

Model FTF-40/50-RD Centrifugal Feeders

ANSI/Metric Installation & Maintenance Manual

**Refer all servicing to
qualified personnel.**

*This manual is written for qualified
mechanics and electricians
who must install or service the
FTF-40-RD or FTF-50-RD Feeder.*



*Please copy this information from
the FTF-40-RD or FTF-50-RD
Feeder's serial plate.*

Model Number:

Serial Number/Date:


Inventory Number (Check One):


- FT401RLDFM FT402RLAFM FT501RLDFA FT502RLAFA
 FT502RLDFM FT502RLDFA FT502RLAFM



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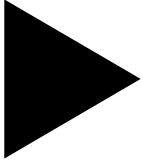
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Quick Start



About this Manual

Assumptions

This manual is written for qualified mechanics or electricians who must install or service the FTF-40-RD or FTF-50-RD Centrifugal Feeder. All procedures in this manual should be performed by qualified personnel or under their direct instructions.

► References in this manual may not apply to your FTF-40-RD or FTF-50-RD feeder. In some cases, your direct supplier may have modified or replaced some of the standard components of the feeder on which these procedures are based. In such cases, you may need to slightly modify these procedures. If you are unsure which standard components of your FTF-40-RD or FTF-50-RD feeder (if any) have been changed, consult your direct supplier's documentation.

Models Covered

This manual covers seven models. If you are unsure which model you have, locate the inventory number on the serial plate of the feeder.

<i>Inventory No.</i>	<i>Metric</i>	<i>Inventory No.</i>	<i>ANSI</i>
FT401RLDFM	1 DC Motor	FT501RLDFA	1 DC Motor
FT402RLAFM	2 AC Motors	FT502RLDFA	2 DC Motors
FT502RLAFM	2 AC Motor	FT502RLAFA	2 AC Motors
FT502RLDFM	2 DC Motors		

Caution Symbols & Messages

Caution symbols and messages in this manual call attention to hazardous voltages, moving parts and other hazardous conditions.



The exclamation point caution symbol denotes possible personal injury and/or damage to the equipment.



The lightning bolt caution symbol denotes possible personal injury and/or damage to the equipment from electrical hazards.

Equipment Improvements & Document Revisions Notice

Hoppmann Corporation continually improves its products, and reserves the right to change or discontinue specifications and designs shown in this manual without notice and without incurring obligation. Hoppmann Corporation has made every effort to verify the information contained in this manual, but reserves the right to correct any error at the time of the manual's next revision. This manual is preliminary and subject to change without notice.

What to Do First

As-Built Documentation This manual does not contain as-built documentation. Obtain as-built documentation from your direct supplier. If you purchased your tooled feeder directly from Hoppmann Corporation, you will automatically receive this information in your System Operations Manual.

Tools You Will Need The FTF-40/50-RD feeders are offered in both ANSI and metric versions. For maximum compatibility, ANSI units are classified as "soft ANSI" construction, meaning that metric threads and hardware are used throughout. Both metric and ANSI units require metric tools for repair or adjustment. If your direct supplier tooled your feeder with ANSI hardware, you will need ANSI tools as well.



Any part of the feeder that touches your product has been precision tooled to specifically match your product. Do not move tooling or change feeder settings except as directed in this manual, your System Operations Manual or by your direct supplier. Otherwise, you may void your warranty and negatively affect the performance of your feeder.



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★ Recommended Spares
(See Pages 33-34)

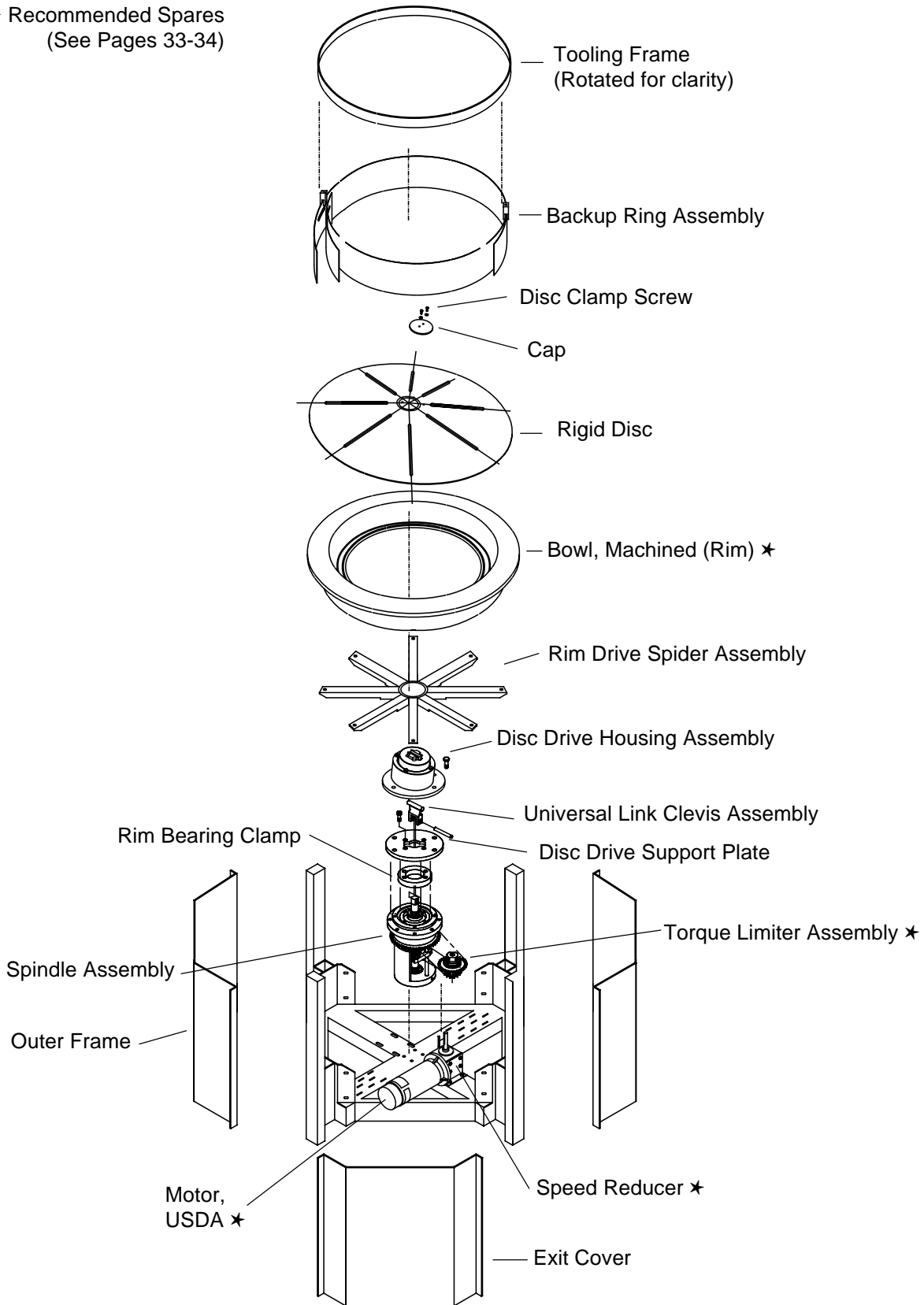


Figure 1-1. FTF-40/50-RD Feeder, ANSI (Single Drive) : Overall Exploded View

Feeder Description & Specifications

1

Overview of the FTF-40-RD & FTF-50-RD

Thank you for purchasing a Hoppmann Model FTF-40/50-RD Centrifugal Feeder. Hoppmann feeders are easy to use, easy to maintain and easily handles your product quietly and rapidly. The FTF-40/50-RD feeders unscramble, feed and orient product. In simple terms, the FTF-40/50-RD feeders deliver aligned product. (See Figures 1-1 and 1-2 for an exploded views of the FTF-40/50-RD feeders).

Function The delivery rate varies from low to high speeds depending on product characteristics. This model is designed with a washdown motor and engineered to interface with Hoppmann's prefeeders, accumulating conveyors and assembly equipment. (See Figure 1-3 for FTF-40/50-RD product specifications.)

Operation **Step 1—The Feeder Accepts Your Product.** Every FTF-40/50-RD feeder accepts product from a separate bulk supply hopper or prefeeder. Product drops randomly, a few at a time, onto a rigid disc.
▶ Unlike vibratory feeders, the FTF-40/50-RD feeders deliver product almost immediately. Compared to vibratory feeders, product simply doesn't have time to get scuffed up.
▶ Why? Because unlike vibratory feeders, the FTF-40/50-RD feeders run best when product is not emptied, in bulk, directly onto the rigid disc. Instead, these feeders run best when product is carefully metered into the FTF-40/50-RD feeders a few at a time.

Step 2—The Feeder Loads and Qualifies Your Product. After dropping onto the rigid disc, loads product quickly onto the rim of a rotating bowl. The rim moves the product past mechanical, pneumatic and/or optical qualifiers which reject product that don't align properly. Improperly oriented product is returned to the bowl and recirculated.

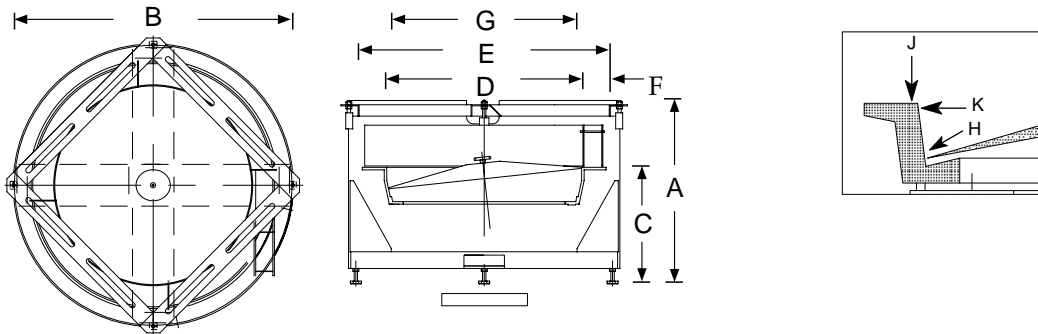
Step 3—The Feeder Delivers Your Product. Finally, product moves off the rim and out of the FTF-40/50-RD feeders, in the proper orientation and in a rapidly moving and randomly spaced stream.



FTF-40/50-RD Feeder Installation/Maintenance Manual

Specifications	ANSI	Metric
Motor Size	1/2 HP	250 W
Motor Frame Size	NEMA 56C	IEC 71D
Supply Voltage	180 VAC	220 VAC
Motor Voltage	90 VDC	220 VAC 3PH
Power Usage	5 amps	3 amps
<hr/>		
A. Outer Wall Diameter	40.25"	1022 mm
B. Overall Height	24"	610 mm
C. Discharge Height	19" ± 1	480 mm ± 25
D. Bowl Inner Diameter	36.25"	920.75 mm
E. Bowl Outer Diameter	36.13"	918 mm
F. Rim Width	3.67"	93 mm
G. Disc Diameter	28.50"	724 mm
H. Disc - Bowl Gap	0.035"	0.890 mm
<hr/>		
J. Std. Rim T.I.R. I.D.* (in/out)	0.020"	0.51 mm
K. Std Rim T.I.R. Top (up/down)	0.010"	0.25 mm

*Total Indication Runout, Inside Diameter



Your direct supplier may have changed some of these specifications during tooling to better match your application's requirements.

Figure 1-3. FTF-40-RD Feeder Specifications

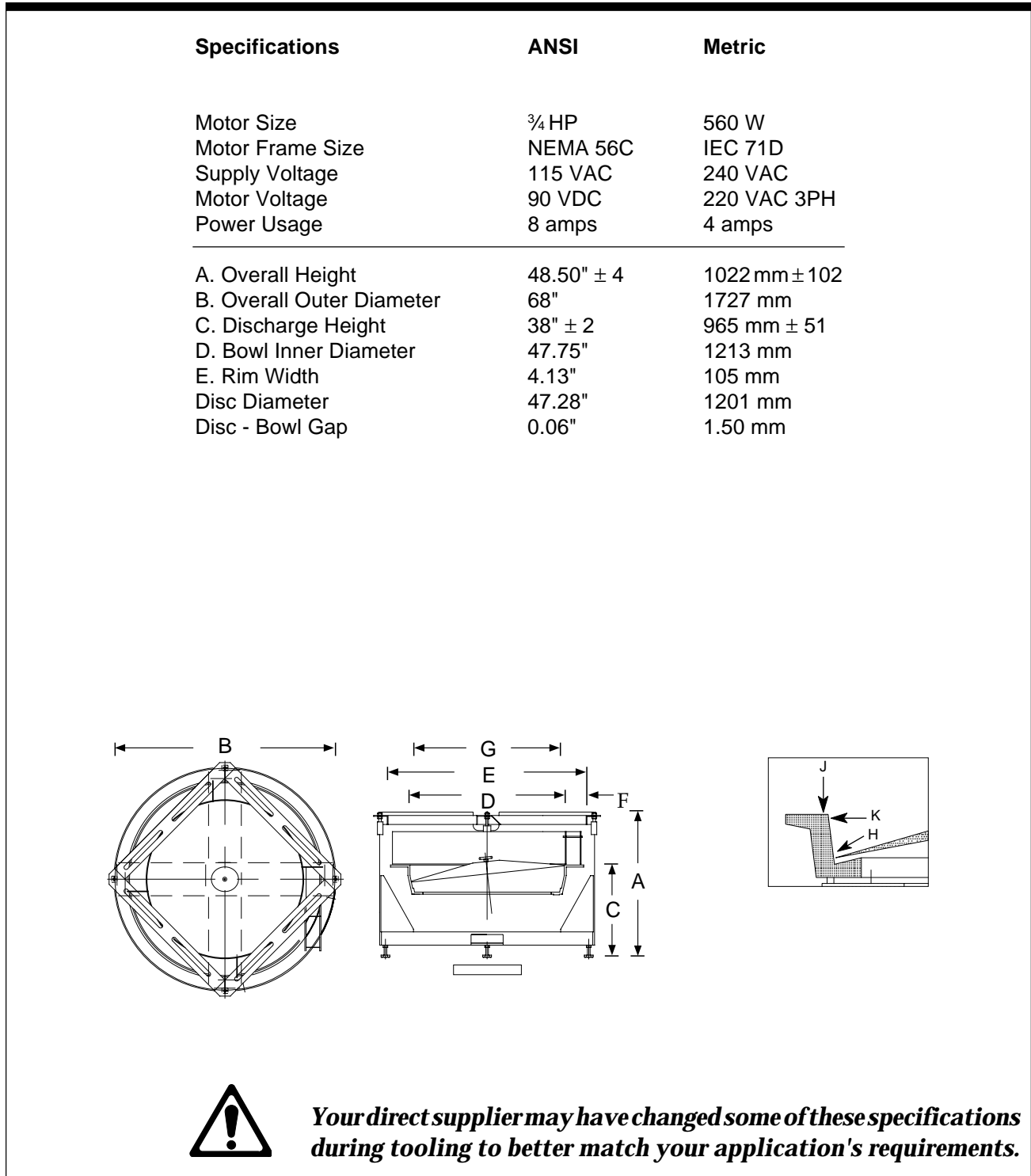


Figure 1-4. FTF-50-RD Feeder Specifications

Safety Precautions

2

Safety Precautions



Turn Off Power! Before servicing, make sure you have turned off compressed air and electrical power in a way which prevents accidental reactivation. Padlock and clearly tag the appropriate electrical and pneumatic disconnects. Lockout/tagout procedures are covered in United States Code of Federal Regulation (CFR) Title 29 Part 1910.147, "The Control of Hazardous Energy."



Dress Appropriately! Reduce the risk of injury from moving parts by securing loose sleeves and other clothing. Do not wear loose jewelry or neckties near the feeder. Wear safety glasses or other protective eyewear when servicing the feeder. Never place hands or tools in the feeder when it is operating.



Install Safety Covers! Make sure the feeder remains safe to operate. Be sure all safety covers have been installed before returning the feeder to normal operation. Safety covers on the FTF-40-RD or FTF-50-RD Feeder include any covers installed by your direct supplier, as well as the upper and lower frame covers (which protect the operator from the moving bowl spider, sprockets and chains).

Operating & Maintenance: Do's & Don'ts

Don't Give the Feeder Too Much Product. Do not overload the feeder, because it may jam or lose rate. Product must be carefully metered into the feeder from bulk. Allow only enough product into the feeder to keep the line running at the required rate.

Don't Run the Feeder Too Fast. Do not run the bowl faster than the linear feet per minute recommended by your direct supplier. If you do, the orientation qualifiers can not do their job as efficiently, and the feeder may jam or lose rate.



Don't Adjust Air Jet Flow Controls. It is okay to adjust the main air regulator to its correct setting for your installation. However, air jets and their individual flow controls have all been carefully preset to work with your product; they should never need adjustment. If you move air jets or adjust their individual flow controls, the feeder may jam or lose rate.

Do Perform Preventive Maintenance. To keep the feeder running without unexpected repairs and resulting "down" time, regularly perform the preventive maintenance procedures in Chapter 4.



Do Carefully Replace Any Tooling You Remove. To gain access for repairs, you may need to remove tooling. Because Hoppmann and your dealer or OEM have no control over such activities, they can not be responsible for any tooling you remove. **Carefully document the position of any tooling before you begin.** If you fail to replace all tooling exactly as it was, you may create difficult and time consuming problems.

Don't Take Apart the Spindle Assembly. Do not take apart the spindle assembly except to replace a failed bearing. If you must replace a bearing, follow the procedures in Chapter 5.

Don't Install the Feeder Near Flammable Gas, Vapor or Dust. Do not install a feeder in these conditions unless you install additional, approved explosion-proof or dust ignition-proof enclosures. Without such additional enclosures, normal sparking of the brushes inside the motor could ignite flammable gas, vapor or dust.

Installation & Startup

3

Unpacking, Inspection & Registration



Step 1—Inspect and Unpack the Crate. Remove packing materials from sensors, tooling and moving parts. Make a visual check to be sure parts have not come loose during shipping. If you find any concealed damage, call the shipping carrier and your direct supplier immediately. ***Do not attempt to fix the problem yourself unless told to do so by your direct supplier.***

Step 2—Record Serial Numbers and Register Feeder. If you have not already done so, record on the front of this manual the feeder's model and serial number.

Physical Setup

You should refer to as-built drawings (not part of this manual) for electrical, pneumatic and equipment layout specifications.

Step 1—Position the Feeder. Place the feeder as shown on the equipment layout drawing provided by your direct supplier.

Step 2—Level the Feeder. Using a carpenter's level, adjust the leveling feet. Tighten the locknuts on the leveling feet. In some applications, leveling feet are not used because the feeder is connected directly to other framework.

Step 3—Connect the Output Device. Check that product can move smoothly from the exit of the feeder to your output device (deadplate, conveyor, gravity track or powered rollers, for example). Check that product will not jam or lose their orientation as they move to the output device.

Step 4—Position the Prefeeder. Now place your bulk supply hopper, or prefeeder, into position. Follow the equipment layout drawing provided by your direct supplier, or the feeder may not operate correctly. *If you are providing and integrating a prefeeder, continue reading. If your direct supplier is providing and integrating both your feeder and prefeeder, skip to Step 5.*

Continued ►



If you are supplying your own prefeeder, you are responsible for:

- ▶ Providing and installing the feeder's bowl level switch so it can control the flow of your prefeeder.
- ▶ Setting the timing delay for the feeder's bowl level switch.
- ▶ Correctly positioning the prefeeder. Generally, the prefeeder must discharge product to fall on the lowest side of the feeder's rigid disc, halfway between its center and its outside diameter. Take a handful of product and drop them from the snout of your prefeeder into the feeder. Avoid product bouncing up off the rigid disc onto the rim of the bowl, which could knock off product that are already loaded. Reposition the prefeeder until product land correctly. Reposition the prefeeder again, if necessary, after the feeder is running.

Step 5—Connect Power and Air. Connect your feeder to power and compressed air (if applicable). Do not change the feeder's main air regulator; it should already be correct when you receive the feeder.

Starting the Feeder for the First Time

Step 1—Secure Safety Covers and Clothes. Before turning on power and air, make sure safety covers are in place and that you are dressed appropriately for safety.

Step 2—Turn on Power and Air. Turn on the feeder's power. If applicable, turn on the feeder's main air regulator.

Step 3—Check for Rubbing Parts. Run the prefeeder, feeder and output device without product. In the unlikely event that you hear squeaks and squeals (there should be none), shut down immediately and check for any remaining packing, such as between the backup ring and the rim of the bowl.

How to Set Proper Bowl Speed

Ask your direct supplier for the actual linear feet per minute at which the bowl should rotate. For reliability, set the bowl to match that speed.

▶ You will need a hand-held tachometer (analog or digital) with a surface speed wheel indicator (see Figure 3-1).

▶ This procedure is performed with power on and the feeder operating. If your direct supplier has installed a cover over the bowl, you will need to open it before proceeding.

Step 1—Turn on Feeder. Turn on the feeder and run it without product.

Step 2—Set Bowl Speed. To set bowl speed, place hand-held tachometer (with surface speed indicator attachment) on the inner wall of the moving bowl, at its most upper inside diameter. Adjust bowl speed until bowl is moving at correct number of linear feet per minute (FPM).

▶ If you have only one drive motor installed (standard) you can ignore the rigid disc speed, which changes proportionally as the bowl speed changes.

Continued ▶

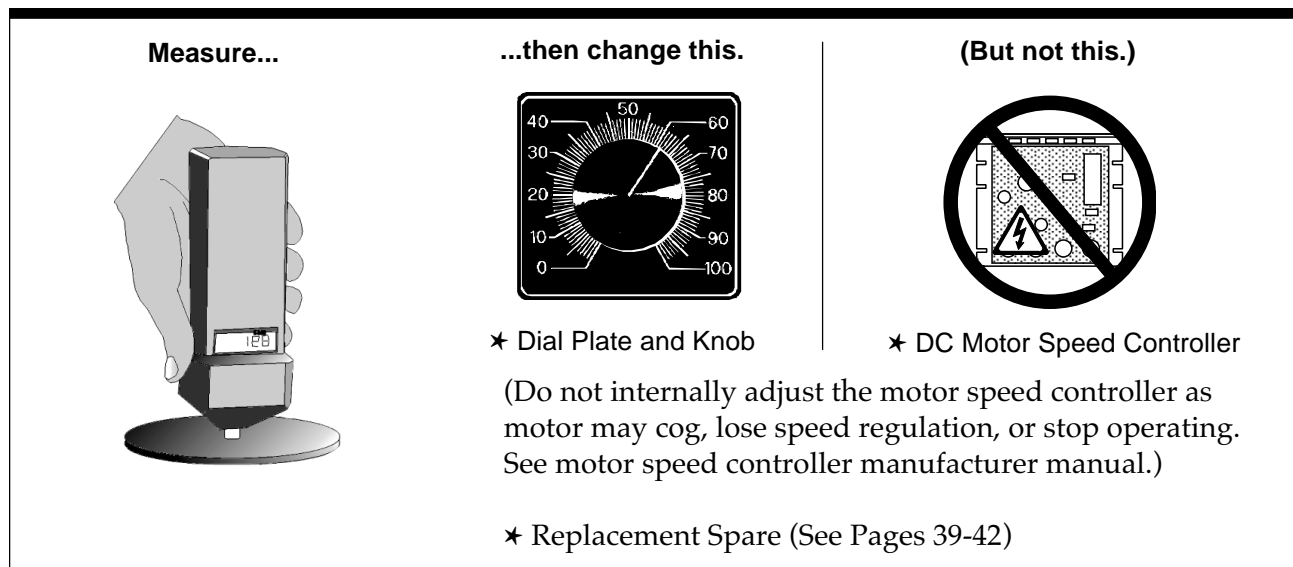


Figure 3-1. Measuring and Changing Bowl Speed



► This procedure assumes your feeder has one drive motor. If your feeder has two drive motors installed, instead of one, repeat this procedure as appropriate for the second drive.

Step 3—Record New Settings. Turn off the feeder. Mark dial plate with new setting and remove any old marks.

Running Product for the First Time

Step 1—Verify Changeover Setup. If your feeder is tooled to run multiple product, ensure the feeder is set up for the product you want to run.

Step 2—Inspect Product at Exit. Inspect the exit of the feeder. If product is exiting the feeder properly oriented, at the required rate and without jamming, then installation is complete. Otherwise, continue with step 3. Don't adjust the flow controls on any air jet.

Step 3—Verify Prefeeder Speed. Normally this step is completed by your direct supplier. However, if you are separately providing and integrating the prefeeder, you will have to set the prefeeder's speed. To do this, turn the prefeeder's speed control all the way down, then turn on the feeder.

► Slowly (you may need to take several minutes) raise the prefeeder's speed control until enough product exit the feeder to keep the line running at the required rate.

► Stop raising the prefeeder speed when enough product is exiting the feeder. ***If you don't stop raising the prefeeder speed, you will overload the feeder and reduce its output.***



General Tips

► After your feeder is set up and running, observe the flow of product at each transition point. Later, if a problem occurs, observe these transition points to help pinpoint the cause.

► Listen to the way the feeder sounds when it is running properly. If it suddenly sounds different, investigate why.

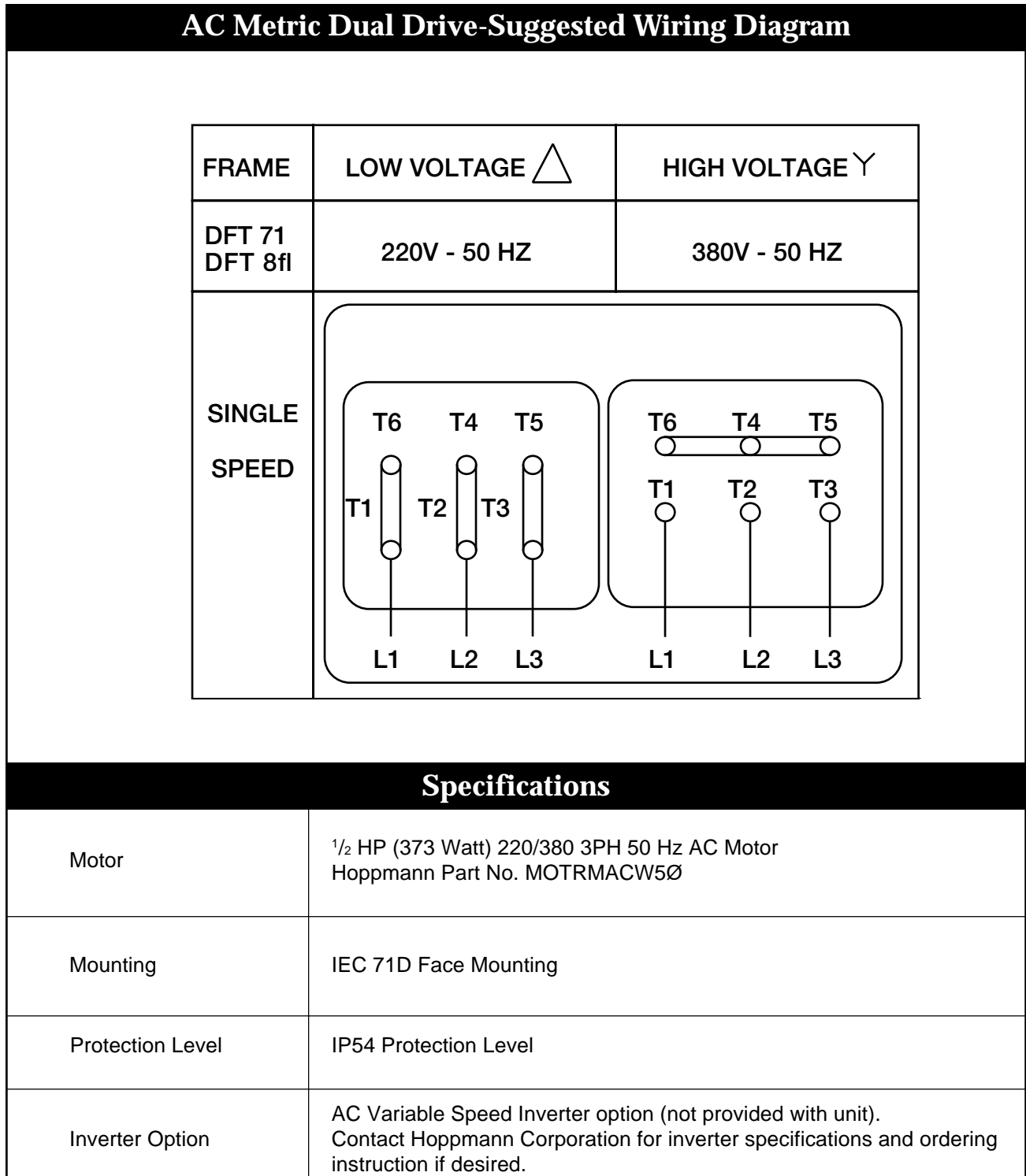


Figure 3-2. FTF-40/50-RD AC Metric Wiring Diagram (Dual Drive)

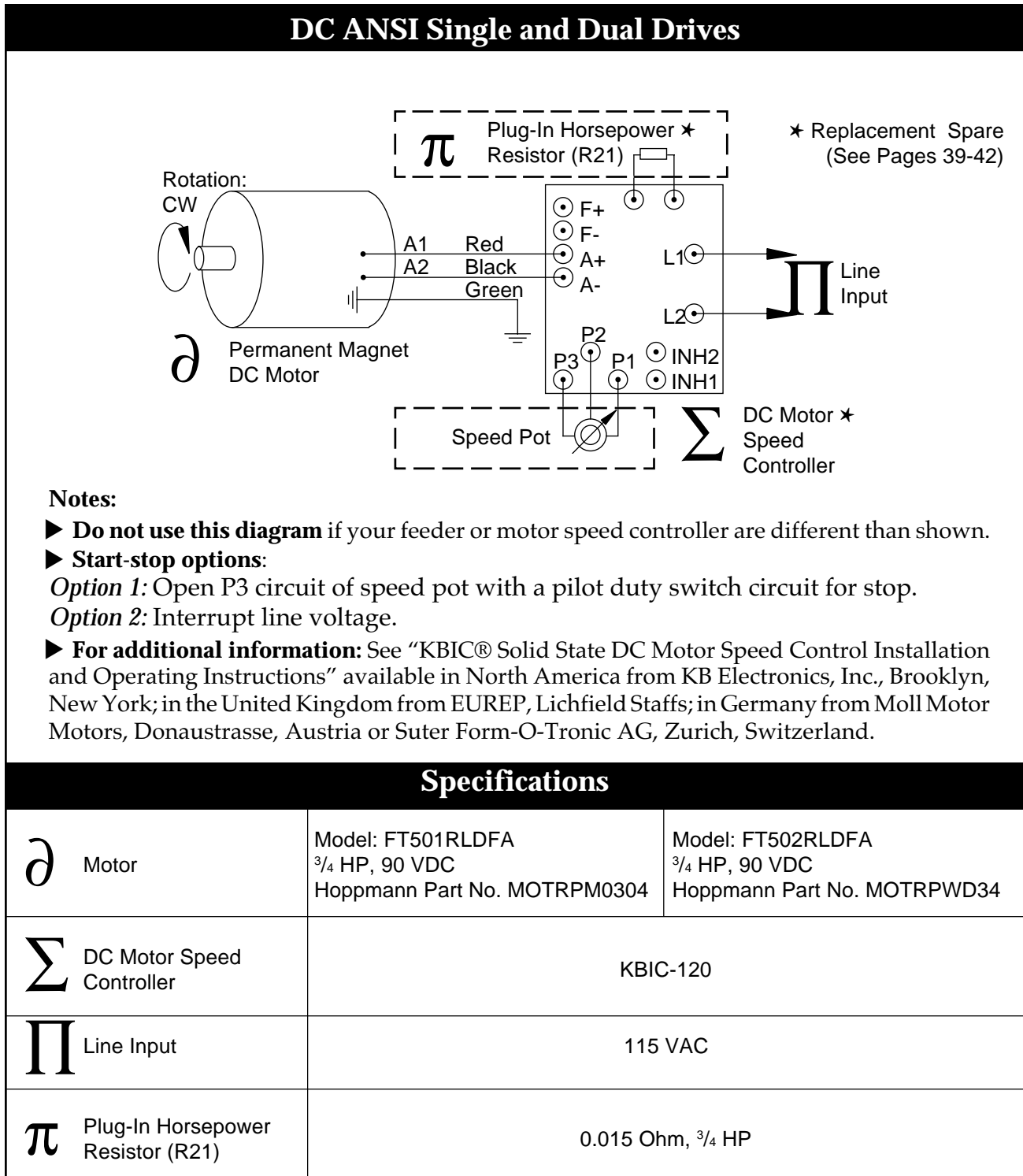


Figure 3-3. FTF-50-RD DC ANSI Wiring Diagrams

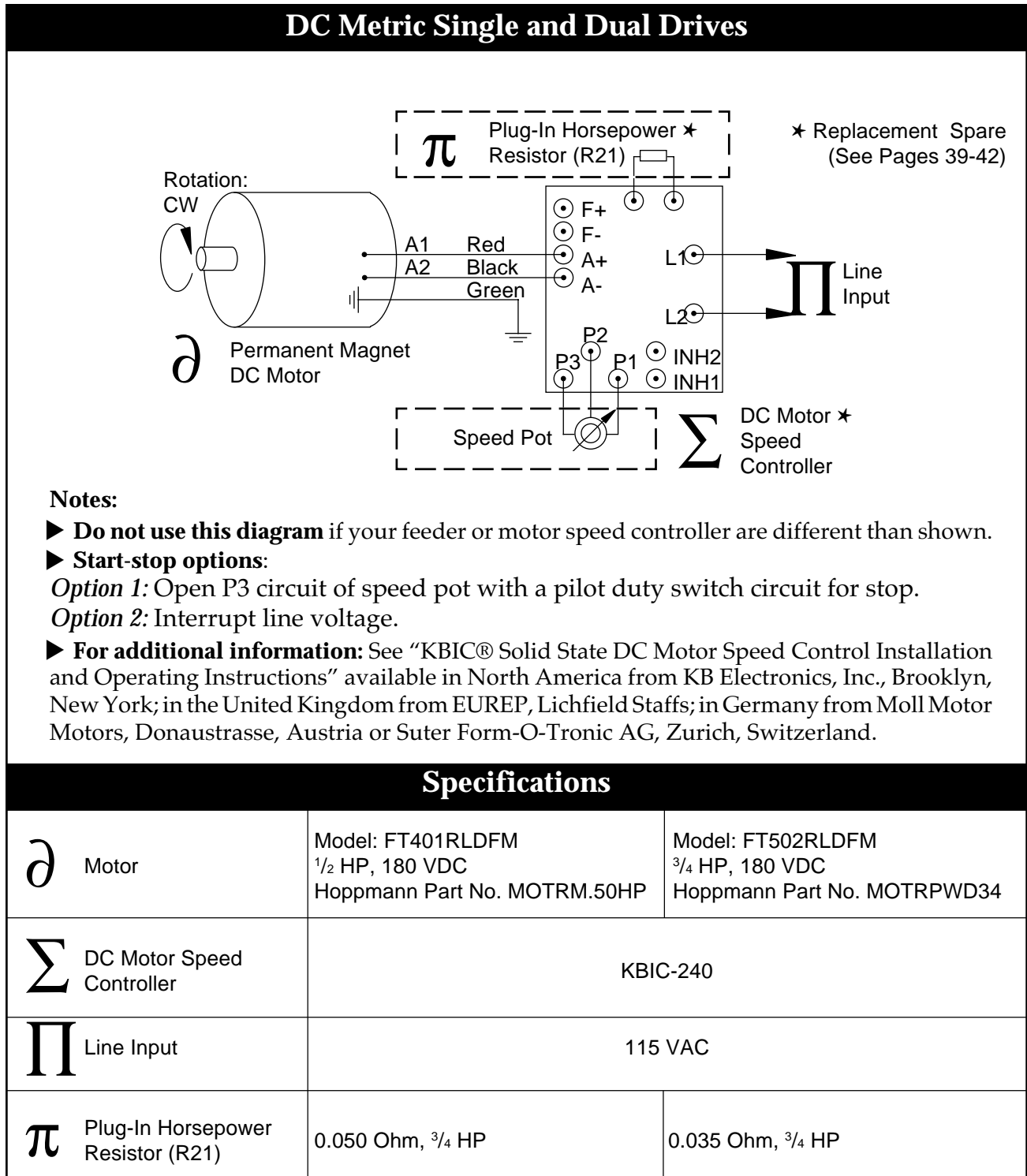


Figure 3-4. FTF-40/50-RD DC Metric Wiring Diagrams (Single and Dual Drives)

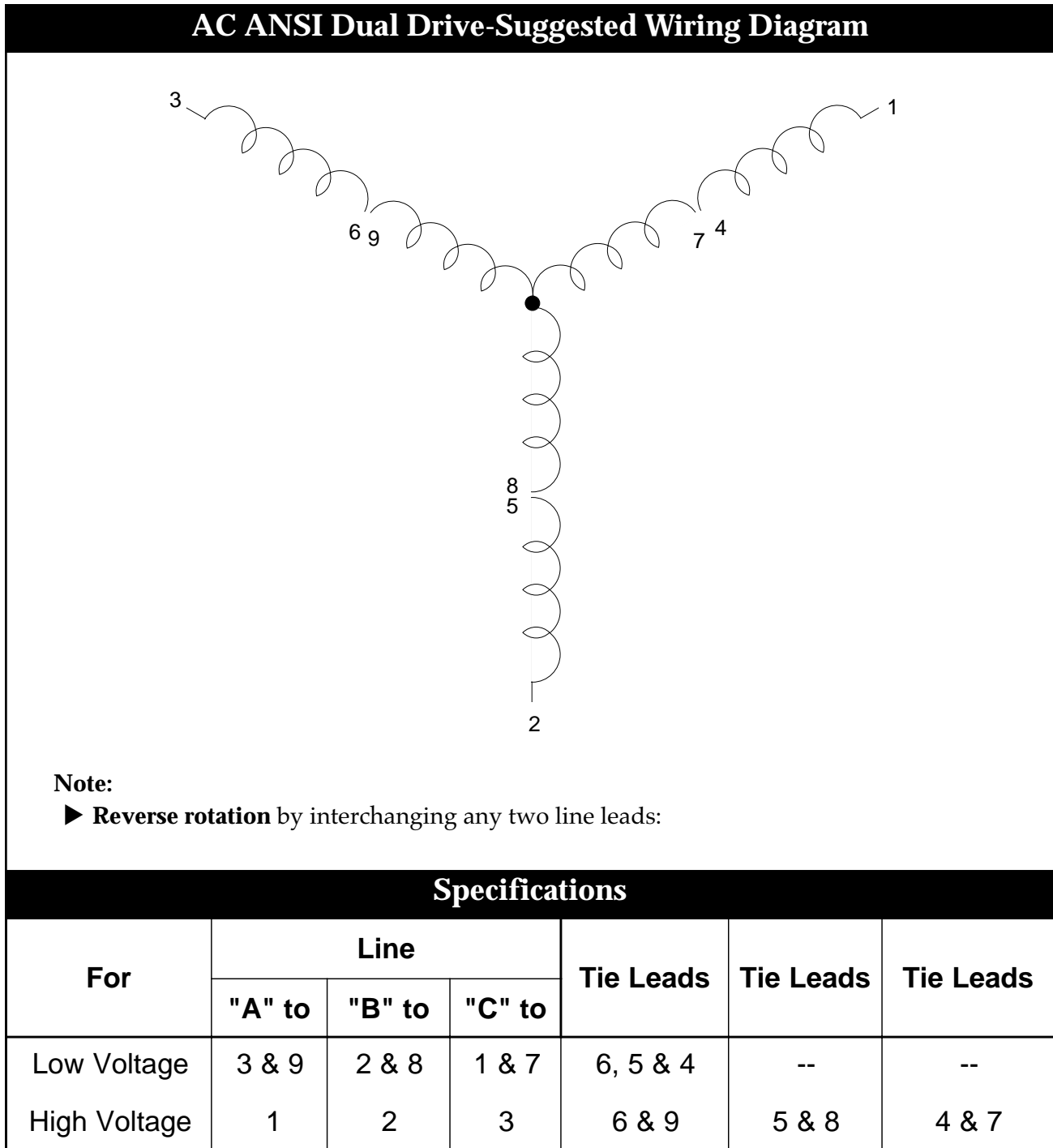


Figure 3-5. FTF-50-RD AC ANSI Wiring Diagram (Dual Drive)

Preventive Maintenance

4

General Cleaning

Outer Frame & Tooling

The Hoppmann Model FTF-40/50-RD Centrifugal Feeders **are** intended for washdown use. It is especially built with upgraded features to allow for washdown duty.

Change the Gear Oil in ANSI Speed Reducer

The gear motor manufacturer recommends that you change the gear oil after the first 1500 hours of operation, and then after every 500 hours of operation. All other procedures, for both Global and U.S. models, are first performed six (6) months after installation.



If you do not regularly change the gear oil in the ANSI FTF-40-RD or FTF-50-RD feeder, the speed reducer will eventually fail. This type of failure is not covered under warranty.

▶ The speed reducer in the ANSI FTF-40-RD or FTF-50-RD feeder requires periodic maintenance; the speed reducer in the metric FTF-40-RD or FTF-50-RD feeder does not.

▶ You should change the gear oil after the first 250 hours of operation, and then after every 2500 hours or every six months, whichever comes first. You may need to change the gear oil more often if you run the FTF-40-RD or FTF-50-RD feeder in a room which is unusually hot or dirty.

▶ Check the level of gear oil before draining (see Figure 4-1). If the level is low, check the reducer's input and output shaft seals for leaks.

▶ Drain the gear oil while warm; the gear oil will drain more easily than if cold. If there are any metal contaminants, they are less likely to remain behind.

▶ Refill to the correct level with the recommended gear oils (see Figure 4-2). The gear oils shown are specifically for the worm gear speed reducer in the ANSI FTF-40-RD or FTF-50-RD feeder; other gear reducers may require different types of gear oil.

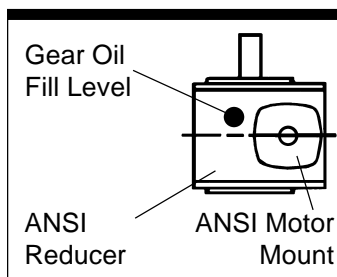


Figure 4-1.
Gear Oil Fill Level

Continued ▶



Tip: The ANSI FTF-40-RD or FTF-50-RD feeder is shipped to your direct supplier with conventional 600 W gear oil. For convenience, you can replace it with synthetic gear oil. Because synthetic gear oil has increased resistance to heat and oxidation, it does not have to be changed as often. If you replace the conventional 600 W gear oil with synthetic gear oil, you should change it after the first 1500 hours of operation, and then after every 5000 hours.

Metric Speed Reducer—No Lubrication Required. The speed reducer used in the metric FTF-40-RD or FTF-50-RD feeder is lubricated for life with synthetic lubricant and requires no regular maintenance.

Chains and Sprockets

All FTF-40-RD and FTF-50-RD feeders use polymerl stainless chains and do not require any lubrication.

Inspect Chain Tension

Step 1—Gain Access. Improper chain tension wears out sprockets and chains. When lubricating or performing other maintenance tasks, inspect the tension of the chain. If you have not already done so, disconnect power and air, and remove the exit cover and the exit support assembly to gain access.

Step 2—Inspect Drive Chain. Midway between sprockets, grasp each chain and wiggle it back and forth. You should be able to move it no more than a total of 1" (25 mm) as shown in Figure 4-3. ► If adjustment is needed, adjust the disc drive chain first. Loosen the idler assembly (see Figure 4.3), move forward or back as necessary, and then retighten.

Speed Reducer Gear Oil FTF-40-RD & FTF-50-RD Centrifugal Feeders - ANSI Only			
Recommended Gear Oil or equivalent	Mobil "600W Cylinder Oil" (Standard)	Mobil "Extra Hecla Super Cylinder Oil"	Mobil "SHC 634 Synthetic"
Ambient (Room) Temp.	40 to 90° F (4 to 32° C)	80 to 125° F (27 to 52° C)	-30 to +125° F. (-34 to +52° C)
Viscosity Range SUS at 100° F.	1920/3200	2850/3600	1950/2150
AGMA No.	7 or 7C**	8 or 8C**	*
ISO*** Viscosity Grade	460	680	320/460
* Mobil SHC 634 is the only synthetic gear oil we recommend. ** Ask for equivalent gear oil by AGMA number from most major oil companies. *** International Organization For Standardization, Switzerland			

Figure 4-2. Recommended Gear Oil

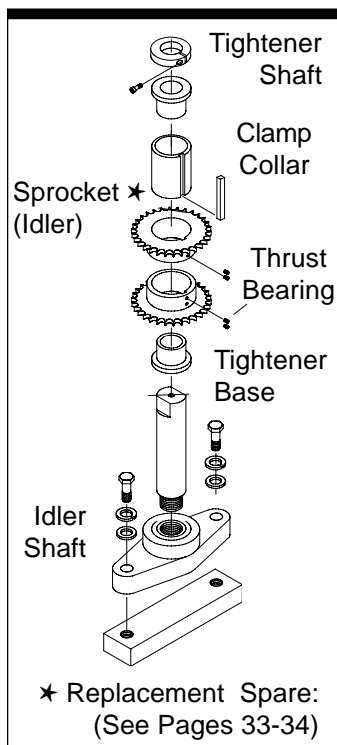


Figure 4-3. Idler Assembly (single drive units only)

► Adjust the bowl drive chain last. Loosen the reducer mounting brackets from the nut plates. Move the reducer forward or back as necessary and then retighten.

Step 3—Check for Parallel Sprockets. Check that each set of sprockets is parallel to within $1/32$ " (0.8 mm). If not parallel, realign only the idler sprockets.

Step 4—Check for Vibration. Run the feeder. If vibration is evident, check chain tension for excessive tightness. Vibration may be reduced or eliminated by the realignment of sprockets and increase of total chain deflection from 1" (25 mm) to $1\ 1/4$ " (32 mm).

Step 5—Replace Covers. Replace covers and connect power and air. Initial and date the Maintenance Log.



Inspect/Replace Motor Brushes

The following procedure applies only to DC motors and should be performed only by qualified personnel. Refer motor repairs to a motor repair specialist.

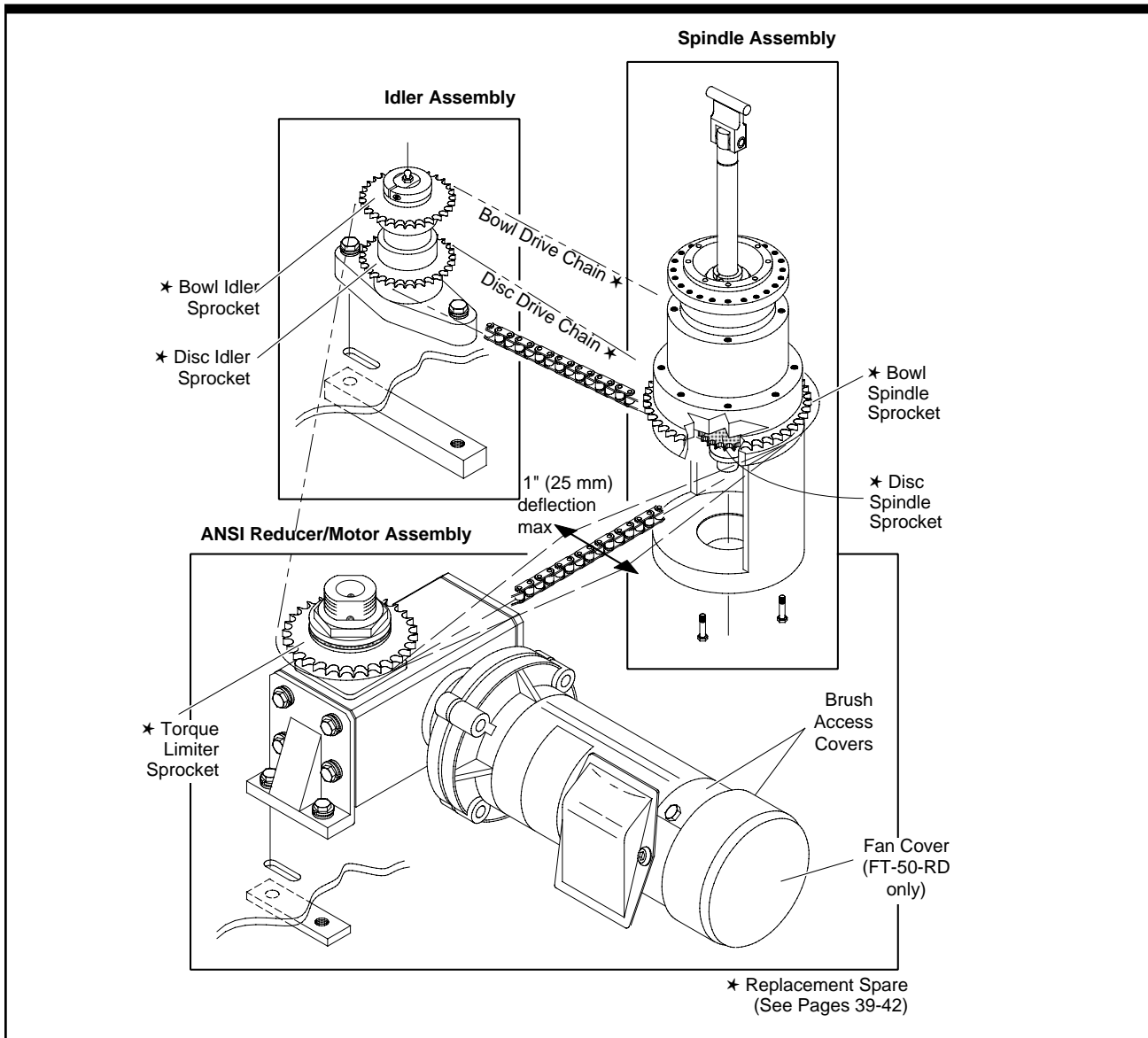


Figure 4-3. FTF-40/50-RD Drive Train



Step 1—Gain Access. Disconnect power and air. Remove feeder covers as needed to gain access to the motor, then remove the motor brush access covers. (On the FTF-50-RD only, the motor fan cover, which partially blocks the brush access covers, must be loosened or removed.) The insulator guard (a sheet of flexible cardboard-like material covering the access hole) is now visible. Unfold it out of the way, but do not remove it.

Step 2—Clean the Motor. Clean the motor by blowing into the open access hole with compressed air. ***Eye protection should be worn to prevent any particles from blowing into the eyes.***



Step 3—Replace Brushes. Lift the brush spring from the end of the brush. Remove the brush connector, withdraw the brush and inspect the length. To prevent motor damage, brushes should be replaced when or before they reach a length of 0.575" (15 mm). New brush length is 1.03" (26 mm). Reverse procedure to replace brush. Replace motor access and feeder covers. Connect power and air. Initial and date the Maintenance Log.

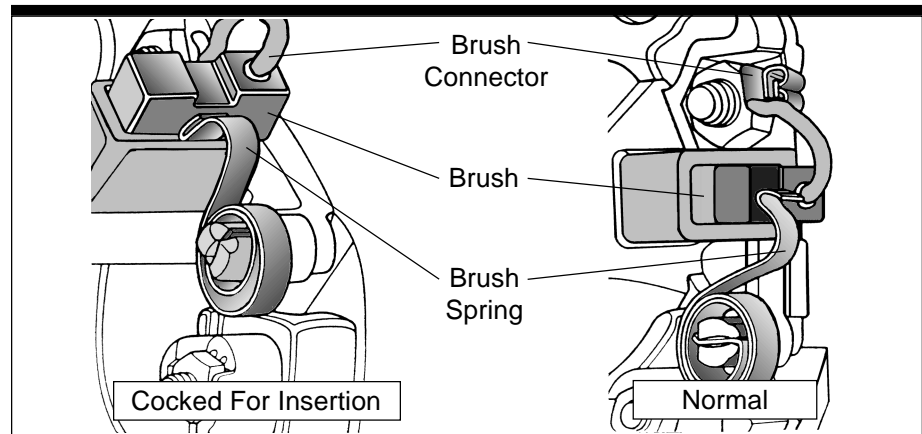


Figure 4-4. Motor Brushes (Gasketed Cover Removed)

Repair & Troubleshooting

5

Torque Limiter: Adjustment/Replacement

The torque limiter allows the drive sprocket to slip harmlessly in the event of a product jam. Severe humidity or dryness, lubricants or surface corrosion on bushings or the drive sprocket may reduce the effectiveness of the torque limiter. The torque limiter should be inspected and adjusted if the rim is free wheeling.

Step 1—Disconnect power. Turn off power and air.

Step 2—Gain Access. Remove exit cover and rim drive chain.

Step 3—Remove Torque Limiter. Remove and disassemble torque limiter. Inspect and replace any broken or worn parts. Observe order of components.

Step 4—Assemble Torque Limiter. Assemble the torque limiter. Tighten adjusting nut hand tight. Do not completely flatten the disk spring.

Step 5—Replace Chain. Replace the chain and inspect chain tension (page 23).



Step 6—Adjust Slip Torque. Carefully grasp the bowl by hand and turn it slowly to check for required slip torque. The gearmotor shaft should turn very slightly as it takes up slack (about 1-2 degrees maximum). The gearmotor shaft should stop turning as the drive sprocket slips. ***Stop turning the rim immediately if the drive sprocket does not slip easily. You can damage the gearbox if you force it to turn.***

Step 7—Lock Adjusting Nut. Lock the adjusting nut by bending a lockwasher tab over it. Make sure any safety covers you removed have been replaced. The FTF-40-RD or FTF-50-RD feeder is ready for use.

Continued ►



How to Set Bowl Runout

Bowl runout needs to be set if the bowl is removed. Adjust runout with power off and bowl drive chain disengaged. For runout specifications, see figures 1-3 & 1-4 on pages 8-9.

Step 1—Gain Access. Disconnect power and air. Remove any of the upper frame covers and its corresponding lower frame cover.

Step 2—Remove Bowl Drive Chain. Remove the master link. Disconnect the bowl drive chain from the bowl spindle sprocket.

Step 3—Adjust Vertical Runout. Attach a dial indicator to the inside of any upper frame support. Set the indicator contact point vertical, perpendicular to the rim of the bowl, up to $\frac{1}{4}$ " (6 mm) from the bowl's upper inside diameter (ID). Loosen jam nuts and locknuts above and below each arm of the bowl spider one arm at a time. Repeat as often as necessary while checking runout. Do not tighten jam nuts until Step 4.

Step 4—Adjust Horizontal Runout. Move the indicator contact point horizontal, perpendicular to the inner wall of the bowl, up to $\frac{1}{4}$ " (6 mm) from the bowl's upper ID. Gently tap the bowl's ID with the palm of your hand or a rubber mallet. Tighten locknuts and jam nuts by hand firmly but not forcibly. Inspect vertical runout and adjust again if necessary. Continue alternating between horizontal and vertical runout until both are within specification.

Step 5—Check Exit. Ensure that proper relationship still exists at transition between rim of bowl and output device (deadplate, conveyor, gravity track, or powered rollers, etc.).

Step 6—Check Backup Ring Clearance. Ensure that proper, as-tooled gap still exists between bottom of backup ring and rim of bowl. (Feeders for most product is tooled with approximately $\frac{1}{8}$ " gap, but for some small product the gap is less; consult your as-built documentation for specifications.) At upper frame support, adjust tooling ring up or down if necessary.

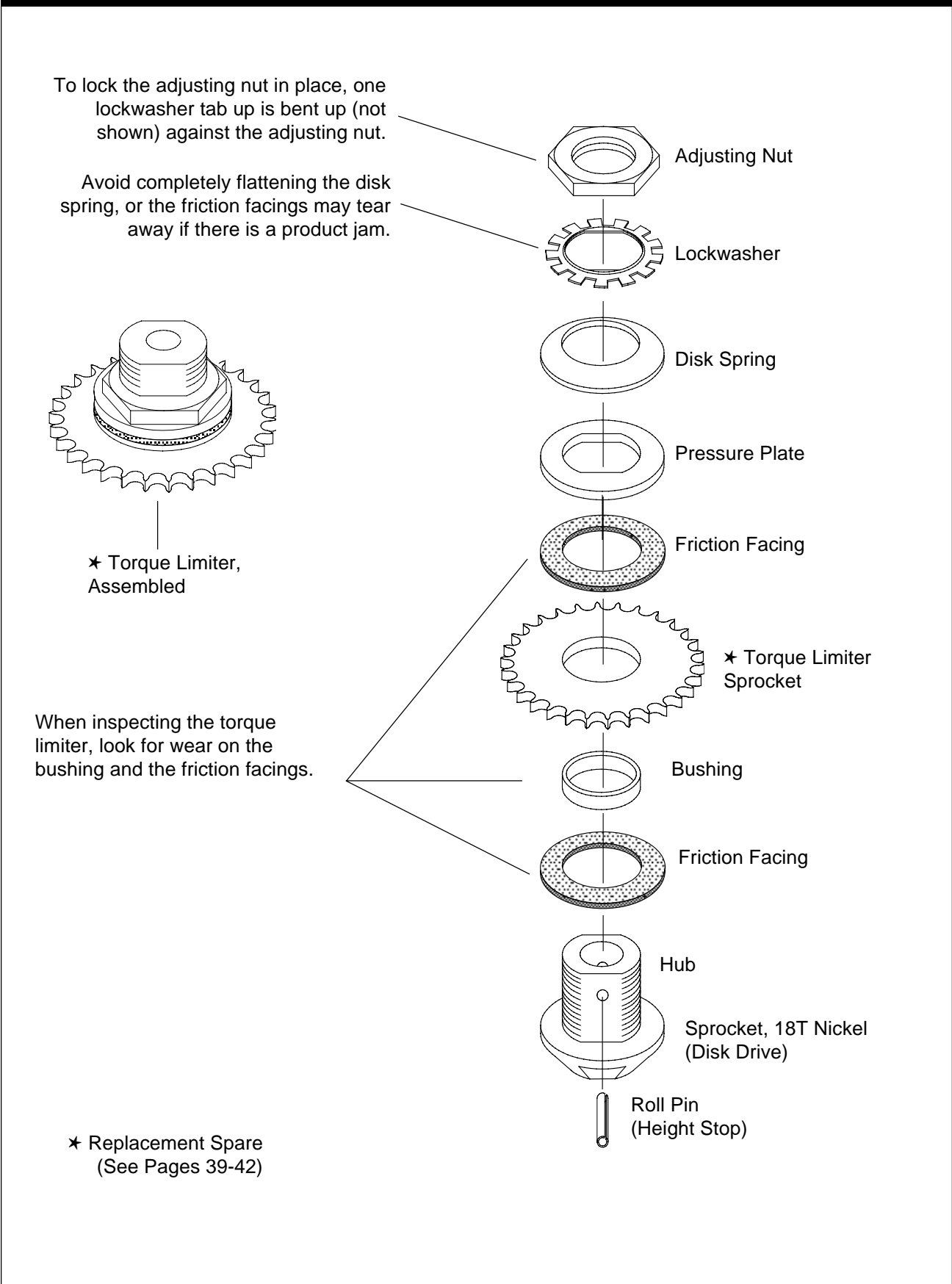


Figure 5-1. Torque Limiter Assembly

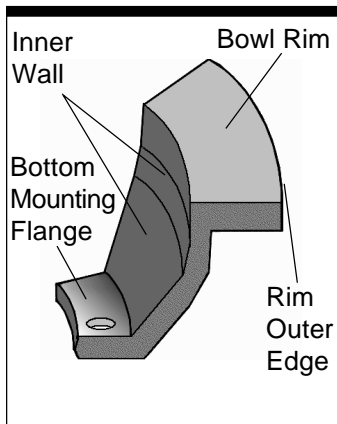


Figure 5-2.
Parts of the Bowl

Step 7—Replace Chain & Covers. Install bowl drive chain. Inspect chain tension (see page 23). Replace covers and connect power and air.

Replacing or Refinishing a Damaged Bowl

If you damage the bowl in a way that interferes with orientation, the bowl must be replaced or refinished.

- ▶ If the damage is slight, recoating with commercial hard coat by a professional metal refinisher may correct the problem.
- ▶ Machining must be done in such a way that bowl runout is restored to original tolerances, or the feeder may not operate correctly. If machining is necessary, have the bowl recoated. Recoating the bowl helps maintain tolerances and prevent bowl damage.
- ▶ If machining enlarges the inner wall of the bowl, you may need to replace the flexible disc with a larger one (custom-sized) from your direct supplier (see Figure 5-2). If you do not obtain a larger flexible disc, the gap between the flexible disc and the inner wall of the bowl may pinch or snag product.
- ▶ Put the bowl in place, then set it to the correct height, $\pm 0.03''$ (0.8 mm). See Figs. 1-3 & 1-4 (pages 8-9) for standard bowl height, measured from the top of the bowl rim to the bottom of the frame.
- ▶ Set bowl runout (page 26).
- ▶ Check that all covers are in place before running the feeder. inspect gap between bottom of backup ring and top of rim. If gap is not correct, adjust backup ring clearance (see *Backup Ring: Adjusting Clearance*).

Speed Reducer: Replacement

Follow these instructions to replace the speed reducer with its direct replacement (listed in *Spare Parts*, see page. 39-42). Watch out for sharp edges on the shaft keyways.

Continued ▶

Step 1—Gain Access. Disconnect power and air. Remove the exit cover.

Step 2—Remove Motor. Remove mounting bolts and then remove motor from the speed reducer.

Step 3—Remove Old Speed Reducer. Loosen, but do not remove, the two nut plate mounting screws at the bottom of each of the motor mounting brackets. Slide the speed reducer towards the center of the FTF-40-RD or FTF-50-RD feeder and remove the chains. Remove the four screws which attach the motor mounting brackets to the speed reducer, and remove the speed reducer to the bench.

Step 4 (ANSI Instructions)—Install Gear Oil. Unpack the new speed reducer. Leave rubber sleeves on shafts to protect your hands from any sharp edges on the keyways. Fill the new speed reducer to the correct level with gear oil. Keep the speed reducer level as you install it, or the breather hole may leak. Recommended gear oil is listed in Chapter 4.

Choose Only One ◇

Step 4 (Metric Instructions)—Assemble Output Shaft. The speed reducer used in the metric FTF-40-RD or FTF-50-RD feeder is lubricated for life with synthetic lubricant and requires no filling before use.

► Unlike the ANSI speed reducer, which includes an integral output shaft, the output shaft on the metric speed reducer comes as a separate kit. If replacement is required, clean both contact surfaces before assembly and apply water repellent grease or any appropriate anti-seize compound to avoid oxidation (rust) and possible seizing of parts.

► The bore of the hollow shaft of the metric gearbox has tolerance H7, all shafts to be fitted are usually machined to H6. If required for the application, an interference kit (H7-J6) can be used.

Step 5—Install Parts On New Speed Reducer. Remove the friction clutch assembly and other parts from the shaft of the old reducer and install them on the new reducer. Be sure the motor sprocket spacer (see Figure 5-4) is properly installed or the chains may be misaligned.

Continued ►



FTF-40/50-RD Feeder Installation/Maintenance Manual

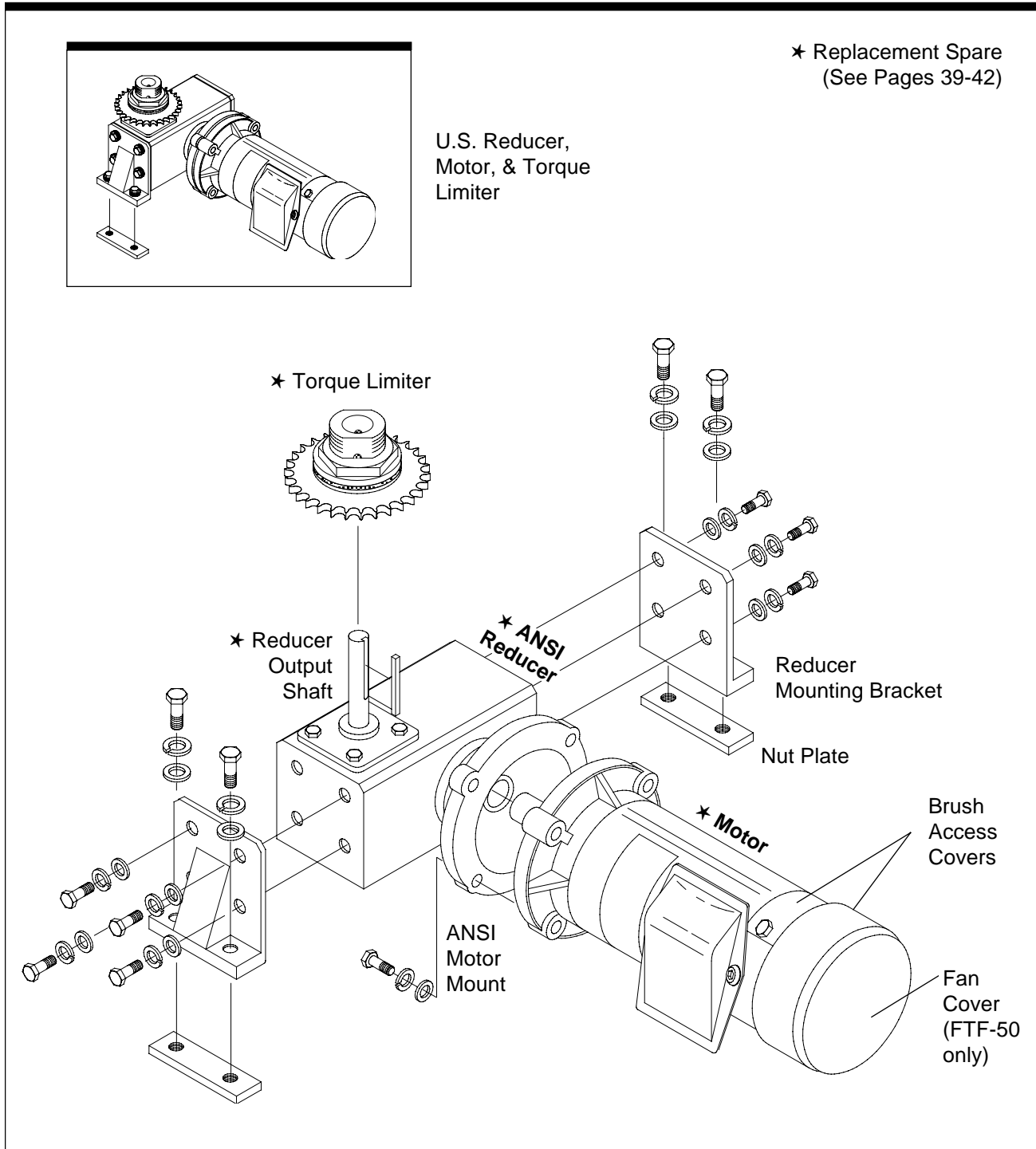


Figure 5-3. FTF-40/50-RD Feeder Speed Reducer & Motor

Step 6—Install New Speed Reducer. Attach the speed reducer to the motor mounting brackets (see Figure 5-4). Assemble the key to the motor shaft and coat the shaft with anti-seize compound.

Step 7—Install motor. Insert the motor shaft into the speed reducer input shaft. Align the shafts accurately; improper alignment can result in failure. Rotate the motor to the correct position and firmly secure to flange with four hex-head cap screws. If the motor does not readily seat itself, check to see if the key has moved.

Step 8—Inspect After Installation. During the speed reducer's break-in period, it may run hotter than normal. **Nevertheless, for maximum life, do not allow the speed reducer to operate continuously above 225°F at the gear case (for AC motors used in Europe, it is customary to use 60°C maximum).** In the event of overheating, check for overloads or high ambient temperatures. Keep shafts and vent plugs clean to prevent foreign particles from entering the speed reducer. Periodically inspect all bolts to make sure they are not loose.

Major Bearing Replacement

Major bearings in the FTF-40-RD or FTF-50-RD feeder are the upper and lower disc shaft spindle bearings, the upper and lower rim support spindle bearings and the disc support bearing. All major bearings except the disc shaft spindle bearings are identical.

Major Bearing Replacement Cautions:



► Eliminate other possible problems before attempting bearing replacement, as substantial disassembly of the feeder is required. **Carefully note position of any tooling you remove before you begin. Keep chains clean and dry after removal.**

► Most major bearings in the FTF-40-RD or FTF-50-RD are preloaded to prevent play. To prevent binding or excessive free play in the bowl, ensure that all bearing housings and the bearings themselves are clean and free of external grease, dirt, nicks or burrs prior to reassembly. If you accidentally damage critical surfaces of the housings, you may need to replace the entire spindle assembly as a unit.

Continued ►

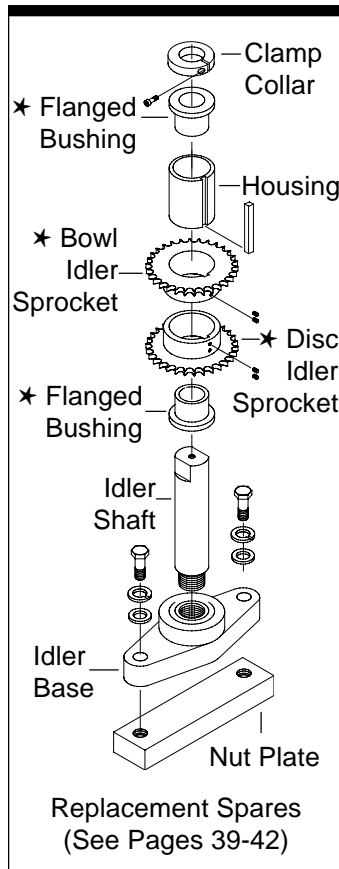


Figure 5-4. Idler Assembly (single drive units only)

- ▶ Install only 100% identical replacement bearings. In the unlikely event that the bowl will not turn, or that there is play in the bowl when you are done, you may need to replace the spindle assembly as a unit, or contact Hoppmann Corporation for assistance.
- ▶ To maintain accuracy and prevent play in the bowl, replace both bearings of a pair at the same time. Do not replace only one.
- ▶ Do not swap housings (such as the disc shaft spindle bearing housing) from one FTF feeder to another, as critical surfaces may have been custom-machined for zero play in the bowl.
- ▶ Before installing the new bearing, replace any broken or worn hardware. Before installing covers, inspect chain tension.

If Product Jams: General Tips

Step 1—Inspect The Feeder. If product jam repeatedly, review the following:

- ▶ Is the prefeeder delivering too many product? (The prefeeder should deliver only enough product to the feeder to keep the line running at the required rate.)
- ▶ Is the feeder's bowl speed set incorrectly?
- ▶ Is there a changeover procedure you have overlooked?
- ▶ Is the feeder's main air regulator set incorrectly?

Step 2—Inspect Your Product. After checking the feeder, check to see if your product has changed since the last batch:

- ▶ Are they larger? Smaller? A different shape? A different material? Different color? Different quality?
- ▶ If you are orienting freshly molded product, have you made a change in how they are released from the mold? (Are they hotter, drier or stickier, for example?)
- ▶ Finally, if your product has changed, or if you cannot isolate why your product is jamming, contact your direct supplier for assistance.

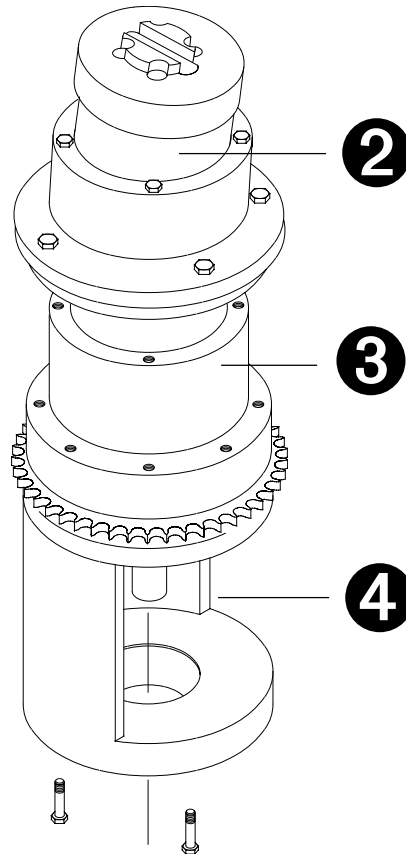
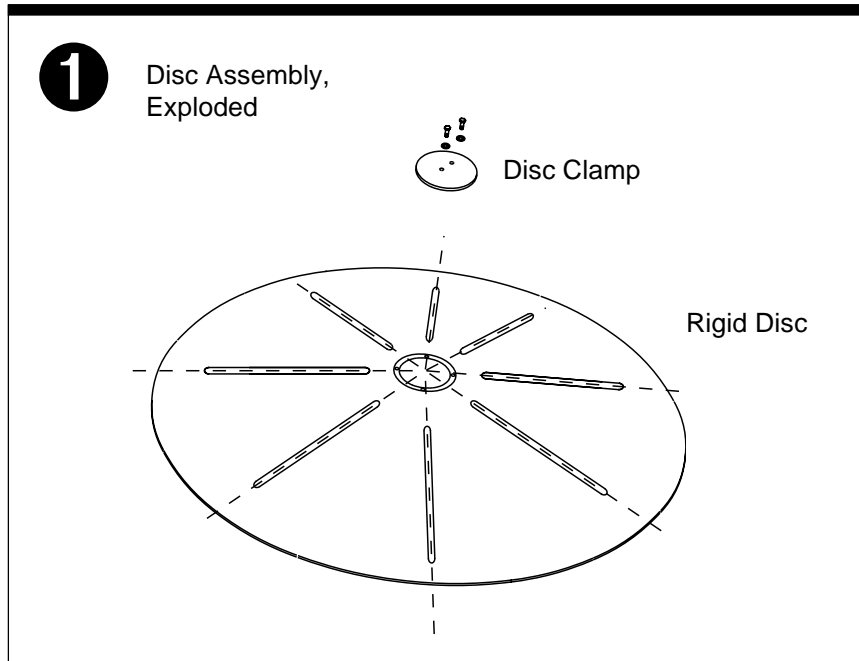


Figure 5-5. FTF-40/50-RD Feeder Spindle Assembly



★ Replacement Spare
(See Pages 39-42)

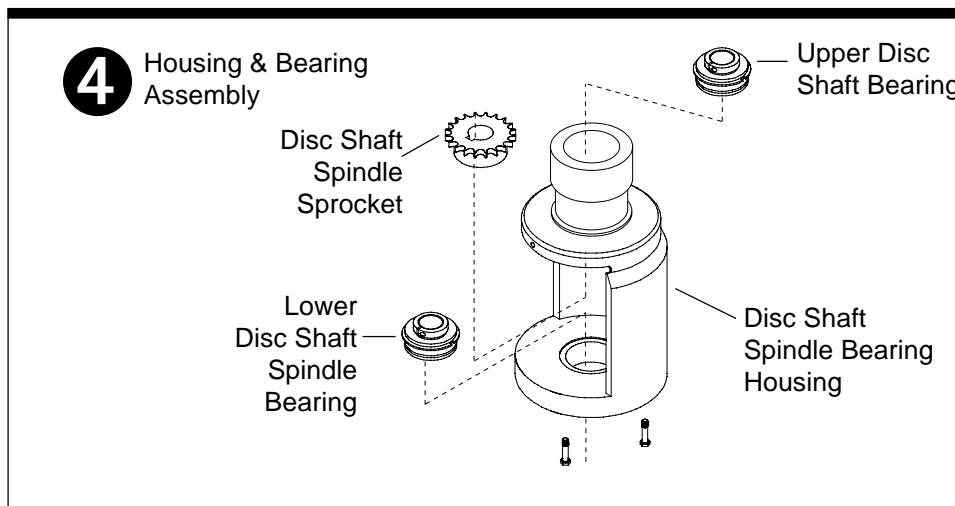
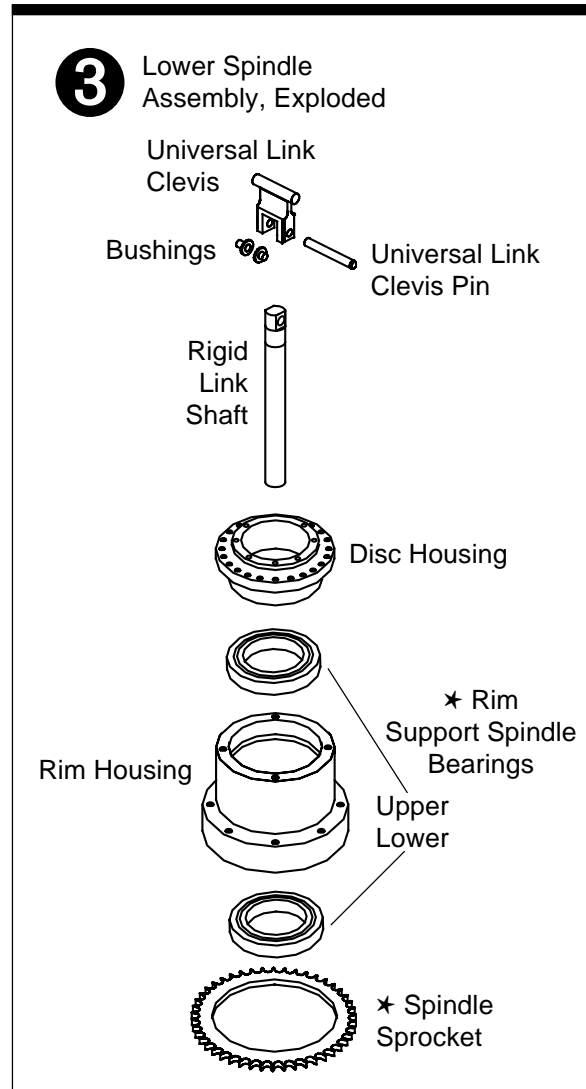
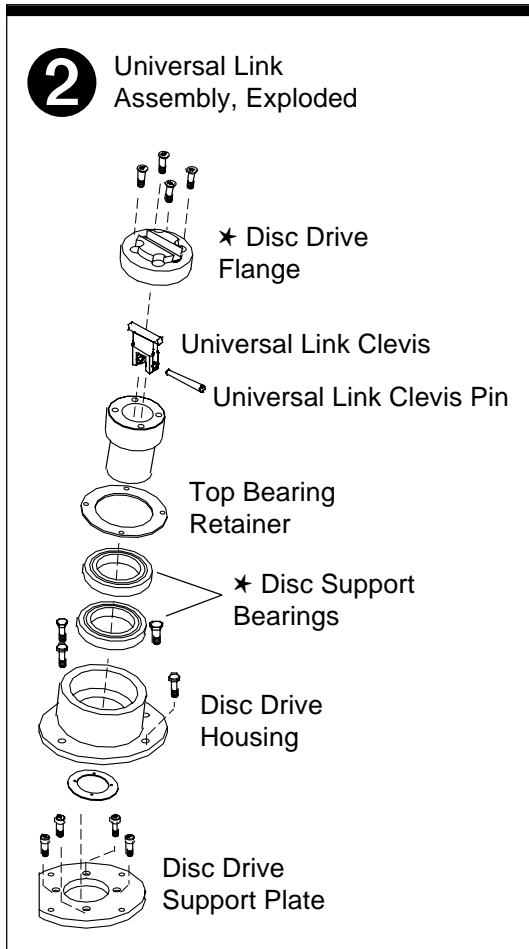


Figure 5-6. FTF-40/50-RD Spindle Assembly (continued)



Problem	Possible Cause	Solution
Rate is too low. Parts exit feeder okay.	Feeder overloaded.	<i>Correctly set prefeeder rate.</i>
	Rim speed incorrect.	<i>Correctly set rim speed.</i>
Rim or disc does not turn.	Part jammed in feeder.	<i>Disconnect power; locate and remove part; then continue operation.</i>
	Torque limiter loose.	<i>Adjust torque limiter.</i>
Feeder won't run at all.	Power off or disconnected.	<i>Turn on power.</i>
	Downstream machinery is completely full.	<i>Clear downstream machinery.</i>
	Motor controller defective or trim pot settings changed.	<i>Replace motor speed controller & "horsepower" resistor or recalibrate to motor speed controller mfg. 's instructions.</i>
	Defective motor.	<i>Replace motor.</i>
Surface of parts scuffed or dirty.	Particulate in feeder.	<i>Clean rim and disc.</i>
	Parts already scuffed.	<i>Check upstream machinery.</i>

Figure 5-7. FTF-40-RD & FTF-50-RD Feeder Troubleshooting

Chart
Continued ►



Problem	Possible Cause	Solution
Rim and disc turn but parts don't exit properly. Parts jam.	Motor speeds incorrect.	<i>Correctly set rim speed and prefeeder rate.</i>
	Air off or incorrect.	<i>Check air pressure at main air pressure regulator. Check air flow.</i>
	Incorrect part.	<i>Verify that feeder is correctly set up to run this part.</i>
	Parts are different.	<i>Verify that feeder is tooled to run this part.</i>
	Tooling or air jets need adjustment.	<i>Refer to your System Operations Manual or contact your direct supplier.</i>
Cannot adjust motor speed high enough.	Motor controller defective or trim pot settings changed.	<i>Replace motor speed controller or recalibrate to motor speed controller mfr.'s instructions.</i>
Rim cogs (jerks when moving).	Motor controller defective or trim pot settings changed.	<i>Replace motor speed controller or recalibrate to motor speed controller mfr.'s instructions.</i>
	Loose drive chain.	<i>Adjust drive chain tension.</i>

Figure 5-8. FTF-40-RD & FTF-50-RD Feeder Troubleshooting (continued)

Spare Parts

6

Notice to Hoppmann Customers:

To ensure receiving the right spare part, consult your system operations manual. Refer to the feeder's model and serial number, which was recorded, on the front of this manual when ordering replacement or service parts for your prefeeder. *This information is necessary when ordering replacement parts or service.* The system operations manual lists as-tooled components.

Notice to Dealer & OEM Customers:

Some components listed might have been changed by your dealer or OEM to work better with your application. To avoid ordering the wrong spare part, verify the part number listed in this manual when you place your order with your dealer or OEM.

In North America:

Hoppmann Corporation

✉ P.O. Box 601, Chantilly, VA 20153 USA

🚚 14560 Lee Road, Chantilly, VA 20151 USA

Phone: (703) 631-2700 Toll Free: (800) 368-3582

Fax: (703) 631-9824

In Europe:

Hoppmann International GmbH

Max-Planck-Str. 95

27283 Verden

Germany

Telefon: 04231 / 96450

Telefax: 04231 / 65000



FTF-40-RD (Single Motor) Replacement Spares - Metric

Item Untooled

No.	(OEM) Part No.	Description	Quantity
1	MOTRM.5ØHP	Motor, 1/2 HP 180 VDC, USDA	1
2	CNTRKBICØ2	DC Motor Speed Controller	1
3	RESIKB.ØØ5	0.05 Ohm Resistor for CNTRKBICØ2	1
4	CNTRDIALØ1	Dial Plate & Knob for CNTRKBICØ2	1
5	REDUM63F38	Speed Reducer, 38:1 Ratio	1
6	REDUMSHF62	Reducer Output Shaft Kit	1
7	FT4ØFMØ6ØØØ	Torque Limiter Assembly, Nickel	1
8	FT5ØFM12Ø1	Sprocket (33T) for FT4ØFMØ6ØØØ	1
9	FT5ØFØØ8ØØ	Sprocket, Nickel (Rim Drive)	1
10	FT4ØFMØ9ØØØ	Sprocket, Nickel (Disk Drive, Spindle)	1
11	FT5ØFMØ9ØØØ	Sprocket. 30T Nickel (Idler)	1
12	FT5ØFM1ØØØØ	Sprocket. 22T Nickel (Idler)	1
13	MOLDVACØØ4	FT40 Rigid Disc	1
14	BRNGASSYØ1	Ball Bearing (Disk Shaft Spindle, Lower and Upper)	2
15	BRNGBALLØ7	Ball Bearing (Rim or Disc Support Spindle)	4
16	BUSHFB684Ø	Flange Bushing (Drive Clevis)	2
17	BUSHF24281	Flange Bushing (Idler Housing)	2
18	RRNGETR6ØØ	Retaining Ring (Spindle Shaft)	1
19	CHANPS5ØØ1	Drive Chain #50, Polysteel 10" Package	1

FT401RLDFM Single DC Motor

Before ordering, please read the notice at the beginning of this chapter.



FTF-50-RD (Single DC Motor) Replacement Spares - ANSI

Item Untooled

No.	(OEM) Part No.	Description	Quantity
1	MOTRPMØ3Ø4	Motor, 3/4 HP	1
2	CNTRKBICØ1	DC Motor Speed Controller	1
3	RESIKB.Ø15	0.015 Ohm Resistor for CNTRKBICØ1	1
4	CNTRDIALØ1	Dial Plate & Knob for CNTRKBICØ1	1
5	REDU7214Ø4	Speed Reducer, 38:1 Ratio	1
6	FT5Ø18ØØ	Torque Limiter Assembly, Nickel	1
7	FT5Ø12ØØ	Sprocket (33T) for FT5Ø18ØØ	1
8	FT5ØØ8ØØ	Sprocket, Nickel (Rim Drive)	1
9	SPKTBM5Ø3Ø	Sprocket Disc, Nickel (Spindle Shaft)	1
10	MFT5ØØ9ØØ	Sprocket. 30T Nickel (Idler)	1
11	MFT5Ø1ØØØØ	Sprocket. 22T Nickel (Idler)	1
12	BRNGASSYØ1	Ball Bearing (Disk Shaft)	2
13	BRNGBALLØ7	Ball Bearing (Spindle)	4
14	BUSHF12168	Flange Bushing (Drive Clevis)	2
15	BUSHF24281	Flange Bushing (Idler Housing)	2
16	RRNGETR6ØØ	Retaining Ring (Spindle Shaft)	1
17	CHANØØ5Ø1Ø	Drive Chain, (Rim Drive)	1
18	CHANØØ5Ø11	Drive Chain, (Disc Drive)	1

FT501RLDFA Single DC Motor

Before ordering, please read the notice at the beginning of this chapter.

