Shibuya Hoppmann™

Hoppmann Model Flexible Disc Centrifugal Feeder

FT-40 and FT-50
ANSI/Metric Installation & Maintenance Manual

Refer all servicing to qualified personnel.

This manual is intended for use by qualified mechanics and electricians who install or service the Hoppmann™ FT-40 and FT-50 Flexible Disc Centrifugal Feeders.

Use this manual for the FT-40 and FT-50 ANSI or Metric style flexible disc feeders only. **Do not use this manual for the rigid disc style feeders or any food grade style feeder.** These feeders were manufactured before October, 1996.

Record your serial plate information here for future reference

Model Number	Serial Number/Date

Headquarters
7849 Coppermine Dr.
Manassas, VA
20109
540.829.2564 t
800.368.3582 t
540.829.1726 f

Sales
1445 Brookville Way
Suite F
Indianapolis, IN 46239
317.322.0754 t
800.368.3582 t
317.322.0794 f

Manufacturing
291 Dillard Road
Madison Heights, VA
24572
434.929.4746 t
800.543.0915 t
434.929.4959 f

www.ShibuyaHoppmann.com | publications@hoppmann.com

Quick Start

About this Manual

Assumptions

This manual is written for qualified mechanics and electricians who install or service the Hoppmann FT-40 or FT-50 Flexible Disc style Centrifugal Feeders. All procedures in this manual should be performed by qualified personnel.

➲ References in this manual may not apply to your centrifugal 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 centrifugal feeder (if any) have been changed, consult your direct supplier's documentation.

Models Covered

This manual covers all FT-40/50 Flexible Disc models in ANSI or Metric, stainless steel, single or dual drive. If you are unsure which model you have, locate the inventory number on the serial plate of the feeder (see list below):

FT40XXXXCA	FT40XXXXSA	FT40XXXXCM	FT40XXXXSM
FT50XXXXCA	FT50XXXXSA	FT50XXXXCM	FT50XXXXSM

Caution Symbols & Messages

Caution symbols and messages in this manual call attention to hazardous voltages, moving parts and other hazardous conditions. Please understand what the different warning labels and indicators refer to and how to avoid possible injury and/or damage to personnel and equipment.

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

Shibuya 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. Shibuya Hoppmann Corporation has made every effort to verify the information contained in this manual, but reserves to. 05.2017

What to Do First

As-Built Documentation

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

Tools You Will Need

The FT-40 and FT-50 Flexible Disc 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 (SAE) hardware, you will need standard tools as well.

If the feeder has been tooled by your direct supplier, any part of the feeder that touches your product has been tooled for your product. Avoid making any adjustments to the tooling, moving the tooling could adversely affect the performance of your tooled feeder.

Terms and Definitions

Term	Equivalent Term, Definition or Abbreviation
Feeder	Centrifugal Feeder, Sorter, Bowl, Unscrambler, Orienter, Rotary
"FT"	Feeder Tangential
Tooling	Mechanical and optical de vices used to help orient products in the feeder bowl. May include: sensors, height qualifiers, wipers, air jets, etc.

Acknowledgements

Grateful acknowledgment is made to: Boston Gear for permission to reproduce portions of its pamphlets "Boston Gear 700 Series Worm Gear Speed Reducers Installation, Lubrication, and Operation Instructions," and "Bonfiglioli Riduttori S.p.A. MVF ... ÷ 62 Spare Parts List, Lubrication, Installation, Maintenance"; Pacific Scientific Motor & Control Division, for permission to reproduce portions of its "Model BA and SR PMDC Motor Maintenance Bulletin," ©1985 by Pacific Scientific. Speed reducer and motor information in Chapters 4 and 5 are adapted from these publications. Plug-In Horsepower Resistor® is a registered trademark of KB Electronics Inc. for its electronic motor control circuit apparatus.

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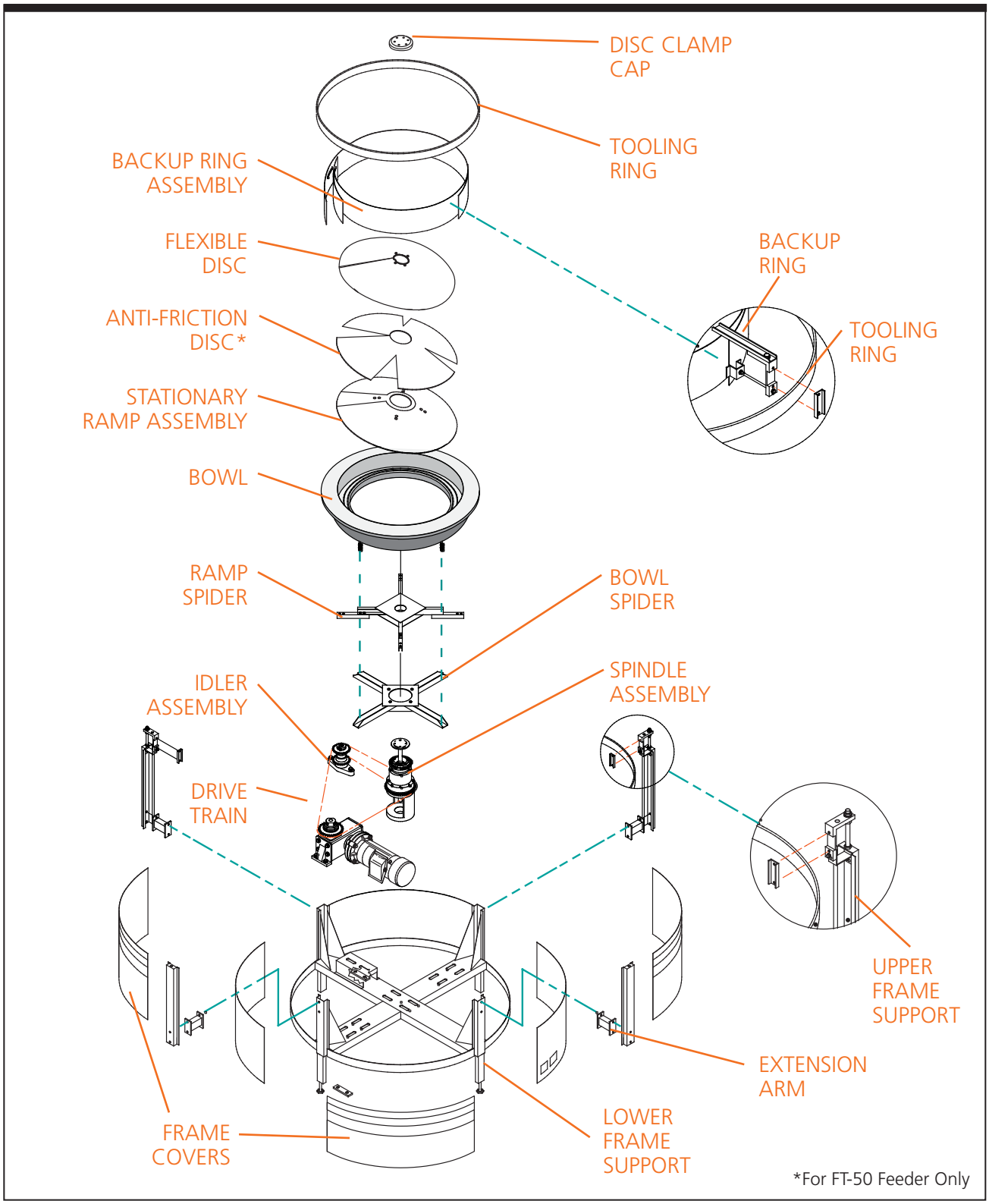


Figure 1-1. Typical FT-Series Dual Drive Feeder - Exploded View

Feeder Description & Specifications

1

Overview of the FT-40 and FT-50 Feeders

Thank you for purchasing a Hoppmann Centrifugal Feeder. Hoppmann feeders are easy to use, easy to maintain and easily handles your product quietly and rapidly.

Function

The Hoppmann Model FT Series 40 and 50 Centrifugal Feeders unscramble, feed, and orient parts. In simple terms, the FT-40 and FT-50 deliver parts all lined up the same way. Each centrifugal feeder unscrambles, orients and feeds product. (Refer to Figure 1-1 for an exploded view of the FT-40/50 feeder).

Operation

Step 1—The Feeder Accepts Your Product. Every feeder accepts product from a separate bulk supply hopper or prefeeder. Product drops randomly, a few at a time, onto a soft, flexible disc.

➲ It is recommended that you carefully meter product into the bowl a few parts at a time, rather than emptying, in bulk, directly into the feeder bowl. Once the feeder has received parts, it should start delivering singlulated parts almost immediately.

Step 2—The Feeder Loads and Qualifies Your Product. After dropping onto the flexible disc, parts load quickly onto the rim of the rotating bowl. The rim moves the parts past mechanical, pneumatic and/or optical qualifiers which reject parts that do not all line up the same way. Improperly oriented parts are recirculated.

Step 3—The Feeder Delivers Your Product. Parts move off the bowl's rim and out of the feeder, in the proper orientation, in a rapidly moving, randomly spaced stream. Hoppmann centrifugal feeders deliver parts almost immediately, so parts simply do not have the time to get scuffed or damaged.

Hoppmann feeders typically handle parts at rates between 20 and 2000 parts per minute. The final output rate is based on your particular part's characteristics and your desired production speed.

Specifications of the FT-40 and FT-50

Specifications	ANSI		Metric	
	FT-40	FT-50	FT-40	FT-50
Motor Size	1/2hp	3/4hp	370 W	560 W
Motor Frame Size	NEMA 56C		IEC 71D	
Supply Line Voltage	115 VAC		220 VAC, 3 Phase	
Motor Voltage	90 VDC		180 VDC	
Current Usage	7 Amps	8 Amps	4 Amps	4 Amps
Weight (Untooled)	850 lbs	1050 lbs	385 kg	476 kg

Table 1-1. Feeder Specifications

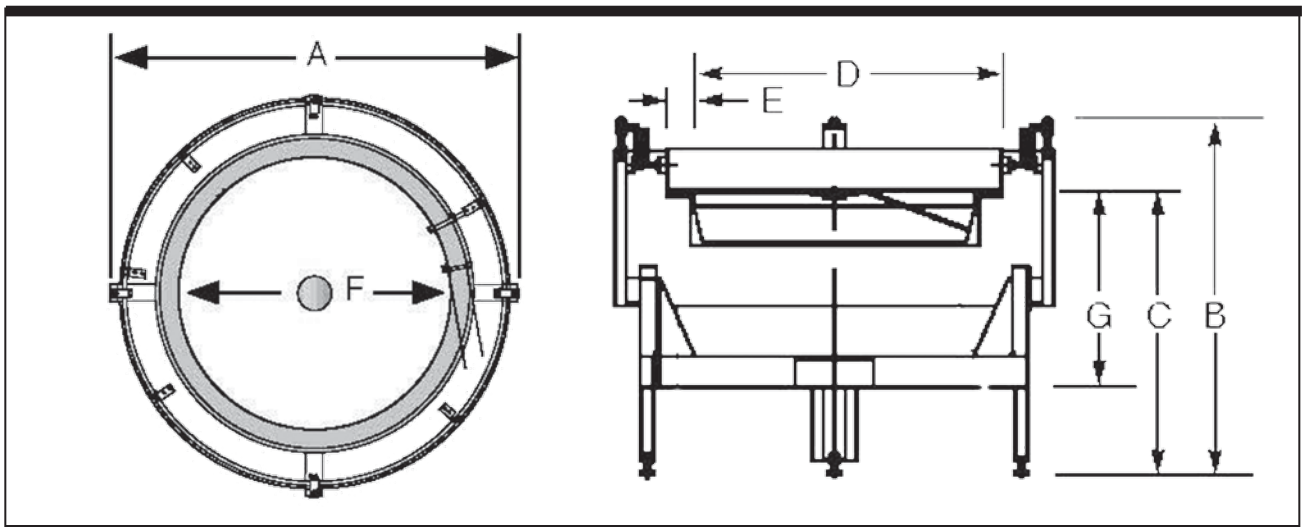


Figure 1-2. Feeder Dimensions

Specifications		ANSI		Metric	
		FT-40	FT-50	FT-40	FT-50
A	Outer Wall Diameter	56.5"	72.5"	1435mm	1842mm
B	Overall Height	44.0"± 6"		1200mm ± 150mm	
C	Discharge Height	36.0"± 6"		915mm ± 150mm	
D	Bowl Inner Diameter	36.25"	47.75"	921mm	1213mm
E	Bowl Rim Width	3.60"	4.12"	92mm	105mm
F	Disc Diameter	36.06"	47.44"	916mm	1205mm
G	Bowl Rim to Bottom of Frame	25.25"	24.88"	651mm	632mm

Table 1-2. Feeder Dimensions

Safety Precautions

2

Safety Precautions

Hoppmann Feeders are designed to be as safe as possible for operators. However, even well-built machines can be installed or operated in a hazardous manner. Safety precautions must be observed by users.

Turn Off Power and Air. Before performing maintenance on the machine, ensure that power and air cannot be accidentally turned back on. Padlock and clearly tag the main electrical and pneumatic disconnect(s) before adjusting or replacing changeover parts or performing maintenance. Lockout/tag-out 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 eye wear when servicing the feeder.

Install Safety Guards! Make sure the feeder remains safe to operate. Be sure all safety guards have been installed before returning the feeder to normal operation. Safety guards on the Centrifugal Feeder include any guards (which protect the operator from the moving bowl spider, sprockets and chains). Before feeder operation, secure all safety covers. Most safety covers are electrically interlocked, and will prevent the machine operation if disengaged.

Avoid Moving Parts. Never place anything in the machine except the handled part(s) for which it was designed. Never put your hands, tools, or other objects into the machine.

Operating & Maintenance: Do's & Don'ts

Don't Give the Feeder Too Much Product. Do not overfill the feeder, because it may jam or lose rate. Bulk product should be metered into the feeder. 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 downtime, 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 Shibuya 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 Operate 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.

Do Replace Failed Bearings in the Spindle Assembly. The spindle assembly should only be taken apart to replace a failed bearing. Follow the procedures in Chapter 5 for bearing replacement.

Installation & Start-Up

3

Included in this Chapter

Follow, in order, each section of this chapter to install any fully tooled FT-40 or FT-50 centrifugal feeder. Electrical specifications and suggested wiring diagrams are provided, however, you should refer to as-built drawings for the most accurate information. This may be received from your direct supplier.

Unpacking, Inspection and 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. For future reference and assistance in ordering parts, record the feeder's model and serial number on the front of this manual.

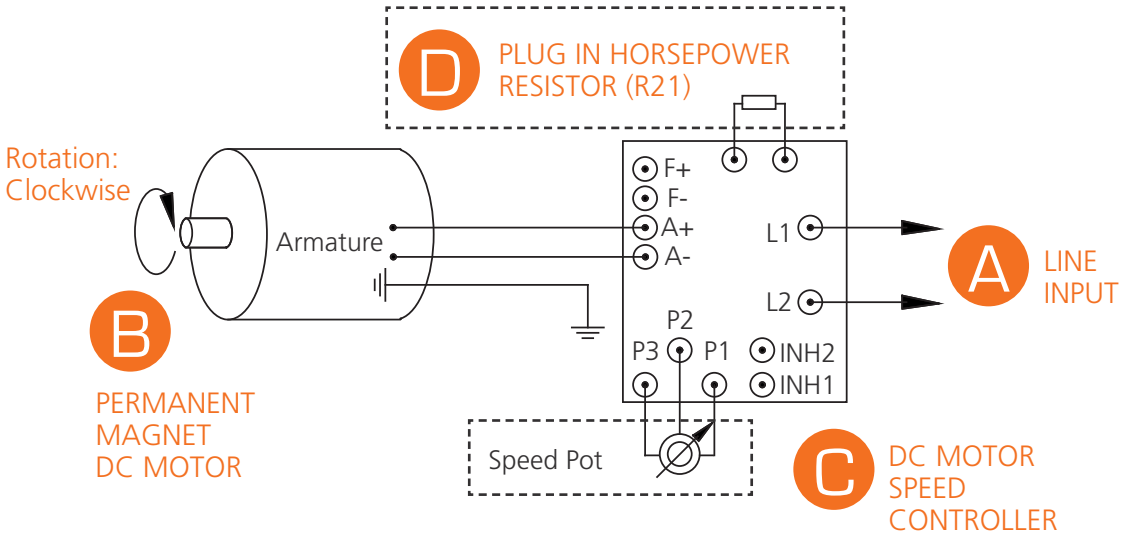
Physical Setup

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. Level the machine by adjusting the leveling feet (if provided). Tighten any locknuts on the leveling feet.

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.



Do not use this diagram if your feeder has a dual drive, an AC motor, or a different motor speed controller than shown.

Start-stop options:
Option 1: Open P3 circuit of speed pot with a pilot duty switch circuit for stop.
Option 2: Interrupt line voltage.

For additional information: See "KBIC® Solid State DC Motor Speed Control Installation and Operating Instructions" in U.S.A. from KB Electronics, Inc., Brooklyn, NY 11207; in U.K. from: EUREP, Lichfield Staffs; in Germany from: Moll Motor Motors, Donaustrasse, Austria or Suter Form-O-Tronic AG, Zurich, Switzerland.

	ANSI Specifications	Metric Specifications
Line Input	115 VAC	240 VAC
Permanent Magnet DC Motor	FT-40: SR3640-8293-84-7-56HC FT-50: SRF3736-4243-84-7-56HC	FT-40: SR3640-1034-7-71D FT-50: SRF3736-4272-7-71D
DC Motor Speed Controller	KBIC-120	KBIC-240
Plug-In Horsepower Resistor (R21)	FT-40: 0.025 OHM, 1/2hp FT-50: 0.015 OHM, 3/4hp	FT-40: 0.050 OHM, 1/2hp FT-50: 0.035 OHM, 3/4hp

Figure 1-3. Suggested Wiring, FT-40 and FT-50

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 the step below. If your direct supplier is providing and integrating both your feeder and prefeeder, skip to Step 5.

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 should discharge product to fall on the rigid disc, halfway between the center of the bowl and the outside diameter. Take a handful of product and drop them from the chute of your prefeeder into the feeder. Avoid dropping product so that it bounces up off the rigid disc onto the rim of the bowl, which could knock off product that are already loaded. You may need to position the prefeeder again, if necessary, once the feeder is running.

Step 5—Connect Electrical Supply and Air. Connect your feeder to electrical supply and compressed air (if applicable).

Starting the Feeder for the First Time

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

Step 2—Check for Rubbing Parts. Turn the feeder bowl by hand. In the unlikely event that you hear any unusual noises, discontinue immediately and check in and around the bowl for any foreign objects causing the noise (for example, check between the backup ring and the rim of the bowl.)

Step 3—Turn on Power and Air. Turn on the feeder's power. If applicable, turn on the feeder's main air regulator.

How to Set Proper Bowl Speed

Ask your direct supplier for the actual speed 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.
- If your feeder has dual drive motors installed, after you complete the procedure to set the bowl speed (see previous step), measure the disc speed in RPM at the center of the disc using your hand held tachometer with the appropriate attachments.

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 parts, 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. Do not adjust the flow controls on air jets.

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 parts exit the feeder to keep the line running at the required rate. **Excessive output may 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.

Notes

Preventive Maintenance

4

What's in this Chapter

Hoppmann FT-40 and FT-50 feeders require minimal preventive maintenance. ANSI reducers require gear oil change 10 days after installation. FT-50 models periodically require talcum powder under the flexible disc. All models require periodic lubrication of chains and sprockets, inspection of chain tension, and inspection of motor brushes beginning six months after installation. This chapter details these procedures.

Talcum Powder for Flexible Disc

FT-40: Every six months (more often if necessary) lift the flexible disc and liberally sprinkle the stationary ramp with talcum powder. This reduces friction and will lengthen the feeder's life (see Figure 4-1). Baby powder (such as Johnson's® baby powder, for example) is also acceptable. Don't use powdered graphite because everything it touches will turn black.

FT-50: Talcum powder is not needed because the FT-50 contains an anti-friction disc.

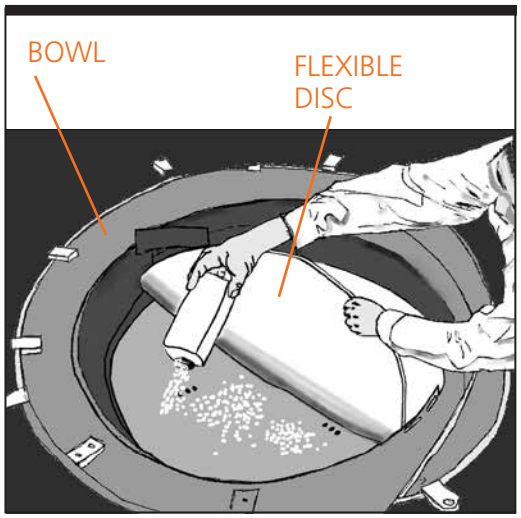


Figure 4-1. Add Talcum Powder Every 6 Months

Clean as Needed

Special Cleaning

The bowl and flexible disc are self-cleaning unless your parts generate dust or particulate when handled. For such parts, remove dust from the rim of the bowl and from the flexible disc with a portable vacuum cleaner daily or as often as necessary.

Normal Cleaning

The Hoppmann Model FT-40 and FT-50 Centrifugal Feeders are not intended for washdown use. To clean the **upper or lower frame covers, the bowl, the flexible disc, or tooling**, use only mild household cleaners. If these are not strong enough, use a mild non-abrasive household cleanser.

Safety Covers

To clean any attached polycarbonate safety covers, you can use all of the above except Bon Ami, Soft Scrub or similar cleansers. Polycarbonate is extremely strong, but scratches easily, and can be fogged even by such mild non-abrasive cleansers.

Tip

To minimize scratches on polycarbonate safety covers, use a mild automobile polish and/or a micro fiber cloth or chamois cloth.

Avoid using abrasive cleansers, strong cleaning solutions or industrial solvents on the outer frame, the rim of the bowl, the rigid disc, tooling or safety covers, as they may be permanently damaged.

Changing Gear Oil in ANSI Reducer

If you do not regularly change the gear oil in your FT-40 and FT-50 ANSI feeders, the reducer will eventually fail. Failures of this type are not covered under warranty.

➲ 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 feeder in a room which is unusually hot or dirty.

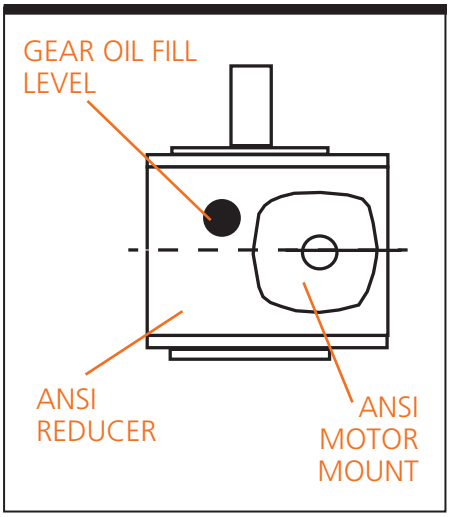


Figure 4-2. Gear Oil Fill Level

- Check level of gear oil before draining. If 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, and metal contaminants are less likely to remain behind.
- Refill to the correct level with a recommended gear oil (see Fig. 4-3). Clean the reducer vent plug and inspect that mounting bolts are secure.

Note: The FT-40 and FT-50 ANSI feeders are shipped to your direct supplier with conventional 600W gear oil. For convenience, you can change to synthetic gear oil because it doesn't have to be changed as often. If you replace the conventional 600W gear oil with synthetic gear oil, you should change it after the first 1500 hours of operation, and then after every 5000 hours.

- **The Bonfiglioli brand reducer in FT-40 and FT-50 metric feeders is lubricated for life with synthetic lubricant. Periodic gear oil change is not required.**

ANSI Reducer Gear Oil - FT-40/50 Flexible Disc Centrifugal Feeder		
Type	Standard: Conventional 600W Gear Oil	Alternate: Synthetic Gear Oil
Recommended Brand	Mobil "600W Cylinder Oil" or AGMA equivalent 7 or 7C	Mobil "SHC 634 Synthetic"
Ambient Room Temperature	40 to 90˚ F (4 to 32˚ C)	-30 to +125˚ F (-34 to +52˚ C) *
Viscosity Range SUS at 100˚ F	1920 / 3200	1950 / 2150
ISO (International Organization for Standardization) Viscosity Grade	460	320 / 460

Table 4-1. Recommended Gear Oil
[*For reference only: the FT-40 and FT-50 are not intended to operate at these extremes]

Lubricating Chains and Sprockets

Grease the feeder's drive chains and sprockets every six (6) months or 1000 operating hours, whichever comes first. Use standard Moly grease, Lubriplate #3000 (NLGI Grade 2), or equivalent.

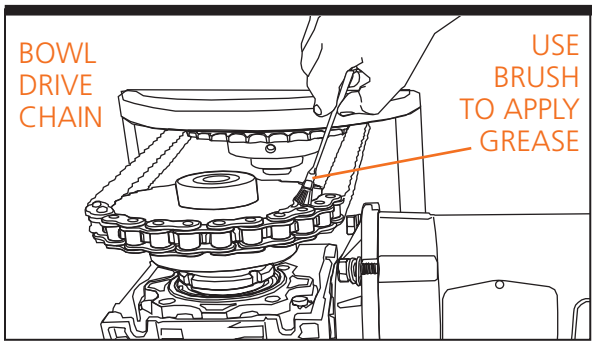


Figure 4-3. Lubricate Chains

- Disconnect all power and air. Lock out and tag out the system. Remove cover(s) to gain access.
- Turn the bowl by hand to expose all the links of the bowl drive chain.
- Use a brush to apply grease to the sprockets and the chains.
- Replace covers securely. Remove lock out and tags, and restart the system.

Inspecting 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. Lock and tag out the feeder.

Step 2—Inspect Drive Chain. Midway between the sprockets, grasp the chain and move it back and forth. You should not be able to move it more than 1" (25mm) in either direction. If it moves more than 1", adjustment is required (see Figure 4-3.) If an adjustment is needed:

- For single drive feeders: Adjust the disc drive first. Loosen the idler assembly and move it forward or back as necessary. Then retighten.
- Adjust the bowl drive chain last. Loosen the reducer mounting brackets from the nut plates. Move the reducer forward or back as needed, then retighten.

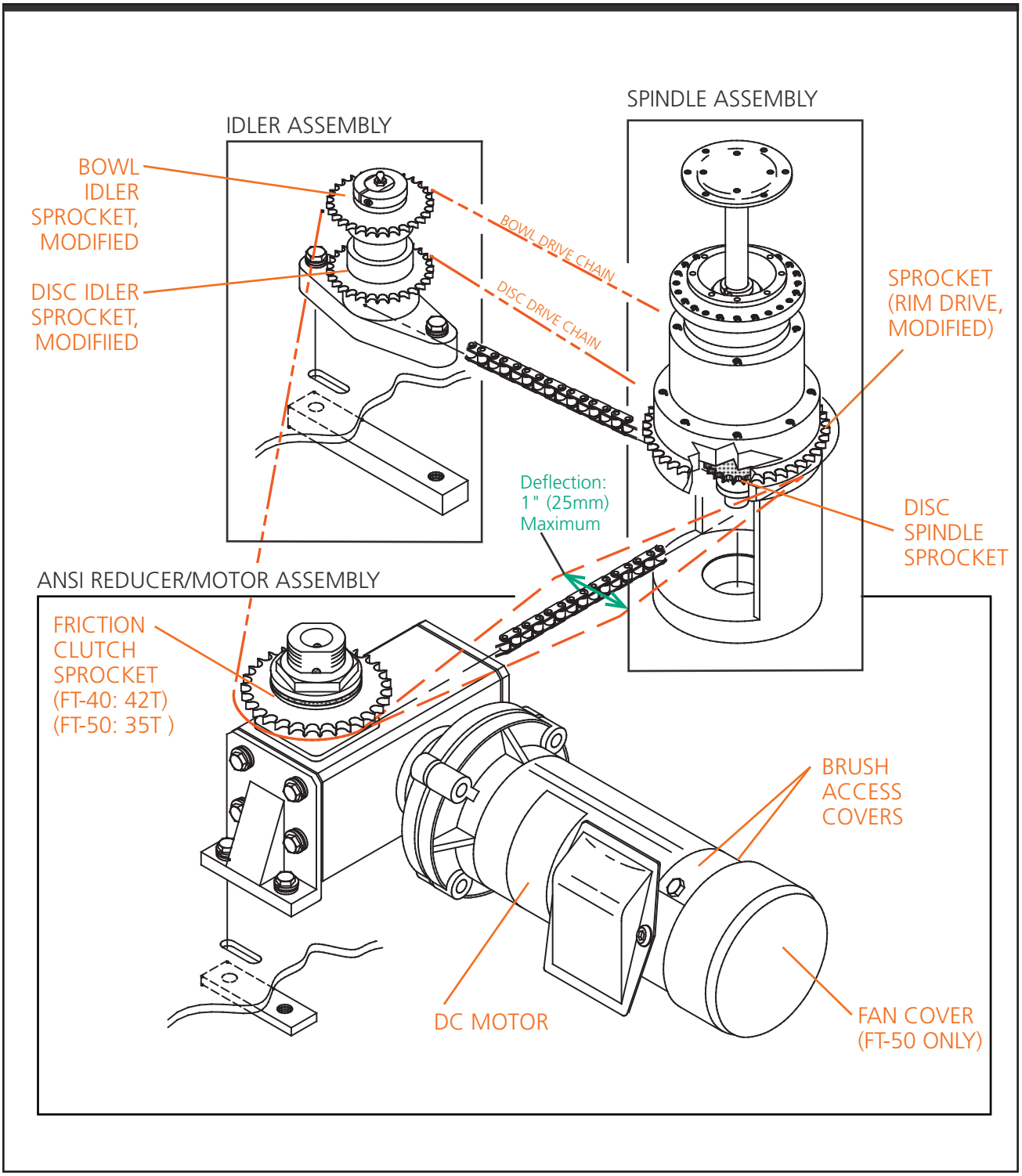


Figure 4-4. Bowl Drive Chain Tension -Typical DC Motor

➲ For dual drive feeders: Adjust the motor/reducer mounting plate for each motor by moving the reducer back and forth as necessary.

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 to within the above specification.

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 realignment of the sprockets and increasing the total chain deflection from 1" (25mm) to 1 1/4" (32mm).

Step 5—Replace Guards and Covers. Replace guards and covers and reconnect power and air. Initial and date the Maintenance Log (inside back cover).

Inspect/Replace Motor Brushes

The following procedure applies only to DC motors and should be performed only by qualified personnel.

Step 1—Gain Access. Before gaining access to the feeder motors, disconnect power and air. **Completely lock and tag out the feeder.** Remove feeder guards and covers as needed to gain access to the motor. Then remove the motor brush access covers. On the FT-50 only, you must also loosen or remove the motor fan cover, which partially blocks the brush access covers. You will see a sheet of flexible cardboard-like material covering the access hole. This is the insulator guard. 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.

Step 3—Replace Brushes. Lift the brush spring from the end of the brush (see Figure 4-5). Remove the brush connector, withdraw

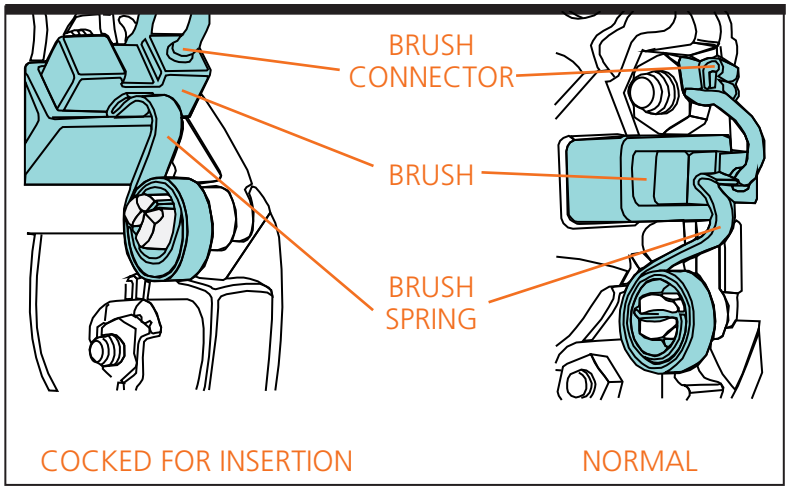


Figure 4-5. DC Motor Brushes with Gasketed Cover Removed

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.

Notes

Repair and Troubleshooting

5

What's in this Chapter

The procedures in this chapter tell how to troubleshoot and repair FT-40 and FT-50 feeders. 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 Parts Jam: General Tips

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

- Is your prefeeder's delivery rate excessive? (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.

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 handheld tachometer (analog or digital) with a surface speed wheel indicator (see Figure 5-1).

➲ 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.l

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

Step 2—Set Bowl Speed. To set bowl speed, place handheld 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). You can ignore the flexible disc speed, which changes proportionally as the bowl speed changes.

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

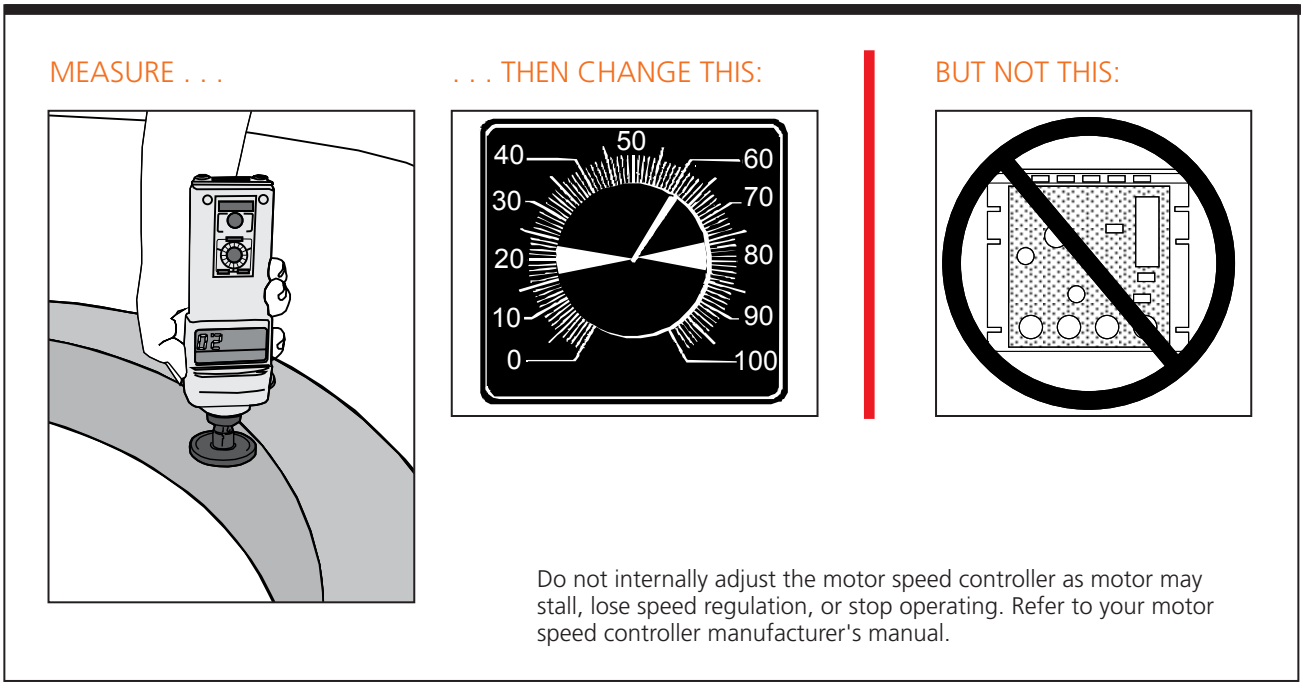


Figure 5-1. Measurement and Changes to Bowl Speed

How to Set Bowl Runout

Bowl runout needs to be reset if the bowl has been removed. **Adjust runout with power off and bowl drive chain disengaged.**

Step 1—Gain Access. Disconnect power and air. Remove any frame covers. Lock out and tag out the feeder.

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 on the rim of the bowl, up to 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 on the rim of the bowl, up to 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 the bowl. (Feeders for most products are tooled with approximately 1/8" gap, but for some small products the gap is less; consult your as-built documentation for specifications.) At the upper frame support, adjust the tooling ring up or down, if necessary.

Step 7—Replace Chain & Covers. Install bowl drive chain. Inspect chain tension (refer to Figure 4-3). Replace covers and re-connect power and air.

Friction Clutch: Adjustment/Replacement

The friction clutch sprocket slips harmlessly in the event of a parts jam. Severe humidity or dryness may reduce the life of the friction clutch. The friction clutch should be inspected if the bowl turns freely. Inspect for surface corrosion on the bushing or sprocket

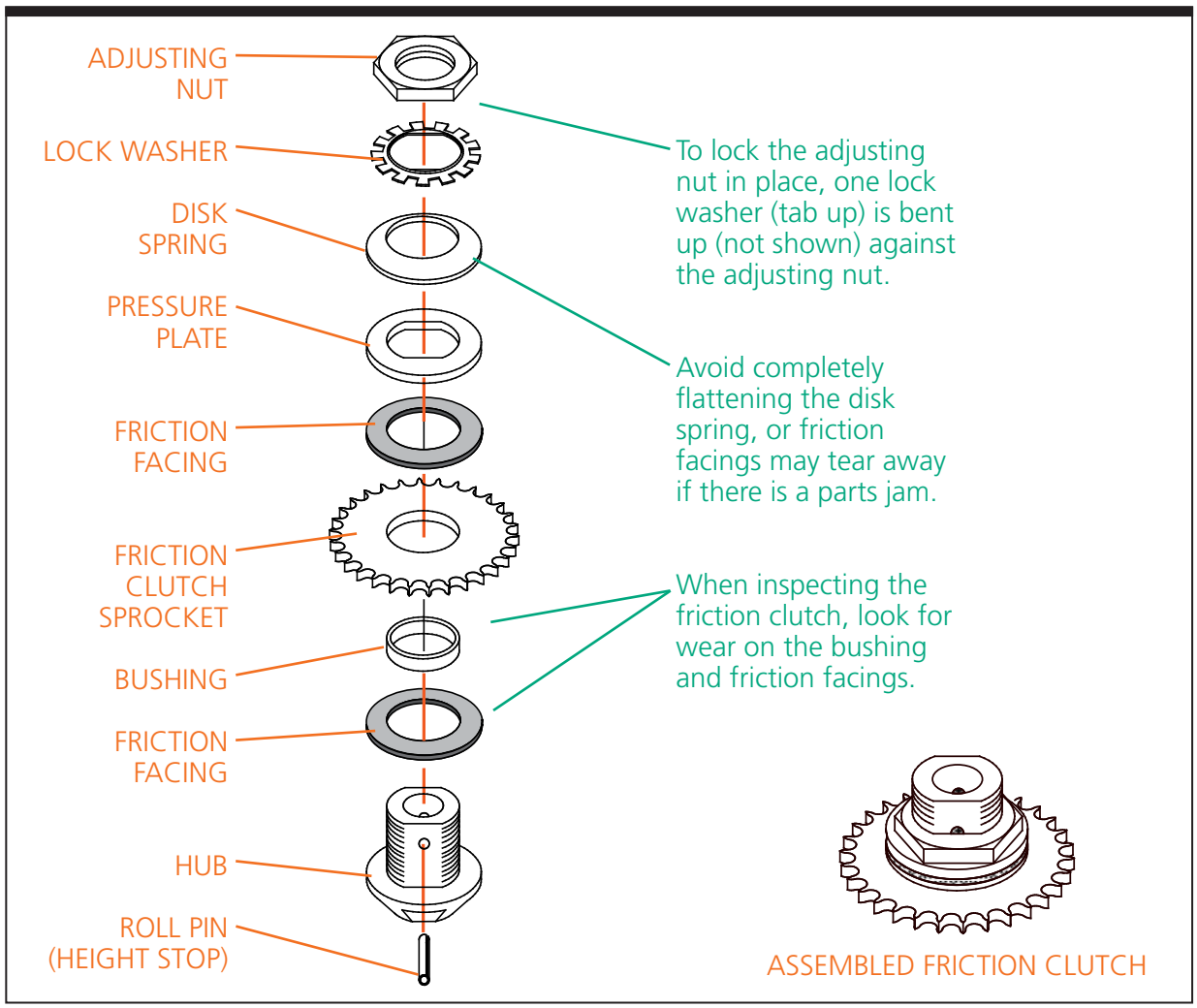


Figure 5-2. Friction Clutch

and replace if necessary. Inspection, adjustment, replacement procedures are listed below:

Step 1—Gain Access. Turn off power and air. Remove one of the lower frame covers on the reducer side of the feeder. Remove the bowl drive chain.

Step 2—Remove the Friction Clutch. Remove the friction clutch to the bench and disassemble. Inspect and replace any broken or worn parts. Observe the order of the parts.

Step 3—Re-Assemble the Friction Clutch. Assemble and install the friction clutch. Hand tighten the adjusting nut (See figure 5-3). Do not completely flatten the disk spring. Also, do not lock the adjusting nut yet. You will lock the adjusting nut after turning on the motor.

Step 4—Replace the Chain. Replace the chain over the sprockets and inspect the chain tension.

Step 5—Test the Slip Torque. Carefully grasp the bowl by hand, turning slowly to check for required slip torque. The bowl should turn a fraction of a revolution as it takes up slack. You should then feel a slight increase in drag as the friction clutch slips. If the bowl doesn't easily turn, the torque limiter is adjusted too tight. **Do not force it because you can damage the gearmotor or shear the friction facings.** Loosen the adjusting nut a fraction of a turn and test slip torque again.

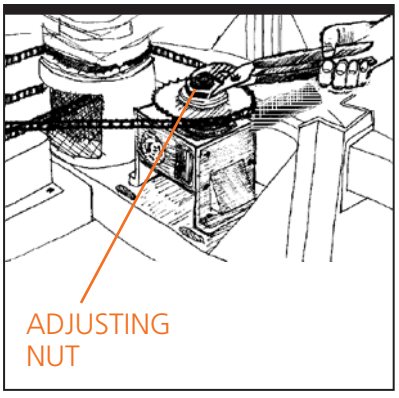


Figure 5-3. Friction Clutch Adjusting Nut

Step 6—Lock the Adjusting Nut. Turn on power and air. Start the feeder to observe the bowl. **Use caution when operating with covers off.** Turn off the feeder. Tighten or loosen the adjusting nut to permit the bowl to slip 1⁄2 to 3⁄4 of a revolution as the motor starts. Lock the adjusting nut by bending a lockwasher tab over it. Replace all covers.

Replacing/Refinishing a Damaged Bowl

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

- If the damage is slight, re-coating 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 re-coated. Re-coating 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. 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 parts.
- Put the bowl in place, then set it to the correct height, ± 0.03" (0.8mm). Refer to Figure 1-3 for standard bowl height, measured from the top of the bowl rim to the bottom of the frame.
- Set bowl runout (earlier in this chapter).
- Add talcum powder under flexible disc (FT-40 only, refer to Chapter 4 for more information).
- Check that all covers are in place before running the feeder.

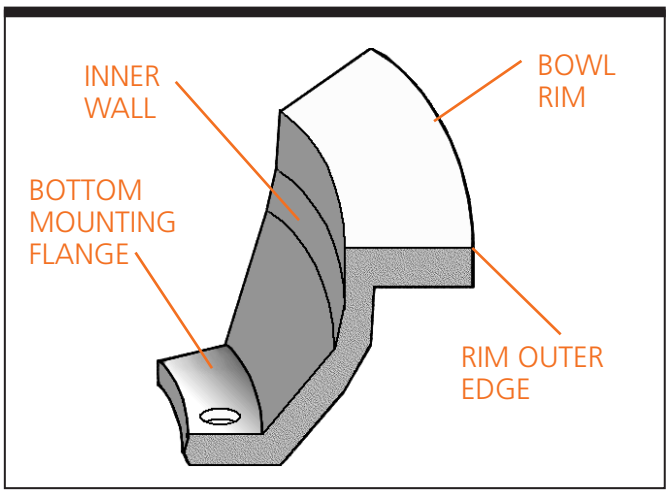


Figure 5-4. Parts of the Bowl

Replacing the Reducer

Follow these instructions to replace the reducer in the FT-40 or FT-50 feeder with a direct replacement (listed in Spare Parts.)

Step 1—Gain Access. Disconnect power and air. Remove one of the lower frame covers on the reducer side of the feeder. Lock out and tag out the equipment.

Step 2—Remove the Motor. Remove four mounting bolts from motor. Remove motor from reducer. **Avoid sharp edges on shaft keyways.**

Step 3—Remove the Reducer. Loosen only the bolts at the bottom of the reducer mounting brackets. Slide the reducer towards the center of the feeder and remove the bowl drive chain. Remove the reducer, with mounting brackets attached, to the bench. Retain nut plates for reuse.

Step 4—Install Parts on the New Reducer. Remove the friction clutch and reducer mounting brackets from the old reducer and install them on the new reducer. Slide the friction clutch assembly down onto the reducer output shaft until it bottoms out. Tighten setscrew. Install reducer mounting brackets.

Step 5—Prepare the Reducer.
Metric Only: The Bonfiglioli® brand reducer in the metric FT-40 and FT-50 is lubricated for life with synthetic lubricant and requires no filling before use.

- Unlike the integral output shaft on the the ANSI reducer, the output shaft on the metric reducer comes as a separate kit. Clean contact surfaces before assembly and apply water repellent grease or anti-seize compound to avoid oxidation (rust) and possible seizing of parts.
- The bore of the hollow shaft of the metric reducer has tolerance H7; all shafts to be fitted are usually machined to H6. If required, an interference fit (H7-J6) can be used.

ANSI Only: Unpack the new reducer. Leave rubber sleeves on shafts to protect your hands from any sharp edges on the keyways. Fill the new reducer to the correct level with gear oil (refer to Figure 4-3 on page 19). Keep the reducer upright as you install it, or the breather hole may leak.

Step 6—Install the New Reducer. Install the new reducer assembly using the original nut plates. Install chain and inspect tension.

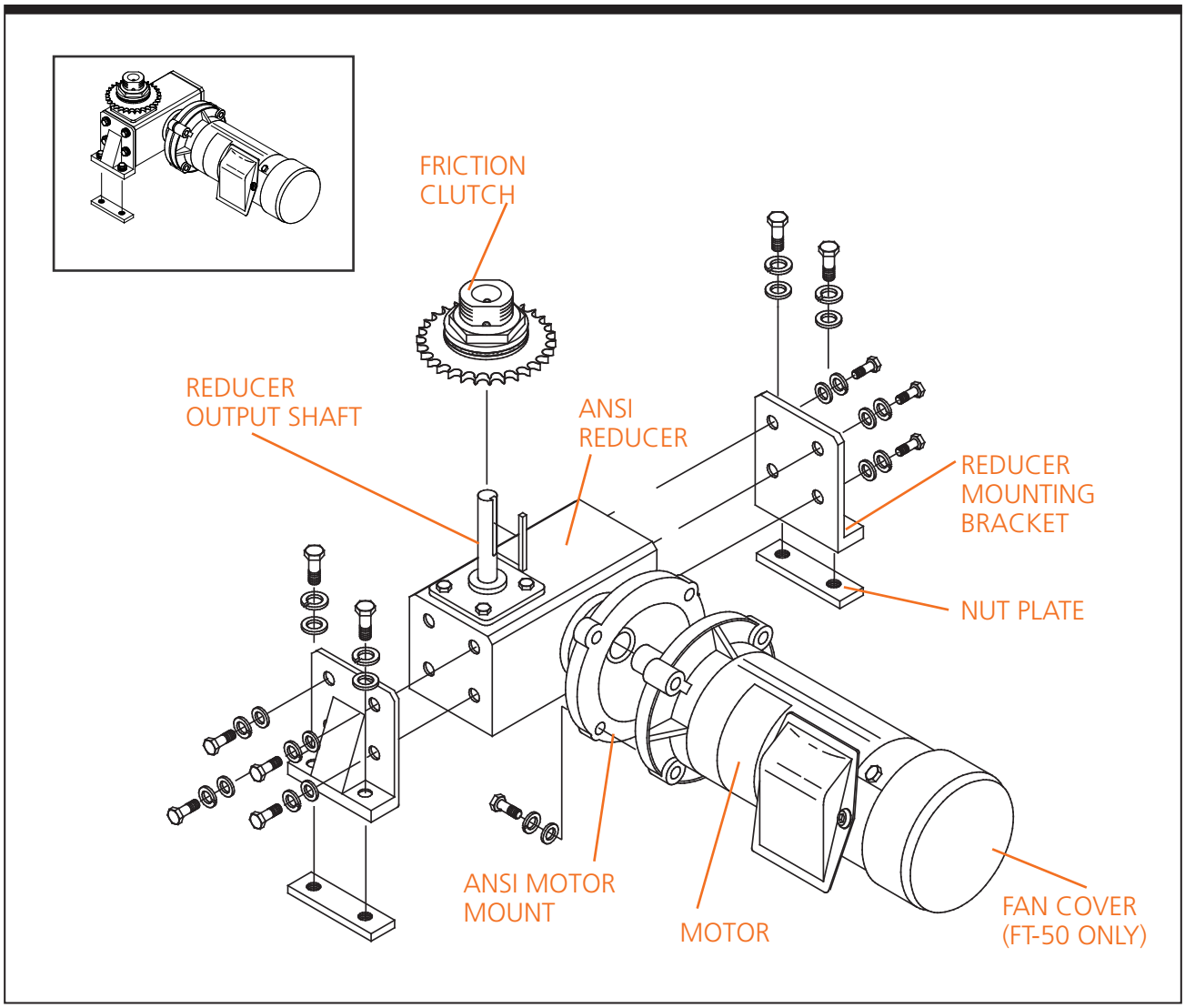


Figure 5-5. ANSI Reducer, Motor and Clutch Exploded View

Step 7—Install Motor. Assemble the key to the motor shaft and coat the motor shaft with anti-seize compound. Insert the motor shaft into the reducer. Rotate the motor to the correct position and firmly secure it to the reducer. If you have trouble seating the motor, check to see if the key has moved.

Step 8—Change Gear Oil.

- During the reducer's break-in period, it may run hotter than normal, but it should never run hotter than 225° F (107° C). If it does, look for overloads or high ambient temperatures.
- After a 10 day run in, change the gear oil (refer to Chapter 4).

Stationary Ramp: Adjusting the Height.

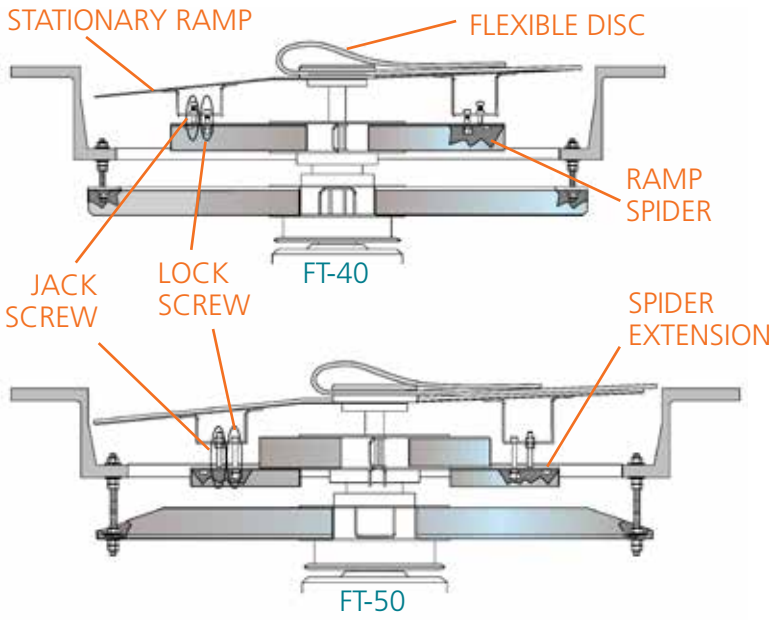
Normally, the following procedure is performed only by your direct supplier while the feeder is being tooled for your part. However, you may need to perform this procedure if you replace the bowl, for example, or disassemble the feeder to complete other repairs. The steps below assume the following:

- The stationary ramp needs to be raised or lowered.
- All safety procedures for disconnection of power and installation of safety covers are followed.
- All the upper frame covers have been removed and the underside of the stationary ramp is accessible.

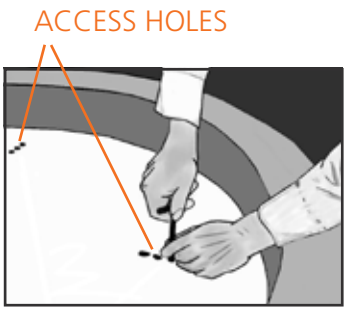
Step 1—Remove the Flexible Disc. Remove the disc clamp cap and flexible disc. (On an FT-50, remove also the anti-friction disc; refer to Figure 1-1.)

Step 2—Loosen Screws. Reach beneath the stationary ramp to loosen the jam nuts (refer to Figure 5-6 on the following page.) From above, through the access holes in the top of the stationary ramp, loosen all four jack screws and corresponding lock screws. Adjust all four jack screws as needed.

Step 3—Tighten Jam Nuts. Tighten firmly but not forcibly the jam nuts on all four jack screws.



To Adjust: Reach beneath the stationary ramp to loosen the lock screws. On the FT-40, the lock screws are over the ramp spider. On the FT-50, the are over the spider extensions.



To adjust the stationary ramp height, insert a hex wrench into the access holes on top of the stationary ramp. The FT-40 has two access holes; the FT-50 has three holes, but only 2 are used. First adjust the jack screws (outermost screws) and then adjust the lock screws (innermost screws). Repeat as needed at all four positions.

Figure 5-6. Adjusting Stationary Ramp Height

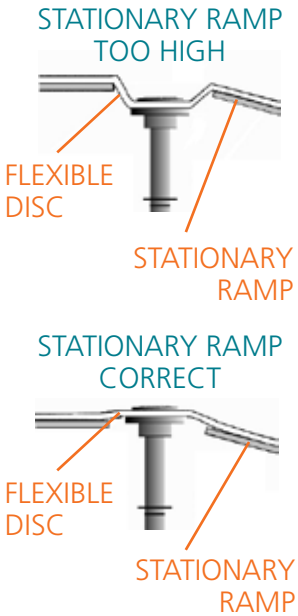


Figure 5-7. Stationary Ramp Inspections

Step 4—Tighten Lock Screws. Tighten firmly but not forcibly all four lock screws.

Step 5—Inspect Ramp Height. Install anti-friction disc, flexible disc, and disc clamp cap. Add talcum powder as necessary. Connect power and turn on the feeder (be prepared to shut it off immediately if the flexible disc rubs against the bowl).

- *Stationary ramp too low.* If the stationary ramp is too low, it will rub against the inner wall of the bowl below the flexible disc. You'll hear metal rubbing metal, but you probably won't be able to see the source of the noise. Raise the ramp until it no longer rubs against the bowl.
- *Stationary ramp too high.* The stationary ramp is too high if the top of the disc lower clamp (See Figure 5-11) is below the top of the stationary ramp. If the stationary ramp is not lowered, its center hole will rub against and damage the flexible disc.

Replacing the Bowl Spindle Bearings

Bearing Replacement

Bearing Replacement Cautions:

- Carefully note position of any tooling you remove before you begin.
- Keep chains clean and dry after removal.
- To prevent binding or excessive free play in the bowl, ensure that the bowl housing, ramp housing, 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.
- To maintain accuracy and prevent play in the bowl, replace both bowl spindle bearings at the same time. Don't replace only one.
- Perform the following procedure only if the bowl spindle bearings have failed, as substantial disassembly of the feeder is required.
- Do not swap housings (ramp housing, bowl housing, or spindle housing) from one FT feeder to another, as critical surfaces may be custom-machined for zero play in the bowl.
- Install only 100% identical replacement bearings. In the unlikely event that the bowl won't 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.

Step 1—Gain Access to Flexible Disc. First, disconnect power and air. Next, temporarily remove any tooling which prevents access.

Step 2—Gain Access to Stationary Ramp. Remove disc clamp cap (see Figure 1-1) and the flexible disc. For FT-50, also remove the anti-friction disc. You now have access to the center opening of the stationary ramp.

Step 3—Remove Stationary Ramp. First, remove the bolts that attach the ramp spider to the ramp housing. If the stationary ramp assembly is later replaced in the wrong orientation, parts won't

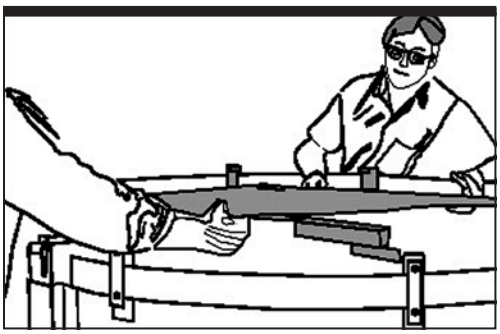


Figure 5-8. You Will Need A Helper When Removing the Stationary Ramp

orient properly. Before removal, indicate position with scribe, tape, chalk or marker. Lift as a unit the stationary ramp assembly and the ramp spider.

A helper/partner should be used to remove the Stationary Ramp (see Figure 5-8).

Step 4—Remove the Disc Lower Clamp. Remove the four flat head socket cap screws from the center of the disc lower clamp.

Step 5—Remove Bowl Spider and Bowl. Leave the bowl attached to the bowl spider. Remove the eight bolts which attach the bowl spider to the bowl housing. Remove as a unit the bowl spider and the bowl.

Step 6—Remove Ramp Housing. Loosen the eight screws securing the ramp housing and lift it off.

Step 7—Remove Bowl Chain and Bowl Housing. Remove the bowl drive master link and chain. Next, leave the bowl spindle sprocket attached to the bowl housing. Lift out as a unit the bowl spindle sprocket and bowl housing from the feeder.

Step 8—Remove Bearings. Remove four bolts and bowl spindle sprocket. Push out bearings from bowl housing.

Step 9—Reassemble. Reverse steps 1-8 to reassemble.

- Place a small amount of grease around ramp housing and bowl housing bearing bores before inserting new bearings.
- After installing the ramp housing (Step 6 above) and the bowl and bowl spider as a unit (Step 5 above), you must check that the bowl spindle bearings are preloaded without play. To check bearing play, first finger tighten eight screws which secure the ramp housing against the upper bowl spindle bearing.

Rotate the ramp housing with the bowl spider while tightening screws. Apply no more than approximately 150 lbs. (68 kg.) force at the end of the bowl spider and move it up and down. If zero play is felt, and the ramp housing rotates freely by hand, the bowl spindle bearings are properly preloaded. (If not, see warning before step 1).

- Inspect chain tension (see Chapter 4).
- Set bowl runout (see Chapter 5).
- Lubricate chains and sprockets (see Chapter 4).
- Add talcum powder under disc (FT-40 only, see Chapter 4).
- Install covers.

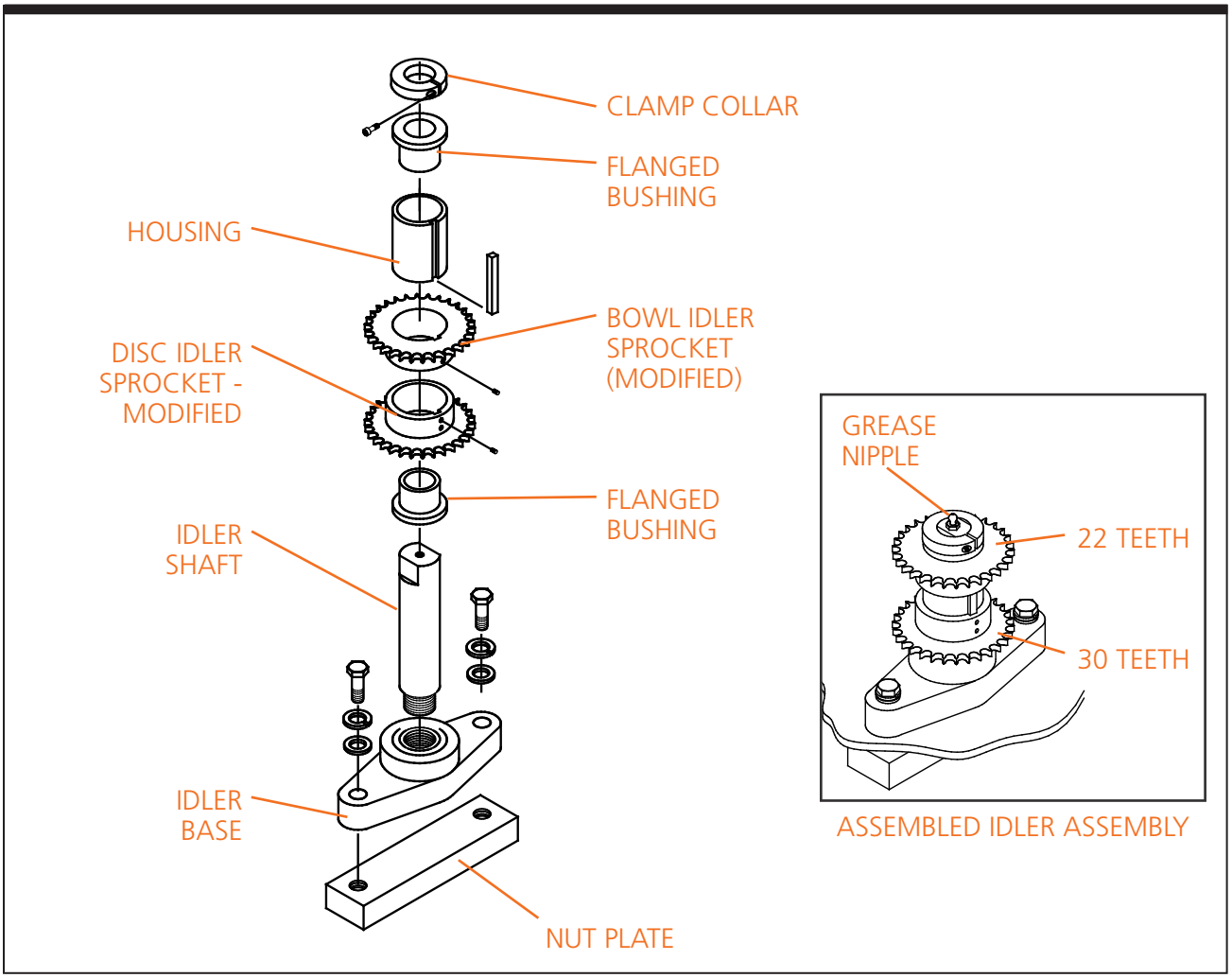


Figure 5-9. Idler Assembly (Single Drive Systems) - Exploded View and Assembled View

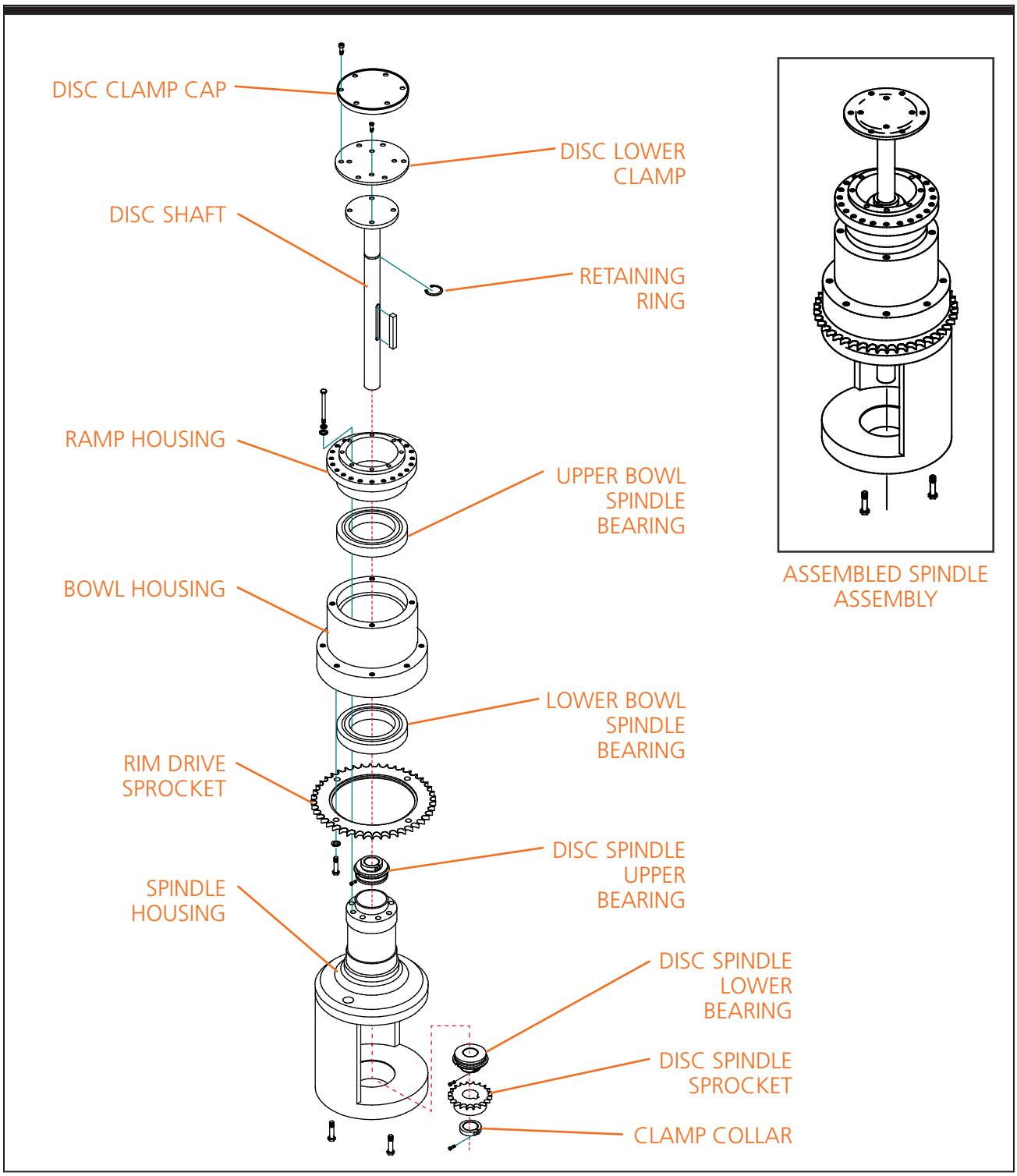


Figure 5-10. FT-40/FT-50 Spindle Assembly - Exploded View

Replacing the Upper Disc Spindle Bearing

Step 1—Gain Access. To replace the upper disc spindle bearing of the FT-40 or FT-50 feeders, first perform Steps 1 and 2 of *Replacing the Bowl Spindle Bearings* (earlier in this chapter).

Step 2—Loosen the Lower Bearing. Loosen the clamp collar on the lower disc spindle bearing, leaving the upper disc spindle bearing attached to the disc shaft. To gain access to the lower disc spindle bearing, remove the chain from the disc spindle sprocket (refer to Figure 5-9).

Step 3—Loosen the Disc Spindle Sprocket. Loosen the disc spindle sprocket's set screw and slide the sprocket downward off the bottom of the disc shaft. Remove the sprocket's key.

Step 4—Pull Disc Shaft with Upper Bearing Attached. Hold onto the disc lower clamp, still attached to the disc shaft, and pull upwards. The disc shaft, with the upper bearing attached, will now slide from the spindle housing. Tap the disc shaft from below the feeder if necessary. If the bearing still does not remove easily, further disassembly of the spindle assembly may be required.

Step 5—Replace the Bearing and Reassemble Feeder. Before installing the new bearing, replace any broken or worn hardware.

- Make sure all parts are clean. Inspect for burrs and dirt.
- Install the new bearing. Reverse steps 1-4 to reassemble.
- Inspect chain tension (see Chapter 4).
- Set bowl runout (see Chapter 5).
- Lubricate chains and sprockets (see Chapter 4).
- Add talcum powder under disc (FT-40 only, see Chapter 4).
- Install covers.

Replacing the Lower Disc Spindle Bearing

Step 1—Gain Access. To replace the lower disc spindle bearing on the FT-40 or FT-50 feeder, first perform Steps 1 and 2 of *Replacing the Bowl Spindle Bearings* (earlier in this chapter).

Step 2—Loosen the Lower Bearing. To gain access to the lower disc spindle bearing, remove the chain from the disc spindle sprocket (refer to Figure 4-4). Loosen the clamp collar on the lower disc spindle bearing (see Figure 5-10), leaving the upper disc spindle bearing attached to the disc shaft.

Step 3—Loosen the Disc Spindle Sprocket. Loosen the disc spindle sprocket's set screw and slide the sprocket downward off the bottom of the disc shaft. Remove the sprocket's key.

Step 4—Pull Disc Shaft with Upper Bearing Attached. Hold onto the disc lower clamp, still attached to the disc shaft, and pull upwards. The disc shaft, with the upper bearing attached, will now slide from the spindle housing. Tap the disc shaft from below the feeder if necessary. If the bearing still does not remove easily, further disassembly of the spindle assembly may be required.

Step 5—Remove the Lower Bearing. The lower bearing may now be tapped downwards and out of the spindle housing.

Step 6—Replace Bearing and Reassemble Feeder. Before installing the new bearing, replace any broken or worn hardware.

- Make sure all parts are clean. Inspect for burrs and dirt.
- Install the new bearing. Reverse steps 1-5 to reassemble.
- Inspect chain tension (see Chapter 4).
- Set bowl runout (see Chapter 5).
- Lubricate chains and sprockets (see Chapter 4).
- Add talcum powder under disc (FT-40 only, (see Chapter 4).
- Install covers.

Troubleshooting Charts

Refer to the troubleshooting charts on the following pages which detailing common problems and possible solutions.

Troubleshooting		
Problem	Possible Cause	Solution/Action
Rate is too low.	Bowl speed is incorrect.	Correctly set the bowl speed.
	Feeder is overloaded.	Check the prefeeder speed.
		Check the prefeeder's time delay relay.
		Check the bowl level sensor in the feeder.
Bowl and flexible disc turn, but parts jam.	Bowl or prefeeder speed incorrect.	Correctly se the bowl and prefeeder speed.
	Air off, too low, or too high.	Check the air flow. Check pressure at main air regulator.
	Incorrect part.	Verify that the feeder is correctly set up to run this part.
	Parts are different than the last batch.	Make sure the feeder was tooled to run this part.
	Tooling or air jets need adjustment.	Refer to your System Operations Manual or contact your direct supplier.
Surface of parts are scuffed or dirty.	Particulate in the feeder.	Clean the bowl and disc.
	Parts are already scuffed.	Check upstream machinery.
Bowl does not turn.	Parts jammed in the feeder.	Disconnect power. Locate and remove the jammed part(s). Restart the feeder.
	Friction clutch is loose.	Adjust the friction clutch.
Cannot adjust the motor speed high enough.	Motor speed controller internal setting changed or defective.	Check the setting and/or replace the motor speed controller and the horsepower resistor.
	The drive chain is too loose or too tight.	Adjust the drive chain tension. Refer to Chapter 4 for correct setting information.

Troubleshooting		
Problem	Possible Cause	Solution/Action
Feeder won't run at all.	Power is off, or the feeder has been disconnected.	Turn the power on or reconnect power to the feeder.
	Downstream machinery is completely full.	Clear downstream machinery.
	Motor speed controller internal setting changed or defective.	Check the setting and/or replace the motor speed controller and the horsepower resistor.
	Trim pot settings have changed.	Re-calibrate to the motor speed controller manufacturer's specifications.
	Motor is defective.	Replace the motor. Refer to the Replacement Parts in Chapter 6.
Bowl and flexible disc cog (jerk) when moving.	Motor speed controller internal setting changed or defective.	Check the setting and/or replace the motor speed controller and the horsepower resistor.
	Loose drive chain.	Adjust the drive chain tension. Refer to Chapter 4 for correct setting information.

Replacement Parts

6

Replacement Parts

Replacement parts lists for the Hoppmann prefeeders are listed on the following pages. When ordering replacement parts, please reference the model name and number of your prefeeder located on the serial plate. This helps in making sure you receive the correct replacement parts.

If you received a customized Shibuya Hoppmann system, please refer to your system's Operation Manual when ordering spares, as your prefeeder may have been altered.

Having the serial number in addition to the part number you wish to order will help us to accurately assist you in getting the correct parts. You may order your prefeeder's spare parts directly from Shibuya Hoppmann by email, phone or fax (see the contact information listed below).

Shibuya Hoppmann Spares and Service Department

- **Email**: Spares@Hoppmann.com
- **Phone**: 434.929.4746 (1.800.543.0915)
- **Fax**: 434.929.4959
- **Mail**: Shibuya Hoppmann Corporation
  Attn: Spares Department
  291 Dillard Road
  Madison Heights, VA 24572 USA
  www.ShibuyaHoppmann.com

ANSI Centrifugal Feeder - FT-40 (FT40XXXXCA or FT40XXXXSA)		
Part Number	**Description**	**Qty.**
MOTRPM0102	PMDC Motor, 1/2hp 90VDC, ANSI	1
CNTRKBIC01	DC Motor Speed Controller, 120V	1
RESIKB.025	0.025 Ohm Resistor for CNTRKBIC01	1
CNTRDIAL01	Dial Plate and Knob	1
REDU718401	Reducer, ANSI	1
FT400600	Friction Clutch, ANSI, w/o Sprocket	1
MFT500900	Idler Sprocket, Modified	1
MFT501000	Idler Sprocket, Modified	1
FT500800	Sprocket, Rim Drive, Modified	1
FT360008	Flexible Disc	1
FT40RIMSTD	Bowl, Machined	1
CHAN005010	Bowl Drive Chain (FT40XXXXCA Only)	1
CHAN005011	Disc Drive Chain (FT40XXXXCA Only)	1
CHAN005012	Bowl Drive Chain (FT40XXXXSA Only)	1
CHAN005007	Disc Drive Chain (FT40XXXXSA Only)	1
BRNGBALL07	Bowl Spindle Bearing	2
BRNGASSY01	Disc Spindle Bearing	2
BUSHF24281	Flanged Bushing	2

CRITICAL **

Metric Centrifugal Feeder - FT-40 (FT40XXXXCM or FT40XXXXSM)		
Part Number	**Description**	**Qty.**
MOTRM.50HP	PMDC Motor, 1/2 hp, 180VDC, Metric	1
CNTRKBIC02	DC Motor Speed Controller, 240V	1
RESIKB.005	0.005 Ohm Resistor for CNTRKBIC02	1
CNTRDIAL01	Dial Plate and Knob	1
REDUM62F38	Reducer, Metric	1
REDUMSHF62	Output Shaft Kit, Metric	1
TORQM13025	Friction Clutch, Metric, W/O Sprocket	1
MFT500900	Idler Sprocket, Modified	1
MFT501000	Idler Sprocket, Modified	1
FT500800	Sprocket, Rim Drive, Modified	1
SPKTMB5030	Disc Spindle Sprocket	1
FT360008	Flexible Disc	1
FT40RIMSTD	Bowl, Machined	1
CHAN005010	Bowl Drive Chain (FT40XXXXCM Only)	1
CHAN005011	Disc Drive Chain (FT40XXXXCM Only)	1
CHAN005012	Bowl Drive Chain (FT40XXXXSM Only)	1
CHAN005007	Disc Drive Chain (FT40XXXXSM Only)	1
BRNGBALL07	Bowl Spindle Bearing	2
BRNGASSY01	Disc Spindle Bearing	2
BUSHF24281	Flanged Bushing	2

CRITICAL **

ANSI Centrifugal Feeder - FT-50 (FT50XXXXCA or FT50XXXXSA)		
Part Number	**Description**	**Qty.**
MOTRPM0304	PMDC Motor, 3/4hp 90VDC, ANSI	1
CNTRKBIC01	DC Motor Speed Controller, 120V	1
RESIKB.015	0.015 Ohm Resistor for CNTRKBIC01	1
CNTRDIAL01	Dial Plate and Knob	1
REDU721401	Reducer, ANSI	1
TORQ350A01	Friction Clutch, ANSI, w/o Sprocket	1
MFT500900	Idler Sprocket, Modified	1
MFT501000	Idler Sprocket, Modified	1
FT500800	Sprocket, Rim Drive, Modified	1
FT480007	Flexible Disc	1
FT501911	Friction Disc	1
FT50RIMSTD	Bowl, Machined	
CHAN005010	Bowl Drive Chain (FT50XXXXCA Only)	1
CHAN005011	Disc Drive Chain (FT50XXXXCA Only)	1
CHAN005012	Bowl Drive Chain (FT50XXXXSA Only)	1
CHAN005007	Disc Drive Chain (FT50XXXXSA Only)	1
BRNGBALL07	Bowl Spindle Bearing	2
BRNGASSY01	Disc Spindle Bearing	2
BUSHF24281	Flanged Bushing	2

CRITICAL **

Metric Centrifugal Feeder - FT-50 (FT50XXXXCM or FT50XXXXSM)		
Part Number	**Description**	**Qty.**
MOTRM.75HP	PMDC Motor, 3/4hp, 180VDC, Metric (FT50XXXXCM)	1
MOTRMAC075	PMDC Motor, 3/4hp, 180VDC, Metric (FT50XXXXSM)	1
CNTRKBIC02	DC Motor Speed Controller, 240V (FT50XXXXSM)	1
RESIKB.035	0.035 Ohm Resistor for CNTRKBIC02	1
CNTRDIAL01	Dial Plate and Knob	1
REDUM62F38	Reducer, Metric	1
REDUMSHF62	Output Shaft Kit, Metric	1
TORQM13025	Friction Clutch, Metric, W/O Sprocket	1
MFT500900	Idler Sprocket, Modified	1
MFT501000	Idler Sprocket, Modified	1
FT500800	Sprocket, Rim Drive, Modified	1
SPKTMB5030	Disc Spindle Sprocket	1
FT480007	Flexible Disc	1
FT501911	Friction Disc	1
FT50RIMSTD	Bowl, Machined	
CHAN005010	Bowl Drive Chain (FT50XXXXCM Only)	1
CHAN005011	Disc Drive Chain (FT50XXXXCM Only)	1
CHAN005012	Bowl Drive Chain (FT50XXXXSM Only)	1
CHAN005007	Disc Drive Chain (FT50XXXXSM Only)	1
BRNGBALL07	Bowl Spindle Bearing	2
BRNGASSY01	Disc Spindle Bearing	2
BUSHF24281	Flanged Bushing	2

CRITICAL **

Notes

Warranty

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Warranty

Shibuya Hoppmann Corporation warrants that each item of its own manufacture delivered hereunder shall, at the time of delivery and for a period of twelve (12) months thereafter, be free from defects in materials or workmanship; and if any such item shall prove to be defective in material or workmanship under normal intended usage and maintenance during the warranty period, upon examination by Shibuya Hoppmann Corporation, then Shibuya Hoppmann Corporation shall repair or replace, at its sole option, such defective item at its own expense; provided, however, that the owner shall be required to ship such defective item, freight prepaid, to Shibuya Hoppmann Corporation's plant in Virginia. The warranty on components not manufactured by Shibuya Hoppmann Corporation, but a part of the feeder, is limited to the warranty provided by the original manufacturer of said components to the extent, and only to the extent, that such original manufacturer actually honors such warranty.

ALL WARRANTIES HEREUNDER ARE EXPRESSLY LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE ITEMS AS SET FORTH HEREIN, AND IN NO EVENT SHALL SHIBUYA HOPPMANN CORPORATION BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES BY REASON OF ANY BREACH OF WARRANTY OR DEFECT IN MATERIAL OR WORKMANSHIP. SHIBUYA HOPPMANN CORPORATION SHALL NOT BE RESPONSIBLE FOR REPAIR OR REPLACEMENT OF ITEMS WHICH HAVE BEEN SUBJECTED TO NEGLECT, ACCIDENT OR IMPROPER USE, OR WHICH HAVE BEEN ALTERED BY OTHER THAN AUTHORIZED SHIBUYA HOPPMANN CORPORATION PERSONNEL.

THIS WARRANTY IS IN LIEU OF OTHER WARRANTIES, EXPRESS OR IMPLIED. ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXCLUDED.

Schedule Mechanical Maintenance

Every six (6) months, or as needed:

- Add talcum powder under flexible disc (FT-40)
- Clean as needed
- Change gear oil in ANSI reducer
- Lubricate chains and sprockets
- Inspect chain tension

Performed By: (initial)	Date

Schedule Electrical Maintenance

Every six (6) months, or as needed:

➲ Inspect/replace motor brushes

Performed By: (initial)	Date

Shibuya Hoppmann™

Shibuya Hoppmann offers a wide selection of products:

- Prefeeders/Centrifugal Parts Feeders/Unscramblers
- Filler/Plugger/Capper Systems (CIP/SIP)
- Pharmaceutical/Beverage Filling Systems for:
  - Liquid
  - Powder
  - Aseptic
  - Non-Aseptic
- Multi Part Assembly Systems
  - Continuous Motion
  - Indexing/Intermittent
- Capping Systems – Servo or Mechanical
- Placement Systems
- Rotary/Inline Pressure Sensitive Labelers
- Print and Apply Labelers
- I.V. Bag Form/Fill/Seal Systems
- Pouch Fill/Cap/Seal Systems
- Collating Systems
- Puck Feed/Loading and Unloading Systems
- Syringe Filling/Assembly Systems
- Electron Beam Aseptic Filling Systems
- Line Integration/Validation Services
- PMMI Certified Training

Headquarters
7849 Coppermine Drive
Manassas, VA
20109
540.829.2564 t
800.368.3582 t
540.829.1726 f

Sales
1445 Brookville Way
Suite F
Indianapolis, IN 46239
317.322.0754 t
800.368.3582 t
317.322.0794 f

Manufacturing
291 Dillard Road
Madison Heights, VA
24572
434.929.4746 t
800.543.0915 t
434.929.4959 f

MADE IN U.S.A.