MiTek Machinery

Service Bulletin

Equipment Affected	**Finish Roller**
Title	**Replacing a *Baldor* Motor and a *David Brown*® Gearbox with a *Nord*® Gear Motor**
Date	**05/04/2005**

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SB 162	
Date Created	05/04/2005
Created by	tgl
Reviewed by	rt
Approved by	gm

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Title	**Replacing a Baldor Motor and a *David Brown*® Gearbox with a *Nord*® Gear Motor**
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Purpose and Scope

This Service Bulletin affects all *MiTek*® Finish Rollers manufactured prior to July of 2004.

This Service Bulletin is being issued to assist MiTek customers with the replacement of the Finish Roller motor and gearbox with a *Nord*® gear motor. In this Service Bulletin, you will find the procedure for removing the current motor and gearbox and installing the *Nord* gear motor.

If there are any questions, please have your electrician call MiTek Customer Service at 800-523-3380.

Overview

Table 1 lists the kits and the items included in each kit needed to complete this procedure.

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

After completing this procedure, change the part number on drawing 68300 of the drawing set in your Operation and Maintenance Manual to reflect the new gear motor part number listed in Table 1.

Table 1: Parts Included in Each Kit

	Quantity	Part Number	Description
SB162KIT-208V	4	327947	3/4-10x3-1/2 HHCS
	4	364066	3/4" lock washer
	1	480402	Gear motor, *Nord*,10 hp, 208VAC
	52"	510033	3/4" flex *Liquatite*® conduit
	1	511113	3/4" flex 90-degree connector
	1	SB162	Service Bulletin document
SB162KIT-230V	4	327947	3/4-10x3-1/2 HHCS
	4	364066	3/4" lock washer
	1	480401	Gear motor, *Nord*,10 hp, 230VAC
	52"	510033	3/4" flex *Liquatite* conduit
	1	511113	3/4" flex 90-degree connector
	1	SB162	Service Bulletin document
SB162KIT-460V	4	327947	3/4-10x3-1/2 HHCS
	4	364066	3/4" lock washer
	1	480399	Gear motor, *Nord*,10 hp, 460VAC
	52"	510033	3/4" flex *Liquatite* conduit
	1	511113	3/4" flex 90-degree connector
	1	SB162	Service Bulletin document
SB162KIT-575V	4	327947	3/4-10x3-1/2 HHCS
	4	364066	3/4" lock washer
	1	480400	Gear motor, *Nord*,10 hp, 575VAC
	52"	510033	3/4" flex *Liquatite* conduit
	1	511113	3/4" flex 90-degree connector
	1	SB162	Service Bulletin document

Table 2: Tools and Supplies

Description
0-400 in-lb torque wrench
Allen wrench set
Hoisting device
Lifting tool
Loctite® (blue) thread adhesive or similar product
Multimeter
Open end wrench set
Phillips head screwdriver
Slotted screwdriver
Socket wrench set
Straight edge 3' long (alignment tool)
Wire cutters

Procedure

Removing the Electrical Wiring

	WARNING
	All electrical work must be performed by a qualified electrician and shall conform to all national electrical codes. **Do not turn on electrical power until you have completed the entire procedure.** **Follow approved lockout and tagout procedures (OSHA 29 CFR 1910.147).**

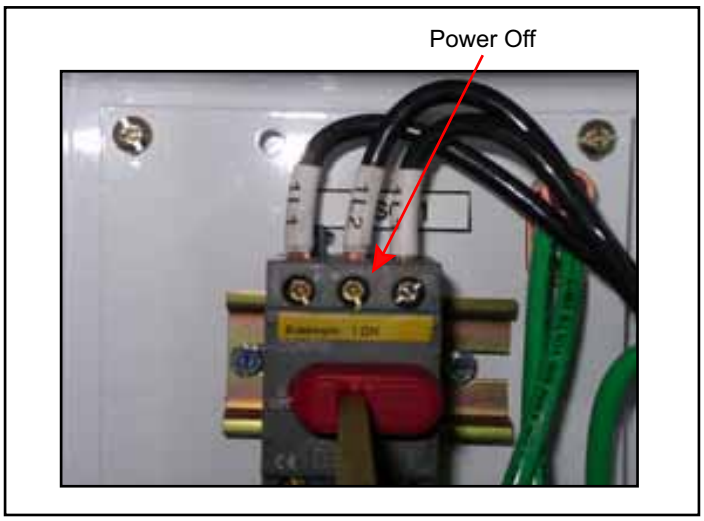
1. Refer to Figure 1 to turn off, lockout, and tagout all the power to the machine.

Figure 1: Power Off Switch

2. Open the main electrical enclosure.

3. Refer to Figure 2 and using a multimeter, verify the power is off inside the main electrical enclosure where wires 1L1, 1L2 and 1L3 are connected.

Figure 2: Main Electrical Enclosure



4. Remove the cover from the motor junction box.

Figure 3: Motor Junction Box

5. Disconnect the wires 1T1, 1T2, 1T3, 5L1, 5L3, and the ground wire.

6. Loosen and remove the cap screw holding the conduit clamp to the Finish Roller.

7. Remove and discard the flex 45-degree connector from the motor and the conduit.

CAUTION
During the following procedure, use care when pulling the conduit from the electrical wiring. Failure to comply may result in damage to the wiring.

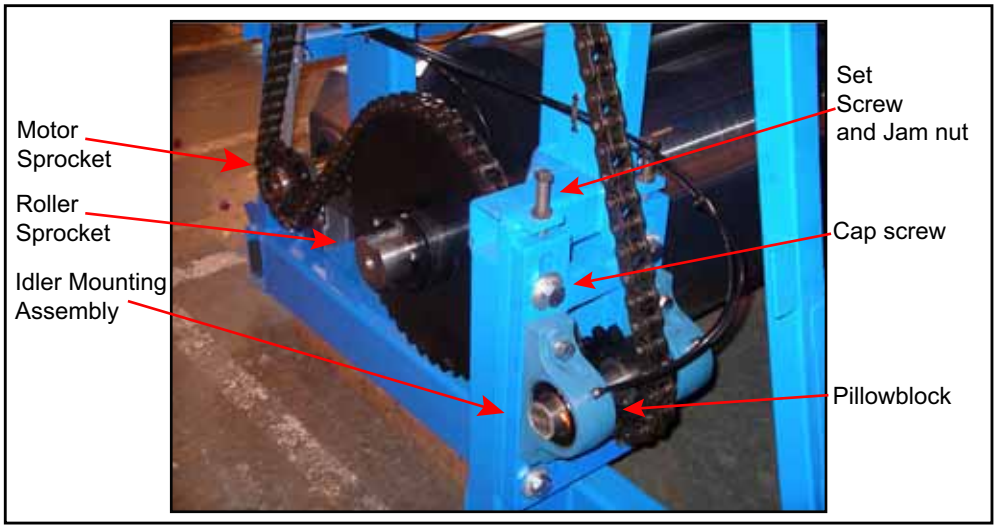
8. Disconnect the 90-degree fitting on the electrical enclosure and discard.

9. Leaving the wires connected to the electrical enclosure, pull the conduit off of the electrical wiring.

Removing the Motor and Gearbox

1. Remove the button head cap screws holding the end guard and the drive guard on the machine.
2. Remove the end and drive guards.

Figure 4: Finish Roller Drive System



3. Using a wrench, loosen the four (4) cap screws holding the idler mounting assembly on the frame.
4. Loosen the jam nuts and the set screws above the pillowblock.
5. Slide the pillowblock toward the top of the machine.

The following step is to assist in the removal of the chain and is only temporary.

6. Tighten one of the hex head cap screws hand tight.
7. Remove the connecting link on the drive chain.
8. Remove the chain from the motor sprocket.

In the following step, retain the set screw, key, sprocket, and bushing for use during the installation section of this Service Bulletin.

9. Remove the motor sprocket and the *QD*® bushing from the motor shaft.
   a) Using an Allen wrench, loosen the set screw securing the key in place on the motor shaft.

b) Remove the socket head cap screws from the *QD* bushing. Do not discard the screws they will be used during installation of the gear motor.

c) Inspect the socket head cap screws for damage. If necessary, replace the cap screws by ordering MiTek P/N 326269.

d) Install the removed socket head cap screws into the threaded jack holes.

The following step releases the bushing grip and forces the sprocket off of the QD *bushing.*

CAUTION
During the following step, DO NOT apply excessive screw torque or uneven pressure on the jack screws. Failure to comply may result in damage to the equipment.

e) Alternately and evenly tighten the socket head cap screws, starting with the socket head cap screw farthest from the bushing saw slot.

f) Remove the motor sprocket, bushing, and key from the motor shaft.

	WARNING
	**The motor and gearbox weigh approximately 315 lbs total. Failure to support the motor and gearbox may result in personal injury and/or damage to the equipment.**

g) Remove the socket head capscrews from the threaded jack holes. Retain the screws for use during installation of the gear motor.

10. Attach a hoisting device to the motor and gearbox lifting points.

11. Remove and discard the hex head cap screws and lock washers from the motor and gearbox.

12. Lift and remove the motor and gear box.

Installing the Gear Motor

1. Clean the shaft, bore, bushing tapered surface, and bushing bore of oil, paint, and any debris that may be on the shaft.

	WARNING
	**The gear motor weighs approximately 375 lbs total. Failure to support the gear motor may result in personal injury and/or damage to the equipment.**

2. Using a hoisting device, raise the gear motor, and position the gear motor on the Finish Roller frame.

3. Place a supplied lock washer on each of the four (4) supplied hex head cap screws, and install the socket head cap screws into the mounting holes of the gear motor and the threaded holes of the Finish Roller frame.

4. Using a wrench, tighten the hex head cap screws to secure the gear motor to the frame.

CAUTION
During the following steps, DO NOT use any lubricants to install the sprocket or bushing. Failure to comply may result in damage to the equipment.

5. Install the previously removed tapered bushing into the previously removed sprocket hub.

6. Install the socket head cap screws finger tight into the threaded holes of the sprocket hub.

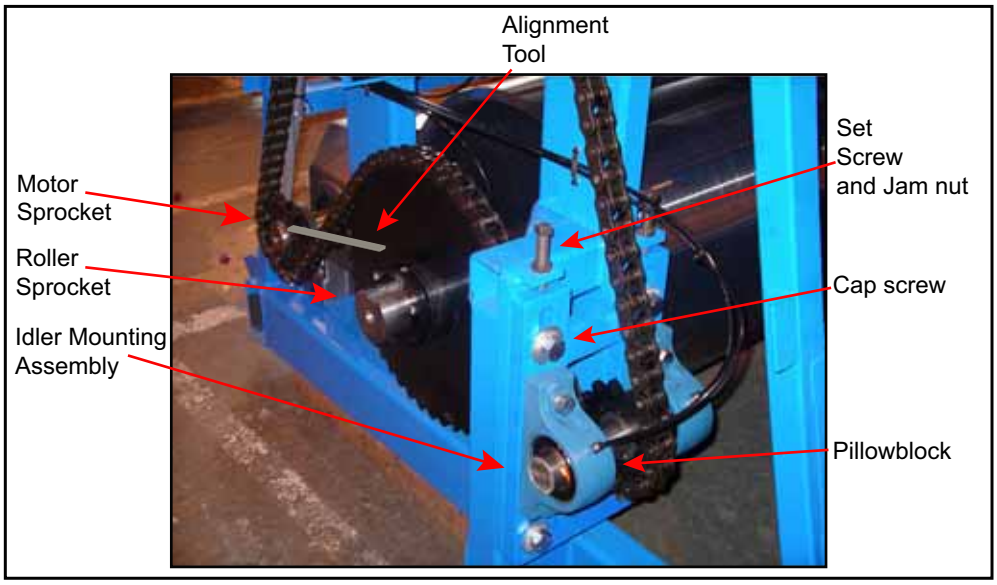
7. Place the key onto the shaft.

CAUTION
Verify the bushing is positioned correctly prior to performing the following step. Failure to do so may result in damage to the equipment.

8. Place the motor sprocket and *QD* bushing on the motor shaft.

9. Using a straight edge, align the motor sprocket with the roller sprocket.

Figure 5: Drive System Alignment



CAUTION

During the following step, failure to torque the screws correctly may result in damage to the screws.

If a screw yields, it may have broken. Replace broken screws with Grade 8 hex head cap screws.

10. Using a torque wrench, carefully tighten the bushing socket head cap screws alternately and in increments, starting at 300 in-lbs and increasing 20 in-lbs to a final torque of 360 in-lbs.

11. Verify that a gap between 1/8 in. and 1/4 in. exists between the bushing flange and the hub.

12. Using a torque wrench, tighten the set screw over the key to a torque of 290 in-lbs.

13. Install the drive chain on the motor sprocket.

14. Using a wrench, tighten the set screws on the pillowblock until the chain deflection is no more than 1/2 in. (1/4 in. both directions).

15. Using a wrench, tighten the jam nuts.

16. Position the end guard on the machine.

17. Apply blue *Loctite* to the threads of the button head socket cap screws.

18. Using an Allen wrench, install and hand tighten the button head socket cap screws into the end guard.

19. Position the drive guard on the machine.

20. Apply blue *Loctite* to the threads of the cap screws.

21. Using an Allen wrench, install and hand tighten the button head socket cap screws in the drive guard.

Installing the Electrical Wiring

	WARNING
	**All electrical work must be performed by a qualified electrician and shall conform to all national electrical codes.** **Do not turn on electrical power until you have completed the entire procedure.** **Follow approved lockout and tagout procedures (OSHA 29 CFR 1910.147).**

1. Slide the 90-degree fitting over the wiring, and install on the electrical enclosure.
2. Fish the connected wiring from the soft-start enclosure through the supplied 52-in. piece of conduit.
3. Hand tighten the collar on the 90-degree fitting.
4. Run the conduit through the conduit clamp located between the motor and the electrical enclosure.
5. Run the wires and the conduit through the 45-degree fitting on the motor junction box.
6. Hand tighten the collar on the 45-degree fitting.
7. Refer to the wiring diagram located on the inside of the motor junction box cover and connect the wires 1T1, 1T2, 1T3, 5L1, 5L3 and the ground wire inside the motor junction box.
8. Install the motor junction box cover.
9. Using a slotted screwdriver, install and hand tighten the cap screw on the conduit clamp.

Testing

1. Close all enclosure doors.
2. Connect the power to the Finish Roller.
3. Check the rotation of the Finish Roller motor.
   a) Push the forward pushbutton
   b) Verify the Finish Roller rolls forward. If the Finish Roller does not roll forward, go to the next step. If the Finish Roller Responds correctly, this procedure is complete.

	WARNING
	**All electrical work must be performed by a qualified electrician and shall conform to all national electrical codes.** **Do not turn on electrical power until you have completed the entire procedure.** **Follow approved lockout and tagout procedures (OSHA 29 CFR 1910.147).**

4. Refer to Figure 1 to turn off, lockout, and tagout all the power to the machine.
   a) Open the control enclosure door.
   b) Switch any of the two wires 1T1, 1T2, or 1T3 inside the control enclosure.
   c) Remove the tagout and return power to the machine.
   d) Push the forward pushbutton.
   e) Verify that the Finish Roller press rolls forward. If the Finish Roller does not roll forward, go back to the beginning of step 4. If the Finish Roller responds correctly, this procedure is complete.

END OF SERVICE BULLETIN