

Motor Brush Replacement Instructions

I. Purpose: The purpose of this document is to provide instructions for motor brush replacement for all single phase AC motors, except the model 2.

II. Qualifications: Properly trained Technician/Electrician, qualified to do maintenance.

III. Precautions: *Electrical and ESD precautions must be followed.*

IV. Applicable Documents:

1. Manuals and schematics for the units, which are/will be serviced.

V. Required Equipment:

1. Standard technician tool kit.
2. Bucket Truck or Ladder may be needed to access the site.
3. Clamp on AC current meter
4. Brush kit. For pricing and availability call 'Customer Care' at 800-548-7229.

VI. Brush replacement:

1. Turn off the power to the siren at the disconnect switch.
2. Remove the inspection cover from the motor. Retain the hardware.
Note: See figure 5-1 while performing steps 3 through 10 of this procedure.
3. Remove the pigtail screw from the brush holder, and lift the pigtail leads away from the holder.
4. Carefully lift the springs away from the two-segment brush and allow each spring to rest on the brush holder next to the brushes, as indicated in figure 5-1.
5. Lift the worn brushes out of the brush holder. When replacing brushes, they must be contoured to the commutator. If the brushes are not contoured, the commutator may be damaged and the brushes may wear excessively. To contour the replacement brushes, proceed as follows:
6. Cut a strip of 000 sandpaper 1-1/2" wide by 13-1/4" long. Do NOT use aluminum oxide paper or emery cloth.
7. Insert one end of the sandpaper in one of the slots between the commutator segments and wrap the paper around the commutator.
8. Install the replacement brushes and springs in the brush holder making sure that the pigtail leads are next to each other as shown in detail "A" of figure 5-1.

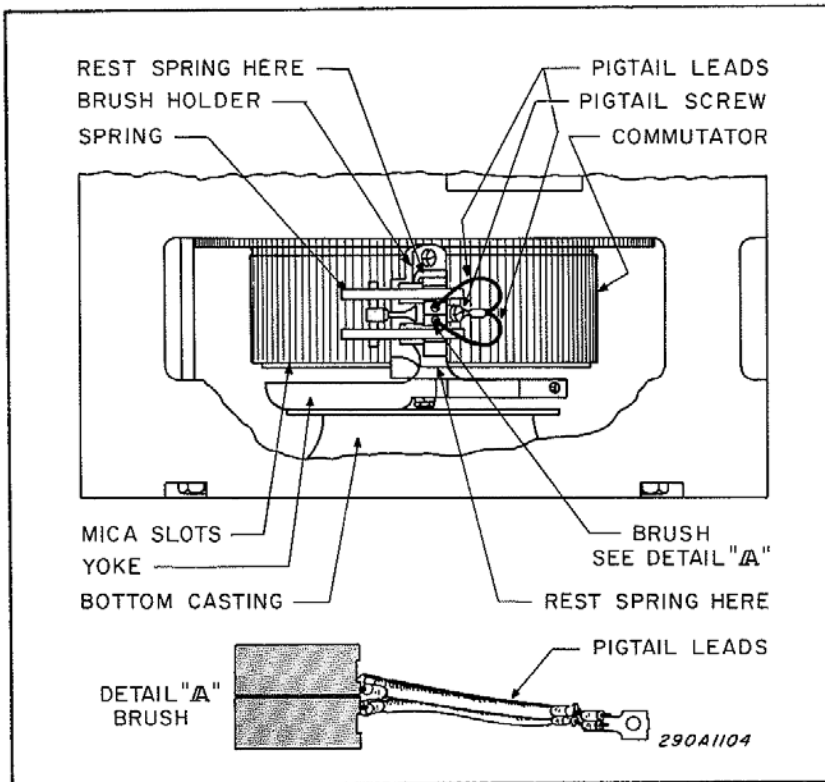


Figure 5-1. Single Phase Motor Brush Replacement.

FOR REFERENCE ONLY				SIGNAL DIVISION Federal Signal Corporation 2645 FEDERAL SIGNAL DRIVE - UNIVERSITY PARK, IL 60466				
A	REL TO REFERENCE	7/10/07	GSA	DRAWN BY:	GSA	CHKD. BY:	RW	SHEET
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- Ensure the springs have at least one turn of tension. *Picture shown below.*



WARNING: The rotor lends a significant amount of inertia to the siren motor armature. As a result, the rotor ports could cause severe injury when the rotors are rotating at any speed. Therefore, **DO NOT** rotate the commutator by sticking your fingers in the stator ports and pushing on any part of the rotor.

- Manually rotate the motor armature approximately ten turns in the direction of the sandpaper is wrapped.
- Lift the brushes slightly and remove the sandpaper from the motor.
- Clean all carbon dust out of the commutator.
- The brush should seat on the commutator as shown in figure 5- 2. If the brush does not fully contact the commutator, as shown in figure 5-2, repeat steps 7 through 13 until the brushes seat on the commutator as shown in the figure.

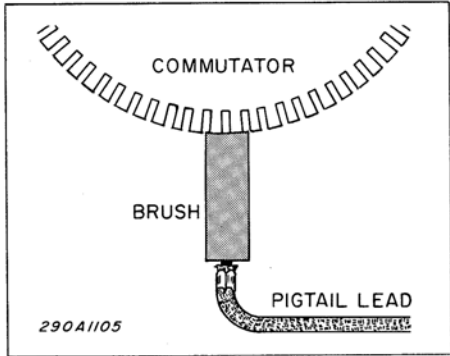
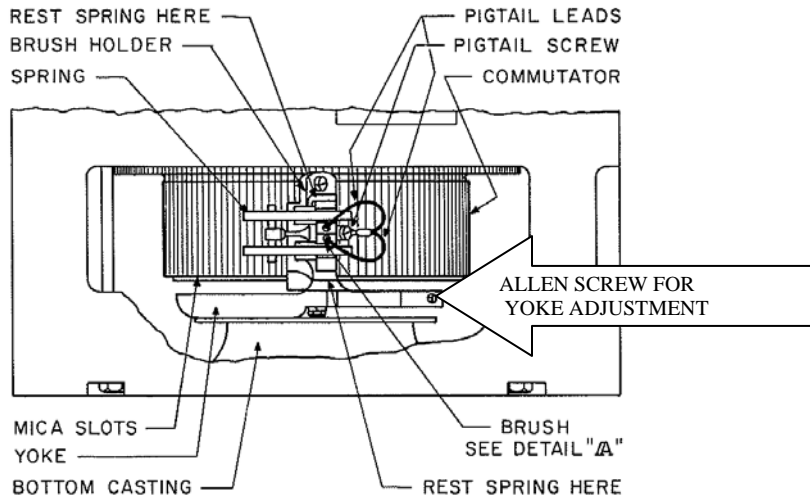


Figure 5-2. Replacement Brush Contouring.

- Manually rotate the siren motor by pushing on the commutator through inspection port in the motor housing (*see WARNING*). Observe the operation of the brushes on the surface of the commutator. The brushes should slide smoothly on the commutator surface and should not shift position vertically or laterally. If the brushes do not slide smoothly or if they shift position, repeat steps 7 through 14.

VII. Current measurement:

- Using a 'clamp on AC current meter', measure the current.
- Ensure the current measured matches the current that is specified in the manual. +/- 5%
- If the current is not correct, then loosen the allen screw, slightly adjust the 'yoke', and then tighten the allen screw.
- If the current measurement goes in the opposite direction then expected, then move the yoke the other direction.
- Repeat steps 1-4 until the current is correct.



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