

MiTek Machinery

# Service Bulletin

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Machinery Affected: *Cyber<sup>®</sup> A/T, Cyber, SmartSet<sup>®</sup>, and SmartSet Pro Saws*

Document: SB155

Title: Replacing a Baldor Motor with an Emerson (US) Blade Motor

Applies To: All Saws with Baldor Motors

Distribution: Customers, Upon Order



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## Purpose and Scope

This Service Bulletin procedure should be completed by customers who have ordered a replacement saw blade motor for the *MiTek<sup>®</sup> Cyber<sup>®</sup> A/T*, *Cyber*, *SmartSet<sup>®</sup>*, and *SmartSet Pro* saws. This Service Bulletin affects frames 1 through 402.

The Baldor saw blade motors are being replaced with Emerson (US) motors. The Emerson (US) motors do not have a blower, therefore, the electrical wiring for the blower is no longer required and must be removed from the electrical enclosures. The brake cylinder's straight air fittings need to be replaced with angled air fittings to accommodate installation of the new motor.


In this Service Bulletin, you will find step-by-step procedures for removing the blower electrical wiring associated with the Baldor motor and replacing the brake cylinder air fittings.

## Overview

Table 1 lists the kits and the items included in each kit to complete this procedure for the listed motor assemblies.

In Table 2, you will find a list of the tools and supplies required to complete this Service Bulletin.

Table 3 describes the item nomenclature used throughout this Service Bulletin with the corresponding callout numbers. Used along with the graphics, the callouts will assist you in identifying the parts and their locations.

WARNING	
	<p><b>CUT AND PERSONAL INJURY HAZARD.</b></p> <p>The motor assembly, which consists of the motor and hub, is not serviceable by customers. Only qualified, MiTek personnel can make adjustments to the hub on the motor shaft. If service is required, remove the entire motor and call MiTek Customer Service to arrange for service.</p> <p>Failure to follow this restriction may result in blades coming loose from the motor shaft which can result in severe injury, including death.</p>

**Table 1: List Of Kits**

Kit	Quantity	Part Number	Description
SB155KIT-A	1	78420-513	5-hp motor w/hub assembly
	1	SB155	Service bulletin document
	2	747285	Fitting, 1/8 NPT x 1/4
	2	747832	Elbow tube 1/8 NPT x 1/4
	4	327257	Hex head capscrew 3/8-16 x 3/4
SB155KIT-B	1	78420-514	10-hp motor w/hub assembly
	1	SB155	Service bulletin document
	2	747285	Fitting, 1/8 NPT x 1/4
	2	747832	Elbow tube 1/8 NPT x 1/4
	4	327265	Hex head capscrew 3/8-16 x 1 1/2
SB155KIT-C	1	78422-512	5-hp motor w/hub assembly (replace customer's motor on motor hub assembly)
	1	SB155	Service bulletin document
	2	747285	Fitting, 1/8 NPT x 1/4
	2	747832	Elbow tube 1/8 NPT x 1/4
	4	327257	Hex head capscrew 3/8-16 x 3/4
SB155KIT-D	1	78422-513	10-hp motor w/hub assembly (replace customer's motor on motor hub assembly)
	1	SB155	Service bulletin document
	2	747285	Fitting, 1/8 NPT x 1/4
	2	747832	Elbow tube 1/8 NPT x 1/4
	4	327265	Hex head capscrew 3/8-16 x 1 1/2

**Table 2: Tools and Supplies Required**

Description
Slotted screwdriver
Adjustable wrench
Teflon tape

**Table 3: Item Nomenclature**


Callout Number	Nomenclature
1	200-amp breaker
2	1-amp double pole breaker (stationary end)
3	Switch (stationary end)
4	Screw (stationary end)
5	FL1 wire (stationary end)
6	FL3 wire (stationary end)
7	Terminal block (stationary end)
8	Screw (stationary end)
9	Ground wire (stationary end)
10	Screw (stationary end)
11	2L1/2L3 wire (stationary end)
12	Screw (stationary end)
13	1-amp double pole breaker (carriage end)
14	Switch (carriage end)
15	Screw (carriage end)
16	FL1 wire (carriage end)
17	FL3 wire (carriage end)
18	Terminal block (carriage end)
19	Screw (carriage end)
20	Ground wire (carriage end)
21	Ground block (carriage end)
22	Screw (carriage end)
23	4L1/4L3 (carriage end)
24	Screw (carriage end)
25	Air hose
26	Straight fitting collar
27	Straight fitting
28	Brake cylinder
29	Tee
30	Elbow tube
31	Jam nut
32	Adjustment bolt
33	Spherical washer
34	Hub


## Procedure

### Positioning the Motor for Removal

1. Place the saw in the semi-automatic mode by pressing the SEMI-AUTO button on the touch screen's main menu.
2. Press the CLEANING POSITION button.
3. Press the INITIATE SETUP button.


### Electrical Lockout/Tagout Procedures



WARNING	
	<p><b>ELECTROCUTION HAZARD!</b></p> <p>Verify that all power to the machine has been turned off and follow approved lockout/tagout safety procedures before performing any maintenance.</p> <p><b>All electrical work must performed by a qualified electrician.</b></p> <p><b>If it is absolutely necessary to troubleshoot an energized machine, follow NFPA 70E for proper procedures and personal protective equipment.</b></p>

Before performing maintenance on any machine with electrical power, lockout/tagout the machine properly. When working on a machine outside of the machine's main electrical enclosure, not including work on the electrical transmission line to the machine, follow your company's approved lockout/tagout procedures which should include, but are not limited to the steps here.

1. Engage an E-stop on the machine.
2. Turn the disconnect switch handle on the machine's main electrical enclosure to the "off" position. See Figure 1.


WARNING	
	<p><b>ELECTROCUTION HAZARD.</b></p> <p><b>When the disconnect switch is off, there is still live power within the disconnect switch's enclosure. Always turn off power at the building's power source to the equipment before opening this electrical enclosure!</b></p>


3. Attach a lock and tag that meets OSHA requirements for lockout/tagout.

Figure 1: Lockout/Tagout on the Main Electrical Enclosure



## Pneumatic System Lockout/Tagout Procedure

WARNING	
	<p><b>MOVING PARTS CAN CRUSH AND CUT.</b></p> <p>Always verify that power to the machine has been turned off and follow approved lockout/tagout procedures.</p> <p>Turn off the shutoff valve before performing any maintenance on the equipment.</p>

WARNING	
	<p><b>HIGH PRESSURE HAZARD.</b></p> <p>Bleed pneumatic lines before performing any maintenance on the pneumatic system.</p>

## Removing the Motor


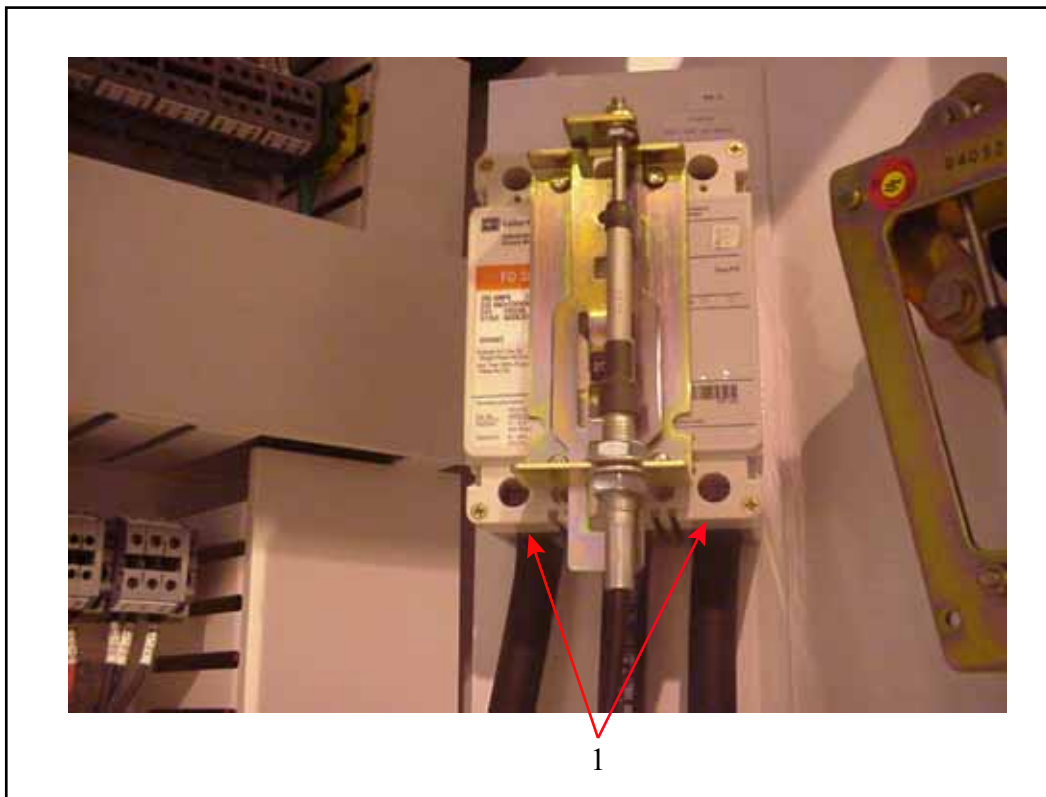
DANGER	
	<p><b>ELECTROCUTION HAZARD.</b></p> <p>All electrical work must be performed by a certified electrician and must conform to all national electrical codes.</p> <p>Do not turn on electrical power until you have completed the entire procedure.</p> <p>Follow approved lockout and tagout procedures (OSHA 29 CFR 1910.147).</p>


Figure 2: Verify Power Source is Off



1. Referring to Figure 2 and using a multimeter, verify power is off below the 200-amp breaker (1).
2. Disconnect the air supply.
3. Remove the blade.
4. Open the brake.



- Disconnect all wiring from the motor, noting how it is wired.

CAUTION	
	<p><b>PERSONAL INJURY HAZARD.</b></p> <p>Two personnel should install the motor. The 5-hp motor weighs approximately 65 lbs and the 10-hp motor weighs approximately 90 lbs.</p> <p>Failure to exercise care may result in injury to personnel and/or damage to the equipment.</p>

- Remove the four 3/8-in bolts holding the motor to the motor plate.



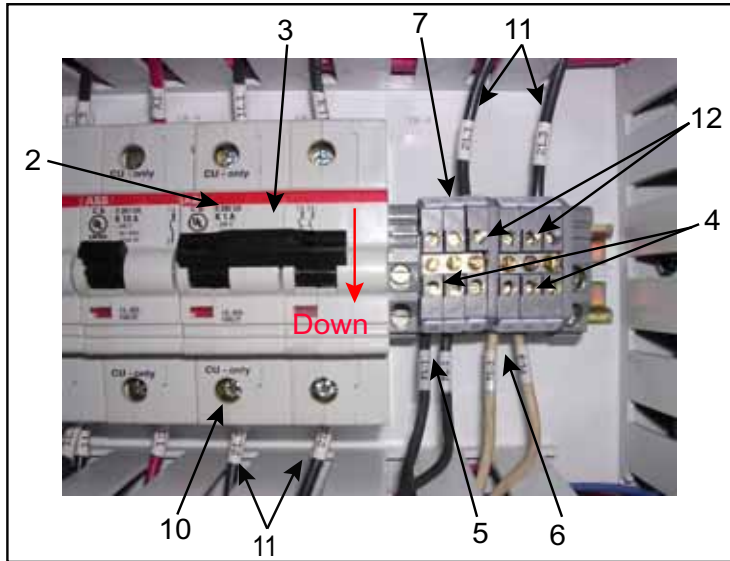
*Keep the washers that are removed for use during installation of the motor. New hex head capscrews are supplied with your kit.*

- Remove the motor.

## Removing the Blower Motor Electrical Wiring From the Stationary End

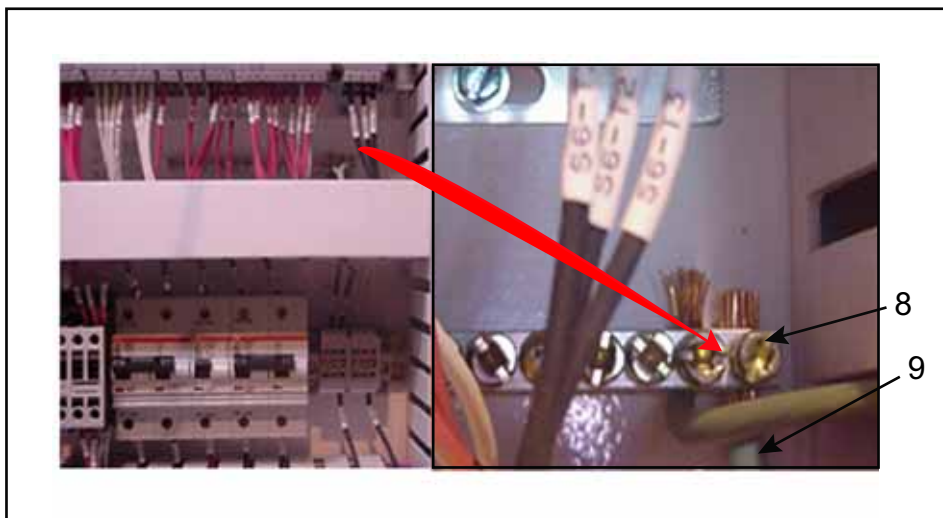
1. Turn off the 1-amp double pole breaker (3) by pushing down on the switch (3). Refer to Figure 3.

**Figure 3: Wire Removal**



1. Loosen the screws (4) holding the wires FL1 (5) and FL3 (6). Refer to Figure 2.
2. Remove the wires FL1 (5) and FL3 (6) from the terminal block (7).
3. Loosen the screw (8) holding the ground wire (9), shown in Figure 4.
4. Remove the ground wire (9).

**Figure 4: Stationary End Ground Wire**



## Removing the Stationary End Blower Circuit Breaker Load Side Wiring



*Complete step 1 through step 8 only if all saw blade motors are being replaced or this is the last Baldor blade motor on the saw that is being replaced with the Emerson (US) motor.*

*The power for the blower is provided through wires 2L1 and 2L3. When all blowers have been removed, the wires 2L1 and 2L3 are no longer necessary.*

1. Refer to Figure 4 and loosen the screws (10) holding the wires 2L1 and 2L3 (11) in circuit breaker (2).
2. Remove the wires 2L1 and 2L3 (11) from the circuit breaker (2).
3. Locate the end of the wires 2L1 and 2L3 (11) that are connected to the terminal block (7).
4. Loosen the screws (12) holding the wires 2L1 and 2L3 (11) in the terminal block (7).
5. Remove the wires 2L1 and 2L3 (11) from the terminal block (7).
6. Remove the three conductor cable from the wireway.
7. Discard the three conductor cable in accordance with local procedures.
8. Remove the terminal covers located on the top and bottom of the terminal block (7). Discard terminal covers.

## Removing the Carriage End Blower Circuit Breaker Load Side Wiring

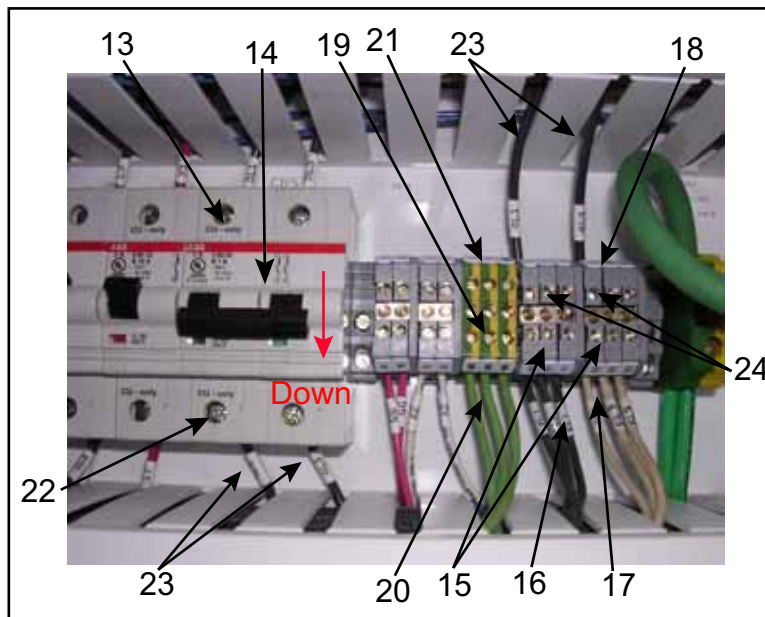


Complete step 1 through step 6 only if all saw blade motors are being replaced or this is the last Baldor blade motor on the saw that is being replaced with the Emerson (US) motor.

The power for the blower is provided through wires 2L1 and 2L3. When all blowers have been removed, the wires 2L1 and 2L3 are no longer necessary.

1. Refer to Figure 5 and loosen the screws (22) holding wires 4L1 and 4L3 (23) in the circuit breaker (13).

**Figure 5: Wire Removal**



2. Remove the wires 4L1 and 4L3 (23) from the circuit breaker (13).
3. Locate the end of the wires 4L1 and 4L3 (23) that are connected to the terminal block (18).
4. Loosen the screws (24) holding the wires 4L1 and 4L3 (23).
5. Remove the wires 4L1 and 4L3 (23) from the terminal block (18) and the cable from the wireway.
6. Remove the terminal covers located on the top and bottom of the terminal block (18) and the ground block (21). Discard the terminal covers.

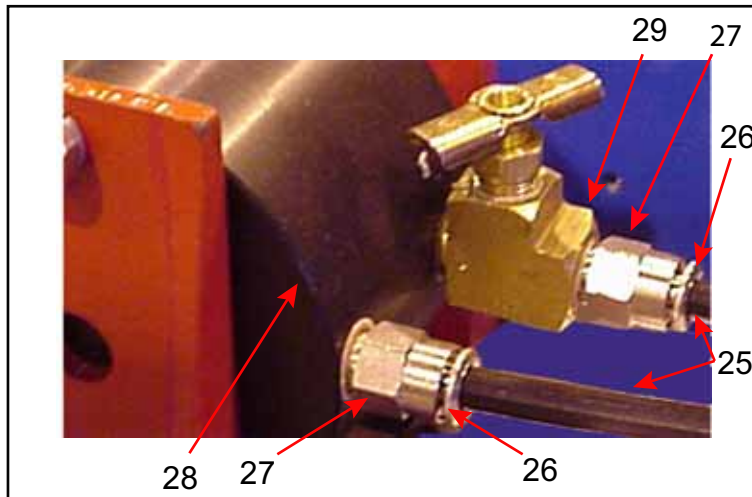
## Removing the Blower Motor Electrical Wiring From the Carriage End

1. Turn off the 1-amp double pole breaker (13) by pushing down on the switch (14). Refer to Figure 5.
2. Loosen the screws (15) holding the wires FL1 (16) and FL3 (17).
3. Remove the wires FL1 (16) and FL3 (17) from the terminal block (18).
4. Loosen the screws (19) holding the ground wires (20) in the ground block (21).
5. Remove the ground wires (20) from the ground block (21).
6. Remove the three conductor cable from the wireway.

## Removing and Installing the Air Fittings

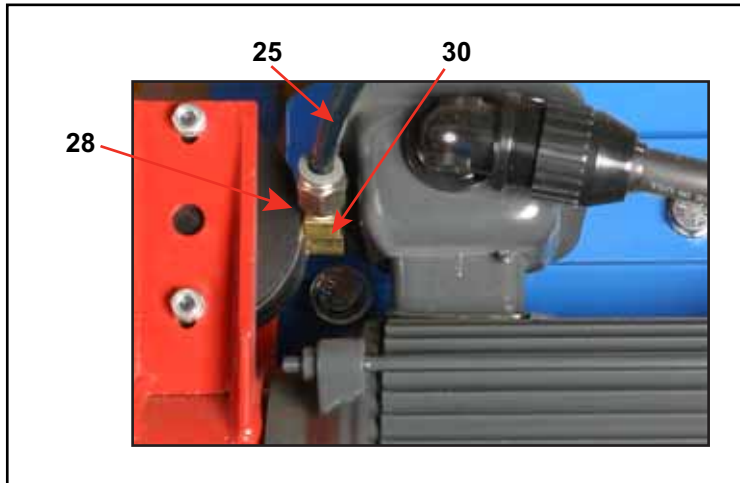
1. Refer to Figure 6 and remove the air hoses (25).
  - a) Tag the air hoses (25) for identification during re-assembly.
  - b) Push the straight fitting collar (26) toward the straight air fitting (27).
  - c) Pull the air hoses (25) away from and out of the straight air fittings (27).
2. Loosen and remove the straight air fitting (27) from the brake cylinder (28) and tee (29).

**Figure 6: Old Air Fittings**



3. Loosen and remove the tee (29) from the brake cylinder (28).
4. Clean the brake cylinder (28) threads.

**Figure 7: Tubes Installed**




5. Install the elbow tube (30) into the brake cylinder (28) and tighten, as shown in Figure 7.



*To accommodate installation of the new motor, the elbow tubes must be installed with the connections pointed down and at an angle as shown in Figure 7.*

6. Attach the straight tube to the elbow tube and tighten.
7. Insert the air hose into the straight tube.
8. Pull on the air hose (25) to ensure it is inserted completely into the straight tube.

## Installing the New Motor

CAUTION	
	<p><b>PERSONAL INJURY HAZARD.</b></p> <p><b>Two personnel should install the motor. The 5-hp motor weighs approximately 65 lbs and the 10-hp motor weighs approximately 90 lbs.</b></p> <p><b>Failure to exercise care may result in injury to personnel and/or damage to the equipment.</b></p>

1. Place the motor on the mounting plate and install the four new 3/8-in mounting bolts, supplied with your kit.
2. Reconnect wiring.
3. Reconnect the brake.

## Aligning The Air Brakes



The idea is to get the brake shoes as close to the hub as possible without letting them rub. The adjustment screws hold the shoes close to the hub. As the brakes wear, it may become necessary to adjust the brakes or remove the gap caused by the wearing of the shoe. All brakes are adjusted in the same basic manner, but configuration may differ.

The procedure below is for the number one saw, but the procedure applies to all saw quadrants. Each half of the caliper brake assembly has its own adjustment. If no adjustment is evident when using the adjustment screws, check that the brake lining is not worn down. When the brakes are adjusted correctly, the brake should stop within 6 seconds.

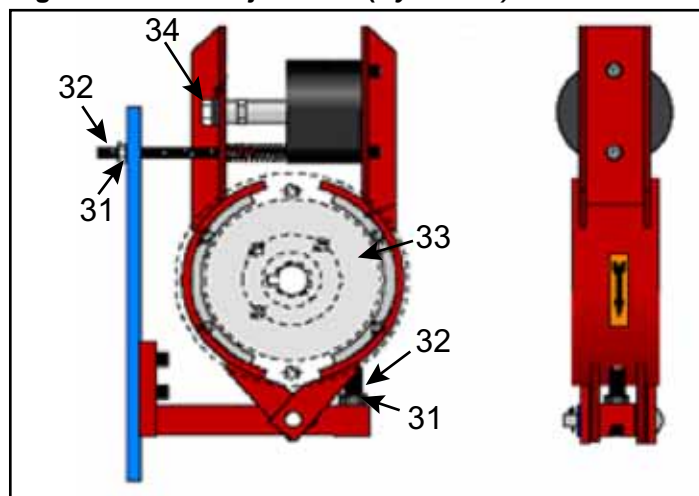
1. Disconnect the air supply at the rear of the machine.
2. Lock the brakes.
3. For safety reasons, remove the saw blade.
4. Reconnect the air supply.



The following steps apply to the Cyber A/T saw. Your saw may differ slightly.

5. Refer to Figure 8 and loosen the jam nuts (31).

**Figure 8: Brake Adjustment (Cyber A/T)**



6. Turn in the adjustment bolts (32) until they touch the hub (33), then back off the bolt one full turn.
7. Visually verify that the clearance is just enough for the hub to spin freely.



8. Tighten the jam nuts (31).



*Spherical washers (34) should be snug. If loose, they will vibrate and create excessive noise.*

*If the hub does not rotate freely and binds on the shoes, the adjusting screws should be backed out until the hub rotates freely.*

9. Spin the saw hub (33) by hand to be sure of clear rotation.
10. If necessary, back out the adjustment bolts (32) until the hub (33) rotates freely.
11. Remove lock and tag and reconnect power to the saw.
12. From the Semi-Auto menu, press the *Start* button to start the motor.



*In the following step, the motor should rotate toward the operator. If direction is wrong any two wires may be reversed at the motor.*

13. Check the motor rotation at the top of the hub (33).
14. Press the STOP button to stop the motor.
15. Using the applicable manual for you saw, verify that the blade draft, blade alignment and pivot point are correct.

Please call *MiTek* Customer Service at 1-800-523-3380 with any questions you may have concerning this Service Bulletin.

**END OF SERVICE BULLETIN**