ZEE Systems, Inc.

SERVICE BULLETIN 6386-1

I. PLANNING INFORMATION

A. Effectivity: All SZ58-003-Series and Z99-800-Series Motors with Z6386A Brushes (Z6386AK Brush Kit) installed prior to August 12, 2003.

B. Reason: Brush Z6386A (included in Z6386AK Kit) shipped before 8-12-03 have a insulation sleeve over the copper wire strands between the terminal lug and the carbon contact. In some cases this sleeve causes the brush to hang up in the brush holder and lose contact with the armature commutator. This condition causes the motor to turn slower and pull a higher than expected current draw which in some cases causes the current limiter and or circuit breaker to trip. This condition does not present any danger to flight.

C. Description: This Service Bulletin gives instructions on inspection and brush modification procedures.

D. Compliance: Compliance is mandatory.

E. Approvals: The procedures in this Service Bulletin do not effect the intended fit, form and function of the brush assembly and does not require further agency approval.

F. Manpower: Time should be allocated to 1) Remove the Brush Bands from the motor to inspect the motor brush assemblies. 2) As required remove the Motor from the Motor Compressor Condenser Assembly (MCC) or the Motor Compressor Assembly (MC) from aircraft, 3) Modify or replace brushes, 4) run in brushes, 5) re-install motor in MCC or MC, 6) re- install MCC or MC in aircraft, 7) update logbook.

G. Material cost and Availability: ZEE Systems, Inc. will replace at no charge any brush assemblies (brush kits) that have been installed and fails the inspection section of this service bulletin. To receive a no charge replacement brush kit return all four (4) brush assemblies. ZEE Systems, Inc. will provide a replacement Z6386AK brush kit at no charge. Motors that have the defective brush assemblies may be returned, prepaid freight, to ZEE Systems, Inc. ZEE Systems, Inc. will install the brushes in accordance with this service bulletin, including labor, at no charge and return motor prepaid via ground carrier. Return to:

ZEE Systems, Inc
406 W. Rhapsody
San Antonio, TX 78216
USA

TEL: 210-342-9761 / 800-988-COOL
FAX: 210-341-2609
e-mail: info@zeeco-zeesys.com

H. Equipment and Tooling: This equipment is required for field repair and brush replacement run in and test.

Power Supply capable of 28VDC @ 50A continuous duty	Commercially Available
Amp Clamp	Commercially Available

I. Weight and Balance: No effect.

J. Electrical Load Data: No effect.

K. References: Refer to the following documents:

Component Maintenance Manual SZ45
Process Specification SZ-004 Motor Assembly Instructions

II. ACCOMPLISHMENT PROCEDURES - UNUSED NEW BRUSH KIT

A. Inspection: Remove brush assemblies from packaging. All brush assemblies that have a white insulation tube over the copper wire between the terminal lug and the carbon contact must be modified. No action is required on brush assemblies which do not have the white insulation. Note on package compliance with the service bulletin.

B. Modification: Using a razor blade cut along the insulation. Take care not cut into the copper wire strands. Discard the insulation. Return the brush assemblies to protective packaging. Note on package compliance with the service bulletin.

III. ACCOMPLISHMENT PROCEDURES - INSTALLED BRUSH KIT

A. Inspection: Remove the two brush covers on the motor.

1.0 If brush assemblies do not have the white insulation no action is required. Replace brush covers and return the motor to service. Note compliance with this service bulletin.

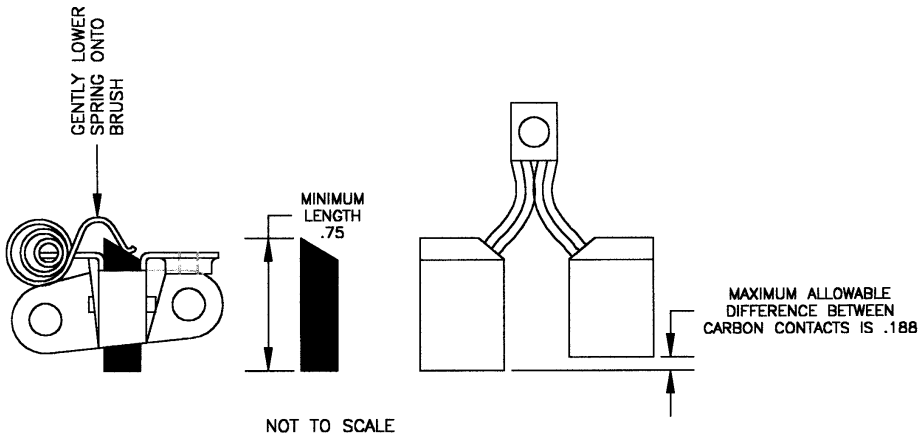
2.0 If brush assemblies have a white insulation tube remove each brush assembly. Mark each brush assembly to insure each brush is returned to the same holder.

2.1 Lift the brush spring and move it to the side. Remove the brush assembly from the holder.

2.2 On each brush assembly measure the length of the shorter of the two carbon contacts.

2.3 If any one carbon contact is 3/4" (.75) or shorter replace all four brush assemblies.

2.4 Measure the difference in the length of the two carbon contacts. If the difference between the two contacts on any one brush assembly is more than 3/16" (.188) replace all four brush assemblies.



2.5 If all four brush assemblies meet the length requirements proceed to Modification.

B. Modification: Using a razor blade cut along the insulation. Take care not cut into the copper wire strands. Discard the insulation (2 per brush assembly).

1.0 Return the brush assembly to the same holder in the motor. The brush should slide easily in and out of the holder. Secure with the screw and lock washer.

1.1 Gently replace the spring. Do not drop the spring onto the brush as this may damage the carbon contact.

C. BRUSH RUN IN: Run-in the brushes. Connect the motor to a power supply capable of 50A @ 28VDC continuous duty.

NOTE: This is a high torque motor. Never apply full power at start unless the motor is secured.

1.0 Slowly apply 26VDC ±2VDC. Check for excessive arcing. If excessive arcing occurs reduce voltage to 16VDC ±2VDC. Using a suitable commutator polishing stone, hold the stone solidly but do not apply more than a very light pressure against the commutator. Continue to polish the commutator until any excessive amounts of carbon build up are removed. When commutator is smooth slowly increase voltage to 26VDC ±2VDC. Check for arcing. Acceptable arcing is limited to pin points. Use shop air to remove any polishing stone residue from the inside of the motor.

1.1 When arcing is determined to be acceptable replace the brush covers. NOTE: Brush covers must be on the motor during the next run in procedure. Brush covers are necessary for proper airflow for the internal cooling of the motor. Slowly apply 16VDC. Run the motor for 30 minutes to seat the brushes to the commutator. After 30 minutes remove the brush covers and check the seating of the brushes. Run the motor until the commutator has a smooth even glaze over the surface in contact with the brushes. When the brushes are seated slowly increase the voltage to 26VDC ±2VDC, the running current should be 28A-34A. If the no load running current is not within this tolerance the motor may require additional repairs. Contact ZEE Systems, Inc. technical assistance.

1.2 Install the motor to the MCC or MC.

D. DOCUMENTATION: Record compliance with the service bulletin in appropriate logbook records.