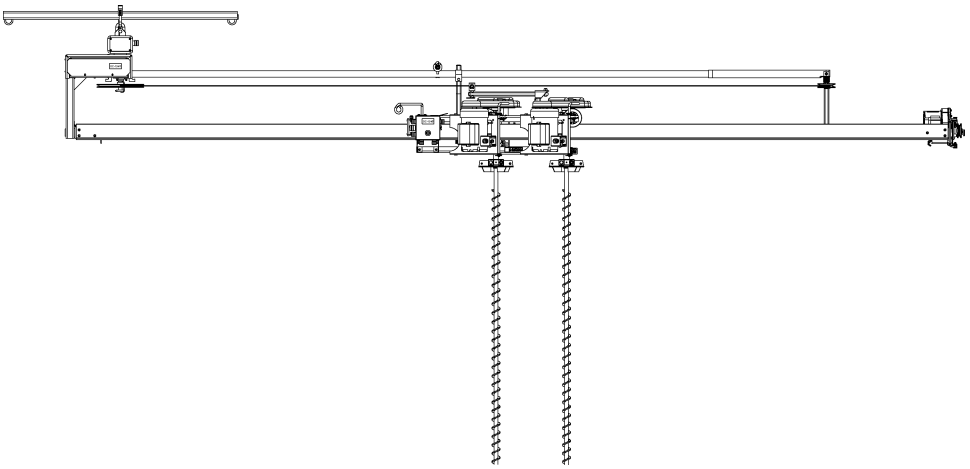


Design III Series Grain Stir-Ator

Owner's Manual

PNEG-1156ETL

Version: 2.0

Date: 10-20-16

PNEG-1156ETL

Installation Data

Date of Installation: _____

Serial Number: _____

Bin Size: _____

Auger Length: _____

Dealer Name: _____

All information, illustrations, photos and specifications in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

Contents

Safety Guidelines

Safety guidelines are general-to-specific safety rules that must be followed at all times. This manual is written to help you understand safe operating procedures and problems that can be encountered by the operator and other personnel when using this equipment. Save these safety guidelines for future reference.

As owner or operator, you are responsible for understanding the requirements, hazards, and precautions that exist and to inform others as required. Unqualified persons must stay out of the work area at all times.

Alterations must not be made to the equipment. Alterations can produce dangerous situations resulting in SERIOUS INJURY or DEATH.

This equipment must be installed in accordance with the current installation codes and applicable regulations, which must be carefully followed in all cases. Authorities having jurisdiction must be consulted before installations are made.

When necessary, you must consider the installation location relative to electrical, fuel and water utilities.

Personnel operating or working around equipment must read this manual. This manual must be delivered with equipment to its owner. Failure to read this manual and its safety instructions is a misuse of the equipment.

ST-0001-3

Cautionary Symbols Definitions

Cautionary symbols appear in this manual and on product decals. The symbols alert the user of potential safety hazards, prohibited activities and mandatory actions. To help you recognize this information, we use the symbols that are defined below.

DANGER — This symbol indicates an imminently hazardous situation which, if not avoided, **will result in serious injury or death.**

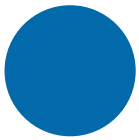
WARNING — This symbol indicates a potentially hazardous situation which, if not avoided, **can result in serious injury or death.**

CAUTION — This symbol indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury.**

NOTICE — This symbol is used to address practices not related to personal injury.

This symbol indicates a general hazard.

This symbol indicates a prohibited activity.



This symbol indicates a mandatory action.

ST-0005-2

Safety Cautions

Use Personal Protective Equipment

- Use appropriate personal protective equipment:

Eye Protection

Respiratory Protection

Foot Protection

Hearing Protection

Head Protection

Fall Protection

Hand Protection

- Wear clothing appropriate to the job.
- Remove all jewelry.
- Tie long hair up and back.

ST-0004-1

Follow Safety Instructions

- Carefully read all safety messages in this manual and safety signs on your machine. Keep signs in good condition. Replace missing or damaged safety signs. Be sure new equipment components and repair parts include the current safety signs. Replacement safety signs are available from the manufacturer.
- Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.
- If you do not understand any part of this manual or need assistance, contact your dealer.

ST-0002-1

Follow Safe Operating Procedures

- Do not operate Stir-Ator unless shut off chain has been properly installed and adjusted.
- Exercise care when starting Stir-Ator in a full bin of grain. Augers can be stuck in the grain causing damage to the Stir-Ator or bin.
- Operating the Stir-Ator during bin unloading can be beneficial to the unloading process as well as prevent auger damage.
- Do not bury the Stir-Ator. Burying the Stir-Ator will damage the bin and will void the warranty.
- Do not operate the Stir-Ator in an empty bin. Damage to the Stir-Ator and bin can result.
- When not operating the Stir-Ator for extended periods of time or in some cases while emptying the bin, it is the best to position the trolley at the bin wall to eliminate possible damage to the Stir-Ator or bin.

ST-0011-2

Stay Clear of Rotating Parts

- Do not enter the bin while the equipment is in operation.
- Entanglement in rotating augers will cause serious injury or death.
- Keep all guards and covers in place at all times.
- Lock-out power source before making adjustments, cleaning, or maintaining equipment.

ST-0008-2

Operate Motor Properly

- All electrical connections must be made in accordance with applicable local codes (National Electrical Code for the US, Canadian Electric Code, or EN60204 along with applicable European Directives for Europe). Make sure equipment and bins are properly grounded.
- Lock-out power before resetting motor overloads.
- Do not repetitively stop and start the drive in order to free a plugged condition. Jogging the drive in this manner can damage the equipment and drive components.

ST-0009-3

Maintain Equipment and Work Area

- Understand service procedures before doing work. Keep area clean and dry.
- Never service equipment while it is operating. Keep hands, feet, and clothing away from moving parts.
- Keep your equipment in proper working condition. Replace worn or broken parts immediately.

ST-0003-1

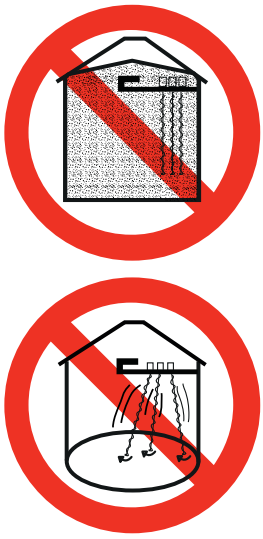
Avoid Falls During Service and Installation

- Use proper fall protection equipment.
- Anchor the bottom of any ladder being used in a bin or silo to prevent it from slipping.
- Use rubber pads or other anti-slip devices to prevent the ladder from slipping on the bin floor.
- Exercise caution when using a ladder to perform work in a partially filled grain bin. The ladder can sink into the grain and cause a fall.
- Because the equipment is suspended from chains in the center, be cautious of positioning the ladder against the equipment. The equipment can move or swing from the weight of a person climbing on the ladder.
- When setting a ladder against the equipment, a vise grip or other type of tie down must be used in the front and back of the track drive unit. This keeps the equipment from rolling or sliding around the bin while service work is being performed.
- During heavy service work, such as removing the auger drive, electric motors, or replacing electrical swivel, tying the ladder to the main frame or other solid component is advised.
- Never climb out on the main beam or augers from the ladder or roof manhole. The equipment can swing, causing a fall.
- Do not climb Stir-Ator down augers to make adjustments or repairs. Slipping can cause falling, bodily injury, or both.
- If an unusual amount of service work needs to be performed, consider lowering the unit onto sawhorses.

ST-0010-2

Use Stir-Ator Equipment Properly

- Exercise care when starting the Stir-Ator in a full bin. Augers can be stuck in the grain which may cause damage to the Stir-Ator or the bin.
- Burying the unit will damage the bin and will void the warranty.
- Do not operate the Stir-Ator in an empty bin. To test the unit in an empty bin, make sure no one is inside the bin, then turn power “on” and “off” immediately. Letting the Stir-Ator run in an empty bin may cause damage to the unit and the bin.



ST-0054-1

Safety Sign-Off Sheet

Below is a sign-off sheet that can be used to verify that all personnel have read and understood the safety instructions. This sign-off sheet is provided for your convenience and personal record keeping.

Date	*Employee Name*	*Supervisor Name*

ST-0007

The decals shown *below* must be displayed as shown.

Replacements are available upon request. Write to the following address:

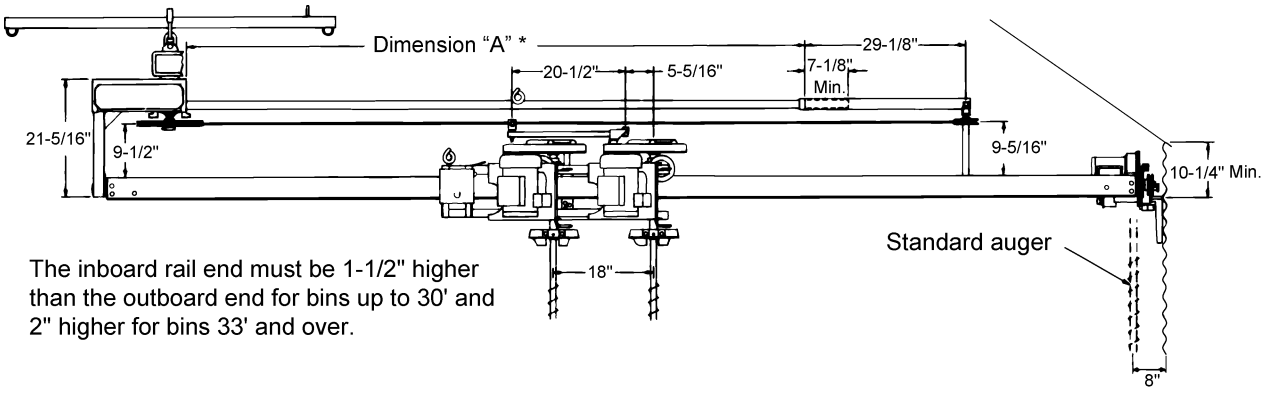
GSI Decals
1004 E. Illinois St.
Assumption, IL. 62510
Phone: 1-217-226-4421

Please note:

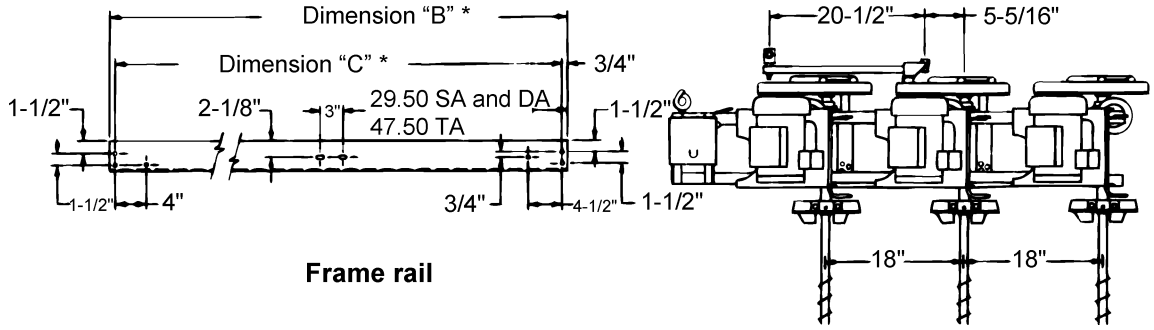
1. The decals shown *below* are not shown in actual size.
2. Keep decals wiped clean at all times.
3. Decals must be replaced if they are destroyed, missing, painted over or can no longer be read.

Location	Decal #	Decals	Description
Both sides of swivel box and above junction box cover.	**DC-1948**		**Decal, danger high voltage (LG), CE, CSA harmonized.**
Top of gear motor track frame.	**DC-1386**		**Decal, chain warning 2" x 4-1/2"**
Both sides of bottom motor mounting rail in trolley and both sides of optional offset.	**1067021**		**Decal, Warning**
On bin door covers (It should be located at any bin entry so it can seen and easily.)	**DC-GBC-1A**		**Danger Keep Clear of Augers**

Design III Stir-Ator Overall Dimensions



The inboard rail end must be 1-1/2" higher than the outboard end for bins up to 30' and 2" higher for bins 33' and over.



Frame rail

See Chart on Page 12 for Dimensions A, B and C.

Figure 3A

Design III Stir-Ator Overall Dimensions (Continued)

(See Figure 3A on Page 11.)

Bin Diameter	Dimension “A” DA	Dimension “A” TA	Dimension “B” DA and TA	Dimension “C” DA and TA
**18'	40-1/8"	NA	114-1/2"	113"
21'	58-1/8"	40-1/8"	132-1/2"	131"
24'	76-1/8"	58-1/8"	150-1/2"	149"
27'	94-1/8"	76-1/8"	168-1/2"	167"
30'	112-1/8"	94-1/8"	186-1/2"	185"
33'	130-1/8"	112-1/8"	204-1/2"	203"
36'	148-1/8"	130-1/8"	222-1/2"	221"
42'	NA	166-1/8"	258-1/2"	257"
48'	NA	202-1/8"	294-1/2"	293"

**18' and 21' Bin diameter available on DA only.

NOTE: *1. DA frame rails up to 36' are 4" x 3" x 1/4"*
2. DA frame rails 36' are 5" x 3" x 5/16"
3. TA frame rails are 5" x 3" x 5/16"

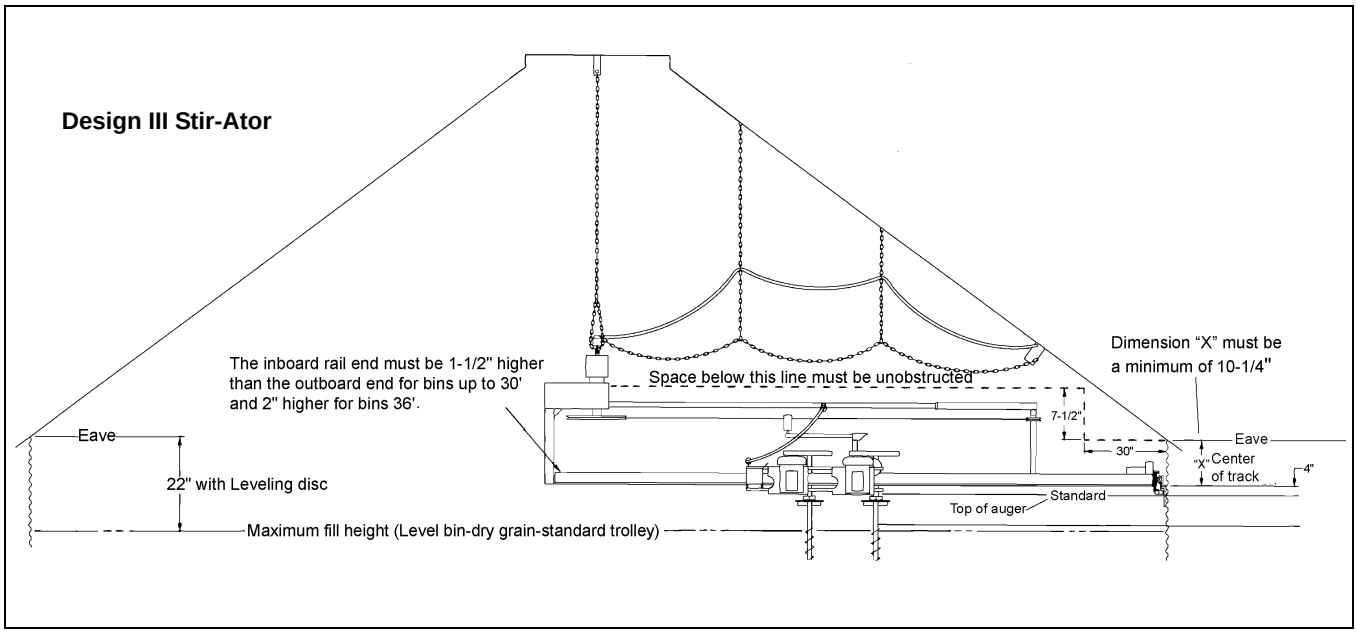


Figure 3B

Design III Stir-Ator Standard Equipment Shipping Weights

Stir-Ator weights and auger downpull are two (2) factors to consider when determining the extra stress that is placed on the drying bin wall and roof.

For total weight, add *Chart 1* and *Chart 2* weights together.

Chart 1
Stir-Ator Shipping Weights

Bin Size	Double Auger	Triple Auger
18'	770	-
21'	808	
24'	844	1070
27'	882	1112
30'	920	1150
33'	960	1200
36'	1014	1265
42'	-	1345
48'	-	1500

Additional Weight with Optional Equipment	
2 HP, 1 Phase Motor	33 Lbs. per Motor
18' Augers	5 Lbs. per Auger
20' Augers	10 Lbs. per Auger

Chart 2

Auger Downpull in Pounds		Initial Start-Up - Wet Grain
16' Auger	14' Grain	368 Lbs. per Auger
18' Auger	16' Grain	390 Lbs. per Auger
20' Auger	18' Grain	410 Lbs. per Auger
Auger Downpull in Pounds		**Normal Start-Up - Wet Grain**
16' Auger	14' Grain	207 Lbs. per Auger
18' Auger	16' Grain	241 Lbs. per Auger
20' Auger	18' Grain	300 Lbs. per Auger

Final Inspection Check List

1. READ THE STIR-ATOR OWNER'S MANUAL BEFORE INSTALLATION. MANY SERVICE PROBLEMS WILL BE AVOIDED IF THE STIR-ATOR IS PROPERLY INSTALLED.
2. Is there at least 10-1/4" clearance from the center of the track to the lowest part of the roof and roof braces?
3. Are the track splices correctly installed? Consult the diagrams in the owner's manual.
4. Is the trolley installed correctly with the arm pointing toward the center of the bin?
5. Are the bolt heads holding the yoke end to the frame on the inside on the frame rails and the cotter key spread on the pivot tube?
6. Is the suspension bar properly hung, LEVEL, with the end loops down? Is the 1/2" x 2" bolt holding suspension bar tightly secured? Is the lock nut on tee fitted properly?
7. Is the suspension bar positioned so that the bin "S" hook, to which the shut off chain is attached, is at a right angle to the switch box chain, as shown in *Figure 4F on Page 18*. THE POWER CORD MUST HAVE MORE SLACK THAN THE SHUT OFF CHAIN or the power cord could be torn out of the switch box if the Design III should malfunction and engage the shut off.
8. Is the frame of the Design III Stir-Ator approximately 1" higher at the center of the bin for each 18' of bin diameter?
9. Are augers 3" (for bins up to 30') or 4" (for bins 33' and larger) off the drying floor at bin wall? *(See Figure 4AT on Page 40.)*
10. Were the augers deburred with a file? Were the clamp bolts torqued to 140 foot-pounds? Was the roll pin installed correctly?
11. Did you note the instruction NOT to weld flighting at the top end of the auger?
12. Are you sure that the electrician connected the black and red - 1 phase wire to the disconnect box and the green wire to the ground? *(See Wiring Diagram on Page 70.)* BE SURE BIN IS GROUNDED.
13. Are you keeping a record of the serial number for each owner?
14. Did you make sure that the owner received and signed for his OWNER'S MANUAL and was instructed that reading and understanding the manual are essential for proper and efficient operation of the Stir-Ator?
15. Did you install the safety decals on the inside and outside of the walk-in door and the manhole cover?

Installation of Design III Stir-Ator

NOTE: *Prior to assembly and installation, consult the bin erection manual or manufacturer for any special unit hanging or support locations.*

1. Before assembling the bin, place the Design III Stir-Ator (without the augers) in the center of the bin floor. The top ring of the bin is then assembled in the usual way.

Track Installation

NOTE: *The wall track has two (2) different hole spacings: 18-15/16" on the double auger units and 12-5/8" on the triple auger units. (See Figure 4A.)*

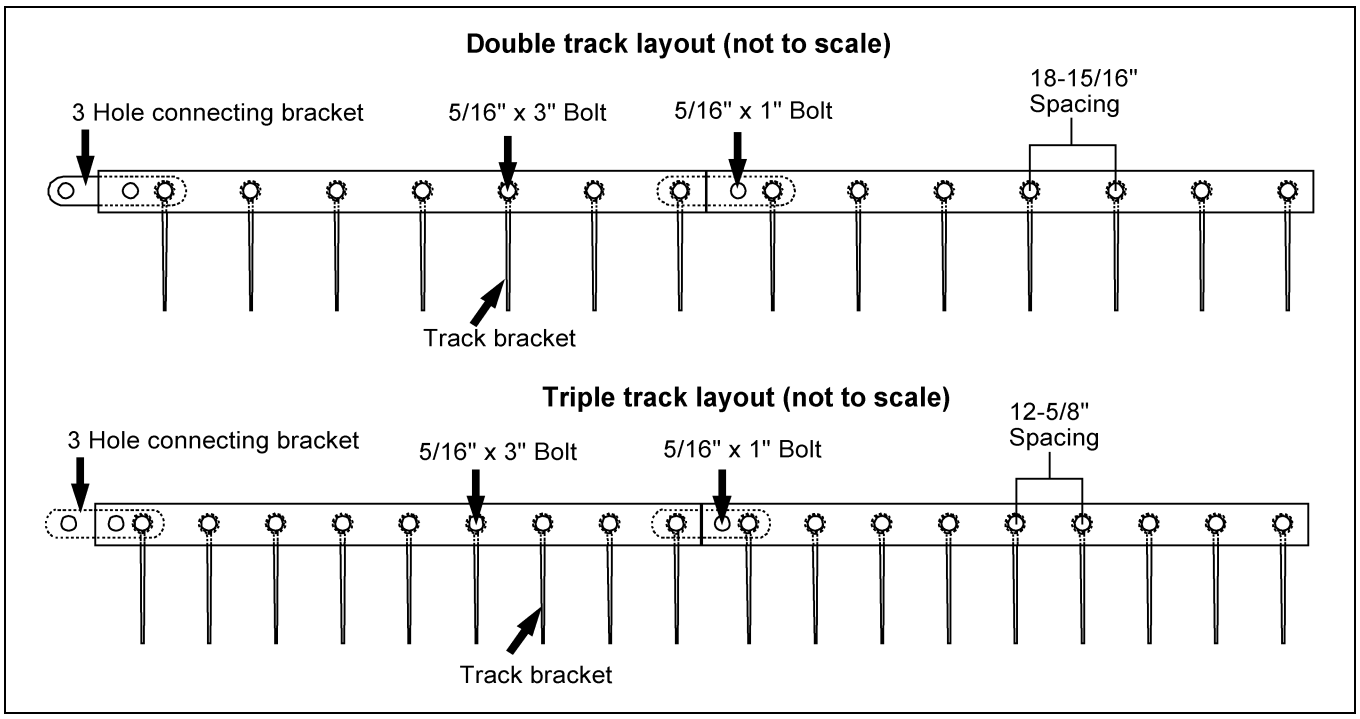


Figure 4A

1. The track is installed 10-1/4" distance from the eave of the bin to the center line of the track. Bins with steeply pitched or domed roofs may allow the 10-1/4" distance to be reduced; roofs with low or flat profiles may require more clearance. Reinforcements to the roof or roof ladder which might interfere with the movement of the Stir-Ator should be trimmed. *(See Figure 4B.)* If this cannot be done, the 10-1/4" distance from the eave to the track bolt center line must be **increased proportionately**.

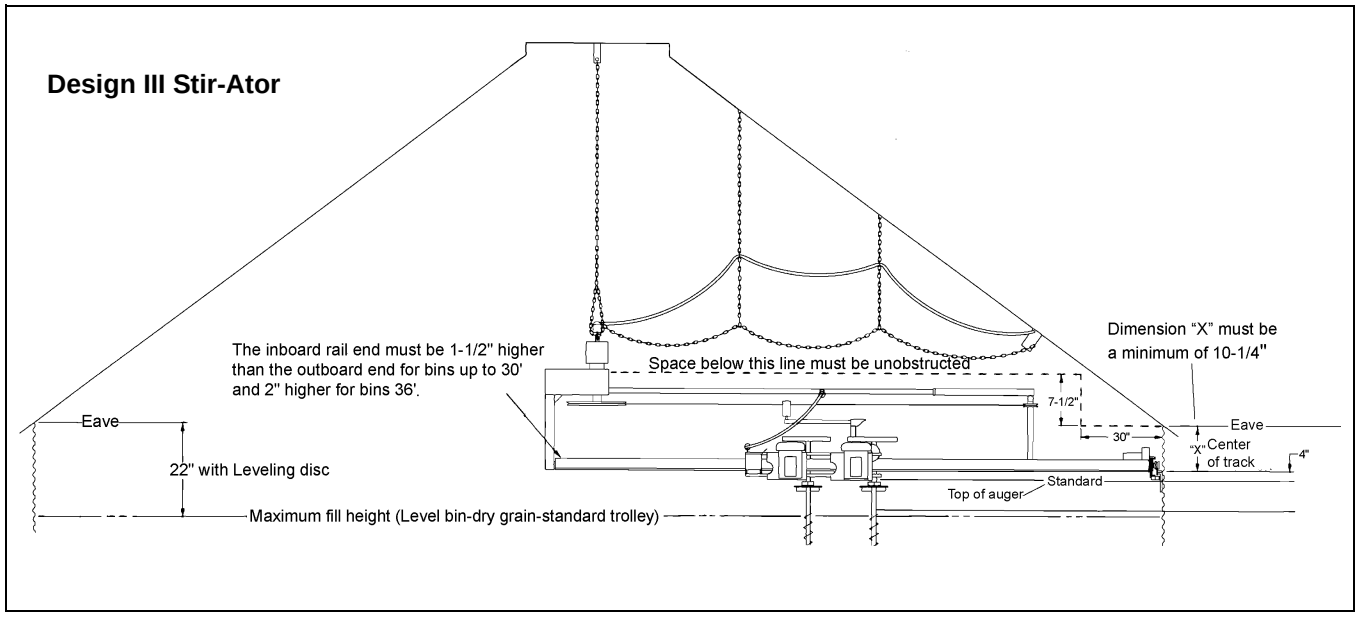


Figure 4B

2. The Stir-Ator wall track is installed as follows:

a. Fasten the 3 hole connector to track using a 5/16" x 1" bolt through the first hole and a 5/16" split locking washer and hex nut. (This bolt does not go through the bin.) Tighten with socket head on impact wrench. *(See Figure 4C.)*

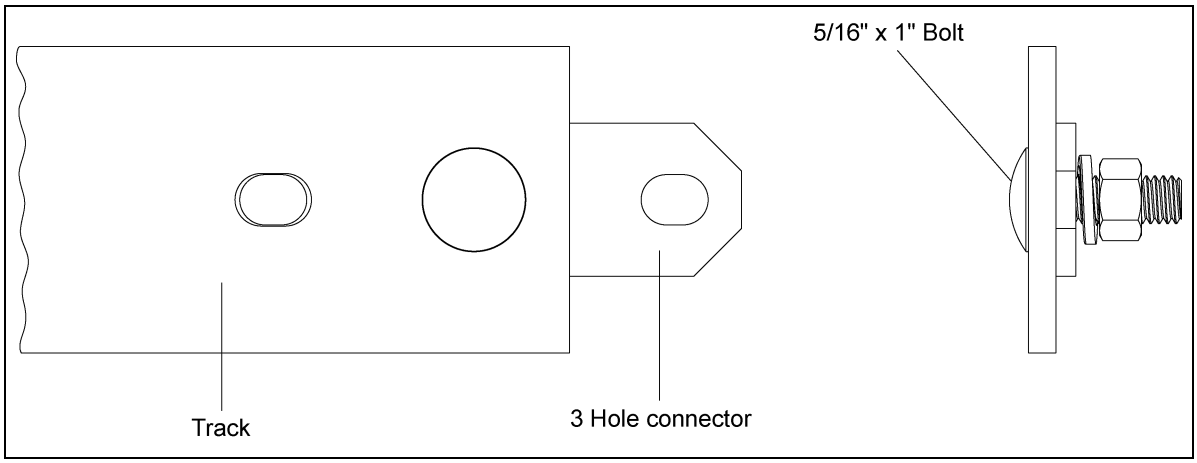


Figure 4C

b. Drill or punch 5/16" holes for the track bolts progressively around the bin wall, located 10-1/4" from the eave. Start with the double hole end of the track section, then drill or punch a hole through the bin wall at the second hole location. Attach the track piece to the wall using a 5/16" x 3" bolt. The bolt should go through the track, 3 hole connector, track bracket and bin wall. Fasten with a cup washer and a hex nut. Tighten with socket head on impact wrench. *(See Figure 4D.)*

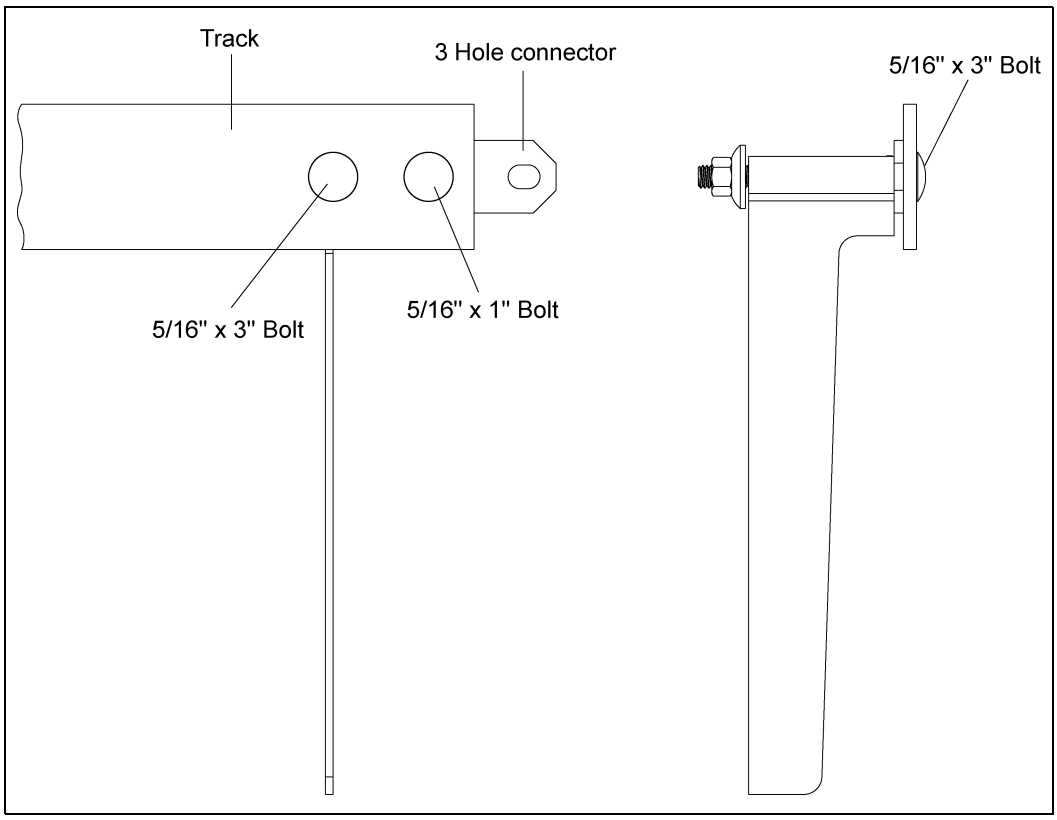


Figure 4D

c. Use the hole in the track as a guide to drill or punch the next hole and install an additional track bracket and bolt; repeat this process around the bin. Tighten bolts as you go. *(See Figure 4E.)*

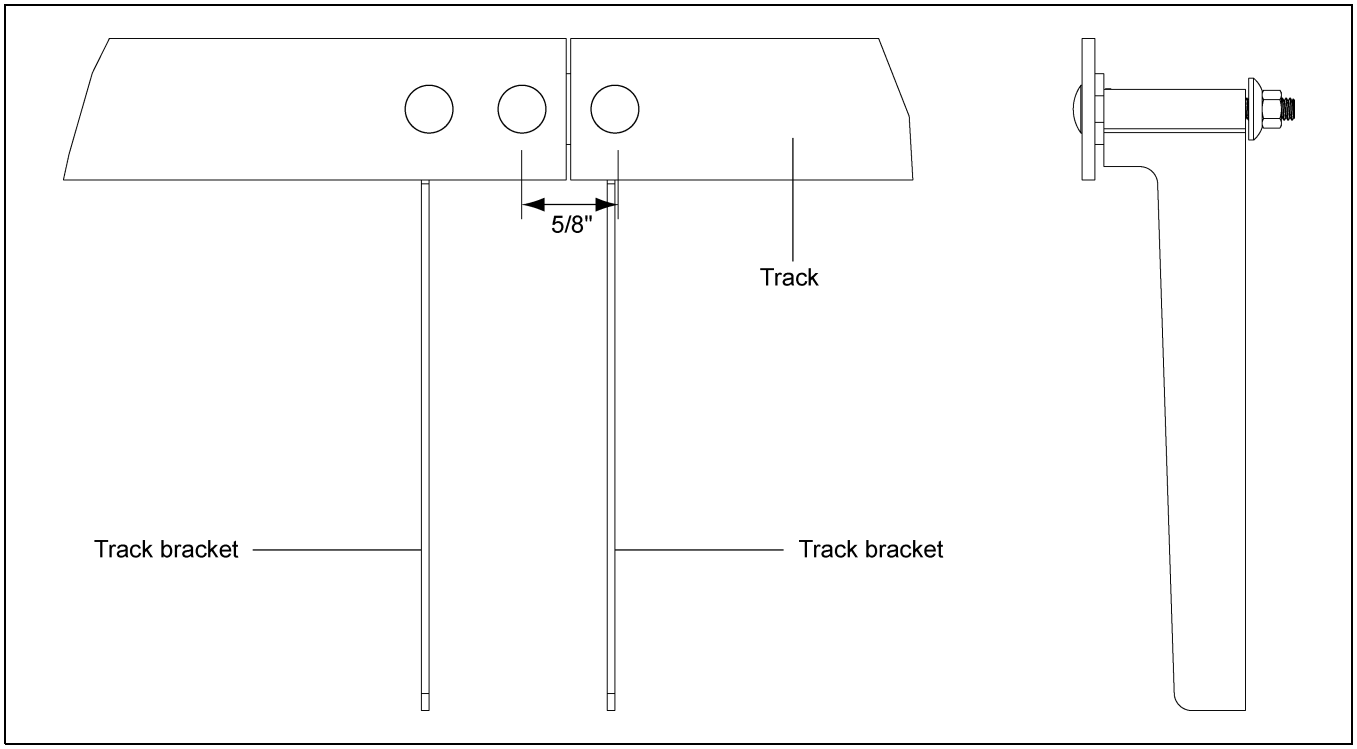


Figure 4E

NOTE: *If upon completing the circuit of the bin, the last section needed is less than 3' in length, shorten the preceding piece so that a 3' or longer section can be used as the final section. There should be slightly more material than required.*

3. The end of the last section should be cut to fit snugly against the starting end of the first length and a 5/16" hole drilled about 5/8" from the cut off end. All track joints should be aligned as smoothly as possible.

   The closer the augers run to the bin wall, the less chance of grain spoilage. Drying in cold weather can require the use of wall liners (not sold by GSI) or air tubes (sold separately) to minimize bin wall spoilage.

   NOTE: *After the wall track is installed, check clearance between the track and bin sheet splice bolts. Long bolts may catch on the Stir-Ator track wheel or pivot pin on the track unit. To alleviate this problem, cut off the bolts or reverse them.*

Suspension Chains

1. The bin roof is then assembled and the suspension chains are dropped through the fill-hole. **Two (2) chains are used on the double auger units and three (3) chains are used on the triple auger units.** Space the suspension hooks equally apart around the center fill-hole collar, placing them in reference to the manhole where the shut off switch box is to be located. Place chains through the hole and then slide the chain down into the slot. *(See Figure 4F and Figure 4G.)* A hole in the suspension hooks is provided if bolting the hooks in position is desired. **NOTE: *For GSI bins larger than 33' diameter an alternate method of mounting is to attach suspension chain to intermediate center collar.*** *(See Figure 4H on Page 19.)*

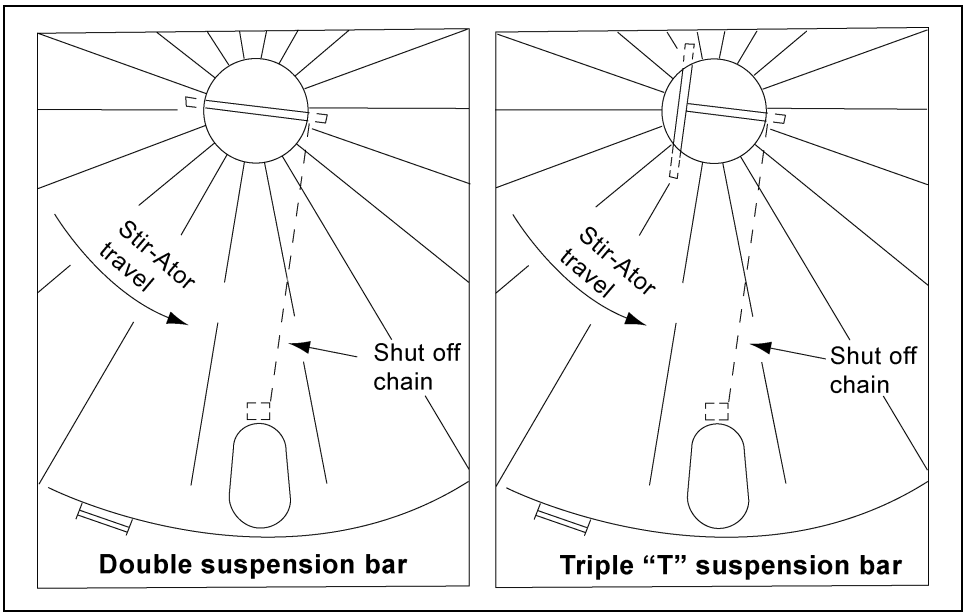


Figure 4F *Viewed from Top of Bin*

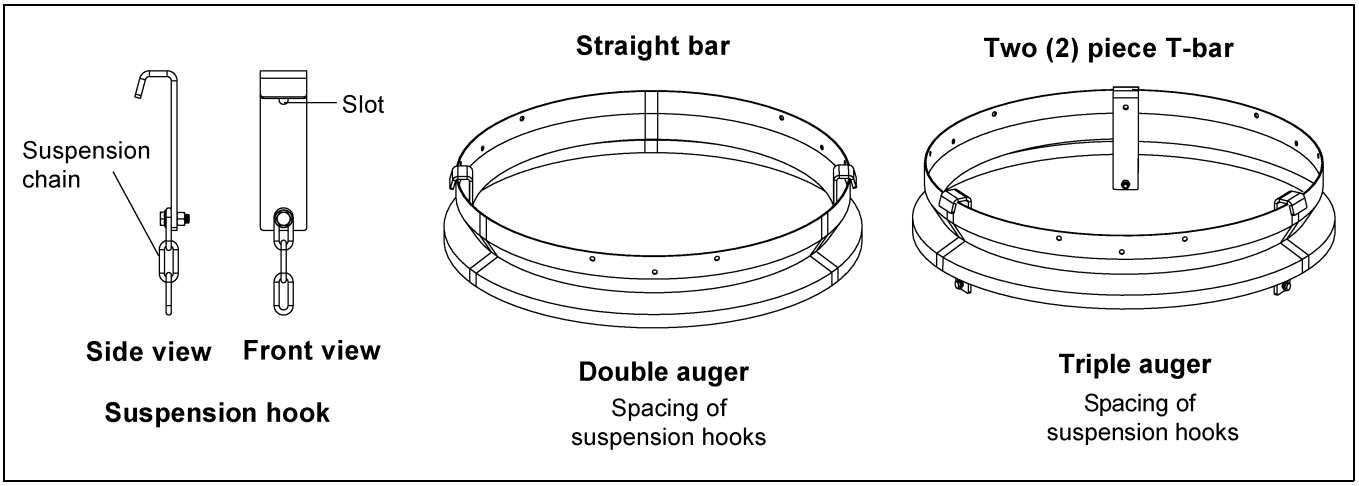


Figure 4G

WARNING ***Do not use the bolt in the suspension hook to support the entire unit. The outside end of the Stir-Ator should be supported by the track.***

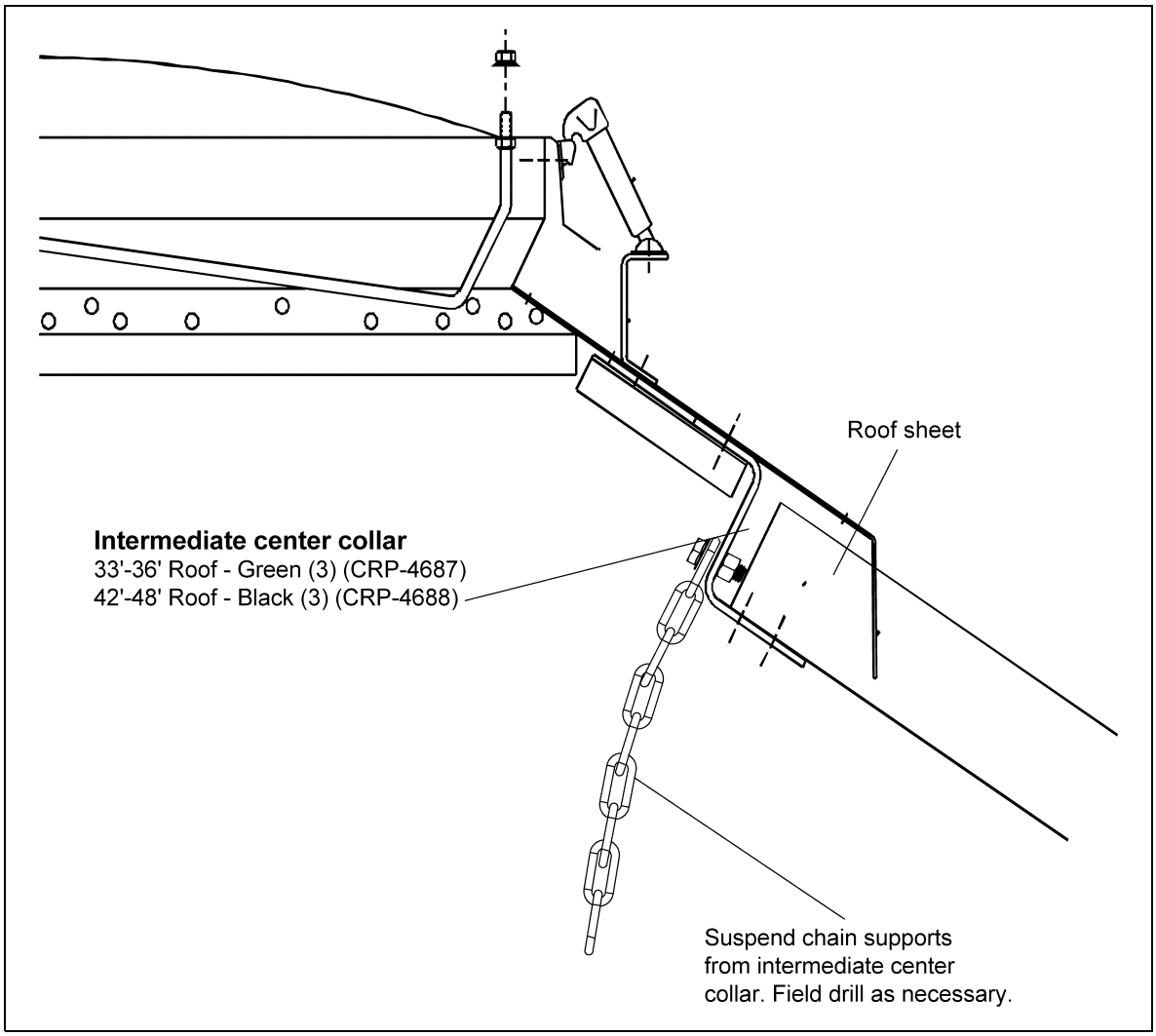


Figure 4H

Switch Box

1. Remove bags of hardware from the switch box. Install switch box handle extension. *(See Figure 4J on Page 20.)* Install switch box and safety switch shut off to bin roof above the manhole opening. *See Figure 4K on Page 20* for recommended mounting height and then drill the hole in the roof.

   NOTE: *Do not mount too low. Place as far up on roof sheet as possible. While still being able to reach handle.*

   a. Remove red handle from disconnect switch. Plastic handle must be field drilled to accept handle extension.

   b. Fit handle extension onto safety disconnect switch as shown *in Figure 4I on Page 20*. Make sure to align holes so they fit in between stiffening ribs on underside of red handle.

   c. Make where 1/4" holes should be drilled out in red handle, approximate dimensions are shown *in Figure 4I on Page 20*. Remove handle extension and drill using 1/4" bit.

   d. Place handle extension back on red handle and bolt together using hardware listed *on Page 52*.

   e. Replace red handle and extension back on safety disconnect switch box.

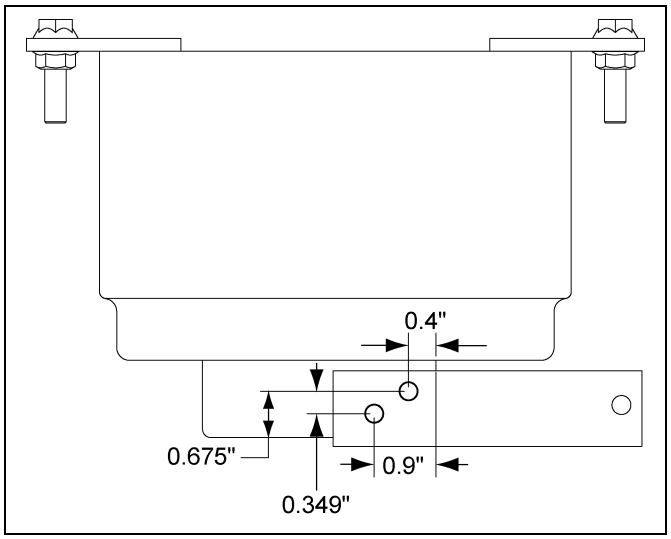


Figure 4I

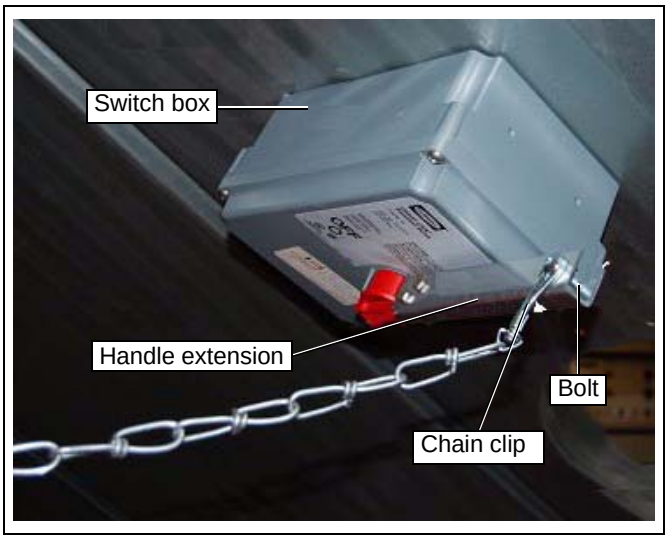


Figure 4J

2. Mount the switch box and circuit breaker box using the hardware provided with disconnect box, refer to Design III Stir-Ator switch boxes and suspension parts list *on Page 52*. The breaker box is to be mounted on the outside of the bin in an accessible location. Wiring can then be ran to connect the breaker box to the safety disconnect switch.
3. Fasten shut off support chain(s) to bin roof using existing roof bolts and a 5/16" flat washer and hex nut. Three (3) support chains should be equally spaced between the switch box and the center of the bin.

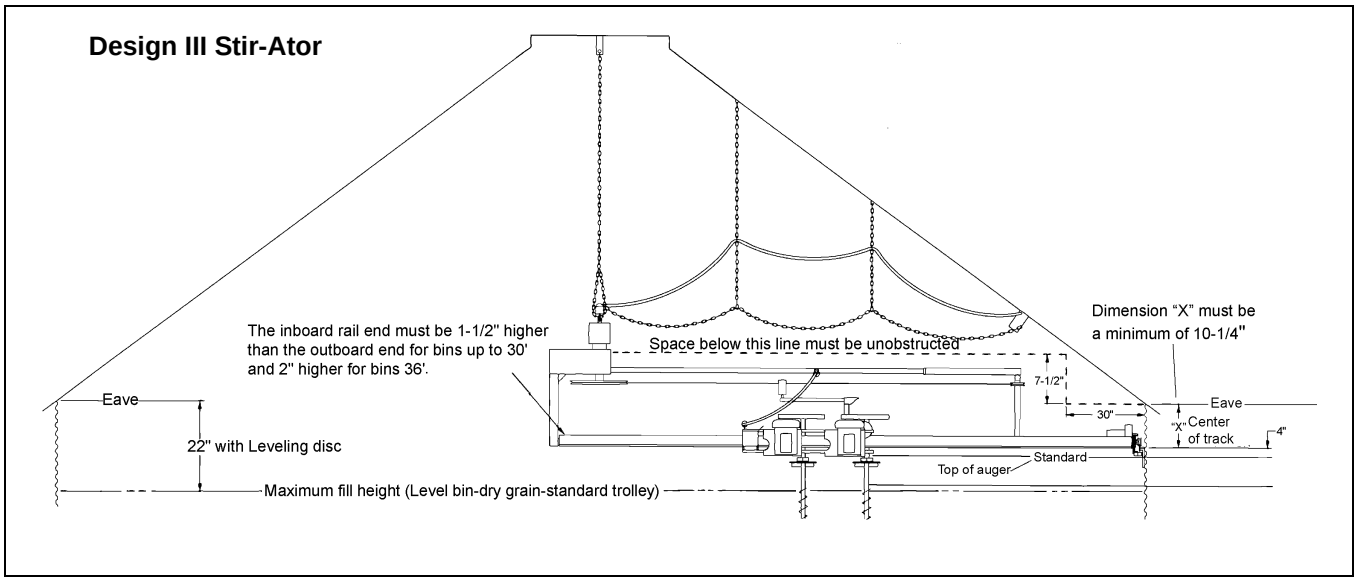


Figure 4K

WARNING

Mounting the box lower than the minimum recommended height could cause the box to be caught by the Stir-Ator as it moves around the bin, causing possible damage or serious electrical shock.

Frame Rails

1. To assemble the Design III Stir-Ator, place the frame rails on two (2) sawhorses and remove the two (2) 5/16" bolts holding the frame rails together, spacing them approximately 8".
2. **For Double and Triple Auger Units:** Bolt outboard frame end and track unit assembly to the frame rails using six (6) 3/8" x 1" carriage bolts, 3/8" lock washers and hex nuts. Tighten with the socket head on an impact wrench and use a hand wrench where necessary. *(See Figure 4L.)*

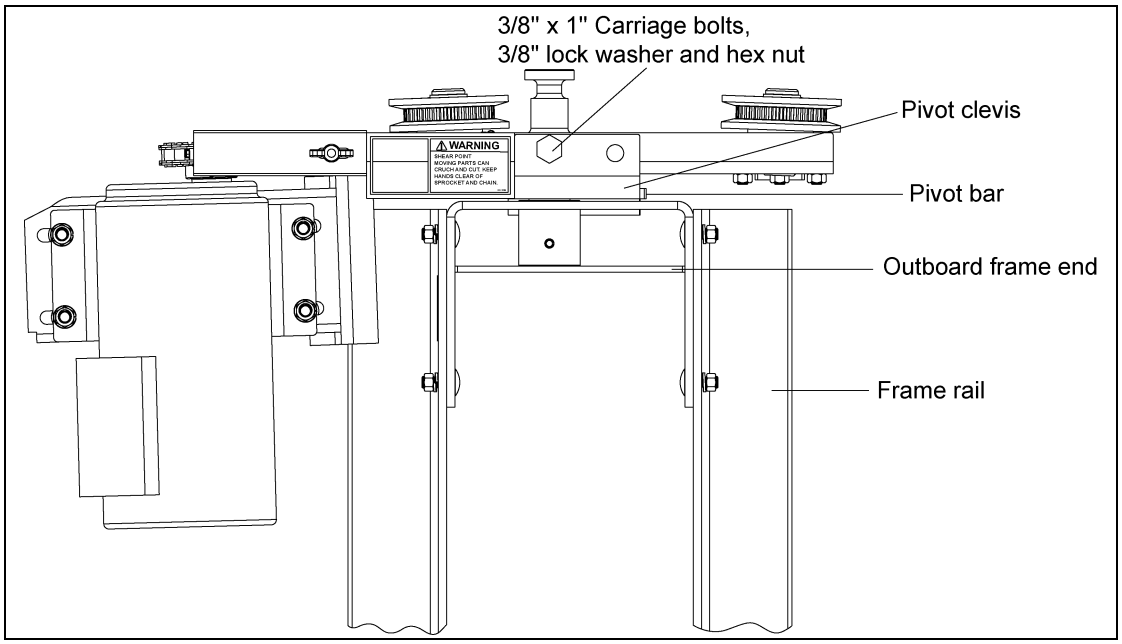


Figure 4L *Double and Triple Auger*

NOTE: *Locate bolt heads to inside of frame rails.*

3. The outboard frame end has two (2) pivot positions. One is for the heavier 2 HP motors previously used with the 184Z frame. The other position is used for all 1-1/2 HP and the lighter 2 HP motors with the 182Z frames that are used today. If the pivot bar is on the bottom, it is set for the 1-1/2 HP or lighter 2 HP motors. No field changes should need to be made for current production machines. *(See Figure 4M.)*

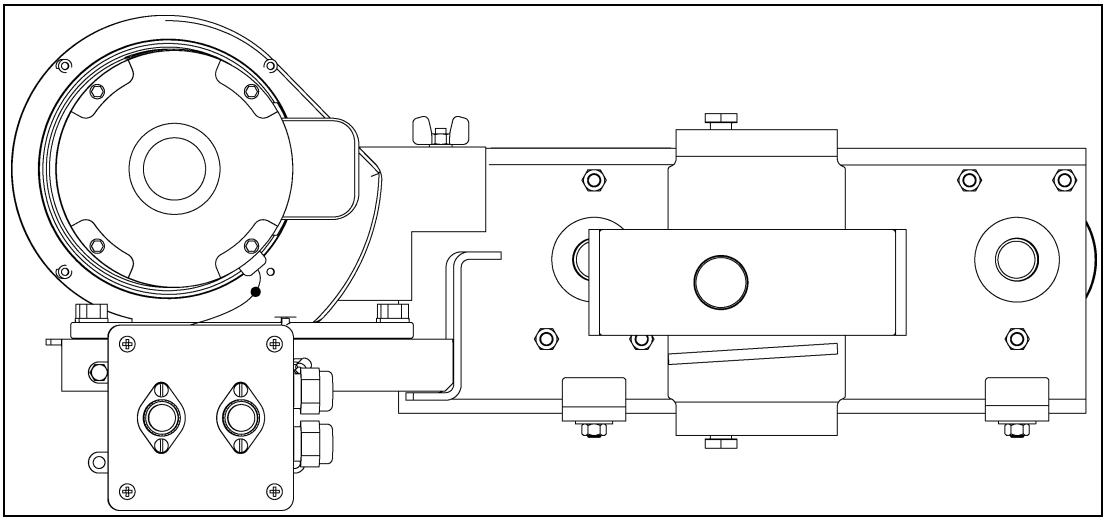


Figure 4M *2 HP*

NOTE: *Frame rails are removed for clarity.*

Trolley

NOTE: *36' Double auger trolleys require the hold-down rods to be moved to the bottom hole position. This is done by removing the spring clip and pulling the rod out and reinserting it in the bottom holes from the side away from the down auger motors. Make sure holes are aligned.*
(See Figure 4N for proper location the hold-downs.)

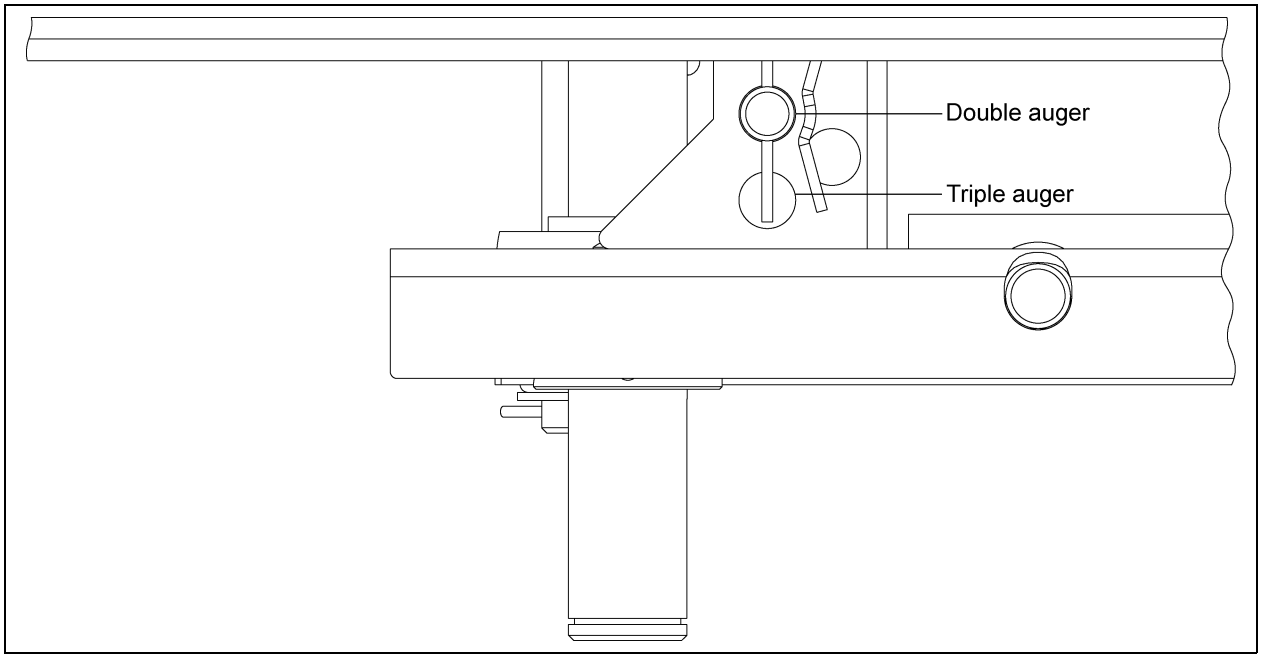


Figure 4N

1. Place trolley on the frame with the junction box toward the center of the bin. Double and triple auger trolleys are placed on the frame rails from the inboard end. *(See Figure 4O.)*

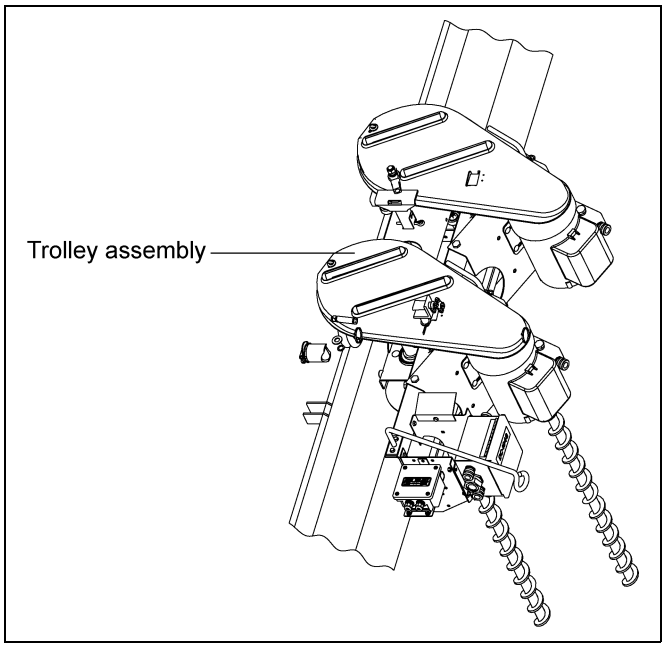


Figure 4O

NOTE: *Slide trolley in before the inboard. Make sure down auger motors are on the opposite side of the gear motor.*

2. **For Double and Triple Auger Units:** Bolt inboard frame end to frame rails using six (6) 3/8" and 1" carriage bolts, 3/8" lock washers and hex nuts. The rounded side should be to the inside. Use the two (2) bottom holes. Tighten with socket head on impact wrench.

   NOTE: *Locate bolt heads to the inside of the frame rails. Roll the trolley to be sure all wheels turn freely. (See Figure 4P.)*

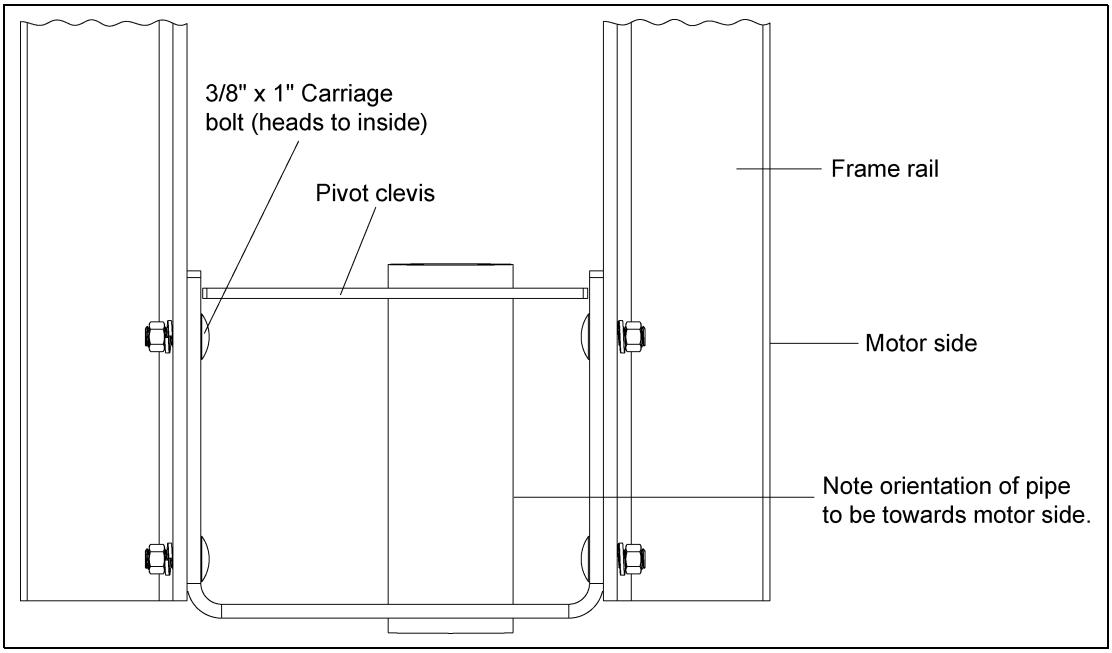


Figure 4P *Inboard Frame End*

3. Place trolley drive arm through the square hole in the trolley body pointing toward the center of the bin (the sticker should face the down auger motor) and secure with two (2) 1/4" x 1-3/4" cotter pins, one above the trolley body and one below. Open bottom of the cotter pins to secure. *(See Figure 4Q below and Figure 4R on Page 24.)*

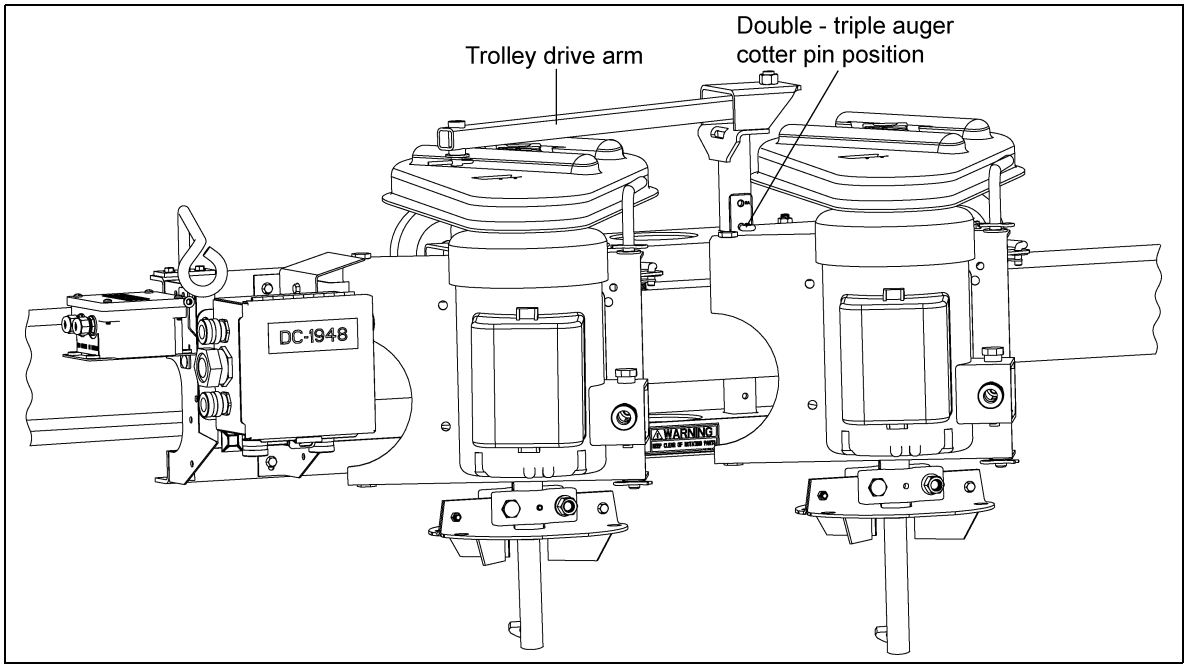


Figure 4Q *Double and Triple Auger Position*

NOTE: *Two (2) hole locations are provided. The upper hole is used on single auger units only, as indicated on the decal. For double and triple auger units, use the lower hole. (See Figure 4R.)*

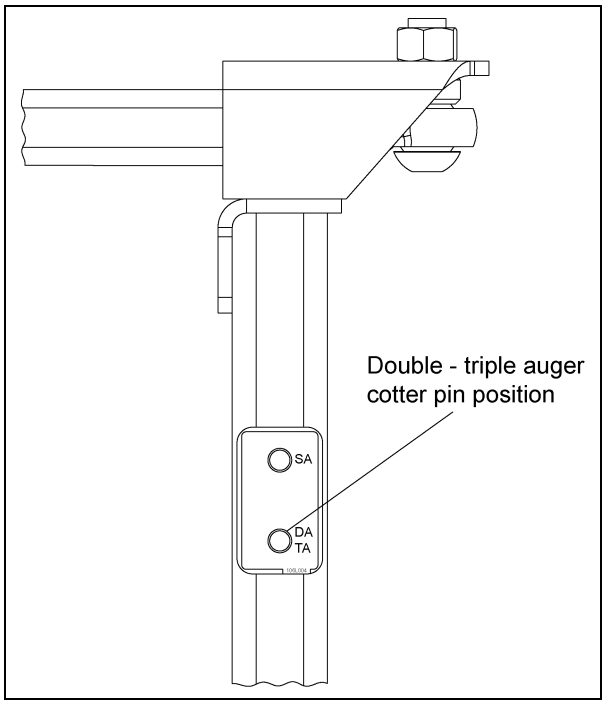


Figure 4R *Double and Triple Auger Position*

4. Check that the trolley is level and that the hold-down rods and wheels are properly positioned. There should be approximately 1/4" between the top of the hold-down rods and the bottom of the frame rails. *(See Figure 4S.)*

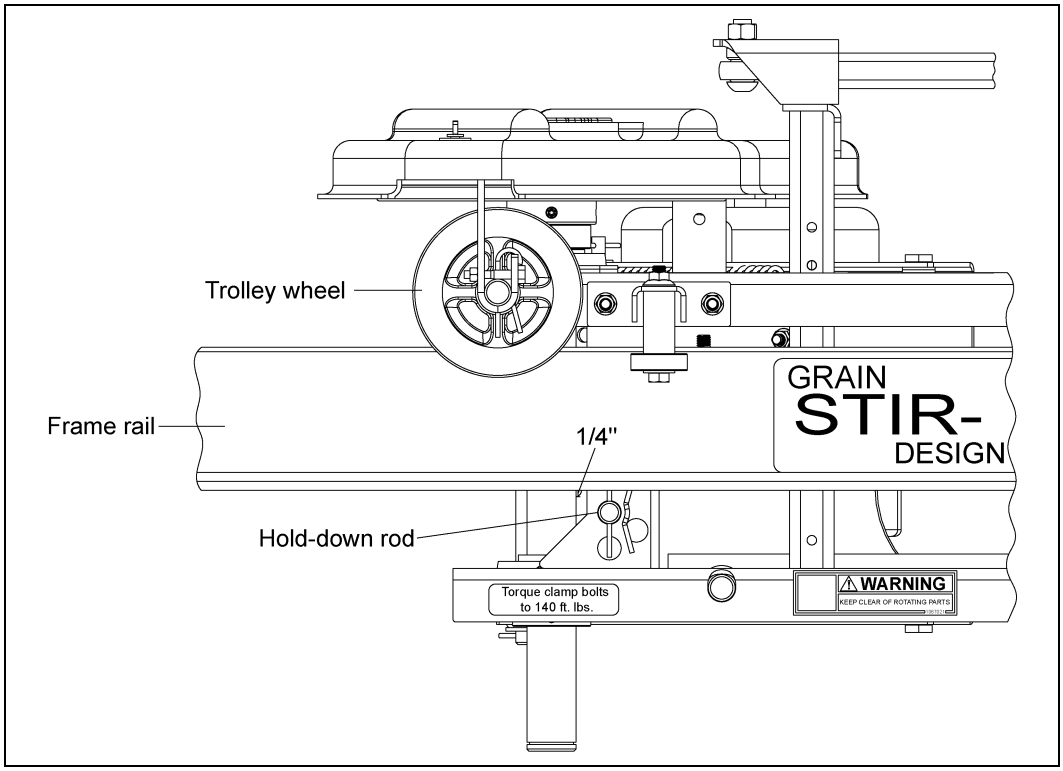


Figure 4S

Yokes

1. The yoke assembly is attached to the frame rails by placing the pivot tube into the center frame support. If the pivot tube does not slide in readily, file any burrs and grease the inside of the center frame support. Secure by placing a 1/4" x 3" cotter pin through the tube. Open the end of the cotter pin. The end yoke is bolted to the left frame rail with two (2) 3/8" x 1" carriage bolts, lock washers and hex nuts. Bolt from the inside out. Tighten with socket head on impact wrench. *(See Figure 4T, Figure 4U below, Figure 4V and Figure 4W on Page 26.)*

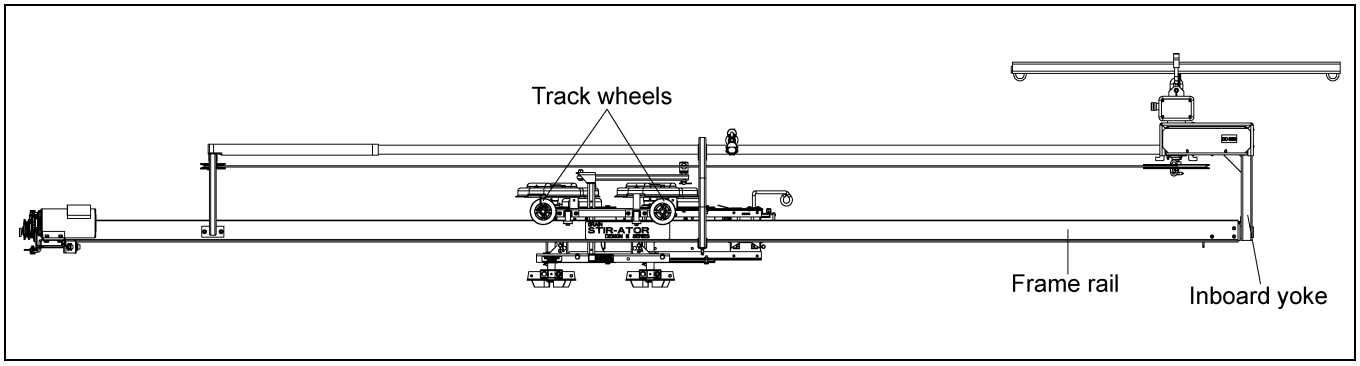


Figure 4T

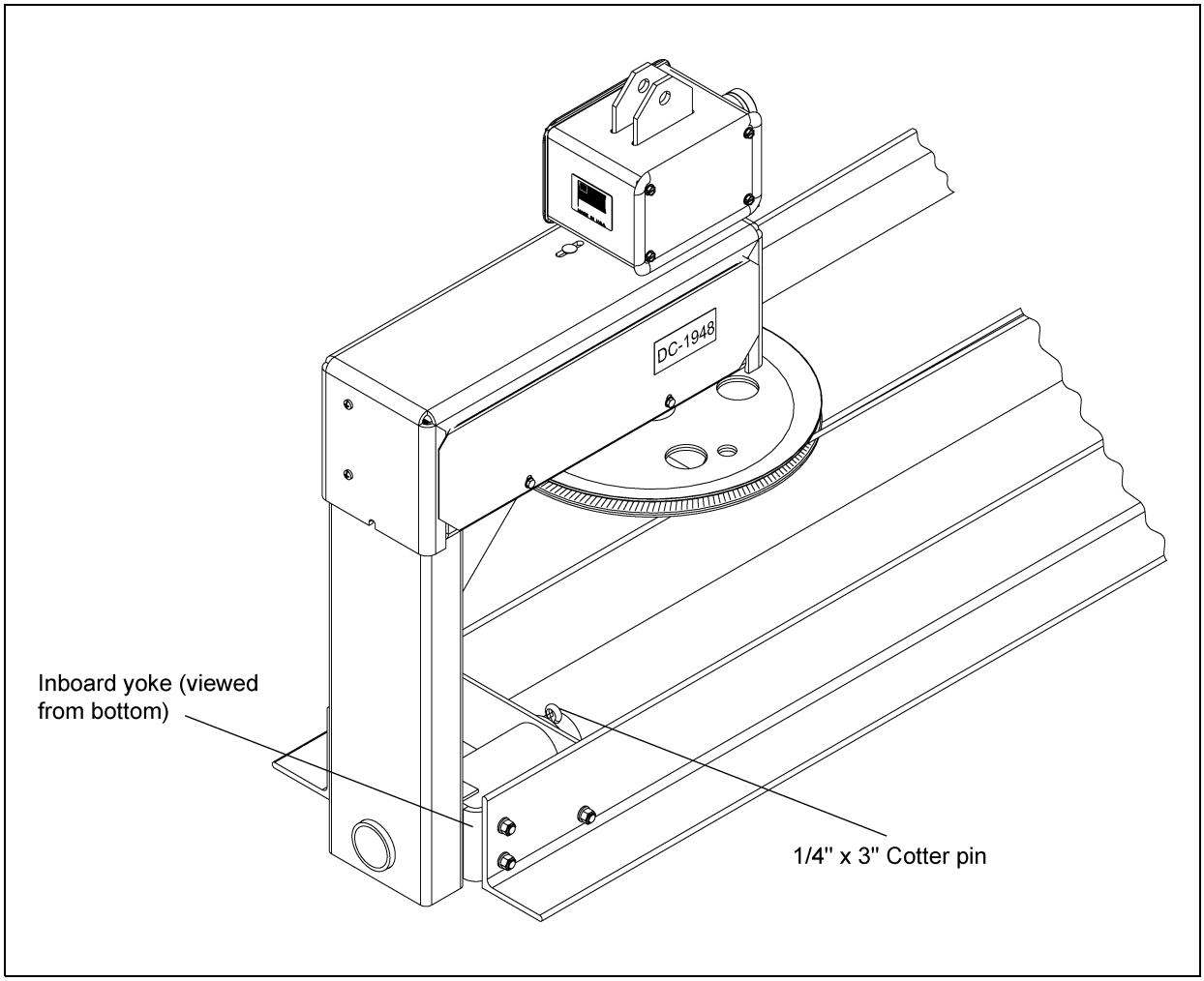


Figure 4U

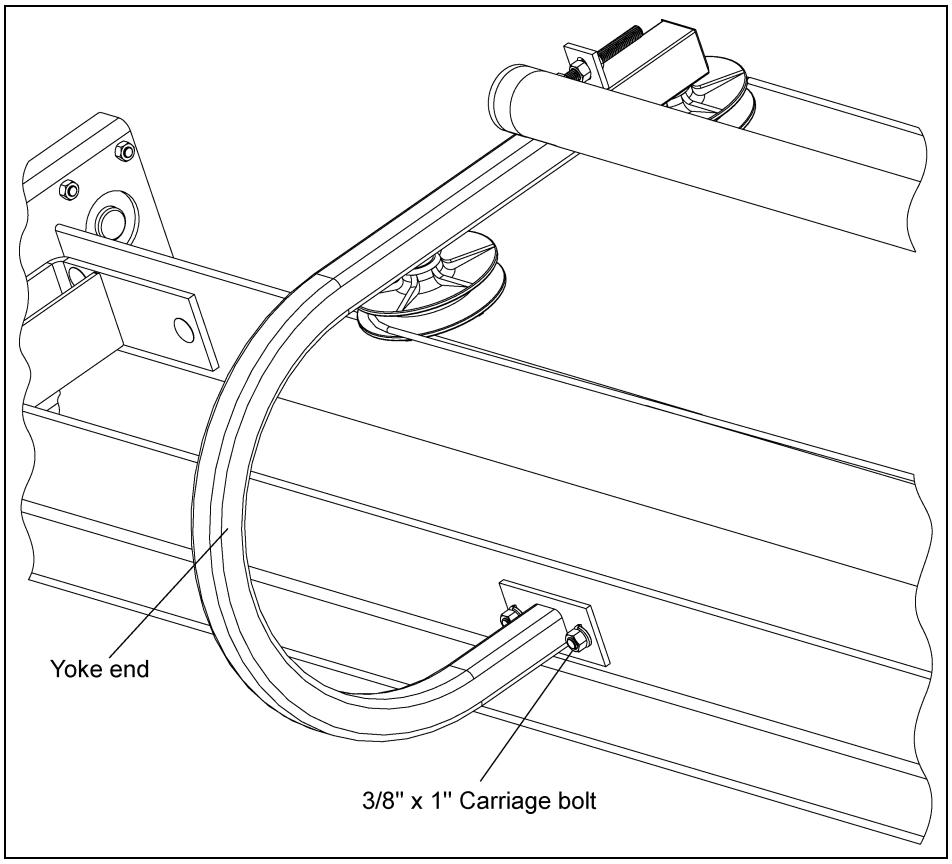


Figure 4V

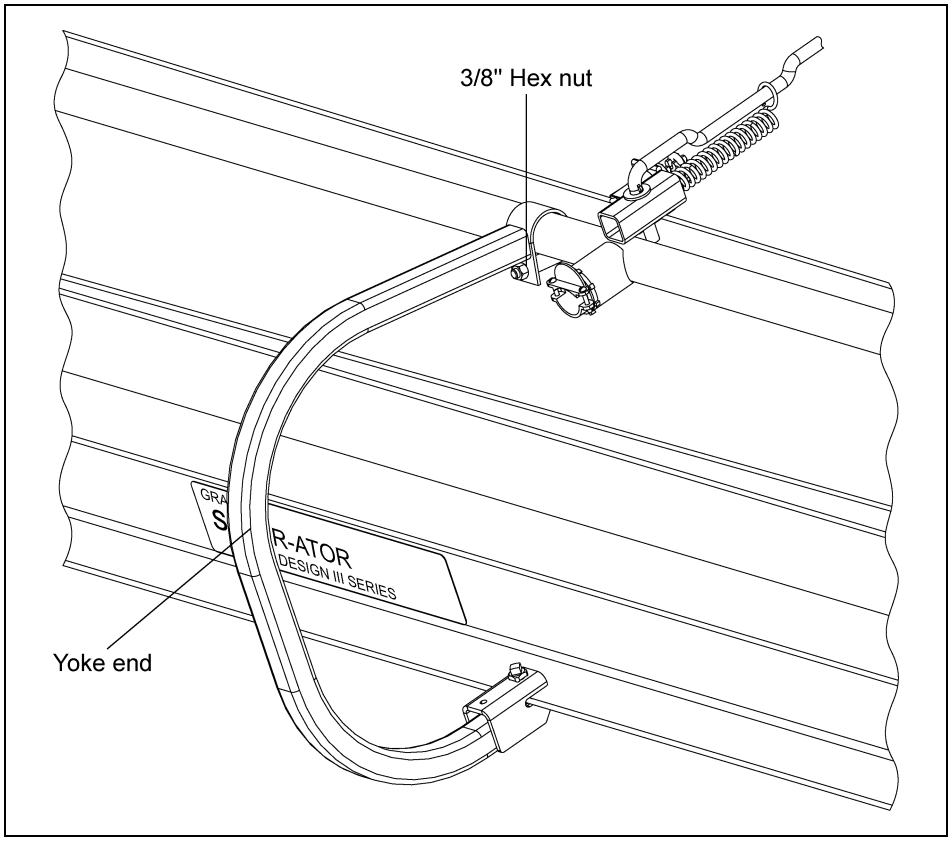


Figure 4W

2. 36' units have an additional center support yoke. Attach the top end of the support yoke to the center extension tube using a 1-3/4" spacer tube, one 3/8" x 2-1/2" hex head bolt and hex lock nut. Locate approximately 4" from wire support swing arm toward the outboard end side. *(See Figure 4X.)*

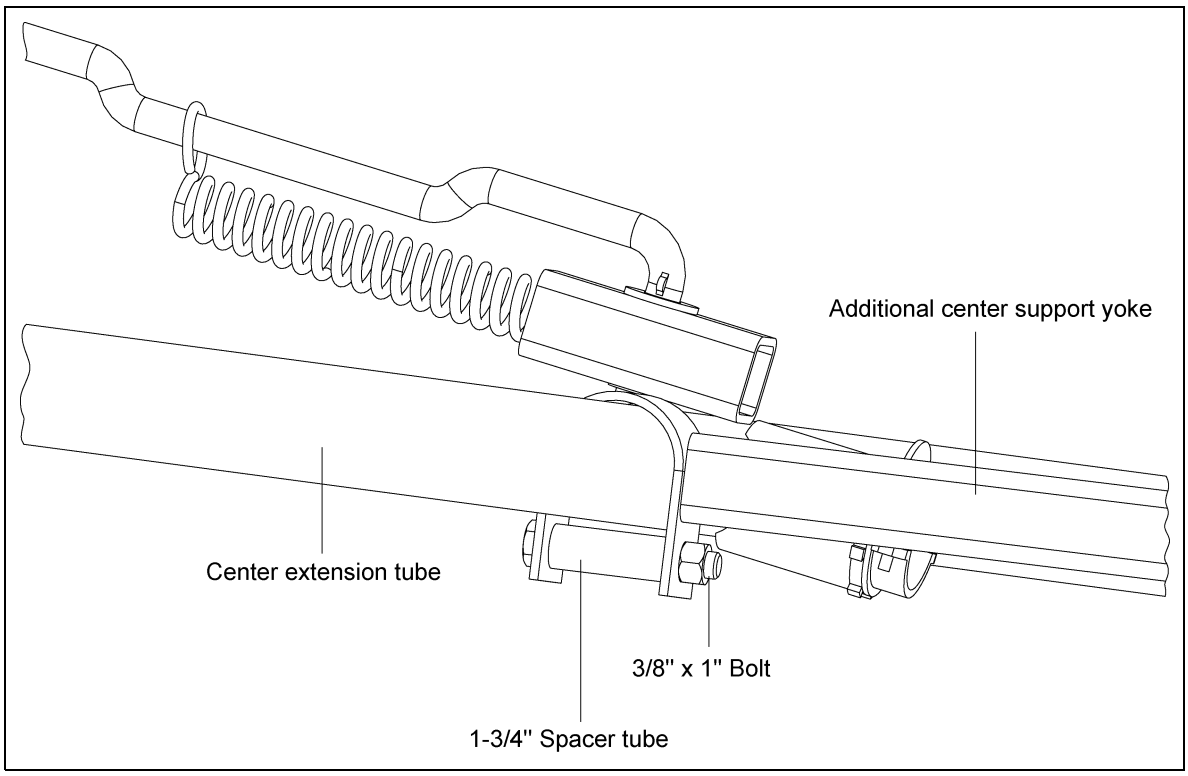


Figure 4X

3. Place bottom of support yoke onto the frame rail angle flange and fasten with 3/8" x 1" set screw. *(See Figure 4Y.)*

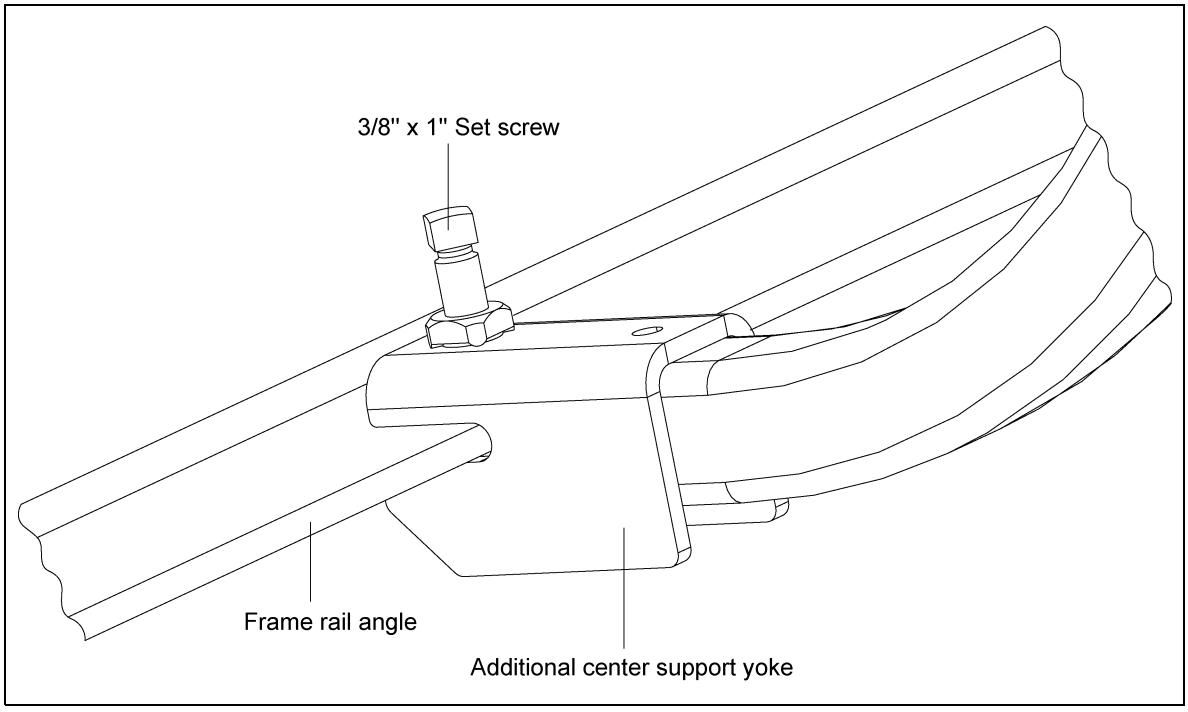


Figure 4Y

Swing Arm

> **CAUTION**
>
> ***Swing arm is spring loaded. Extreme care must be exercised when cutting the shipping zip ties loose to avoid possibility of personal or bodily injury, as arm will snap back when freed.***

1. Carefully remove the zip tie that are holding cord to swing arm.

Junction Box

1. Bolt trolley wire support rod to the top of the angle support with two (2) 1/4" x 5/8" flange bolt and 1/4" hex flanged lock nuts. After removing the screw from the junction box cover, feed electrical wires through the end loop of the wire support and into the junction box. Connect ends to terminal wires through the end loop of the wire support and into the junction box. Connect ends to the terminal strip and the solid state electronic tilt switch electrical wire using wire connectors. *(See Wiring Diagram on Page 70* or *See Figure 4Z.)*

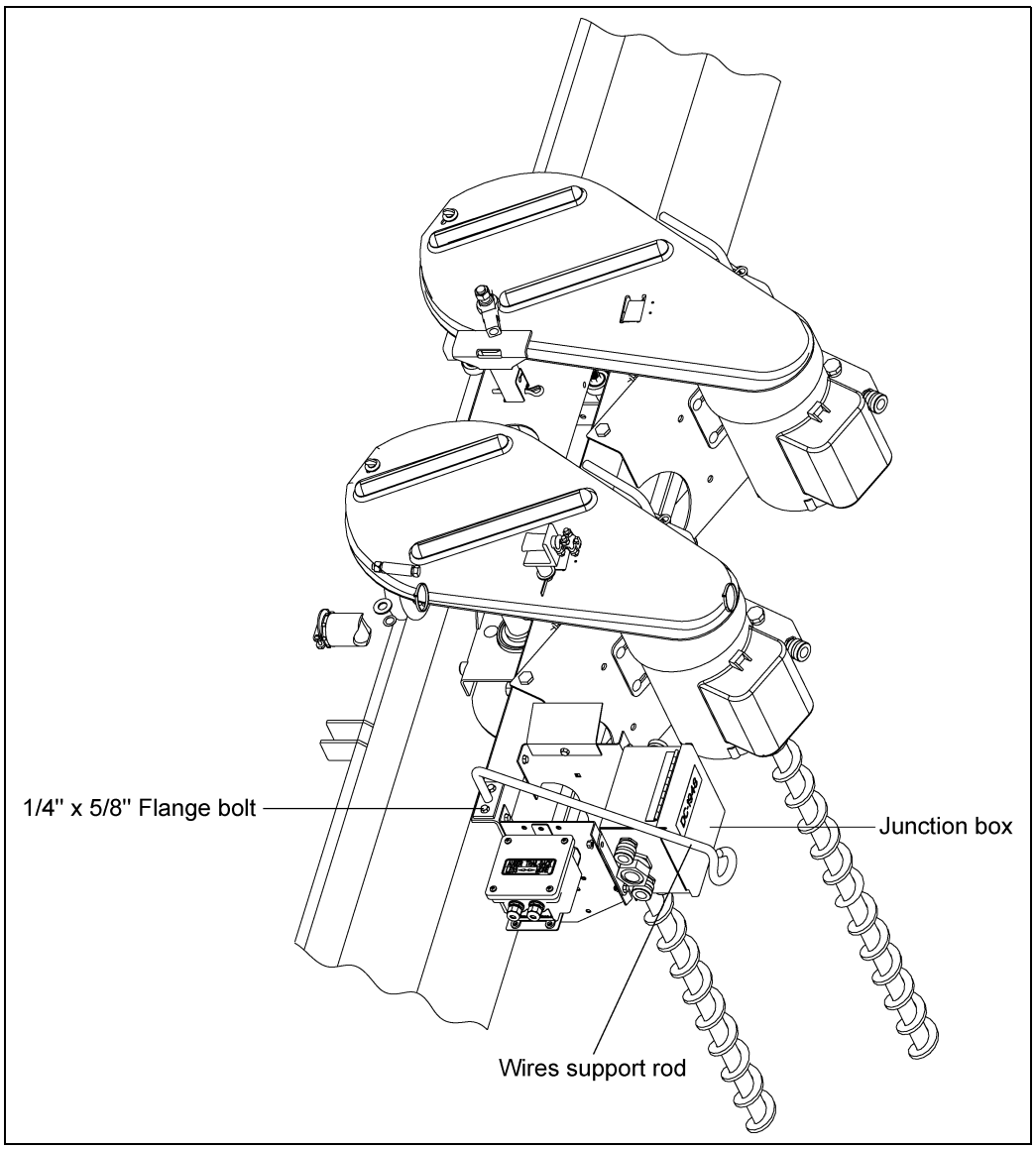


Figure 4Z

2. After making electrical connections, **replace cover screw**. Secure electrical wires to wire support rod using two (2) wire ties. Trim excess. *(See Figure 4AA.)*

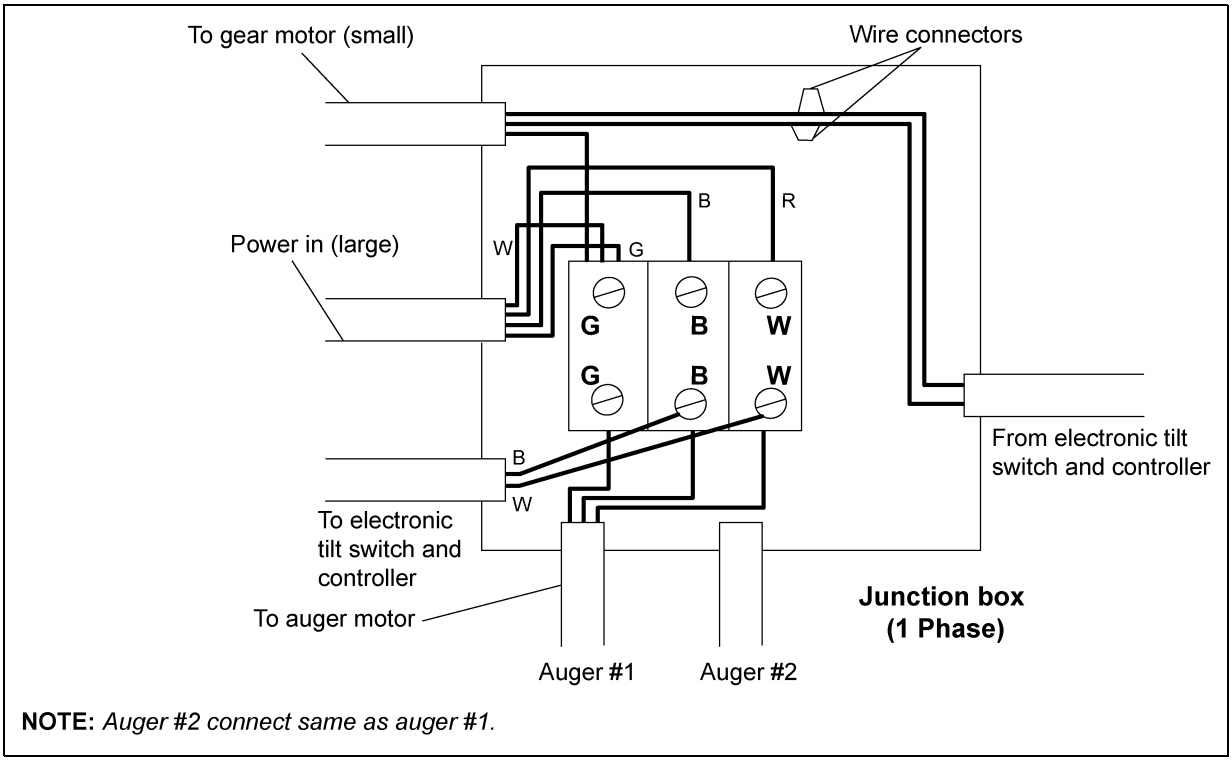


Figure 4AA *Junction Box Wiring Diagram - 1 Phase*

Trolley Drive Arm to Cable

1. Connect trolley drive arm to cable connector using one 1/4" SAE (Society of Automotive Engineers standard) flat washer and 5/32" x 1" cotter pin. *(See Figure 4AB and Figure 4AC.)* Be sure cable connector is as shown in *Figure 4AC*. If assembled incorrectly, connector will not go around cable pulleys.

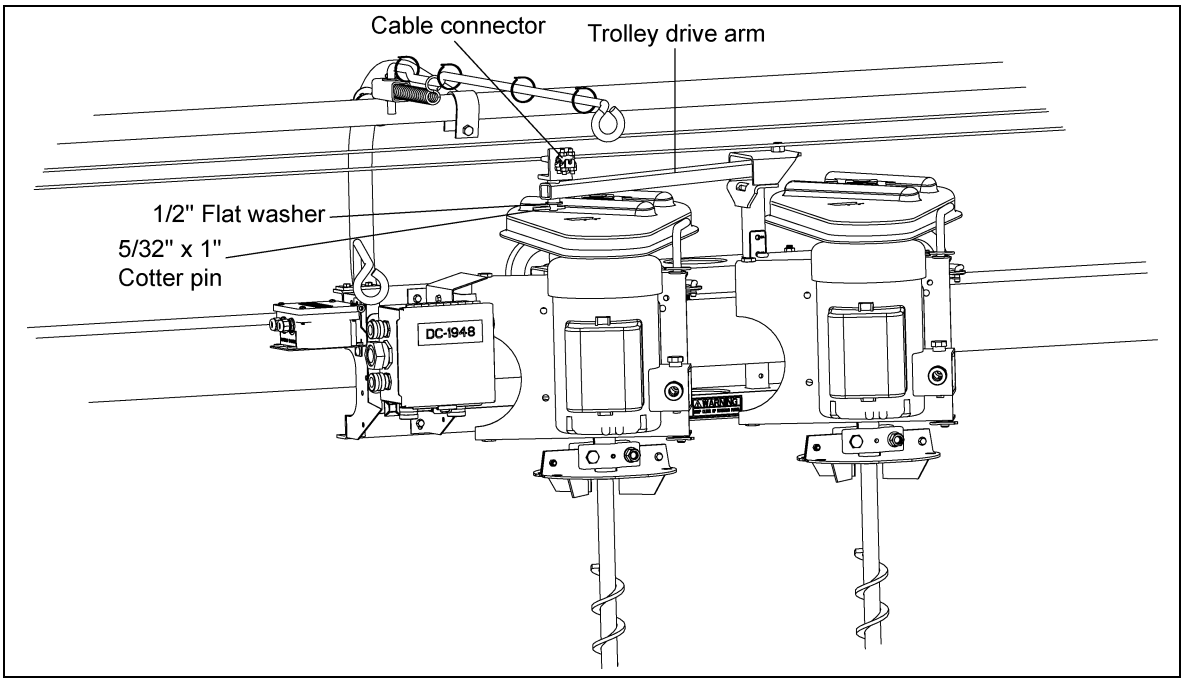


Figure 4AB

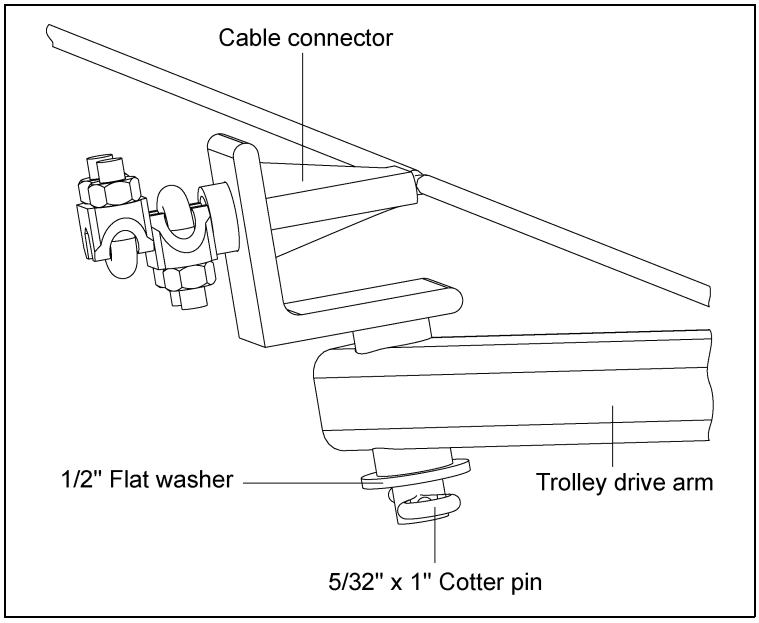


Figure 4AC

NOTICE

Be sure the trolley drive arm points to the center of the bin.

Double check that the trolley unit on the main frame has been installed correctly.

Center Suspension System

1. **The Center Suspension System:** Double auger units use a single piece square tube. The triple auger units use a two (2) piece square tube “T” assembly.
2. **For Double Auger Units:** Place the attachment link on the single suspension tube into the welded clevis provided on the yoke head. Fasten with one 1/2" x 2" hex head bolt and hex lock nut. Tighten with ratcheting hand wrench. *(See Figure 4AD.)*

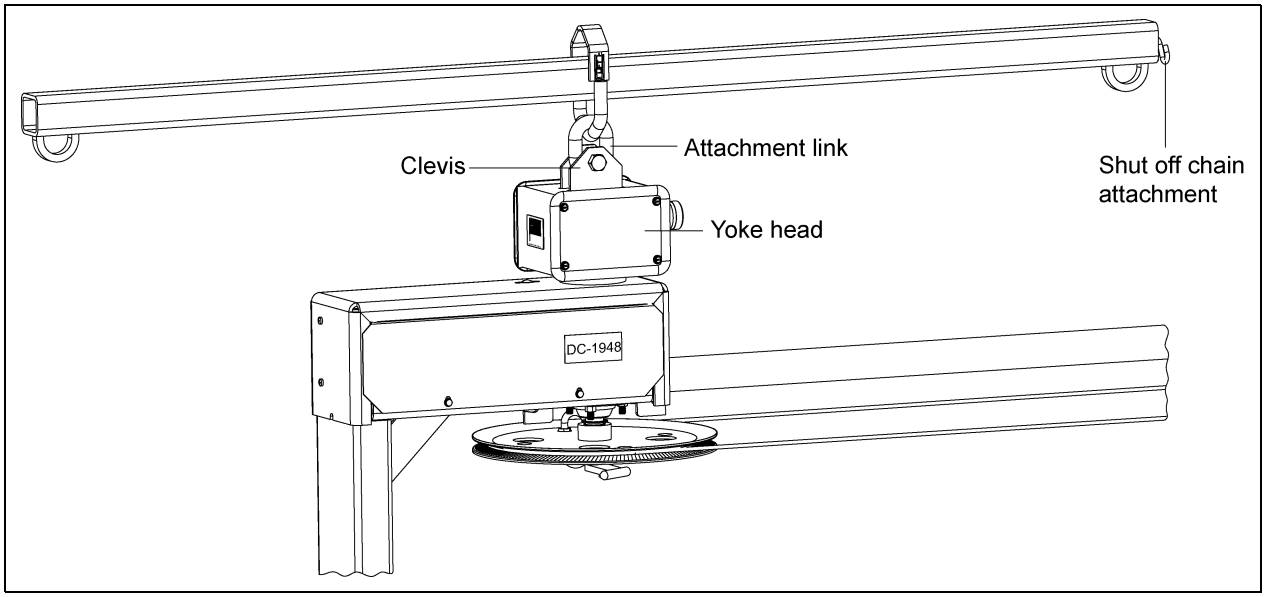


Figure 4AD *Double Auger*

3. **For Triple Auger Units:** First assemble two (2) piece “T” square tube sections using one 1/2" x 2" hex head bolt and hex lock nut. Tighten with ratcheting hand wrench. *(See Figure 4AE.)*

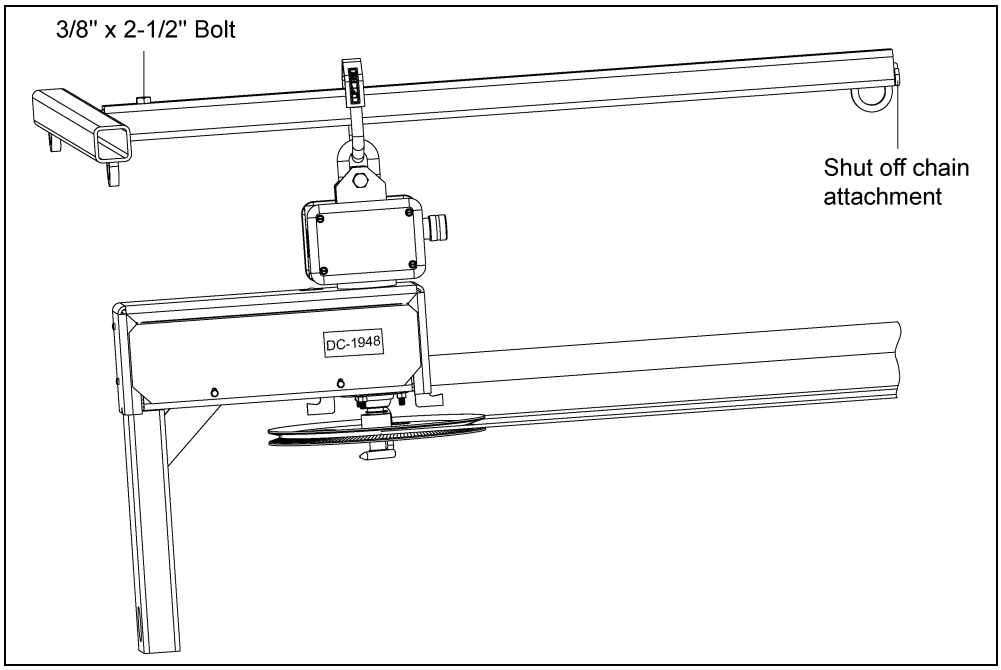


Figure 4AE *Triple Auger*

NOTE: *Be sure small loops on the suspension tube ends are always down.*

Track Gear Motor

1. Cut lead-in wire loose from yoke pipe by cutting the zip tie. Be careful not to damage the wire.
2. Unwrap gear motor wire from the yoke tube and strip the end. Remove the fuse cover from the junction box using a phillips screwdriver. Insert wire through connector and connect the wire with fuse holder wires using yellow wire connectors. Replace cover assembly and secure the wire to the frame rails with cord clips which push over the frame rail flange. Wire black to black, white to white and green to green. *(See Figure 4AF.)*

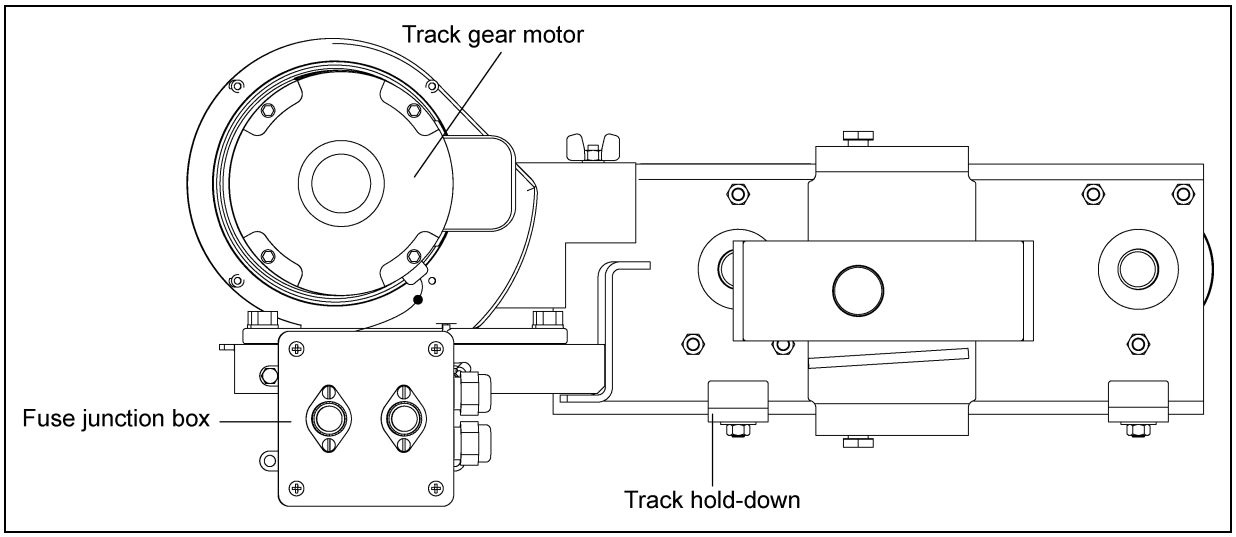


Figure 4AF

Leveler Disks

1. Loosen the 1/2" x 2-1/2" bolts on the leveler disk. Slide into the stub shaft with the clamp portion up. Hold the leveler disk in position by placing the snap ring onto the stub groove cut into the stub shaft by tapping it with a hammer. *(See Figure 4AG.)*

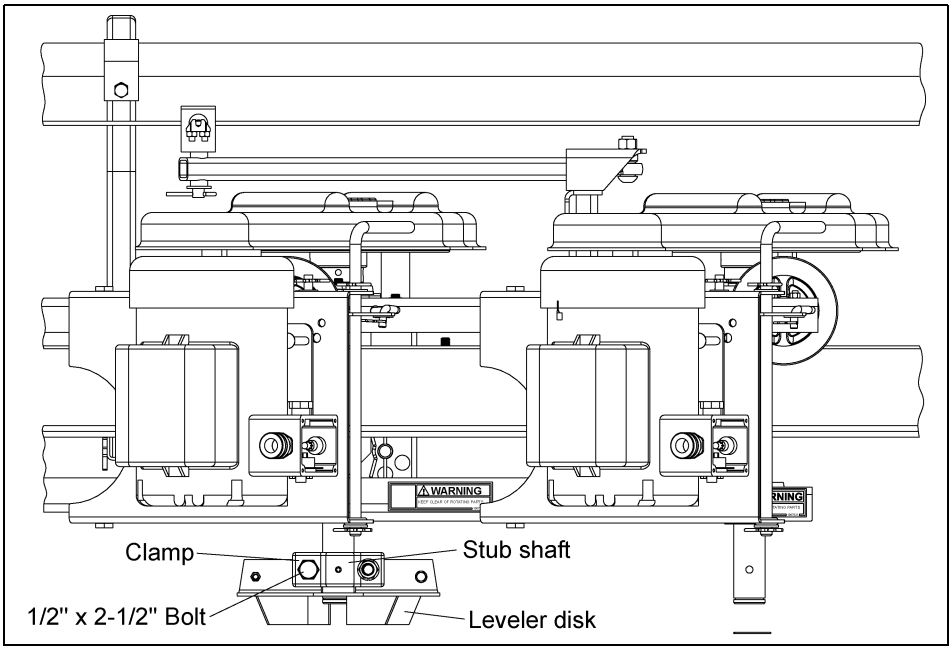


Figure 4AG

Lifting Stir-Ator

1. The Stir-Ator is now ready to be lifted into position. Use a chain hoist, winch or block and tackle. At the center, use the center lift hook on top of the suspension tee. *(See Figure 4AH.)*

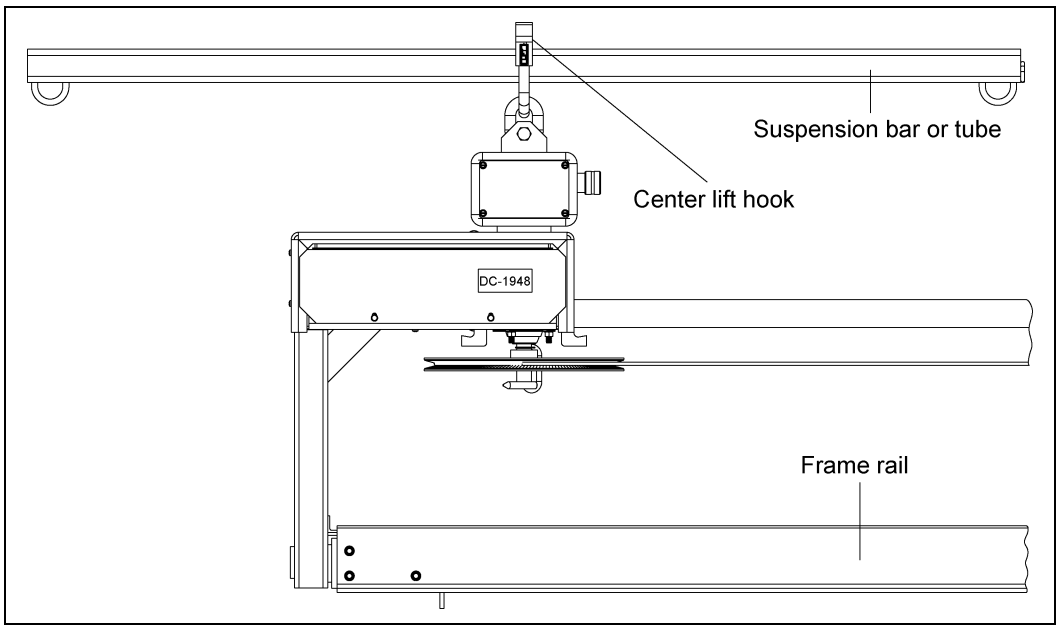


Figure 4AH

2. **At the bin wall, wrap the lifting mechanism around the trolley motor side of the frame rail.** *(See Figure 4AI.)*

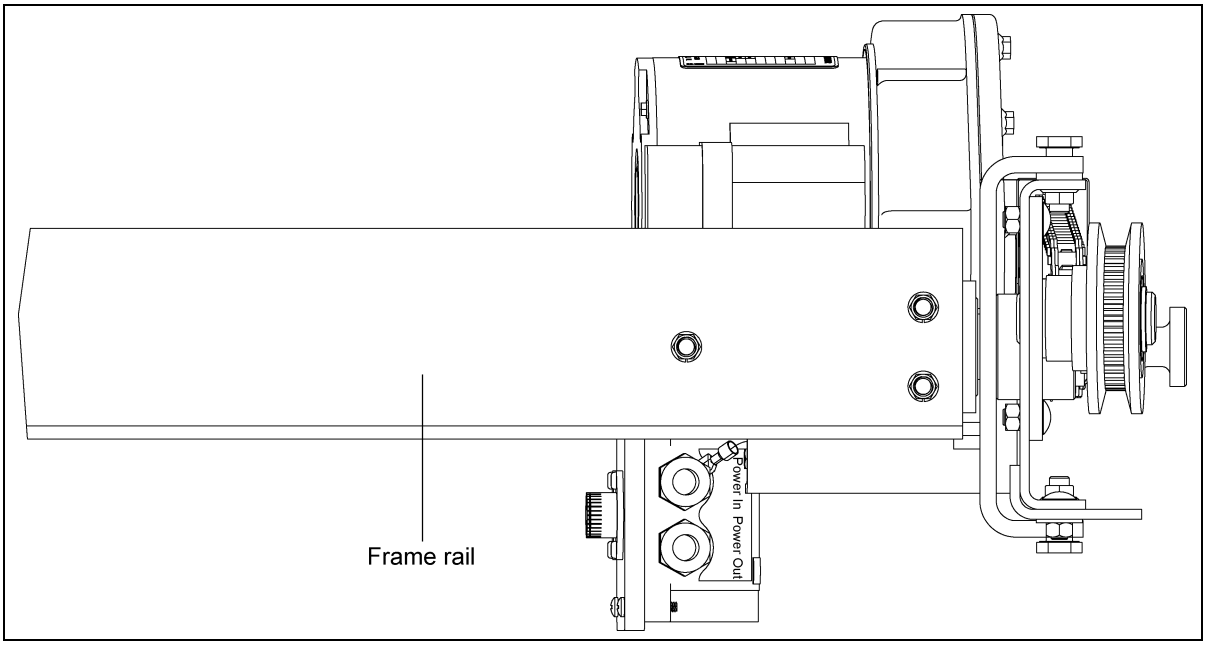


Figure 4AI

CAUTION

Be sure that the lifting equipment is capable of lifting the unit. (See chart on Page 13.)

3. Always fasten the trolley securely with vise grips or another suitable tool so that it cannot roll back and forth on the frame rails. Keeping the trolley toward the center of the bin will make lifting the Stir-Ator track unit into place easier. *(See Figure 4AJ.)*

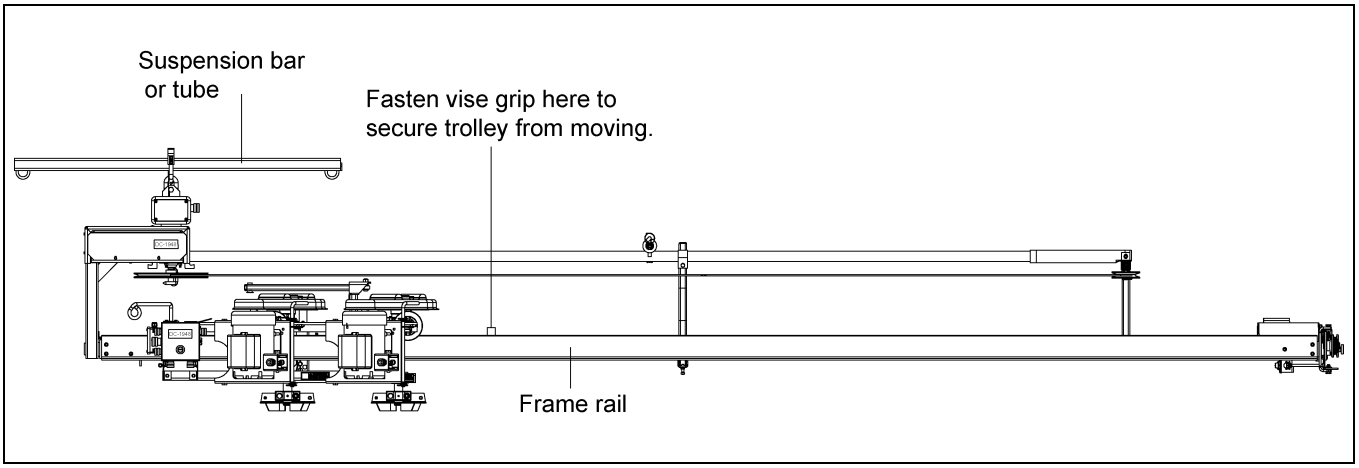


Figure 4AJ

NOTE: *Check that the shut off hook end of the suspension tube is located properly in relation to the shut off switch box. (See Figure 4AK.)*

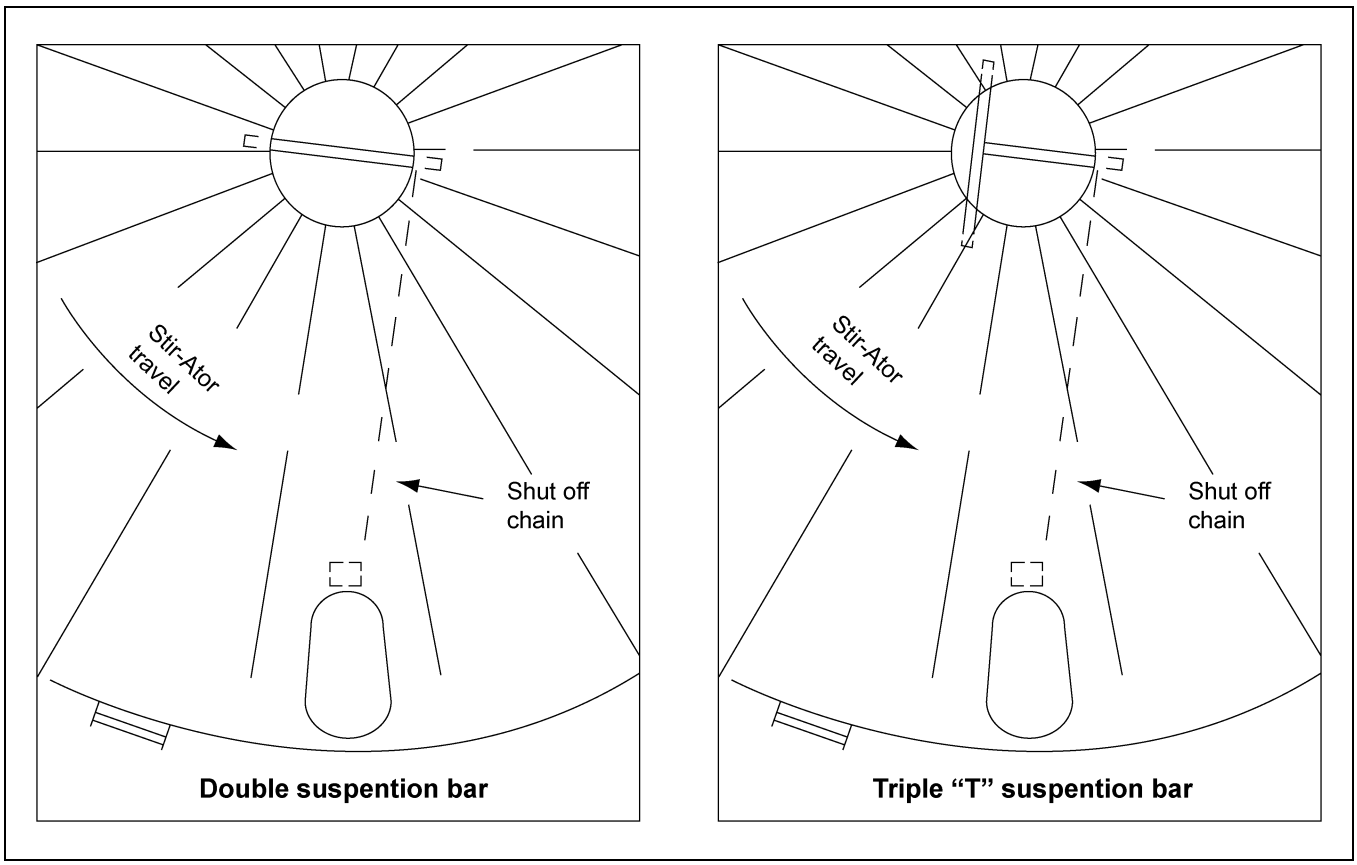


Figure 4AK

4. When the suspension bar is about 16" above the eave height, the ends of the suspension chains should be placed through loops and around the tube ends and hooked back on the main strand with the “S” hooks. *(See Figure 4AL.)* Hang the Stir-Ator 1-1/2" high in the center for each 18' of bin diameter, with the suspension bar level.

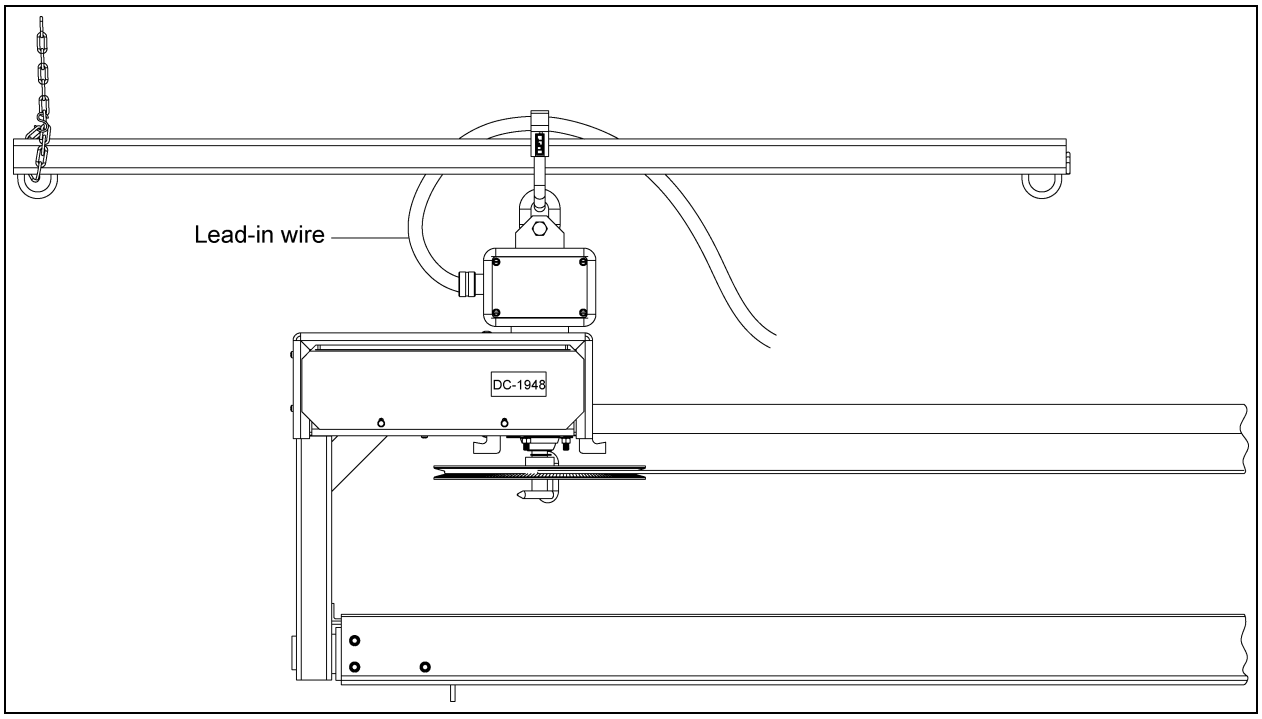


Figure 4AL

5. Lift the outboard end track unit onto the bin wall track. Place the track hold-down stops into the locked position. *(See Figure 4AM.)*

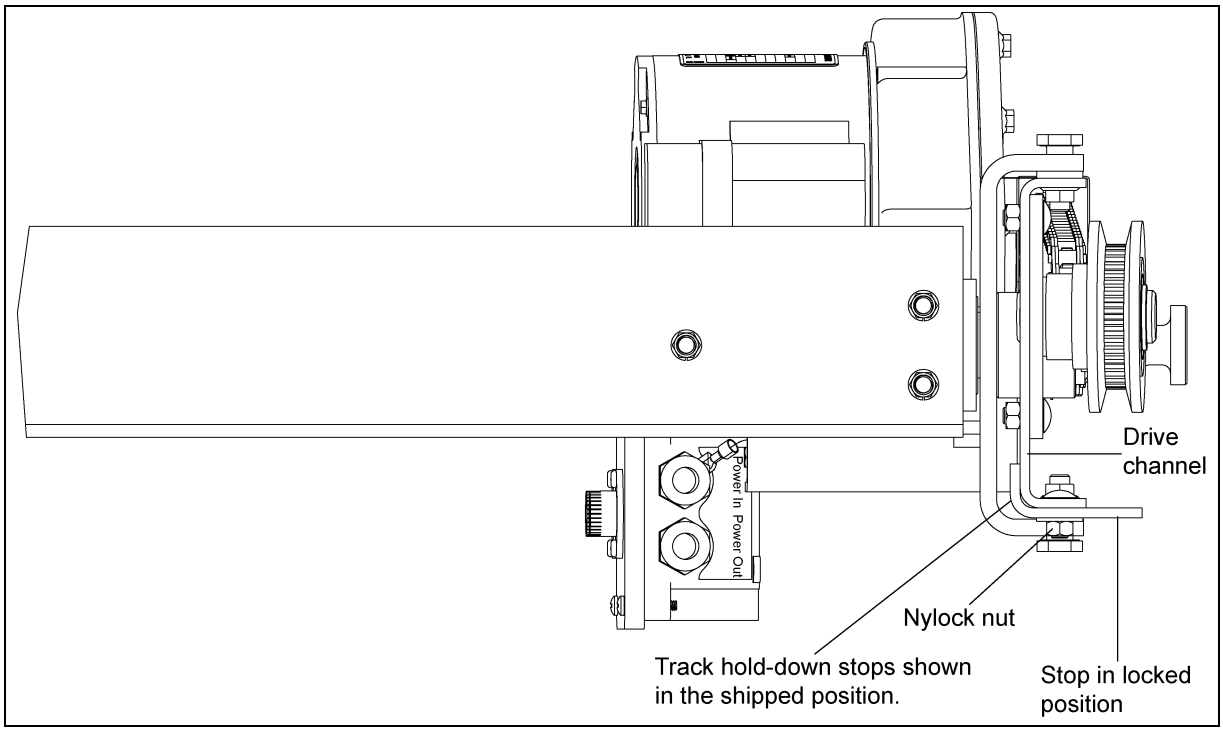


Figure 4AM

6. The unit should be hung slightly higher at the center than at the bin wall. Stand at a right angle to the frame rails and sight along them and across to the wall track. When the center height is properly positioned, the frame should be 1" higher at the center on an 18' diameter bin; 1-1/2" higher on a 27' diameter bin; and 2" higher on a 36' diameter bin. Be sure the suspension tube is always positioned level so it will not be hit by any part of the Stir-Ator as it rotates around the bin. *(See Figure 4AN.)*

CAUTION

Lock the track unit in place on the wall with vise grips, clamps or another means so the unit will not skid.

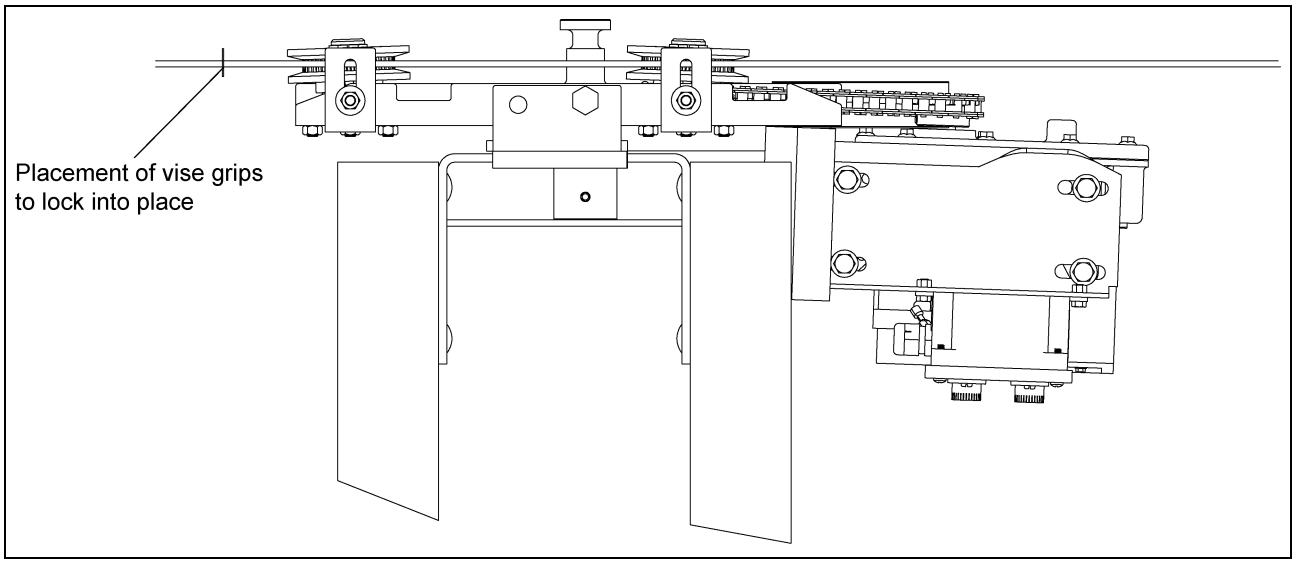


Figure 4AN *View from Under Side*

Suspension Chain

1. Check to be sure the shut off hook end of the suspension tube is located 90° to the switch box. If not, reposition the suspension chain hooks around the center fill hole.
2. Attach the link end of the shut off chain to the “S” hook on the switch box handle. Re-hook the excess chain with an “S” hook attached to the shut off chain so that it will not get caught on the unit. *(See Figure 4AO.)*

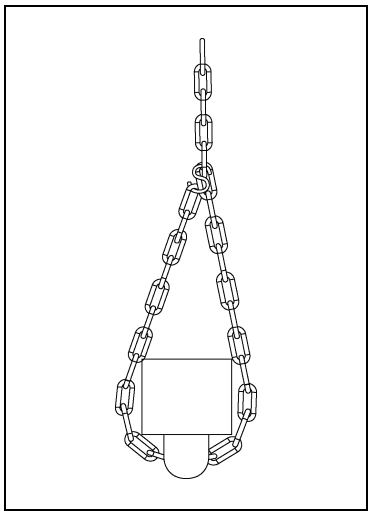


Figure 4AO

3. Use the shut off support chain(s) to hold the shut off chain so that there is adequate clearance between the shut off chain and the Stir-Ator as it travels underneath. *(See Figure 4AP.)*

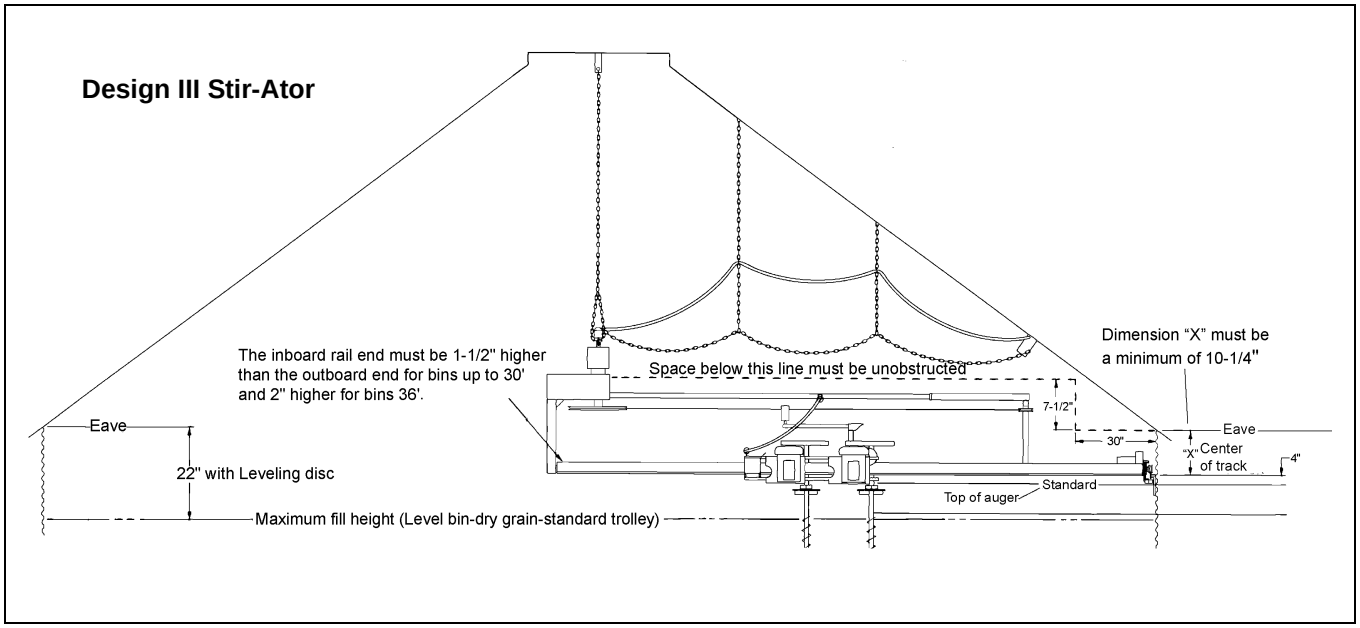


Figure 4AP

4. Attach the chain to the handle extension by clipping it onto the bolt positioned on the end of the handle extension. *(See Figure 4AQ.)*

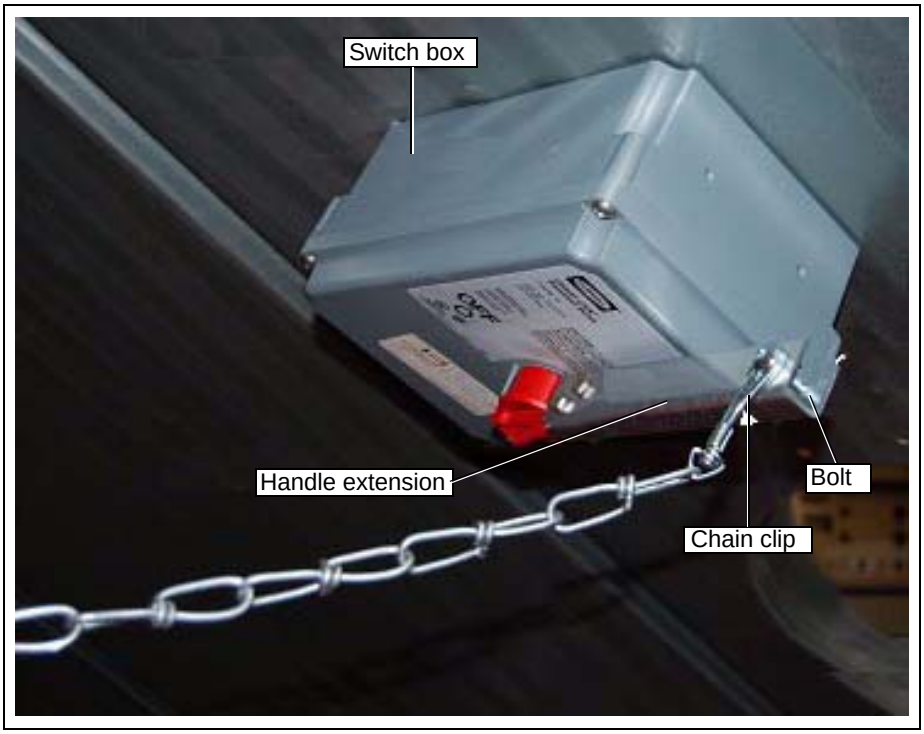


Figure 4AQ

5. String the lead-in wire through the chain link clevis on the bottom of the suspension bar toward the bar with the safety chain "S" hook. **(Do not attach the wire to the end of the suspension bar.)** The lead-in wire can then be suspended above the safety chain and routed to the switch box. *(See Figure 4AR on Page 38.)*

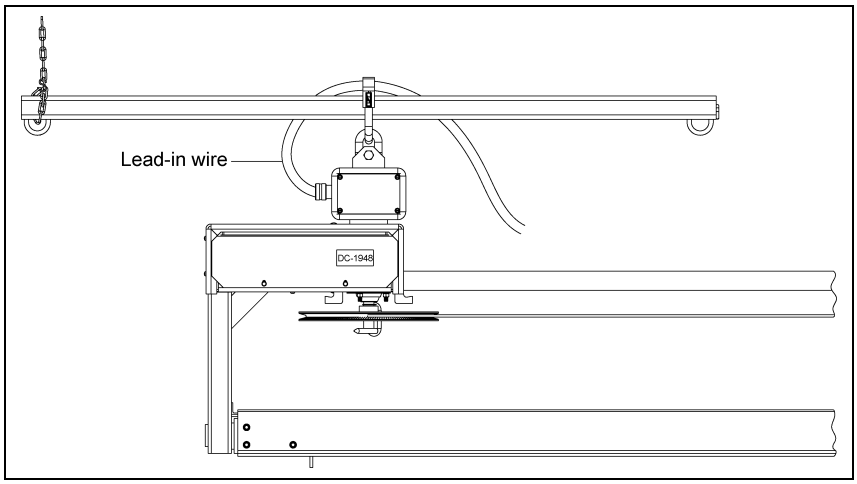


Figure 4AR

WARNING

The lead-in wire from the Stir-Ator to the switch box must be longer and looser than the shut off chain itself. Should the Stir-Ator malfunction and engage the shut off, this prevents the lead-in wire from being torn from the switch box which could result in serious electrical shock.

Operating the Stir-Ator without the shut off chain properly assembled and installed could result in serious electrical shock or bodily injury and would void the warranty.

See Pages 12, 18 and 19 **for proper installation and clearance of the shut off chain and Stir-Ator.**

6. Hook wire support “S” hook to support chain approximately 12" above the shut off chain. *(See Figure 4AS.)*

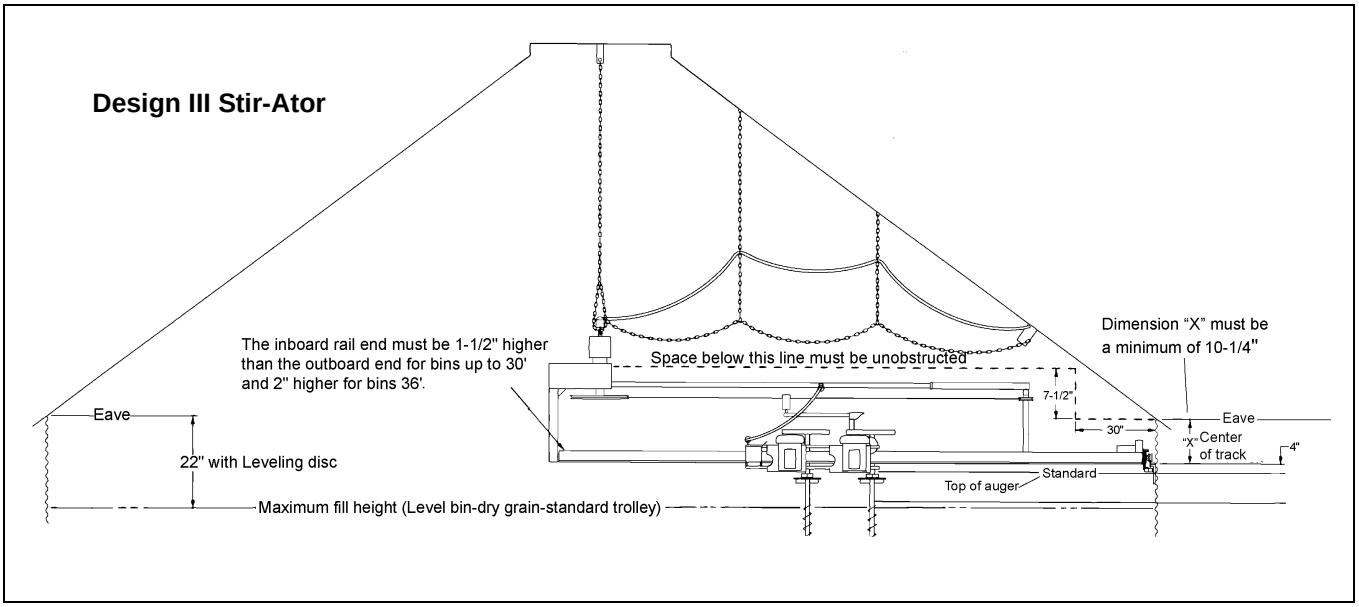


Figure 4AS

7. After adjustments are completed, “S” hooks on the suspension chains and shut off chains should be closed.

Check Movement

Move trolley from the extreme outboard end of the main frame to the inboard end and back again to be sure there is no trolley interference and that there is sufficient electric cord allowed from the support swing arm to reach both ends.

Power

A professional electrician must be employed to bring the power line to the Stir-Ator. The bin must be grounded and all the wiring must be done in accordance with local and national codes to avoid bodily injury and even death.

Installing Stir-Ator Augers

Determine the Required Length of the Auger

Install Stir-Ator augers by standing them up against the trolley to measure length. When measuring the auger length, be sure the trolley is close to the bin wall. If the unit has been correctly installed the measurement between the drying floor and the Stir-Ator will be the shortest at the wall.

The Stir-Ator augers should clear the drying floor by 3" for bins up to 30' and 4" for bins 33' and over. If a grain flow system is installed, the augers should clear the drying floor by 30". If a bin sweep is to be installed, then the clearance should match that for the floor by 3" for bins up to 30' and 4" for bins 33' and over.

The overall size and dimension chart can be useful for cutting the Stir-Ator auger to the proper length. *(See Figure 4AT.)*

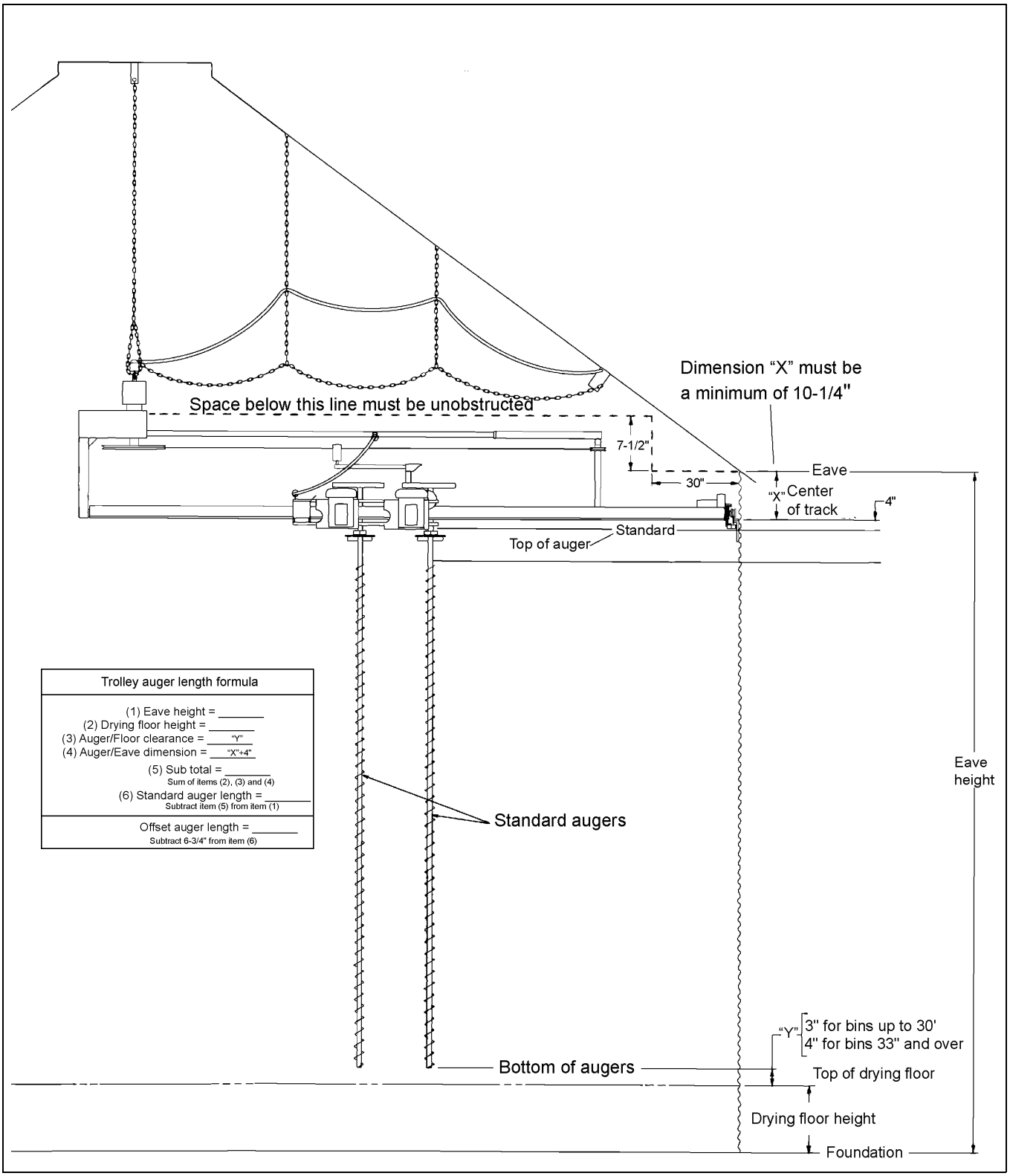


Figure 4AT *Design III Stir-Ator - Overall Size and Dimensions*

Cutting Augers

NOTE: *When shortening a down auger, cut from the bottom and be sure the flighting is re-welded properly before cutting the auger. Cutting the auger from the top will void the warranty.*

1. Stir-Ator down augers are manufactured to allow them to be cut to the required length by cutting them from the bottom end instead of the top. All augers have flighting to within 8" from the top and hard-surfaced augers will have all but the top pitch of flighting hard-surfaced.
2. Lay the auger down and mark where the auger will be cut off. Weld the flighting to the shaft in three (3) places within the first pitch just above this mark **before** cutting off the bottom part of the auger. *(See Figure 4AU.)*

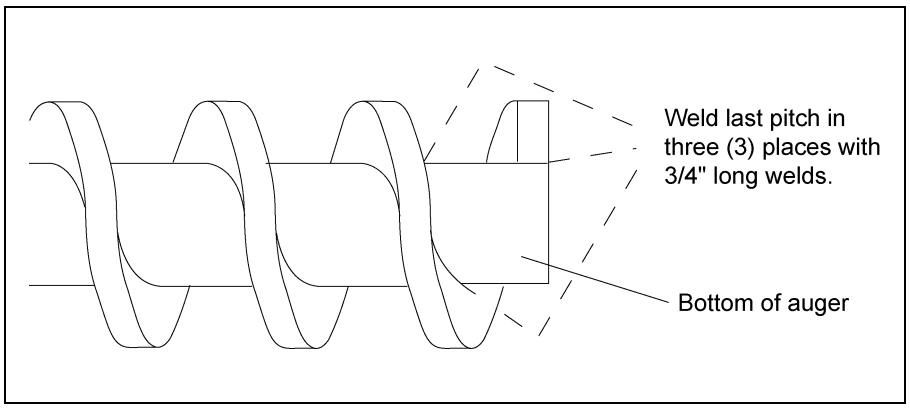


Figure 4AU *Auger Cut-Off Diagram*

CAUTION

Do not for any reason, weld flighting to the shaft at the top of the auger. To do so voids warranty. The flighting and the shaft must remain unwelded to minimize distortion and weakening of the shaft.

Assembling Augers into Stub Shaft

GSI augers have factor drilled holes. If your auger does not have this hole, drill a 5/16" diameter hole about 5/16" deep into the auger shaft, 1-1/2" from the top. *(See Figure 4AV.)*

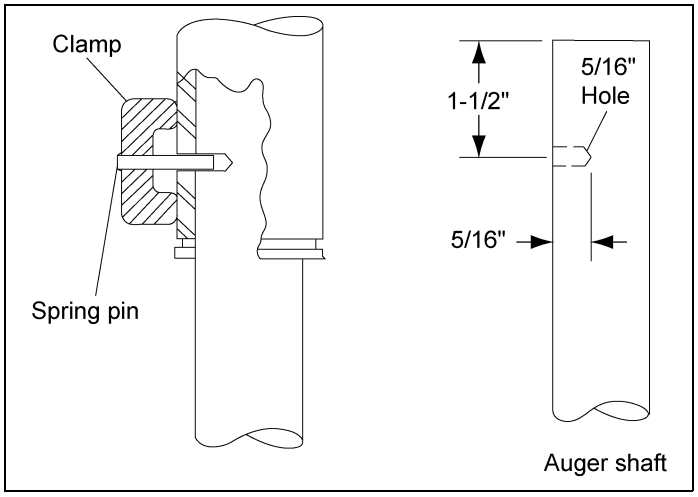


Figure 4AV

Slide the auger into the stub and align the holes in the stub shaft and the auger shaft. Place the auger clamp with the spring pin over the holes so the spring pin is inserted into the auger. Evenly torque the clamp bolts to 140 ft.-lbs. *(See Figure 4AW.)*

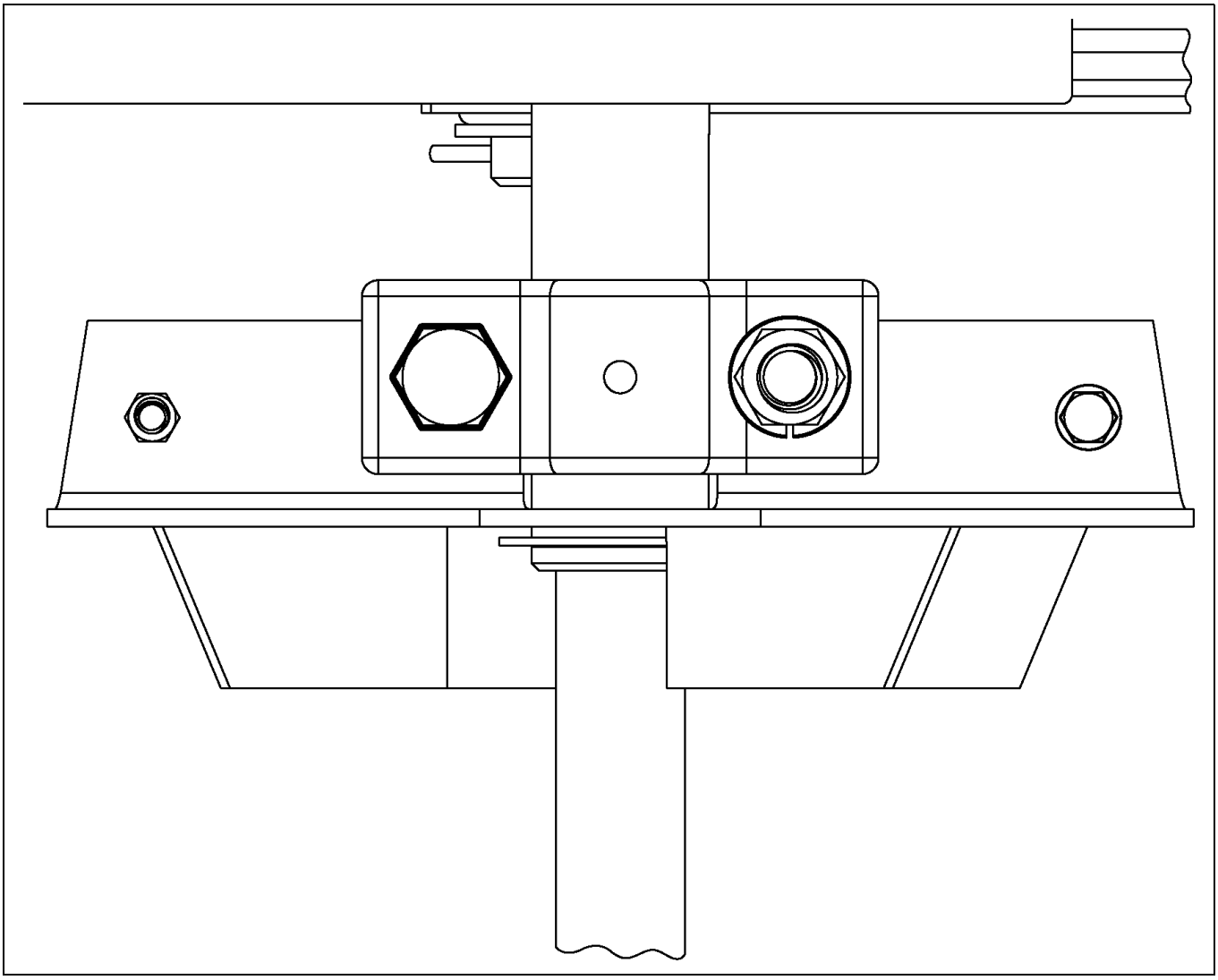


Figure 4AW

To replace the auger, unbolt the auger clamp and remove the clamp and spring pin. This will allow the auger to be removed.

WARNING

Do not run augers in an empty bin. Augers can whip and become entangled causing damage to machine and/or bodily harm.

Start-Up Procedure (Full Bin)

1. First, with the power turned “OFF” at the switch box under the bin roof, turn power “ON” at the panel on the ground. Start the unit with the switch box under the bin roof. If the augers are not set too tightly in the grain, the Stir-Ator will run.
2. Second, turn OFF and lock out all power before entering the bin. If the augers are set tightly in the grain, break them loose one at a time by hand using a pipe wrench. Be careful not to damage the Stir-Ator frame, Stir-Ator wall track or the bin roof and/or sidewalls. If more torque is required to turn the augers, block the Stir-Ator up until the augers are apart and turning freely.
3. Third, for double or triple auger units, lock out all Stir-Ator auger motors but one. After that particular motor is operating, sequentially engage remaining motors until they are all operating.
4. To lock out an auger motor, rotate the handle beside each motor mount **clockwise** until it passes and stays past center. *(See Figure 5A.)*

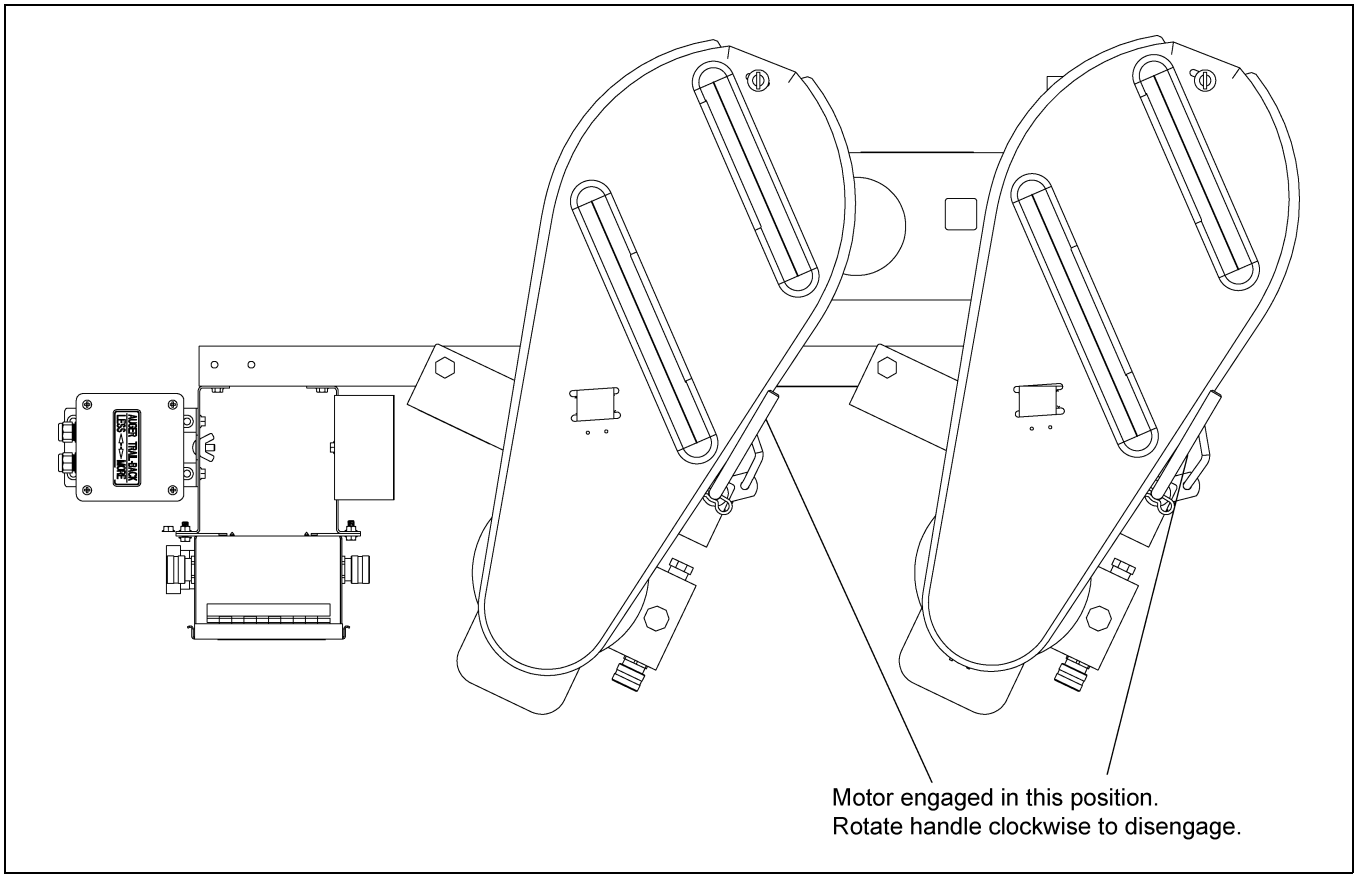


Figure 5A

CAUTION

Do not turn the Stir-Ator backward and turn the electric power switch “ON”. Bin damage can result.

Track Unit Drive Sprocket

The Design III Stir-Ator has the versatility to adapt to the changes in the physical characteristics of the grain. The roller chain sprocket on the gear motor is connected to the track drive wheel by means of the roller chain. The forward speed on the Design III Stir-Ator can be varied by changing the roller chain sprocket on the gear motor.

Listed below are the standard roller chain sprockets used:

Standard trolley units under 36' diameter - 10 Tooth sprocket

Standard trolley units 36' diameter and above - 12 Tooth sprocket

Offset trolley units under 36' diameter - 12 Tooth sprocket

Offset trolley units 36' diameter and above - 14 Tooth sprocket

Stir-Guard Operation (Optional)

The Stir-Guard is designed to protect the grain by shutting off the Stir-Ator if the unit is not advancing around the bin normally. As the gear motor drives the unit around the bin, a microswitch actuator which rides on the lower notched swivel block sends a pulse to the solid state timer each time the roller advances one notch. If the unit does not advance forward enough to actuate the switch in 45 minutes, the timer will run out and the power to the motors on the Stir-Ator will be shut off by the contactor located in the swivel box of the Stir-Ator.

To reset the Stir-Guard timer, move the switch box handle to the “OFF” position and then back “ON”. The unit will start-up again. Before the Stir-Guard is reset, the problem that caused the Stir-Guard to shut off should be located and corrected.

If adjustment of the microswitch roller actuator becomes necessary, turn OFF the power to the swivel at the switch box. Remove the right swivel box cover and loosen the nuts on the roller switch plate. Rotate the swivel block so the switch roller is riding on the peak of a swivel cog. *(See Figure 5B.)* Slide the roller switch plate slowly in until the microswitch clicks, then move the switch an additional 1/16" and tighten the nuts. Rotate the swivel to assure the switch clicks “ON” and “OFF” as the roller rides in and out on the swivel cog. This is necessary for a pulse to be sent to the Stir-Guard timer. *(See Figure 5B.)*

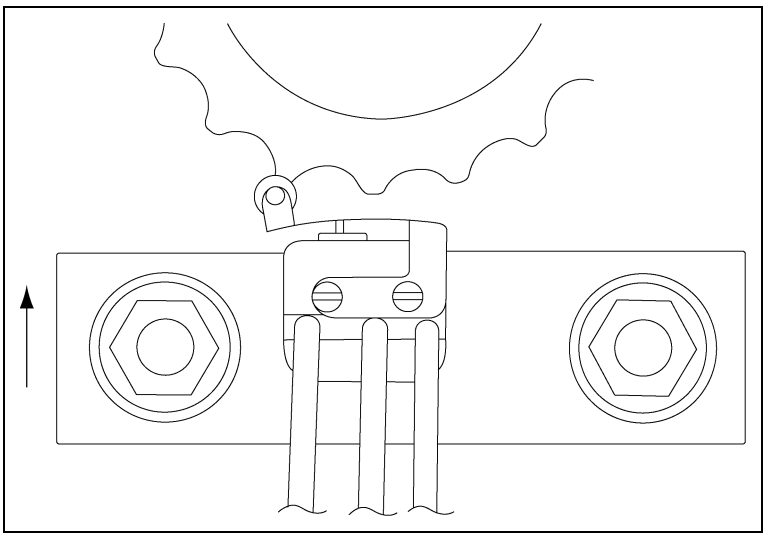


Figure 5B *Stir-Guard Microswitch Adjustment*

Stir-Guard Option Installation Instructions

1. Disconnect power to the unit.
2. Remove the two (2) long swivel covers on the Stir-Ator yoke swivel housing.
3. Remove the two (2) self-tapping screws on the top of the swivel yoke enclosure. Position the solid state module #2EL1207 inside the top of the yoke swivel housing with the five (5) terminals on the module pointing toward the Stir-Ator swivel. Bolt the module onto the yoke where the self-tapping screws were removed using two (2) #8 x 1/2" screws and lock nuts.
4. Fasten the Stir-Guard assembly plate onto the swivel housing with the Stir-Guard contactor toward the swivel, secure with the #8 lock nuts. (Do not loosen the nuts holding the components on the Stir-Guard assembly plate.)
5. Place the two (2) small spacers onto the threaded studs welded in the swivel housing, next place the Stir-Guard switch and mounting plate onto the studs with the roller switch toward the cog swivel ring.
6. Adjust by putting the switch roller on the peak of a swivel cog. *(See Figure 5B on Page 44.)* Move the switch plate slowly inward until the roller switch clicks. After the click, move an additional 1/16", then tighten. Rotate the swivel, be sure the roller switch rides in and out freely and the switch clicks ON and OFF, as it passes over each cog. This is necessary for a pulse to be sent to the Stir-Guard timer. Without a pulse every 45 minutes, the Stir-Guard will shutdown the Stir-Ator operation.
7. Connect the roller switch wires to the Stir-Guard solid state module, matching the wire color to the module color coded markings.
8. Remove lead-in wires coming from the yoke pipe to the terminal strip **EXCEPT THE GREEN WIRE**. Cut off the spade terminal and strip the installation back 3/8". Reconnect these wires to the top and bottom lugs of the Stir-Guard contactor.
9. Connect the black jumper wires from the left side of the Stir-Guard contactor to the terminal strip.
10. Replace the swivel box covers.
11. Place the “STIR-GUARD” decals on the swivel covers over the decal already on the cover. **DO NOT COVER THE CAUTION DECAL.**

Storage

The Stir-Ator is an excellent tool to aid in the preservation of grain stored in the drying bin. Some experimentation has been done with storage of grain in the 16% range by use of the Stir-Ator to prevent formation of “hotspots” and insect hatchings. Such a program should be undertaken with caution and frequent inspections should be made.

Users of the Stir-Ator sometimes want to utilize more bin capacity for dry storage by heaping dried grain over the Stir-Ator. This is not recommended because the downward pressure of the grain on the Stir-Ator when the bin is emptied could bend or break parts of the machine or collapse the roof of the bin.

NOTE: *Warranty will be voided if Stir-Ator is covered with grain.*

Drying Guide

NOTE: *Drying in grain depths of over 18' is not advised.*

The recommendations below are for drying bins without wall-liners or air tubes. If such equipment is used, higher temperatures can be used without worry of bin wall moisture. Consequently, a faster fill rate also can be utilized.

Clean grain is very important to uniform drying.

Grain with a moisture of 20%-26% from the field is the most profitable harvest-drying range. Grain depths of up to 15' can be used in one fill using air only (no heat) or little heat.

A moisture of 27%-30% for grain can be successfully harvested and dried, however, caution should be used. Put up to 12' of grain into the bin during the first fill. This grain should be dried down to the 20%-25% level, then additional grain can be added.

When drying 27%-30% grain, it is advisable to keep the plenum (space between the floor and concrete foundation provided for air circulation for heating and ventilation of the product in the bin) temperature less than 50° above the ambient temperature for the first 4%-6% of moisture removed. After the initial moisture is lowered, higher temperatures can be utilized.

Drying grain with 30%-35% moisture is inefficient, but sometimes necessary. If this is the case, first clean the grain. Then, fill the bin to a depth of 12'-15'. Dry this grain to 20%-25%. Filling up to 18' after drying the 12'-15' depth will yield better results.

Grain testing over 35% moisture should not be harvested for drying except under emergency conditions. Harvest damage will be extensive and drying will be very difficult and expensive. The best course to be followed under these conditions is to fill slowly and supervise constantly.

NOTE: *The higher the moisture of the grain, the lower the starting temperature should be to minimize wall condensation and ensure the highest quality of grain.*

Bin liners or air tubes, depending on the severity of the condition, can be used successfully to control the problem of wet walls from condensation.

Always have the Stir-Ator turned "OFF" when taking samples.

Check for moisture content of dried grain by taking and blending several samples across the top of the bin and from the grain coming up near the Stir-Ator auger.

**Number of Stir-Ator Augers Versus Fan and Heater Sizes

The *below* and *on Page 48* charts are based on ambient air temperature of 50°F, 60% relative humidity, 16' (4.9 m) of corn and 7%-12% moisture removal (23.5%-16% final moisture). This chart is designed as a guide only. Fan performance will vary considerably from one manufacturer to another and other factors can change the approximate bushels per day. Choose from Stir-Ator models with two (2) or three (3) augers to fit bins from 18' (3.5 m) to 48' (14.6 m). Each model gives you all the exclusive Stir-Ator features that can turn a simple bin into a wet-holding tank, dryer and storage bin - all in one unit.

Heated Air (Heat Rise above Ambient Temperature-Fahrenheit) - Corn-16'

Bin Size	Fan HP	Drying Rate Multipliers * for More Fans		CFM for 1 Fan	Static Pressure for 1 Fan	25°		50°		75°		100°		125°		150°	
		2 Fans	3 Fans			BPD	# Aug	BPD	# Aug	BPD	# Aug	BPD	# Aug	BPD	# Aug	BPD	# Aug
18'	5.0	1.2	NA	6600	3.5	360	2	750	2	1100	2	1480	2	1850	3	2240	3
	7.5	1.2	NA	7100	3.9	490	2	810	2	1180	2	1590	2	1990	3	2400	3
21'	5.0	1.2	NA	8100	3.0	450	2	920	2	1350	2	1810	3	2270	3	2740	3
	7.5	1.2	NA	9100	3.6	500	2	1030	2	1520	2	2030	3	2560	3	3080	3
	10.0	1.2	NA	9200	3.6	510	2	1040	2	1530	2	2060	3	2580	3	3120	3
	12.5	1.2	NA	10600	4.5	580	2	1200	2	1770	3	2370	3	2980	3	3590	3
24'	7.5	1.3	NA	10200	2.8	560	2	1160	2	1700	3	2280	3	2860	4	3460	4
	10.0	1.2	NA	11000	3.2	610	2	1250	2	1830	3	2460	3	3090	4	3730	4
	10 C	1.5	NA	11300	3.3	620	2	1280	2	1880	3	2530	3	3170	4	3830	4
	12.5	1.3	NA	12000	3.6	660	2	1360	2	2000	3	2680	3	3370	4	4070	4
	15 C	1.4	NA	13100	4.1	720	2	1490	2	2180	3	2930	4	3680	4	4440	4
	20 C	NA	NA	15500	5.3	850	2	1760	3	2580	3	3460	4	4350	4	5250	4
27'	7.5	1.4	NA	10900	2.2	600	2	1240	2	1820	3	2440	3	3060	4	3690	4
	10 C	1.6	NA	12000	2.5	660	2	1360	2	2000	3	2680	3	3370	4	4070	4
	10.0	1.3	NA	12200	2.6	670	2	1380	2	2030	3	2730	3	3430	4	4130	4
	12.5	1.4	NA	13100	2.9	720	2	1490	2	2180	3	2930	4	3680	4	4440	4
	15 C	1.5	NA	14100	3.2	780	2	1600	2	2350	3	3150	4	3960	4	4780	4
	20 C	1.5	NA	16600	4.2	910	2	1880	3	2770	3	3720	4	4660	4	4620	4
	30 C	1.3	NA	19200	5.2	1060	2	2180	3	3200	4	4290	4	5390	4	6500	4
30'	7.5	1.6	NA	11400	1.7	630	2	1290	2	1900	3	2550	3	3200	4	3680	4
	10 C	1.7	NA	12500	2.0	690	2	1420	2	2080	3	2790	4	3510	4	4230	4
	10.0	1.5	NA	12900	2.1	710	2	1460	2	2150	3	2880	4	3620	4	4370	4
	12.5	1.5	NA	13900	2.3	760	2	1580	2	2320	3	3110	4	3900	4	4710	4
	15 C	1.6	NA	14900	2.6	820	2	1690	3	2480	3	3330	4	4180	4	5050	4
	20 C	1.6	NA	17600	3.3	970	2	2000	3	2940	4	3930	4	4940	4	5960	4
	30 C	1.6	NA	20300	4.1	1120	2	2300	3	3390	4	4540	4	5700	4	6880	4
33'	10 C	1.7	NA	12800	1.6	700	2	1450	2	2130	3	2860	4	3590	4	4340	4
	10.0	1.6	NA	13200	1.6	730	2	1500	2	2200	3	2950	4	3710	4	4470	4
	12.5	1.6	NA	14600	1.9	800	2	1660	2	2430	3	3260	4	4100	4	4950	4
	15 C	1.6	NA	15400	2.0	850	2	1750	3	2570	3	3440	4	4330	4	5220	4
	20 C	1.6	NA	18400	2.6	1010	2	2090	3	3070	4	4110	4	5170	4	6230	4
	30 C	1.6	NA	21200	3.3	1170	2	2400	3	3530	4	4740	4	5950	4	7180	4
36'	10 C	1.8	NA	13100	1.3	720	2	1490	2	2180	3	2930	4	3680	6	4440	6
	10.0	1.7	NA	13500	1.3	740	2	1530	2	2250	3	3020	4	3790	6	4570	6
	12.5	1.7	NA	15000	1.5	830	2	1700	3	2500	3	3350	6	4210	6	5080	6
	15 C	1.7	NA	15800	1.6	870	2	1790	3	2630	4	3530	6	4440	6	5350	6
	20 C	1.7	NA	18900	2.1	1040	2	2140	3	3150	6	4220	6	5310	6	6400	6
	30 C	1.7	NA	21800	2.6	1200	2	2470	3	3630	6	4870	6	6120	6	7390	6
42'	10.0	1.8	2.4	13800	0.9	760	2	1560	2	2300	3	3080	6	3880	6	4680	6
	12.5	1.8	2.3	15600	1.1	860	2	1770	3	2600	3	3490	6	4380	6	5290	6
	15.0	1.8	2.4	16400	1.1	900	2	1860	3	2730	6	3670	6	4610	6	5560	6
	20 C	1.8	2.4	19500	1.4	1070	2	2210	3	3250	6	4360	6	5480	6	6610	6
	30 C	1.8	2.4	22600	1.8	1240	2	2560	3	3770	6	5050	6	6350	6	7660	6
	40 C	1.8	2.4	26400	2.2	1450	3	2990	6	4400	6	5900	6	7410	6	8940	6
48'	10.0	1.9	2.7	13900	0.6	760	2	1580	2	2320	3	3110	6	3900	6	4710	6
	12.5	1.8	2.5	16000	0.8	880	2	1810	3	2670	6	3580	6	4490	6	5420	6
	15 C	1.9	2.6	16700	0.8	920	2	1890	3	2790	6	3730	6	4690	6	5660	6
	20 C	1.9	2.6	19900	1.0	1100	2	2260	3	3320	6	4450	6	5590	6	6740	6
	30 C	1.8	2.5	23100	1.2	1270	3	2620	6	3850	6	5160	6	6490	6	7830	6
	40 C	1.9	2.6	26800	1.5	1470	3	3040	6	4470	6	5990	6	7530	6	9080	6
	50 C	1.8	2.4	31600	1.9	1740	3	3580	6	5270	6	7060	6	8800	6	10710	6

* All multiple fans are in parallel. Multiply drying rates x 0.77 for 10 point removal.
Multiply drying rates x 1.35 for 5 point removal.

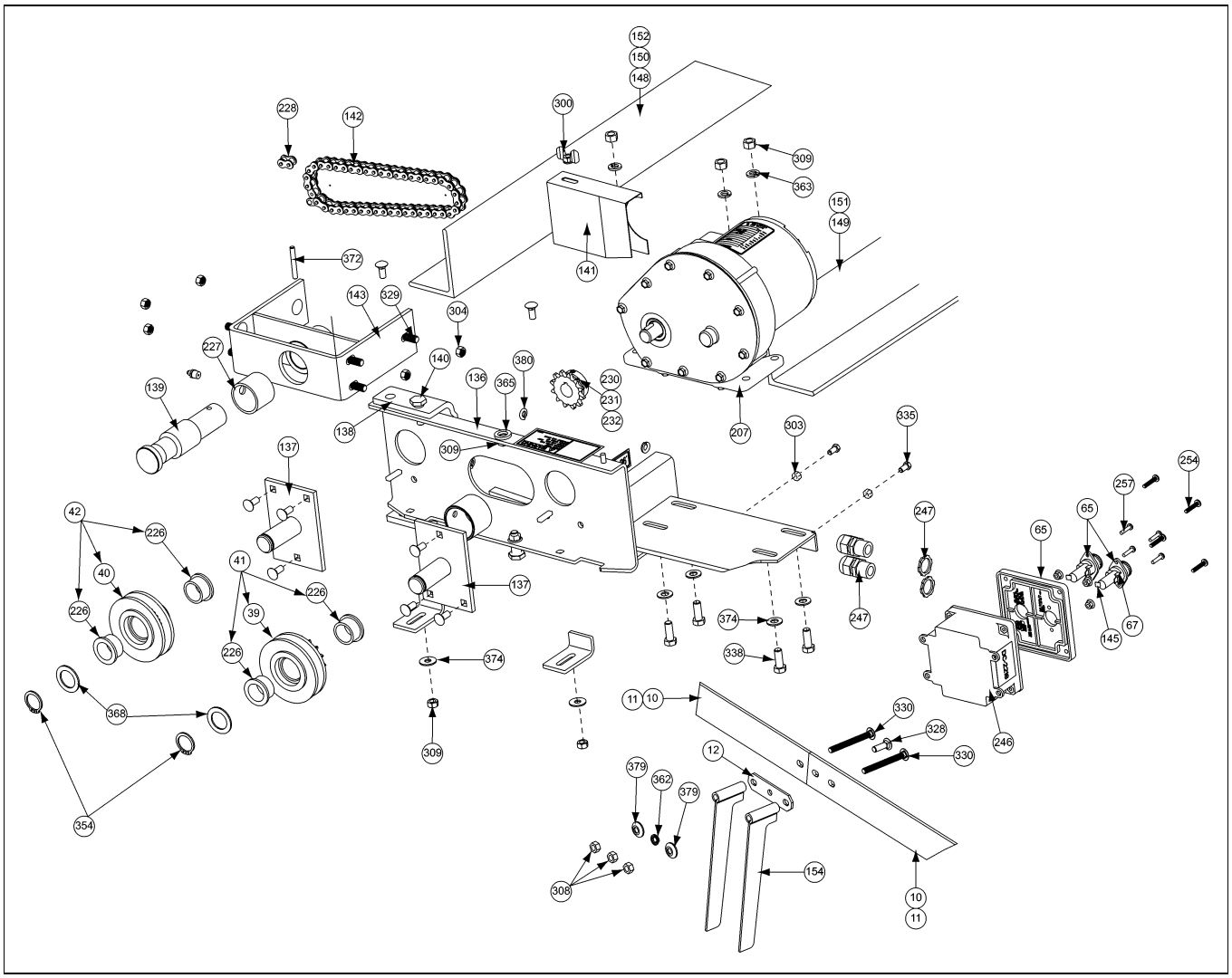
All multiple fan static pressures (where multipliers are shown) fall within acceptable performance guidelines.

** Stir-Ator down auger recommendations, as shown in the chart, are for stir-dry bins only. For grain flow continuous flow drying system application, please refer to grain flow drying chart for down auger recommendations.

Natural Air - Corn-16'

Bin Size	Fan HP	CFM	Static Pressure	CFM Per BU	Auger Required
18'	1 HP-18"	3800	1.6	1.1	2
	3.0	4600	2.1	1.3	2
	5.0	6600	3.5	1.9	2
21'	1 HP-18"	4300	1.2	0.9	2
	3.0	5100	1.5	1.1	2
	5.0	8100	3.0	1.7	2
	7.5	9100	3.6	1.9	2
	10.0	9200	3.6	2.0	2
24'	3.0	5300	1.1	0.9	2
	5.0	9200	2.4	1.5	2
	7.5	10200	2.8	1.5	2
	10 C	11000	3.2	1.8	2
	10.0	11300	3.3	1.8	2
	12.5	12000	3.6	2.0	2
27'	5.0	10100	2.0	1.3	2
	7.5	10900	2.2	1.4	2
	10 C	12000	2.5	1.5	2
	10.0	12200	2.6	1.6	2
	12.5	13100	2.9	1.7	2
	15 C	14100	3.2	1.8	2
30'	5.0	10700	1.6	1.1	2
	7.5	11400	1.7	1.2	2
	10 C	12500	2.0	1.3	2
	10.0	12900	2.1	1.3	2
	12.5	13900	2.3	1.4	2
	15 C	14800	2.6	1.6	2
	20 C	17600	3.3	1.8	2
	10 (2)	18800	3.6	2.0	2
33'	5.0	11200	1.3	1.0	2
	7.5	11700	1.4	1.0	2
	10 C	12800	1.6	1.1	2
	10.0	13200	1.6	1.1	2
	12.5	14600	1.9	1.2	2
	15 C	15400	2.0	1.3	2
	20 C	18400	2.6	1.6	2
	10 (2)	21300	3.3	1.8	2
	12.5 (2)	23400	3.8	2.0	2
36'	10.0	13500	1.3	1.0	2
	12.5	15100	1.5	1.1	2
	15 C	15900	1.6	1.1	2
	20 C	18900	2.1	1.4	2
	10 (2)	23200	2.9	1.7	2
	12.5 (2)	25100	3.2	1.8	2
	15 C (2)	27200	3.6	2.0	2
42'	20 C	19500	1.4	1.0	2
	30 C	22600	1.8	1.2	2
	12.5 (2)	27700	2.4	1.5	2
	15 C (2)	29600	2.6	1.6	3
	20 C (2)	35100	3.4	1.9	3
48'	40 C	26800	1.5	1.1	2
	12.5 (2)	29500	1.8	1.2	2
	15 C	31200	1.9	1.3	3
	20 C	37100	2.5	1.5	3
	30 C (2)	42900	3.0	1.7	3
	40 C (2)	50400	3.9	2.0	3
	20 C (2)	50700	3.9	2.0	3

Design III Stir-Ator Track Unit



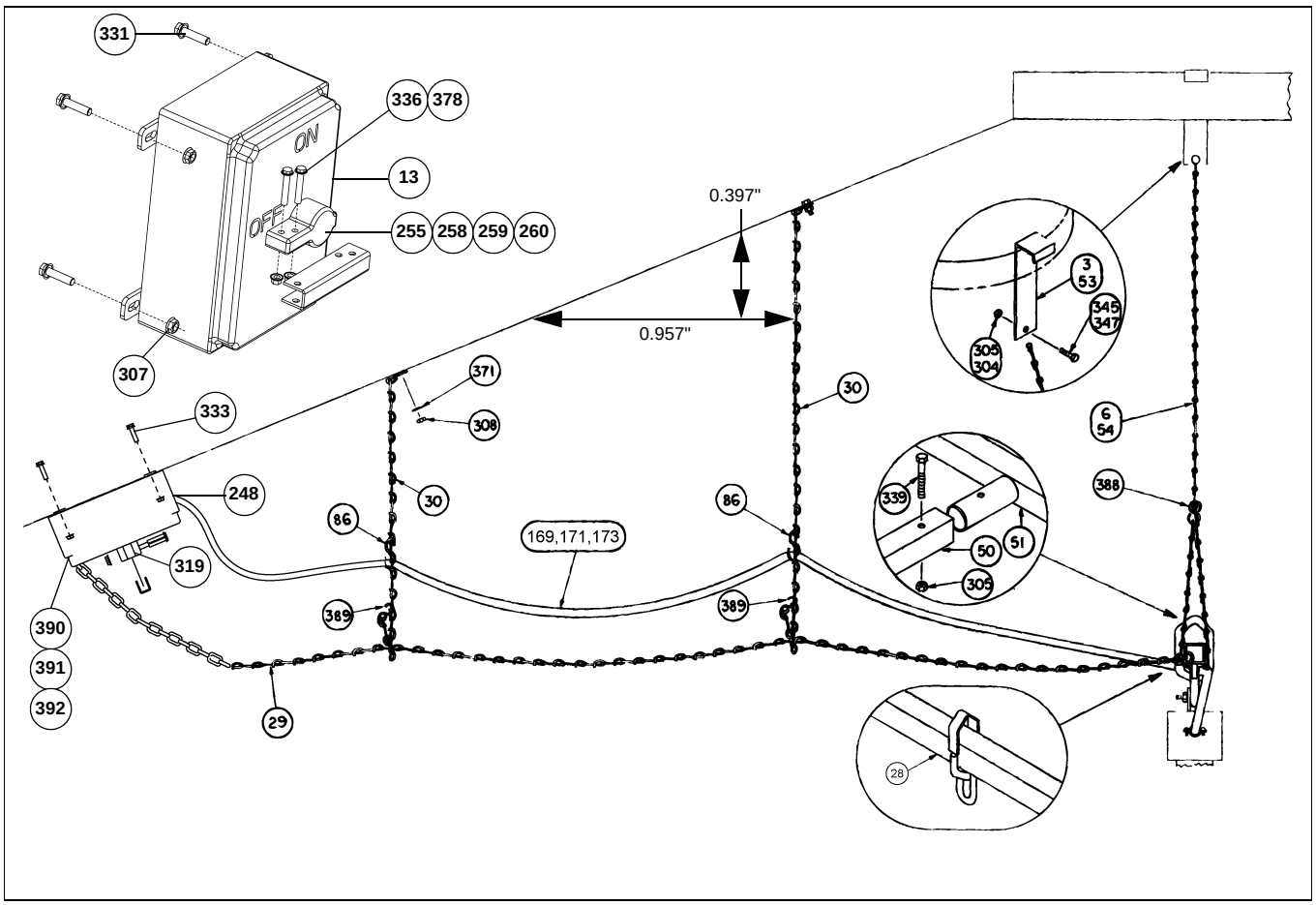
Design III Stir-Ator Track Unit Parts List

Ref #	Part #	Description	Double Auger	Triple Auger
10	106C074	Bin Wall Track (12-5/8" Spacing) (Triple) (Specify Bin Diameter)	0	A/R
11	106C073	Bin Wall Track (19" Spacing) (Double) (Specify Bin Diameter)	A/R	0
12	103C0038	Track Connector (Specify Bin Diameter)	A/R	A/R
39	104C2026	Drive Wheel w/ Sprocket	1	1
40	104C2027	Track Wheel	1	1
41	104C2037	Drive Wheel w/ Sprocket and Bushings Assembly	1	1
42	104C2038	Track Wheel w/ Bushings Assembly	1	1
65	105E0100	Electrical Box Lid with Fuse Hole Cut Out	1	1
67	105E0104	Fuse Holder	2	2
136	106C016-Y	Track Drive Frame Weld	1	1
137	106C017-Y	Track Wheel Mounting Bracket	2	2
138	106C025-Y	Track Unit Clevis	1	1
139	106C029	Pivot Pin	1	1
140	106C035	Shoulder Bolt, 3/8" x 1-1/4"	6	8
141	106C036	Track Unit Shield	1	1
142	106C037	Track Unit Roller Chain	1	1

Design III Stir-Ator Track Unit Parts List (Continued)

Ref #	Part #	Description	Double Auger	Triple Auger
143	106C038-Y	Frame End Weld - Outboard	1	1
145	106C046	Cord Clip	2	2
148	106G055-XXXX	Right Frame Rail (Double) 18' to 36' (Specify Bin Diameter)	1	0
149	106G056-XXXX	Left Frame Rail (Double) 18' to 36' (Specify Bin Diameter)	1	0
150	106G058-XXXX	Right Frame Rail (Triple) 24' to 48' (Specify Bin Diameter)	0	1
151	106G059-XXXX	Left Frame Rail (Triple) 24' to 48' (Specify Bin Diameter)	0	1
152	106G090-XXXX	Uni-Rail (Double-Triple) 42' to 48'	1	1
154	106C063	Track Bracket 8-1/2"	A/R	A/R
207	DMC20087	Gear Motor (230 Volt)	1	1
226	PT0883	Flanged Bronze Bushing, 1-1/4" O.D. x 1" I.D. x 3/4"	4	4
227	PT0888-D	Case Bronze Bushing, 1-3/4" O.D. x 1-1/2" I.D. x 1-3/8" Long	1	1
228	D02-0031	Connector Link, #40	1	1
230	PT1098	Roller Chain Sprocket, #40-10T w/ 3/4" Bore Standard - Under 36'	1	1
231	PT1099	Roller Chain Sprocket, #40-12T w/ 3/4" Bore, Offset - Under 36' Standard 36' and Over	1	1
232	PT1101	Roller Chain Sprocket, #40-14T w/ 3/4" Bore, Offset - 36' and Over	1	1
246	105E0101	Bottom, 4 x 4 Electrical Box, PVC	1	1
247	FH-1310	Connector, Cord Heyco #3231	7	8
254	1EL0561	Butt Splice Wire Connector	2	2
257	105E0105	Fuse, FRZ, 2A 250V Midget TD Fuse	2	2
300	S-6781	Nylon Wing Nut, 1/4"	1	1
303	S-4310	Hex Lock Nut, 1/4"	14	16
304	S-5220	Hex Lock Nut, 5/16"	6	9
308	S-396	Hex Nut, 5/16"	A/R	A/R
309	S-456	Hex Nut, 3/8"	A/R	A/R
328	S-8059	Carriage Bolt, 5/16" x 1"	A/R	A/R
329	S-3585	Carriage Bolt, 3/8" x 1"	22	26
330	S-9094	Carriage Bolt, 5/16" x 3", Full Thread, Grade 5	A/R	A/R
335	S-1101	Hex Bolt, 1/4" x 1/2"	3	3
338	S-7520	Hex Bolt, 3/8" x 1"		
		2 HP	12	16
354	3FH0574	Heavy External Retaining Ring, 1"	2	2
362	3FH0790	Lock Washer, 5/16"	A/R	A/R
363	S-1054	Lock Washer, 3/8"	A/R	A/R
365	3FH0817	Bushing, 7/8" O.D. x 33/64" I.D. x 10 Gauge	1	1
368	3FH0831	Machinery Bushing, 1-1/2" O.D. x 1" I.D. x 14 Gauge	2	2
372	3FH0898	Spring Pin, 1/4" x 2"	1	1
374	3FH0948	Flat Washer, 3/8" SAE	8	10
379	3FH0977	Round Cupped Washer, 7/8" O.D. x 5/16" I.D.	A/R	A/R
380	3FH0986	Woodruf Key, 3/16" x 5/8"	1	1

Design III Stir-Ator Switch Boxes and Suspension



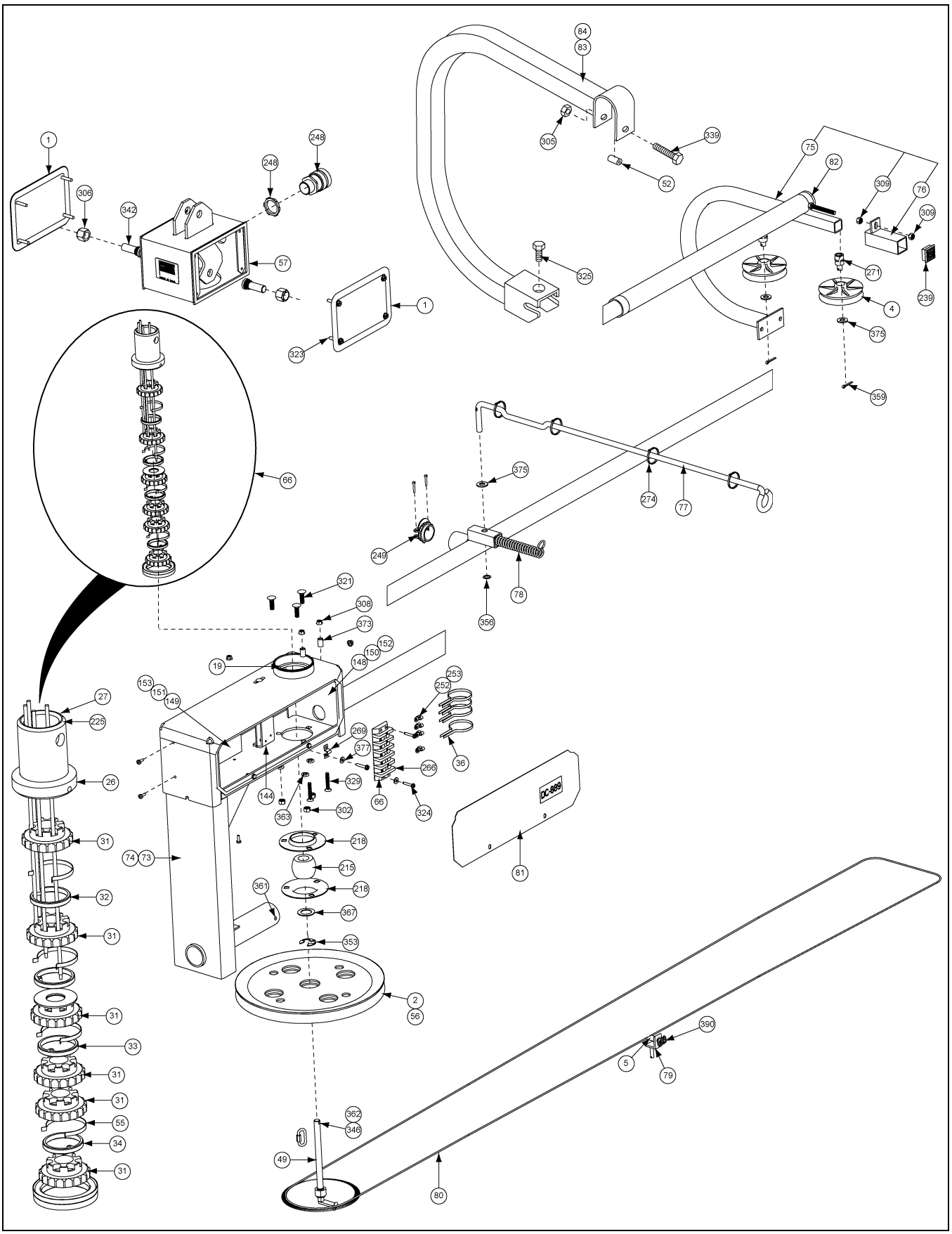
Design III Stir-Ator Switch Boxes and Suspension Parts List

Ref #	Part #	Description	Double Auger	Triple Auger
3	106A077-Y	Stir-Ator Suspension Hook, Powder Coat Ochre	2	0
6	106A074-2400	Suspension Chain (Double) 1400-2400	2	2
	106A074-3000	Suspension Chain (Double) 2401-3000	2	2
13	106E213	Switch, Safety, Non-Fusible	1	0
28	104G0021	Suspension Bar	1	0
29	-	Safety Shut Off Chain (Specify Bin Diameter)	-	-
	DAVID0878	18' 1"-21'	1	1
	DAVID0879	21' 1"-24'	1	1
	DAVID0880	24' 1"-27'	1	1
	DAVID0881	27' 1"-30'	1	1
	DAVID0882	30' 1"-33'	1	1
	DAVID0883	33' 1"-36'	1	1
30	105A0066-3FT	Shut Off Chain Support (14' to 24')	A/R	A/R
	105A0066-6FT	Shut Off Chain Support (24' to 48')	A/R	A/R
	105A0066-9FT	Shut Off Chain Support (33' to 48')	A/R	A/R

Design III Stir-Ator Switch Boxes and Suspension Parts List (Continued)

Ref #	Part #	Description	Double Auger	Triple Auger
50	105A0051	Center Suspension Tee Bar (Triple)	0	1
51	105A0052-Y	Center Suspension Cross Bar Tube (Triple)	0	1
53	106A077-Y	Suspension Hook (Triple)	0	3
54	106A075-2400	Center Suspension Chain (Triple) 2100-2400	0	3
	106A075-3000	Center Suspension Chain (Triple) 2401-3000	0	3
86	106A068	“S” Hook (Special)	A/R	A/R
169	1EL3050	Switch Box to Swivel Wire 12/3 SO (Specify Bin Diameter)		
		230 Volt, 1 Phase 2 HP	A/R	A/R
171	1EL3047	Switch Box to Swivel Wire 10/3 SO (Specify Bin Diameter)		
		230 Volt, 1 Phase 2 HP	A/R	A/R
173	1EL3058	Switch Box to Swivel Wire 8/3 SO (Specify Bin Diameter)		
		230 Volt, 1 Phase 1-1/2 HP and 2 HP	A/R	A/R
248	1EL0403	Cord Connector, 3/4"	A/R	A/R
255	106E215	Circuit Breaker, Safety Disconnect, 230V, 1 PH, 50A	1	1
258	106E216	Circuit Breaker, Safety Disconnect, 230V, 3 PH, 30A	1	1
259	106E217	Circuit Breaker, Safety Disconnect, 440V, 3 PH, 15A	1	1
260	106E224	Circuit Breaker, Safety Disconnect, 600V, 3 PH, 10A	1	1
304	S-5220	Hex Lock Nut, 5/16"	6	9
305	S-4663	Hex Lock Nut, 3/8"		
		Under 36' Only	0	1
		36' Bin Diameter Only	1	2
307	S-1102	Hex Nut, 1/4"	8	8
308	S-396	Hex Nut, 5/16"	A/R	A/R
319	S-420	Spade Bolt, 1/4" x 2-3/8"	2	2
331	S-846	Slotted Round Head Machine Screw, 1/4" x 1"	2	2
333	S-7643	Slotted Pan Head Machine Screw, 1/4" x 1/2"	2	2
336	S-7808	Hex Bolt, 1/4" x 1-1/4"	2	2
339	S-861	Hex Bolt, 3/8" x 2-1/2"		
		Under 36' Only	0	1
		36' Diameter Bin	1	2
345	S-9065	Flange Bolt, 3/8"-16 x 1" ZN Grade 5	0	3
347	2FH0990	Flange Bolt, 5/16"-18 x 1" ZN Grade 5	2	0
371	S-845	Flat washer, 5/16"		
		27' 1" to 35' 11" (Triple)	0	10
		36' (Double-Triple)	10	10
378	3FH0977	Round Cupped Washer, 7/8" O.D. x 17/64" I.D.	8	8
388	5FH0082	“S” Hook, #17	2	3
389	5FH0094	Clip	3	3
390	106E214	Breaker Box, Safety Disconnect, 3 PH	1	1
391	106E221	Breaker Box, Safety Disconnect, 1 PH	1	1
392	106E223	Breaker Box, Safety Disconnect, 3 PH, 600V	1	1

Design III Stir-Ator Yoke



Design III Stir-Ator Yoke Parts List

Ref #	Part #	Description	Double Auger	Triple Auger
1	103A0003	Junction Box Cover	2	2
2	103A0049	12'' Pulley with Drive Link	1	0
4	103A0069	End Yoke Idler	2	2
5	103A0070	Cable Tube	1	1
19	103E0012	Insulating Washer, 1/16''	1	1
26	104A0014	Center Pivot Flanged Bushing	1	1
27	104A0015	Center Pivot Thrust Bearing	1	1
31	104E0001	Electric Swivel Insulating Block	6	6
32	104E0007	Ring and Wire (White)	1	1
33	104E0010	Ring and Wire (Black)	1	1
34	104E0012	Ring and Wire (Green)	1	1
36	104E0020	Electrical Swivel Contact Strap		
		1 Phase	3	3
49	105A0030-Y	Center Drive Arm and Shaft	1	1
52	105A0053	Support Yoke Spacer tube (36' Diameter Bin)	1	1
55	105A0097	Swivel Spring Clip		
		1 Phase	3	3
56	105A0101	14'' Pulley w/ Drive Link (Triple)	0	1
57	105A0201	Junction Box, Swivel - Weldment	1	1
66	105E0004	Electric Swivel Assembly, 230 Volt, 1 Phase	1	1
73	DAVID0973-DAVID1078-Y	Yoke (Double) (Specify Bin Diameter)	1	0
74	DAVID1079-DAVID1087-Y	Yoke (Triple) (Specify Bin Diameter)	0	1
75	106G040	End Yoke	1	1
76	106S042-Y	Cable Adjustment	1	1
77	106A048-Y	Yoke Wire Support (36' Diameter Bin and Under Only)	1	1
78	106A049	Yoke Wire Support Spring	1	1
79	106A050-Y	Cable Connector	1	1
80	106A051	Cable, 3/16'' (Specify Bin Diameter)	1	1
81	106A052	Swivel Box Cover	2	2
82	106A056	Neoprene Sponge Plug	1	1
83	106A059-Y	Center Yoke Support (Double) (36' Diameter Bin)	1	0
84	106A060-Y	Center Yoke Support (Triple) (36' Diameter Bin)	0	1
144	106C042-W-Y	Inboard Frame End	1	1
148	106G055-XXXX	Right Frame Rail (Double) 18' to 36' (Specify Bin Diameter)	1	0
149	106G056-XXXX	Left Frame Rail (Double) 18' to 36' (Specify Bin Diameter)	1	0
150	106G058-XXXX	Right Frame Rail (Triple) 24' to 48' (Specify Bin Diameter)	0	1

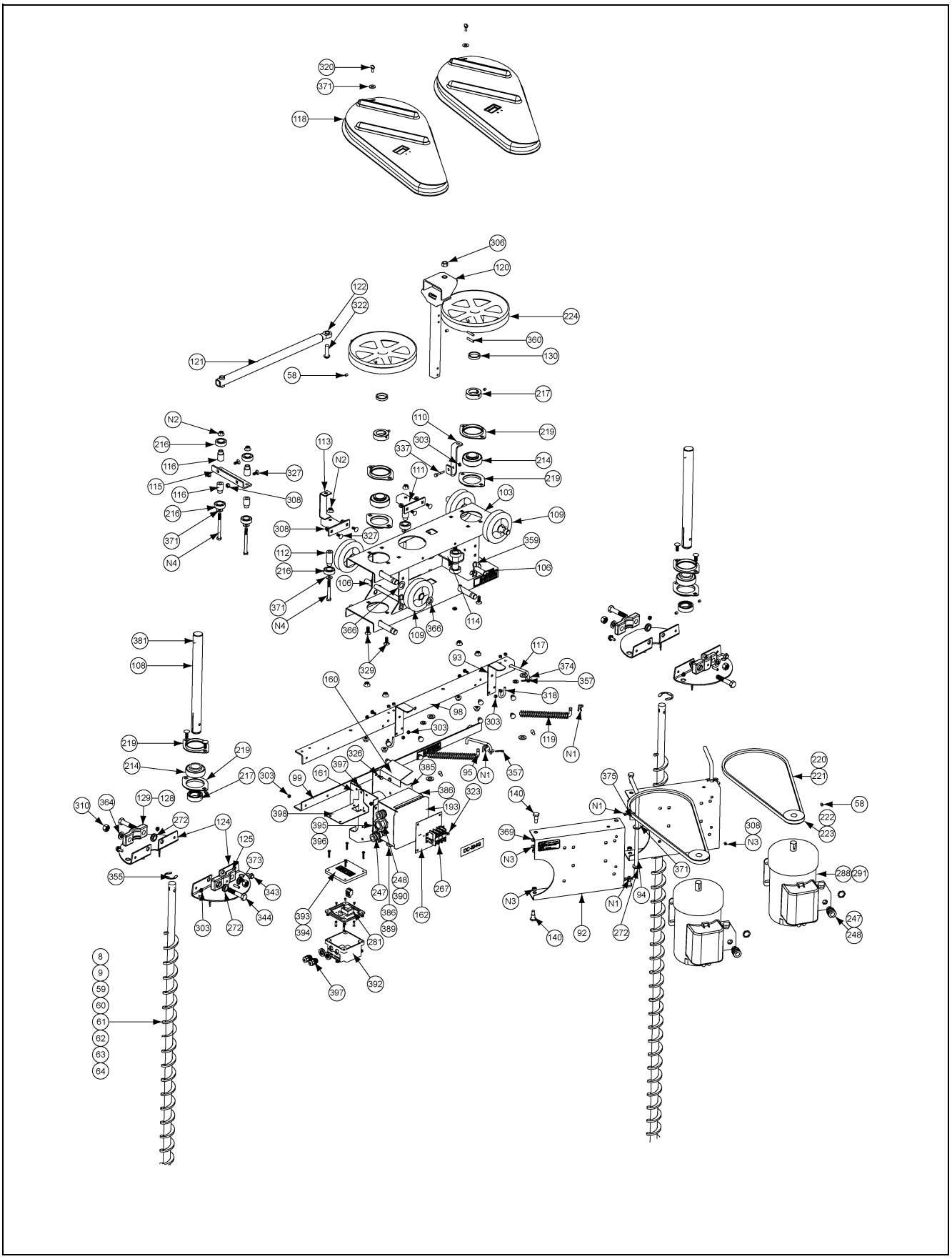
Design III Stir-Ator Yoke Parts List (Continued)

Ref #	Part #	Description	Double Auger	Triple Auger
151	106C059-XXXX-Y	Left Frame Rail (Triple) 24' to 36' (Specify Bin Diameter)	0	1
152	106C061-XXXX-Y	Right Frame Rail (Double-Triple) 36'	1	1
153	106C062-XXXX-Y	Left Frame Rail (Double-Triple) 36'	1	1
215	PT0235	Ball Bushing, 7/8"	1	1
218	PT0421	3 Hole Stamped Flange Housing	2	2
225	PT0808	Single Lip Seal, 3" O.D. x 2-1/4" I.D.	1	1
239	MS0058	Plastic Plug Square Tube	1	1
248	1EL0431	Cord Connector, 1" NPT	A/R	A/R
	KD-PEE0067	Strain Relief 1" NPT x 3/4" O.D. “T” and B #2546 1" NPT STR Strain Relief	A/R	A/R
249	1EL0405	Cord Connector, 1-1/4"	1	1
252	FH-1813	Twist Lock Wire Connector (Red)		
		1 Phase	3	3
253	1EL0557	Twist Lock Wire Connector (Grey)		
		1 Phase	3	3
266	1EL0885	Terminal Block - Double 5 Term, 55 Amp, 600V	1	1
269	1EL0895	Line Jump Strap	1	1
271	1EL2012	“T” Bushing, 1" O.D. Flange x 13/32" I.D. x 1-1/4"	3	3
274	D03-0247	Cable Tie, 1-1/4"	A/R	A/R
302	1FH0728	Hex Lock Nut w/ Nylon Insert, 1/2"	2	2
305	S-4663	Hex Lock Nut, 3/8"		
		Under 36' Only	0	1
		36' Bin Diameter	1	2
306	S-8315	Lock Nut 1/2"-13 ZN Grade C Prevailing Torque	2	2
308	S-396	Hex Nut, 5/16"	A/R	A/R
309	S-456	Hex Nut, 3/8"	A/R	A/R
321	2FH0435	Round Head Knurled Shoulder Bolt, 1/2" x 1"	2	2
323	S-8794	Slotted Hex Washer Head Self-Tapping Screw, #10 x 1/2", Type F	7	7
324	S-9019	Slotted Hex Washer Head Self-Tapping Screw, #10 x 1", Type AB	2	2
325	2FH0620	Square Head Set Screw, 3/8" x 1-1/4" (36' Diameter Bin)	1	1
329	S-3585	Carriage Bolt, 3/8" x 1"	22	26
339	S-7808	Hex Bolt, 3/8" x 2-1/2"		
		Under 36' Only	0	1
		36' Bin Diameter	1	2
342	S-7811	Hex Bolt, 1/2" x 2"	1	1
346	S-7149	Hex Bolt, 5/16" x 1-3/4", Grade 5	1	1
353	3FH0568	External Retaining Ring, 7/8"	2	2
356	3FH0602	External Retaining Ring, 1/2", Self Locking	1	1
359	S-4196	Cotter Pin, 5/32" x 1"	3	3
361	S-8343	Cotter Pin, 1/4" x 3"	1	1
362	S-1147	Lock Washer, 5/16"	A/R	A/R
363	S-1054	Lock Washer, 3/8"	A/R	A/R

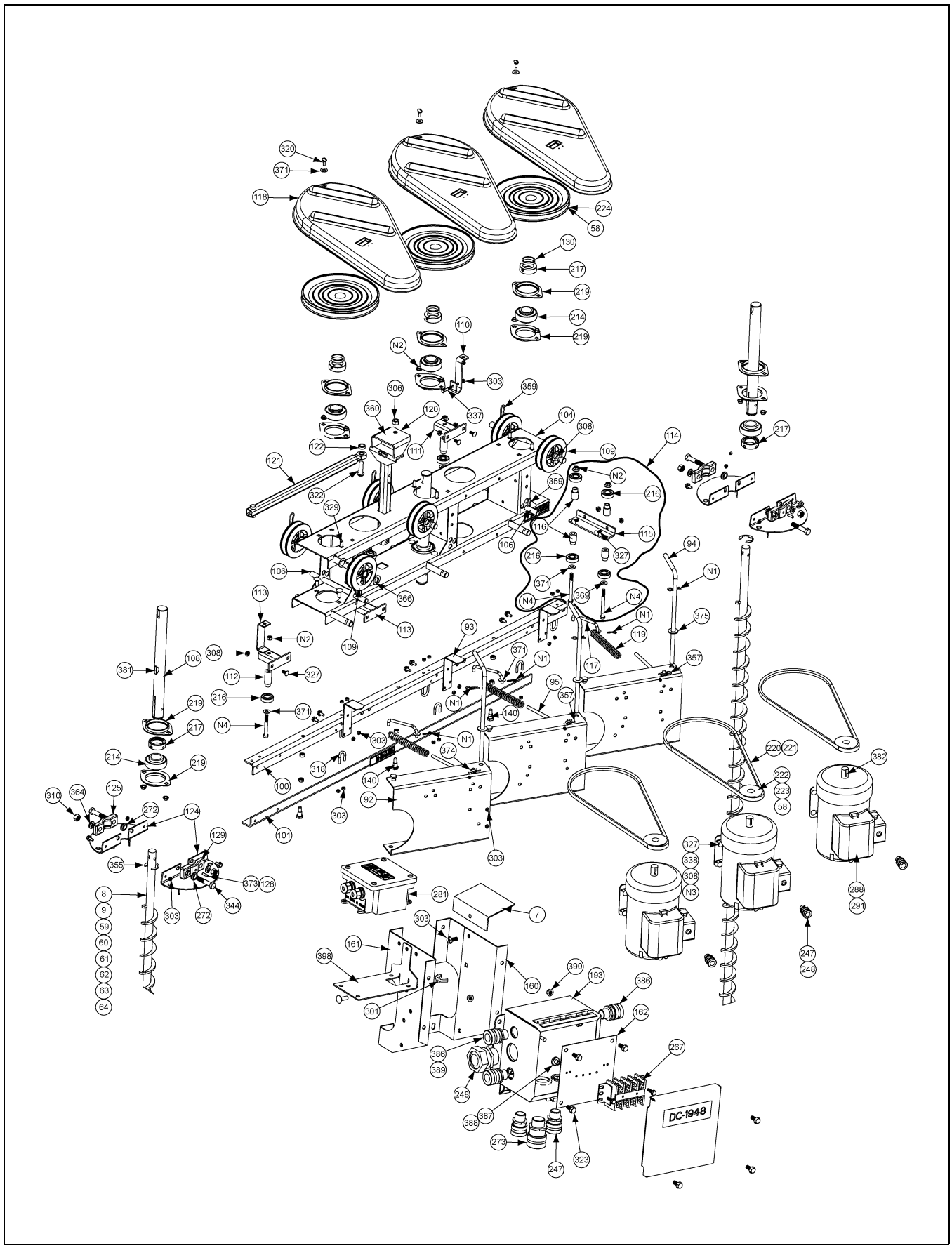
Design III Stir-Ator Yoke Parts List (Continued)

Ref #	Part #	Description	Double Auger	Triple Auger
367	3FH0837	Machinery Bushing, 1-3/8" O.D. x 7/8" I.D. x 18 Gauge	2	2
373	3FH-0900	Spring Pin, 1/4" x 7/8"	3	4
375	S-2120	Flat Washer, 1/2" SAE	6	7
377	S-3674	Rivet Washer, 3/16"	1	1
390	S-8762	Cable Clamp, 3/16"	1	1
N/S	1EL3050	Switch Box to Swivel Wire 12/3 SO (Specify Bin Diameter)		
		230 Volt, 1 Phase 2 HP	A/R	A/R
N/S	1EL3047	Switch Box to Swivel Wire 10/3 SO (Specify Bin Diameter)		
		230 Volt, 1 Phase 2 HP	A/R	A/R
N/S	1EL3058	Switch Box to Swivel Wire 8/3 SO (Specify Bin Diameter)		
		230 Volt, 1 Phase 2 HP	A/R	A/R
N/S	1EL3050	Yoke Wire 12/3 SO (Specify Bin Diameter)		
		230 Volt, 1 Phase 2 HP	A/R	A/R
N/S	1EL3047	Yoke Wire 10/3 SO (Specify Bin Diameter)		
		230 Volt, 1 Phase 2 HP	A/R	A/R
N/S	1EL3058	Yoke Wire 8/3 SO (Specify Bin Diameter)		
		230 Volt, 1 Phase 2 HP	A/R	A/R
N/S	1EL3061	Gear Motor Wire 18/3 SJ (Specify Bin Diameter)		
		230 Volt, 1 Phase 2 HP	A/R	A/R
N/S	1EL3019	Gear Motor Wire 16/3 SJ (Specify Bin Diameter)		
		230 Volt, 1 Phase 2 HP	A/R	A/R

Design III Stir-Ator Double Auger Trolley



Design III Stir-Ator Triple Auger Trolley



Design III Stir-Ator Double and Triple Auger Trolley Parts List

Ref #	Part #	Description	Double Auger	Triple Auger
7	103B0012	Mercury Switch Holder Bracket	1	1
8	103B0015	16' Plain Auger	2	3
9	103B0016	16' Hard-Surfaced Auger	2	3
58	105B0076	5/16" x 3/8" Set Screw with Adhesive	2	3
59	105B0079	18' Regular Auger	2	3
60	105B0080	20' Regular Auger	2	3
61	105B0081	21' Regular Auger	2	3
62	105B0082	18' Hard-Surfaced Auger	2	3
63	105B0083	20' Hard-Surfaced Auger	2	3
64	105B0084	21' Hard-Surfaced Auger	2	3
92	106B044	Motor Mount Plate	2	3
93	106B045	Shield Support Bracket	2	3
94	106B046-Y	Motor Tension Removal Rod	2	3
95	106B049	Motor Spring Guide Rod	2	3
98	106B053-Y	Upper Angle Bracket (Double)	1	0
99	106B054	Lower Angle Bracket (Double)	1	0
100	106B055	Upper Angle Bracket (Triple)	0	1
101	106B056-Y	Lower Angle Bracket (Triple)	0	1
103	106B066-Y	Trolley Body (Double)	1	0
104	106B067-Y	Trolley Body (Triple)	0	1
106	106G079-Y	Hold-Down Rod	2	2
108	106B081	Trolley Stub Shaft	2	3
109	106B083	Trolley Wheel	4	6
110	106B085-Y	Axle Shield Support Bracket	1	1
111	106G088-Y	Upper Roller Support Bracket		
		36' Diameter Bin (Double)	1	0
		27' 1" Diameter Bin and Larger (Triple)	0	1
112	106B091-Y	Long Roller Stand-Off		
		36' Diameter Bin (Double)	2	0
		27' 1" Diameter Bin and Larger (Triple)	0	2
113	106B093-Y	Roller and Shield Support Bracket (Double-Triple)	1	2
114	106G095	Roller Support Bracket Assembly		
		36' Diameter Bin (Double)	2	0
		27' 1" Diameter Bin and Larger (Triple)	0	2
115	106B096-Y	Roller Support Bracket		
		36' Diameter Bin (Double)	2	0
		27' 1" Diameter Bin and Larger (Triple)	0	2
116	106B097	Short Roller Stand-Off		
		36' Diameter Bin (Double)	8	0
		27' 1" Diameter Bin and Larger (Triple)	0	8
117	106B098	Tension Removal Link	2	3
118	106B099	Trolley Belt Shield	2	3
119	106B100	Trolley Compression Spring	2	3
120	106B102-Y	Drive Arm Post	1	1
121	106B103-Y	Drive Arm	1	1
122	106B110	Stand-Off Bushing	1	1
124	106B115-Y	Leveling Disc (Not Used on Offset Trolley)	4	6
125	106B118	Auger Clamp	2	3
128	106G124-RDW	Auger Clamp with Spring Pin Assembly	2	3
129	106B142-Y	Auger Clamp with Spring Pin Hole	2	3

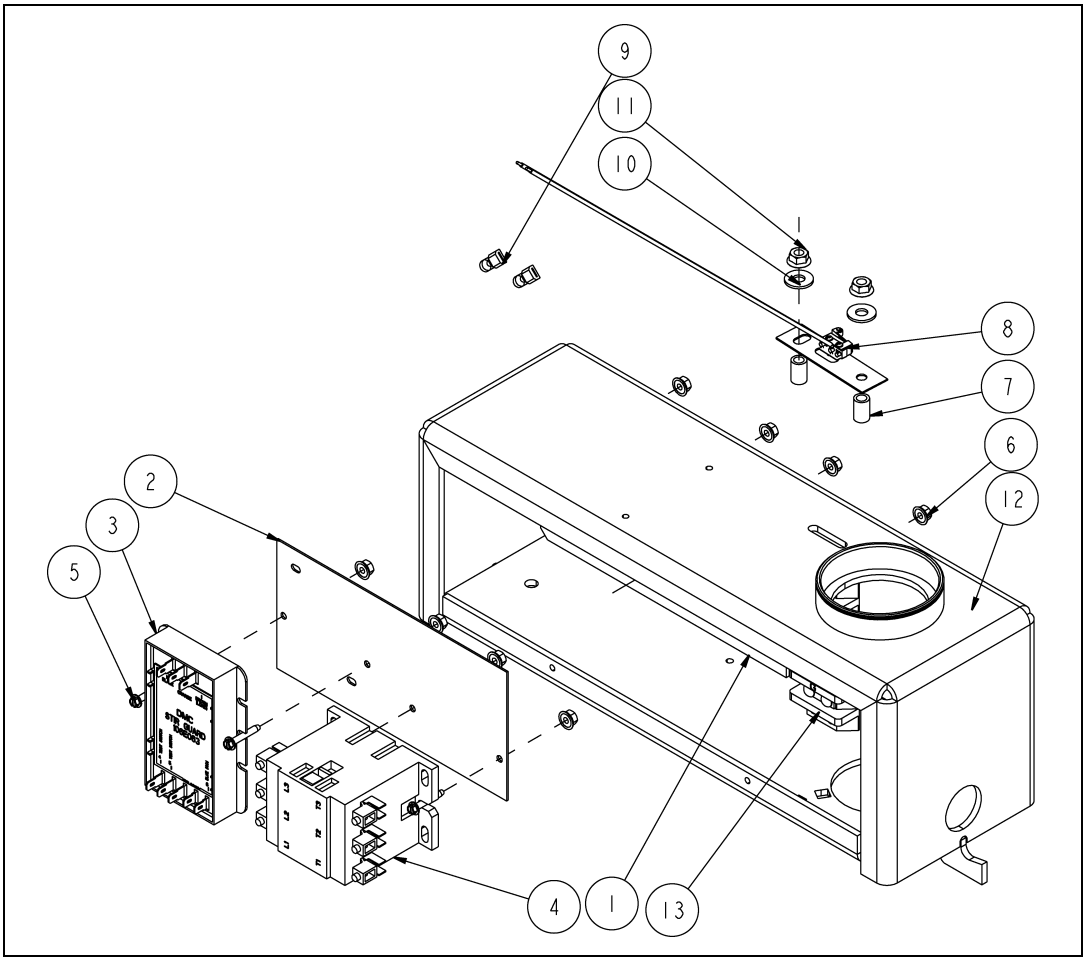
Design III Stir-Ator Double and Triple Auger Trolley Parts List (Continued)

Ref #	Part #	Description	Double Auger	Triple Auger
130	106B198-Y	10" Pulley Spacer	2	3
140	106C035	3/8" x 1-1/4" Shoulder Bolt	6	8
160	106E205	Bracket - Right Junction Box Assembly CSA	1	0
161	106E207	Bracket - Left Junction Box Assembly CSA	1	1
162	106E120	Bracket Terminal Block, CSA	1	1
193	1EL3105	Box, Steel Nema 12, DA	1	1
214	PT0222	1-3/8" Precision Bearing w/ Eccentric Locking Collar	4	6
216	PT0377	Radial Ball Bearing, 17 mm (36' Diameter Bin)	10	10
217	PT0408	1-3/8" Eccentric Locking Collar	4	6
219	PT0428	2 Hole Stamped Flangette	8	12
220	PT0489	AX-48 V-Belt (1-1/2 HP Only)	2	3
221	GK1952	B-50 V-Belt (2 HP 1842 Motor Frame Size)	2	3
222	PT0621	Pulley, 3-1/4" O.D. x 7/8", 1 Grade, B Sec, 2 HP, w/ Set Screw (105B0076)	2	3
223	PT0625	Pulley, 3" O.D. x 1-3/8", B Sec, w/ Set Screw	2	3
224	PT0670	Pulley, 10" O.D. x 1-3/8", B Sec, w/ Set Screw	2	3
247	1EL0410	Adapter, Connector - AL. 1 MPT	A/R	A/R
248	KD-PEE0067	Strain Relief 1" NPT x 3/4" O.D. “T” and B #2546 1" NPT STR Strain Relief	2	2
	1EL0431	Cord Connector, 1" NPT	2	2
267	1EL0887	Terminal Block - 3 Post - Double Row - 1 Phase	1	1
272	1EL2046	Rubber Grommet, 1" O.D. x 9/16" I.D. x 5/16" (Not Used on Offset Trolley)	6	9
273	1EL0428	Cord Connector, 3/4"	1	1
274	D03-0247	Cable Tie, 1-1/4"	A/R	A/R
281	106E208	Switch, Electronic Tilt - Assembly, CSA	1	1
288	3EL5098	Motor, TEFC, 1-1/2 HP, 1 Phase, 230 Volt	2	3
291	3EL5110	Motor, TEFC, 2 HP, 1 Phase, 115/230 Volt	2	3
301	S-4198	Wing Nut, 1/4"	1	1
303	S-4310	Hex Lock Nut, 1/4"	32	38
306	S-8315	Lock Nut 1/2"-13 ZN GRC Prevailing Torque	2	2
308	S-3611	Flange Nuts 5/16"-18 YDP Grade 2	A/R	A/R
310	S-8133	Hex Nut, 1/2", Fine Thread	4	6
318	2FH0405	U-Bolt, 1/4" x 3/4" x 1-1/4"	4	6
320	2FH0427	Wiring Thumb Screw, 1/4" x 5/8"	2	3
322	2FH0450	Button Head Cap Screw, 1/2" x 1-3/4"	1	1
323	S-8794	Slotted Hex Washer Head Self-Tapping Screw, #10 x 1/2", Type F	7	7
326	S-6369	Carriage Bolt, 1/4" x 3/4"	1	1
327	S-6076	Carriage Bolt, 5/16" x 3/4"	A/R	A/R
329	S-3585	Carriage Bolt, 3/8" x 1"	22	26
337	S-853	Hex Bolt, 1/4" x 1-1/2"	1	1
338	S-7520	Hex Bolt, 3/8" x 1"		
		2 HP	12	16
343	S-8087	Flange Bolt, 1/4"-20 x 5/8" ZN	19	23
344	S-8088	Hex Bolt, 1/2" x 2-1/2", Grade 5, Fine Thread	4	6
355	3FH0577	External Retaining Ring, 1-3/8" (Not Used On Offset Trolley)	2	3
357	S-7443	Pin Hairpin Cotter 0.080 Wire Diameter x 1-3/16" Overall	2	3
359	S-7825	Pin Hairpin Cotter 1/8 Wire Diameter x 2-1/2" Overall	9	10
360	S-8094	Cotter Pin, 1/4" x 1-3/4"	2	2

Design III Stir-Ator Double and Triple Auger Trolley Parts List (Continued)

Ref #	Part #	Description	Double Auger	Triple Auger
364	S-236	Lock Washer, 1/2"	4	6
366	3FH0828	Machinery Bushing, 1-1/4" O.D. x 3/4" I.D. x 14 Gauge	8	12
369	3FH0851	Plastic Flat Washer, 29/32" O.D. x 1/2" I.D. x 5/64"	4	6
371	S-845	Flat Washer, 5/16"		
		27' 1" to 35' 11"	4	12
		36' (Double-Triple)	10	12
373	3FH0900	Spring Pin, 1/4" x 7/8"	3	4
374	S-7409	Flat Washer, 3/8" SAE	8	10
375	S-2120	Flat Washer, 1/2" SAE	6	7
381	S-8107	Woodruff Key, 5/16" x 1-1/8"	2	3
382	S-9176	Square Key, 3/16" x 9/16"	2	3
385	106E096	Bracket, Transformer Mount	1	1
386	1EL0425	Cable Connector, AL 1/2" MPT	A/R	A/R
387	S-8087	Flange Bolt, 1/4"-20 x 5/8" ZN	6	6
388	S-4310	Lock Nut, 1/4"-20 Grade 2, Zinc Plated	6	6
389	FH-1309	Lock Nut, 1/2" with Pipe Threads	A/R	A/R
390	1EL0416	Lock Nut, 3/4" NPT	A/R	A/R
392	106E209	Box, Drilled, CSA Tilt Switch	1	1
393	FLX-2689	Cover, Electrical Box	1	1
394	FLX-2690	Gasket, Electrical Box 4 x 4	1	1
395	S-7398	Cord Connector, 3/8" NPT	1	1
396	S-7399	Jamb Nut 3/8" for Cable Connector	1	1
397	FH-1310	Cord Connector, 1/2" NPT	2	2
398	GK80190	Bracket - Tilt Switch Box	1	1
N1	GC03387	Hairpin, 1-5/16" 0.125 Wire Diameter	6	9
N2	S-968	Nut 3/8"-16 Wide Flange Lock ZN Grade 2		
		Under 36'	8	12
		36'	14	18
N3	S-4663	Nut, Stover 3/8"-16 ZN Grade 2	4	6
N4	S-8989	Bolt, HHCS 3/8"-16 ZN Grade 2		
		36' and Double Augers	6	0
		Triple Augers	0	6
N/S	106E101	Wire, 18/3"	2	2
N/S	401176	Connector, (Wire Nut) Orange Ideal-73B	A/R	A/R
N/S	1EL0534	Terminal, Spade	1	1
N/S	106B111-Y	Trolley Wire Support	1	1
N/S	1EL0553	Twist Lock Wire Connector (Grey)	1	1
N/S	1EL0562	Wire Connector, Closed End	A/R	A/R

Stir-Ator Guard Option - 230V



Stir-Ator Guard Option - 230V Part List

Ref #	Part #	Description	Qty
1	106A023	Plate - Stir-Guard Mount	1
2	106E066	Plate - Stir-Guard Design III Stir-Ator	1
3	106E063	Timer - Stir-Guard (45 Min) with Decal	1
4	2EL0245	Contactor - Magnetic, 40 Amp, 208/240V Coil	1
5	2FH0474	Screw, #8-32 x 1" “F” HWHS Plated	4
6	1FH0993	Lock Nut, Flange, #8-32 Plated	8
7	106E073	Stand-Off - Switch, Stir-Guard	2
8	106E067	Switch - Stir-Guard	1
9	1EL0520	Terminal - F/M Quick (CSA)	2
10	S-1430	Flat Washer 1/4" USS ZN Grade 2	2
11	S-7215	Flange Nut, 1/4"-20 ZN	2
12	106A016	Swivel Box - Weldment	1
13	1EL0885	Terminal Block - Double 5 Term, 55 Amp, 600V	1

Cable Tension

To adjust the Stir-Ator cable tension, stop the unit so the trolley is not at the bin wall. Use the two (2) 3/8" nuts to adjust the cable idler in or out to increase or decrease the tension on the cable. *(See Figures 7A, 7B and 7C.)*

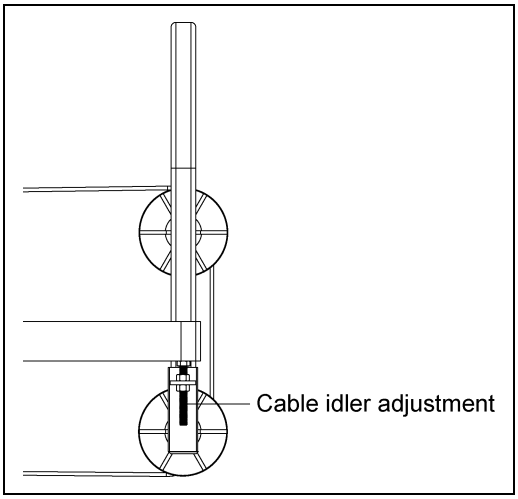


Figure 7A

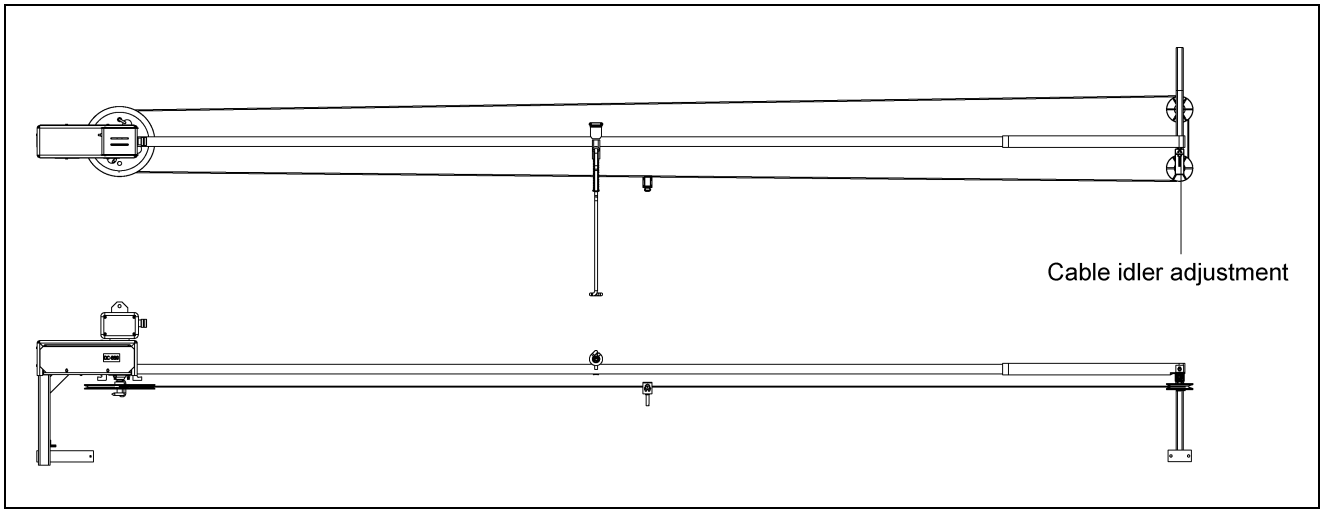


Figure 7B

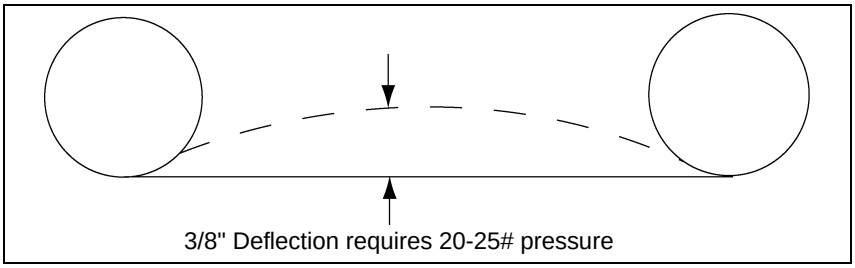


Figure 7C

Check the tension between the idler pulleys on all units by using 20-25 pounds of pressure to move the cable 3/8" midway between the idlers. *(See Figure 7C.)*

Trolley Drive Link

Continuous stirring at any fixed distance from the center of the bin can be done by the use of the center trolley drive link. To use this feature, run the trolley to the desired location, unhook the link going through the drive sheave and hook the drive link to one of the hook slots above the sheave. *(See Figure 7D.)*

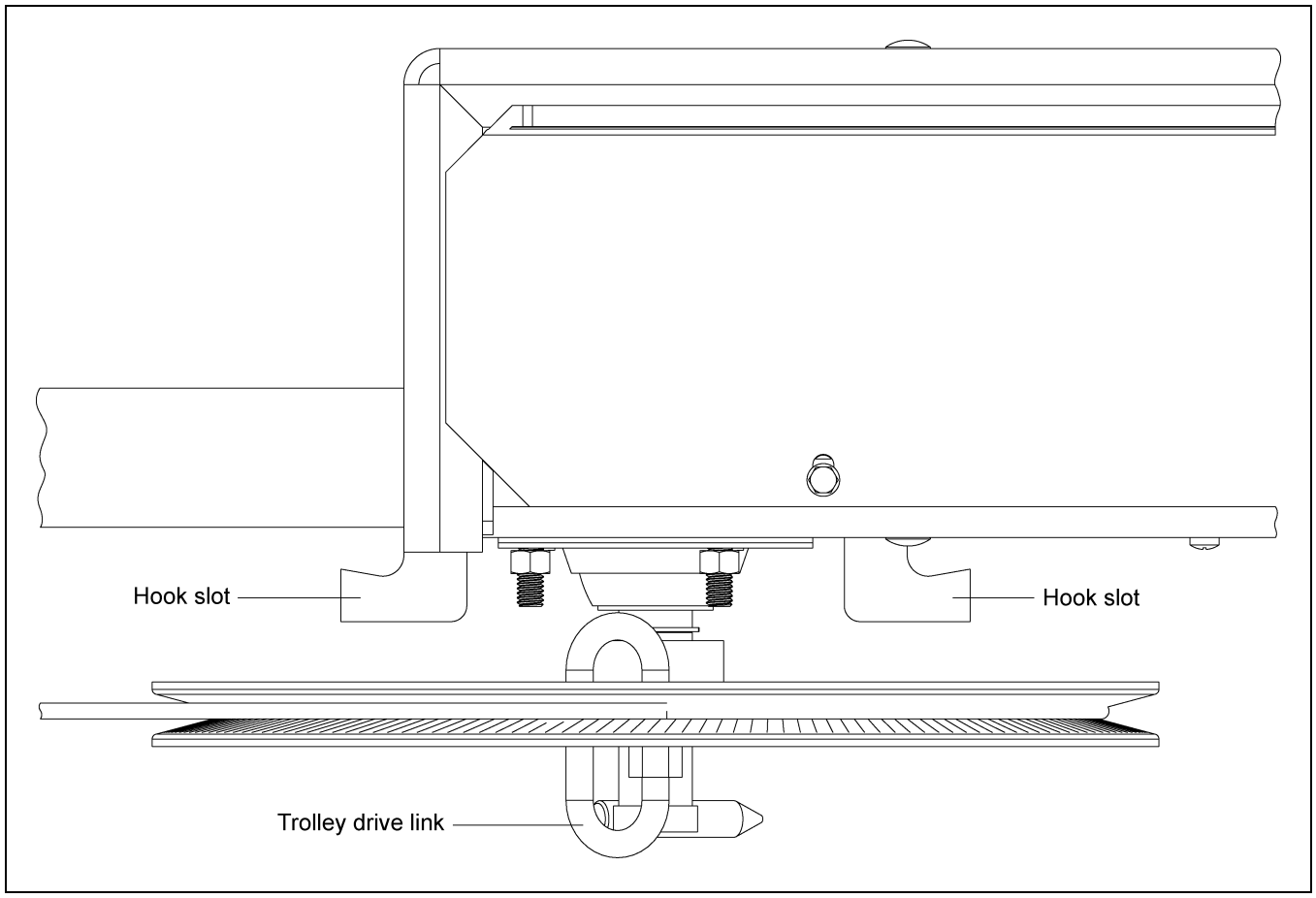


Figure 7D

This will prevent the trolley from moving in or out of the frame rails. To have continuous stirring at the bin wall, position the cable connector between the cable idler sheaves and hook the link in the hook slot. The unit will automatically re-hook itself if the link is dropped off the hook slots and resume driving the trolley in and out of the frame rails.

Tilt Switch

The solid state electronic tilt switch controls the trail-back of the auger in the direction of travel around the bin. This switch is set at the factory for normal trail-back and should stop the movement of the machine when the bottom of a 16' auger is 14"-20" back of a vertical line from the stub shaft bearing to the floor.

The trail-back is adjusted correctly when the following is observed: The gear motor will turn “ON” when the down augers are vertical. The gear motor will turn “OFF” when the down augers reach 6° trail-back.

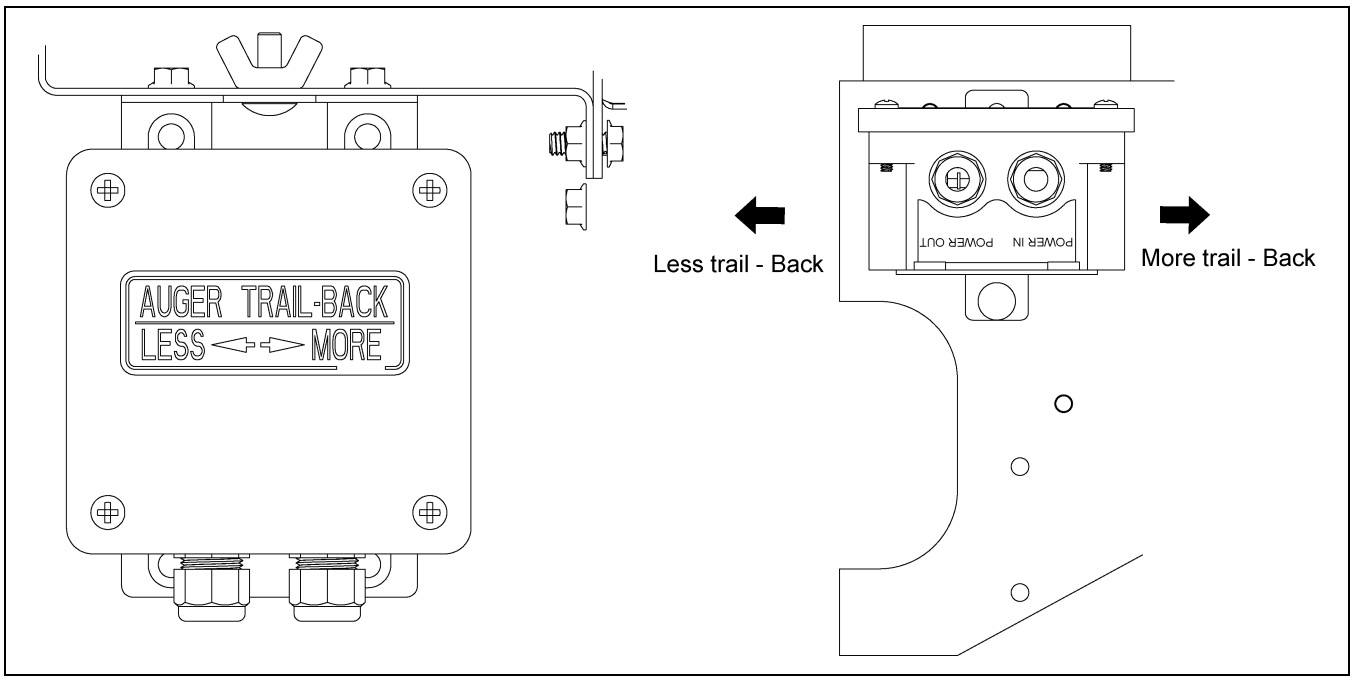


Figure 7E

Adjustment Procedure

WARNING

Failure to follow these instructions may result in injury or death.

1. In order to check the electronic tilt switch function and make trail-back adjustments, the electronic tilt switch must have power applied to the controller.
2. The tilt switch has been factory set for proper trail-back. The machine will stop when the bottom of the 16' auger is 14"-20" behind vertical.
3. Loosen the wing nut and move the tilt switch bracket to adjust trail-back. Move the bracket to the left hand side to decrease the trail-back. Move the bracket to the right hand side to increase the trail-back.

Safety Shut Off Switch

The automatic shut off chain is for safety. It is designed to shut off the electrical power to the unit should the trolley or swivel unit bind up, preventing normal travel of the Stir-Ator. To properly attach, hook the chain end with the open loop to the “S” hook welded to the suspension bar. Hook the other end of the chain onto the “S” hook in the switch box handle.

Use the “S” hook on the end of the shut off chain to hook any excess chain slack back on to the chain itself. This allows the length of the shut off chain to be adjusted at the switch box.

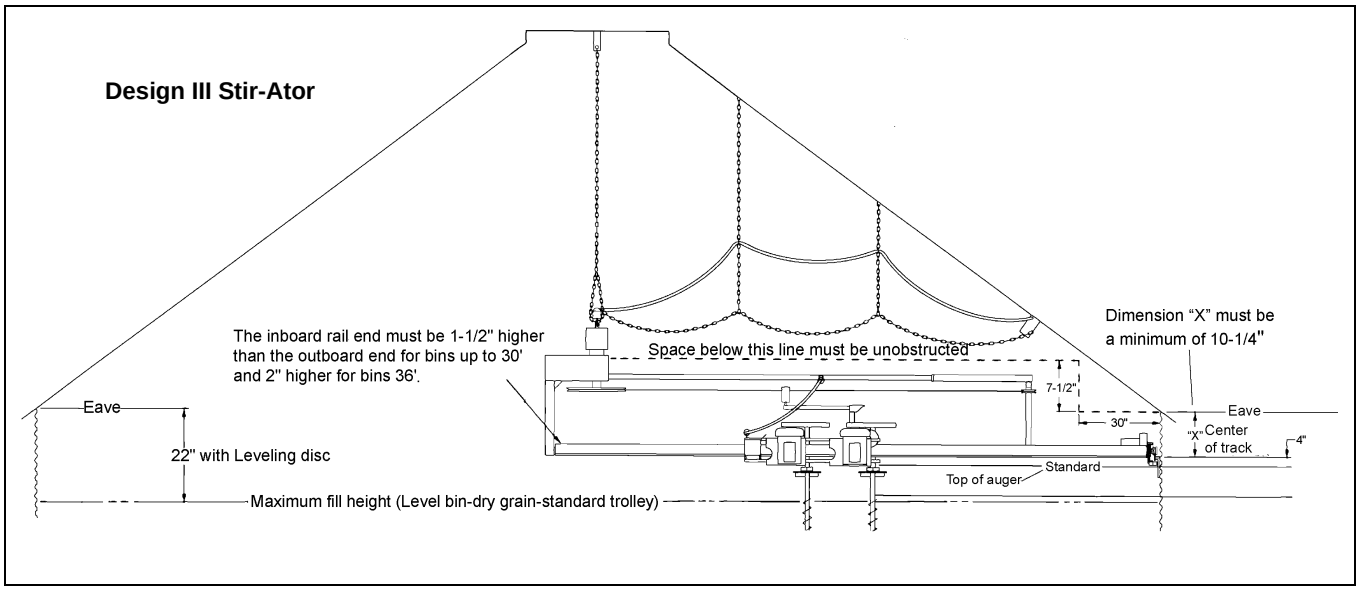


Figure 7F

With the unit running, there should only be enough slack in the chain so that the switch box handle is not pulled down during normal operation. Too much slack in the chain will fail to shut the unit off if there is a problem and could get caught in the machine itself as the Stir-Ator passes under the shut off chain. Secure the shut off chain and the electrical wire above the Stir-Ator with the provided shut off support chain(s). *(See Figure 7F.)*

WARNING

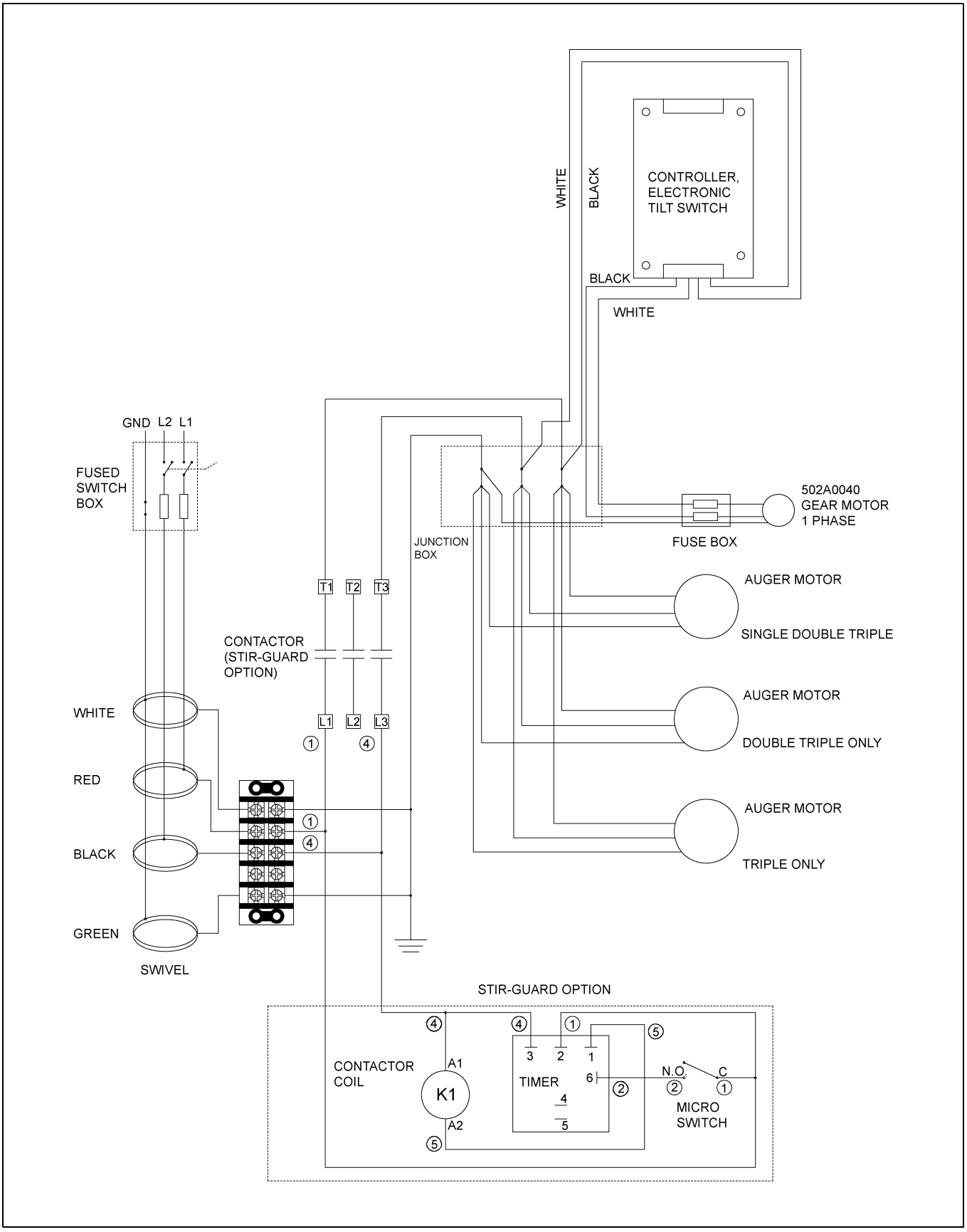
The electric cord must have more slack than the shut off chain so in the event of a shut off, the electric cord is not ripped from the switch box. This could cause electrical shock or bodily injury.

Design III Stir-Ator Troubleshooting

Problem	Probable Cause/Potential Solution
1. Auger motor(s) and gear motor do not run.	1. Main power is not ON. 2. Contactor in swivel box is bad. (Replace.) 3. Contacts in contactor are dirty or burned. (Clean or replace.) 4. Swivel straps are loose or broken. (Replace strap or clip.) 5. There is a broken, loose or shorted wire. (Call electrician.) 6. Stir-Guard solid state module is bad. (Replace.) 7. Junction box on trolley is improperly wired. (New installation only - *See Wiring Diagram on Page 70.)* 8. Electrical swivel shorted or loose connection.
2. Gear motor runs but not the auger motor(s).	1. Auger motor overload tripped. (Push reset button on motor.) 2. Augers is stuck in grain. *(See Start-Up Procedures on Page 43.)* 3. Motor is burned out. (Replace.) 4. There is improper wiring at trolley junction box. (New installation only.) 5. Motor HP may not be adequate for length of auger. 6. Fuse is blown. (Replace.)
3. Auger motors run but gear motor does not.	1. Gear motor fuse is blown. (Replace.) 2. Low voltage or wired for 115 volts. (Check trolley junction box for proper wiring.) 3. Gear motor is burned out. (Replace.) 4. Gear motor case transmission is a problem. (Repair or replace.) 5. Drive chain is off sprocket. 6. Augers trailed back and mercury switch shut gear motor off. (Normal - See *Problems #6 on Page 69*.) 7. Tilt switch not adjusted properly. 8. Gear motor and tilt switch not wired properly at trolley junction box. 9. Auger will not advance through grain. (See *Problems #6 on Page 69*.) 10. Gear motor overload tripped - overload will reset automatically when cool. Check for excessive drag.
4. Unit has been tripped off by safety chain.	1. Chain is adjusted too tight. *(See Shut Off Chain Adjustments on Page 38.)* 2. Switch box handle moves too freely. (Replace box or hook common door spring from handle to bin roof, being sure it is not too tight to prevent safety shut off from working properly.) 3. Augers are too long and touch floor. 4. There are foreign object in corn stops. 5. Trolley is binding on frame rails. 6. Cable connector is installed backwards not going around idler pulleys. 7. Check correct length unit for bin size.

Problem	Probable Cause/Potential Solution
5. Unit stops after 45 minutes, Stir-Guard turned the unit off.	1. Stir-Ator not advancing around the bin. 2. Stir-Guard microswitch acutator roller out of adjustment. *(See Stir-Guard Operation on Page 44.)* 3. Excessive moisture on switch shorting out microswitch leads. (Dry and seal with silicone caulk.) 4. Tilt switch bad. (Replace.) 5. Stir-Guard solid state module bad. (Replace.) 6. Refer also to *Problems #3 on Page 68, 6 or 7 below*.
6. Auger not advancing through grain.	1. Tilt switch not adjusted properly. *(See Operational Adjustments on Page 66.)* 2. Auger worn out. (Replace.) 3. Foreign object in grain. (Remove object.) 4. Stir-Ator hung too low in center and auger drags on floor. (Raise enter to 1" high for every 18' diameter.) 5. Excessive moisture and foreign material caused grain to form hard spots. (Remove grain - See *Drying Guide on Page 46.*) 6. Frame pivot seized or is otherwise unable to rotate.
7. Track unit does not advance.	1. Gear motor fuses blown. (Replace.) 2. Track unit caught on bin bolt. (Cut off excessive bolt length.) 3. Gear motor tripped out on overload. (Allow to cool - it will automatically reset.) 4. Refer also to *Problem #3 on Page 68*.
8. Cable jumps OFF.	1. Cable too loose. *(See Adjustment on Page 64.)* 2. Large center drive pulley bent. (Replace.) 3. Cable connector installed backwards. (Reverse connector.) 4. Trolley binding up on frame rails. (Repair binding cause.) 5. Check for proper drive arm post location. *(See Trolley Section on Pages 22-24 and Figure on Page 23.)*
9. Trolley will not travel in or out.	1. Center drive arm unhooked from drive link. *(See Adjustment on Page 64.)* 2. Drive cable too loose. *(See Adjustment on Page 64.)* 3. Center drive arm bolt sheared. (Replace with 5/16" x 1-3/4" grade 5 hex bolt.) (Trolley may be caught - locate source.)
10. Excessive machine vibration.	1. Auger bent. (Replace auger.) 2. Auger shaft not completely inserted up into stub shaft socket. (Insert and torque clamp bolts to 140 ft. lbs)
11. Channelling in the grain.	1. High moisture grain put in the bin is dried with too much heat. *See Drying Guide on Page 46.* 2. Excessive fines in the grain restricts air flow and forms hard spots. (Clean grain.) 3. Uneven heat distribution under drying floor. (Contact burner manufacturer.) 4. Too large of bin and too much heat for the number of augers being used to stir the grain.

Design III Stir-Ator Wiring Diagram - 1 Phase - 230V - 60 Hz



GSI Group, LLC Limited Warranty

The GSI Group, LLC ("GSI") warrants products which it manufactures to be free of defects in materials and workmanship under normal usage and conditions for a period of 12 months after sale to the original end-user or if a foreign sale, 14 months from arrival at port of discharge, whichever is earlier. The end-user's sole remedy (and GSI's only obligation) is to repair or replace, at GSI's option and expense, products that in GSI's judgment, contain a material defect in materials or workmanship. Expenses incurred by or on behalf of the end-user without prior written authorization from the GSI Warranty Group shall be the sole responsibility of the end-user.

Warranty Extensions:

The Limited Warranty period is extended for the following products:

	Product	Warranty Period
AP Fans and Flooring	Performer Series Direct Drive Fan Motor	3 Years
	All Fiberglass Housings	Lifetime
	All Fiberglass Propellers	Lifetime
AP and Cumberland	Flex-Flo/Pan Feeding System Motors	2 Years
Cumberland Feeding/Watering Systems	Feeder System Pan Assemblies	5 Years **
	Feed Tubes (1-3/4" and 2.00")	10 Years *
	Centerless Augers	10 Years *
	Watering Nipples	10 Years *
Grain Systems	Grain Bin Structural Design	5 Years
Grain Systems Farm Fans Zimmerman	Portable and Tower Dryers	2 Years
	Portable and Tower Dryer Frames and Internal Infrastructure †	5 Years

* Warranty prorated from list price:
0 to 3 years - no cost to end-user
3 to 5 years - end-user pays 25%
5 to 7 years - end-user pays 50%
7 to 10 years - end-user pays 75%

** Warranty prorated from list price:
0 to 3 years - no cost to end-user
3 to 5 years - end-user pays 50%

† Motors, burner components and moving parts not included. Portable dryer screens included. Tower dryer screens not included.

GSI further warrants that the portable and tower dryer frame and basket, excluding all auger and auger drive components, shall be free from defects in materials for a period of time beginning on the twelfth (12^{th}) month from the date of purchase and continuing until the sixtieth (60^{th}) month from the date of purchase (extended warranty period). During the extended warranty period, GSI will replace the frame or basket components that prove to be defective under normal conditions of use without charge, excluding the labor, transportation, and/or shipping costs incurred in the performance of this extended warranty.

Conditions and Limitations:

THERE ARE NO WARRANTIES THAT EXTEND BEYOND THE LIMITED WARRANTY DESCRIPTION SET FORTH ABOVE. SPECIFICALLY, GSI MAKES NO FURTHER WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE OR USE IN CONNECTION WITH: (I) PRODUCT MANUFACTURED OR SOLD BY GSI OR (II) ANY ADVICE, INSTRUCTION, RECOMMENDATION OR SUGGESTION PROVIDED BY AN AGENT, REPRESENTATIVE OR EMPLOYEE OF GSI REGARDING OR RELATED TO THE CONFIGURATION, INSTALLATION, LAYOUT, SUITABILITY FOR A PARTICULAR PURPOSE, OR DESIGN OF SUCH PRODUCTS.

GSI shall not be liable for any direct, indirect, incidental or consequential damages, including, without limitation, loss of anticipated profits or benefits. The sole and exclusive remedy is set forth in the Limited Warranty, which shall not exceed the amount paid for the product purchased. This warranty is not transferable and applies only to the original end-user. GSI shall have no obligation or responsibility for any representations or warranties made by or on behalf of any dealer, agent or distributor.

GSI assumes no responsibility for claims resulting from construction defects or unauthorized modifications to products which it manufactured. Modifications to products not specifically delineated in the manual accompanying the equipment at initial sale will void the Limited Warranty.

This Limited Warranty shall not extend to products or parts which have been damaged by negligent use, misuse, alteration, accident or which have been improperly/inadequately maintained. This Limited Warranty extends solely to products manufactured by GSI.

Prior to installation, the end-user has the responsibility to comply with federal, state and local codes which apply to the location and installation of products manufactured or sold by GSI.

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This equipment shall be installed in accordance with the current installation codes and applicable regulations, which should be carefully followed in all cases. Authorities having jurisdiction should be consulted before installations are made.

1004 E. Illinois St.
Assumption, IL 62510-0020
Phone: 1-217-226-4421
Fax: 1-217-226-4420
www.gsiag.com

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