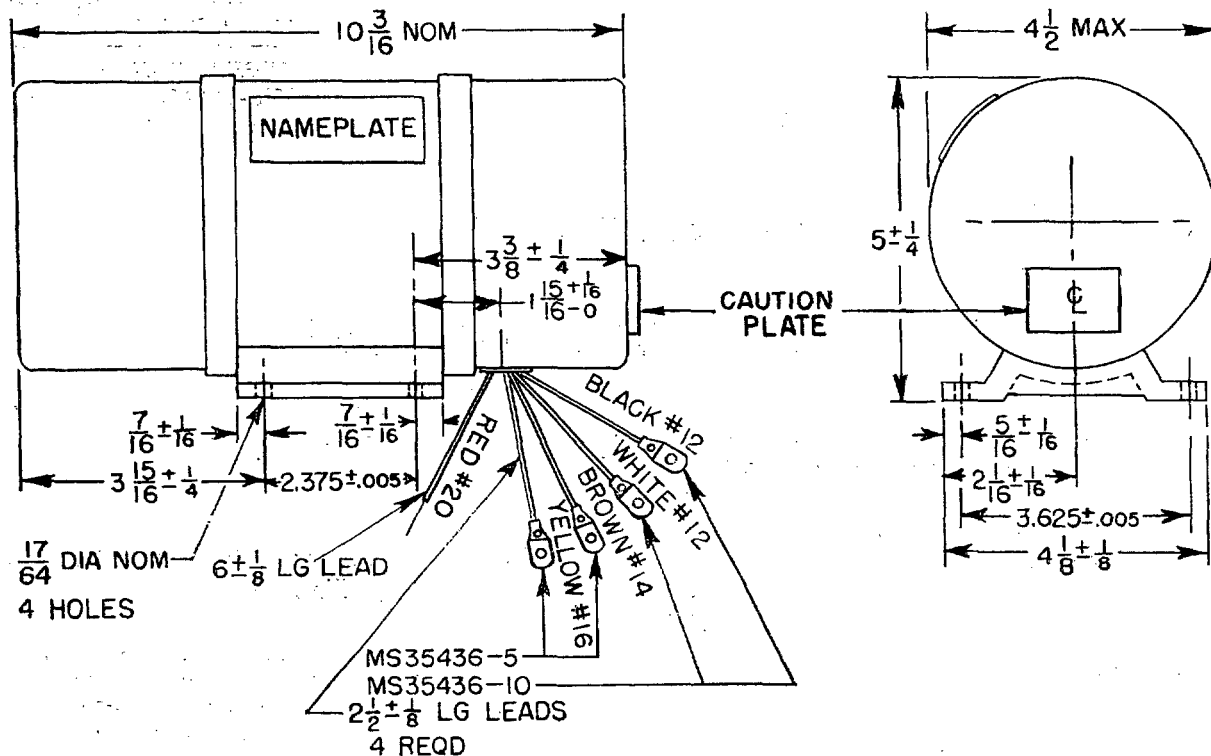
Current . . .20, 10, or 5 amperes (amp).

**Output:**

Voltage . . .580 vdc.

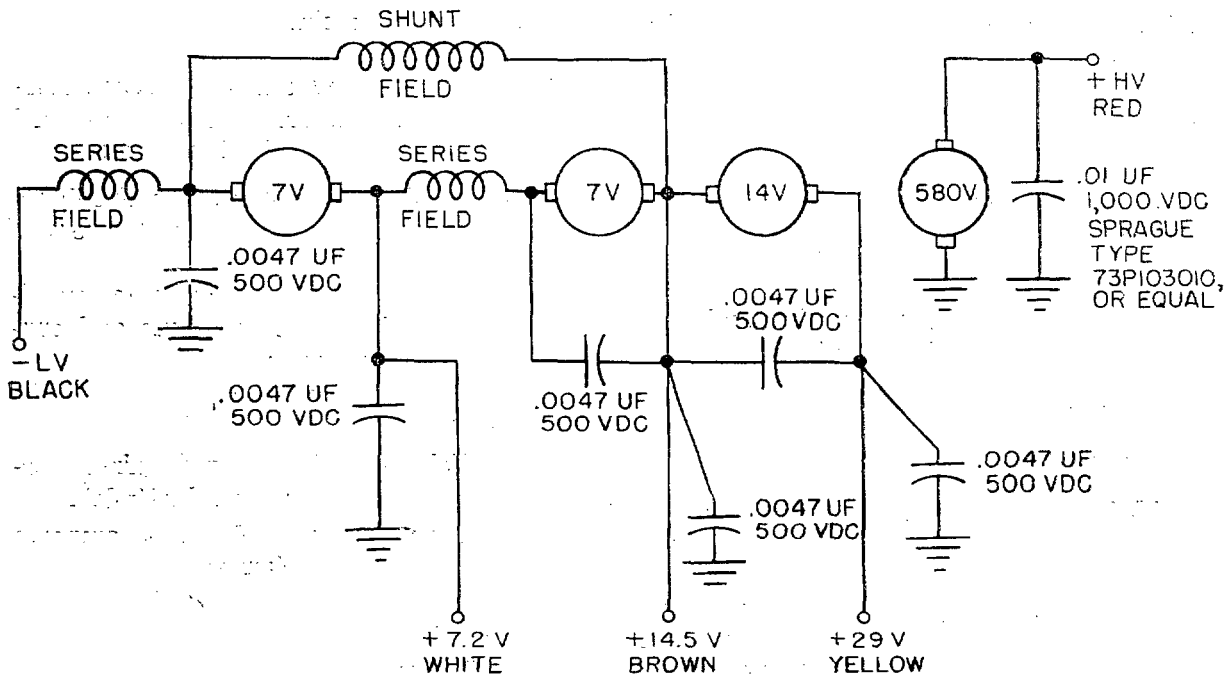
Current . . .0.100 amp.

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1. All dimensions in inches.
2. Overall dimensions include all permanent protrusions such as boltheads.
3. Not for airborne use over 10,000 feet.
4. Caution plate shall be located so as to be readily visible and where possible as close to the output terminations as practicable.

FIGURE 1. Type DY-97/GRC-9 dynamotors



NOTE: ALL .0047 UF, 500 VDC CAPACITORS SHALL BE MS90127-3

FIGURE 2. Circuit diagram

**3.2.3 Range of operating voltages.** The range of operating voltages shall be as follows:

- 5.5 to 8 vdc, inclusive.
- 11 to 16 vdc, inclusive.
- 22 to 32 vdc, inclusive.

**3.2.4 Duty cycle.** The duty cycle shall be continuous.

**3.2.5 Rated life at duty cycle.** The rated life at the duty cycle shall be 1,000 hours, minimum (min).

**3.2.6 Rated speed.** The rated speed shall be approximately 5,400 revolutions per minute.

**3.2.7 Ambient temperature.** The ambient temperature shall be 55° C., maximum (max).

**3.2.8 Connectors.** Connectors shall be five wire leads.

**3.2.9 Brushes.** The input and output brushes shall be as follows:

- Input . . . MS Part No. MS91000-14NA.  
(7 vdc)
- Input . . . MS Part No. MS91000-15PC.  
(14 vdc)
- Input . . . MS Part No. MC91000-15PC.  
(28 vdc)
- Output . . . MS Part No. MS91000-13MB.

**3.2.9.1 Brush life.** The brush life shall be as follows:

Sea level . . . 1,000 hours, min.

**3.2.10 Weight.** The weight shall be 14.5 pounds, max.

**3.2.11 Enclosure.** Dynamotors shall be open protected (fan cooled).

**3.3 Radio-frequency interference.** The radiated and conducted interference shall be in accordance with Specification MIL-I-11748 (see 4.2).

**3.4 Load (see 4.3).** The load shall be as follows:

Output voltage . . . . . 580  $\begin{matrix} +30 \\ -5 \end{matrix}$  volts.

Efficiency with—

7.2 volts input . . . 33 percent, min.

14.5 volts input . . . 35 percent, min.

29.0 volts input . . . 35 percent, min.

Output-voltage regu-

lation . . . . . 15 percent, max.

Ripple voltage . . . . . 4.0 volts, max.

**3.5 Temperature rise.** The temperature rise shall be as follows:

Winding . . . . . Not applicable.

Frame . . . . . 30° C., max.

#### 4. QUALITY ASSURANCE PROVISIONS

**4.1 Sampling and inspection.** Sampling and inspection shall be in accordance with Specification MIL-D-24, and as specified herein.

**4.2 Radio-frequency interference.** Dynamotors shall be tested in accordance with Specification MIL-I-11748. The test distance shall be 2 feet (see 3.3).

**4.3 Load.** Full-load measurements shall be made between red lead (high-voltage output) and ground with output current adjusted to 0.100 amp and with input voltages of 7.2, 14.5, and 29.0 vdc applied in turn to the proper input leads, except that the ripple voltage shall be measured at 14.5 vdc input only with a 2 microfarad capacitor across the output (see 3.4).

**4.4 Vibration.** Dynamotors shall be tested in accordance with test I.

**4.5 Shock.** Dynamotors shall be tested in accordance with test I.

#### 5. PREPARATION FOR DELIVERY

**5.1 Preparation for delivery shall be in accordance with Specification MIL-D-24.**

#### 6. NOTES

**6.1 Notes.** The notes specified in Specification MIL-D-24 are applicable to this specification.

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**Custodians:**

Army—EL

Navy—WEP

Air Force—11

**Review interest:**

Army—MO, MU, EL

Navy—WEP

Air Force—11, 17, 82

**User interest:**

Navy—MC

**Preparing activity:**

Army—EL

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