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**EASY**

**Step  
by  
Step**

**INSTRUCTIONS  
for**

**Armature**

**Rewinding**



*Products*

Paramount, California

**-ELECTRO-MECHANICAL SLOT RACING ACCESSORIES-**

To answer the ever-increasing desire of slot racing enthusiasts to rewind their own motor armatures, SIMCO PRODUCTS now provides the following guide lines to armature rewinding.

Without considering design factors other than the armature winding, motor output may be increased by increasing the ampere turns of the armature. This is usually accomplished by increasing the wire size and decreasing the number of turns thus decreasing the armature resistance. The voltage rating of a motor may be approximated if the armature resistance (measured in ohms) is known. Armatures of 1 ohm or less are usually rated at 6 volts and 2 ohm armatures are rated at 12 volts.

Since armature size and design varies with each different type of motor, no attempt is made to give specific turns data. Instead, convenient charts are provided to give the approximate number of feet of wire required for each motor winding for any desired armature resistance. Wire size used will vary with different armatures, as a general rule try increasing the size by two or three numbers (3 numbers double the wire size) ie. if the original wire size was AWG 34, try AWG 31 or 32.

OHMS	WIRE SIZE					
	200 -28	200 -29	200 -30	200 -31	200 -32	200 -33
.5	12.1	9.5	7.6	6.0	4.8	3.8
.75	16.6	13.2	10.5	8.3	6.6	5.2
1.0	22.6	18.0	14.3	11.3	9.0	7.1
1.25	28.7	22.8	18.0	14.3	11.4	9.0
1.5	33.2	26.4	21.0	16.6	13.1	10.4
1.75	40.7	32.4	25.7	20.3	16.1	12.8
2.0	45.2	36.0	28.5	22.6	17.9	14.2
2.25	51.2	40.7	32.2	25.6	20.3	16.1
2.5	55.7	44.3	35.2	27.9	22.1	17.5

Figure 1. Three Pole

OHMS	WIRE SIZE					
	200 -28	200 -29	200 -30	200 -31	200 -32	200 -33
.5	6.0	4.8	3.8	3.0	2.4	1.9
.75	10.5	8.3	6.6	5.2	4.1	3.3
1.0	13.5	10.7	8.5	6.7	5.3	4.2
1.25	16.6	13.1	10.4	8.2	6.5	5.2
1.5	19.6	15.5	12.3	9.7	7.7	6.1
1.75	22.6	17.9	14.2	11.3	8.9	7.1
2.0	25.6	20.3	16.1	12.8	10.1	8.0
2.25	28.6	22.7	18.0	14.3	11.3	9.0
2.5	31.6	25.1	19.9	15.8	12.5	10.0

Figure 2. Five Pole

#### Feet of wire required for each armature winding

Before removing the old wire, mark the position of the commutator in relation to the armature segments so that they may be realigned if they are moved during the rewinding process. Determine the armature resistance desired and select the wire size and length from the tables of figure 1 for three pole and figure 2 for five pole armatures. While winding the first winding count the number of turns used and record for reference while winding the balance of the armature. Wind the armature using a tight even pressure, but not so tight that the wire is stretched or broken. After removing the old wire, insulate the corners of the armature segments with electrical tape or other suitable material. Select the new wire size and length and follow these step-by-step instructions.



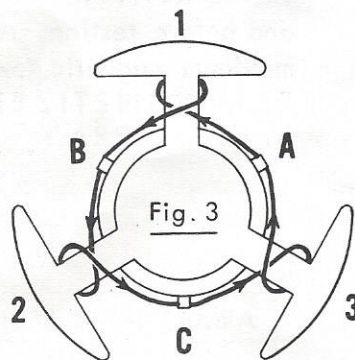
### THREE POLE (Figure 3)

1. Solder the wire to the commutator at point A, use care in soldering so that the commutator is not damaged. Start winding the wire in a clockwise direction around segment 1. Wind on the total amount of wire as determined from the wire table. Count the number of turns used.

2. After the first segment is complete, solder the wire to point B. (Note: SIMCO PRODUCTS 200 SERIES WIRE MAY BE SOLDERED WITHOUT STRIPPING.) Continue winding segment 2 in a clockwise direction. Wind segment 2 with the SAME NUMBER OF TURNS as segment 1.

3. After segment 2 is complete, solder the wire to point C and continue winding segment 3 in the same manner.

4. After segment 3 is complete, solder the wire end to point A.



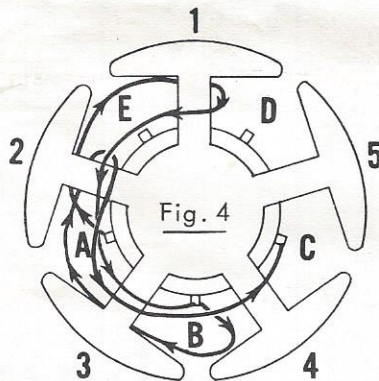
### FIVE POLE INLINE (Figure 4)

1. Solder the wire to the commutator at point A. Start winding the wire in a clockwise direction around segments 1 & 2. Wind the total amount of wire as determined from the wire table. Count the number of turns used.

2. After the first winding is complete, solder the wire to point B. Continue winding segments 2 & 3 in a clockwise direction. Wind segments 2 & 3 with the SAME NUMBER OF TURNS as segments 1 & 2. After segments 2 & 3 are wound, solder the wire to point C.

3. Wind segments 3 & 4, 4 & 5, and 5 & 1 in the same manner advancing in the counter clockwise direction with each new winding.

4. After all segments are wound, solder the wire end to point A.



### FIVE POLE SIDEWINDER (Figure 4)

Wind sidewinder type armatures in the same manner as inline types except start by soldering the wire to point E. Wind segments 1 and 2 in a clockwise direction and solder the wire to point A. Continue winding in the same manner as inline types, advancing in a counter clockwise direction with each winding.

**IMPORTANT:** After installing the armature in the motor and before testing, re-magnetize the motor magnets. For maximum magnetic power, use a **SIMCO HEAVY DUTY RE-MAGNETIZER**. Keep commutators clean by using **SPEED SPRAY**.

## WINDING NOTES

ARMATURE	RESISTANCE	TURNS	REMARKS



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