ALTRONIC, INC.
712 TRUMBULL AVE.
GIRARD, OHIO 44420

24 VDC ALTERNATOR, REGULATOR, BATTERY PACK

IMPORTANT SAFETY NOTICE

PROPER INSTALLATION, MAINTENANCE, REPAIR AND OPERATION OF THIS EQUIPMENT IS ESSENTIAL. THE RECOMMENDED PRACTICES CONTAINED HEREIN SHOULD BE FOLLOWED WITHOUT DEVIATION. AN IMPROPERLY INSTALLED OR OPERATING IGNITION SYSTEM COULD CAUSE PERSONAL INJURY TO OPERATORS OR OTHER NEARBY PERSONNEL.

1.0 ALTRONIC 24 VDC ALTERNATOR - DESCRIPTION

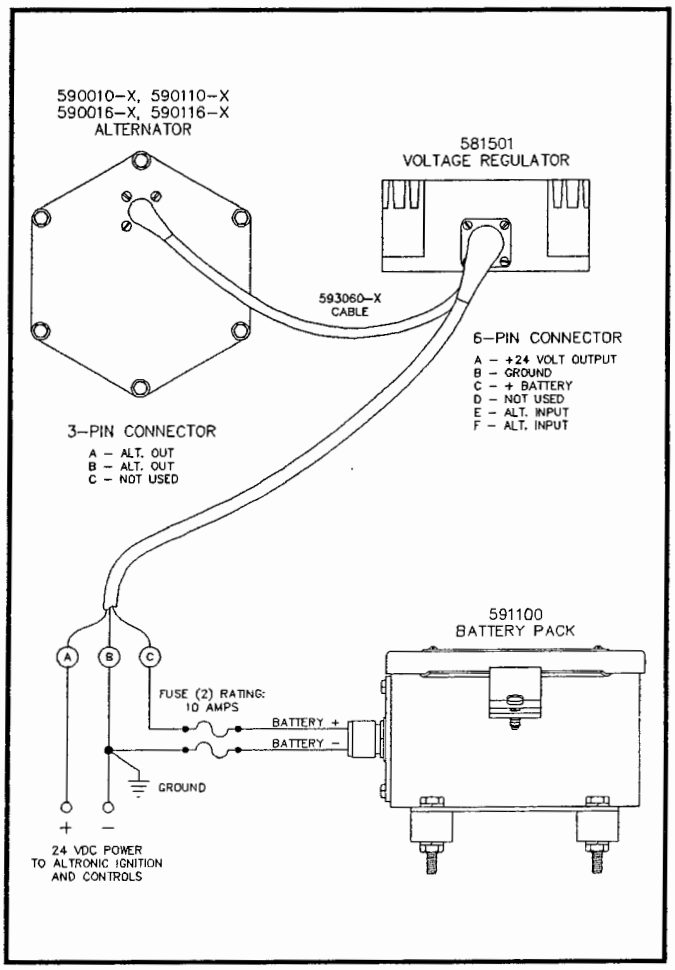
The Altronic 24 VDC alternator/regulator packages provide a reliable, engine-mounted source of DC power for Altronic DC-powered digital ignition systems, other engine accessories and control panels. There are two versions available:

VERSION I - The Version I alternator provides up to 70 watts (3 amps) output at 1,800 RPM. This unit is used with the 581501 regulator and 591100 battery pack assembly.

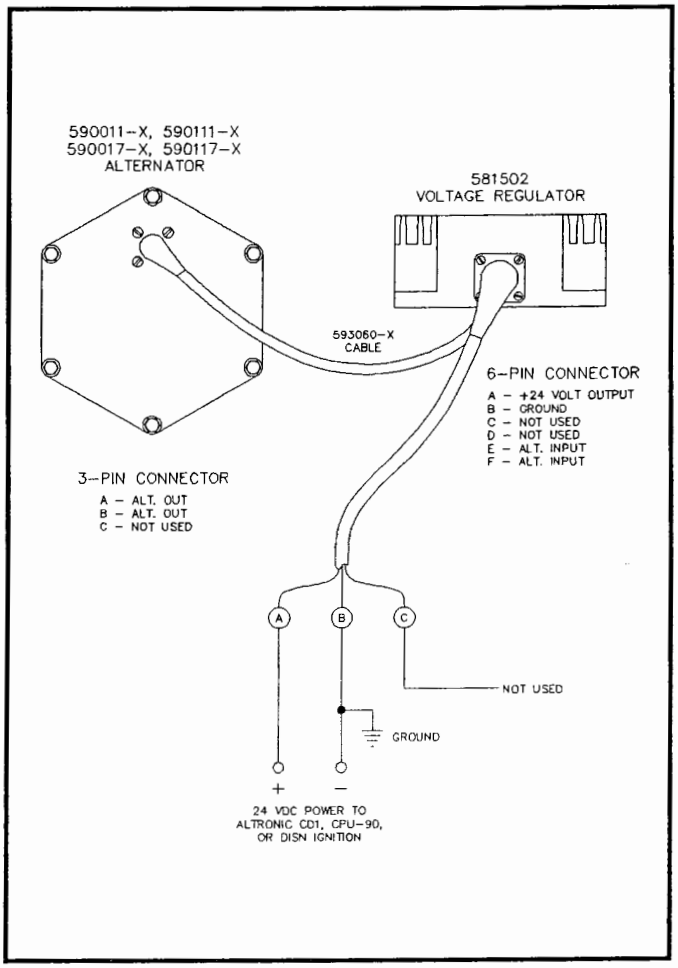
VERSION II - The Version II alternator in conjunction with the 581502 regulator is designed to power the Altronic CD1, CPU-90 or DISN ignition systems, thus constituting a self-powered, digital ignition system.

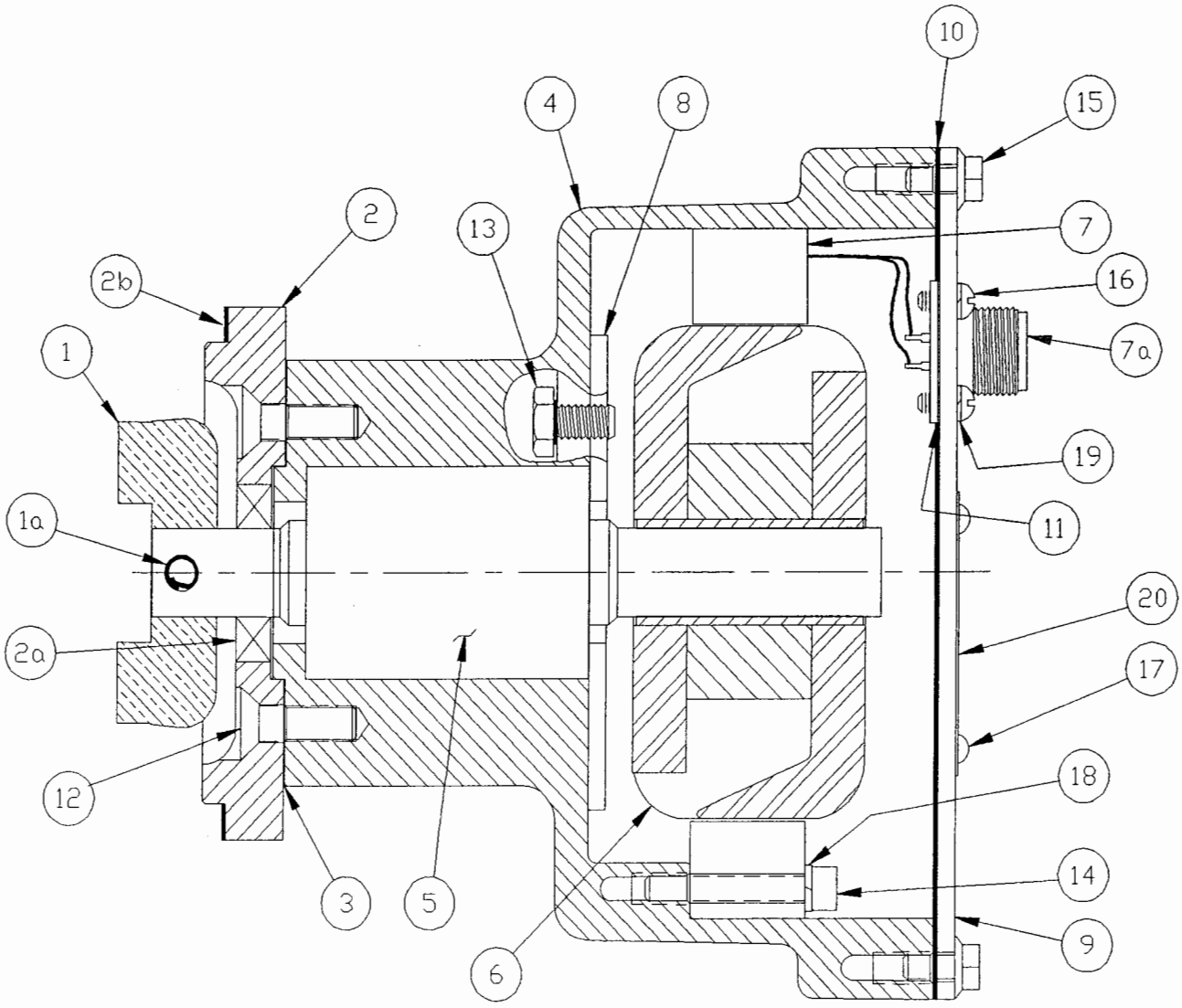
Both versions are available in coupling-driven or belt-driven models.

VERSION I



VERSION II



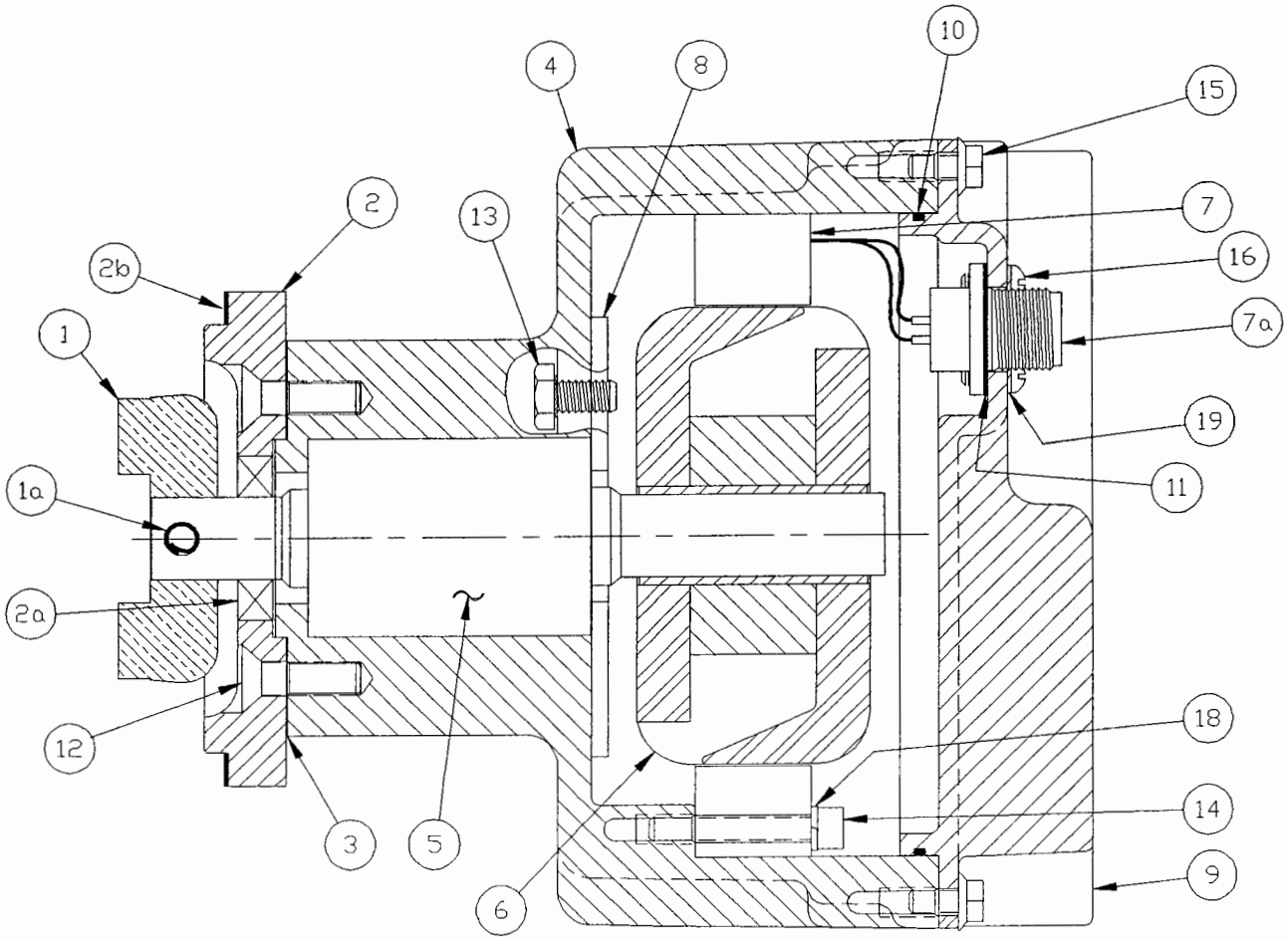


24 VDC ALTERNATOR
5900XX Series

2.0 PARTS IDENTIFICATION AND SPECIFICATION

2.1 PARTS LIST - 24 VDC ALTERNATOR 5900XX Series- Reference the exploded view on page 4.

REF. NO.	QTY.	PART NO.	DESCRIPTION
1	1	510454-P	Coupling - black
1a	1	902478	Spring pin 2-1/8" lg.
2	1	360465-1	Flange ass'y. (-A)
		360465-2	Flange ass'y. (-G,-GV)
		360465-3	Flange ass'y. (-D)
		360459	Flange ass'y. (-J)
2a	1	510463	Oil seal
2b	1	510560	Gasket - mounting
3	1	310490	Gasket
4	1	510674	Front housing
5	1	510676	Bearing (590010, 590011)
		510680-A	Bearing (590016, 590017)
6	1	560010	Magnet-rotor assembly
7	1	571005-1	Stator (590010, 590016)
		571005-2	Stator (590011, 590017)
7a	1	504208	Connector
8	1	510690	Retainer plate
9	1	510675	Cover plate
10	1	510677	Gasket - cover plate
11	1	501369	Gasket - connector
12	4	902484	Screw 1/4-20 x 3/4
13	2	902631	Screw 1/4-28 x 7/16
14	3	902620	Screw 10-24 x 1-1/4
15	6	902480	Screw 10-24 x 3/8
16	4	902064	Screw 6-32 x 3/8
17	4	902578	Screw 4-40 x 1/8
18	3	901004	Lockwasher #10
19	4	901000	Lockwasher #6
20	1	502181A	Label



24 VDC ALTERNATOR
5901XX Series

2.2 PARTS LIST - 24 VDC ALTERNATOR 5901XX Series- Reference the exploded view on page 6.

REF. NO.	QTY.	PART NO.	DESCRIPTION
1	1	510454-P	Coupling - black
1a	1	902478	Spring pin 2-1/8" lg.
2	1	360465-1	Flange ass'y. (-A)
		360465-2	Flange ass'y. (-G,-GV)
		360465-3	Flange ass'y. (-D)
		360459	Flange ass'y. (-J)
2a	1	510463	Oil seal
2b	1	510560	Gasket - mounting
3	1	310490	Gasket
4	1	510734	Front housing
5	1	510676	Bearing (590110, 590111)
		510680-A	Bearing (590116, 590117)
6	1	560010	Magnet-rotor assembly
7	1	571006-1	Stator (590110, 590116)
		571006-2	Stator (590111, 590117)
7a	1	504290	Connector
8	1	510690	Retainer plate
9	1	510737	Back Cover
10	1	610178	O-ring - back cover
11	1	501369	Gasket - connector
12	4	902484	Screw 1/4-20 x 3/4
13	2	902631	Screw 1/4-28 x 7/16
14	3	902620	Screw 10-24 x 1-1/4
15	6	902480	Screw 10-24 x 3/8
16	4	902064	Screw 6-32 x 3/8
17	4	902578	Screw 4-40 x 1/8 (for label, not shown)
18	3	901004	Lockwasher #10
19	4	901000	Lockwasher #6
20	1	502199A	Label (not shown)

2.3 PART NO. DESIGNATION

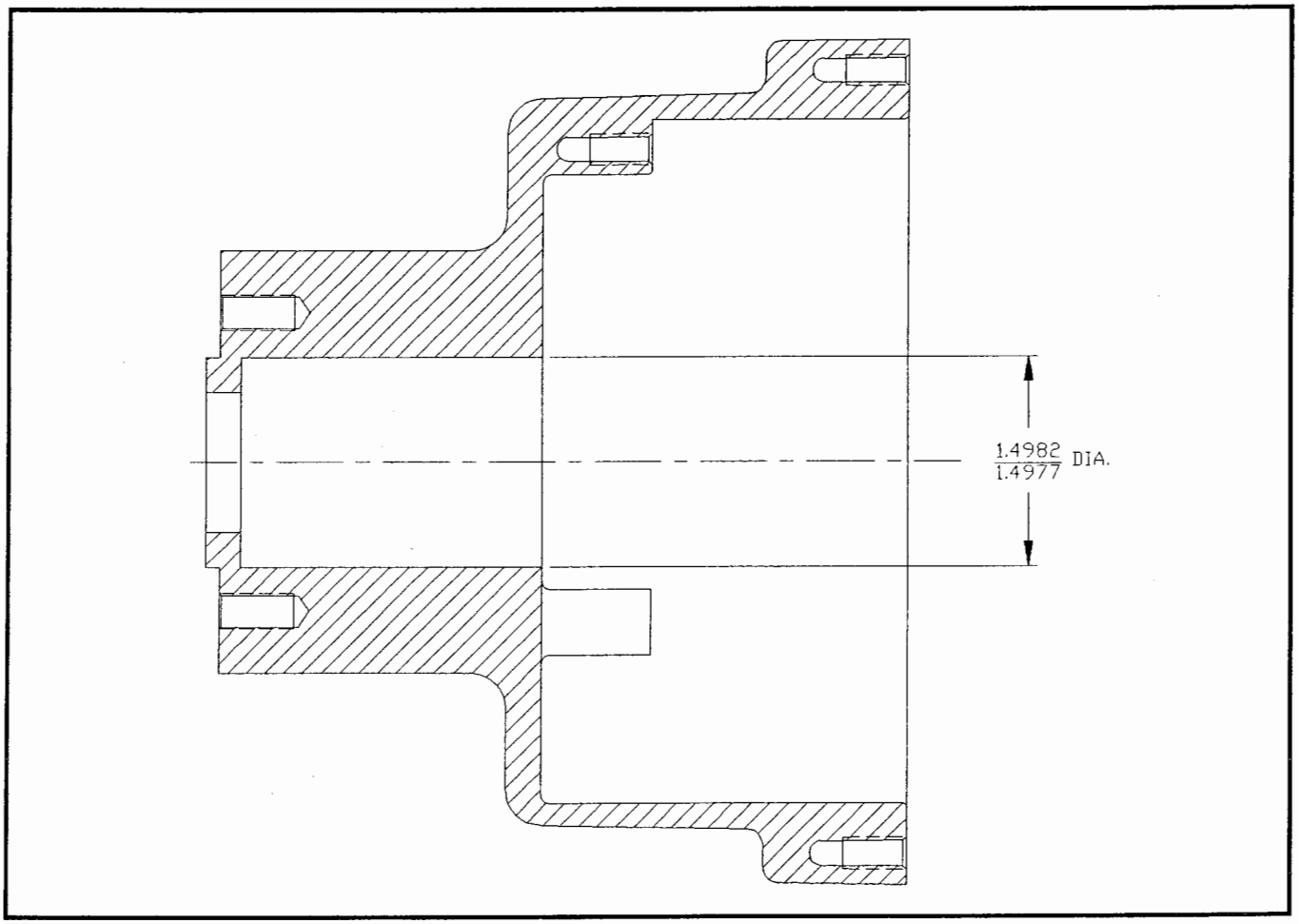
590010 - G

MOUNTING
- A = Vertical flange, 1 slot
- D = Flange, 3" pilot
- G = Horizontal flange, 2 slots
- GN = Horiz. flange, gear-flex coupling
- GV = Vertical flange, 2 slots
- J = Round flange, 3 slots

STATOR WINDING
- 010 = 571005-1
- 011 = 571005-2
- 016 = 571005-1
- 017 = 571005-2
- 110 = 571006-1
- 111 = 571006-2
- 116 = 571006-1
- 117 = 571006-2

2.4 BEARING FIT TOLERANCES:

A. Housing Bearing Bore = 1.4977"/1.4982"



3.0 PERFORMANCE AND TEST SPECIFICATIONS

3.1 PERFORMANCE TESTS

A. HOOK-UP - Connect the system together as shown below for the particular version (I or II) being tested.

B. ALTERNATOR OUTPUT - At 1,500 RPM using the resistor indicated for TEST 1 (10 ohms, 50 watt for Version I; 20 ohms, 50 watt for Version II), the output voltage must be at least the minimum value shown in the chart below. NOTE: Use a regulator known to be good for this test.

C. REGULATOR OUTPUT - At 1,500 RPM using the resistor indicated for TEST 2 (100 ohms, 50 watt), the output voltage must be within the range shown in the chart below. NOTE: Use an alternator known to be good for this test.

3.2 STATIC TESTS

A. HOOK-UP - These tests should be made with the device in question DISCONNECTED from the rest of the system.

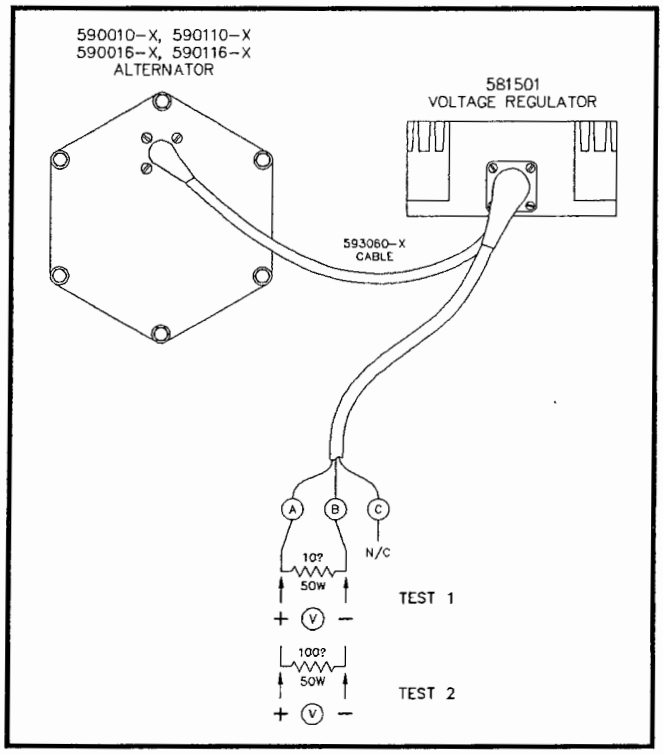
B. ALTERNATOR STATOR - Measure the stator resistance on the RX1 scale between pins A and B of the 3-pin alternator connector. The value must be within the range shown in the chart below. In addition, the resistance between either lead and the alternator housing should be infinite (RX10,000 scale).

C. 581501 REGULATOR - Measure the resistance on the RX1 scale between pin C (+) and pin A (−) of the 6-pin connector. The resistance should be approximately 12 ohms or less.

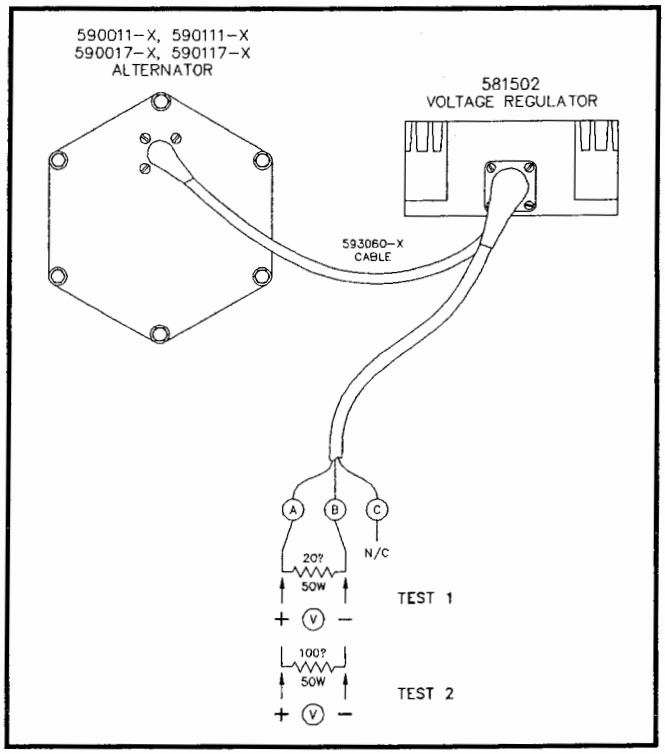
D. 591100 BATTERY PACK VOLTAGE - To check a battery pack part no. 591100, use a voltmeter connected across the output terminals (+) and (−). The reading should be 23-28 volts.

ALTERNATOR PART NO.	REGULATOR PART NO.	ALTERNATOR SPEED	RESISTANCE TEST 1	OUTPUT TEST 1	RESISTANCE TEST 2	OUTPUT TEST 2	STATOR RESISTANCE
590010, 590110 590016, 590116	581501	1,500 RPM	10 ohm 50 watt	22 volts minimum	100 ohm 50 watt	27-30 volts	1.3-1.7 ohms
590011, 590111 590017, 590117	581502	1,500 RPM	20 ohm 50 watt	22 volts minimum	100 ohm 50 watt	27-30 volts	18-22 ohms

VERSION I



VERSION II



4.0 SERVICE - ALTERNATOR SECTION

A. Replace all worn or defective parts.

B. The procedures of this section require the use of an arbor press.

4.1 DISASSEMBLY - FLANGE MOUNT UNIT

A. Using tool no. 506108A, drive spring pin (1a) out of coupling (1) and bearing-shaft (5) and remove coupling from shaft.

B. Unscrew four screws (12) and remove flange (2) from housing (4). Note the relationship of flange to housing so that it may be reinstalled later in the same position.

4.2 DISASSEMBLY - STATOR (7)

A. Remove four screws (16) holding the 3-pin connector.

B. Remove six screws (15) holding the cover plate (9) to housing (4). Remove cover plate (9) pushing the 3-pin connector through the hole in the cover and free from the cover.

C. Remove three screws (14) securing stator (7).

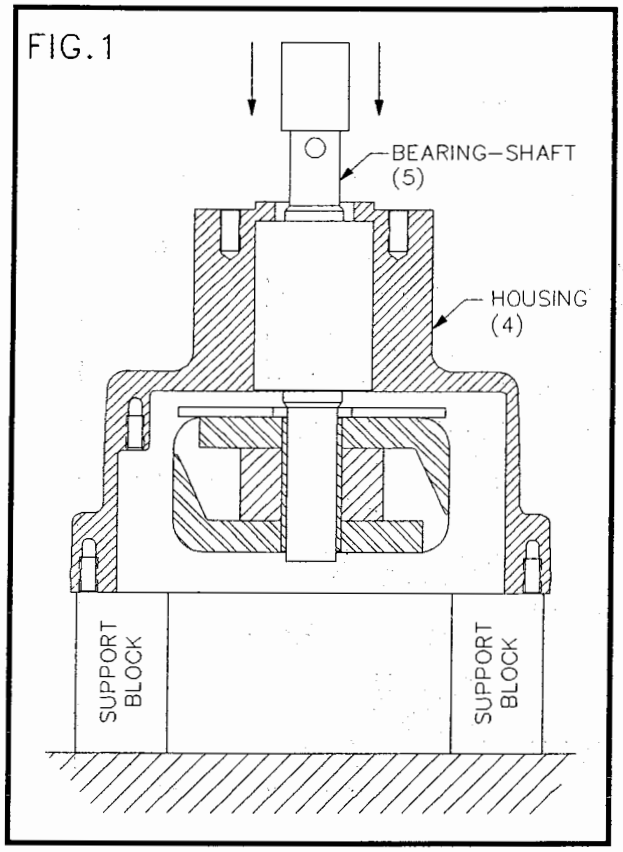
D. Standing the alternator vertically, bump the open end firmly against a solid flat surface to loosen the stator from the housing. Grasp the winding with the fingers of one hand and pull stator winding (7) free from housing (4).

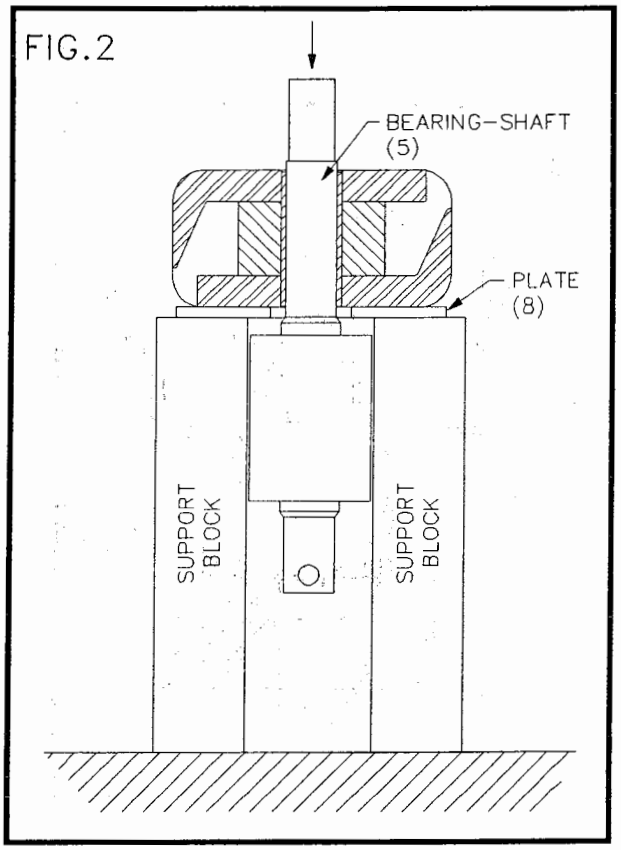
4.3 DISASSEMBLY - BEARING-SHAFT (5)

A. Remove two screws (13).

B. Referring to FIG. 1, support housing (4) as shown. Using an arbor press, press on the drive end of the main shaft until bearing-shaft (5) is free from housing (4).

C. Referring to FIG. 2, support plate (8) and magnet-rotor (6) as shown. Using an arbor press, press on the end of the bearing-shaft until it is separated from the magnet-rotor.





4.4 PARTS REPLACEMENT

A. Replace gaskets (2b) and (3).

B. Replace coupling (1), seal (2a) and bearing-shaft (5) with new parts.

C. Replace all removed hardware with new parts.

D. The aluminum housings should be cleaned in carbon tetrochloride or similar cleaning solution.

E. Any metal filings should be cleaned from magnet-rotor (6) before reassembly.

4.5 REASSEMBLY - BEARING-SHAFT (5)

A. Referring to FIG. 3, set housing (4) on tool fixture no. 506110A as shown. Place the drive end of a new bearing-shaft (5) onto the center bore of housing (4) taking care to maintain a straight alignment for the O.D. of the bearing with the housing bore. Using tool no. 506110B, press in bearing-shaft (5) until it bottoms.

B. Install retaining plate (8) and secure with two screws (13).

C. Referring to FIG. 4, support bearing-shaft (5) at the drive end using tool fixture no. 506102B. Use tool no. 506110C to press magnet-rotor (6) onto shaft to the dimension indicated.

4.6 REASSEMBLY - STATOR (7)

A. Determine the position of the output connector; install stator (7) into housing so that the leads will be at the correct position adjacent the connector.

B. Install three screws (14) and lockwashers (18). Tighten screws securely.

C. Be sure a gasket (11) is in place over the output connector. Insert the output connector through the hole in the cover plate (9), and secure connector with four screws (16) and lockwashers (19).

D. Secure cover plate (9) to housing with six screws (15). Tighten screws securely.

NOTE: At this point, the shaft should turn freely without mechanical drag. If there is any mechanical interference (not to be confused with the magnetic drag of the 12-pole alternator), repeat the disassembly sequence of section 4.2 to determine the cause.

FIG.3

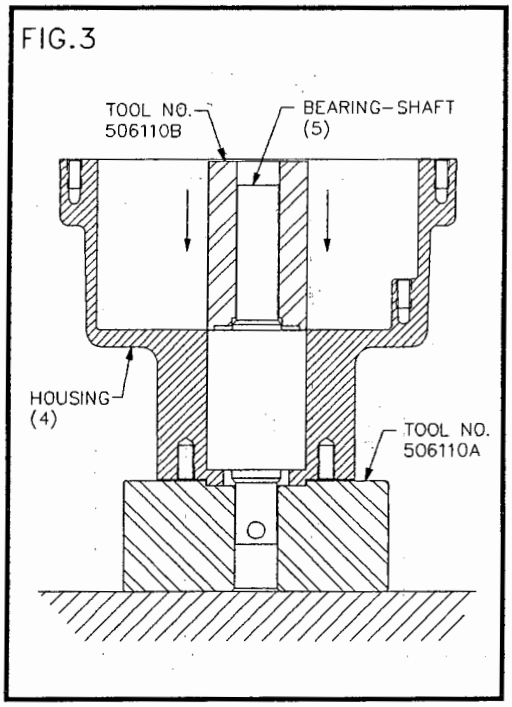
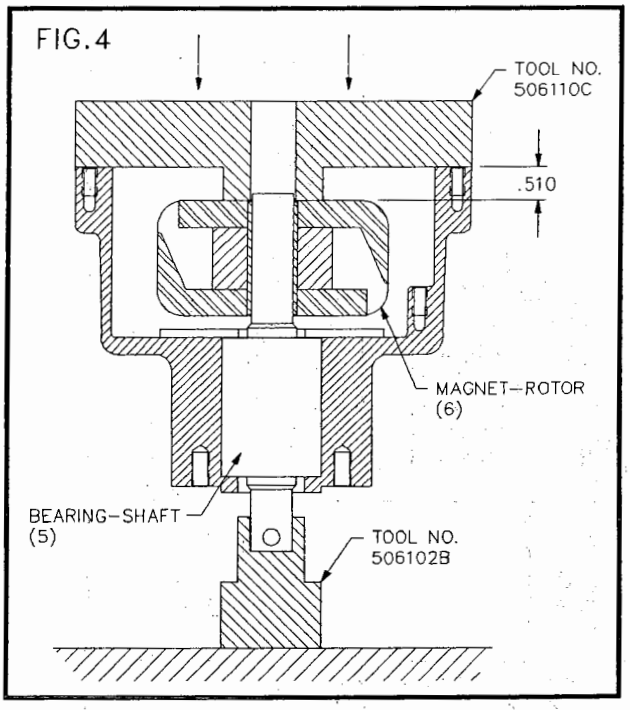


FIG.4



4.7 REASSEMBLY - FLANGE MOUNT UNIT

A. Replace oil seal (2a) in flange (2). Place a new gasket (3) on housing.

B. Install flange (2) to housing (4) and insert four new screws (12) - do not reuse the old screws. Note whether the nameplate calls for flange to be mounted vertically with tapped hole up (-A or -GV), or horizontally (-D or -G). Tighten screws (11) securely.

C. Install coupling (1) on bearing-shaft (5) lining up holes in coupling and shaft.

D. Drive spring pin (1a) through coupling (1) and shaft until flush with coupling O.D. Use tool no. 506108A for this purpose.

5.0 SERVICE - ASSEMBLY TOOLS

A. The following assembly tools are referred to in section 4.0.

506102B	Support bearing-shaft (5)
506108A	Drive coupling pin (1a)
506110A	Support housing (4)
506110B	Press bearing-shaft (5)
506110C	Press magnet-rotor (6)

6.0 OPERATIONAL TEST

A. Perform the tests following the guidelines of sections 3.0 through 3.2. Run units for one hour and repeat the measurements of section 3.1.