



FLAT CHAIN FEEDER

Installation & Operator's Manual

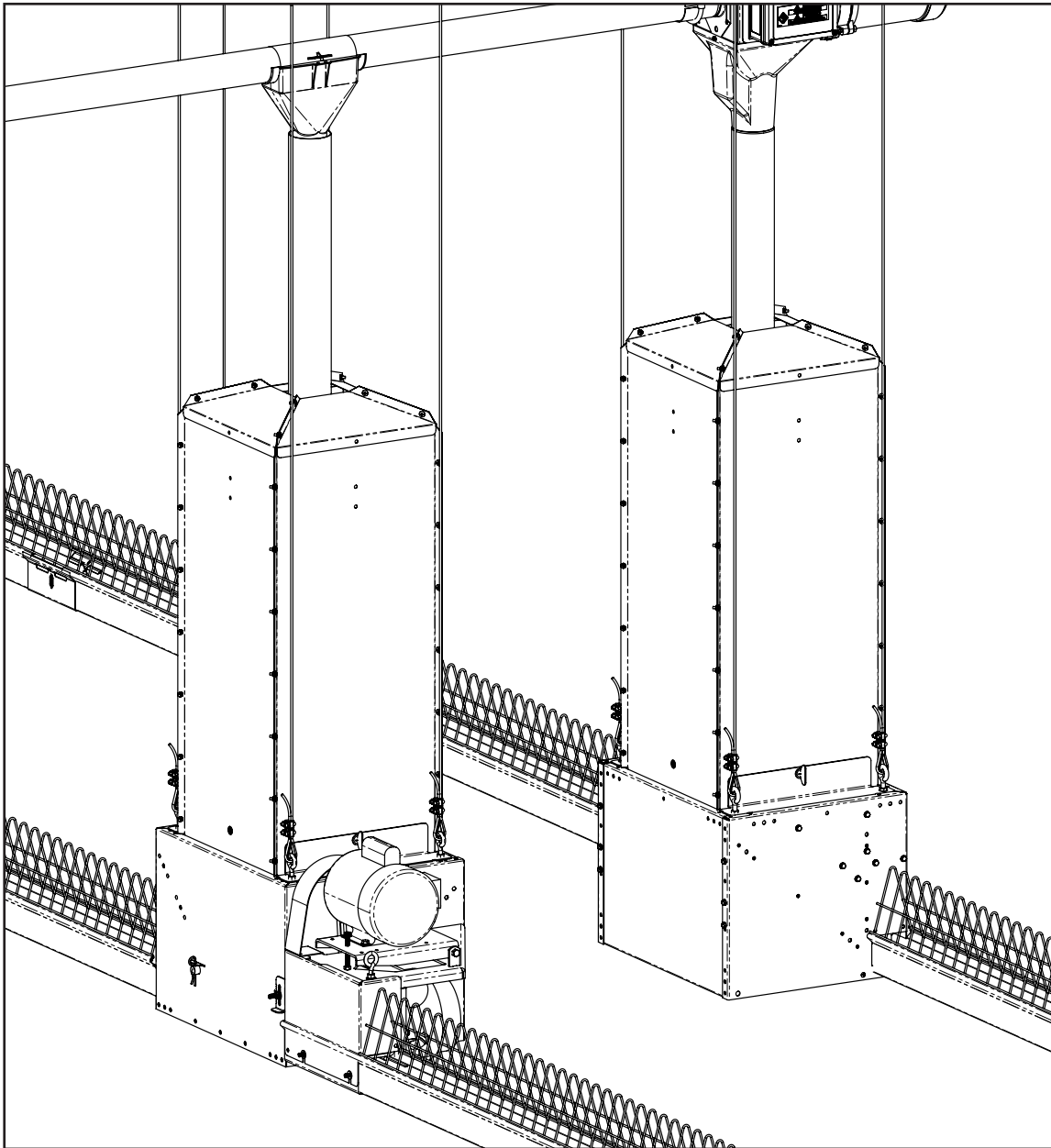


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VAL PRODUCTS, INC. WARRANTIES

For Warranty claims information, please see the “Manufactured Products Standard Warranty” form QMS101 available from Val Products, Inc. by:

- Phone: 1-800-998-2526
- Email: marcom@val-co.com
- Online: <http://val-co.it/warranty>

Conditions and Limitations:

- Products and Systems involved in a warranty claim under the “Manufactured Products Standard Warranty” shall have been properly installed, maintained and operated under competent supervision, according to the instructions provided by Val Products, Inc.
- Malfunction or failure resulting from misuse, abuse, negligence, alteration, accident or lack of proper installation or maintenance shall not be considered a defect under the Warranty.

Introduction

Symbols



= NOTICE - Important information. Be sure to read.



= WARNING - The safety alert symbol is used on warning signs that describe the importance of a feature or explain a step that one should pay close attention to avoid problems or personal injury.

⚠ DANGER

Hazardous situation, if not avoided, will result in serious injury or death.

⚠ WARNING

Hazardous situation, if not avoided, could result in serious injury or death.

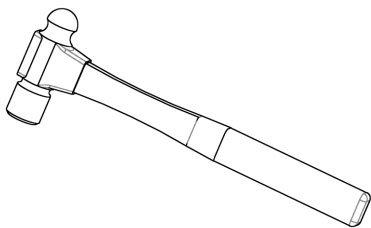
⚠ CAUTION

Hazardous situation, if not avoided, could result in minor or moderate injury.

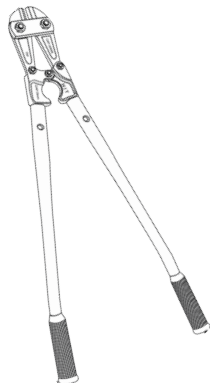
Tools

- | | |
|--|--|
| <ul style="list-style-type: none">• 3-4 lb. Hammer• Cable Cutter• Allen Wrench Set• Phillips Screwdriver, #2• Straight Screwdriver, 1/4"• Drill with Hole Saw | <ul style="list-style-type: none">• Driver/Socket/Wrench Set with 6" extension• Open End Wrenches• Adjustable Wrench• Chain Breaker• Ratchet Strap, or Come-a-long• Miter / Chop Saw with metal cut-off wheel |
|--|--|

3-4 lb. Hammer



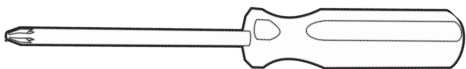
Cable Cutter



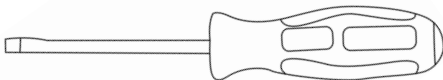
Allen Wrench Set



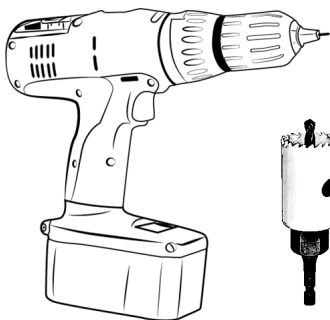
Phillips Screwdriver, #2



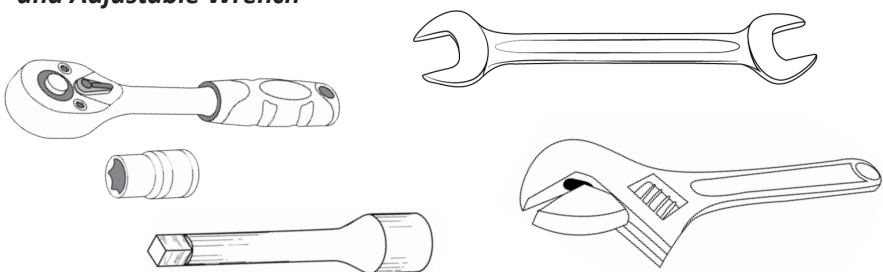
Straight Screwdriver, 1/4"



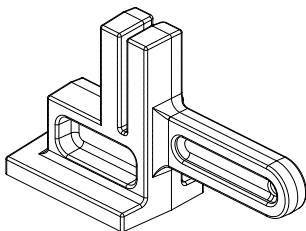
Drill, with Hole Saw



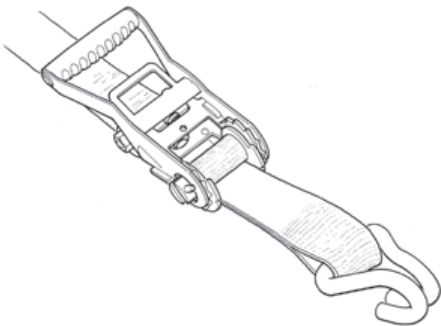
Socket Set, Open End Wrenches, and Adjustable Wrench



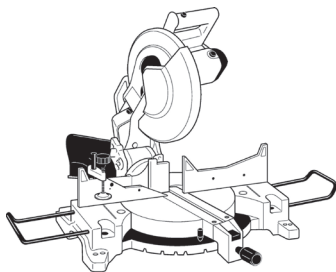
Chain Breaker



Ratchet Strap, or Come-a-long

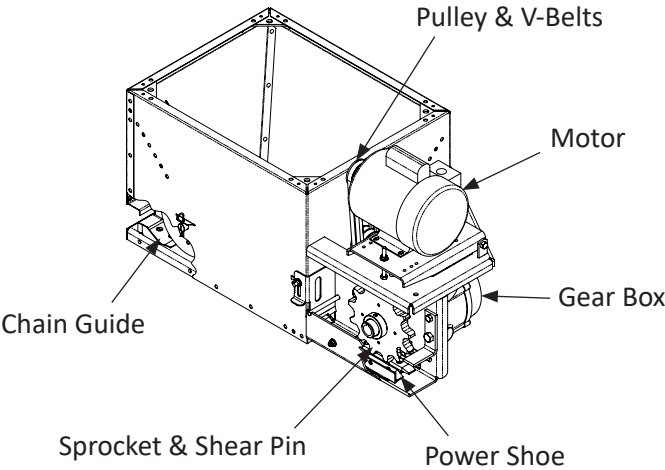


Miter / Chop Saw, with metal cut-off wheel

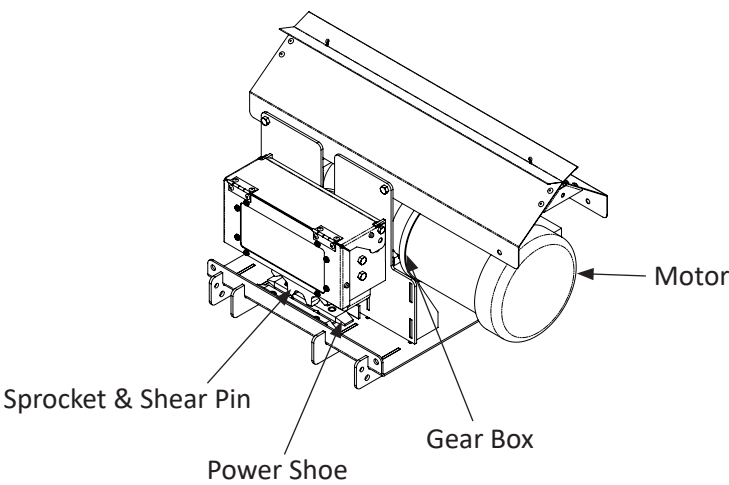


General System Components

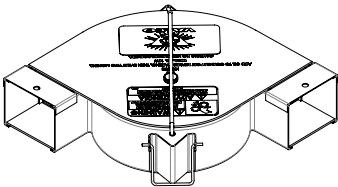
Belt Drive Option



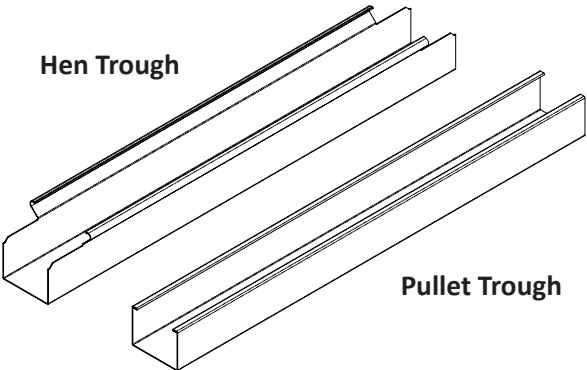
Direct Drive Option



Corner

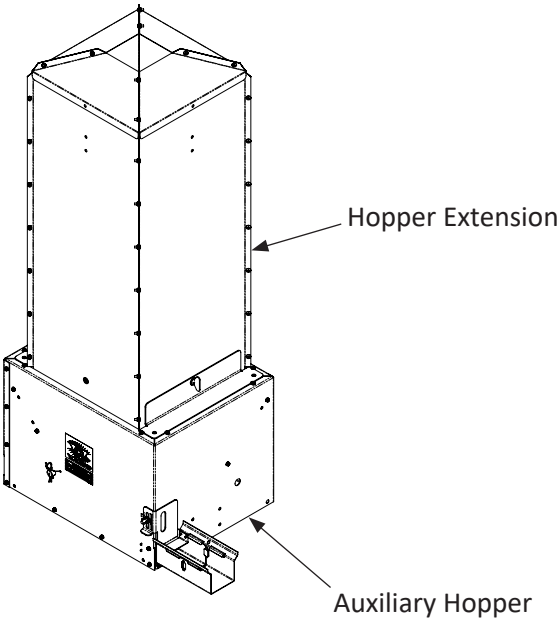


Hen Trough

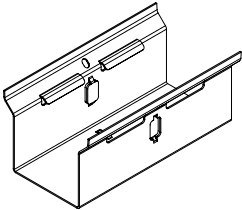


Pullet Trough

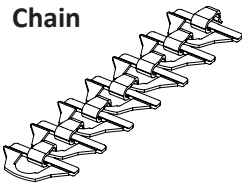
Auxiliary Hopper Option & Hopper Extension



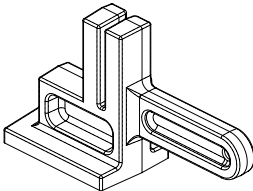
Coupler



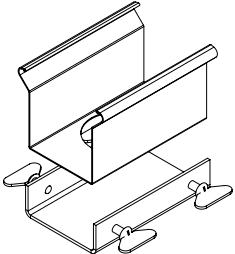
Chain



Chain Breaker



Clean Out Cover



General Information

Approximate Feed Delivery Rates per minute based on material @ 40 lbs. per cubic foot (641 kg. per cubic meter).

Feed delivery rates are approximate only and subject to variables such as feed density, moisture content, and feed gate height.

Approximate Feed Delivery Rate			
Chain Speed (fpm)	Chain Speed (mpm)	Delivery Rate (lbs/min)	Delivery Rate (kgs/min)
40 fpm	12.2 mpm	20 - 83 lbs/min	9.1 - 37.6 kgs/min
60 fpm	18.3 mpm	30 - 100 lbs/min	13.6 - 45.4 kgs/min
90 fpm	27.4 mpm	45 - 125 lbs/min	20.4 - 56.7 kgs/min
120 fpm	36.6 mpm	60 - 150 lbs/min	27.2 - 68.0 kgs/min

Horsepower Recommendations

Belt Drive - 1 drive per chain loop

Chain speed per minute	TOTAL CHAIN LENGTH (up to but not including)								
	400' 122m	500' 152m	600' 183m	700' 213m	800' 244m	900' 274m	1000' 305m	1100' 335m	1200' 366m
20-40 feet 6-12 meters	.75 hp		1.0 hp		1.5 hp				
60 feet 18 meters	1.0 hp		1.5 hp			2.0 hp			
80-90 feet 24-27 meters	1.0 hp	1.5 hp		2.0 hp					
120 feet 36 meters	3.0 hp								

Belt Drive - 2 drives per chain loop

Chain speed per minute	TOTAL CHAIN LENGTH (up to but not including)									
	400' 122m	500' 152m	600' 183m	700' 213m	800' 244m	900' 274m	1000' 305m	1100' 335m	1200' 366m	
20-40 feet 6-12 meters	.75 hp			1.0 hp			1.5 hp			
60 feet 18 meters	.75 hp		1.0 hp			1.5 hp		2.0 hp		
80-90 feet 24-27 meters	.75 hp	1.0 hp		1.5 hp			2.0 hp			
120 feet 36 meters	3.0 hp									

Direct Drive - 1 drive per chain loop

Chain speed per minute	TOTAL CHAIN LENGTH (up to but not including)								
	400' 122m	500' 152m	600' 183m	700' 213m	800' 244m	900' 274m	1000' 305m	1100' 335m	1200' 366m
60 feet 18 meters	1.0 hp		1.5 hp			2.0 hp			
90 feet 27 meters	1.0 hp	1.5 hp		2.0 hp					
120 feet 36 meters	2.0 hp								

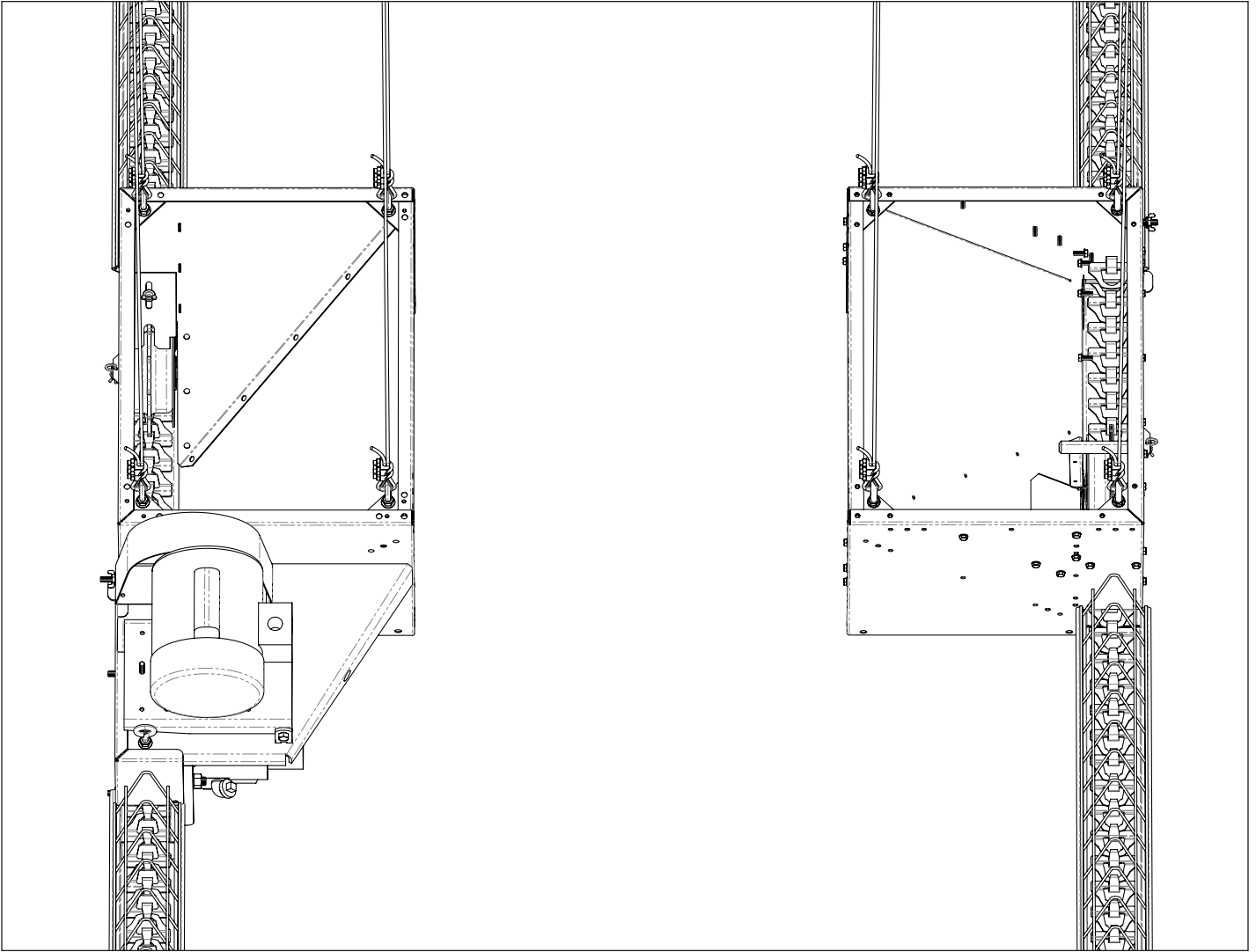
Direct Drive - 2 drives per chain loop

Chain speed per minute	TOTAL CHAIN LENGTH (up to but not including)									
	400' 122m	500' 152m	600' 183m	700' 213m	800' 244m	900' 274m	1000' 305m	1100' 335m	1200' 366m	
60 feet 18 meters	.75 hp		1.0 hp			1.5 hp		2.0 hp		
90 feet 27 meters	.75 hp	1.0 hp		1.5 hp			2.0 hp			
120 feet 36 meters	1.5 hp			2.0 hp						

Note: Space drives equidistant from each other in the loop.



Overview



Please check your shipment for correct parts and condition.

Installing your new Valco flat chain system must start with a thorough understanding of the system you are installing and a plan to follow in order to complete this installation properly. It is very important that you take the time now to read this manual carefully. It will save you time and costly errors later.

Before you start planning your new installation, you should consider the following suggestions:

1. Location of feed bins and overhead fill systems should be planned to match the location of the drive unit.
2. Drive hoppers should be positioned to allow for routine maintenance that will be required during the life of your system.

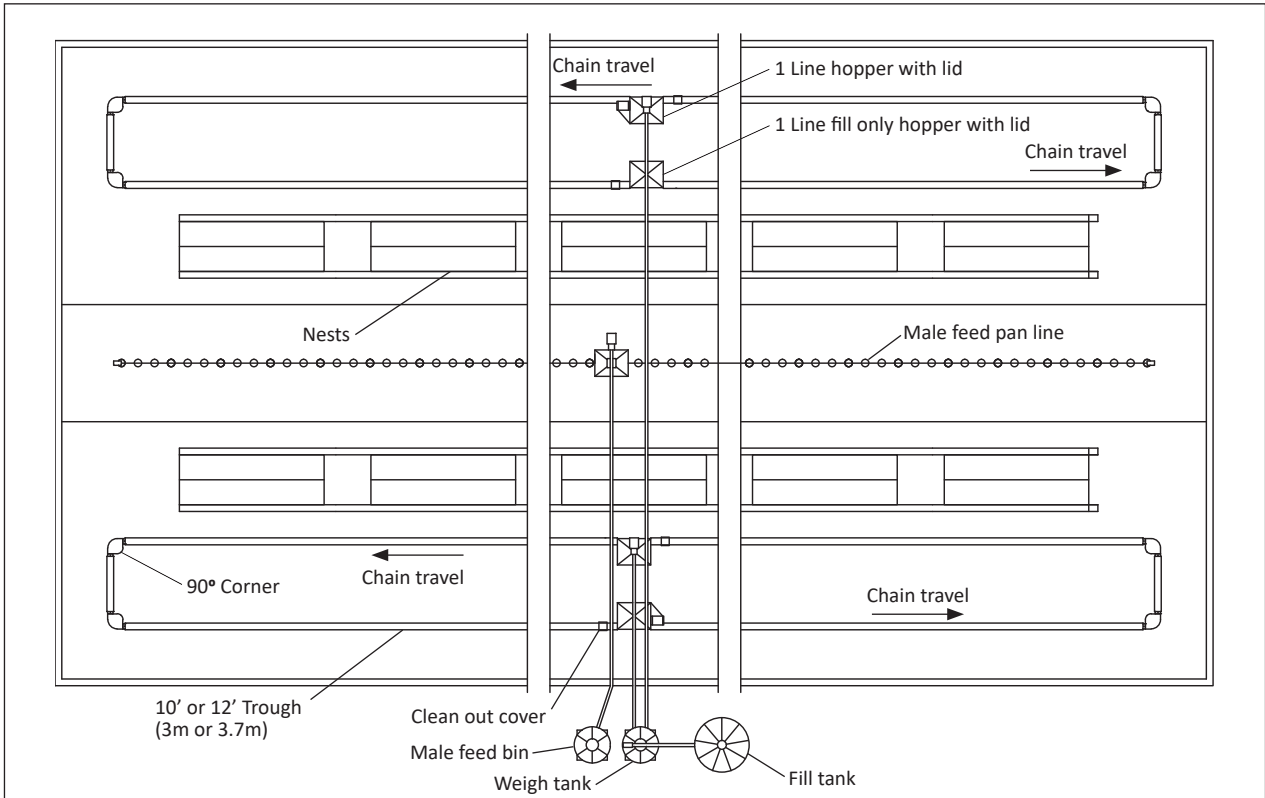
As with any major project, the planning and layout phase is the most critical to the success of the entire project. A complete and systematic plan is essential before starting.

After your equipment arrives, be sure to store it in a dry, safe location to avoid dirt, moisture or wind damage.

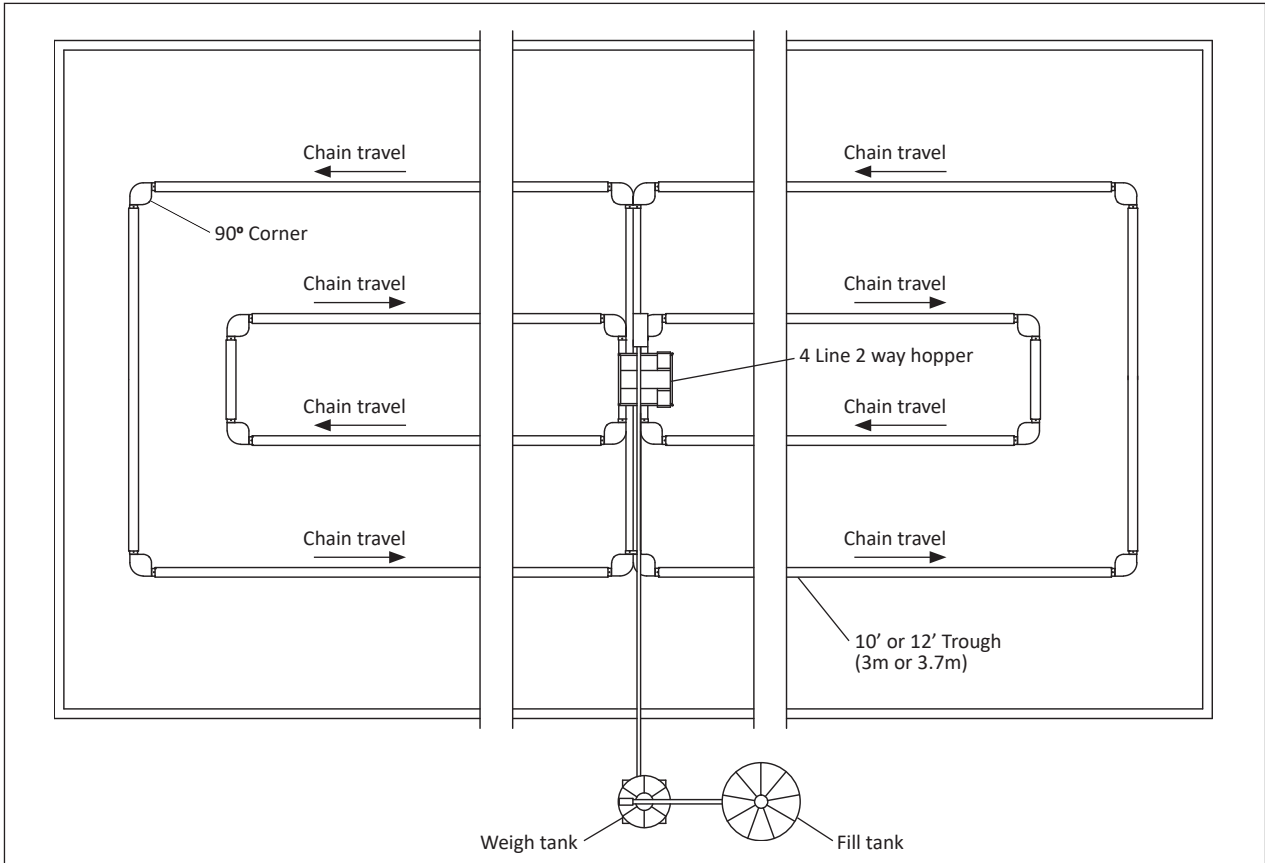
Metric measurements are shown in millimeters and/or meters in parenthesis throughout the manual.

Example: 13" (330mm)

Building Layout Examples



Breeder House



Pullet House



Installation

Belt Drive Option - Assemble & Locate

Confirm that the hopper is located properly for the type of installation you are planning and the requirements of your building specifications. If using two or more hoppers, they must be located as close as possible to the center of the feed line, or equidistant from each other so there is equal travel to both sides of the hopper, as shown in Figure 1. After the hopper is located, assemble the motor, pulley, belts, and guard to the hopper, as shown in Figure 2.

FIGURE 1

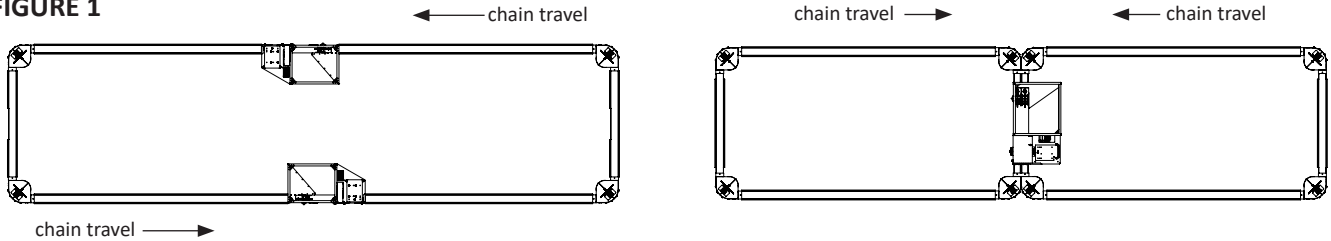


FIGURE 2

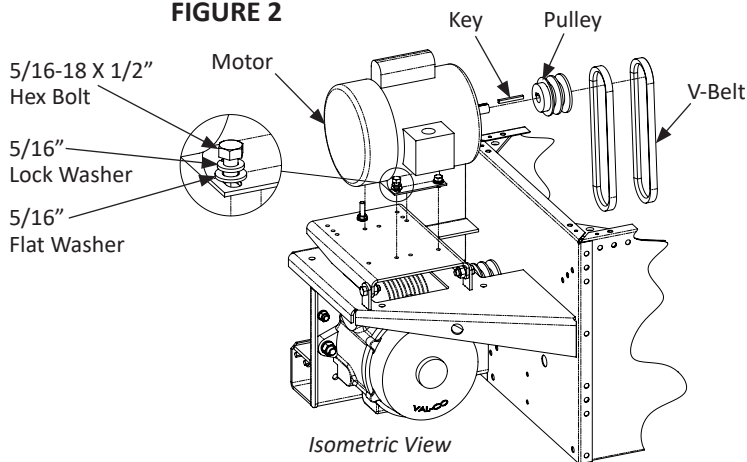
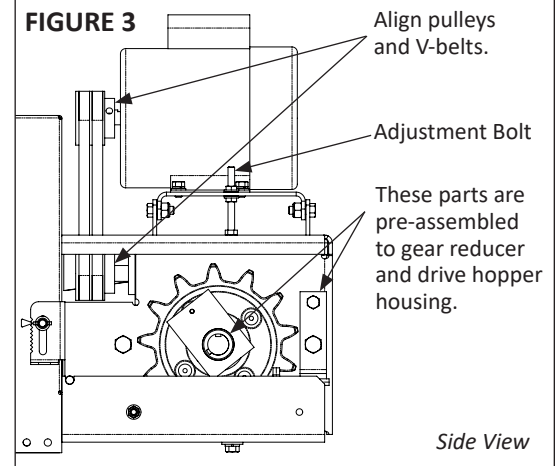


FIGURE 3



Begin assembly by attaching pulley to motor with square key and set screw. Do not tighten set screw at this time. Mount motor to motor mount on hopper with hex bolts found in motor mount. Leave bolts loose to align motor pulley with gear reducer pulley. After they are aligned, then tighten motor and pulleys. Slip V-belt over both pulleys and adjust large bolt on motor mount until belt is pulled taut. Refer to Figures 2 and 3 for details. Proper belt tension is important for extended belt life. **DO NOT OVERTIGHTEN BELT. DAMAGE TO MOTOR OR REDUCER MAY RESULT.** Place pulley guard over belt.

The power shoe should be installed parallel to the drive wheel and troughs, as shown in Figure 4. It should be kept from twisting when tightening the hold-down bolt. The drive wheel should be centered in the power shoe, as shown in Figure 5. The power shoe should be installed with proper shims under to achieve a $1/32''$ (0.8mm) gap between it and the drive wheel teeth, as shown in Figure 5.

FIGURE 4

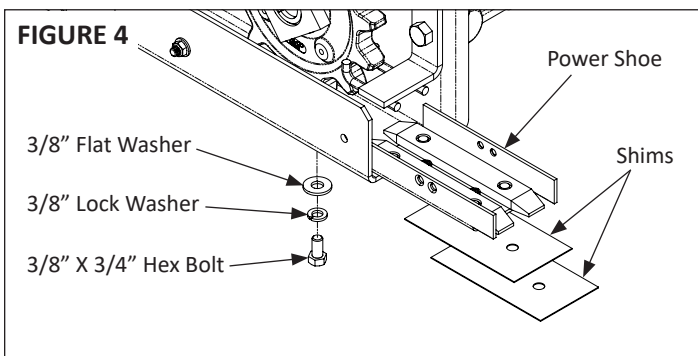
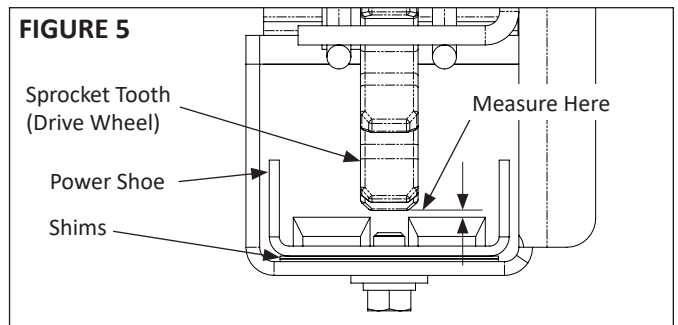


FIGURE 5



NOTE: Use shim gauge and shim until power shoe surface is set at the thickness of $1/32''$ [0.79mm] (18 gauge shim).

The circuit layouts shown below in Figure 5 depict typical installations with two drive units. Position the drive units so the chain will travel into a corner shortly after the drive for optimal performance.

Direct Drive Option - Assemble & Locate

The circuit layouts shown below in Figure 6 depict typical installations with two drive units. Position the drive units so the chain will travel into a corner shortly after the drive for optimal performance.

FIGURE 6

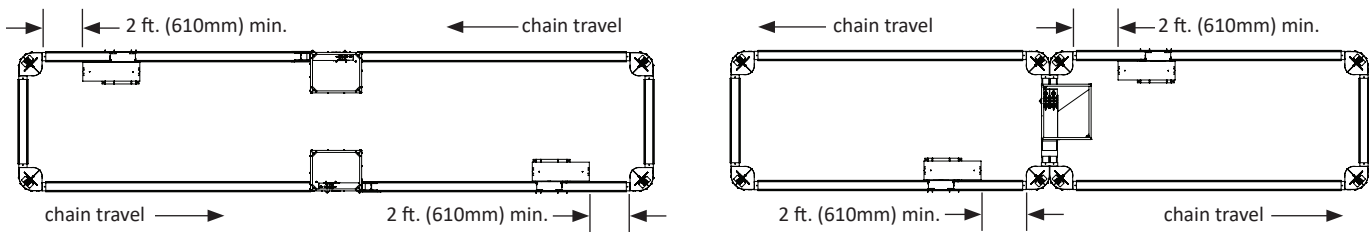
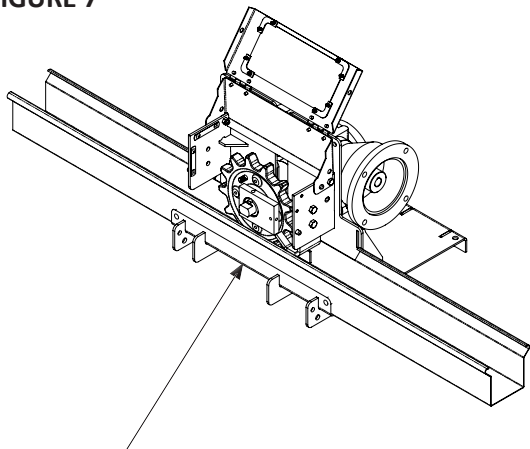
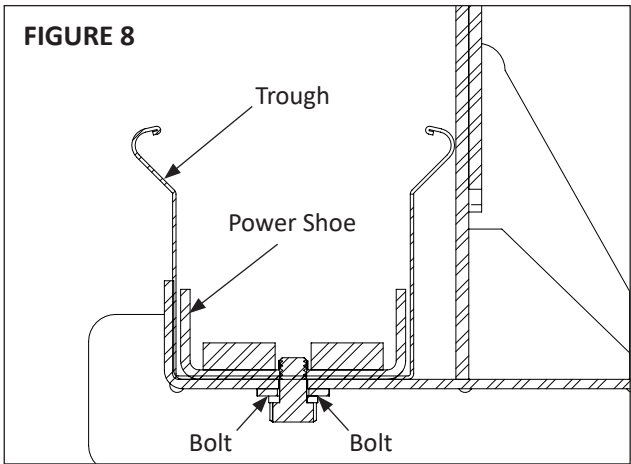


FIGURE 7

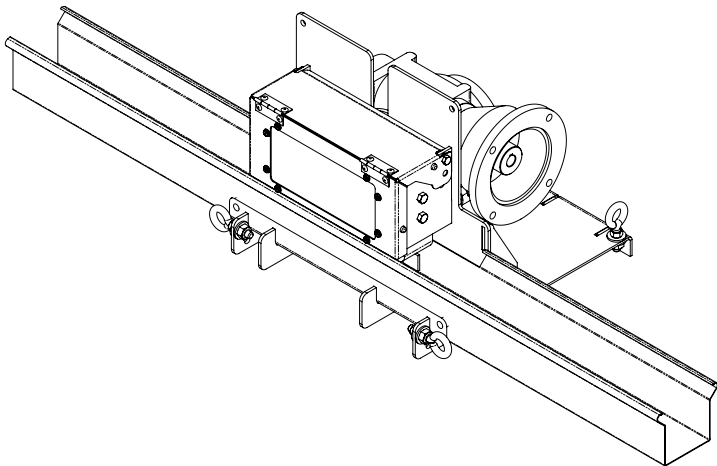


Drive unit attaches directly to the trough. Remove the power shoe and drill two 13/32" (10mm) holes in the trough through holes in drive unit.



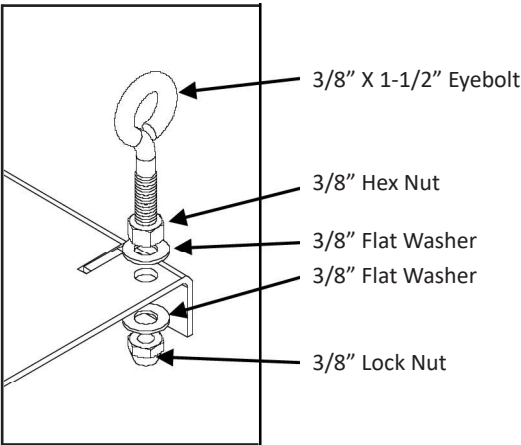
Secure powershoe and trough with two 3/8" bolts.

FIGURE 9



When trough is in place, drill 13/32" (10mm) holes through trough to attach 3/8" eyebolts to use to suspend drive unit.

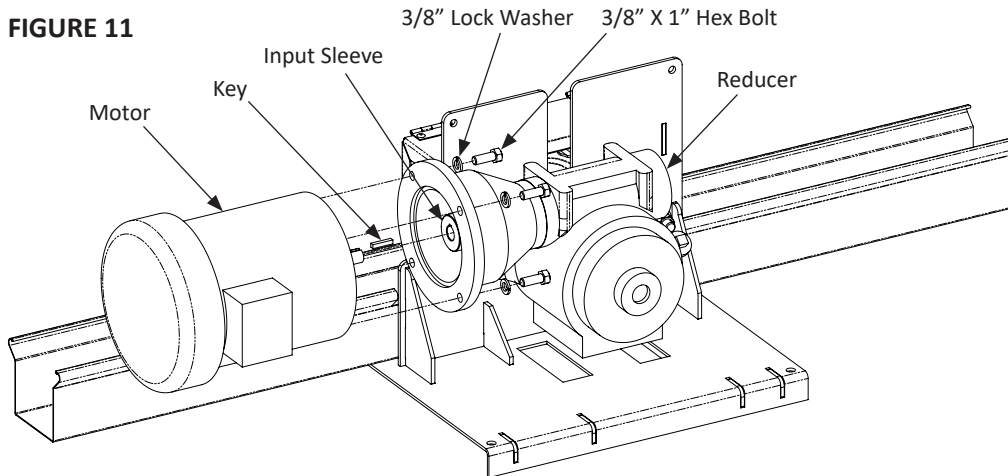
FIGURE 10



Attach eyebolts to drive unit for suspending.

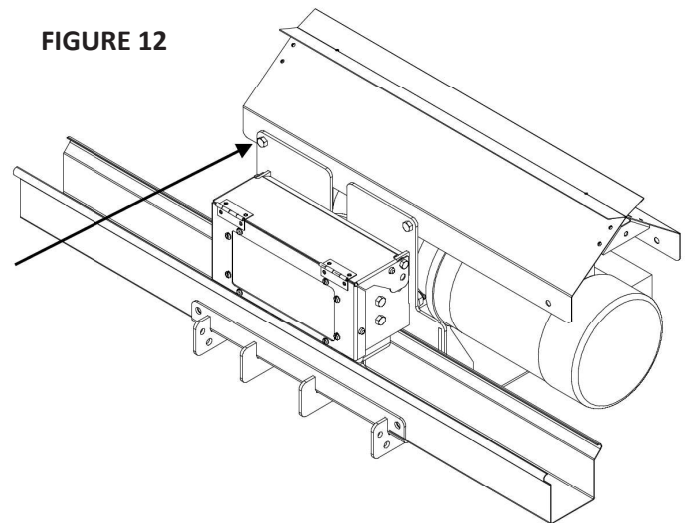
Direct Drive Option - Assemble & Locate - continued

After wiring the motor, check that the motor shaft rotates clockwise when viewed from the end of the shaft. Assemble the motor to the gear reducer, as shown in Figure 11.



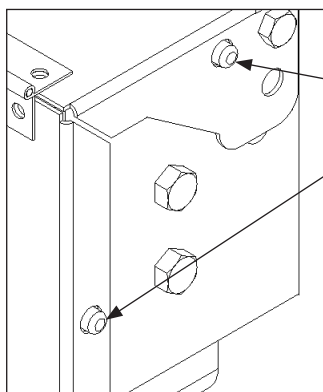
To attach the motor, take the input sleeve and tap roll pin into 1/4" hole. Fit it to the motor shaft. Place the end without the guide chamfer towards the motor. Insert the input sleeve with the key provided with the motor on the motor shaft until the roll pin touches the end of the shaft. Tighten the set screw to hold in place. Align the keyways of the reducer shaft and the input sleeve. Push the input sleeve onto the reducer input shaft with key in place. If necessary, use a flat file to lightly clean the edges of the keyway to aid in assembly. When the motor face is flush with the edge of the reducer, turn the motor to line the 3/8" holes in the motor face with the clearance holes in the reducer gear flange. Use 3/8" x 1" Hex Bolts and Lock washers to fasten.

FIGURE 12



Attach motor cover to drive unit with 5/16" x 3/4" bolts and 5/16" flange nuts.

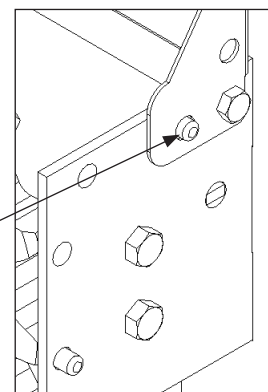
FIGURE 13



Press in Buttons on both sides to open sprocket guard.

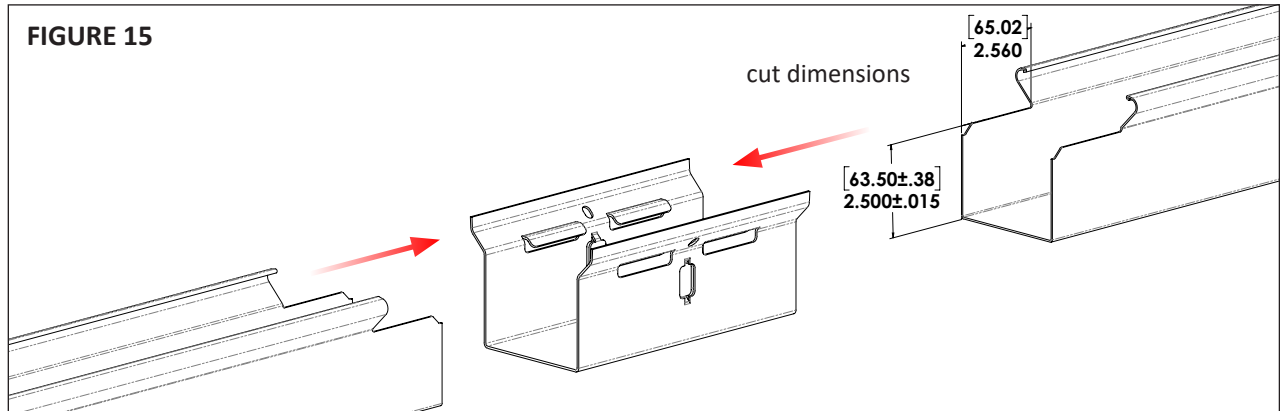
To hold sprocket guard open, rotate guard until snap button clicks into hole.

FIGURE 14



Trough Installation

Start assembling your trough on the ground from one end of line working towards the feed hoppers. It is very important to get a good square corner to start with. Be sure trough is properly seated in corner housings. Tapping end with a mallet and a wood block to protect ends will help ensure a tight fit. Continue assembling troughs and couplers until you reach the hoppers. If it is necessary to shorten a standard length of trough, be sure to allow 2-9/16" (65mm) for the portion of trough that will be inserted into corner, coupler or hopper. Cut trough ends to same profile as factory troughs, as shown in Figure 15. Do not locate a field cut end near the drive. All troughs going to the drive should be installed with factory ends into couplers. Then, cut the trough to length and insert into corner.



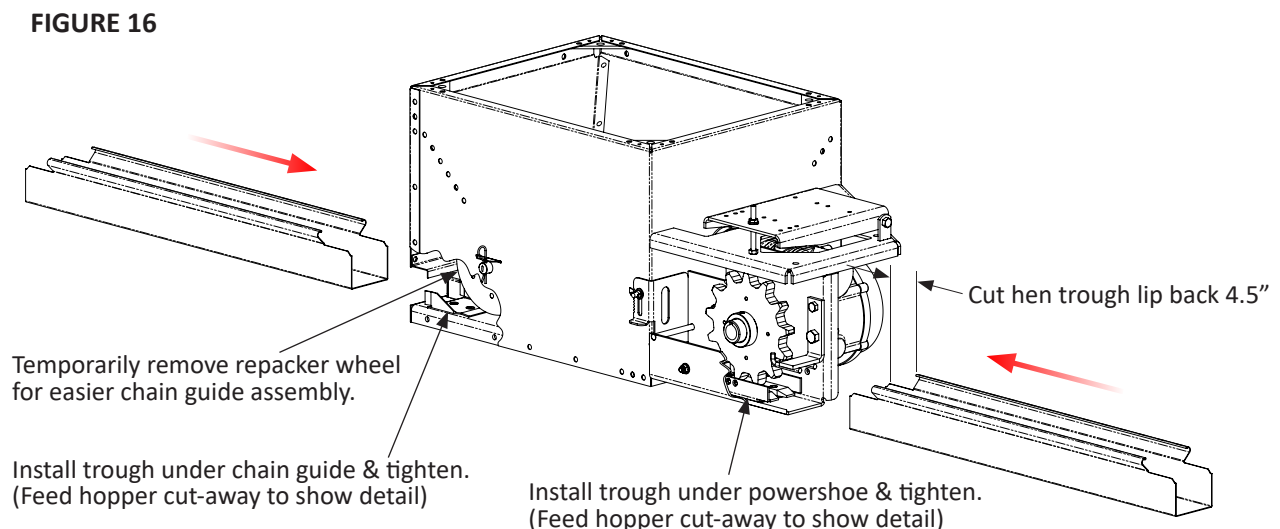
IMPORTANT: TROUGH ENDS MUST BE CUT SQUARE

Repeat same procedure for other half of trough line. When assembling trough to outgoing end of hopper make sure trough is placed under the power shoe and against the trough stops, as shown in Figure 16. When installing the last trough to the return side of drive hopper, cut out a 2.75" (70mm) diameter hole or rectangular opening approximately 2.75" (70mm) x 4" (102mm) to use for a cleanout hole.

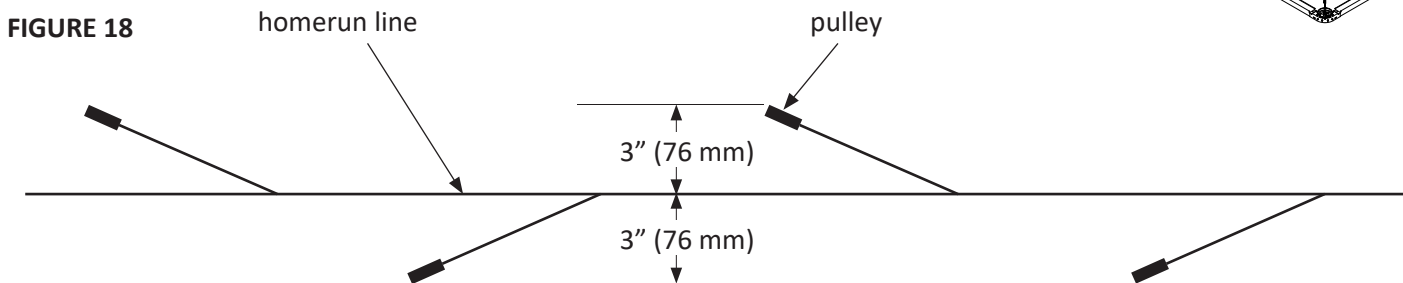
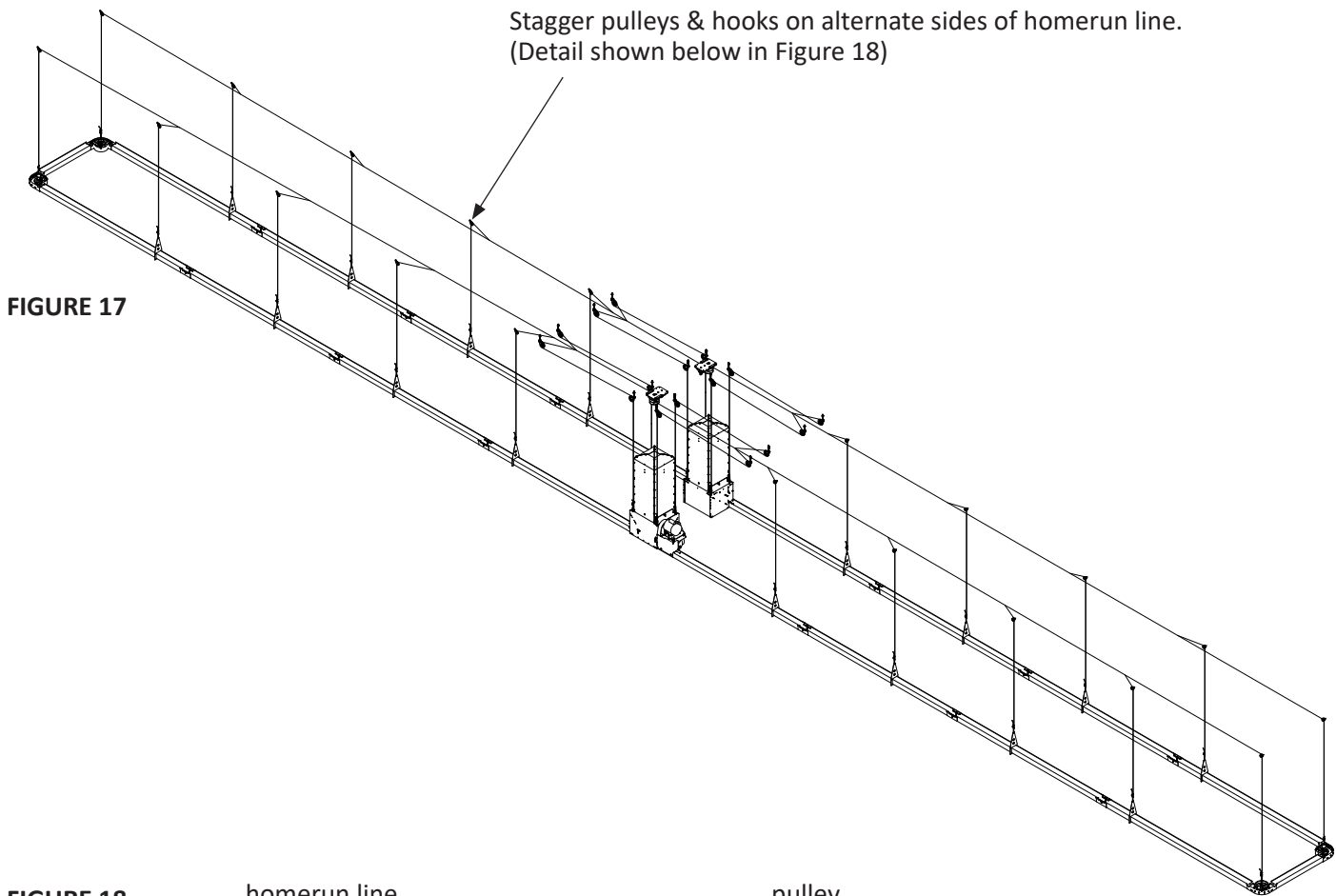
Before installing chain be sure trough connections are tight and corners square. Next, proceed to installing the chain. Be sure to disconnect power to flat chain system.



CAUTION: CUT CORNERS ON TROUGH ARE SHARP !



Homerun Lines, Drop Cable & Winches



Stagger pulleys & hooks on alternate sides of homerun line.

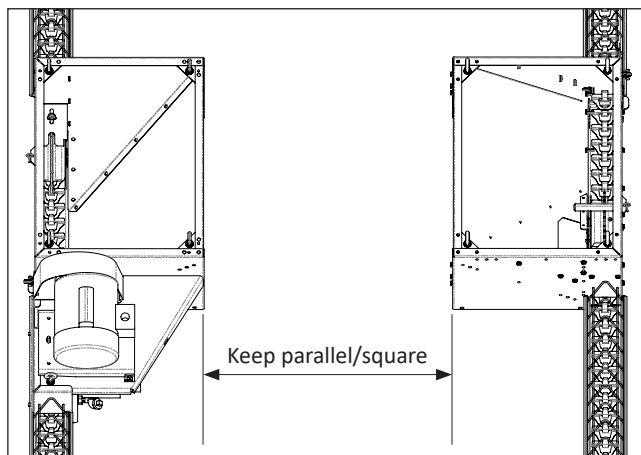
After drive hopper is located and assembled, it is time to lay out your flat chain circuit. The first step is to establish a straight line to locate the winch system suspension hooks. The best way is to string a straight line from one end of the building to the other along the bottom of the ceiling trusses directly above the planned chain circuit. Screw in hooks along line at 8' - 10' (2.44m - 3.05m) intervals depending on spacing of ceiling trusses and skip the hooks directly above the drive hopper. Stagger every other hook approximately 3" (76mm) off center of line, as shown in Figure 18. This will provide for a smooth, uniform draw on the drop cables. Hang 1.5" (38mm) pulleys on each hook.

Near the drive hoppers you will need extra support to mount the overhead winches. These headers need to be made of 2" x 8" (51mm x 203mm) lumber or better. Mount them along center line near middle of building using heavy lag screws. Fasten winch to header with lag screws and pilot holes to avoid splitting header.

Suspending Feed Hoppers

To suspend feed hoppers, use the provided eyebolts, or use steel angle or channel and secure both hoppers together. Be sure to keep hoppers and bracing square, as shown in Figure 19. Bolt both hoppers secure to bracing.

FIGURE 19



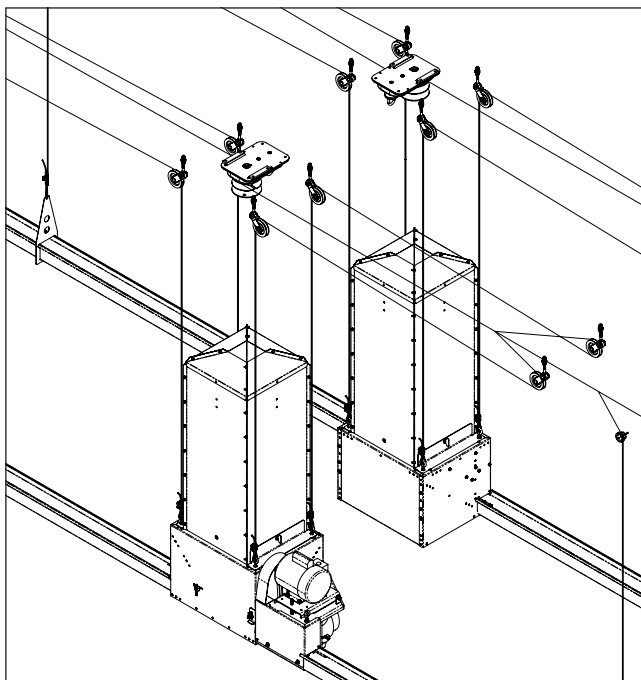
Fasten an eyebolt in both ends of both braces to attach the drop cables later.

Above each hopper attach a mounting angle slightly outside of the planned cable line, as shown in Figure 20. Be sure angle / lumber is securely attached and capable of handling full hoppers.

Drill holes in mounting angles directly above the eyebolts in hopper bracing and attach (4) 3.5" (89mm) pulleys to angles.

NOTE: In barns with laying hens: It is good practice to limit dark areas or corners where hens may want to lay eggs in places other than the nests. It is advisable to build a box under each hopper and paint it white, restricting hens from going under the hopper.

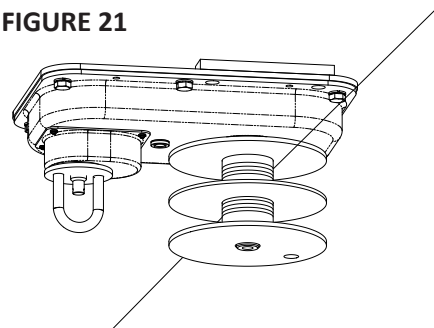
FIGURE 20



Suspend Homerun Cable Lines

You are now ready to hang the homerun 3/16" (5mm) cable lines. Run end of cable through last pulley in line and attach it to the floor slats or end wall temporarily. Run cable back to winch and wrap around winch making sure to wrap cable at least twice around top half and bottom half of winch, as shown in Figure 21. Continue running cable to the last pulley other end of line. Slip through last pulley and secure as first end. Remove slack in cable by manually turning winch. Do not overtighten cable. Repeat procedure for each homerun line.

FIGURE 21



To avoid kinks in cable, always roll cable off spool using a rod or dowel as an axle. Never peel cable off sides of spool.

Feed Line Suspension

1. Install the cable locks once you have installed the hangers on the feed trough at 8'(2.44m) spacing. Figures 22 and 23 show the proper installation of the hanger assembly to the cable lock.
2. Be sure the cable lock is within 6"(152mm) of the hanger. Figure 24 shows how to thread cable through the hanger and cable lock. **EASY CABLE ADJUSTMENT: Hold the drop cable above or below the bracket, tilt the bracket approximately 45-90 degrees and pull up on the end of the drop cable to shorten, or pull down to lengthen. It is critical that you level the drop lines with feed troughs.**

FIGURE 22

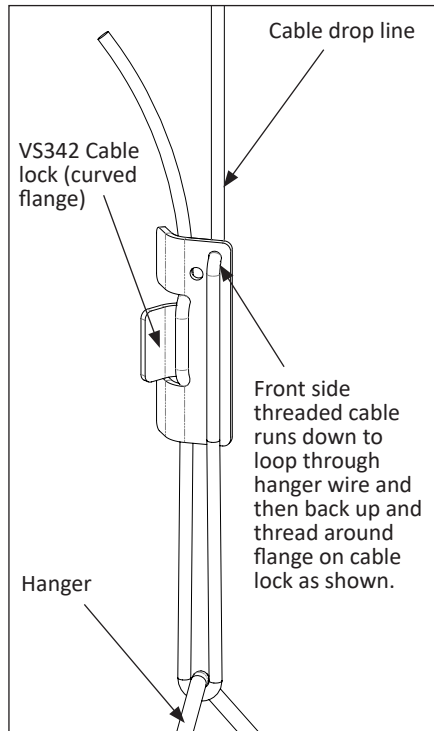


FIGURE 23

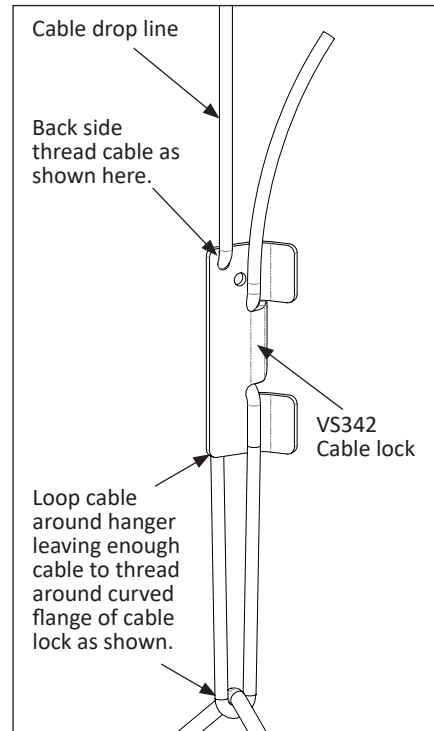
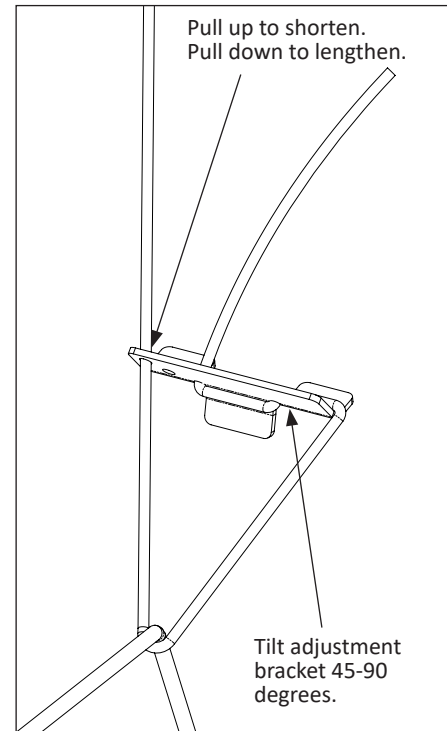


FIGURE 24



3. Continue the installation, check cables before raising feeder line. **The cable must be tracking properly on all pulleys before raising the feeder line.**

Installing Drop Cables

Use 1/8"(3mm) cable for all drop cables. The first drop cable (double-back cable) on both sides of the winch will be rigged differently and require an extra pulley. Mount the extra 1.5"(38mm) pulley adjacent to the 2nd pulley on both sides of winch. Clamp double-back cables to main cable approximately 1' (305mm) on winch side of extra pulley. Run cable back through extra pulley and up through the first pulley and let it hang to the floor, as shown in Figure 25. If needed, a 2:1 winching configuration can be used to reduce the load on the winch by half, as shown in Figure 26.

FIGURE 25

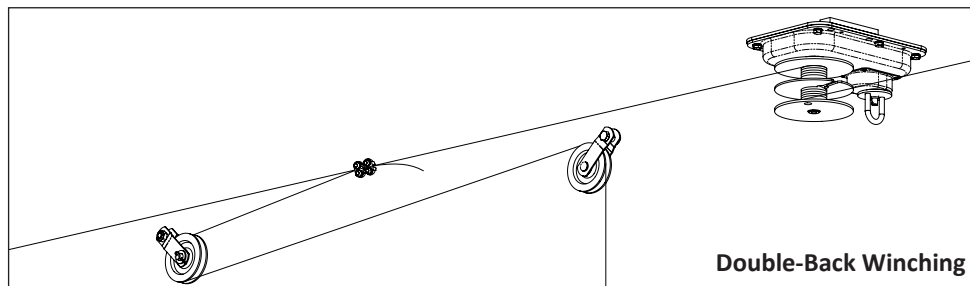
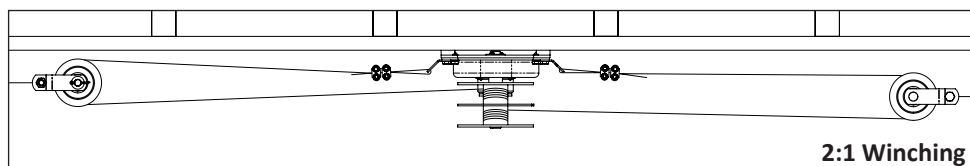
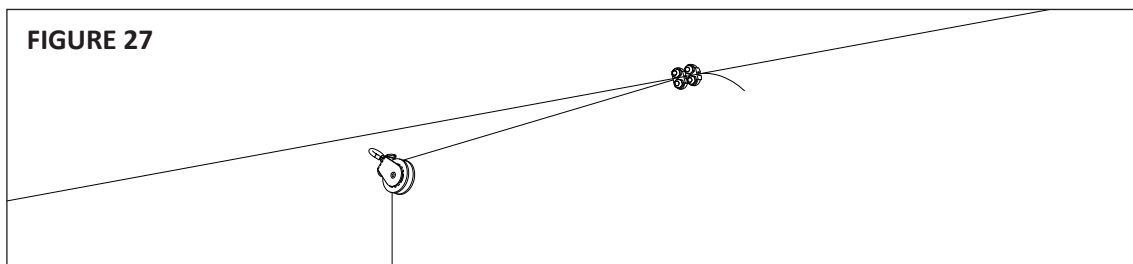


FIGURE 26

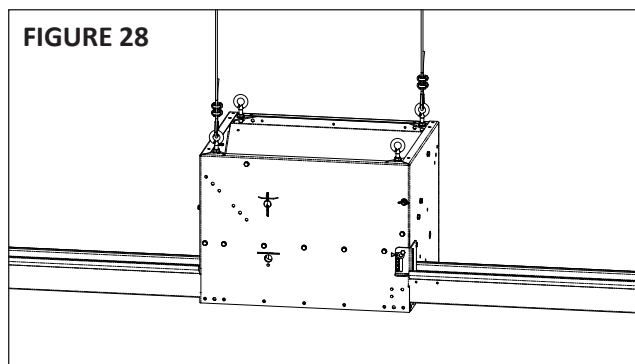


Installing Drop Cables - continued

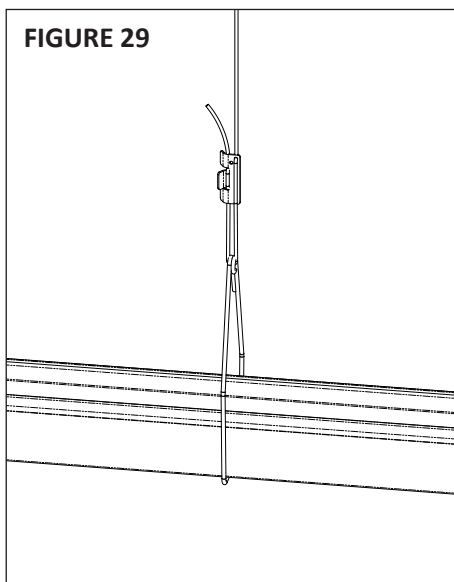
Connect all remaining drop cables along line working from winch to end of line. Each cable should be clamped to homerun line approximately 1' (305mm) from each pulley and toward winch side. Clamp cables secure, thread thru pulley, and let hang to floor, as shown in Figure 27.



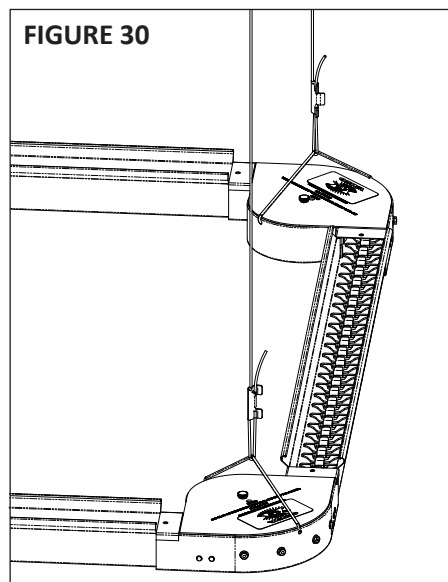
When connecting the cables for suspending the feed hoppers, clamp **both** cables on each line 1' (305mm) in front of winch side of pulley. Use (2) clamps for **each** cable. Run other end of line thru eyebolts on hopper bracing and clamp secure with (2) clamps, as shown in Figure 28.



Place trough hangers around troughs directly below each drop cable and secure end of cable to hanger with cable clamp, as shown in Figure 29.

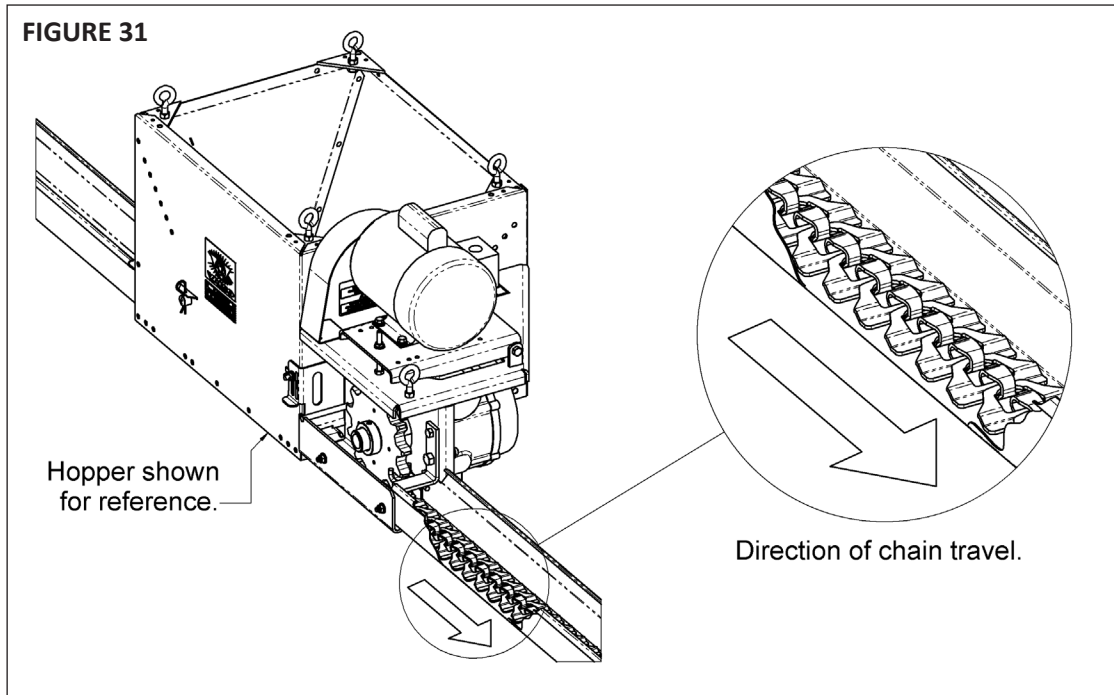


To suspend end of lines, release the homerun cable from its mooring and use as the end drop cable. Run cable thru end pulley and secure to corner unit hanger with clamp, as shown in Figure 30.

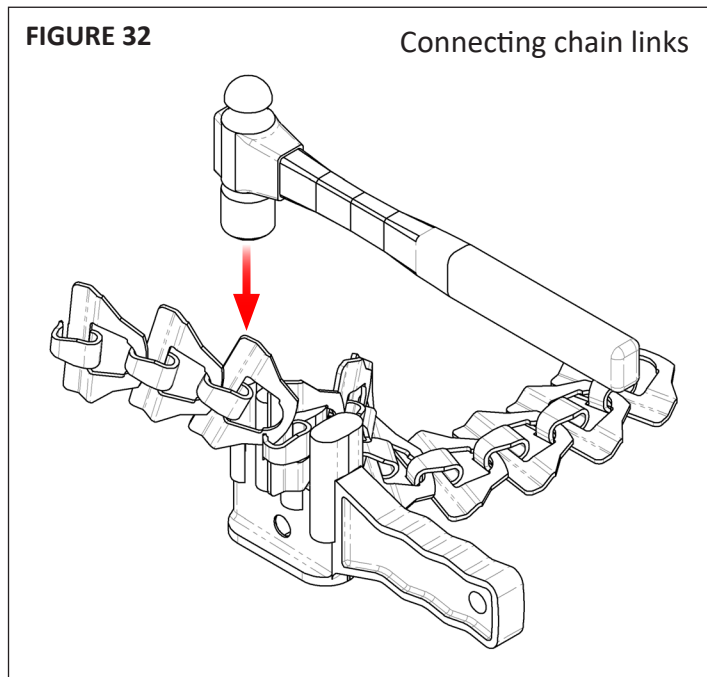


After all cables are attached, raise winch lines approximately 6" (152mm) and check that troughs are hanging level and straight. Make adjustments by loosening cable clamps on hangers and retighten after adjustments are made.

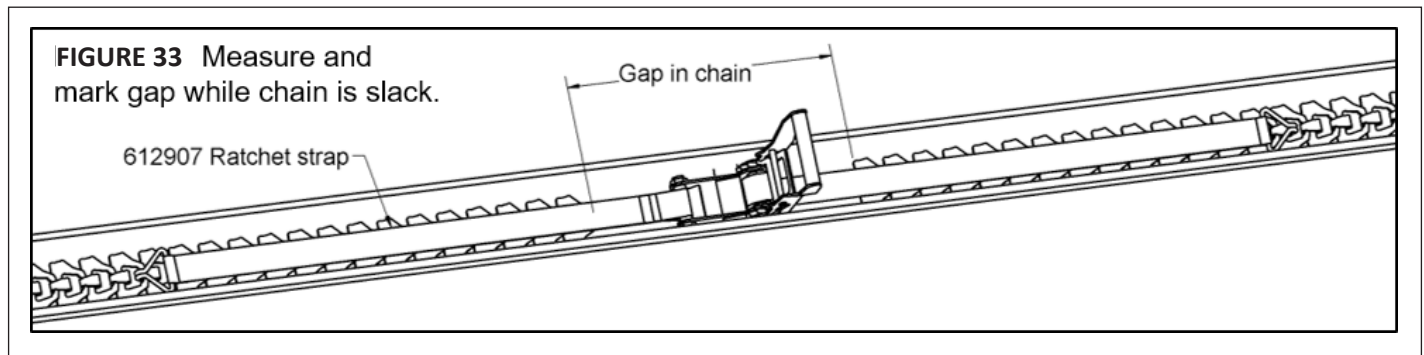
Chain Installation



1. Before installing chain be sure trough connections are tight and corners square.
2. Locate 50 ft. chain rolls and distribute around system.
3. Remove shear pin in drive wheel
4. Work the leading end (hooked end) through drive hopper with open part of hooked end down starting from the return side making sure chain is properly seated under repacker wheel, through hopper, over power shoe, under drive sprocket and approximately 10" (254mm) into outgoing trough, as shown in Figure 31.
5. Layout chain in troughs being careful not to kink or twist chain.
6. Connect chains from tail end using chain breaker and hammer, as shown in Figure 32. It is recommended to use a 4 lb. hammer to connect & disconnect chain. Hit the top corner of the link until it seats into knuckle. The link should then move freely.
7. Manually pull chain tight as you proceed. Thread chain through corners keeping chain flat and under hold down rails inside corners.
8. Continue around entire circuit and through auxiliary hopper until reaching starting end.
9. Progress to tensioning the chain on following page.



Tensioning the Chain



1. First, the chain needs to be brought to neutral position. Using a come-along or ratchet strap, tighten and release with ratchet strap to remove any slack, as shown in Figure 33.
2. Release tension as shown in Figure 34.
3. Now, use Chart A to determine length of gap between ends of chain. While the chain is slack, measure from one end of the chain and mark the link to disconnect, as shown in Figure 33.
4. Remove marked end of chain from trough and insert into chain breaker.
5. Disconnect the excess chain after marked link in order to achieve gap, as shown in Figure 35. It is recommended to use a 4 lb. hammer to connect and disconnect chain.

FIGURE 34

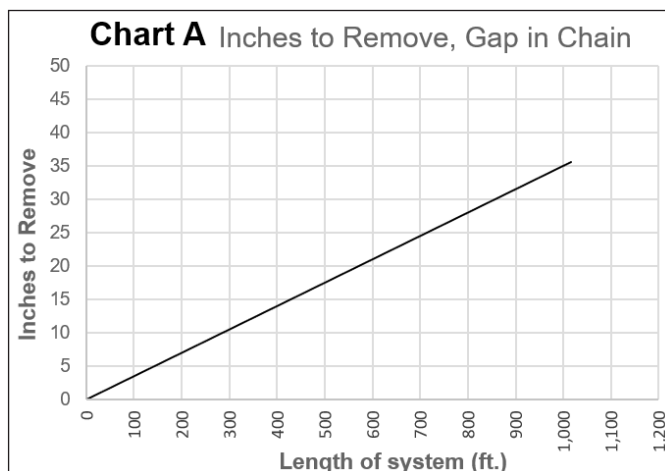
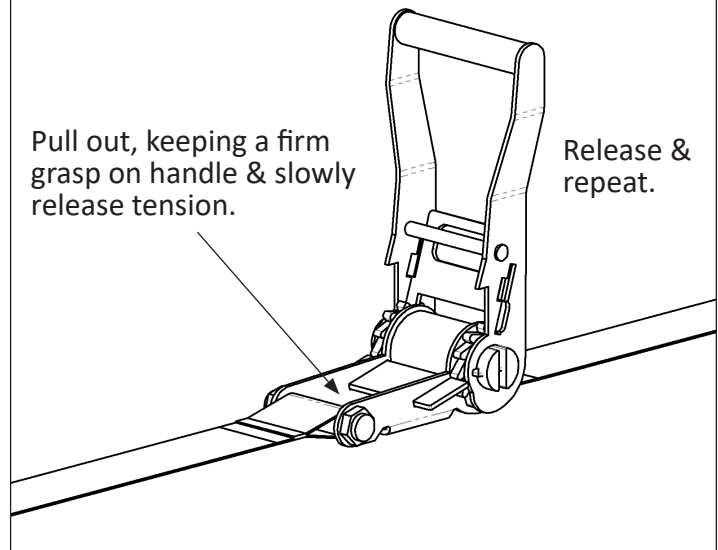
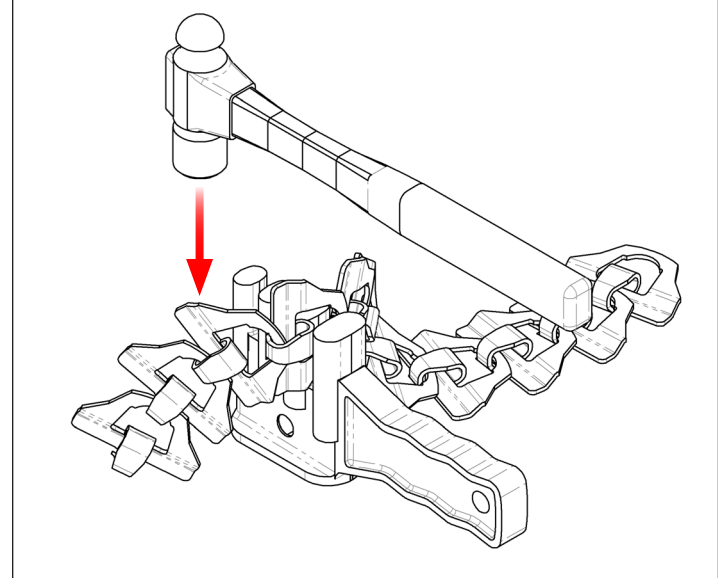


Chart Notes:

- Valid for a circuit with 4 corners.
- This chart is a starting point & guideline. Refer to “Circuit Startup” for more chain tension information.
- New chain will need re-tensioned after several days of operation.
- For circuits with dual drive, divide “gap” by 2.
- Round up if measurement falls in middle of link.

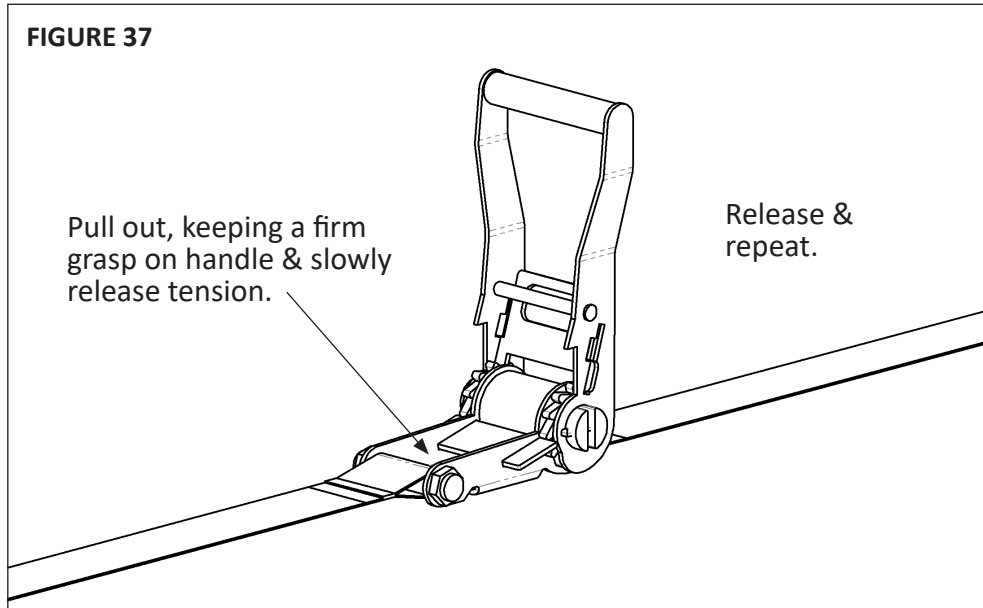
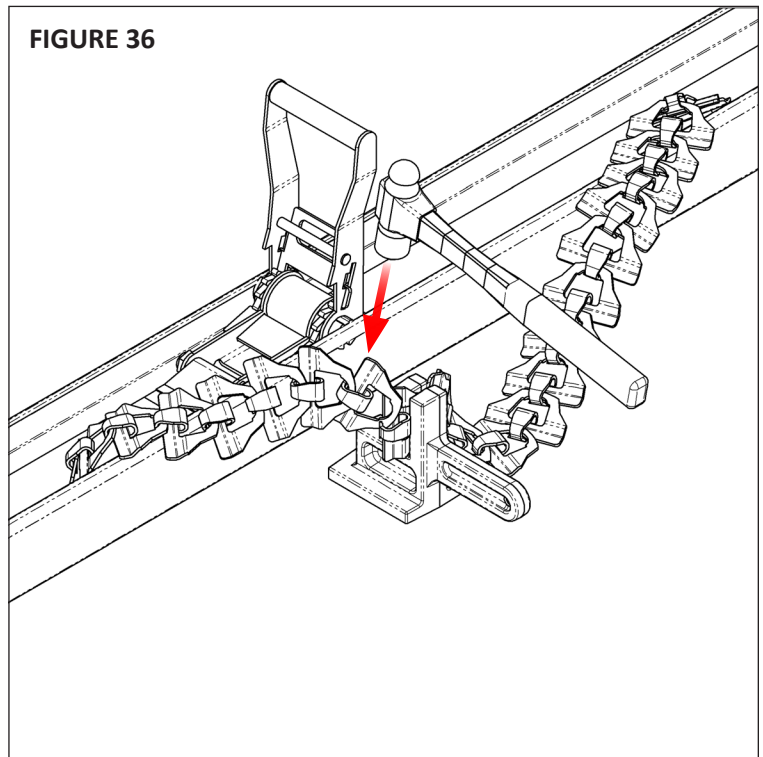
FIGURE 35

Disconnecting chain links



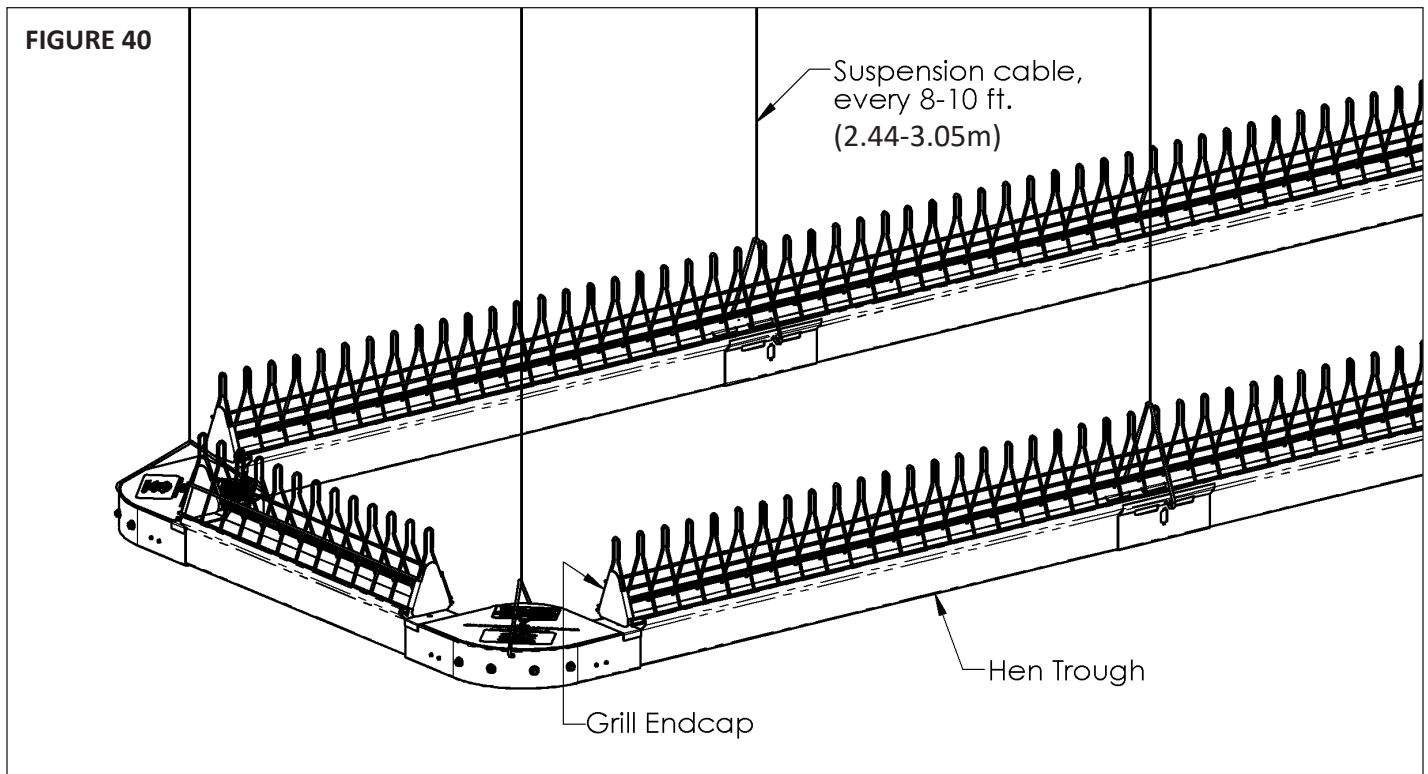
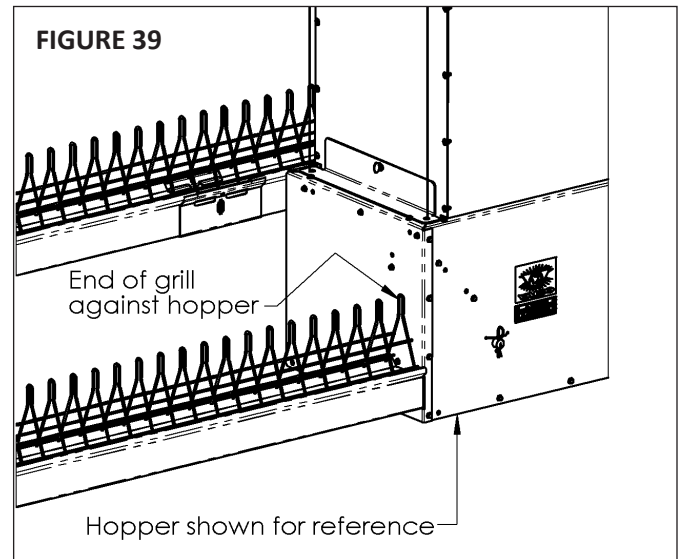
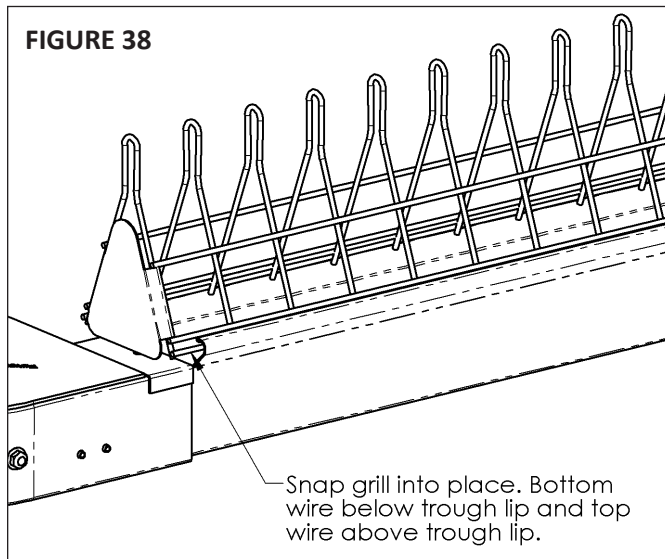
Tensioning the Chain - continued

6. Using a come-along or ratchet strap, hook each end into the chain, as shown in Figure 33.
7. Tighten chain with ratchet strap, so there is enough slack chain to remove from trough and insert into chain breaker, as shown in Figure 36.
8. Connect ends together with chain breaker and hammer.
9. Lay the connected chain under the ratchet strap. Ensure the chain is laying flat and there is no binding.
10. Release ratchet strap tension, and remove strap from chain, as shown in Figure 37.
11. After startup, closely monitor the chain tension after a new install. If the chain rises (caterpillars) after the drive sprocket, the tension is too loose. Premature corner wear will occur if the chain is too tight. You should easily be able to raise chain approximately 1-1/2" (38mm) by hand in the first trough section after (downstream) of drive wheel. Add or remove links according to above observations. Refer to "Circuit Startup" for more information.



Grill Installation

After chain has been installed you can install grill into trough. Squeeze grill together and snap into trough so bottom wire goes under trough lip and top wire goes above lip, as shown in Figure 38. Butt ends together squarely. At corners or feed hoppers extend grill past trough ends approximately 1" (25mm) to eliminate excess opening on ends, as shown in Figure 39. Place grill caps on all open ends of grill, as shown in Figure 40.



Perch Rail Installation

After chain has been installed you can install perch rail onto trough. Perch rail can be used instead of grill for feeding applications where roosters are not restricted from flat chain feed. Slide VC316 tubes through 630429 hanger. Snap 630430 perch support into trough and secure tube with (1) 630431 clamp & (2) 690142 screws, as shown in Figure 41. Butt ends together and secure together with coupling, as shown in Figure 42. Push 631233 pipe plug into all open ends of tube, as shown in Figure 43.

FIGURE 41

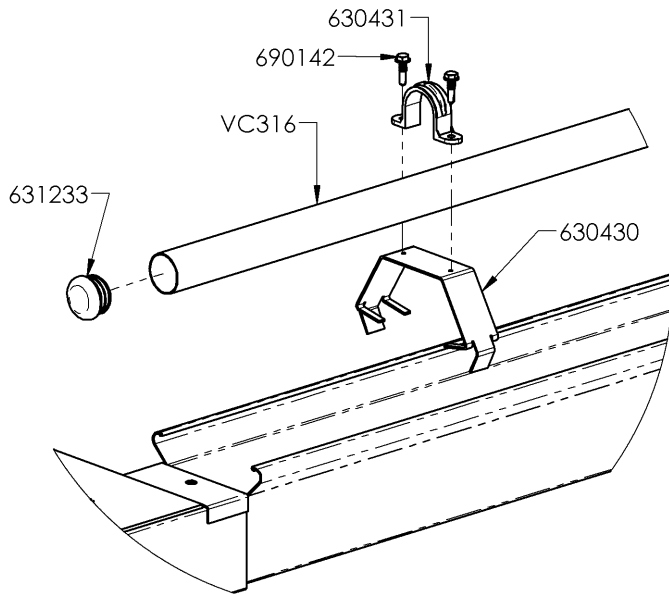


FIGURE 42

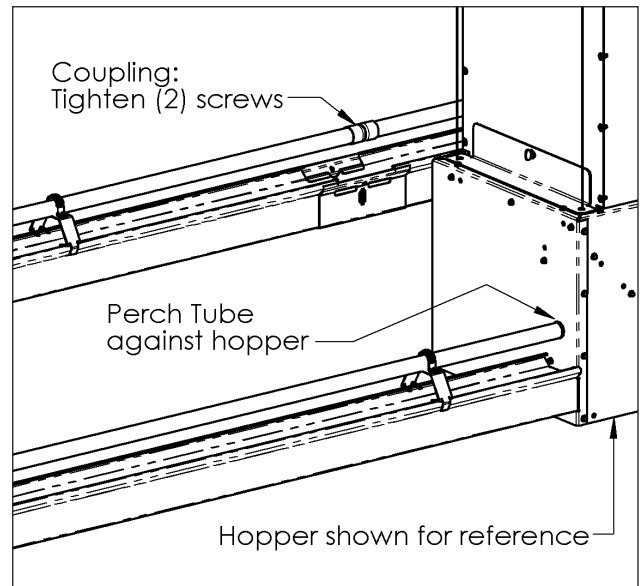
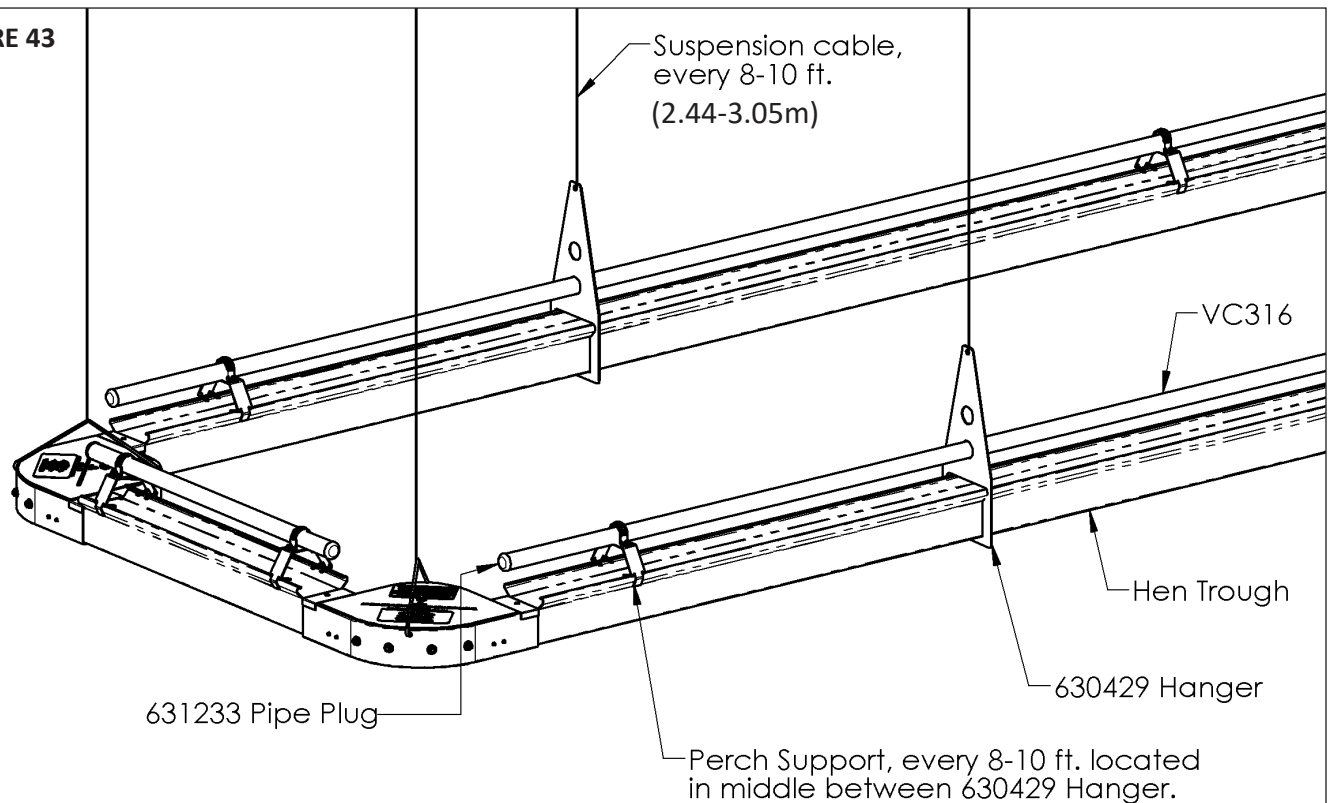


FIGURE 43

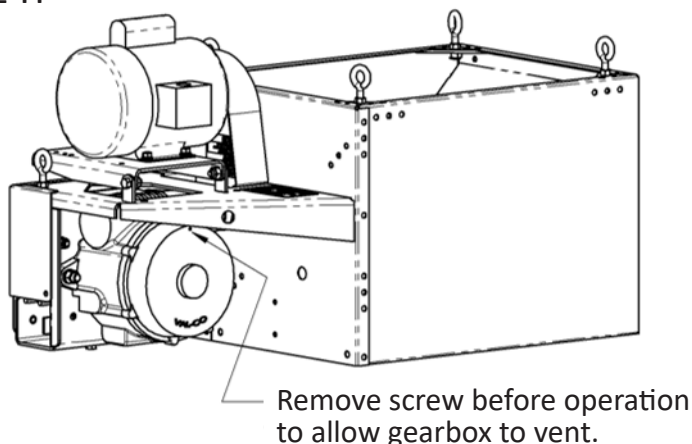


Circuit Start Up

Test Running System

Before starting the system, walk the line and carefully check that all trough and grill connections are secure and remove all foreign material from troughs. Oil all corners and check to make sure vent screw is removed from top of gearbox, as shown in Figure 44.

FIGURE 44



Test run system dry for no more than 5 minutes. Watch chain next to drive sprocket to make sure no slack gathers and chain takes off smoothly. If not, readjust chain tension as described earlier. Note that system will operate noisy while running without feed. Shutoff system as soon as you determine chain is running properly or notice a problem. Running system without feed will damage equipment. After system is shutoff check chain tension again. You should easily be able to raise chain approximately 1-1/2" (38mm) by hand in the first trough section after (downstream) of drive wheel.

Place covers over corners and fill feed hoppers 1/4 full. Test run system again and make adjustments to feed level feed gate and repacker wheel slide to obtain proper feed levels. System should run smooth and quiet after feed is distributed through entire circuit.

If a chain breakage occurs due to improper chain tension, the system should be inspected for obstructions and the entire chain be thoroughly inspected for bent and cracked links. If any bent and cracked links are found, they should be replaced. If this inspection and link replacement is not completed, the chain should be entirely replaced. If these steps are not followed there can be future breakages.



NEVER WORK ON SYSTEM WITHOUT DISCONNECTING ELECTRICAL POWER!

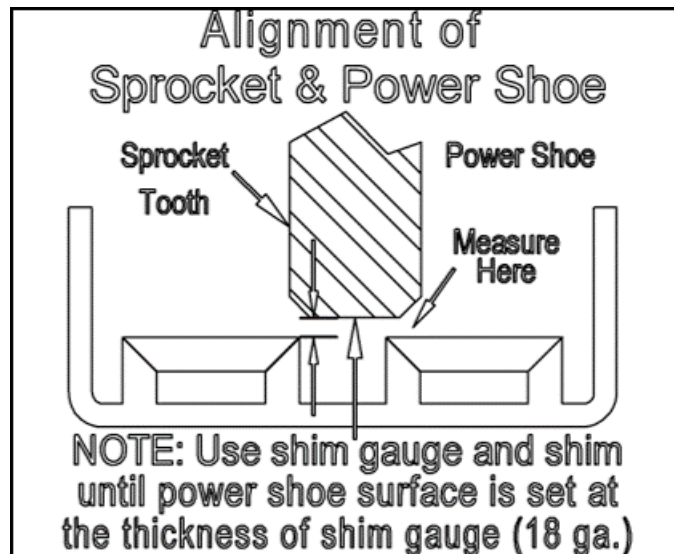
Circuit Start Up - continued

Caterpillaring

Chain tension should be monitored and re-tensioned weekly after new install until the chain is thoroughly broken-in. As it runs the new chain will be broken-in as paint wears off. The break-in time will vary depending upon feed and run-times. Chain tension should be monitored until no change in tension or caterpillaring can be observed week to week. Optimum chain tension is when there is zero to 1/4" (6mm) of slack in the chain on the outboard side of the drive.

After the chain is broken-in, it should be monitored for any caterpillaring. If it is observed, 2-3 links should be removed. If it continues to occur after re-tension, repeat the process of removing 2-3 links until no caterpillaring can be observed.

Careful considerations should be made during cleanout. Damage will result if the system is run without feed for an extended amount of time. High loads can occur when the system is wetted and allowed to sit for an extended amount of time. All reasonable efforts should be made to minimize these two conditions. If permitted by livestock management, vegetable based oil can be used to minimize friction at startup. Make sure to run the chain while things are still wet. This will squeeze out feed from inside the knuckle as it turns corners, before it hardens. Otherwise the feed will harden inside the knuckle of the chain and potentially break as it turns corners.



Power Shoe

The power shoe should be installed parallel to the drive wheel and troughs. It should be kept from twisting when tightening the hold-down bolt. The drive wheel should be centered side-to-side in the power shoe. The power shoe should be installed with proper shims under to achieve a 1/32" (0.8mm) gap between it and the drive wheel teeth. At any time, if audible knocking is heard coming from the drive wheel, the power shoe should be replaced. During flock cleanouts, all drive components should be inspected for wear indicating misalignment. If found, adjust or replace components accordingly. The power shoe gap needs to be checked and adjusted accordingly. The power shoe must be inspected for wear both below the drive wheel and on the side flanges. If there is bottom wear, the power shoe must be replaced. If there is side wear present, the power shoe must be replaced and the drive and trough must be realigned.

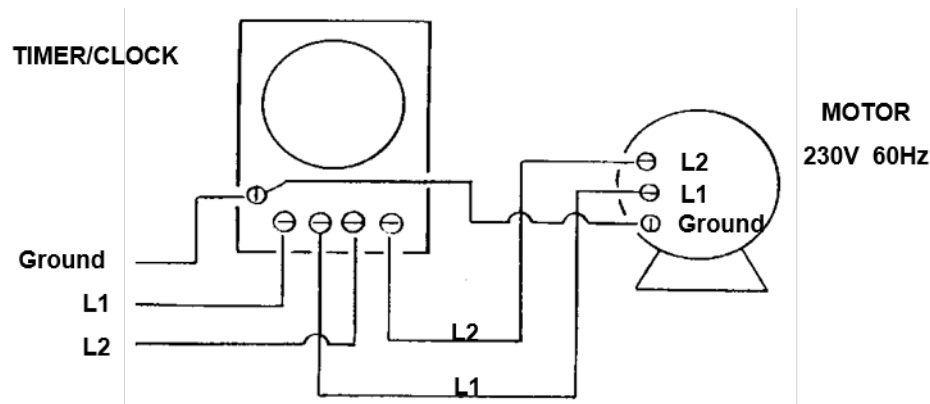
DANGER - HIGH VOLTAGE ELECTRICAL COMPONENTS

- Disconnect power source before servicing automatic system.
- May start or stop at any time.
- Failure to do so will result in serious injury or death.

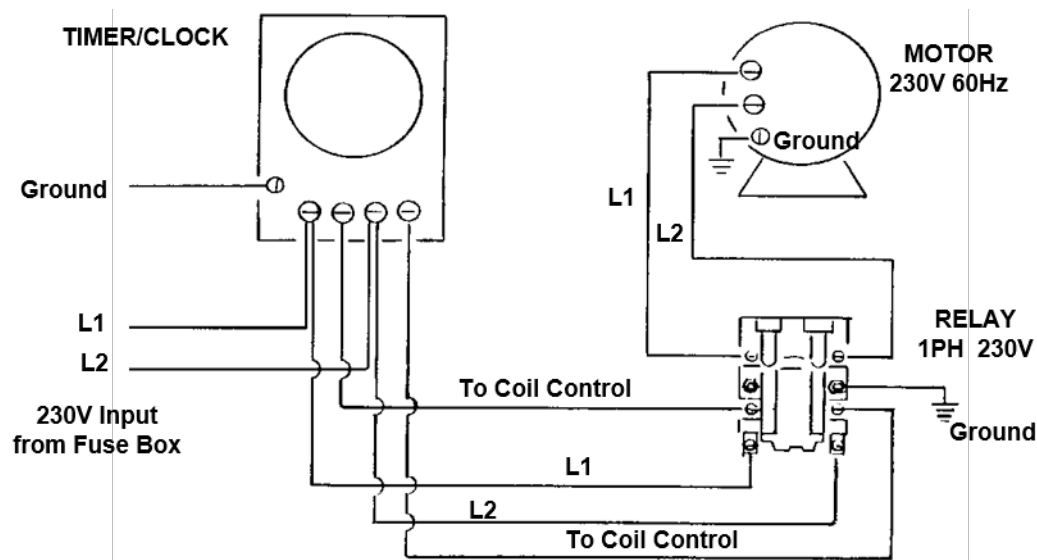


Wiring Diagrams

Wiring Diagram For Motors Less Than 1 Hp



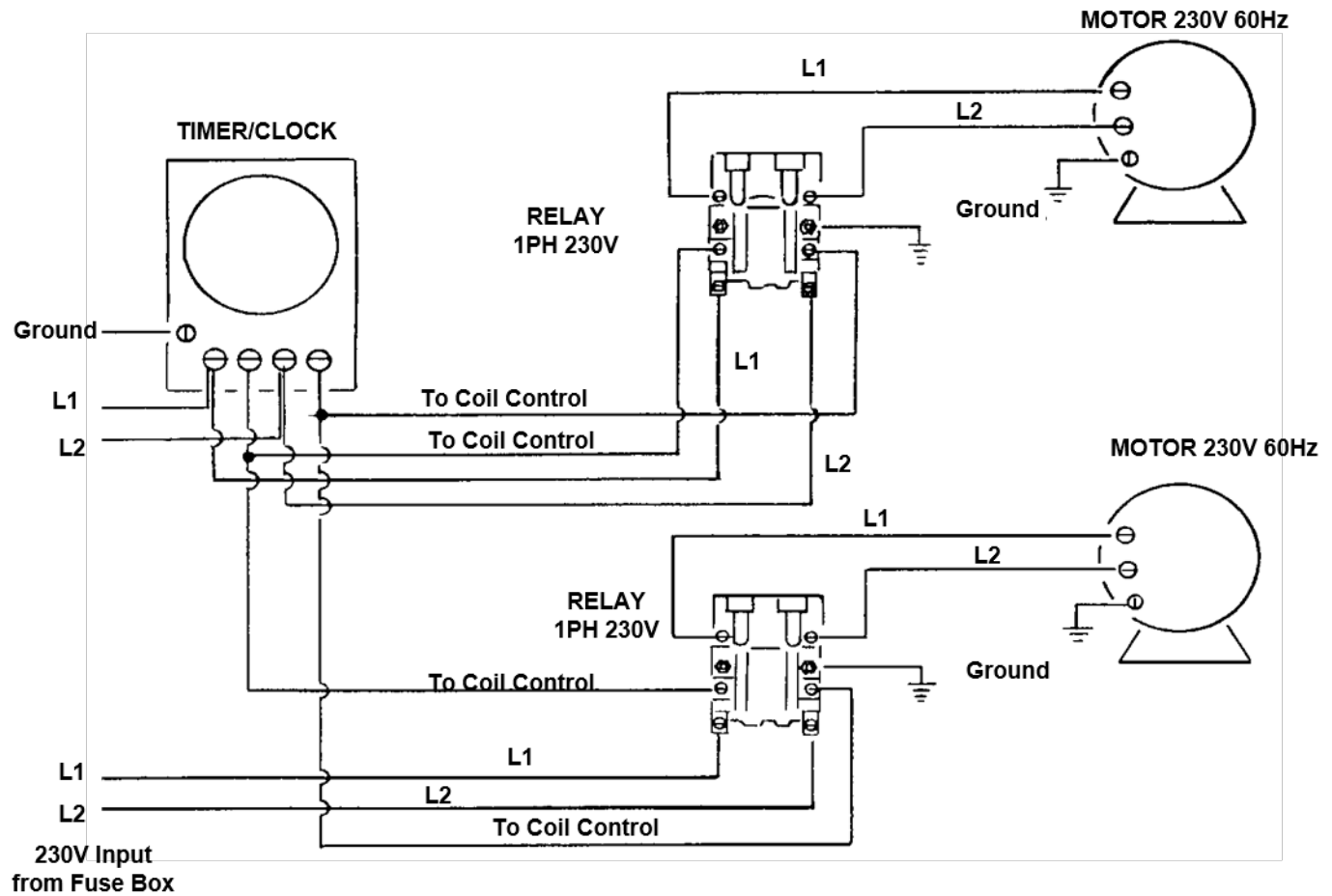
Wiring Diagram For 1Hp - 3Hp Motors





WIRING MUST BE DONE BY A LICENSED ELECTRICIAN.
ALL LOCAL AND NATIONAL CODES MUST BE FOLLOWED.

Wiring Diagram For Two Motors 1Hp - 3Hp And One Time Clock



**WIRING MUST BE DONE BY A LICENSED ELECTRICIAN.
ALL LOCAL AND NATIONAL CODES MUST BE FOLLOWED.**

Maintenance



DISCONNECT ALL ELECTRICITY BEFORE SERVICING EQUIPMENT.

Care of feeders

- Always maintain level lines. Unlevel lines will increase wear and tear on equipment.
- If the system is new, check chain tension daily for the first three weeks while it's broken in, then adjust accordingly. After the line is broken in, visually check the line weekly for caterpillaring.
- If a shear pin breaks: 1. Something is jammed in the line, or 2. The gap between the power shoe and drive wheel is too large. Be sure to remove all broken drive sprocket shear pins from system. Broken shear pins may get lodged in chain and cause damage to equipment or birds. Align sprocket with hub by turning belt manually until holes align and hammer new shear pin into place.

To clean the feed lines:

- Remove the clean-out covers located behind the hopper at the bottom of the trough.
- Run the feed line to allow feed and debris to fall out.
- Blow out corners, hoppers, and drives of any remaining debris.
- After the house has been pressure washed, add a small amount of vegetable oil to the length of the trough to prevent damage to the line.

The following maintenance schedule is recommended to improve flat chain performance and longevity:

Daily:

- Check feed supply in bulk bins. Clean up any spills.
- Check that the fill system and the feeders are set to run together.
- Check all necessary feed drops are open.
- Check that hopper switch is in the proper location in the hopper.
- Check that the drop tube is aligned properly with the hopper switch.

Weekly:

- Check feed line tension. Proper tension on chain must be maintained at all times. To check chain tension, go to trough just after the drive, lift chain approximately 1-1/2" (38mm) with one hand and press down with other hand approx. 12" (305mm) from the first hand. Chain should not flex enough to touch the trough. Tighten chain if necessary, by removing links and reconnecting chain.
- Check trough levelness. Adjust drop lines to maintain level lines.

Monthly:

- Center post in corner units should be well lubricated at all times. Remove thumbscrew from corner cover and put S.A.E. 80W oil in center post.
- Check power shoe/drive wheel gap. Flip or replace the power shoe, if needed.

Quarterly:

- Inspect drive hopper unit V-belts for excess wear and improper tension. Belts with cracks or frayed edges should be replaced. To check for proper tension, press belts together with fingers. If belt flexes more than 1" (25mm) it should be retightened.

Semi-Annually:

- Check gear box oil. Top off with 80W-90 if needed.

Yearly:

- Change oil in gearbox - fill with 3/4-quart (0.7 litre) 80W-90 gear oil.



Troubleshooting Guide

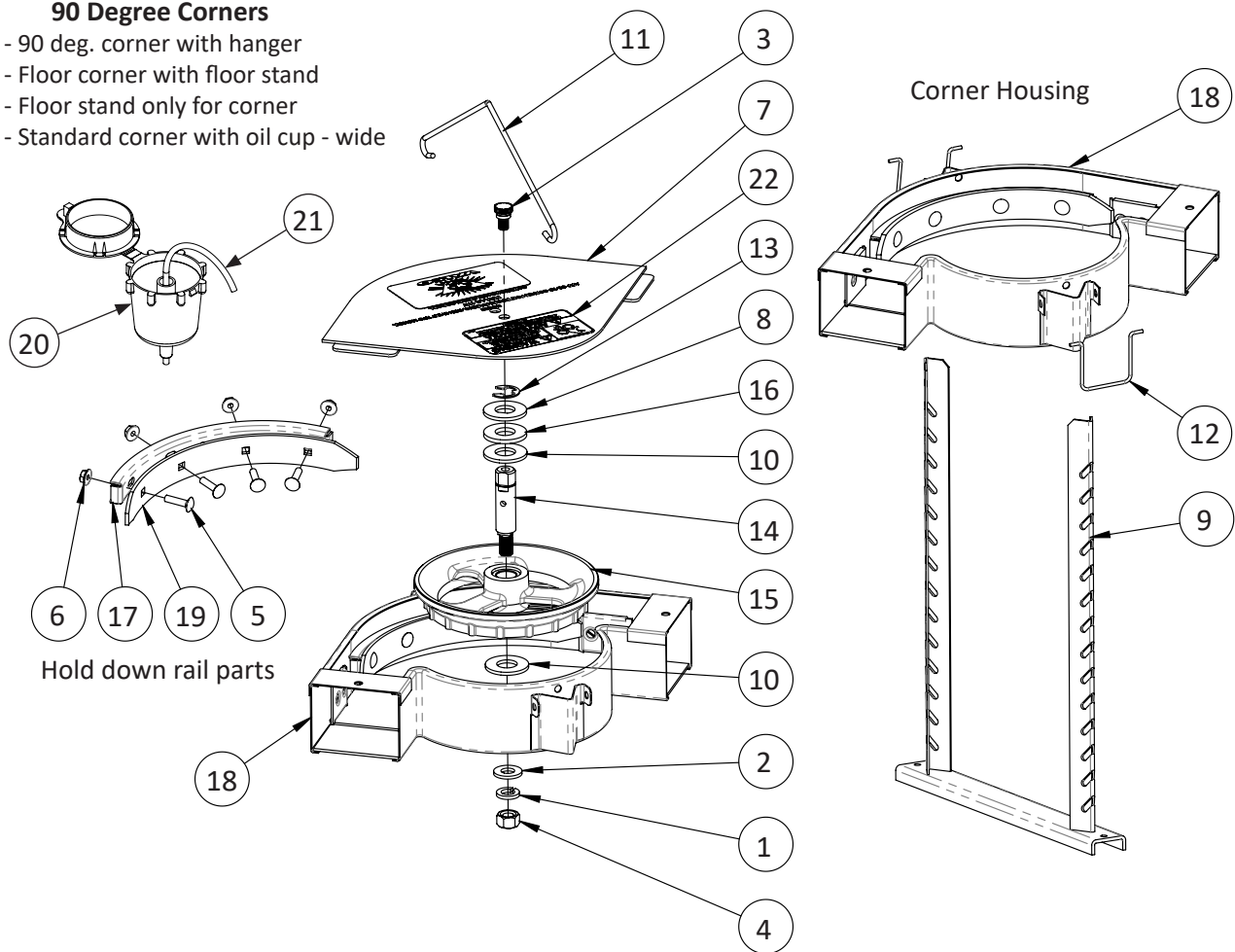
Problem	Possible Cause	Corrective Action
If the corner wheels are not turning:	The chain may be too loose.	Remove slack in chain and retighten.
	Foreign objects stuck in housing.	Remove any foreign objects from trough or corner. Check inside corner under wheel also.
	Wheel needs lubricated.	Lubricate wheel with 80W oil.
If the gear reducer is excessively hot:	Low or old oil in gear reducer.	The gear reducer oil may need changed or refilled depending on condition of oil. Use 80W-90W oil.
	The chain may be too tight.	Chain should lift approximately 1-1/2" (38mm) from trough directly in front of drive. Add links if needed.
If motor stops frequently:	Improper wiring.	Check that motor is wired properly. A motor wired for 230 volts running on 115 volts will run very sluggishly.
	Motor may not be getting full voltage causing motor to overheat.	Check that proper size wiring was used and always use a licensed electrician for wiring problems.
If feeder squeaks near drive unit:	Drive wheel rubbing stripper plate.	Center drive wheel.
	Low or old oil in gear reducer.	Check oil in gearbox.
	Reducer gears are out of line.	Consult your distributor.
If feed is not being taken back into hopper:	There may be too much feed coming out of hopper.	Lower feed level plate on side of hopper.
	Improper circuit run/stop time.	Time circuit so flat chain motor switches off when feed gets back to hopper.
	Repacker wheel may be clogged or not turning freely.	Clean wheel and adjust repacker plate to just clear wheel.
If feed builds up in corners:	Too much feed coming out of hopper.	Adjust feed level plate to reduce feed flow.
	Corner wheel may not be turning.	Repair wheel / adjust chain.
	Too much litter in trough.	Keep trough level with back of birds.
If you are shearing pins:	There may be too much slack in the chain jamming the drive sprocket or corner wheels.	Adjust the chain tension as needed.
	Power shoe may be worn or chain may be binding under stripper plate.	Check gap under power shoe, flip or replace if necessary. File any rough spots from sprocket that could bind chain. If worn too much flip/replace sprocket.
	Chain may be caught on foreign object in line.	Check line and remove debris.
	Chain may be catching on trough.	Check that trough is level and all connections are snug and cut square.
	Drive wheel may not be properly aligned.	Center and align drive wheel.
	Feed may be getting wet and can harden in chain links causing them to break.	Fix water leaks, restrict birds from perching above trough if system will be off for more than one day.
Chain twists sideways during operation:	Bent chain link(s) caused during chain installation.	Locate the start and end of chain twist and replace chain.
Chain breaks:	Chain has been damaged by getting caught under chain stripper due to too much slack.	Replace chain.
	Chain was washed down with feed still in the trough.	Run chain after wash down while still wet to squeeze all feed out of knuckles. If chain has broken, replace chain.

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90 Degree Corners: Exploded Parts Drawing & Parts List

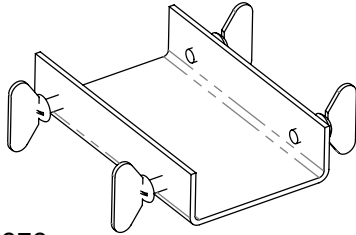
90 Degree Corners

- 430091 - 90 deg. corner with hanger
- 410028 - Floor corner with floor stand
- 410371 - Floor stand only for corner
- 480300 - Standard corner with oil cup - wide

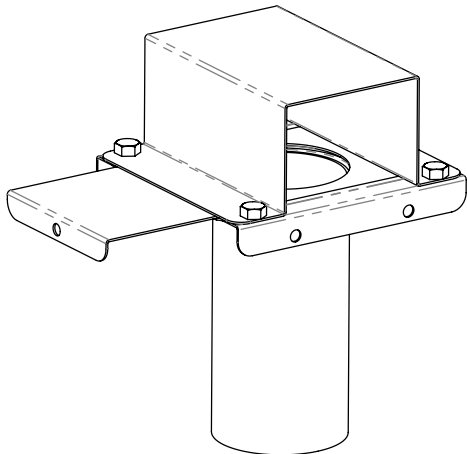


ITEM #	PART #	QTY	DESCRIPTION
90 DEGREE CORNERS			
1	010255	1	1/2" SPLIT LOCK WASHER
2	010437	1	1/2" FLAT WASHER
3	011110	1	3/8" X 1/2" NYLON THUMBSCREW
4	011117	1	1/2"-13 HEX NUT
5	011434	4	1/4"-20 X 1" CARRIAGE BOLT
6	012792	4	1/4"-20 FLANGE NUT
7	410004	1	PLASTIC CORNER COVER
8	410349	1	WASHER W/ FLAT I.D. - PLATED
9	410371	1	FLOOR STAND ONLY
10	410413	2	3/4" ID FIBER WASHER
11	410469	1	WIRE HANGER
12	420426	1	WIRE CLIP FOR FLOOR CORNER
13	420439	1	3/4" STEEL E-CLIP
14	420536	1	CORNER POST
15	430086	1	CORNER WHEEL ASSY
16	430088	1	CORNER POST SPACER
17	430096	1	HOLD DOWN RAIL BRACKET
18	430102	1	CORNER HOUSING W/ HOLD DOWN RAIL
	430106	1	CORNER HOUSING W/ HOLD DOWN RAIL
19	430109	1	HOLD DOWN RAIL
20	610893	1	CORNER OIL CUP
21	611727	1	CORNER OIL CUP WICK
22	713452	1	"WARNING" LABEL

Flat Chain Components



410070
Trough Clean-out Cover



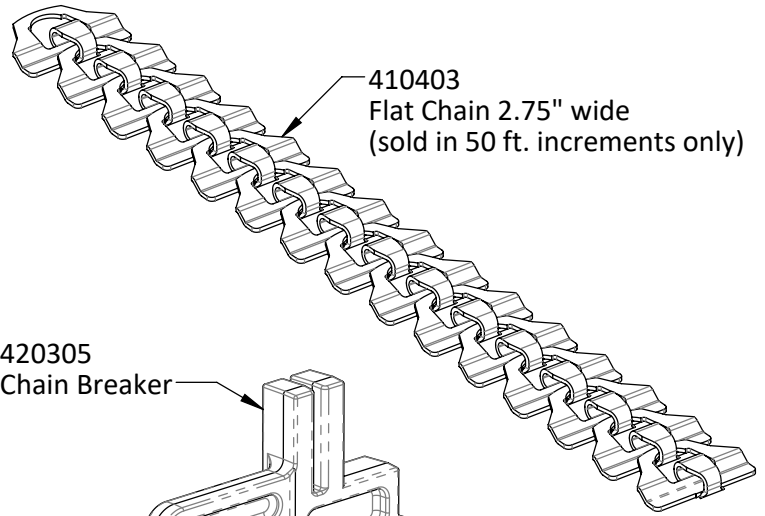
410311
Drop Outlet With Slide Shutoff

Motor Mount Bolts

- 010640
5/16"-18 x 1/2" Hex Head Bolt
- 010252
5/16" Split Lock Washer
- 010426
5/16" Flat Washer

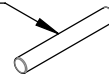
Hopper Suspension Bolts

- 010670
3/8"-16 x 1-1/2" Eye Bolt
- 011115
3/8"-16 Hex Nut
- 012481
3/8"-16 Nylock Nut



420305
Chain Breaker

410999
Shear Pin 10 Pack
(for all drive wheels)



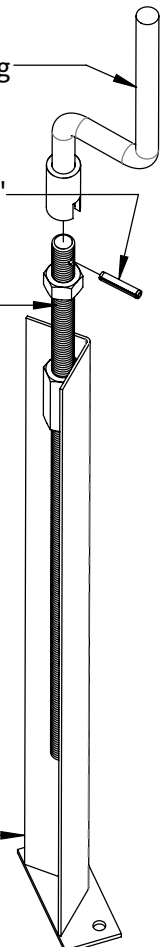
420416
Crank to Adjust Leg

500420
Roll Pin, 3/16" x 1"

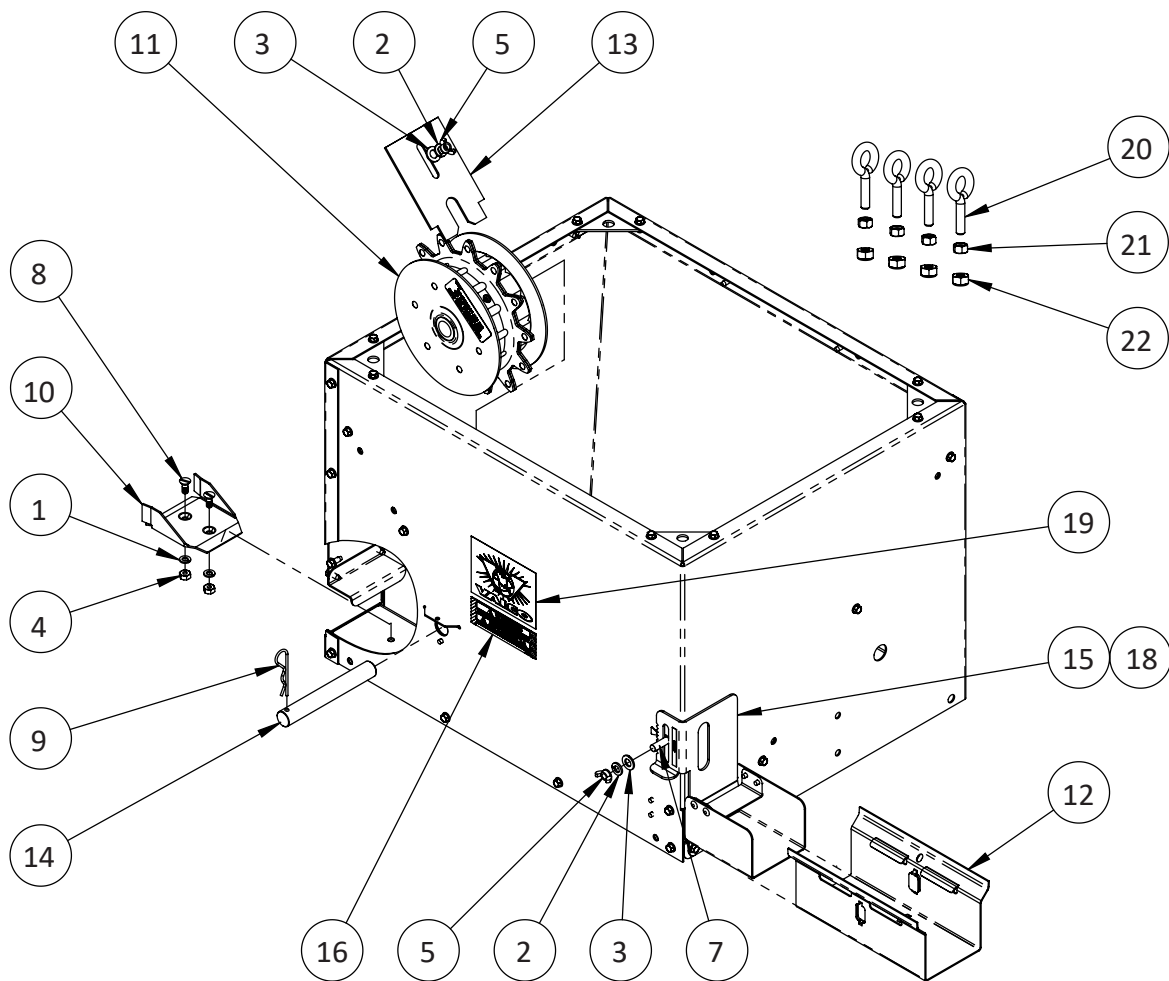
420219
Adjustment
Screw w/ Nut

420220
Leg & Adj.
Screw Assembly

420221
Leg - Painted

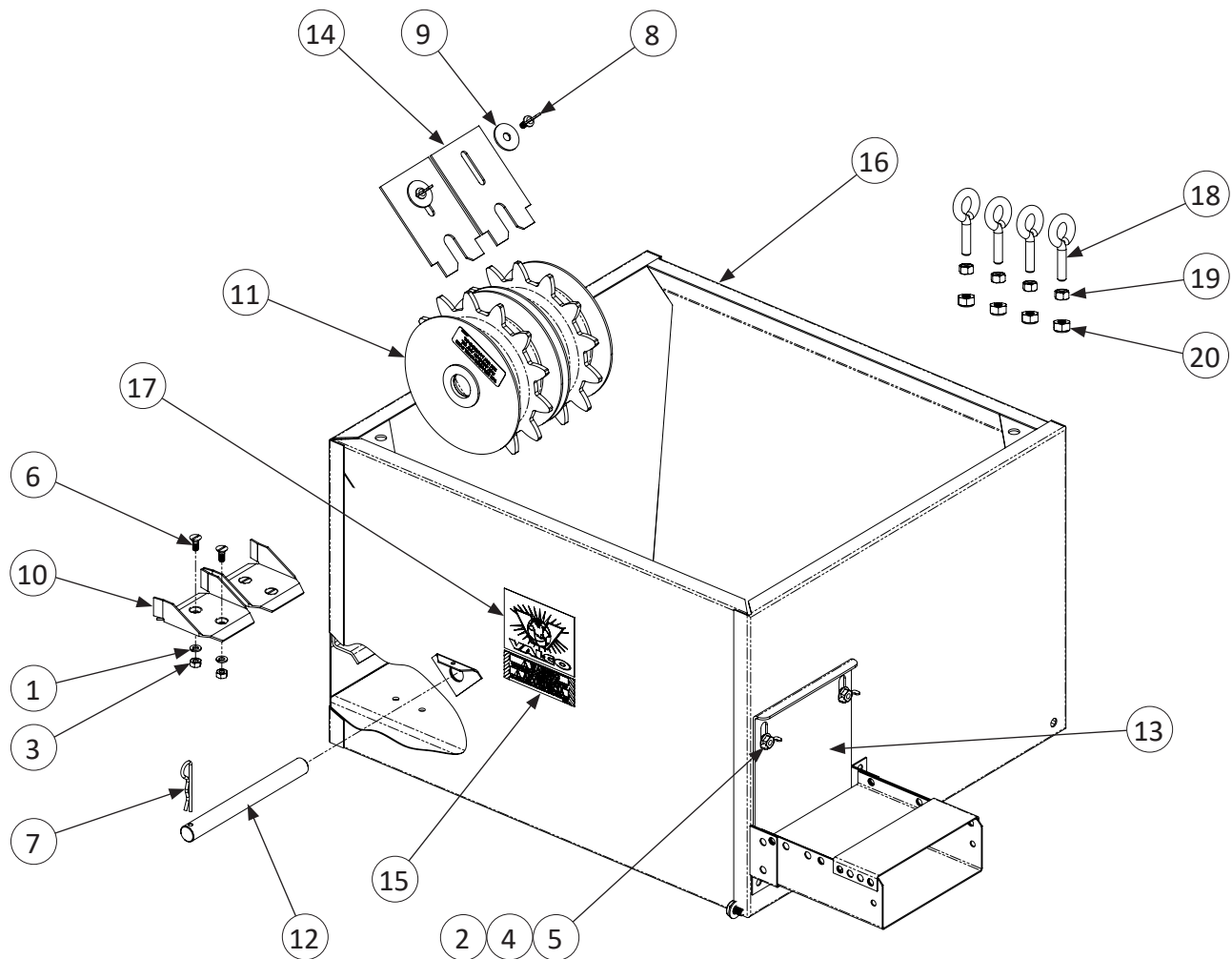


420820: 1 Line Suspended Auxiliary Hopper - Exploded Parts Drawing & Parts List



ITEM #	PART #	QTY	DESCRIPTION
420820: 1 LINE SUSPENDED AUXILIARY HOPPER			
1	010251	2	1/4" SPLIT LOCK WASHER
2	010252	2	5/16" SPLIT LOCK WASHER
3	010426	2	5/16" FLAT WASHER
4	010602	2	1/4-20 HEX NUT
5	010944	2	5/16-18 WING NUT
6	011383	47	#12-24 X 1/2" SCREW
7	011454	1	5/16"-18 X 1" CARRIAGE BOLT
8	012744	2	1/4"-20 X 5/8 COUNTERSUNK BOLT
9	012746	1	#11 HAIRPIN COTTER PIN
10	410057	1	WIDE CHAIN GUIDE
11	410197	1	REPACKER ASSEMBLY WHEEL
12	410328	1	8" HT COUPLER L/HANGER
13	420128	1	ANTI-BACKFEED PLATE
14	420497	1	REPACKER WHEEL SHAFT
15	420710	1	FINE ADJUSTMENT NUMBER LABEL
16	420723	1	CAUTION MOTOR MAY START DECAL
17	420738	1	1L AUXILIARY HOPPER HARDWARE BAG
18	420818	1	FINE ADJUSTMENT FEED GATE
19	470614	1	4" X 3" VAL-CO DECAL
420738: HARDWARE BAG, 1 LINE AUXILIARY HOPPER			
20	010670	4	3/8" X 1" EYE BOLT
21	011115	4	3/8-16 HEX NUT
22	936054	4	3/8-16 NYLOCK NUT

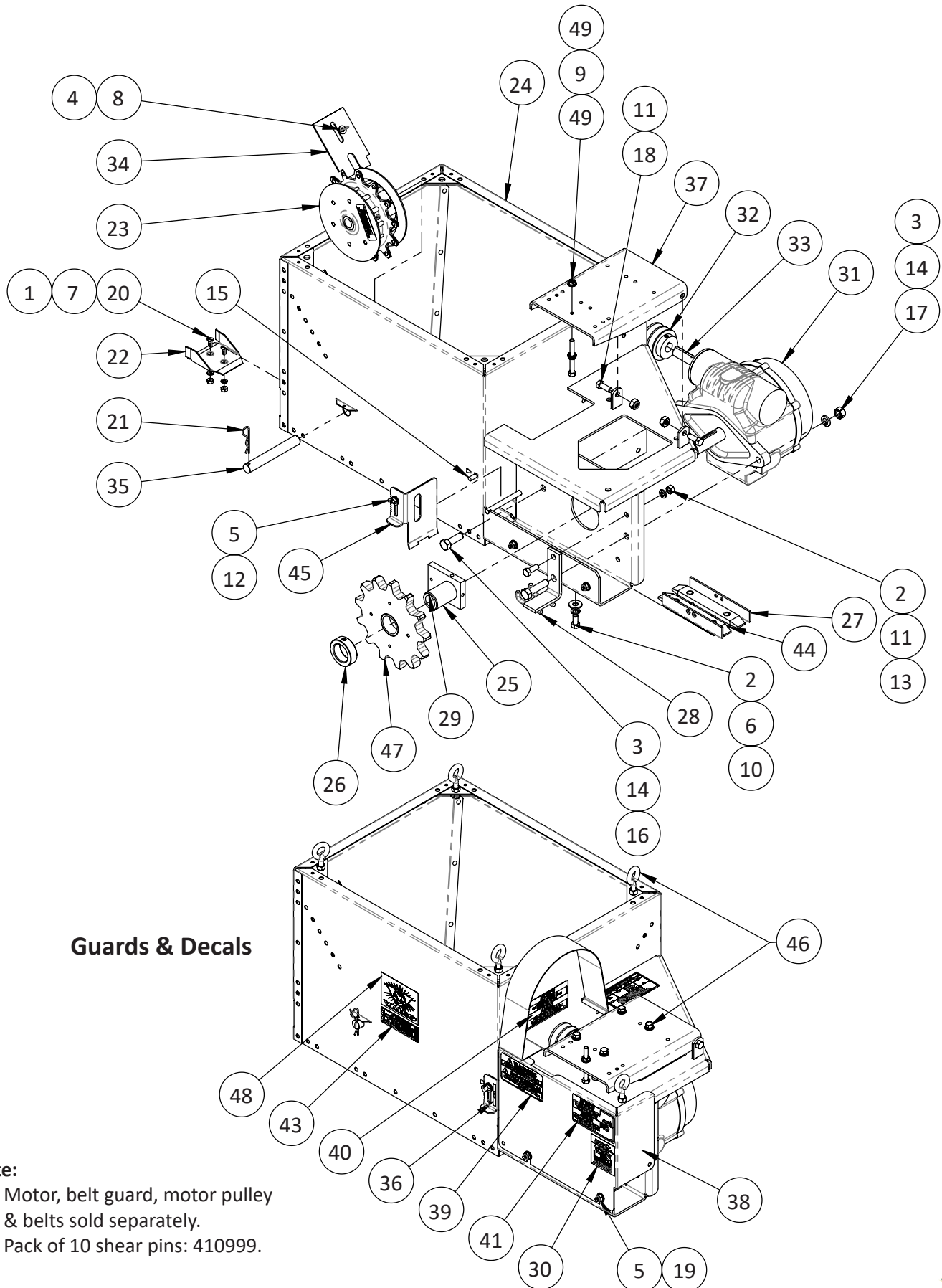
420780: 2 Line Suspended Auxiliary Hopper - Exploded Parts Drawing & Parts List



ITEM #	PART #	QTY	DESCRIPTION
420780: 2 LINE SUSPENDED AUXILIARY HOPPER			
1	010251	4	1/4" SPLIT LOCK WASHER
2	010430	2	3/8" FLAT WASHER
3	010602	4	1/4-20 HEX NUT
4	010944	2	5/16-18 WING NUT
5	011452	2	5/16-18 X 5/8" CARRIAGE BOLT
6	012744	4	1/4-20 X 5/8" COUNTERSUNK BOLT
7	012746	1	#11 HAIRPIN COTTER PIN
8	102019	2	5/16-18 X 3/4" THUMBSCREW
9	132025	2	5/16" X 1-1/4" FLAT WASHER
10	410057	2	WIDE CHAIN GUIDE
11	410197	2	REPACKER ASSEMBLY WHEEL
12	410450	1	REPACKER WHEEL SHAFT
13	420127	1	FEED LEVEL ADJUSTMENT PLATE
14	420128	2	ANTI-BACKFEED PLATE
15	420723	1	CAUTION MOTOR MAY START DECAL
16	420782	1	2 LINE AUXILIARY FILL HOPPER
17	470614	1	4" X 3" VAL-CO DECAL
420738: HARDWARE BAG, 1 LINE AUXILIARY HOPPER			
18	010670	4	3/8" X 1" EYE BOLT
19	011115	4	3/8-16 HEX NUT
20	936054	4	3/8-16 NYLOCK NUT

410270: 1 Line Floor Drive Hopper - Exploded Parts Drawing

420700: 1 Line Suspended Drive Hopper - Exploded Parts Drawing

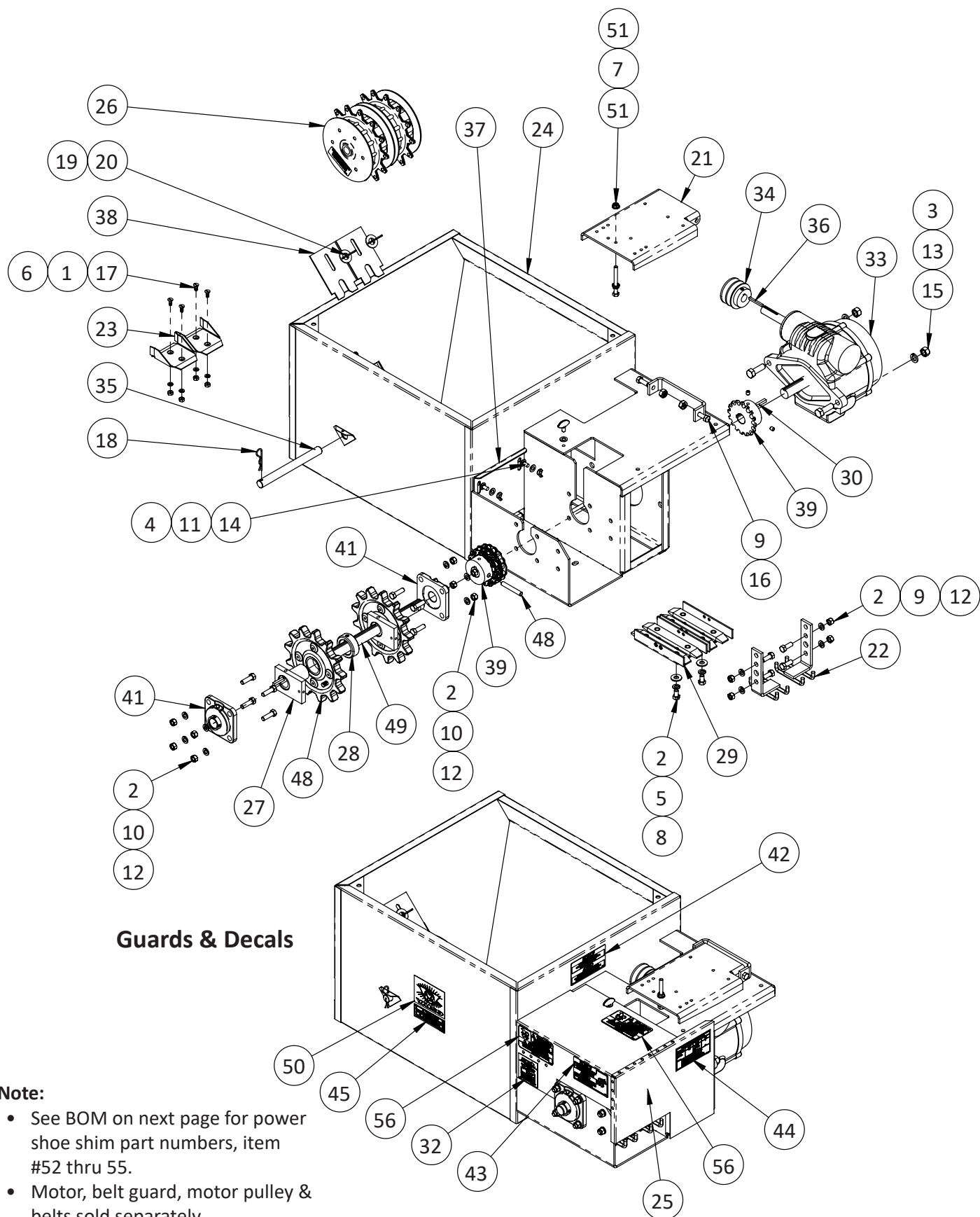


410270: 1 Line Floor Drive Hopper - Parts List**420700: 1 Line Suspended Drive Hopper - Parts List**

ITEM #	PART #	QTY	DESCRIPTION
410270: 1 LINE FLOOR DRIVE HOPPER			
420700: 1 LINE SUSPENDED DRIVE HOPPER			
1	010251	2	1/4" SPLIT LOCK WASHER
2	010253	2	3/8" SPLIT LOCK WASHER
3	010255	2	1/2" SPLIT LOCK WASHER
4	010424	1	1/4" FLAT WASHER
5	010426	3	5/16" FLAT WASHER
6	010430	1	3/8" FLAT WASHER
7	010602	2	1/4"-20 HEX NUT
8	010613	1	1/4-20 X 1/2" THUMB SCREW
9	010654	1	5/16" X 3" HEX HEAD BOLT
10	010662	1	3/8" X 3/4" HEX HEAD BOLT
11	010664	3	3/8" X 1" HEX HEAD BOLT
12	010944	1	5/16-18 WING NUT
13	011115	1	3/8-16 HEX NUT
14	011117	2	1/2-13 HEX NUT
15	011453	1	5/16-18 X 3/4" CARRIAGE BOLT
16	012266	1	1/2-13 X 1-1/2" HEX HEAD BOLT
17	012268	1	1/2-13 X 2" HEX HEAD BOLT
18	012481	2	3/8-16 NYLOCK NUT
19	012593	2	5/16-18 THIN NYLOCK NUT
20	012744	2	1/4-20 X 5/8" COUNTERSUNK BOLT
21	012746	1	#11 HAIRPIN COTTER PIN
22	410057	1	WIDE CHAIN GUIDE
23	410197	1	REPACKER ASSEMBLY WHEEL
24	410272	1	FLOOR HOPPER WELDMENT
	420698	1	SUSPENDED HOPPER WELDMENT
25	410416	1	SHEAR PIN ASSEMBLY HUB
26	410417	1	1-1/2" SET COLLAR
27	410419	1	POWER SHOE ASSEMBLY
28	410420	1	CHAIN STRIPPER
29	410431	1	1/4" X 1/4" X 1-1/4" KEY
30	410442	1	SPROCKET/SHOE ALIGNMENT DECAL
31	410444	1	52:1, 1-1/2 HP WORM REDUCER
32	410448	1	3/4" ID V-BELT PULLEY
33	420012	1	3/16" X 3/16" X 1-3/4" KEY
34	420128	1	ANTI-BACKFEED PLATE
35	420497	1	REPACKER WHEEL SHAFT
36	420710	1	FINE ADJUSTMENT NUMBER LABEL
37	420711	1	MOTOR MOUNT PLATE
38	420713	1	BELT/SPROCKET GUARD
39	420719	1	SPROCKET COVER WARNING LABEL
40	420720	1	BELT WARNING LABEL
41	420721	1	SHEAR PIN HUB NOTICE LABEL
42	420722	1	GEAR REDUCER OIL LABEL
43	420723	1	CAUTION MOTOR MAY START DECAL
44	420727	2	20 GA POWER SHOE SHIM
45	420728	1	FINE ADJUSTMENT FEED GATE
46	420737	1	1L DRIVE HOPPER HARDWARE BAG
47	421950	1	DRIVE SPROCKET ASSEMBLY
48	470614	1	4" X 3" VAL-CO DECAL
49	501441	2	5/16-18 HEX NUT

410100: Suspended 2 Line 1 Way Drive Hopper - Exploded Parts Drawing

410200: Floor 2 Line 1 Way Drive Hopper - Exploded Parts Drawing



Note:

- See BOM on next page for power shoe shim part numbers, item #52 thru 55.
- Motor, belt guard, motor pulley & belts sold separately.
- Pack of 10 shear pins: 410999.

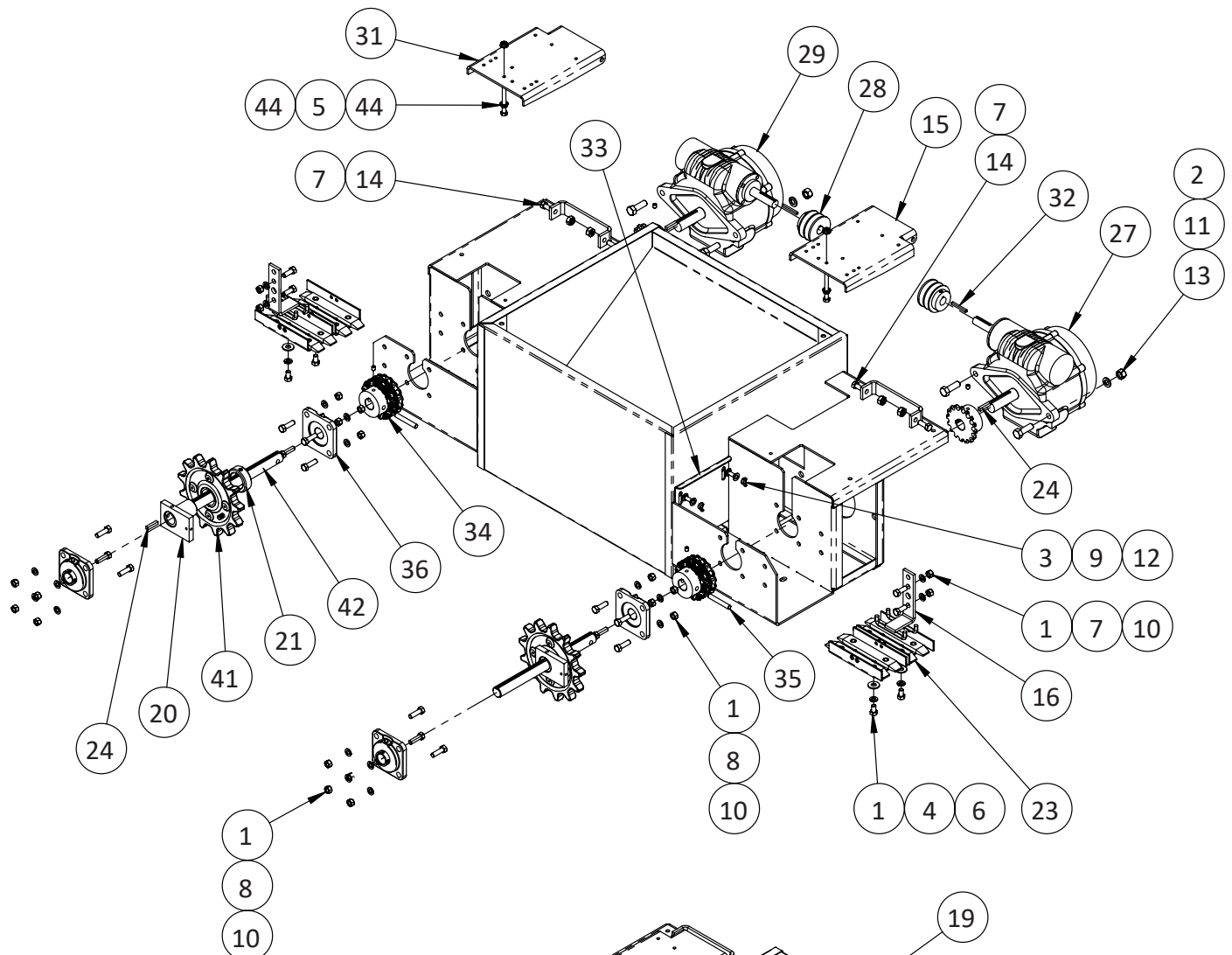
410100: Suspended 2 Line 1 Way Drive Hopper - Parts List

410200: Floor 2 Line 1 Way Drive Hopper - Parts List

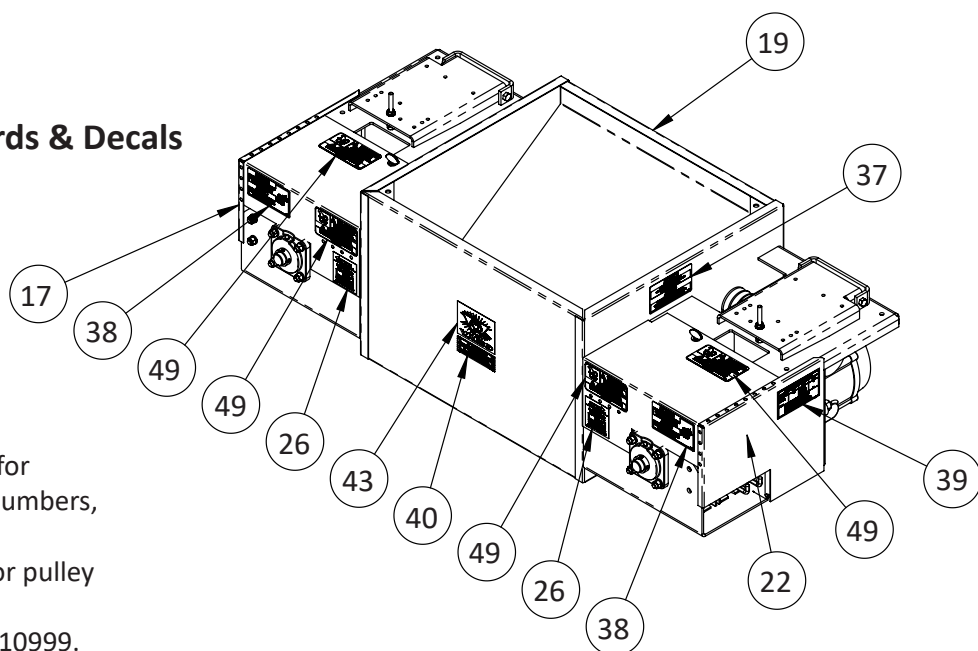
ITEM #	PART #	QTY	DESCRIPTION
410100: SUSPENDED 2 LINE 1 WAY DRIVE HOPPER			
410200: FLOOR 2 LINE 1 WAY DRIVE HOPPER			
1	010251	4	1/4" SPLIT LOCK WASHER
2	010253	14	3/8" SPLIT LOCK WASHER
3	010255	2	1/2" SPLIT LOCK WASHER
4	010426	3	5/16" FLAT WASHER
5	010430	2	3/8" FLAT WASHER
6	010602	4	1/4"-20 HEX NUT
7	010654	1	5/16" X 3" HEX HEAD BOLT
8	010664	6	3/8" X 1" HEX HEAD BOLT
9	010661	2	3/8" X 5/8" HEX HEAD BOLT
10	010666	8	3/8" X 1-1/4" HEX HEAD BOLT
11	010944	2	5/16-18 WING NUT
12	011115	12	3/8-16 HEX NUT
13	011117	2	1/2-13 HEX NUT
14	011452	2	5/16" X 5/8" CARRIAGE BOLT
15	012266	2	1/2-13 X 1-1/2" HEX HEAD BOLT
16	012481	2	3/8-16 NYLOCK NUT
17	012744	4	1/4-20 X 5/8" COUNTERSUNK BOLT
18	012746	1	#11 HAIRPIN COTTER PIN
19	102019	2	5/16" X 3/4" THUMBSCREW
20	132025	2	5/16" X 1-1/4" FLAT WASHER
21	410000	1	RIGHT MOTOR MOUNT PLATE
22	410032	2	CHAIN STRIPPER ASSEMBLY
23	410057	2	WIDE CHAIN GUIDE
24	410102	1	2 LINE SUSPENDED DRIVE HOPPER WELDMENT
	410202	1	2 LINE FLOOR DRIVE HOPPER WELDMENT
25	410122	1	RIGHT SPROCKET GUARD ASSEMBLY
26	410197	2	REPACKER ASSEMBLY WHEEL
27	410416	2	SHEAR PIN HUB ASSEMBLY
28	410417	2	1-1/2" SET COLLAR
29	410419	2	POWER SHOE ASSEMBLY
30	410431	3	1/4" X 1/4" X 1-1/4" KEY
31	410440	1	5/16" X 1/2" THUMBSCREW
32	410442	1	SPROCKET/SHOE ALIGNMENT DECAL
33	410444	1	52:1, 1-1/2 HP RH WORM REDUCER
34	410448	1	3/4" ID V-BELT PULLEY
35	410450	1	2 LINEREPACKER WHEEL SHAFT
36	420012	1	3/16" X 3/16" X 1-3/4" KEY
37	420127	1	FEED LEVEL PLATE
38	420128	2	ANTI-BACKFEED PLATE
39	420134	1	HEAVY DUTY COUPLER ASSEMBLY
40	420422	1	3/8" X 2 1/2" DOWEL PIN
41	420451	2	4 HOLE FLANGE BEARING
42	420720	1	BELT WARNING LABEL
43	420721	1	SHEAR PIN HUB NOTICE LABEL
44	420722	1	GEAR REDUCER OIL LABEL
45	420723	1	CAUTION MOTOR MAY START DECAL
47	420737	1	1L DRIVE HOPPER HARDWARE BAG
48	421950	2	DRIVE SPROCKET ASSEMBLY
49	421955	1	1/4" KEYED DRIVE SHAFT
50	470614	1	4" X 3" VAL-CO DECAL
51	501441	2	5/16-18 HEX NUT
52	611708	2	20 GA. GALVANIZED POWER SHOE SHIM
53	611709	2	18 GA. GALVANIZED POWER SHOE SHIM
54	611710	2	16 GA. GALVANIZED POWER SHOE SHIM
55	611711	2	14 GA. GALVANIZED POWER SHOE SHIM
56	713452	2	"WARNING" LABEL

410150: Suspended 2 Line 2 Way Drive Hopper - Exploded Parts Drawing

420250: Floor 2 Line 2 Way Drive Hopper - Exploded Parts Drawing



Guards & Decals



Note:

- See BOM on next page for power shoe shim part numbers, item #45 thru 48.
- Motor, belt guard, motor pulley & belts sold separately.
- Pack of 10 shear pins: 410999.

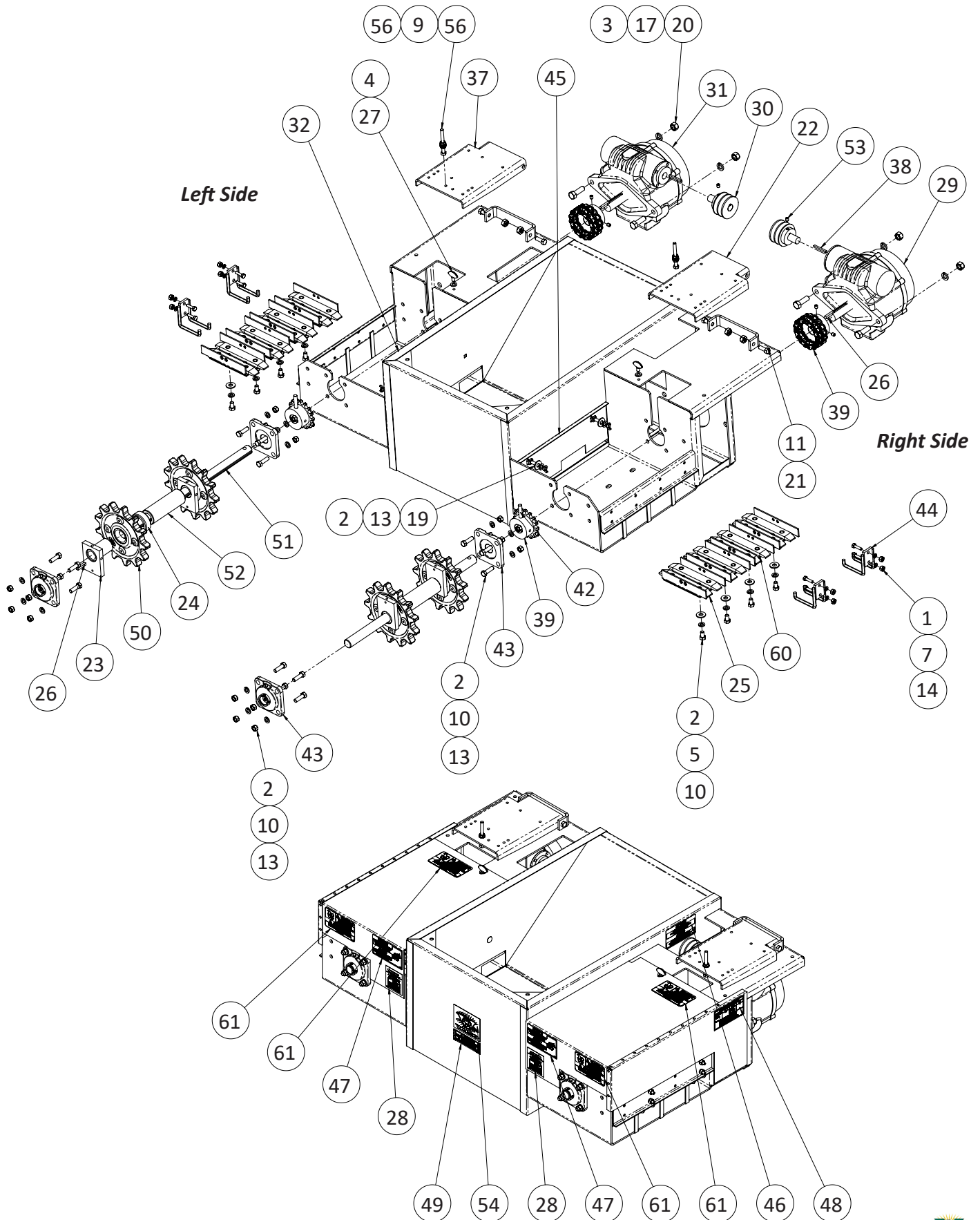
410150: Suspended 2 Line 2 Way Drive Hopper - Parts List

420250: Floor 2 Line 2 Way Drive Hopper - Parts List

ITEM #	PART #	QTY	DESCRIPTION
410150: SUSPENDE 2 LINE 2 WAY DRIVE HOPPER			
410150: SUSPENDE 2 LINE 2 WAY DRIVE HOPPER			
1	010253	24	3/8" SPLIT LOCK WASHER
2	010255	4	1/2" SPLIT LOCK WASHER
3	010426	6	5/16" FLAT WASHER
4	010430	4	3/8" FLAT WASHER
5	010654	2	5/16" X 3" HEX HEAD BOLT
6	010661	4	3/8" X 5/8" HEX HEAD BOLT
7	010664	8	3/8" X 1" HEX HEAD BOLT
8	010666	16	3/8" X 1-1/4" HEX HEAD BOLT
9	010944	4	5/16-18 WING NUT
10	011115	20	3/8-16 HEX NUT
11	011117	4	1/2-13 HEX NUT
12	011453	4	5/16-18 X 3/4" CARRIAGE BOLT
13	012266	4	1/2-13 X 1-1/2" HEX HEAD BOLT
14	012481	4	3/8-16 NYLOCK NUT
15	410000	1	RIGHT MOTOR MOUNT PLATE
16	410032	2	CHAIN STRIPPER ASSEMBLY
17	410069	1	LEFT 2 LINE 2 WAY SPROCKET GUARD
18	410118	1	FLAT CHAIN FEEDER MANUAL
19	410252	1	FLOOR 2 LINE 2 WAY HOPPER WELDMENT
	420018	1	SUSPENDE 2 LINE 2 WAY HOPPER WELDMENT
20	410416	2	SHEAR PIN HUB ASSEMBLY
21	410417	2	1-1/2" SET COLLAR
22	410122	1	RIGHT SPROCKET GUARD ASSEMBLY
23	410419	4	POWER SHOE ASSEMBLY
24	410431	4	1/4" X 1/4" X 1-1/4" KEY
25	410440	2	5/16" X 1/2" THUMBSCREW
26	410442	2	SPROCKET/SHOE ALIGNMENT DECAL
27	410444	1	52:1, 1-1/2 HP RH WORM REDUCER
28	410448	2	3/4" ID V-BELT PULLEY
29	410454	1	52:1, 1-1/2 HP LH WORM REDUCER
30	411650	1	2 LINE 2 WAY FLAT CHAIN HARDWARE BAG
31	420006	1	LEFT MOTOR MOUNT PLATE
32	420012	2	3/16" X 3/16" X 1-3/4" KEY
33	420127	2	FEED LEVEL PLATE
34	420134	2	HEAVY DUTY COUPLER ASSEMBLY
35	420422	2	3/8" X 2 1/2" DOWEL PIN
36	420451	4	4 HOLE FLANGE BEARING
37	420720	2	BELT WARNING LABEL
38	420721	2	SHEAR PIN HUB NOTICE LABEL
39	420722	2	GEAR REDUCER OIL LABEL
40	420723	1	CAUTION MOTOR MAY START DECAL
41	421950	2	DRIVE SPROCKET ASSEMBLY
42	421955	2	1/4" KEYED DRIVE SHAFT
43	470614	1	4" X 3" VAL-CO DECAL
44	501441	4	5/16-18 HEX NUT
45	611708	4	20 GA. GALVANIZED POWER SHOE SHIM
46	611709	4	18 GA. GALVANIZED POWER SHOE SHIM
47	611710	4	16 GA. GALVANIZED POWER SHOE SHIM
48	611711	4	14 GA. GALVANIZED POWER SHOE SHIM
49	713452	4	"WARNING" LABEL

410600: 4 Line Suspended Drive Unit - Exploded Parts Drawing

410650: 4 Line Floor Drive Unit - Exploded Parts Drawing



410600: 4 Line Suspended Drive Unit - Parts List

410650: 4 Line Floor Drive Unit - Parts List

ITEM #	PART #	QTY	DESCRIPTION
410600: 4 LINE SUSPENDED DRIVE UNIT			
1	010251	8	1/4" SPLIT LOCK WASHER
2	010253	28	3/8" SPLIT LOCK WASHER
3	010255	4	1/2" SPLIT LOCK WASHER
4	010426	2	5/16" FLAT WASHER
5	010430	12	3/8" FLAT WASHER
7	010619	8	1/4" X 1" HEX BOLT
9	010654	2	5/16" X 3" HEX HEAD BOLT
10	010661	8	3/8" X 5/8" HEX HEAD BOLT
11	010664	4	3/8" X 1" HEX HEAD BOLT
12	010666	16	3/8" X 1-1/4" HEX HEAD BOLT
13	010944	4	5/16-18 WING NUT
14	011113	8	1/4-20 HEAVY HEX JAM NUT
16	011115	16	3/8-16 HEX NUT
17	011117	4	1/2-13 HEX NUT
19	011453	4	5/16-18 X 3/4" CARRIAGE BOLT
20	012266	4	1/2-13 X 1-1/2" HEX HEAD BOLT
21	012481	4	3/8-16 NYLOCK NUT
22	410000	1	RIGHT MOTOR MOUNT PLATE
23	410416	4	SHEAR PIN HUB ASSEMBLY
24	410417	4	1-1/2" SET COLLAR
25	410419	8	POWER SHOE ASSEMBLY
26	410431	6	1/4" X 1/4" X 1-1/4" KEY
27	410440	2	5/16" X 1/2" THUMBSCREW
28	410442	2	SPROCKET/SHOE ALIGNMENT DECAL
29	410444	1	52:1, 1-1/2 HP RH WORM REDUCER
30	410448	2	3/4" ID V-BELT PULLEY
31	410454	1	52:1, 1-1/2 HP LH WORM REDUCER
32	410602	1	4L SUSPENDED HOUSING
33	410622	1	LEFT SPROCKET GUARD, 4-LINE
34	410623	1	RIGHT SPROCKET GUARD, 4-LINE
36	411650	1	2 LINE 2 WAY FLAT CHAIN HDW BAG
37	420006	1	LEFT MOTOR MOUNT PLATE
38	420012	2	3/16" X 3/16" X 1-3/4" KEY
39	420134	2	HEAVY DUTY COUPLER ASSEMBLY
42	420422	2	3/8" X 2 1/2" DOWEL PIN
43	420451	4	4 HOLE FLANGE BEARING
44	420619	4	4L CHAIN FLAT CHAIN STRIPPER
45	420627	2	4L/2W FEED LEVEL ADJ. FLAT CHAIN PLATE
46	420720	2	BELT WARNING LABEL
47	420721	2	SHEAR PIN HUB NOTICE LABEL
48	420722	2	GEAR REDUCER OIL LABEL
49	420723	1	CAUTION MOTOR MAY START DECAL
50	421950	4	DRIVE SPROCKET ASSEMBLY
51	421954	2	1/4" KEYED DRIVE SHAFT
52	421956	2	DRIVE SHAFT SUPPORT SLEEVE
53	450431	2	5/16" X 3/8" SET SCREW
54	470614	1	4" X 3" VAL-CO DECAL
56	501441	4	5/16-18 HEX NUT
57	611708	8	20 GA. GALVANIZED POWER SHOE SHIM
58	611709	8	18 GA. GALVANIZED POWER SHOE SHIM
59	611710	8	16 GA. GALVANIZED POWER SHOE SHIM
60	611711	8	14 GA. GALVANIZED POWER SHOE SHIM
61	713452	4	"WARNING" LABEL

ITEM #	PART #	QTY	DESCRIPTION
410650: 4 LINE FLOOR DRIVE UNIT			
1	010251	8	1/4" SPLIT LOCK WASHER
2	010253	32	3/8" SPLIT LOCK WASHER
3	010255	4	1/2" SPLIT LOCK WASHER
5	010430	12	3/8" FLAT WASHER
6	010437	4	1/2" FLAT WASHER
7	010619	8	1/4" X 1" HEX BOLT
8	010643	8	5/16-18 X 3/4" HEX BOLT
9	010654	2	5/16" X 3" HEX HEAD BOLT
10	010661	8	3/8" X 5/8" HEX HEAD BOLT
11	010664	4	3/8" X 1" HEX HEAD BOLT
12	010666	16	3/8" X 1-1/4" HEX HEAD BOLT
13	010944	4	5/16-18 WING NUT
14	011113	4	1/4-20 HEAVY HEX JAM NUT
15	011114	4	5/16-18 HEAVY HEX NUT
16	011115	18	3/8-16 HEX NUT
17	011117	4	1/2-13 HEX NUT
18	011452	4	5/16-18 X 5/8" CARRIAGE BOLT
20	012266	4	1/2-13 X 1-1/2" HEX HEAD BOLT
21	012481	4	3/8-16 NYLOCK NUT
22	410000	1	RIGHT MOTOR MOUNT PLATE
23	410416	4	SHEAR PIN HUB ASSEMBLY
24	410417	4	1-1/2" SET COLLAR
25	410419	8	POWER SHOE ASSEMBLY
26	410431	6	1/4" X 1/4" X 1-1/4" KEY
27	410440	2	5/16" X 1/2" THUMBSCREW
28	410442	2	SPROCKET/SHOE ALIGNMENT DECAL
29	410444	1	52:1, 1-1/2 HP RH WORM REDUCER
30	410448	2	3/4" ID V-BELT PULLEY
31	410454	1	52:1, 1-1/2 HP LH WORM REDUCER
32	410602	1	SUSPENDED 4-LINE WELDMENT
	410651	1	FLOOR 4-LINE WELDMENT
33	410622	1	LEFT SPROCKET GUARD, 4-LINE
34	410623	1	RIGHT SPROCKET GUARD, 4-LINE
35	410999	1	3/16" STEEL SHEAR PIN, 10 PACK
37	420006	1	LEFT MOTOR MOUNT PLATE
38	420012	2	3/16" X 3/16" X 1-3/4" KEY
39	420134	2	HEAVY DUTY COUPLER ASSEMBLY
40	420220	4	ADJUSTABLE LEG SCREW ASSEMBLY
41	420416	1	LEG ADJUSTING CRANK
42	420422	2	3/8" X 2 1/2" DOWEL PIN
43	420451	4	4 HOLE FLANGE BEARING
44	420619	4	4L CHAIN FLAT CHAIN STRIPPER
45	420627	2	4L/2W FEED LEVEL ADJ. FLAT CHAIN PLATE
46	420720	2	BELT WARNING LABEL
47	420721	2	SHEAR PIN HUB NOTICE LABEL
48	420722	2	GEAR REDUCER OIL LABEL
49	420723	2	CAUTION MOTOR MAY START DECAL
50	421950	4	DRIVE SPROCKET ASSEMBLY
51	421954	2	1/4" KEYED DRIVE SHAFT
52	421956	2	DRIVE SHAFT SUPPORT SLEEVE
54	470614	1	4" X 3" VAL-CO DECAL
55	500420	4	3/16" X 1" EXPANSION PIN
56	501441	2	5/16-18 HEX NUT
61	713452	4	"WARNING" LABEL
62	713457	2	5/16" X 1" CLOSED EYE BOLT

Pulley & Belt Kits

PULLEY & BELT KITS FOR 1-LINE SUSPENDED MODEL DRIVE HOPPERS						
PART NUMBER	CHAIN SPEED		ELECTRIC INFO	MOTOR SHAFT DIAMETER	SHIP WEIGHT	
	FEET/MINUTE	METERS/MINUTE			LBS.	KGS.
420740	60	18	60 Hz	5/8" (16mm)	4.0	1.8
420748	60	18	60 Hz	7/8" (22mm)	4.5	2.0
420741	60	18	50 Hz	5/8" (16mm)	4.0	1.8
420749	60	18	50 Hz	7/8" (22mm)	4.5	2.0
420742	90	27	60 Hz	5/8" (16mm)	4.0	1.8
420759	90	27	60 Hz	7/8" (22mm)	4.5	2.0
420743	90	27	50 Hz	5/8" (16mm)	4.0	1.8
420765	90	27	50 Hz	7/8" (22mm)	4.5	2.0
420744	120	36	60 Hz	5/8" (16mm)	4.0	1.8
420748	120	36	60 Hz	7/8" (22mm)	4.5	2.0
420745	120	36	50 Hz	5/8" (16mm)	4.0	1.8
420749	120	36	50 Hz	7/8" (22mm)	4.5	2.0
420746	25-40	7.5-12	60 Hz	5/8" (16mm)	4.0	1.8
420747	25-30	6-9	50 Hz	5/8" (16mm)	4.5	2.0

PULLEY & BELT KITS FOR 1-LINE FLOOR MODEL DRIVE HOPPERS						
PART NUMBER	CHAIN SPEED		ELECTRIC INFO	MOTOR SHAFT DIAMETER	SHIP WEIGHT	
	FEET/MINUTE	METERS/MINUTE			LBS.	KGS.
415070	60	18	60 Hz	5/8" (16mm)	4.0	1.8
415103	60	18	60 Hz	7/8" (22mm)	4.5	2.0
415082	60	18	50 Hz	5/8" (16mm)	4.0	1.8
415146	60	18	50 Hz	7/8" (22mm)	4.5	2.0
415097	80	24	60 Hz	5/8" (16mm)	4.0	1.8
415113	80	24	60 Hz	7/8" (22mm)	4.5	2.0
415147	90	27	60 Hz	5/8" (16mm)	4.0	1.8
415134	90	27	60 Hz	7/8" (22mm)	4.5	2.0
415084	90	27	50 Hz	5/8" (16mm)	4.0	1.8
415153	90	27	50 Hz	7/8" (22mm)	4.5	2.0
415074	120	36	60 Hz	5/8" (16mm)	4.0	1.8
415118	120	36	60 Hz	7/8" (22mm)	4.5	2.0
415086	120	36	50 Hz	5/8" (16mm)	4.0	1.8
415132	120	36	50 Hz	7/8" (22mm)	4.5	2.0
415076	25-40	7.5-12	60 Hz	5/8" (16mm)	4.0	1.8
415088	40	12	50 Hz	5/8" (16mm)	4.0	1.8
415094	25	7.5	50 Hz	5/8" (16mm)	4.5	2.0

PULLEY & BELT KITS FOR 2-LINE & 4-LINE SUSPENDED & FLOOR MODEL DRIVE HOPPERS						
PART NUMBER	CHAIN SPEED		ELECTRIC INFO	MOTOR SHAFT DIAMETER	SHIP WEIGHT	
	FEET/MINUTE	METERS/MINUTE			LBS.	KGS.
415071	60	18	60 Hz	5/8" (16mm)	4.0	1.8
415624	60	18	60 Hz	7/8" (22mm)	4.5	2.0
415083	60	18	50 Hz	5/8" (16mm)	4.0	1.8
415151	60	18	50 Hz	7/8" (22mm)	4.5	2.0
415107	80	24	60 Hz	5/8" (16mm)	4.0	1.8
415114	80	24	60 Hz	7/8" (22mm)	4.5	2.0
415073	90	27	60 Hz	5/8" (16mm)	4.0	1.8
415126	90	27	60 Hz	7/8" (22mm)	4.5	2.0
415085	90	27	50 Hz	5/8" (16mm)	4.0	1.8
415161	90	27	50 Hz	7/8" (22mm)	4.5	2.0
415075	120	36	60 Hz	5/8" (16mm)	4.0	1.8
415162	120	36	60 Hz	7/8" (22mm)	4.5	2.0
415087	120	36	50 Hz	5/8" (16mm)	4.0	1.8
415121	120	36	50 Hz	7/8" (22mm)	4.5	2.0
415077	25-40	7.5-12	60 Hz	5/8" (16mm)	4.0	1.8
415089	40	12	50 Hz	5/8" (16mm)	4.0	1.8
415095	25	7.5	50 Hz	5/8" (16mm)	4.0	1.8



Farm Duty Motors - For Belt Drive Units

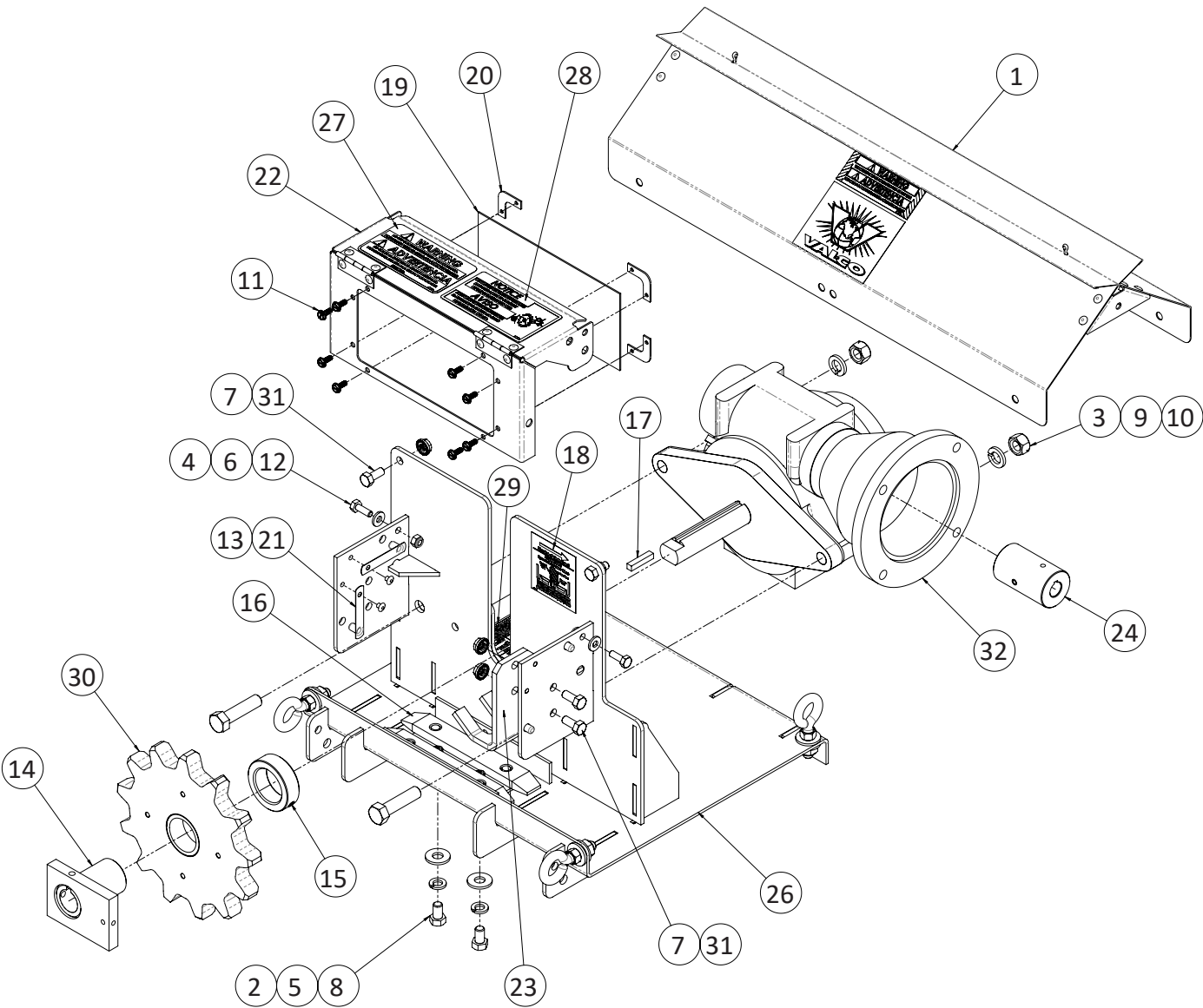
60 HZ - 1 PHASE										
PART NUMBER	HORSE-POWER	HZ	1 OR 3 PHASE	MOTOR VOLTAGE	MOTOR RPM	ENCLOSURE	NEMA FRAME	SHAFT SIZE	THERMO PROTECT	SHIP WEIGHT
920402	.75	60	1	115/230	1725	TEFC	56	5/8"	Manual	27.0
920403	1.0	60	1	115/230	1725	TEFC	56	5/8"	Manual	34.0
920404	1.5	60	1	115/230	1725	TEFC	56H	5/8"	Manual	44.0
920405	2.0	60	1	115/230	1725	TEFC	56HZ	7/8"	Manual	40.0
410129	3.0	60	1	230	3450	Drip Proof	56Y	5/8"	Manual	35.0

60 HZ - 3 PHASE										
PART NUMBER	HORSE-POWER	HZ	1 OR 3 PHASE	MOTOR VOLTAGE	MOTOR RPM	ENCLOSURE	NEMA FRAME	SHAFT SIZE	THERMO PROTECT	SHIP WEIGHT
920442	.75	60	3	230/460	1725	TEFC	56	5/8"	Manual	24.0
920443	1.0	60	3	230/460	1745	TEFC	56	5/8"	Manual	26.0
920444	1.5	60	3	230/460	1745	TEFC	56H	5/8"	Manual	30.0
920445	2.0	60	3	230/460	1745	TEFC	145T	7/8"	None	36.0
920419	3.0	60	3	208-230/460	3450	TEFC	145T	7/8"	None	45.0

50 HZ - 1 PHASE										
PART NUMBER	HORSE-POWER	HZ	1 OR 3 PHASE	MOTOR VOLTAGE	MOTOR RPM	ENCLOSURE	NEMA FRAME	SHAFT SIZE	THERMO PROTECT	SHIP WEIGHT
920552	.75	50	1	110/220	1425	TEFC	56	5/8"	None	23.0
920553	1.0	50	1	110/220	1425	TEFC	56H	5/8"	None	25.0
920554	1.5	50	1	110/220	1500	TEFC	56H	5/8"	Manual	30.0
920555	2.0	50	1	220	1500	TEFC	182T	1-1/8"	Manual	85.0
410675	3.0	50	1	220	3000	IP22	56H	5/8"	None	47.0

50 HZ - 3 PHASE										
PART NUMBER	HORSE-POWER	HZ	1 OR 3 PHASE	MOTOR VOLTAGE	MOTOR RPM	ENCLOSURE	NEMA FRAME	SHAFT SIZE	THERMO PROTECT	SHIP WEIGHT
920562	.75	50/60	3	208-220/440 or 190/380V	1725/180	TEFC	56	5/8"	None	24.0
920563	1.0	50/60	3	208-220/440 or 190/380V	1725/180	TEFC	56H	5/8"	None	30.0
920564	1.5	50/60	3	208-220/440 or 190/380V	1725/180	TEFC	56H	5/8"	None	34.0
920565	2.0	50/60	3	208-220/440 or 190/380V	1725/180	TEFC	56C	5/8"	None	30.0
920419	3.0	50/60	3	208-220/440 or 190/380V	2875	TEFC	145T	7/8"	None	45.0

Flat Chain Independent Direct Drive Units: Exploded Parts Drawing



Flat Chain Independent Direct Drive Units: Parts List

ITEM #	PART #	QTY	DESCRIPTION
420250 (60/120 FPM) DIRECT DRIVE UNIT, LESS THAN 1.5 HP			
-	420190	1	1 LINE, 60/120 FPM, DIRECT DRIVE KIT, LESS THAN 1.5HP
1	420232	1	FLAT CHAIN MOTOR COVER FOR INDEPENDENT DRIVE
420251 (90 FPM) DIRECT DRIVE UNIT, LESS THAN 1.5 HP			
-	420290	1	1 LINE, 90 FPM, DIRECT DRIVE KIT, LESS THAN 1.5HP
1	420232	1	FLAT CHAIN MOTOR COVER FOR INDEPENDENT DRIVE
420252 (60/120 FPM) DIRECT DRIVE UNIT, 1.5 HP			
-	420288	1	1 LINE, 60/120 FPM, DIRECT DRIVE KIT, 1.5HP OR GREATER
1	420232	1	FLAT CHAIN MOTOR COVER FOR INDEPENDENT DRIVE
420253 (90 FPM) DIRECT DRIVE UNIT, 1.5 HP			
-	420289	1	1 LINE, 90 FPM, DIRECT DRIVE KIT, 1.5HP OR GREATER
1	420232	1	FLAT CHAIN MOTOR COVER FOR INDEPENDENT DRIVE

ITEM #	PART #	QTY	DESCRIPTION
420190, 429290, 420288 & 420289 DRIVE KITS: COMMON PARTS			
2	010253	2	3/8" SPLIT LOCK WASHER
3	010255	2	1/2" SPLIT LOCK WASHER
4	010424	2	1/4" FLAT WASHER
5	010430	2	3/8" FLAT WASHER
6	010617	2	1/4-20 X 3/4" HEX CAP SCREW BOLT
7	010643	2	5/16" X 3/4" HEX HEAD BOLT
8	010661	2	3/8" X 5/8" HEX HEAD BOLT
9	011117	2	1/2-13 HEX NUT
10	012268	2	1/2-13 X 2" HEX HEAD BOLT
11	012698	8	10-24 X 1/2" SCREW
12	012793	2	1/4-20 HEX LOCK NUT
13	012803	4	#64 X 3/16" POP RIVET
14	410416	1	SHEAR PIN ASSEMBLY HUB
15	410417	1	1-1/2" SET COLLAR
16	410419	1	POWER SHOE ASSEMBLY
17	410431	1	1/4" X 1/4" X 1-1/4" KEY
18	410442	1	SPROCKET ALIGNMENT DECAL
19	420186	1	DRIVE UNIT WINDOW
20	420199	4	WINDOW BRACKET
21	420225	4	SNAP BUTTON
22	420229	1	SPROCKET GUARD ASSEMBLY
23	420234	1	CHAIN STRIPPER
24	420235	1	INPUT SLEEVE
25	420238	1	INDEPENDENT DRIVE HARDWARE BAG
26	420292	1	INDEPENDENT DIRECT DRIVE WELDMENT
27	420719	1	SPROCKET COVER WARNING LABEL
28	420721	1	SHEAR PIN HUB CAUTION LABEL
29	420722	1	GEAR REDUCER OIL LABEL
30	421950	1	DRIVE SPROCKET ASSEMBLY
31	501441	2	5/16-18 HEX FLANGE NUT
420190 1 LINE, 60/120 FPM, DIRECT DRIVE KIT , LESS THAN 1.5HP			
32	420181	1	REDUCER, WORM, 55:1, 1HP
420290 1 LINE, 90 FPM, DIRECT DRIVE KIT, LESS THAN 1.5HP			
32	420182	1	REDUCER, WORM, 73:1, 1HP
420288 1 LINE, 60/120 FPM, DIRECT DRIVE KIT, 1.5HP OR GREATER			
32	420249	1	REDUCER, WORM, 52:1, 2HP
420289 1 LINE, 90 FPM, DIRECT DRIVE KIT, 1.5HP OR GREATER			
32	420254	1	REDUCER, WORM, 70:1, 2HP

Independent Direct Drives - Motors

MOTORS FOR 60 FPM CHAIN SPEED			
PART NUMBER	ITEM DESCRIPTION	SHIP WEIGHT	
		LBS.	KGS.
420248	.75 HP - 60 HZ - SINGLE PHASE - 1725 RPM - 115/208-230V	28.8	13.1
611032	1.0 HP - 60 HZ - SINGLE PHASE - 1725 RPM - 115/208-230V	32.0	14.6
420259	1.5 HP - 60 HZ - SINGLE PHASE - 1725 RPM - 115/208-230V	16.2	7.4
775064	2.0 HP - 60 HZ - SINGLE PHASE - 1725 RPM - 115/208-230V	13.9	6.3
420255	.75 HP - 60 HZ - 3-PHASE - 1725 RPM - 208/230V	11.8	5.4
612146	1.0 HP - 60 HZ - 3-PHASE - 1725 RPM - 190/380 / 230/460V	30.0	13.7
611450	1.5 HP - 60 HZ - 3-PHASE - 1725 RPM - 208-230/460 / 190/380V	35.0	15.9
420285	2.0 HP - 60 HZ - 3-PHASE - 1725 RPM - 208-230/460 / 190/380V	14.1	6.4
420263	.75 HP - 50 HZ - SINGLE PHASE - 1425 RPM - 110/220V	14.3	6.5
420264	1.0 HP - 50 HZ - SINGLE PHASE - 1425 RPM - 110/220V	14.9	6.8
420265	1.5 HP - 50 HZ - SINGLE PHASE - 1425 RPM - 110/220V	16.9	7.7
420268	.75 HP - 50 HZ - 3-PHASE - 1425 RPM - 220/380V	12.3	5.6
420269	1.0 HP - 50 HZ - 3-PHASE - 1425 RPM - 220/380V	12.3	5.6

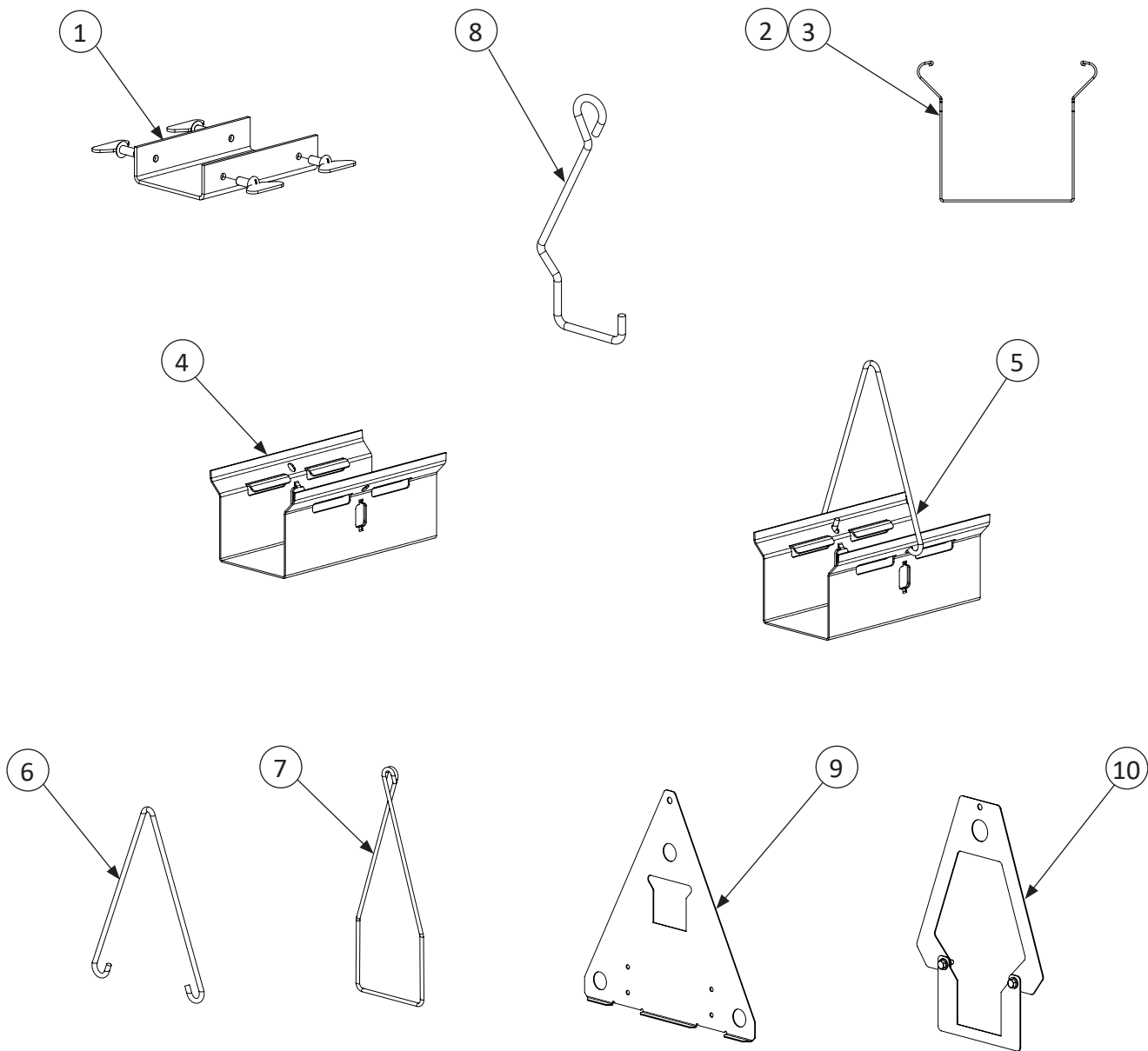
MOTORS FOR 90 OR 120 FPM CHAIN SPEED			
PART NUMBER	ITEM DESCRIPTION	SHIP WEIGHT	
		LBS.	KGS.
420246	.75 HP - 60 HZ - SINGLE PHASE - 3450 RPM - 115/208-230V	28.0	12.8
420245	1.0 HP - 60 HZ - SINGLE PHASE - 3450 RPM - 115/208-230V	28.0	12.8
420260	1.5 HP - 60 HZ - SINGLE PHASE - 3450 RPM - 115/208-230V	31.0	14.1
420283	2.0 HP - 60 HZ - SINGLE PHASE - 3450 RPM - 115/208-230V	41.0	18.6
420256	.75 HP - 60 HZ - 3-PHASE - 3450 RPM - 208-230/460V	24.0	10.9
420258	1.0 HP - 60 HZ - 3-PHASE - 3450 RPM - 208-230/460V	21.0	9.6
420262	1.5 HP - 50/60 HZ - 3-PHASE - 3450/2850 RPM - 190/380V / 208-230/460V	28.0	12.8
420284	2.0 HP - 60 HZ - 3-PHASE - 3450 RPM - 208-230/460V	36.0	16.4
	NOT AVAILABLE - 50HZ SINGLE PHASE MOTORS 2850 RPM USE 60 FPM CHAIN SPEED	NOT AVAILABLE	
420297	.75 HP - 50 HZ - 3-PHASE - 2850 RPM - 220/380V	24.0	10.9
420298	1.0 HP - 50 HZ - 3-PHASE - 2850 RPM - 220/380V	26.0	11.8
420262	1.5 HP - 50/60 HZ - 3-PHASE - 3450/2850 RPM - 190/380V / 208-230/460V	28.0	12.8

Extension Hoppers & Covers

SUSPENDED MODEL HOPPERS			
PART NUMBER	ITEM DESCRIPTION	SHIP WEIGHT	
		LBS.	KGS.
420551	EXTENSION HOPPER WITH TOP COVER FOR 1-LINE HOPPERS - 220 LB. (100KG) CAPACITY	35.0	15.9
410624	EXTENSION HOPPER WITH TOP COVER FOR 2-LINE HOPPERS - 220 LB. (100KG) CAPACITY	33.0	15.4
410625	EXTENSION HOPPER WITH TOP COVER FOR 4-LINE HOPPERS - 220 LB. (100KG) CAPACITY	22.0	10.0

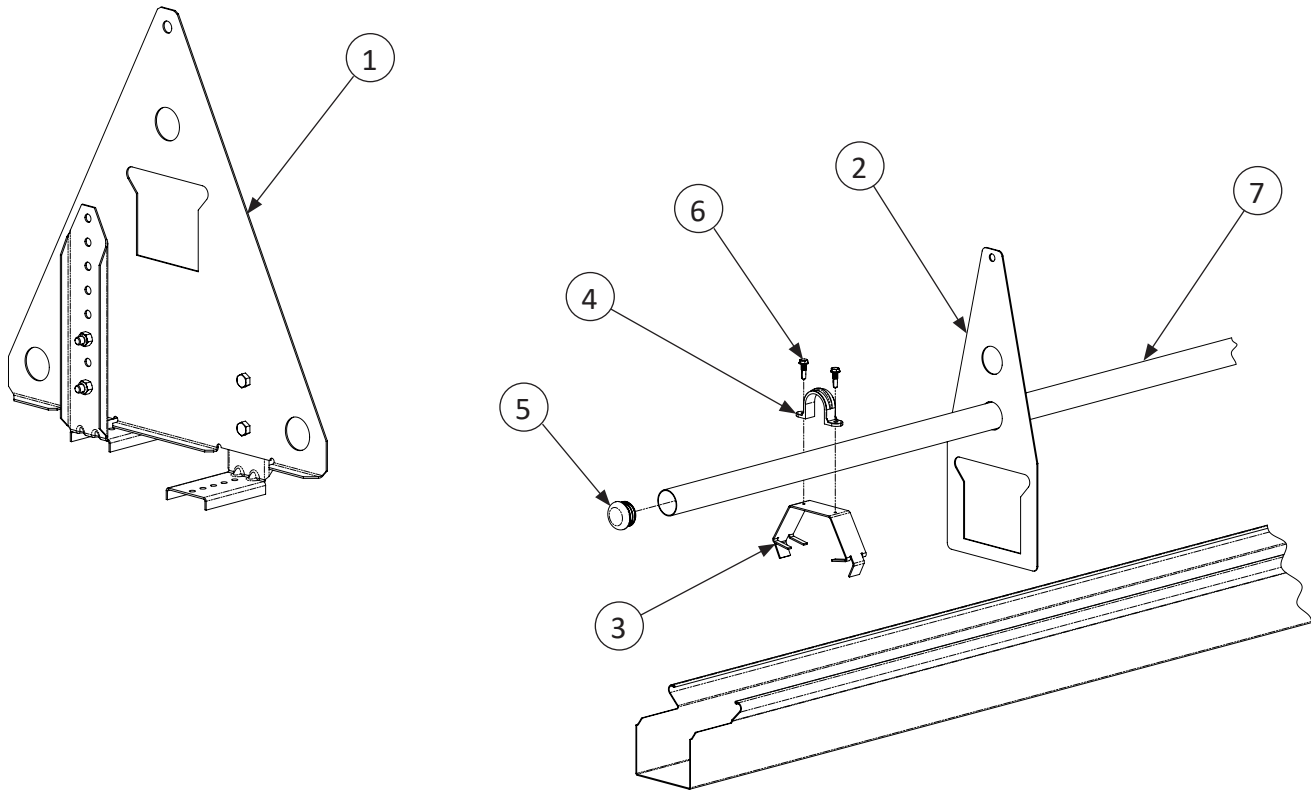
FLOOR MODEL DRIVE HOPPERS			
PART NUMBER	ITEM DESCRIPTION	SHIP WEIGHT	
		LBS.	KGS.
411027	COVER FOR 400 POUND (182KG) HOPPER	19.0	8.6

Hen Trough & Accessories



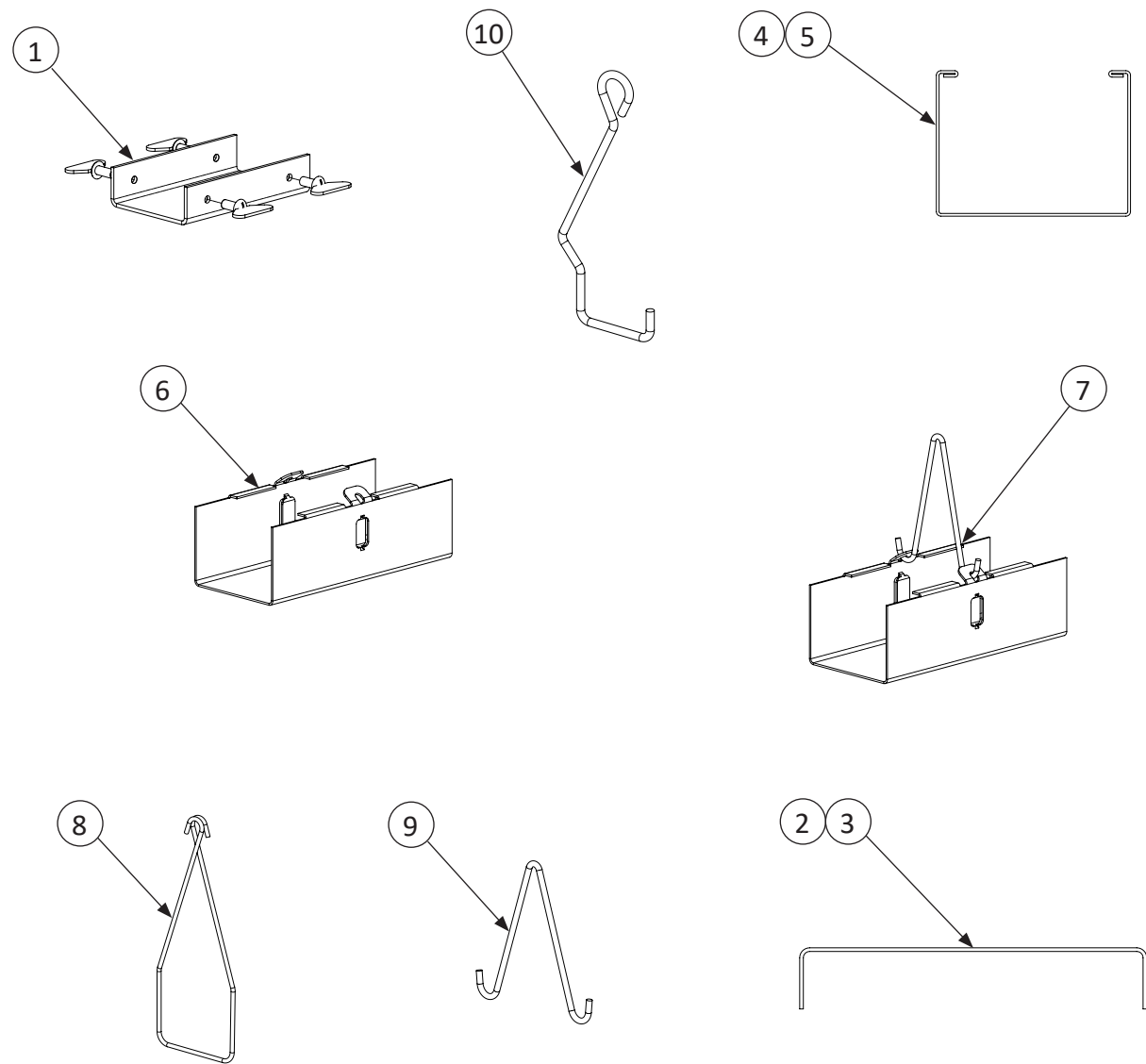
ITEM #	PART #	DESCRIPTION
HEN TROUGH (MEDIUM WIDE) - COUPLERS - HANGERS		
1	410070	TROUGH CLEAN-OUT COVER
2	410300	10" HEN TROUGH
3	410308	12" HEN TROUGH
4	410328	8" HEN TROUGH COUPLER LESS HANGER
5	410329	8" HEN TROUGH COUPLER WITH HANGER
6	410465	WIRE HANGER FOR HEN TROUGH COUPLER
7	410488	HI-PRO WIRE HANGER FOR HEN TROUGH
8	411036	OPEN WIRE HANGER
9	630297	1 PIECE HEN TROUGH HANGER BRACKET WITH 3 PERCH TUBE HOLES
10	630291	2 PIECE HEN TROUGH HANGER KIT WITH PERCH TUBE HOLE

Hen Trough & Accessories - continued



ITEM #	PART #	DESCRIPTION
HEN PERCH SUPPORT ACCESSORIES		
1	630295	TROUGH SUPPORT, FLOOR W/ 3 PERCH TUBES
2	630429	PERCH HANGER, HEN TROUGH, 1.163" TUBE
3	630430	PERCH SUPPORT, HEN TROUGH, 1.163" TUBE
4	630431	STRAP FOR 1.163" TUBE
5	631233	END PLUG, TUBE CAP
6	690142	#12-24 X 7/8" TEK SCREW FOR STRAP (2 per strap)
7	VC316	1.163" TUBE, 10 FT. LONG W/ COUPLER (incl. VC318 tube & VC317 coupler)

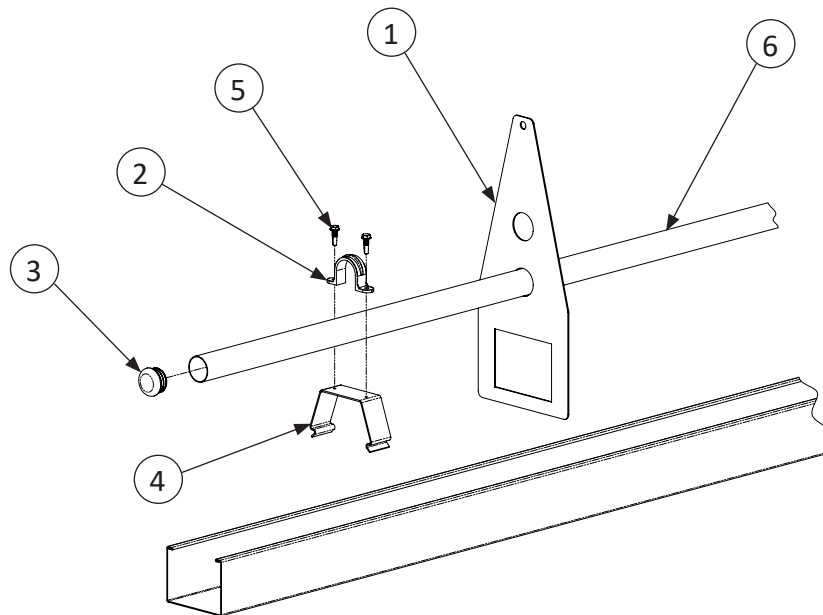
Pullet Trough & Accessories



ITEM #	PART #	DESCRIPTION
PULLET TROUGH (REGULAR) - COUPLERS - HANGERS		
1	410070	TROUGH CLEAN-OUT COVER
2	410084	10" TROUGH COVER
3	410085	12" TROUGH COVER
4	410310	10" PULLET TROUGH
5	410322	12" PULLET TROUGH
6	410377	8" PULLET TROUGH COUPLER LESS HANGER
7	410378	8" PULLET TROUGH COUPLER WITH HANGER
8	410466	INTERMEDIATE HANGER FOR PULLET TROUGH
9	410467	HANGER FOR PULLET TROUGH COUPLER
10	411036	OPEN WIRE HANGER

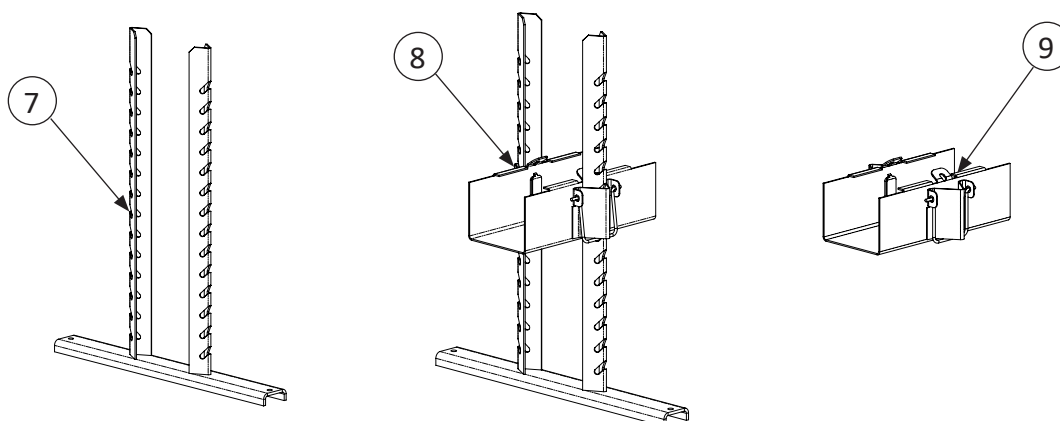


Pullet Trough & Accessories - continued



ITEM #	PART #	DESCRIPTION
PULLET PERCH SUPPORT ACCESSORIES		
1	420089	PERCH HANGER, PULLET TROUGH, 1.163" TUBE
2	630431	STRAP FOR 1.163" TUBE
3	631233	END PLUG, TUBE CAP
4	631441	PERCH SUPPORT, PULLET TROUGH, 1.163" TUBE
5	690142	#12-24 X 7/8" TEK SCREW FOR STRAP (2 per strap)
6	VC316	1.163" TUBE, 10 FT. LONG W/ COUPLER (incl. VC318 tube & VC317 coupler)

Floor Trough Couplers



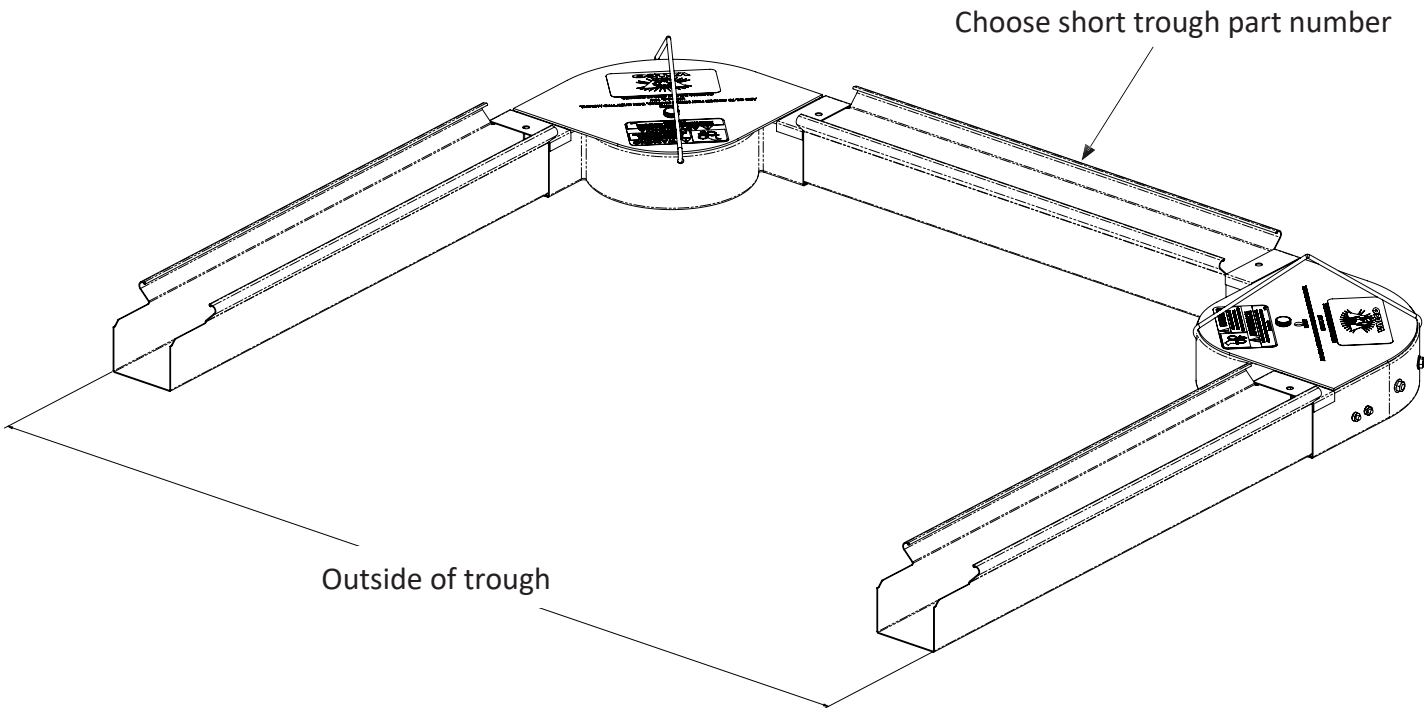
ITEM #	PART #	DESCRIPTION
FLOOR TROUGH COUPLERS		
7	410361	FLOOR STAND FOR FLOOR TROUGH COUPLER
8	420318	8" FLOOR TROUGH COUPLER W/ FLOOR STAND
9	420320	8" FLOOR TROUGH COUPLER W/ CLIPS

Short Hen & Pullet Troughs

Notes regarding selection of short trough sections

Choose the part numbers below for shorter length hen and pullet troughs. These can be used at the ends of lines and will come with factory cut ends for ease of installation. Choose the short trough part number according to outside of trough dimension and hen or pullet trough. Be careful to consider hopper placement. Some hoppers cannot be placed directly opposite from each other depending on the trough outside dimension. Reference below recommendations. If hoppers cannot be placed directly opposite, they can fit offset from one another.

- 3 ft. outside:** 1 line suspended hoppers will fit opposite each other with gap between. 2 line & 4 line suspended hoppers will not. All floor hoppers will not.
- 4 ft. outside:** 1 line & 2 line suspended hoppers will fit opposite each other with gap between. 4 line suspended hoppers will not. All floor hoppers will not.
- 5 ft. outside:** All suspended hoppers will fit opposite each other. All floor hoppers will not.

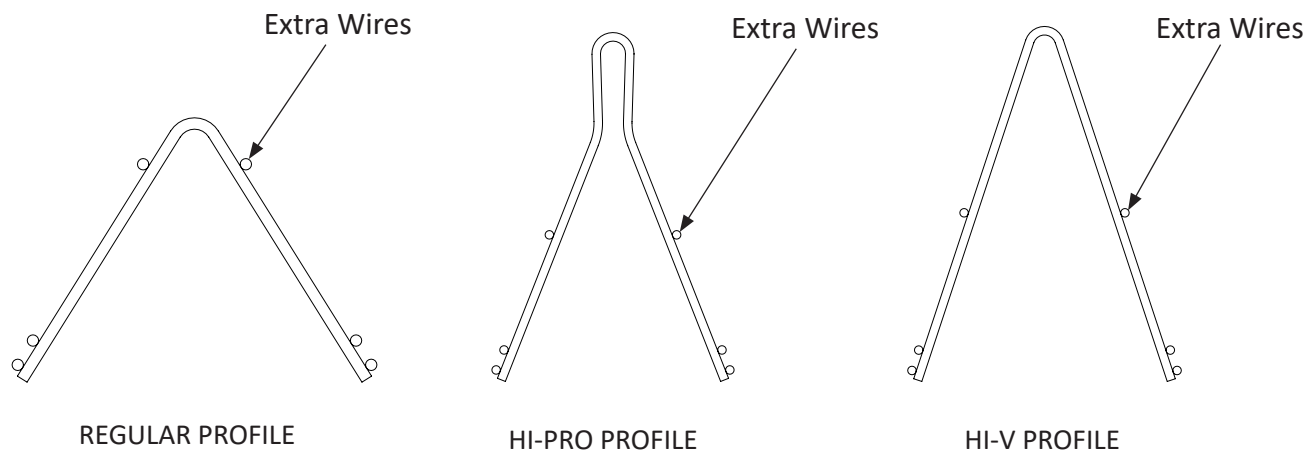


PART #	DESCRIPTION
SHORT HEN TROUGH SECTIONS	
420326	HEN TROUGH, FOR 4 ft. OUTSIDE OF TROUGH DIMENSIONS, 29.75 in. (75.6cm) LONG
420327	HEN TROUGH, FOR 5 ft. OUTSIDE OF TROUGH DIMENSIONS, 41.75 in. (106cm) LONG

PART #	DESCRIPTION
SHORT PULLET TROUGH SECTIONS	
420328	PULLET TROUGH, FOR 3 ft. OUTSIDE OF TROUGH DIMENSIONS, 17.75 in. (45.1cm) LONG
420329	PULLET TROUGH, FOR 4 ft. OUTSIDE OF TROUGH DIMENSIONS, 29.75 in. (75.6cm) LONG
420330	PULLET TROUGH, FOR 5 ft. OUTSIDE OF TROUGH DIMENSIONS, 41.75 in. (106.0cm) LONG



Wire Grills for Hen & Pullet Trough



PART #	DESCRIPTION
GRILL END CAPS	
410484	END CAP FOR REGULAR PROFILE HEN TROUGH GRILLS
410394	END CAP FOR HI-PRO PROFILE HEN TROUGH GRILLS
410399	END CAP FOR HI-V PROFILE HEN TROUGH GRILLS
410485	END CAP FOR REGULAR PROFILE PULLET TROUGH GRILLS

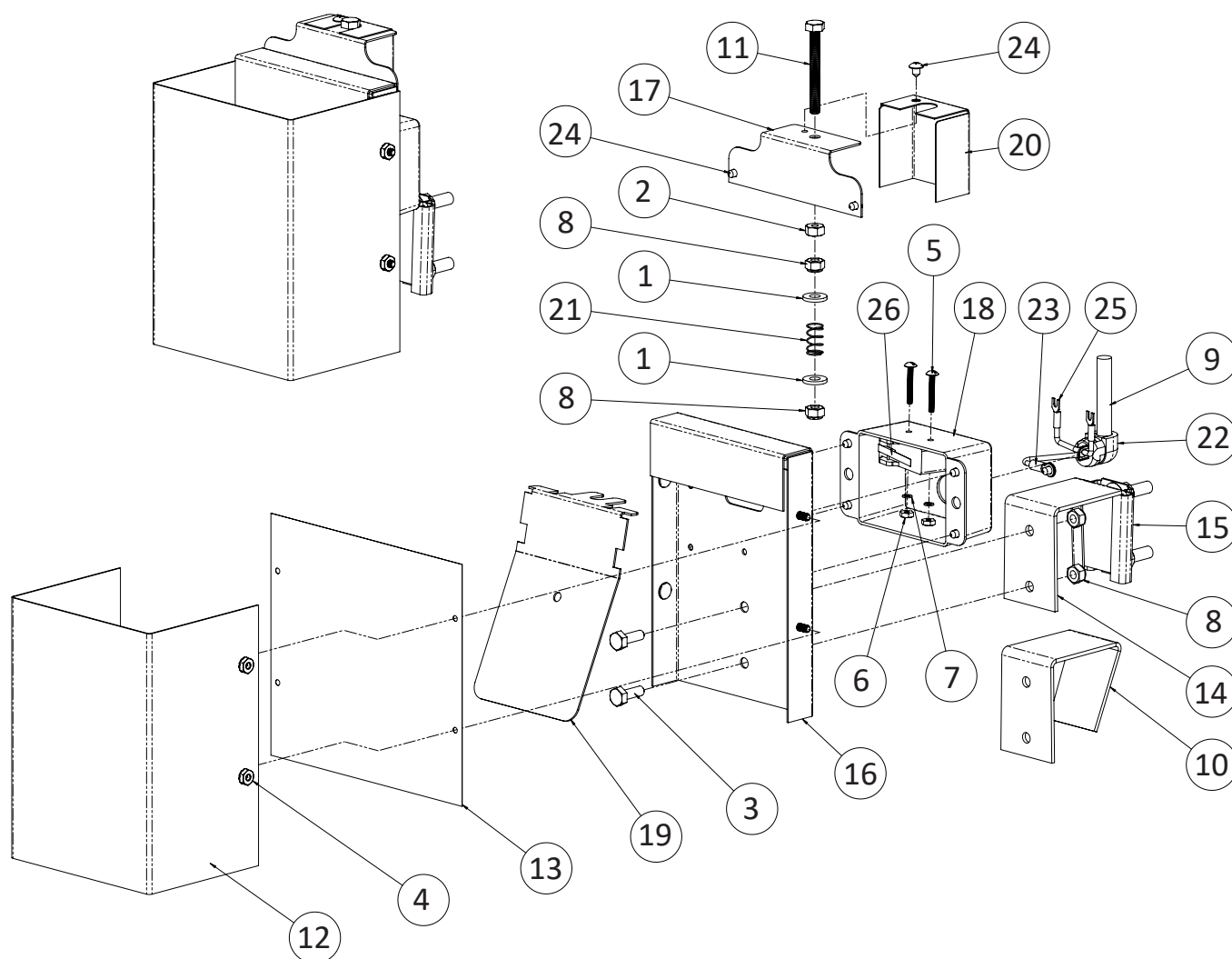
Contact VAL-CO customer service for a complete listing of grill spacings & part numbers.



720097: Mechanical Hopper Level Switch - Exploded Drawing & Parts List

ITEM #	PART #	QTY	DESCRIPTION
720097 MECH. HOPPER LEVEL SWITCH - PARTS LIST			
1	010424	2	1/4" SAE FLAT WASHER
2	010602	1	1/4-20 FINISHED HEX NUT
3	010617	2	1/4-20 X 3/4" HEX HEAD BOLT
4	012408	4	#10-24 HEX KEP NUT
5	012570	2	#6-32 X 1" RD HD SCREW
6	012731	2	#6-32 MACHINE NUT
7	012732	2	#6 LOCKWASHER
8	012793	4	1/4-20 NYLOCK NUT
9	412381	8	14/3 BLACK SJTOW WIRE
10	451017	1	67 DEG HANGER BRACKET
11	690159	1	1/4-20 X 2-1/4 HHTB SCREW
12	720015	1	SWITCH SHIELD
13	720018	1	7" X 6.5" DIAPHRAM

ITEM #	PART #	QTY	DESCRIPTION
720097 MECH. HOPPER LEVEL SWITCH - PARTS LIST			
14	720020	1	90 DEG HANGER BRACKET
15	720023	1	MOUNTING BRACKET
16	720092	1	BODY ASSY, ADJ SWITCH
17	720093	1	TENSIONER BRACKET
18	720094	1	ELECTRIC BOX, ADJ SWITCH
19	720095	1	SWITCH PLATE, ADJ SWITCH
20	720096	1	TENSIONER COVER
21	720098	1	.028 X .437 X .75 SPRING
22	720100	1	STRAIN RELIEF, 90 DEG FOR 14/3
23	730058	1	16-14AWG, #10 BLUE RING TERMINAL
24	730516	8	10-32 X 1/4 PPH SCREW
24	730521	2	16-14AWG, #6 BLUE SPADE TERMINAL
26	730989	1	MICRO SWITCH, SPDT 20A, 250VAC



Customer Service

Dealer Name: _____

Street / PO Box _____

City _____

State / Province _____

Zip / Postal _____

Phone _____

Fax _____

E-mail _____

Web site _____

Customer Service
210 E. Main Street
Coldwater, OH 45828
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