OWNER'S MANUAL

DESIGN III SERIES

GRAIN STIR-ATOR

DAVID MANUFACTURING CO.

1600 12th Street N.E., Mason City, Iowa USA 50401 641-424-7010

WARRANTY
for
DIII Stir-Ator

The guarantee is for one year from date of installation to be free of defects in material or workmanship when properly installed and operated in accordance with instructions in this booklet. Warranted parts will be exchanged F.O.B. Mason City, Iowa without charge to the user. Damage resulting from negligence voids the warranty. Warranty does not include labor, installation or delivery of replacement parts.

Electric motors are covered by the warranties of the respective manufacturers. Electric service centers are located in all regions. Consult your dealer.

The Warranty and liability of David Manufacturing Company, its distributors, dealers and agents is limited to replacement, without charge, of defective parts, as outlined above. DMC makes no other warranties, express or implied except as stated herein, and disclaims all obligations and liabilities other than specified.

The Manufacturer reserves the right to make changes in specifications or prices without incurring obligation on previously produced merchandise.

Patent Notice

The Kalke-Murphy Grain Stir-Ator is manufactured under exclusive license for United States Patent Numbers 3,580,549 and 4,374,621. Infringing manufacturers, sellers, and users are subject to prosecution in the Federal Courts.

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CAUTION

BE A SAFE OPERATOR

Before operating, familiarize yourself with the machine. It will help you to operate your Design III Stir-Ator more efficiently, with better quality returns to you.

1. Read and understand the Owner's Manual.
2. Keep all safety shields in place.
3. Disconnect all electrical power prior to inspecting, servicing, lubricating, or adjusting the equipment.
4. Keep hands, feet, and clothing from moving parts while in operation. NEVER stand or sit on unit while in operation.
5. To avoid serious injury or death, stay away from the unit and make sure everyone else is clear of the Stir-Ator before starting or operating the unit.
6. Do NOT operate the Stir-Ator unless shut-off chain has been properly installed and adjusted.
7. CAUTION SHOULD BE EXERCISED if it is necessary to enter the bin while the Stir-Ator is in operation.
8. Before operating your Stir-Ator, familiarize yourself with the machine. Know how to operate and adjust it. This will enable you to get maximum efficiency from the equipment, plus better quality grain as a result.
9. When starting the Stir-Ator in a full bin of grain, care should be exercised because the augers can be stuck in the grain, causing damage to the Stir-Ator, or to the bin.
10. Operating the Stir-Ator during bin unloading can be beneficial to the unloading process as well as prevent auger damage.
11. BURYING THE UNIT WILL DAMAGE THE BIN AND WILL VOID YOUR DESIGN III WARRANTY.
12. DO NOT OPERATE DESIGN III 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 from the outside of the bin. DO NOT let it run in an empty bin.
13. All electrical hook-ups should be in accordance to the National Electrical Code. Be sure equipment and bins are properly grounded.
14. When not operating the unit for extended periods of time, or in some cases while emptying the bin, it may be best to position the trolley at the bin wall to eliminate possible Stir-Ator or bin damage.

CAUTION

SAFETY FIRST PAYS

Read and heed all safety reminders listed below.

To perform service work on a stirring device installed in a bin:

1. A safe ladder should be used.

2. When setting a ladder against the Stir-Ator, a vise grip or some type of tie down should be used in the front and back of the track drive unit. This keeps the Stir-Ator from rolling or sliding around the bin while service work is being performed.

3. Because the Stir-Ator is suspended from chains in the center, care has to be exercised whenever a ladder is positioned against the Stir-Ator. The Stir-Ator can move or swing from the weight of a person climbing on the ladder.

4. Climbing out on the main frame from either a ladder or roof manhole should NOT be attempted. The Stir-Ator can swing, causing a fall.

5. During heavy service work, such as removing auger drive, electric motors, or replacing electrical swivel, tying the ladder to the main frame or to some other solid component is advised.

6. Be sure to have rubber pads or some method of keeping the ladder from slipping on the bin or silo floor. Slipping can cause a fall or serious accident.

7. Do NOT climb Stir-Ator down augers to make adjustments or repairs. Slipping could cause falling, bodily injury, or both.

8. If an unusual amount of service work is to be performed on a Stir-Ator, removing the augers and lowering the unit onto saw horses may be the safest way to repair the unit.

9. Caution needs to be exercised when using a ladder to perform service work in a partially filled grain bin. The ladder can sink into the grain, allowing it to fall.

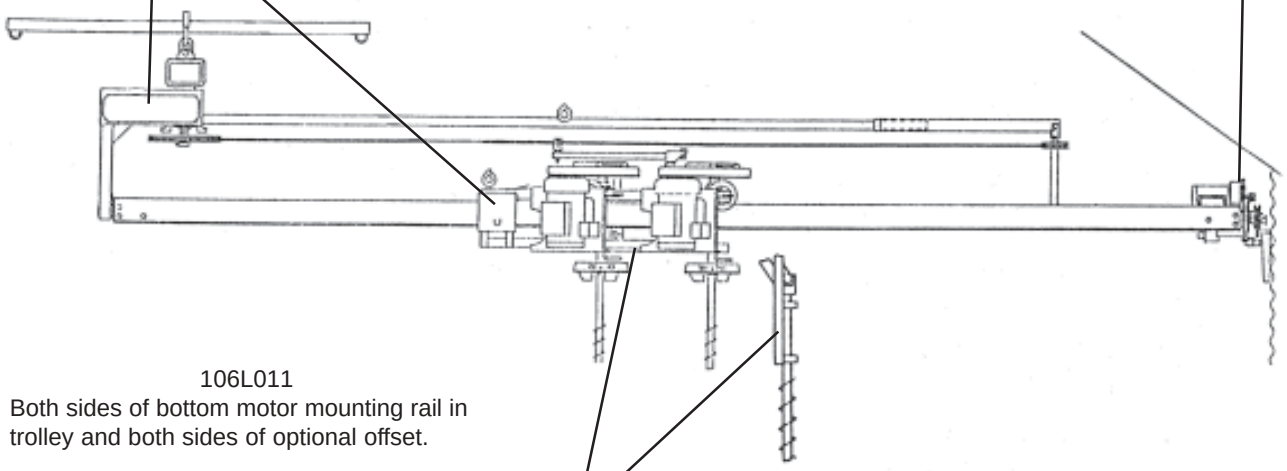
THE DECALS SHOWN ON THIS PAGE MUST BE DISPLAYED AS SHOWN

Replacements are available upon request. Write to the following address:
David Manufacturing. Co., 1600 12th St N.E., Mason City, IA 50401

Please note:
1. The decals on this page are note actual size.
2. Keep all decals wiped clean at all times.
3. All decals must be replaced if they are destroyed, missing, painted over or can no longer be read.

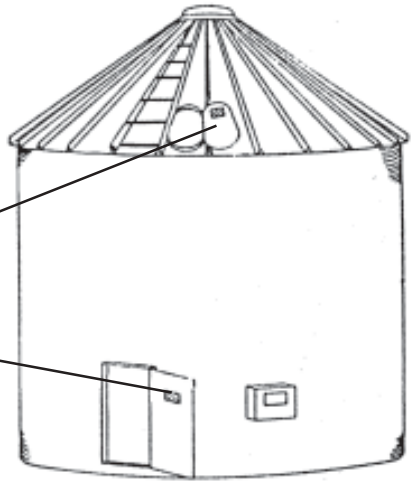
104L0014
Both sides of swivel box plus junction box cover.

202L0311
Top of gear motor track frame.



106L011
Both sides of bottom motor mounting rail in trolley and both sides of optional offset.

106L013



FINAL INSPECTION CHECK LIST

1. READ THE STIR-ATOR OWNER'S MANUAL BEFORE INSTALLATION. MANY SERVICE PROBLEMS WILL BE ELIMINATED IF 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 (drive 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 so positioned 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 Photos 72 and 73? BE SURE THE POWER CORD HAS 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 about 1" higher at the center of the bin for each 18' of bin diameter?
9. Are augers 3 inches off the drying floor at bin wall? (See Photo 70)
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 white wires to the 230 volt terminals in the operating switch, and the green wire to the ground? See Wiring Diagram. 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 will help immensely at drying time?
15. Did you install the safety decals on the inside of the walk-in door and the manhole cover?

PROPER INSTALLATION GREATLY REDUCES SERVICE CALLS

DESIGN III STANDARD EQUIPMENT SHIPPING WEIGHTS

Stir-Ator weights and auger downpull are two factors to take into consideration 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.

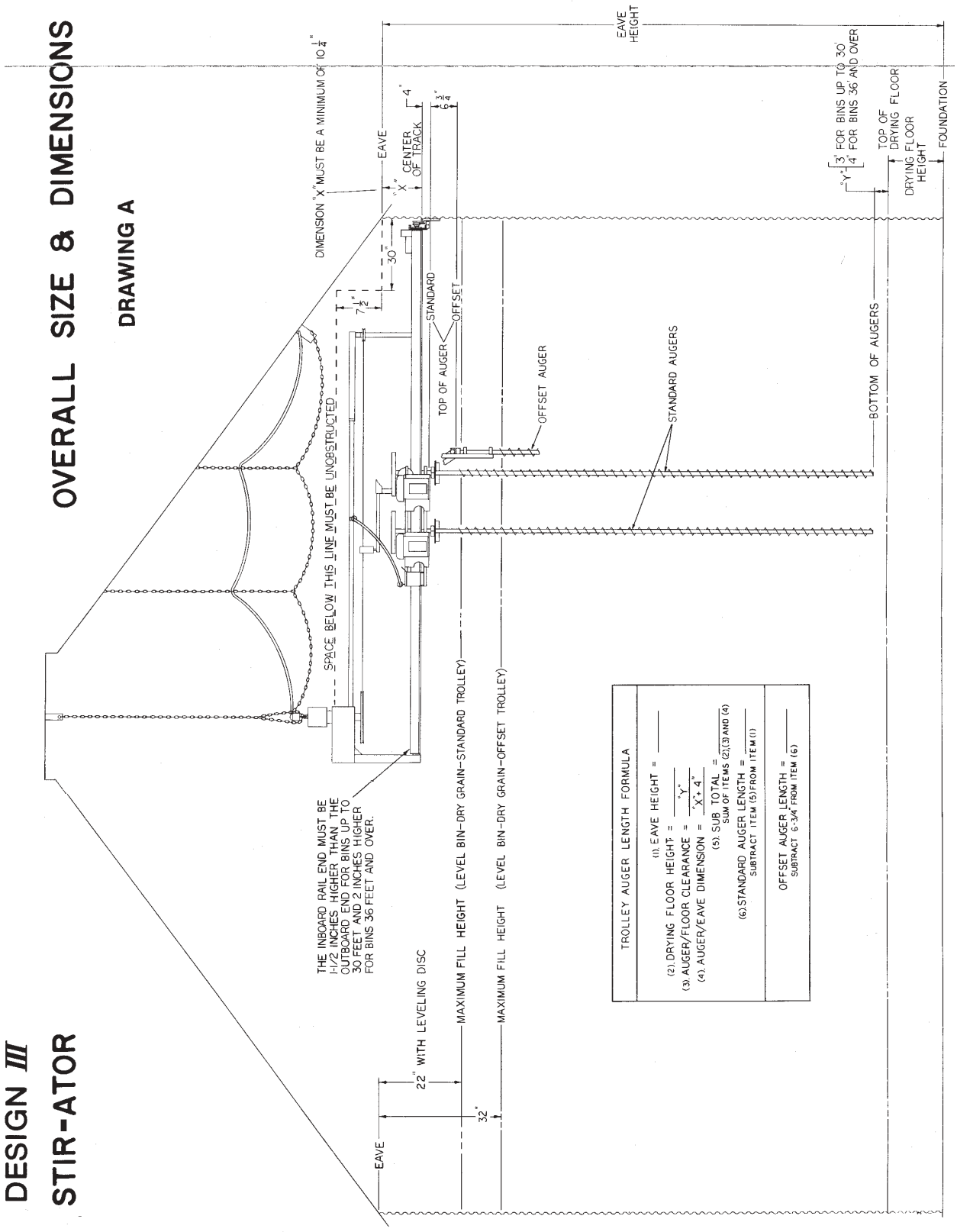
Chart 1
Stir-Ator Shipping Weights

Bin Size	Single Auger	Double Auger	Triple Auger
18'	625	770	---------
21'	663	808	1030
24'	700	844	1070
27'	737	882	1112
30'	775	920	1150
33'	812	960	1200
36;	867	1014	1265
40'	905	1052	1306
42'	940	1088	1345
48'	1050	1200	1500

Additional Weight With Optional Equipment	
2 HP, single phase motor	33# per motor
2 HP, three phase motor	13# per motor
18' augers	5# per auger
20' augers	10# per auger

Chart 2

Auger Downpull in Pounds		Initial Startup - Wet Grain
16' auger	14' grain	368# per auger
18' auger	16' grain	390# per auger
20' auger	18' grain	410 # per auger
Auger Downpull in Pounds		**Normal Operation - Wet Grain**
16' auger	14' grain	207# per auger
18' auger	16' grain	241# per auger
20' auger	18' grain	300# per auger


DESIGN III
STIR-ATOR
OVERALL SIZE & DIMENSIONS
DRAWING A
DIMENSION "X" MUST BE A MINIMUM OF 10 1/4"
EAVE
"X"
CENTER OF TRACK
4"
3 3/4"
EAVE HEIGHT
"Y" 3" FOR BINS UP TO 30' 4" FOR BINS 36' AND OVER
TOP OF DRYING FLOOR
DRYING FLOOR HEIGHT
FOUNDATION
30"
7 1/2"
STANDARD
OFFSET
TOP OF AUGER
OFFSET AUGER
STANDARD AUGERS
BOTTOM OF AUGERS
SPACE BELOW THIS LINE MUST BE UNOBSTRUCTED
THE INBOARD RAIL END MUST BE 1 1/2 INCHES HIGHER THAN THE OUTBOARD END FOR BINS UP TO 30 FEET AND 2 INCHES HIGHER FOR BINS 36 FEET AND OVER.
22" WITH LEVELING DISC
32"
EAVE
MAXIMUM FILL HEIGHT (LEVEL BIN-DRY GRAIN-STANDARD TROLLEY)
MAXIMUM FILL HEIGHT (LEVEL BIN-DRY GRAIN-OFFSET TROLLEY)
TROLLEY AUGER LENGTH FORMULA
(1). EAVE HEIGHT = _____
(2). DRYING FLOOR HEIGHT = "Y"
(3). AUGER/FLOOR CLEARANCE = "X"+4"
(4). AUGER/EAVE DIMENSION = _____
(5). SUB TOTAL = _____ SUM OF ITEMS (2),(3) AND (4)
(6). STANDARD AUGER LENGTH = _____ SUBTRACT ITEM (5) FROM ITEM (1)
OFFSET AUGER LENGTH = _____ SUBTRACT 6-3/4 FROM ITEM (6)

Installation of the DESIGN III

1. Before starting to assemble the bin, the DESIGN III Stir-Ator, less the augers, should be laid in the center of the concrete pad. See Photo 1 (below). The top ring of the metal bin is then assembled in the usual way.

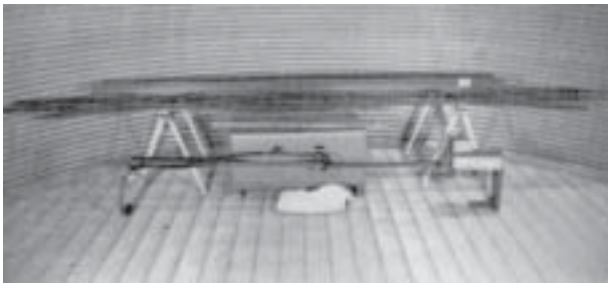


Photo 1

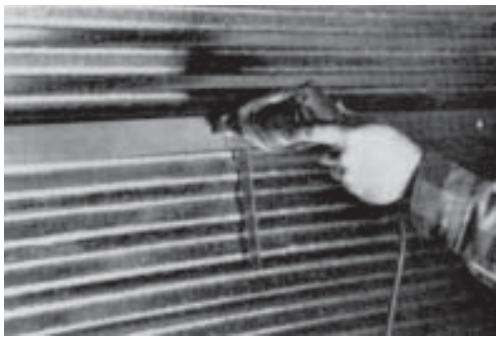


Photo 2

2. **NOTE:** The wall track has two different hole spacing: 18-15/16” on the single and double auger units and 12-5/8” on the triple auger units.

   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 for the roof or roof ladder which might interfere with the movement of the Stir-Ator should be trimmed. See Drawing A on page 24. If this cannot be done, the 10-1/4” distance from the eave to the track bolt center line must be **increased proportionately**.

3. The Stir-Ator wall track is installed as follows: 5/16” holes for the track bolts should be drilled or punched in the bin wall progressively; starting with a double hole end of a track section, the second hole is drilled or punched through the bin wall and the three-hole connector, track bracket, 5/16” x 3”, Grade 5 carriage bolt, cup washer and hex nut are installed. Then, using the hole in the track as a guide, tighten bolts as you go, drill or punch the next hole and install an additional track bracket and bolt, repeating this procedure around the bin. See Photos 2, 3 & 4 and parts drawing on page 25 .

Photo 3

Photo 4

4. **NOTE:** If upon making the complete circuit of the bin and the last section required is less than 3 feet in length, shorten the length of the preceding piece so that a 3 foot or longer section can be used. There should be slightly more material than required.

   The end of the last section should be cut off so as 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 - any misalignment should be corrected by grinding or filing and bending if necessary. See Drawing A on page 24 or Photo 4.

5. Because the Stir-Ator auger runs close to the bin wall, **no inside wall ladder can be used.** A portable ladder is advised and can be obtained from your dealer. The closer the Stir-Ator auger runs to the bin wall, the less chance of grain spoilage. Drying in cold weather can require the use of wall liners or air tubes to minimize bin wall spoilage. (Skid plates should be put on all walk-in doors that extend into the bin over 2-1/2".)

   !!CAUTION!!

   After the wall track is installed, check clearance between the track and bin sheet splice bolts. Long bolts may catch on Stir-Ator track wheel or pivot pin on track unit. To alleviate this problem, cut off the bolts OR reverse them. See Photo 5.

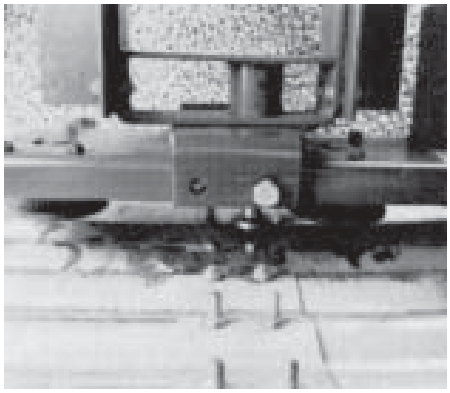


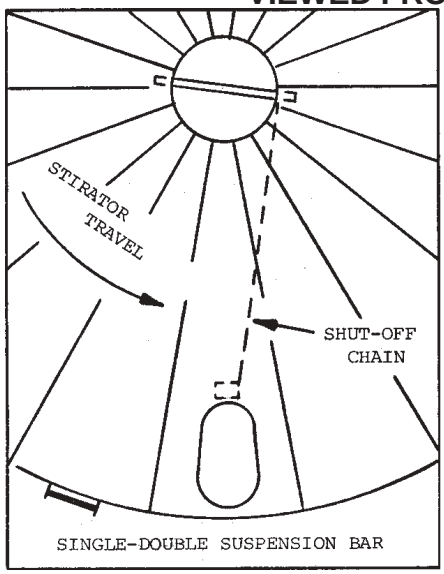
Photo 5

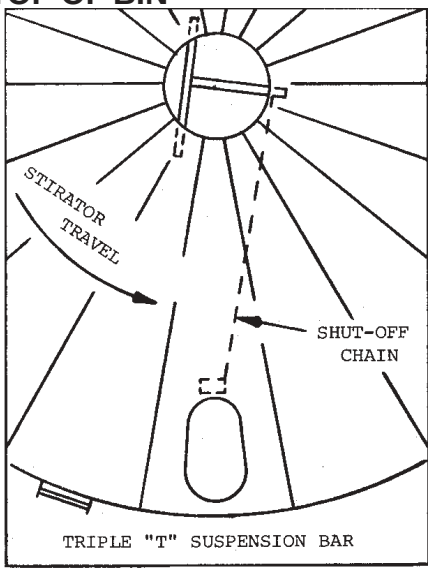
6. The bin roof is then assembled and the suspension chains are dropped through the fill-hole. **Two chains are used on the Single and Double auger units and three on the Triple Auger Units.** Space the suspension hooks equally apart around the center fill-hole collar, placing them in reference to the manhole where the shut-off switch box is to be located. See Diagrams Below. A hole in the suspension hooks is provided if locking the hooks in position is desired.

!!CAUTION!!

DO NOT USE THE BOLT IN THE SUSPENSION HOOK TO SUPPORT WEIGHT OF THE ENTIRE UNIT.

VIEWED FROM TOP OF BIN





7. Install safety switch shut-off switch box and box brace to bin roof above the manhole opening. See Drawing A, page 24 for recommended mounting height.

   Mount the switch box using the mounting hardware provided, refer to Drawing B, page 25 for size and description of appropriate hardware and installation for each box. See Photo 6.

!!CAUTION!!

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.

Photo 6

8. Fasten shut-off support chain(s) to bin roof using existing roof bolts and 5/16” flat washer and hex nut. Chains should be equally spaced between switch box and center of the in. See Photo 7 or Drawing A on page 24.

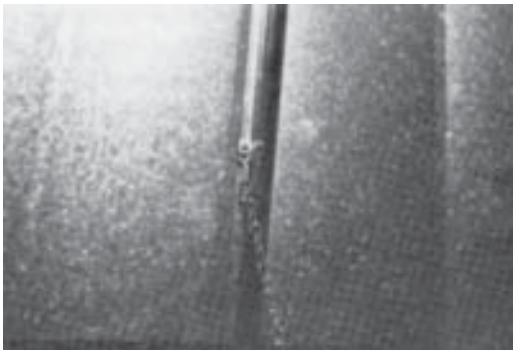


Photo 7

9. To assemble the DESIGN III Stir-Ator, place frame rails on two saw horses and remove the two 5/16” bolts holding the frame rails together, spacing them approximately eight inches. See Photos 8 and 9.

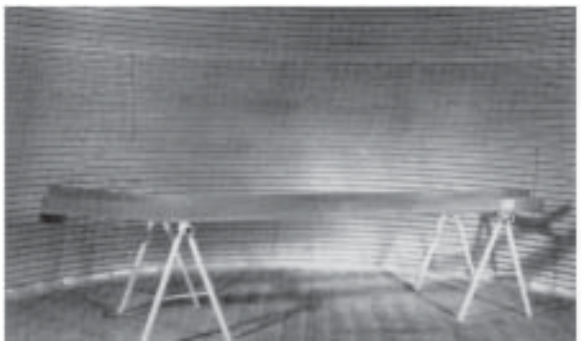


Photo 8

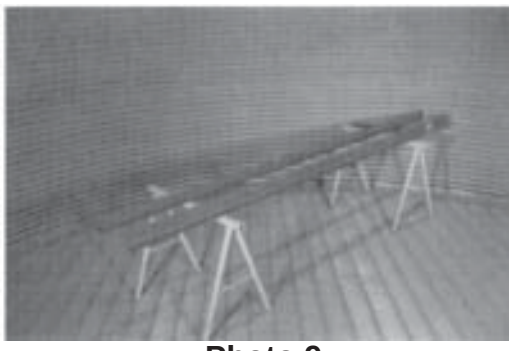


Photo 9

10. FOR SINGLE AUGER UNITS: Bolt inboard frame end to frame rails using six 3/8” x 1” carriage bolts, 3/8” lock washers and hex nuts.

NOTE: LOCATE BOLT HEADS TO INSIDE OF FRAME RAILS. See Photos 10 and 11.

Photo 10

Photo 11

SEE PAGE 5 FOR DOUBLE AND TRIPLE AUGER UNITS.

11. FOR DOUBLE AND TRIPLE AUGER UNITS: Bolt outboard frame end and track unit assembly to the frame rails using six 3/8” x 1” carriage bolts, 3/8” lock washers and hex nut.

NOTE: LOCATE BOLT HEADS TO INSIDE OF FRAME RAILS. See Photos 12 and 13.

The outboard frame end has two pivot positions for either 1-1/2 or 2 HP units. The pivot position is stamped on top of the pivot clevis and this must be the same as the trolley HP being used. See Photos 14 and 15.

Photo 12

Photo 13

NOTE: LOCATE BOLT HEADS TO INSIDE OF FRAME RAILS. See Photos 12 and 13.

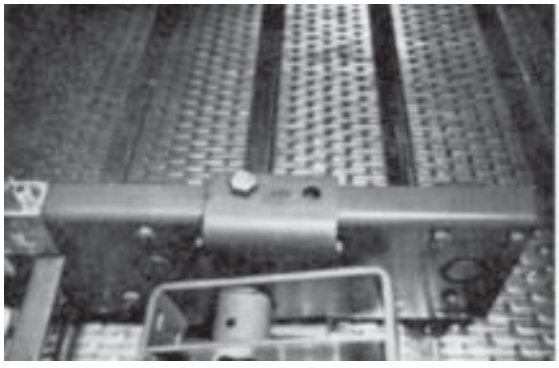


Photo 14 (1-1/2 HP position)

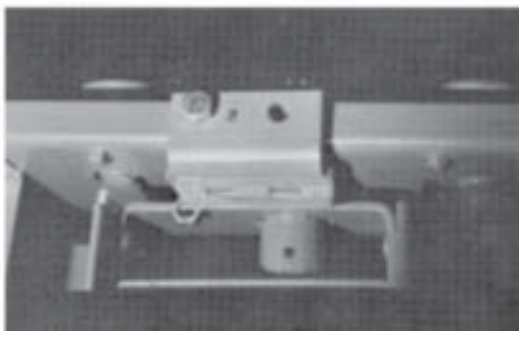


Photo 15 (2 HP position)

12. NOTE: 36' and larger double auger trolleys will require the hold-down rods to be moved to the bottom hole position. This is done by removing the cotter pin and pulling the rod out and reinserting it in the bottom holes. Refer to Photo 17 for proper location of the hold-downs.

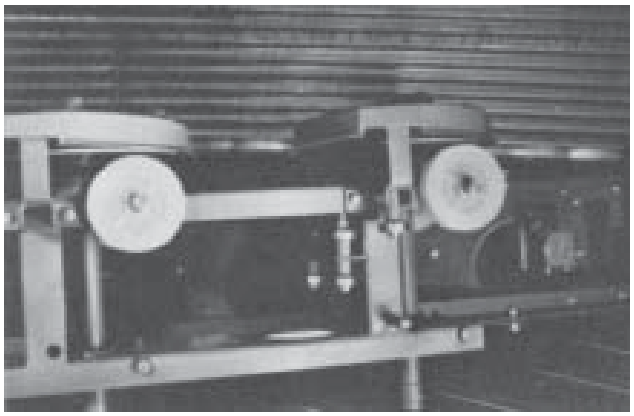


Photo 16

Place trolley on frame with the junction box toward center of the bin. Single auger trolley is placed on the frame rails from the outboard end and double and triple auger from the inboard end. See Photos 18, 19, and 20.

FOR SINGLE AUGER UNITS: Bolt outboard frame end and track unit assembly to the frame rails using six 3/8" x 1" carriage bolts, 3/8" lock washers and hex nuts.

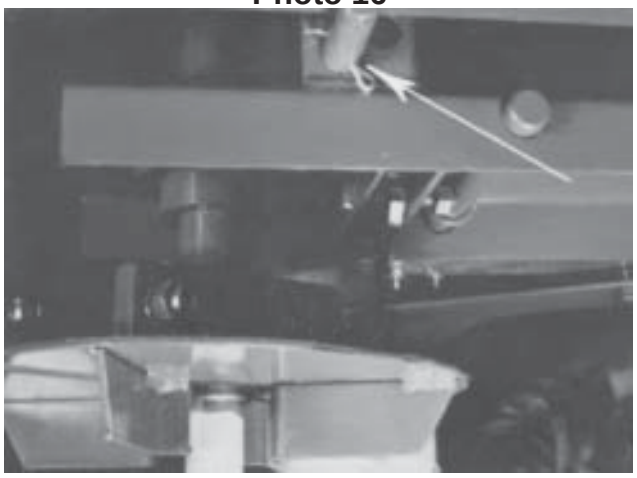


Photo 17

Photo 18

Photo 19

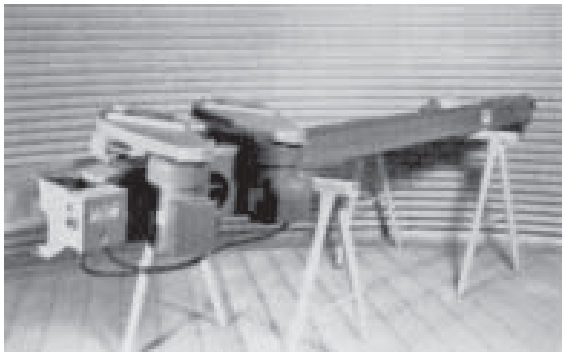


Photo 20

FOR DOUBLE AND TRIPLE AUGER UNITS: Bolt inboard frame end to frame rails using six 3/8" x 1" carriage bolts, 3/8" lock washers and hex nuts.

NOTE: **LOCATE BOLT HEADS TO INSIDE OF FRAME RAILS.** See Photos 21 and 22. **ROLL THE TROLLEY TO BE SURE ALL WHEELS TURN FREELY.**

Photo 21

Photo 22

13. Place trolley drive arm through the square hole in trolley body pointing toward the center of thebin and secure with two 1/4" x 1-3/4" cotter pins, one above the trolley body and one below. See Photos 23, 24, 25, and 26.

NOTE: Two hole locations are provided. The upper hole is used on single auger units only, as indicated on the decal. See Photos 23 and 24. For double and triple auger units, use lower hole. See Photos 25 and 26.

Photos 23 and 24
Single Auger Position

Photo 23

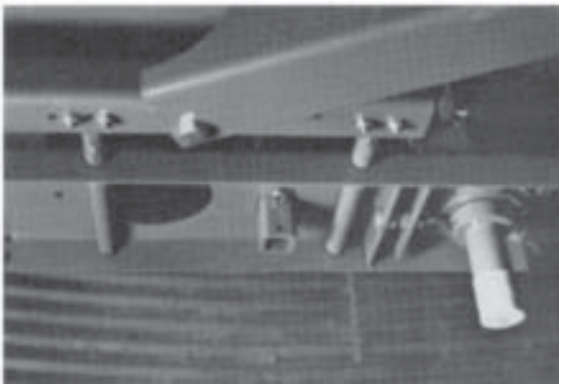


Photo 24

Photos 25 and 26
Double and Triple Auger Position

Photo 25

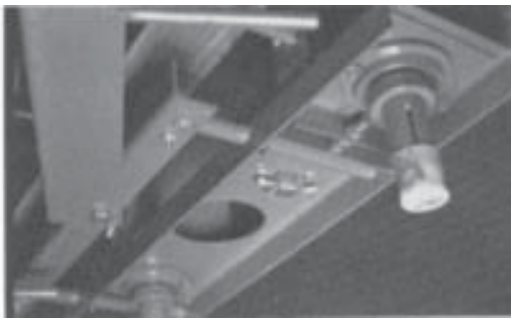


Photo 26

Check that the trolley 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 Photos 27 and 28.

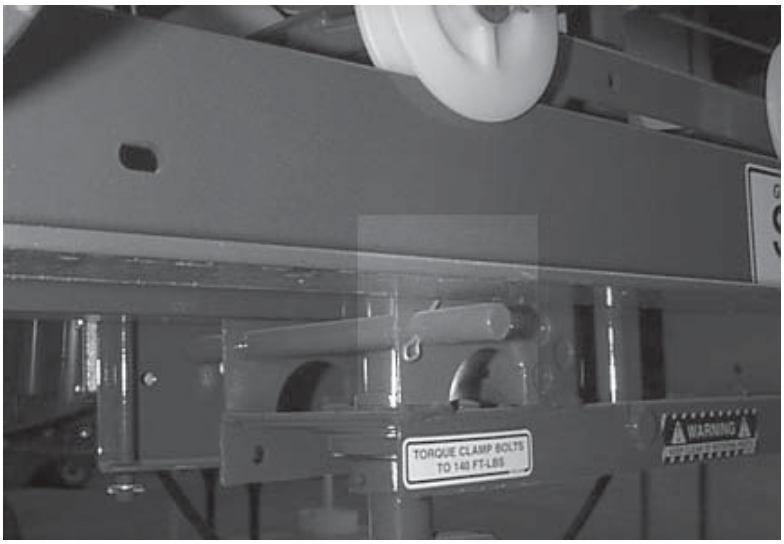


Photo 27

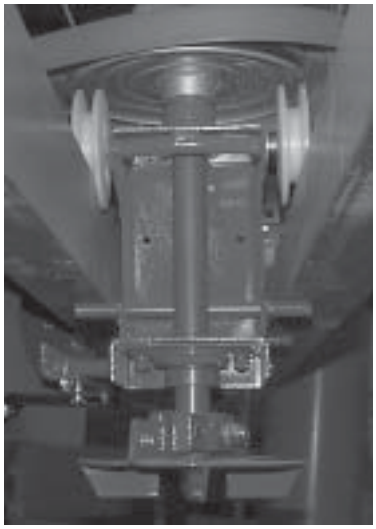


Photo 28

14. The yoke assembly is attached to the frame rails by placing the pivot tube into the center frame support. Secure by placing a 1/4” x 2-1/2” cotter pin through the tube. The end yoke is bolted to the left frame rail with two 3/8” x 1” carriage bolts, lock washers and hex nuts. See Photos 29, 30, 31, and 32.

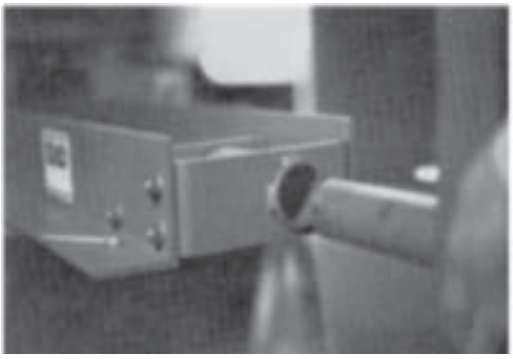


Photo 29

Photo 30

Photo 31

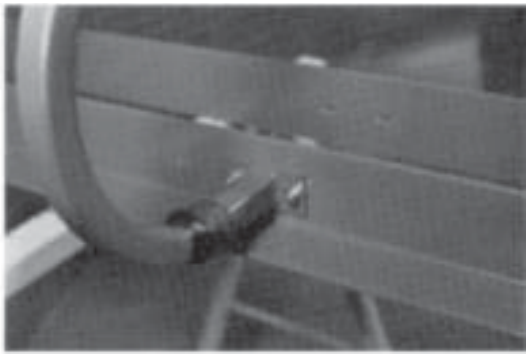


Photo 32

NOTE: BOLT HEADS MUST BE PLACED TO INSIDE OF THE FRAME RAIL or they will interfere with the inside frame rollers. See Photo 32. Remove shipping tape holding wire support swing arm with electrical wire. See Photo 33.

!!CAUTION!!
Swing Arm Is Spring Loaded
CAUTION: EXTREME CARE MUST BE EXERCISED WHEN CUTTING TAPE LOOSE TO AVOID POSSIBILITY OF PERSONAL OR BODILY INJURY, AS ARM WILL SNAP BACK WHEN FREED.

Photo 33

Bolt trolley wire support rod to top of angle support with two 1/4" x 5/8" hex whiz lock screws 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 strip and mercury switch using the black wire connector. See Wiring Diagrams pages 22-24 or Drawing D and Photo 38 on page 9.

After making electrical connections REPLACE COVER SCREW. Secure electrical wires to wire support rod using two wire ties. Trim excess. See Photos 34, 35, 36, 37, and 38 or Drawing D.

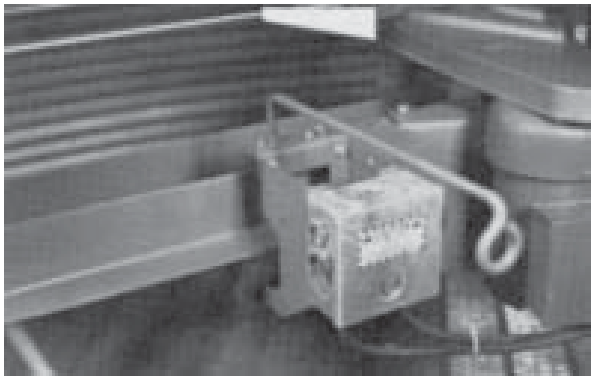


Photo 34

Photo 35

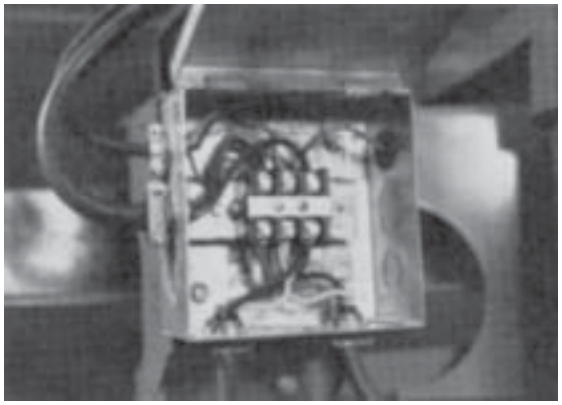


Photo 36

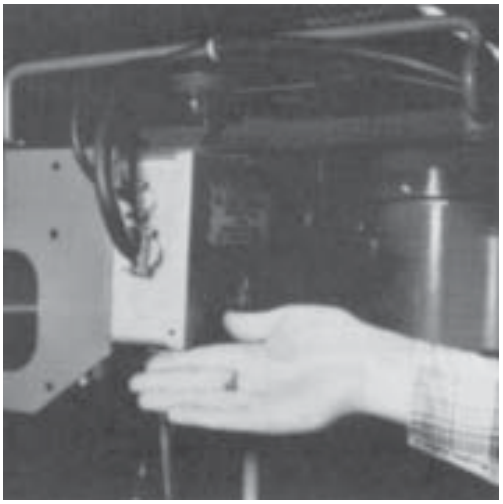
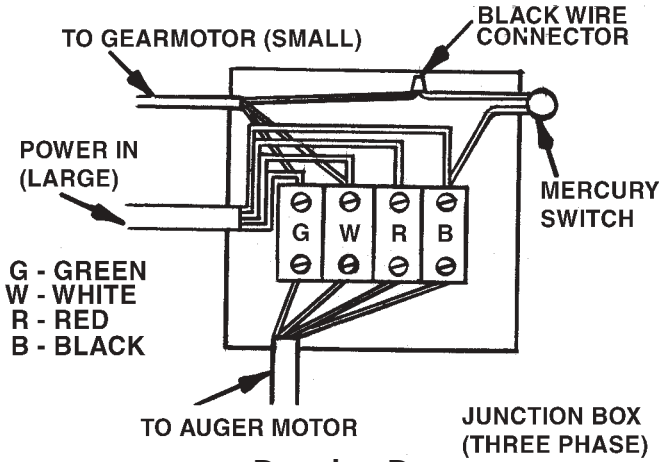


Photo 37



Drawing D

Photo 38

NOTE: IS MERCURY SWITCH POSITIONED IN CLIP WITH DECAL IN STATED “UP” POSITION? See Photo 38.

15. NOTE: 36’ and larger 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 four inches from wire support swing arm toward outboard end side. Place bottom of support yoke onto the frame rail angle flange and fasten with 3/8” x 1” set screw. See Photos 39, 40, 41, 42, and 43.

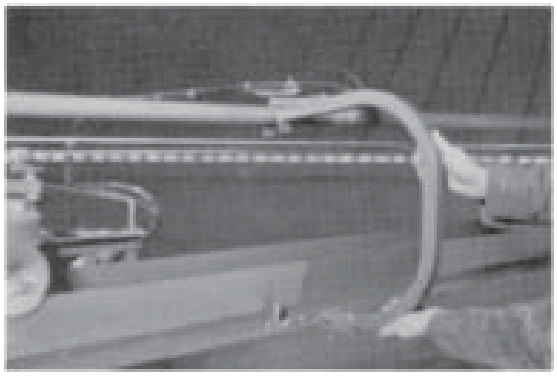


Photo 39

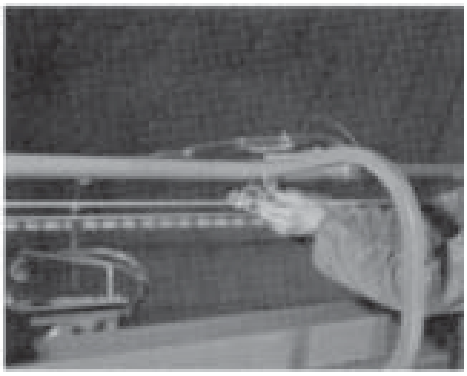


Photo 40

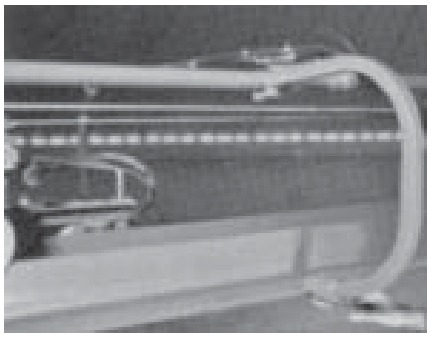


Photo 41

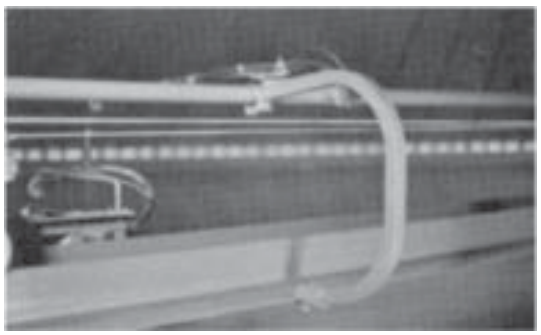


Photo 42

Connect trolley drive arm to cable connector using one 1/2" SAE flat washer and 5/32" x 1" cotter pin. See Photos 43, 44, and 45. BE SURE CABLE CONNECTOR IS AS SHOWN IN PHOTO 43. If assembled incorrectly, connector will not go around cable pulleys.

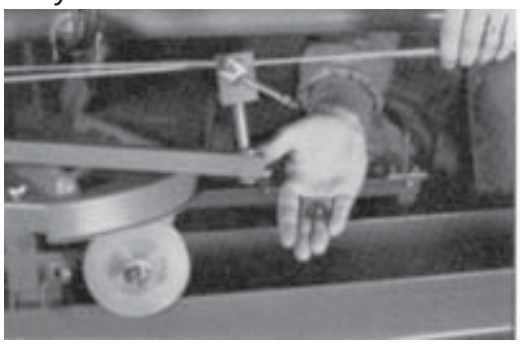


Photo 43

Photo 44

BE SURE THE TROLLEY DRIVE ARM POINTS TO THE CENTER OF THE BIN!!

HAVE YOU INSTALLED THE TROLLEY UNIT ON THE MAIN FRAME IN THE CORRECT OPERATING POSITION?

Photo 45

16. The Center Suspension System: Single and double auger units use a single piece square tube. The triple auger units use a two-piece square tube "T" assembly.

FOR SINGLE AND DOUBLE AUGER UNITS: Place the attachment link on 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. See Photo 46 and the drawing on page 15.

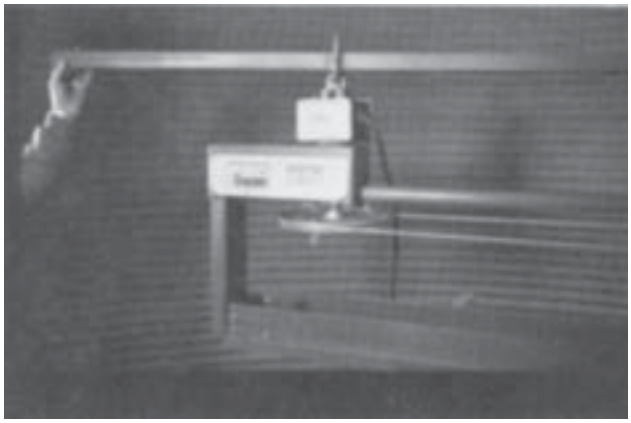


Photo 46

FOR TRIPLE AUGER UNITS: First assemble two-piece “T” square tube sections using one 3/8” x 2-1/2” hex head bolt with lock washer and hex nut. Place the attachment link on the suspension “T” tube into the welded clevis provided on yoke head and fasten with one 1/2” x 2” hex head bolt and hex lock nut. See Photos 47 and 48 and the drawing on page 2.

Photo 47

Photo 48

NOTE: BE SURE SMALL LOOPS ON SUSPENSION TUBE ENDS ARE ALWAYS DOWN.

17. Cut lead-in wire loose from yoke pipe, being careful not to damage the wire.

18. Unwrap gearmotor wire from yoke tube and strip end. Remove the fuse cover from the junction box. Insert wire through connector and connect wire with fuse holder wires using yellow wire connectors. Replace cover assembly and secure wire to the frame rail with cord clips which push over the frame rail flange. See Photos 49, 50, 51, and 52.

Photo 49

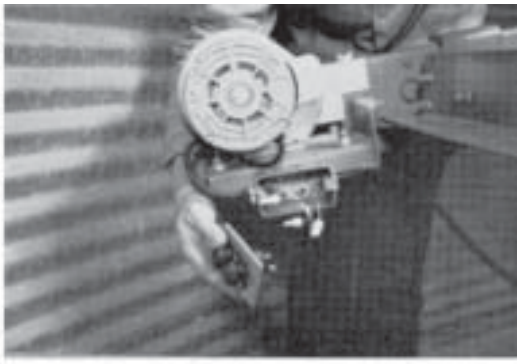


Photo 50

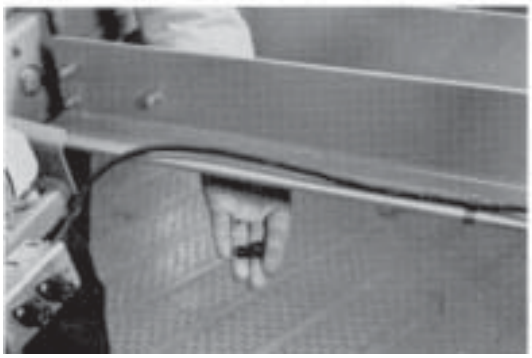


Photo 51

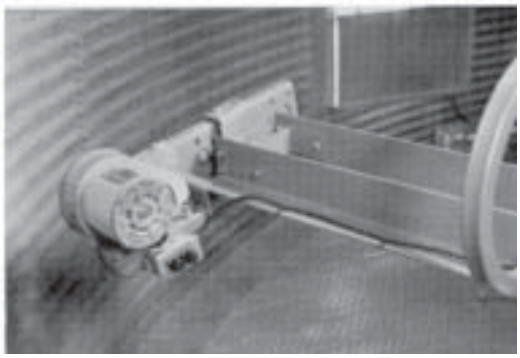


Photo 52

19. Remove plastic cap(s) from lower end of stub shaft(s). Loosen the 1/2" x 2-1/2" bolts on the leveler disk. Slide onto the stub shaft with clamp portion up, hold leveler disk in position by placing snap ring onto stub groove cut into stub shaft. See Photos 54 & 55.

Photo 54

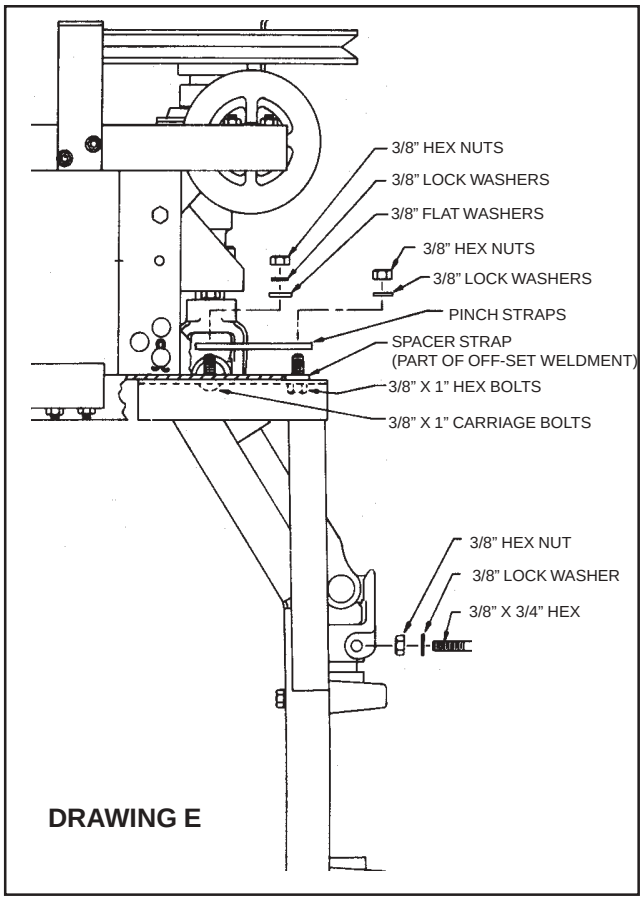
Photo 55

OFFSET AUGER OPTION

19A. Put a 1/4" x 1" woodruff key in the stub shaft. Slide the offset assembly underneath the trolley with the U-joint going through the lower bearing hole and onto the stub shaft.

19B. Fasten the offset assembly to the lower trolley by bolting the two pinch straps on top of the lower trolley channel with 3/8" x 1" hex bolts on the outside holes, and 3/8" x 1" carriage bolts on the inside holes, as shown in Drawing E. Be sure to add the flat washers over the slotted holes. Slide the assembly in until the spacer strap, welded to the top of the offset, butts the trolley channel. Tighten all of the 3/8" hardware. Tighten the U-joint set screws.

19C. Rotate the shaft to assure there is no binding or rubbing. Remove the short shipping shaft and hardware from the offset assembly and discard.



DRAWING E

20. The Stir-Ator is ready to be lifted into position. The use of a chain hoist, winch or block and tackle is the best way to accomplish this. At the center, use the center lift hook on top of the suspension tee. See Photo 56.

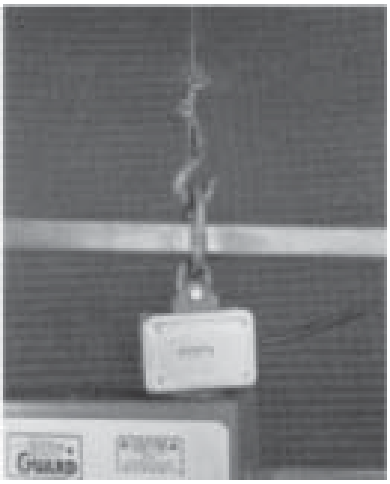


Photo 56

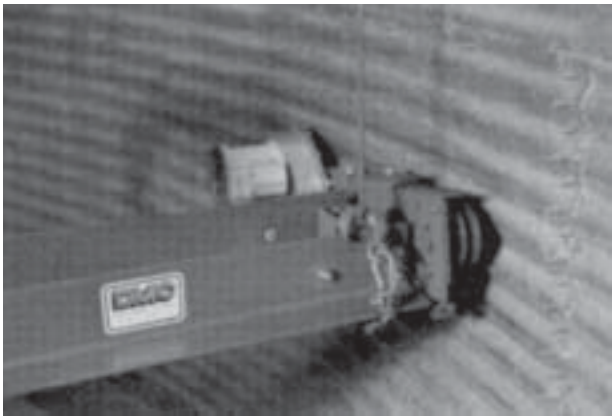


Photo 57

At the bin wall, wrap lifting mechanism around the trolley motor side of the frame rail. See Photo 57.

CAUTION: BE SURE THAT THE LIFTING EQUIPMENT IS CAPABLE OF LIFTING THE UNIT. See Weight Chart on page viii.

Always fasten trolley securely, with vise grips or 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 Photos 58 and 59.

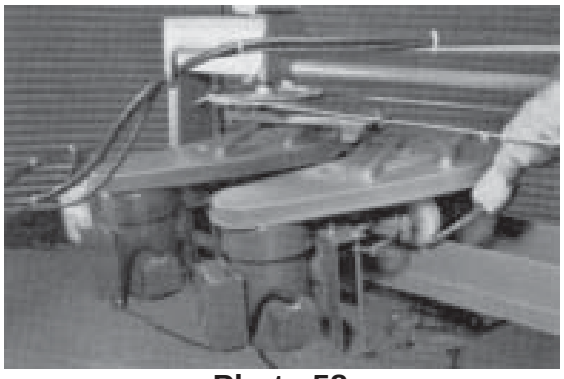


Photo 58

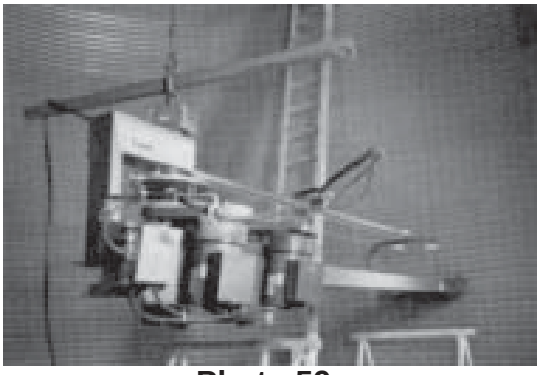


Photo 59

NOTE: Check that shut-off hook end of the suspension tube is located in the proper relation to the shut-off switch box. See Diagram on page 2.

21. 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 Photos 60 and 61. Hang the Stir-Ator 1” high in the center for each 18’ of bin diameter, with the suspension bar level.

Photo 60

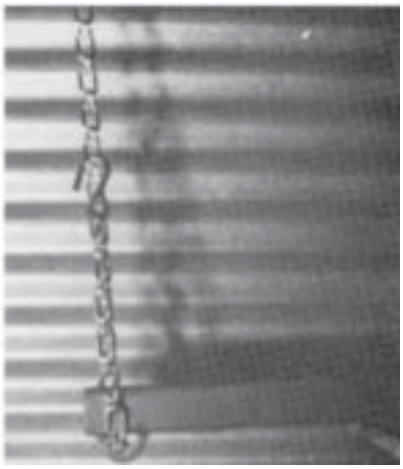


Photo 61

22. Lift the outboard end track unit onto the bin wall track. Install the two track hold-down pins with the pin heads located directly under the lower track edge, secure with two 5/32” x 1” cotter pins. See Photos 62, 63, 64, and 65.

Photo 62

Photo 63

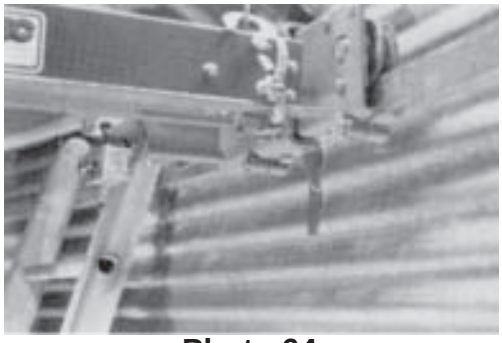


Photo 64

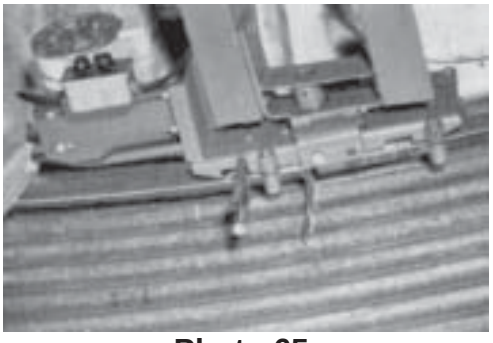


Photo 65

CAUTION: Lock track unit in place on wall with vise-grips, clamps or other means so unit WILL NOT SKID. See Photo 65.

23. The unit should be hung slightly higher at the center than at the bin wall. Standing at a right angle to the frame rails and sighting along them and across to the wall track is an easy way to determine this. When the center height is properly positioned, the frame rails 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, as an example. 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.

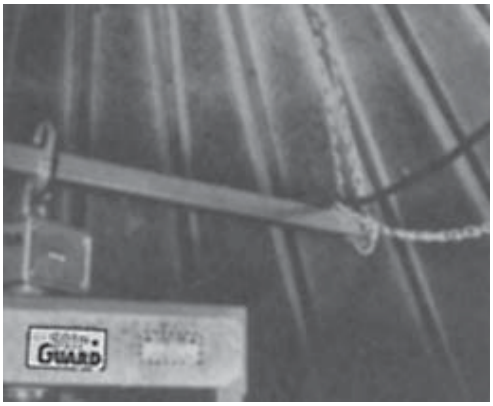


Photo 66

24. Check to be sure the shut-off hook end of the suspension tube is located 90 degrees to the switch box. If not, reposition the suspension chain hooks around the center fill hole. Attach the link end of the shut-off chain to the "S" hook which is welded onto the suspension tube. See Photo 66. Hook the other end to the "S" hook on the switch box handle. Rehook the excess chain with "S" hook attached to the shut-off chain so that it will not get caught on the unit. See Photo 67. 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 Drawing A on page 24. Remove the wire support "S" hook which is banded to the hook attached to the chain end with a plastic tie strap. Loop the support chain under shut-off chain lifting it for clearance and hook to main strand. See Photo 68.

Photo 67

Hook wire support "S" hook to support chain. Approximately 12" above shut-off chain. See Photo 68.

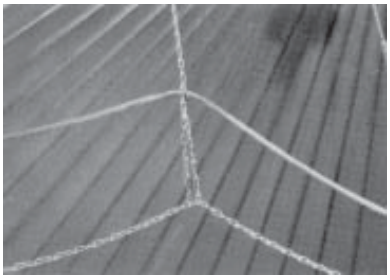
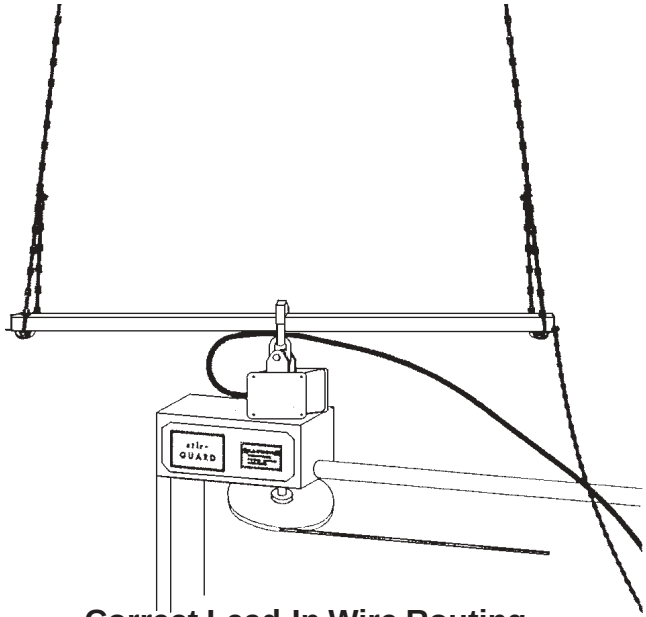


Photo 68

After all adjusting has been completed, "S" hooks on suspension chains and shut-off chains should be closed.

24A. 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 suspensionbar.) The lead-in wire can then be suspended above the safety chain and routed to the switch box. See Drawing B on page 25.



Correct Lead-In Wire Routing

CAUTION: THE LEAD-IN WIRE FROM 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.

CAUTION: OPERATING THE STIR-ATOR WITHOUT SHUT-OFF CHAIN PROPERLY ASSEMBLED AND INSTALLED COULD RESULT IN SERIOUS ELECTRICAL SHOCK OR BODILY INJURY AND WOULD VOID YOUR WARRANTY.

See pages 21 and 25 for proper installation and clearance of shut-off chain & Stir-Ator.

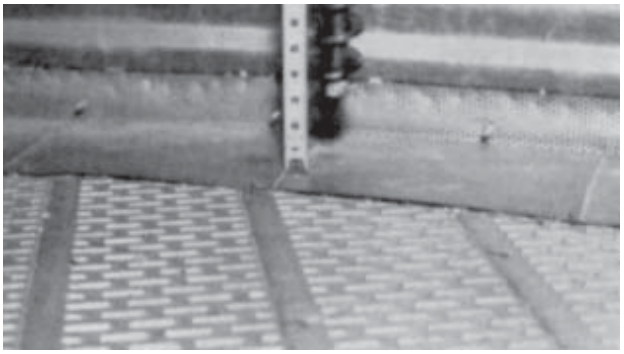


Photo 69

Installing Stir-Ator Augers

25. Install Stir-Ator augers by standing them up against the trolley to measure for 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 shortest at the wall. See next page for cutting instructions.

    The Stir-Ator augers should clear the drying floor by 3 inches. See Photo 69.

    The overall size and dimension chart can be useful for cutting the Stir-Ator auger to the proper length. See Drawing A on page 21.

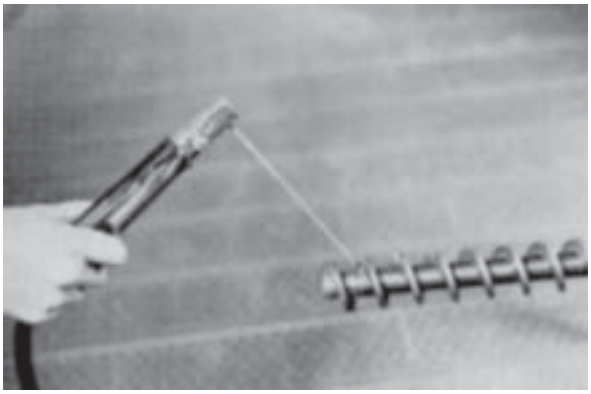
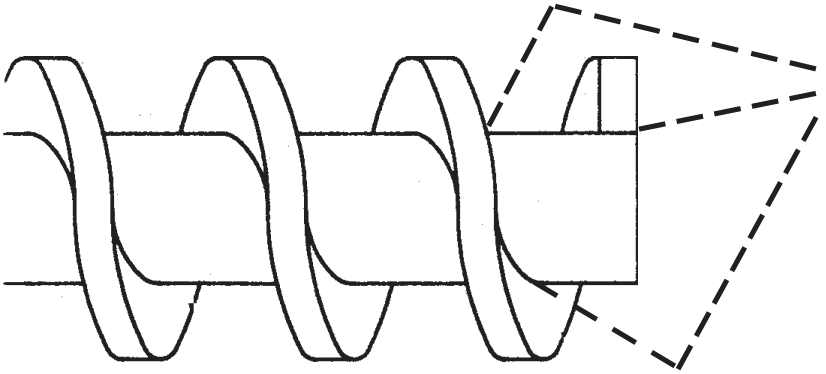


Photo 70

Note: DMC has a One-Season warranty on its down augers up to 22 feet long.
DMC offers NO WARRANTY on 24 ft. long down augers.

Auger Cut-Off Diagram



NOTE: WHEN SHORTENING A DOWN AUGER, CUT FROM THE BOTTOM AND BE SURE THE FLIGHTING IS REWELDED PROPERLY. CUTTING THE AUGER FROM THE TOP WILL VOID THE WARRANTY.

25A. Cutting Augers: Stir-Ator down augers are manufactured to allow them to be cut to the required length by cutting from the **bottom end instead of the top**. All augers have flighting to within eight inches from the top, and hard-surfaced augers will have all but the top pitch of flighting hard surfaced.

Installation Procedures For These Augers

1. Determine the required length of auger to maintain three inches of clearance between the bottom of the auger and the floor.

2. Lay the auger down and mark where the auger will be cut off. Weld the flighting to the shaft in three places within the first pitch just above this mark before cutting off the bottom part of the auger. See Photo 70.

NOTE: DO NOT, FOR ANY REASON, WELD FLIGHTING AT THE TOP OF THE AUGER TO THE SHAFT. TO DO SO VOIDS WARRANTY. THE FLIGHTING AND SHAFT MUST REMAIN UNWELDED TO MINIMIZE DISTORTION AND WEAKENING OF THE SHAFT.

25B. **Offset Trolley Auger Installation**: Remove 1" bearings from lower offset trolley body. Cut auger to proper length of three inches off the floor. File notch on upper end of auger shaft. Next, place bearings and lock collars onto auger shaft. Then, bolt bearings back onto the trolley body. Slide the auger into the U-joint and attach with 3/8" x 1-3/4" hex bolt. See Photo 71.

NOTE: LOCKING COLLARS ON BEARINGS SHOULD ALWAYS BE TIGHTENED THE SAME DIRECTION AS SHAFT ROTATES.

Photo 71

Standard Trolley Installation

26. To assemble the auger to the stub shaft, drill a 5/16” diameter hole about 5/16” deep into the auger shaft, 1-1/2” from the top. (This can be drilled before or after the auger is installed.) See Drawing C on page 19.

    Slide the auger into the stub shaft and align the holes in the stub shaft and auger shaft. Place the auger clamp with spring pin over the holes so the spring pin is inserted into the auger. **Evenly torque the clamp bolts to 140 ft. lbs**. See Photo 72 and 73.

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

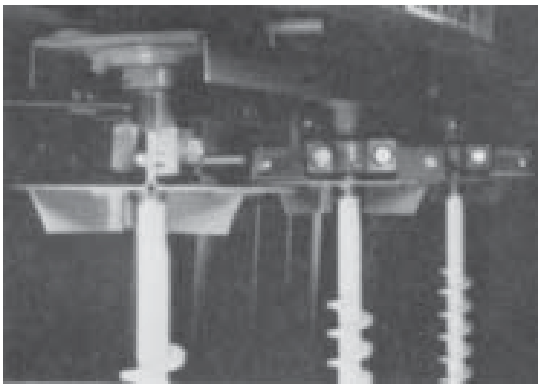


Photo 72

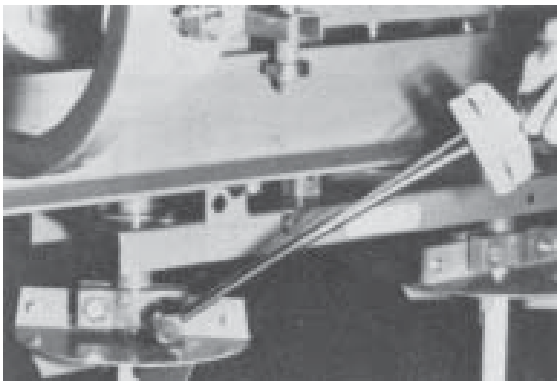


Photo 73

27. **NOTE:** Move trolley from extreme outboard end of the main frame to the inboard end and back, 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.

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

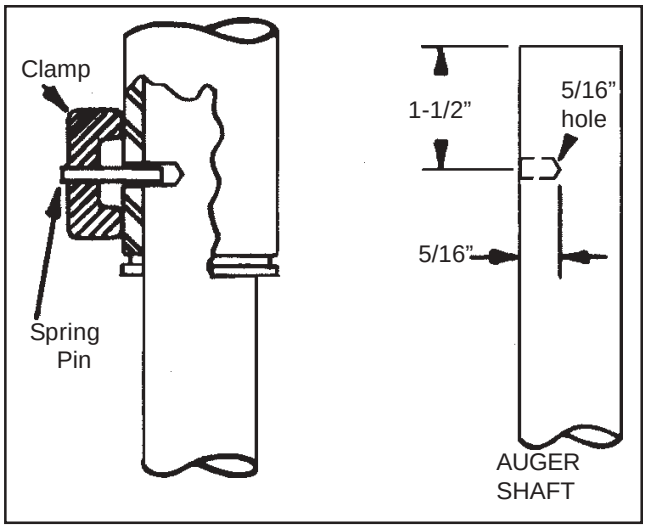
!!CAUTION!!

DO NOT OPERATE STIR-ATOR IN AN EMPTY BIN. TO TEST IF POWERED, MAKE SURE NO ONE IS INSIDE BIN, THEN TURN POWER "ON" AND "OFF" **IMMEDIATELY** FROM OUTSIDE OF BIN. DO NOT LET IT RUN IN AN EMPTY BIN. TAKE TIME FOR PROPER INSTALLATION.

Underside of Manhole Cover

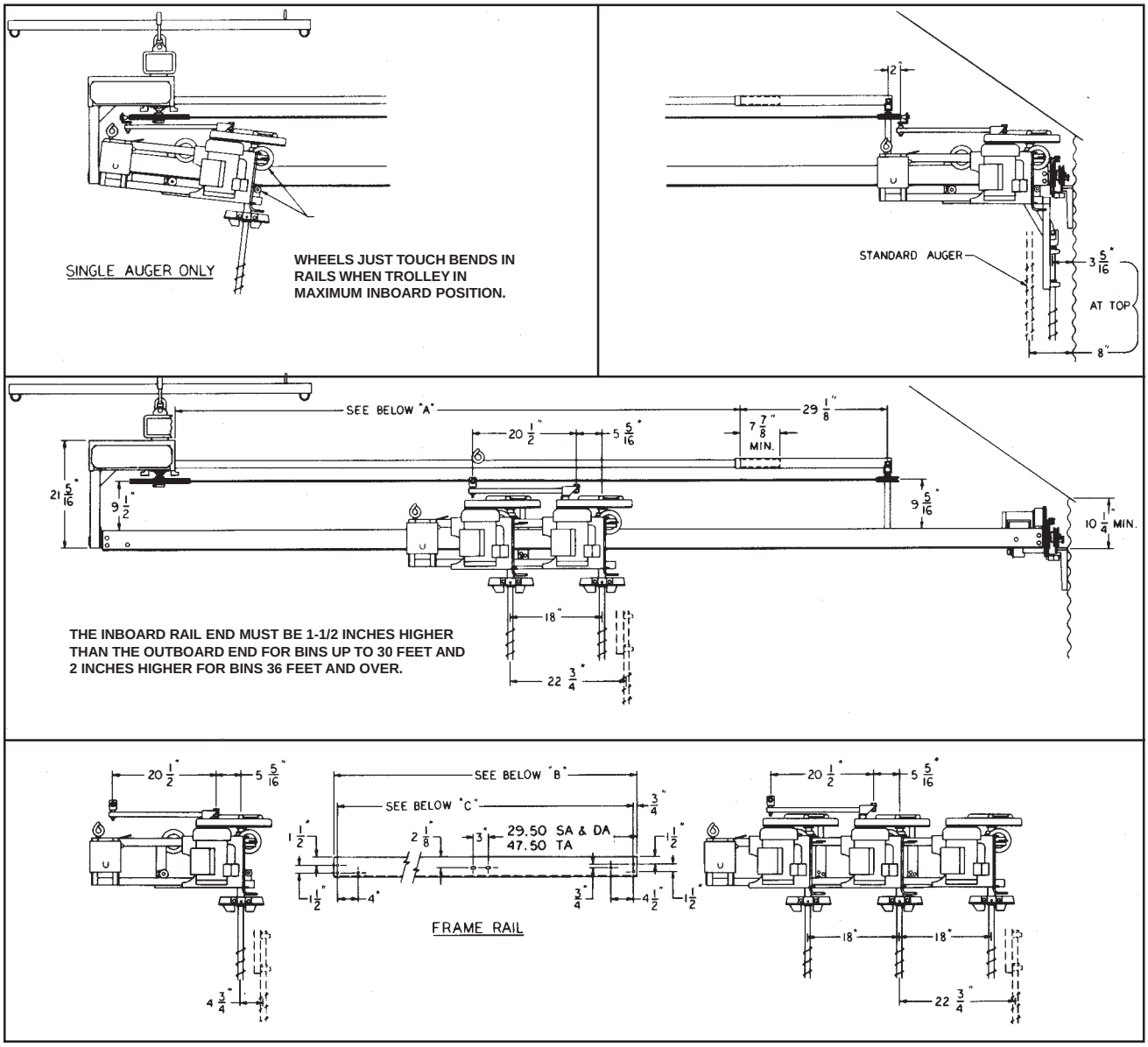
29. Place Caution Decals as Shown.

Inside of the Walk-In Door



DRAWING C

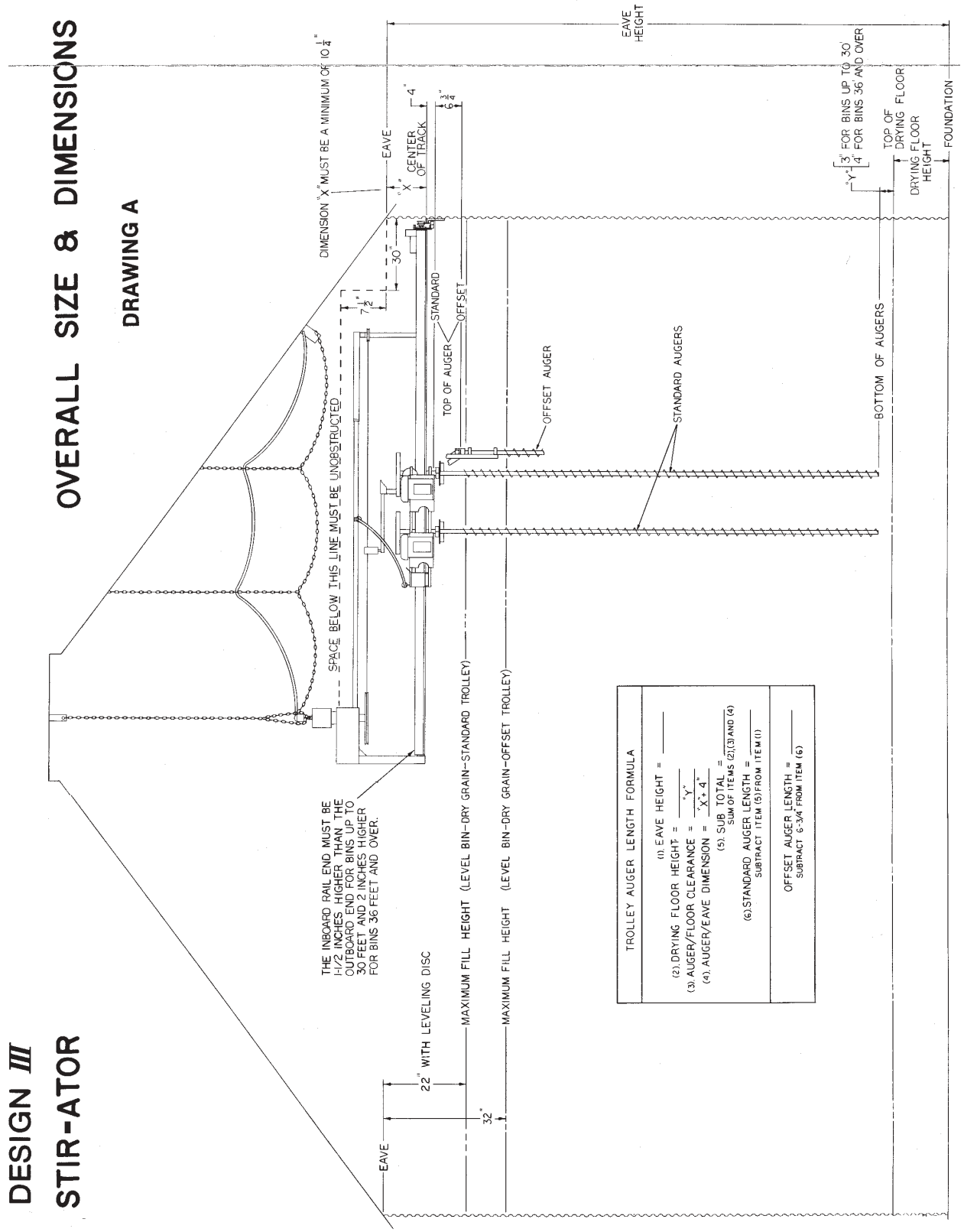
DESIGN III STIR-ATOR OVERALL DIMENSIONS



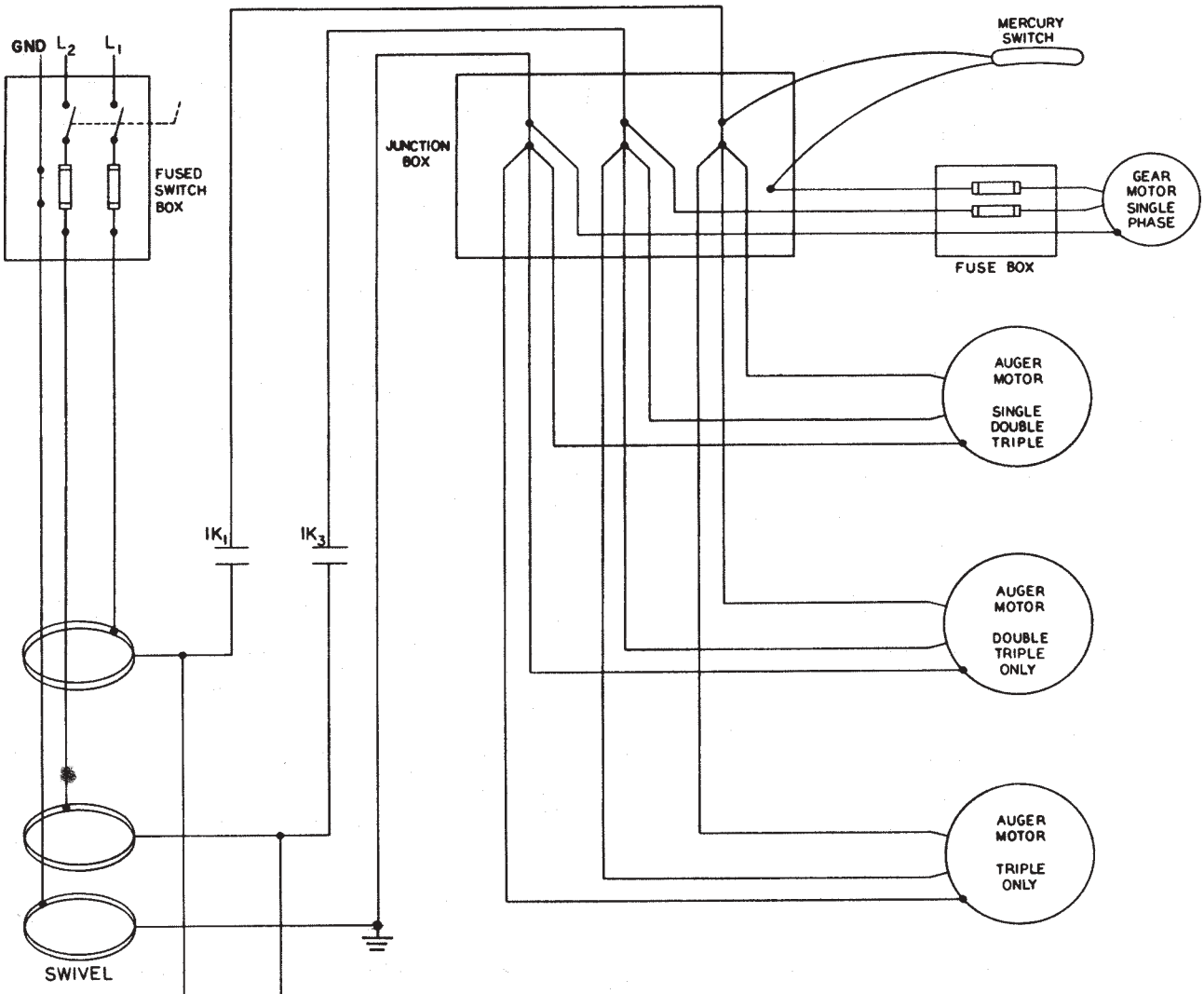
BIN DIA.	DIMENSION "A" SA/DA	DIMENSION "A" TA	DIMENSION "B" DA & TA ONLY	DIMENSION "C" SA - DA - TA	BIN DIA.	DIMENSION "A" SA/DA	DIMENSION "A" TA	DIMENSION "B" DA & TA ONLY	DIMENSION "C" SA - DA - TA
*14'	16-1/8	NA	NA	89	27'	94-1/8	76-1/8	168-1/2	167
*15'	22-1/8	NA	NA	95	27'10"	99-1/8	81-1/8	173-1/2	172
**18'	40-1/8	NA	114-1/2	113	28'	100-1/8	82-1/8	174-1/2	173
**18'7"	43-5/8	NA	118	116-1/2	28'3"	101-5/8	83-5/8	176	174-1/
2									
21'	58-1/8	40-1/8	132-1/2	131	30'	112-1/8	94-1/8	186-1/2	185
21'7"	61-5/8	43-5/8	136	134-1/2	31'	118-1/8	100-1/8	192-1/2	191
22'	64-1/8	46-1/8	138-1/2	137	33'	130-1/8	112-1/8	204-1/2	203
22'9"	68-5/8	50-5/8	143	141-1/2	36'	148-1/8	130-1/8	222-1/2	221
24'	76-1/8	58-1/8	150-1/2	149	36'3"	149-5/8	131-5/8	224	222-1/
2									
24'3"	77-5/8	59-5/8	152	150-1/2	39'	166-1/8	148-1/8	240-1/2	239
24'8"	80-1/8	62-1/8	154-1/2	153	40'	172-1/8	154-1/8	246-1/2	245

*14' & 15' BIN DIAMETER AVAILABLE ON SA ONLY
** 18' & 18'7" BIN DIAMETER AVAILABLE ON SA & DA ONLY

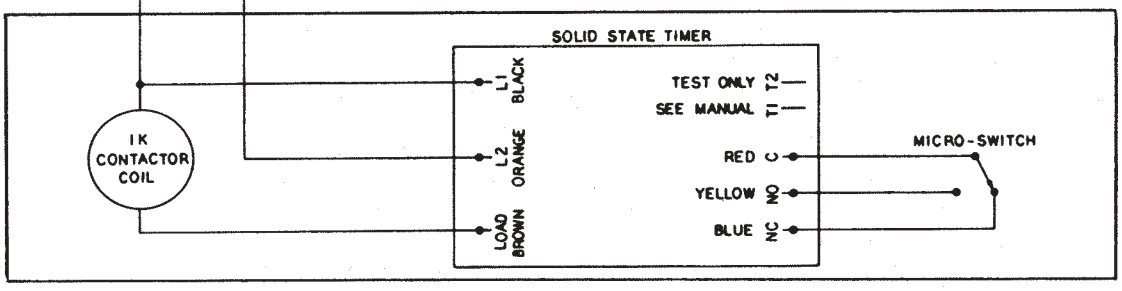
NOTE:
1. SA frame rails are 4" x 2" x 1/4"
2. DA frame rails up to 36 ft. are 4" x 3" x 1/4"
3. DA frame rails 36 ft. to 48 ft. are 5" x 3" x 5/16"
4. TA frame rails are 5" x 3" x 5/16"


DESIGN III
STIR-ATOR
OVERALL SIZE & DIMENSIONS
DRAWING A
DIMENSION "X" MUST BE A MINIMUM OF 10 1/4"
EAVE HEIGHT
EAVE
"X"
CENTER OF TRACK
4"
6 3/4"
30"
7 1/2"
STANDARD
OFFSET
TOP OF AUGER
OFFSET AUGER
STANDARD AUGERS
BOTTOM OF AUGERS
"Y" 3" FOR BINS UP TO 30'
4" FOR BINS 36' AND OVER
TOP OF DRYING FLOOR
DRYING FLOOR HEIGHT
FOUNDATION
SPACE BELOW THIS LINE MUST BE UNOBSTRUCTED
THE INBOARD RAIL END MUST BE 1-1/2 INCHES HIGHER THAN THE OUTBOARD END FOR BINS UP TO 30 FEET AND 2 INCHES HIGHER FOR BINS 36 FEET AND OVER.
22" WITH LEVELING DISC
32"
EAVE
MAXIMUM FILL HEIGHT (LEVEL BIN-DRY GRAIN-STANDARD TROLLEY)
MAXIMUM FILL HEIGHT (LEVEL BIN-DRY GRAIN-OFFSET TROLLEY)
TROLLEY AUGER LENGTH FORMULA
(1). EAVE HEIGHT = _____
(2). DRYING FLOOR HEIGHT = "Y"
(3). AUGER/FLOOR CLEARANCE = "X"+4"
(4). AUGER/EAVE DIMENSION = _____
(5). SUB TOTAL = SUM OF ITEMS (2),(3) AND (4)
(6). STANDARD AUGER LENGTH = _____ SUBTRACT ITEM (5) FROM ITEM (1)
OFFSET AUGER LENGTH = _____ SUBTRACT 6-3/4" FROM ITEM (6)

DIII STIR-ATOR
WIRING DIAGRAM - SINGLE PHASE - 230 V. - 60 HZ

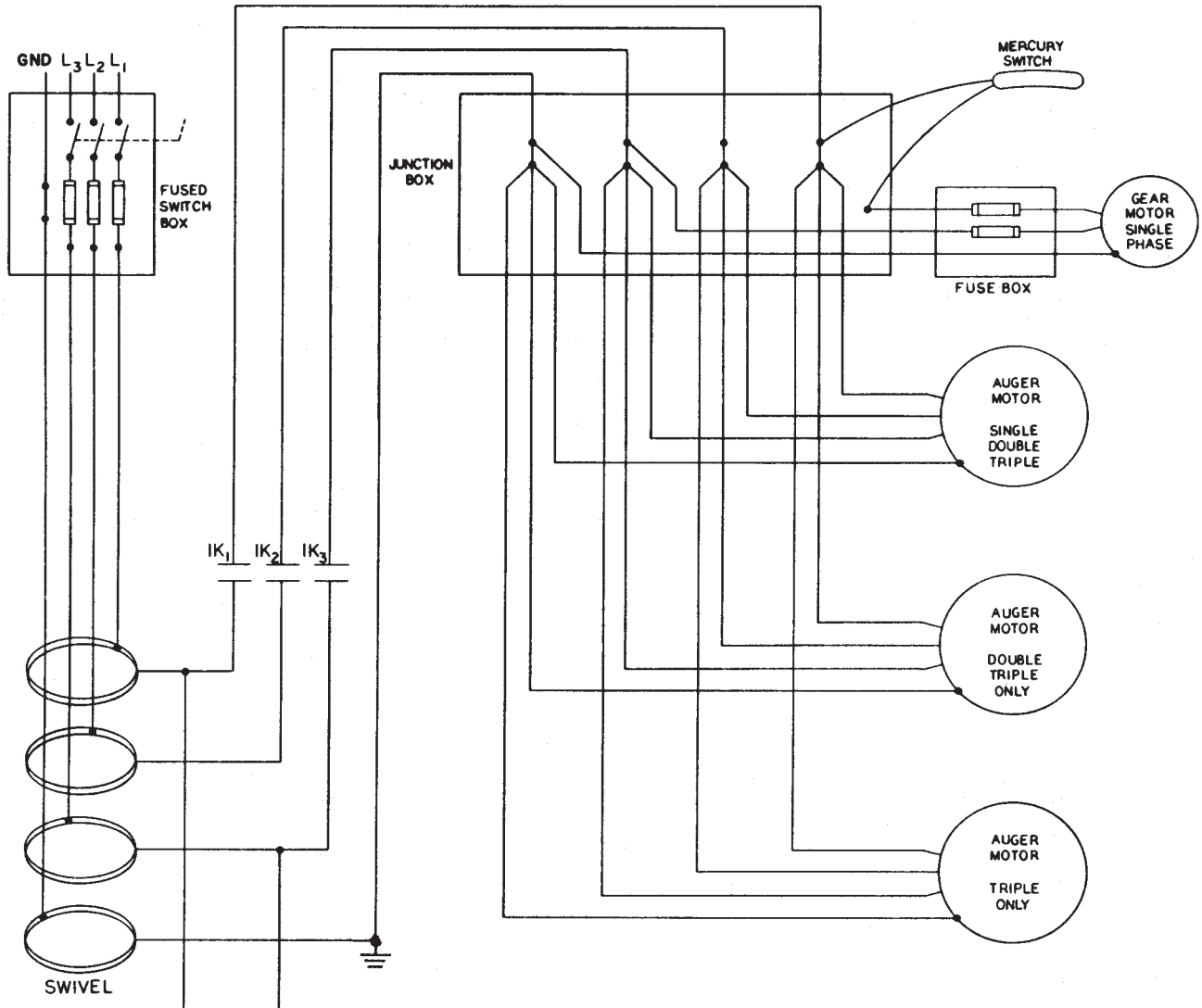


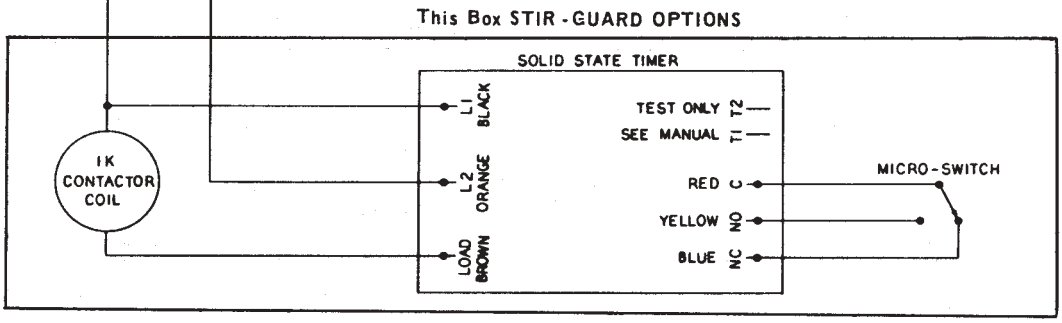
This Box STIR-GUARD OPTIONS



MOTOR	BALDOR	CENTURY	GENERAL ELECTRIC
1½ HP 230V, 1PH	L_1—4; L_2—1, 8; J, 5	L_1—YELLOW WITH TRACER STRIPE; L_2—YELLOW, BLACK; RED, BLUE, BLUE	L_1—PURPLE-P1; L_2—YELLOW-T4, BLACK-T8; BLUE-T1, RED-T10
2 HP 230V, 1PH	L_1—1; L_2—4; 2, 3, 8; J, 5	L_1—P1; L_2—4, 5; 1, 8	NOT AVAILABLE

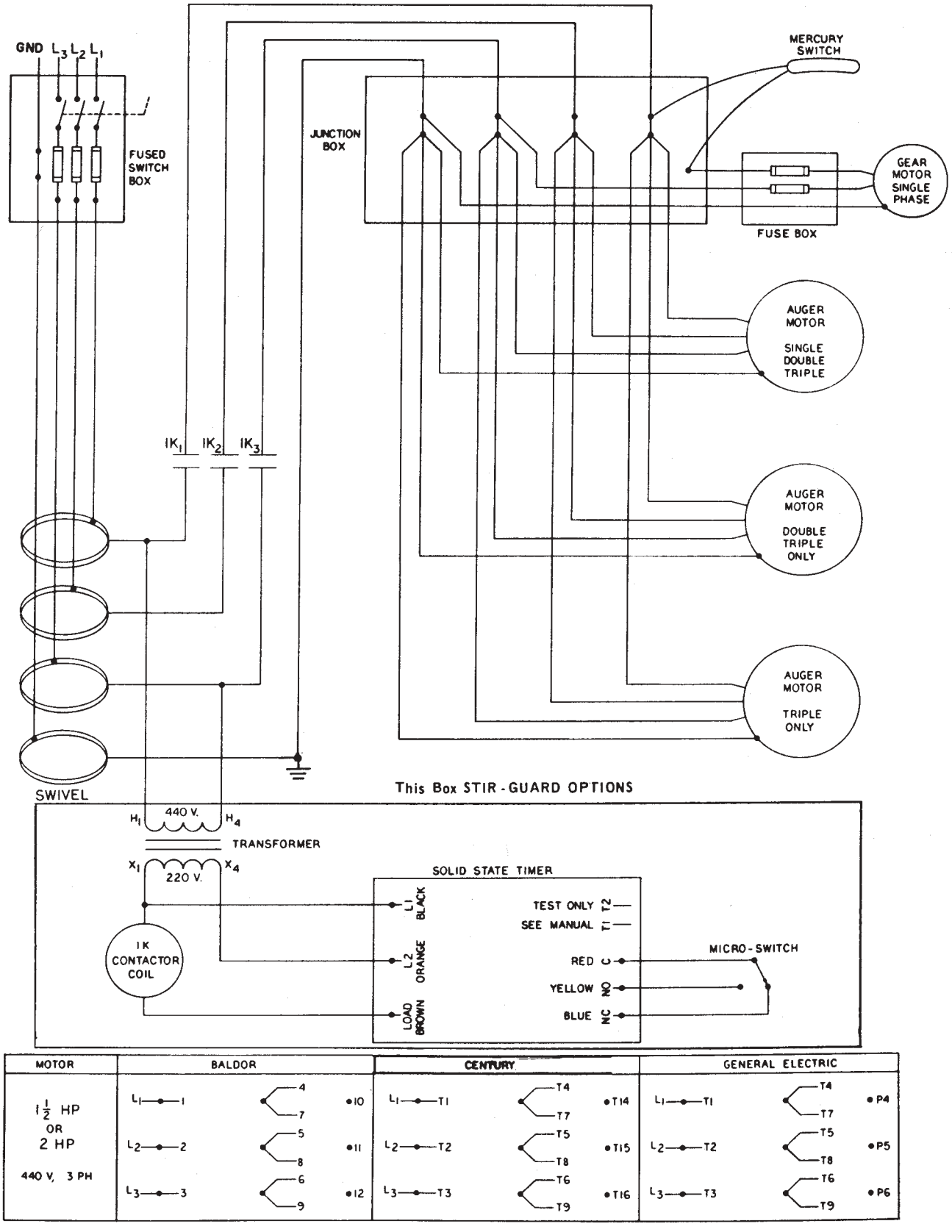
DIII STIR-ATOR
WIRING DIAGRAM - THREE PHASE - 230 V. - 60 HZ





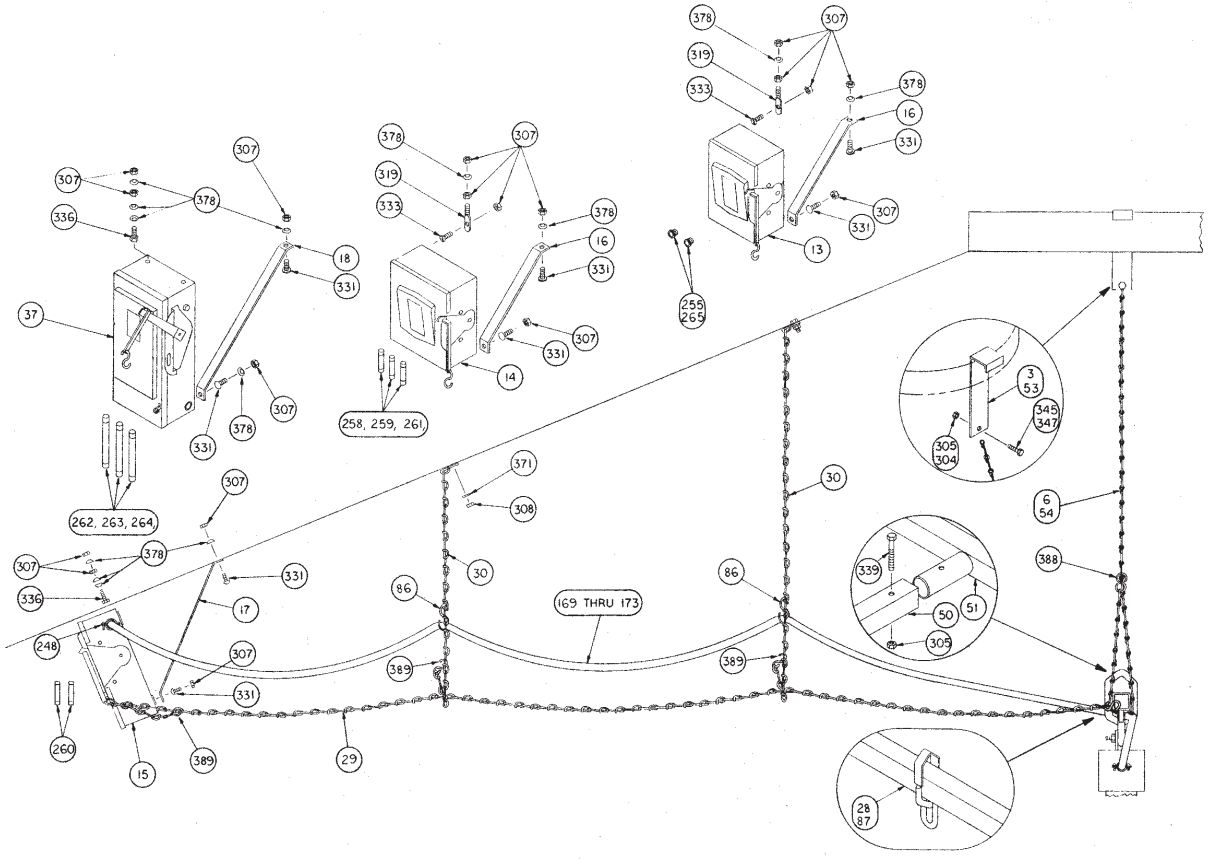
MOTOR	BALDOR	CENTURY	GENERAL ELECTRIC
1½ HP OR 2 HP 230V. 3PH.	L1 1 7 4 10 L2 2 8 5 11 L3 3 9 6 12	L1 T1 T7 T4 T14 L2 T2 T8 T5 T15 L3 T3 T9 T6 T16	L1 T1 T7 T5 P5 L2 T2 T8 T4 P4 L3 T3 T9 T6 P6

DIII STIR-ATOR
WIRING DIAGRAM - THREE PHASE - 440 V. - 60 HZ

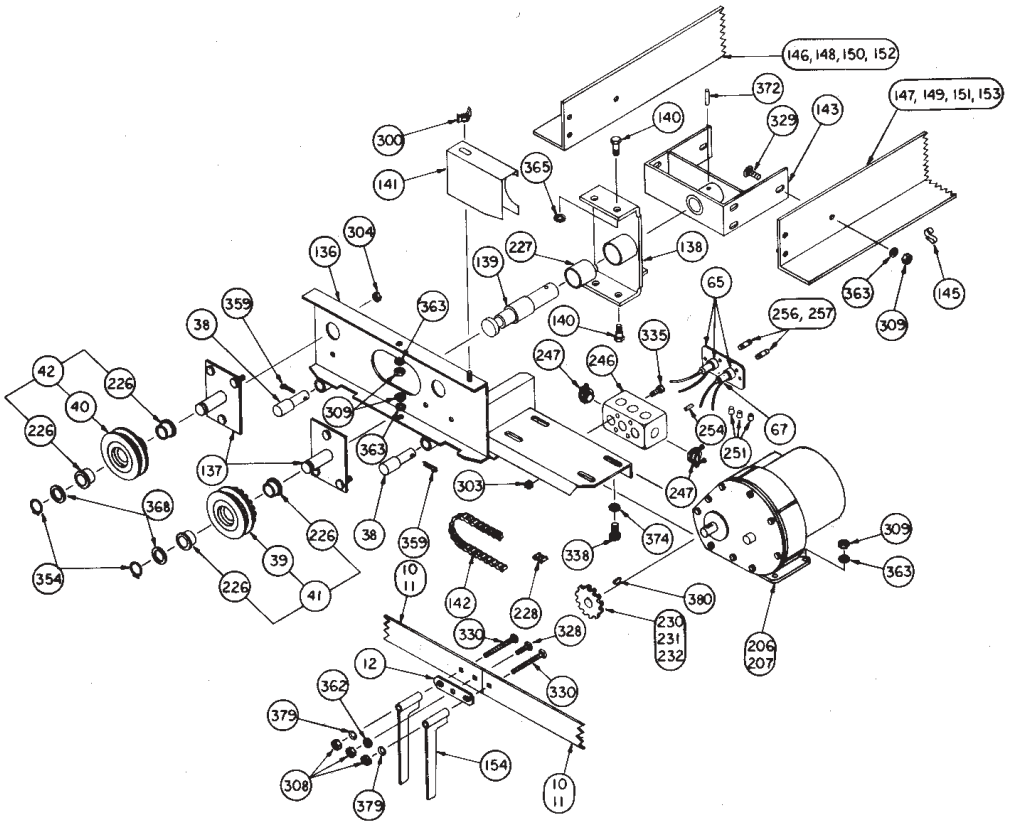


MOTOR	BALDOR	CENTURY	GENERAL ELECTRIC
1½ HP OR 2 HP 440 V, 3 PH	L1—1 — 4 — 7 — •10 L2—2 — 5 — 8 — •11 L3—3 — 6 — 9 — •12	L1—T1 — T4 — T7 — •T14 L2—T2 — T5 — T8 — •T15 L3—T3 — T6 — T9 — •T16	L1—T1 — T4 — T7 — •P4 L2—T2 — T5 — T8 — •P5 L3—T3 — T6 — T9 — •P6

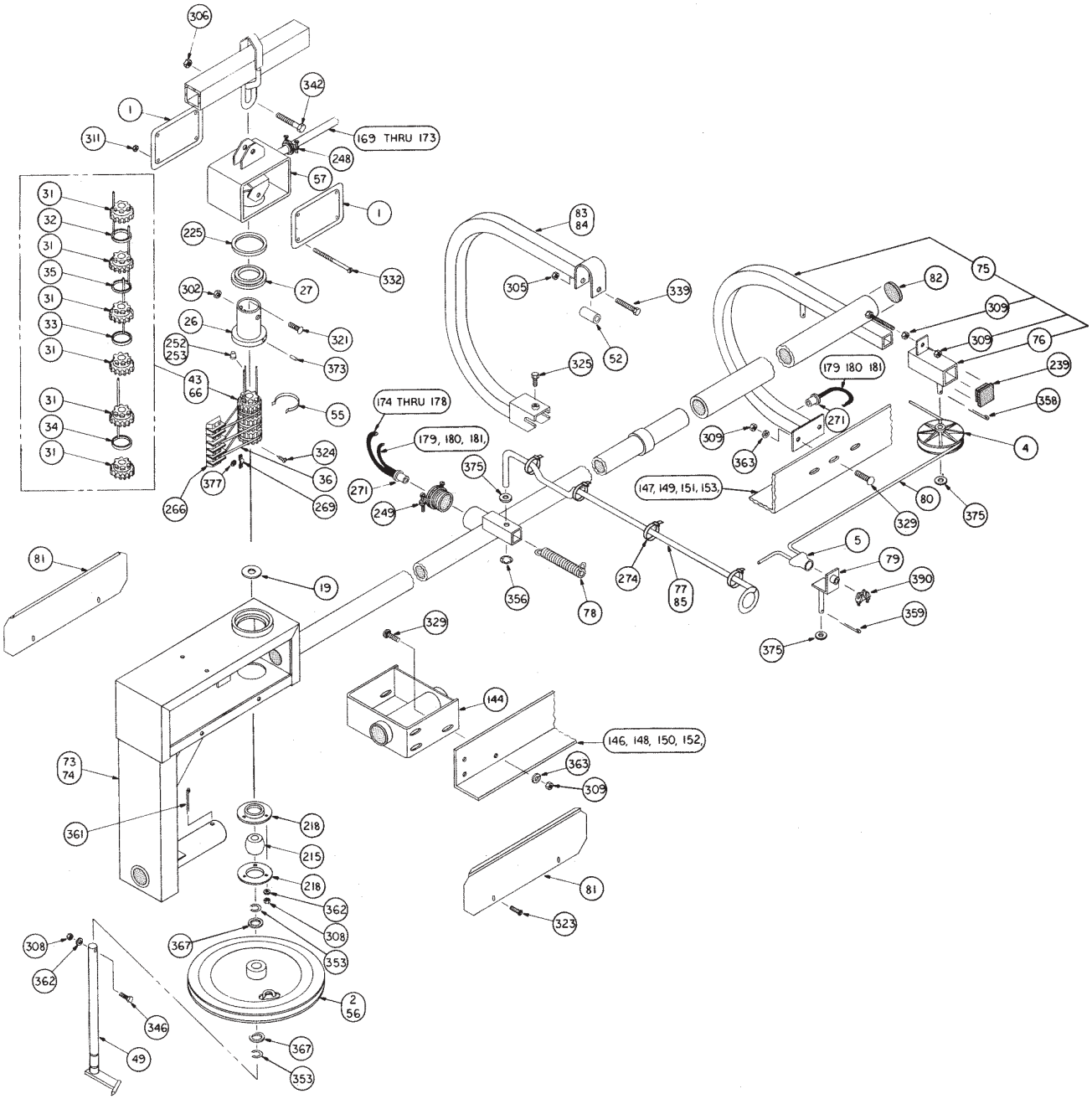
DIII Stir-Ator Switchboxes and Suspension - Drawing B



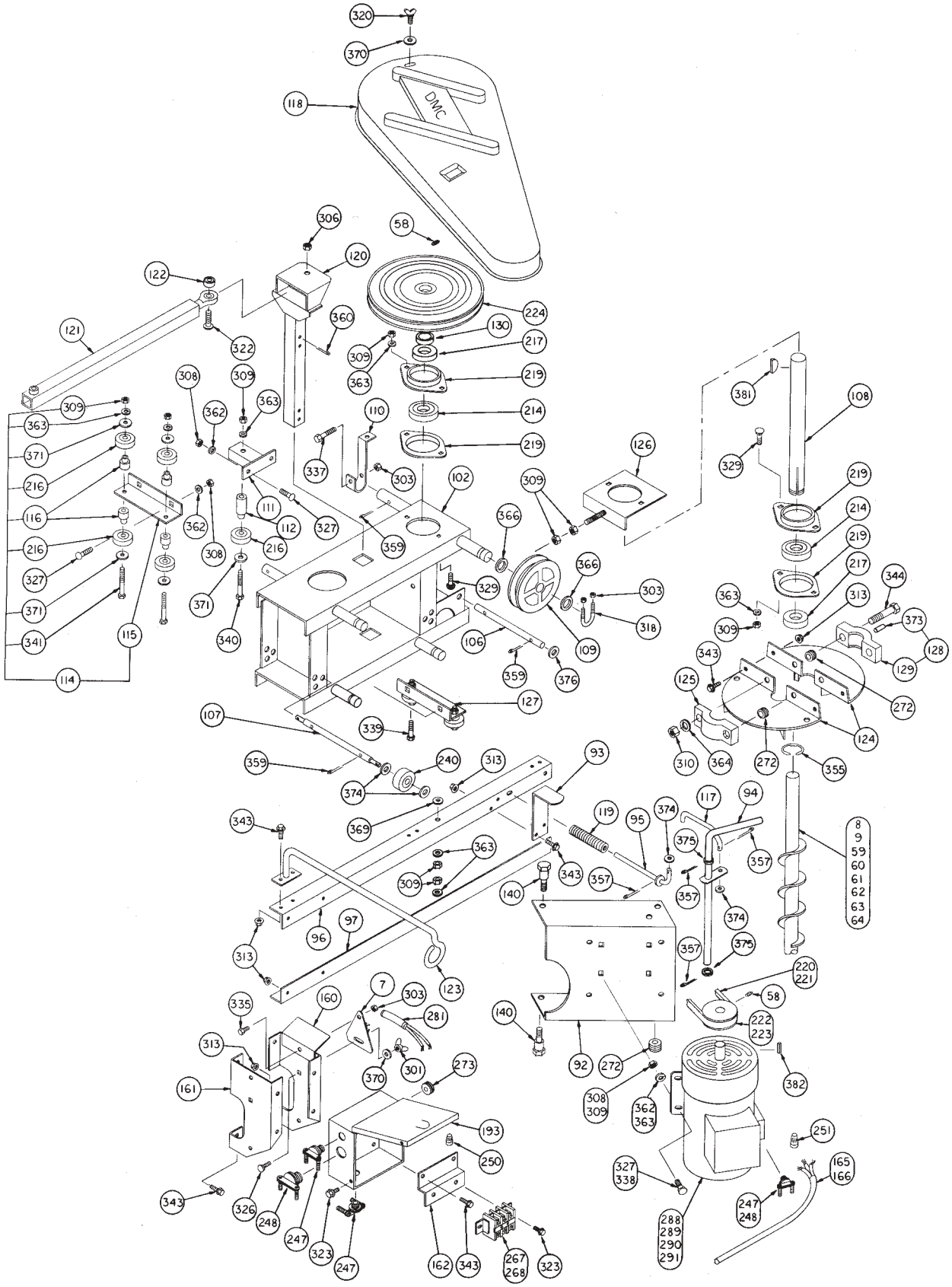
DIII Stir-Ator Track Unit



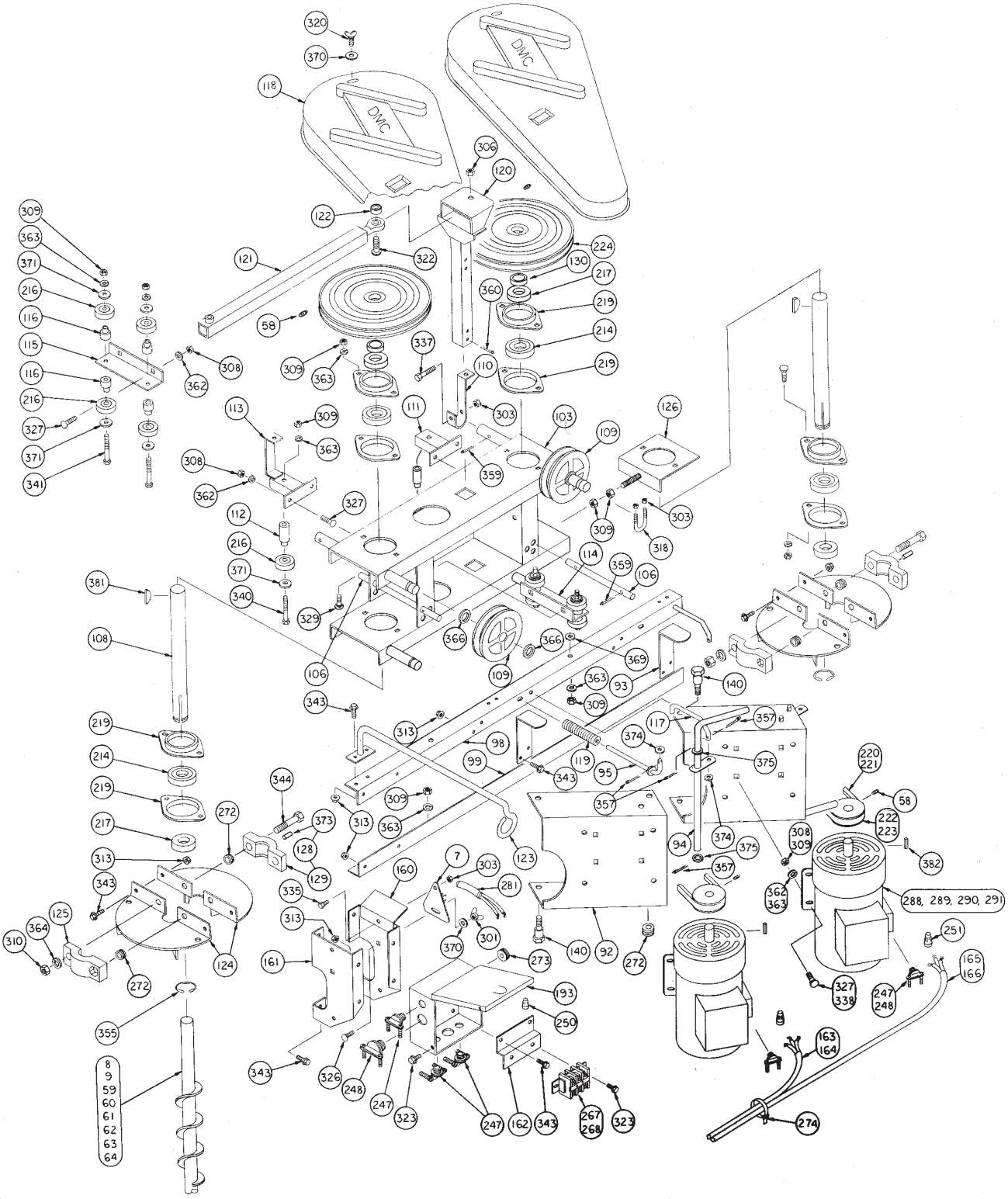
DIII Stir-Ator Yoke



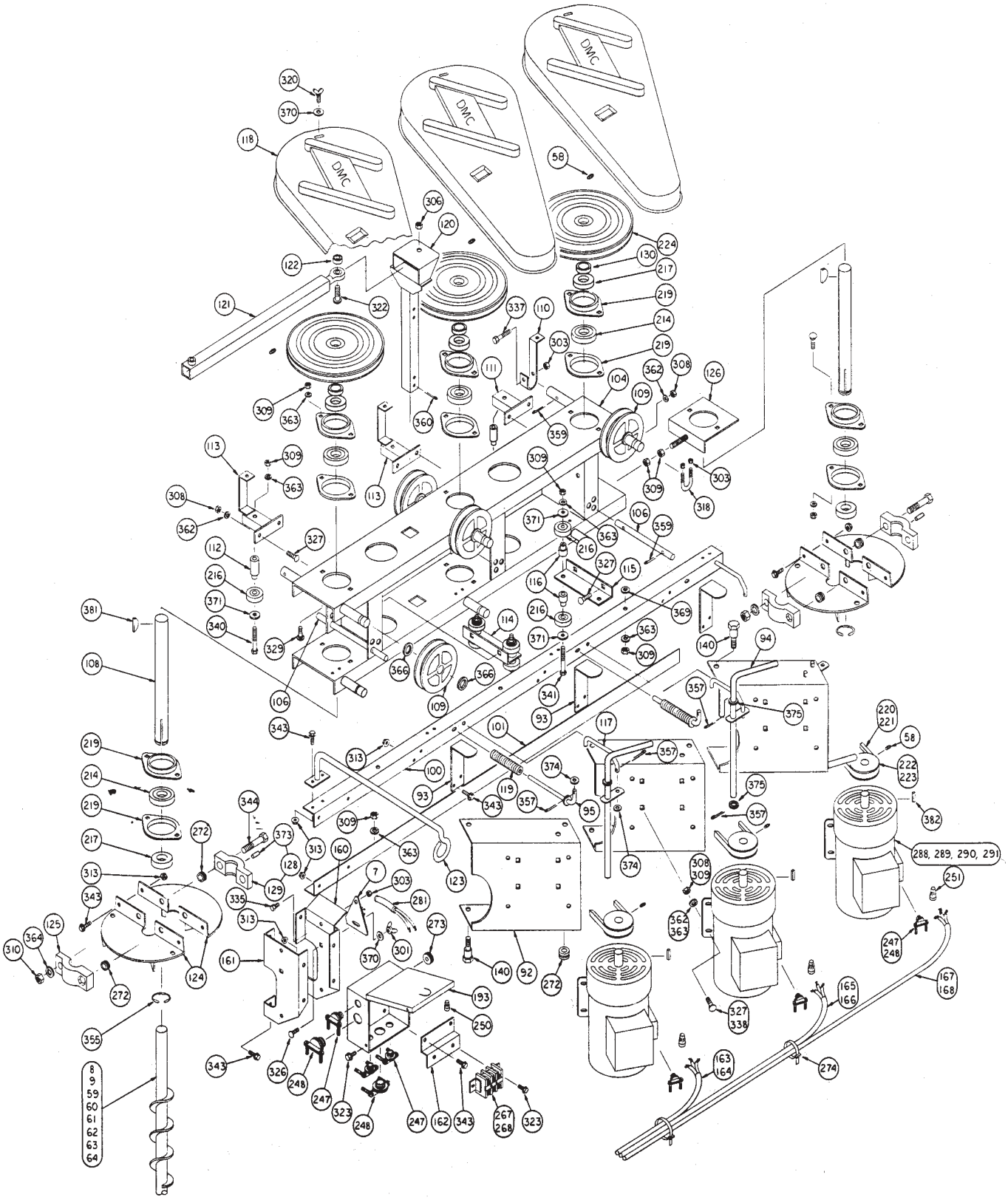
DIII Stir-Ator Single Auger Trolley



DIII Stir-Ator Double Auger Trolley



DIII Stir-Ator Triple Auger Trolley



Design III Stir-Ator
Parts List

REF. NO.	PART NUMBER	SINGLE AUGER	DOUBLE AUGER	TRIPLE AUGER	DESCRIPTION
1.	103A0003	2	2	2	Junction box cover
2.	103A0049	1	1	0	12" pulley with drive link
3.	106A076	2	2	0	Suspension hook (Single-double)
4.	103A0069	2	2	2	End yoke idler
5.	106A074	1	1	1	Cable tube
6.	103A0094	2	2	2	Suspension Chain (Single-Double)) (Specify bin diameter)
7.	103B0012	1	1	1	Mercury switch holder brkt.
8.	103B0015	1	2	3	16 ft. plain auger
9.	103B0016	1	2	3	16 ft. hardsurfaced auger
10.	106C074	0	0	A/R	Bin wall track (12-5/8" spacing)(Triple)(Specify bin diameter)
11.	106C073	A/R	A/R	0	Bin wall track (19" spacing) (Single-Double)(Specify bin diameter)
12.	103C0038	A/R	A/R	A/R	Track connector (Specify bin bin diameter)
13.	103E0004	1	1	0	Switch box, 30 Amp, Single Phase, 230 Volt
14.	103E0006	1	1	1	Switch box, 30 Amp, Three Phase, 230 Volt
15.	106E083	0	0	1	Switch box, 60 Amp, Single Phase, 230 Volt
16.	103E0009	1	1	1	Switch box brace, 12" length (Use w/103E0004 & 103E0006)
18.	103E0011	1	1	1	Switch box brace, 17-3/4" length (use w/104E0026 & 106E083)
19.	103E0012	1	1	1	Insulating washer, 1/16"
26.	104A0014	1	1	1	Center pivot flanged bushing
27.	104A0015	1	1	1	Center pivot thrust bearing
28.	104A0021	1	1	0	Center suspension cross bar (Single-Double)
29.	104A0039	1	1	1	Safety shut-off chain (Specify bin diameter)
30.	104A0040	A/R	A/R	A/R	Shut-off chain support (Specify bin diameter)
31.	104E0001	6	6	6	Electric swivel insulating block
32.	104E0007	1	1	1	Ring and wire (White)
33.	104E0010	1	1	1	Ring and wire (Black)
34.	104E0012	1	1	1	Ring and wire (Green)
35.	104E0015	1	1	1	Ring and wire (Red, 3 phase only)
36.	104E0020				Electrical swivel contact strap
		3	3	3	Single phase
		4	4	4	Three phase
37.	I04E0026	1	1	1	Switch box, 30 Amp, Three phase, 440 Volt
38.	104C2018	2	2	2	Track hold down roller
39.	104C2026	1	1	1	Drive wheel with sprocket
40.	104C2027	1	1	1	Track wheel
41.	104C2037	1	1	1	Drive wheel with sprocket and bushings assembly
42.	104C2038	1	1	1	Track wheel with bushings assy
43.	104E2005	1	1	1	Electric swivel assy, 230 Volt, Three phase
49.	105A0030	1	1	1	Center drive arm and shaft
50.	105A0051	0	0	1	Center suspension tee bar (Triple)
51.	105A0052	0	0	1	Center suspension cross bar tube (Triple)
52.	105A0053	1	1	1	Support yoke spacer tube (36' diameter bin and larger only)
53.	106A077	0	0	3	Suspension hook (Triple)
54.	106A075	0	0	3	Center suspension chain (Triple))
55.	105A0097				Swivel spring clip
		3	3	3	Single phase
		4	4	4	Three phase
56.	105A0101	0	0	1	14" pulley with drive link (Triple)
57.	105A0105	1	1	1	Center pivot junction box
58.	105B0076	1	2	3	Set screw with adhesive, 5/16" x 3/8"

Design III Stir-Ator
Parts List

REF. NO.	PART NUMBER	SINGLE AUGER	DOUBLE AUGER	TRIPLE AUGER	DESCRIPTION
59.	105B0079	1	2	3	18 ft. regular auger
60.	105B0080	1	2	3	20 ft. regular auger
61.	105B0081	1	2	3	21 ft. regular auger
62.	105B0082	1	2	3	18 ft. hard surfaced auger
63.	105B0083	1	2	3	20 ft. hard surfaced auger
64.	105B0084	1	2	3	21 ft. hard surfaced auger
	105B0096	1	2	3	22 ft. regular auger
	105B0098	1	2	3	24 ft. regular auger
	105B0097	1	2	3	22 ft. hard surfaced auger
	105B0099	1	2	3	24 ft. hard surfaced auger
65.	105E0003	1	1	1	Cover and fuseholder assembly
66.	105E0004	1	1	1	Electric swivel assy, 230 Volt, Single phase
67.	105E0021	2	2	2	Fuseholder
73.	106A014	1	1	0	Yoke (Single-Double)(Specify bin diameter)
74.	106A015	0	0	1	Yoke (Triple)(Specify bin dia.)
75.	106A040	1	1	1	End yoke
76.	106A042	1	1	1	Cable adjustment
77.	106A048	1	1	1	Yoke wire support (39' diameter bin and under only)
78.	106A049	1	1	1	Yoke wire support spring
79.	106A050	1	1	1	Cable connector
80.	106A051	1	1	1	Cable, 3/16"(Specify bin dia.)
81.	106A052	2	2	2	Swivel box cover
82.	106A056	1	1	1	Neoprene sponge plug
83.	106A059	1	1	0	Center yoke support (Single-Double)(36' dia. bin and larger only)
84.	106A060	0	0	1	Center yoke support (Triple) (36' dia. bin and larger only)
85.	106A064	1	1	1	Yoke wire support (39'1" dia. bin and larger only)
86.	106A068	A/R	A/R	A/R	"S" hook (Special)
87.	106A070	1	0	0	Center suspension cross bar (14' thru 15')(Single)
92.	106B044	1	2	3	Motor mount plate
93.	106B045	1	2	3	Shield Support Bracket
94.	106B046	1	2	3	Motor tension removal rod
95.	106B049	1	2	3	Motor spring guide rod
96.	106B051	1	0	0	Upper angle bracket (Single)
97.	106B052	1	0	0	Lower angle bracket (Single)
98.	106B053	0	1	0	Upper angle bracket (Double)
99.	106B054	0	1	0	Lower angle bracket (Double)
100.	106B055	0	0	1	Upper angle bracket (Triple)
101.	106B056	0	0	1	Lower angle bracket (Triple)
102.	106B065	1	0	0	Trolley body (Single)
103.	106B066	0	1	0	Trolley body (Double)
104.	106B067	0	0	1	Trolley body (Triple)
106.	106B079	1	2	2	Hold down rod
107.	106B080	1	0	0	Hold down rod (Single only)
108.	106B081	1	2	3	Trolley stub shaft
109.	106B083	4	4	6	Trolley wheel
110.	106B085	1	1	1	Axle shield support bracket
111.	106B088				Upper roller support bracket
		1	1	0	36' dia. bin and larger (Single-Double)
		0	0	1	27'1" dia. bin and larger (Triple)
112.	106B091				Long roller stand-off
		1	2	0	36' dia. bin and larger (Single-Double)
		0	0	2	27'1" dia. bin and larger (Triple)
113.	106B093	0	1	2	Roller and shield support brkt. (Double-Triple)
114.	106B095				Roller support bracket assembly
		1	2	0	36' dia. bin and larger (Single-Double)
		0	0	2	27'1" Dia. bin and larger (Triple)

Design III Stir-Ator
Parts List

REF. NO.	PART NUMBER	SINGLE AUGER	DOUBLE AUGER	TRIPLE AUGER	DESCRIPTION
115.	106B096				Roller support bracket
		2	2	0	36' dia. bin and larger (Single-Double)
		0	0	2	27'1" dia. bin and larger (Triple)
116.	106B097				Short roller stand-off
		6	8	0	36' dia. bin and larger (Single-Double)
		0	0	8	27'1" dia. bin and larger (Triple)
117.	106B098	1	2	3	Tension removal link
118.	106B099	1	2	3	Trolley belt shield
119.	106B100	1	2	3	Trolley compression spring
120.	106B102	1	1	1	Drive arm post
121.	106B103	1	1	1	Drive arm
122.	106B110	1	1	1	Stand-off bushing
123.	106B111	1	1	1	Trolley wire support
124.	106B115	2	4	6	Leveling disc (Not used on off-set trolley)
125.	106B118	1	2	3	Auger clamp
126.	106B121	1	1	1	Off-set adjusting plate (Not used on off-set trolley)
127.	106B123	1	0	0	Roller support bracket assembly 36' dia. bin and larger (Single)
128.	106B124	1	2	3	Auger clamp with spring pin assembly
129.	106B125	1	2	3	Auger clamp with spring pin hole
130.	106B198	1	2	3	10" pulley spacer
136.	106C016	1	1	1	Track unit main frame
137.	106C017	2	2	2	Track wheel mounting bracket
138.	106C025	1	1	1	Track unit clevis
139.	106C029	1	1	1	Pivot pin
140.	106C035	4	6	8	Shoulder bolt, 3/8" x 1-1/4"
141.	106C036	1	1	1	Track unit shield
142.	106C037	1	1	1	Track unit roller chain
143.	106C038	1	1	1	Outboard frame end
144.	106C042	1	1	1	Inboard frame end
145.	106C046	2	2	2	Cord clip
146.	106C048	1	0	0	Right frame rail (Single) 14' to 48' (Specify bin diameter)
147.	106C049	1	0	0	Left frame rail (Single) 14' to 48' (Specify bin diameter)
148.	106C055	0	1	0	Right frame rail (Double) 18' to 36' (Specify bin diameter)
149.	106C056	0	1	0	Left frame rail (Double) 18' to 36' (Specify bin diameter)
150.	106C058	0	0	1	Right frame rail (Triple) 21' to 36' (Specify bin diameter)
151.	106C059	0	0	1	Left frame rail (Triple) 21' to 36' (Specify bin diameter)
152.	106C061	0	1	1	Right frame rail (Double-Triple) 36' to 48'
153.	106C062	0	1	1	Left frame rail (Double-Triple) 36' to 48'
154.	106C063	A/R	A/R	A/R	Track bracket 8-1/2"
160.	106E008	1	1	0	Right junction box mounting bracket
161.	106E010	1	1	1	Left junction box mounting bracket
162.	106E012	1	1	1	Terminal block mounting bracket
163.	106E013	0	1	1	Trolley motor wire 14/3 SO (Double-Triple) Single phase
164.	106E014	0	1	1	Trolley motor wire 14/4 SO (Double-Triple) Three phase
165.	106E015	1	1	1	Trolley motor wire 14/3 SO (Single-Double-Triple) Single phase
166.	106E016	1	1	1	Trolley motor wire 14/4 SO (Single-Double-Triple) Three phase
167.	106E017	0	0	1	Trolley motor wire 14/3 SO (Triple) Single phase

Design III Stir-Ator
Parts List

REF. NO.	PART NUMBER	SINGLE AUGER	DOUBLE AUGER	TRIPLE AUGER	DESCRIPTION
168.	106E018	0	0	1	Trolley motor wire 14/4 SO (Triple) Three phase
169.	106E019				Switch box to swivel wire 12/3 SO (Specify bin diameter)
		1	1	1	230 Volt,Single phase 1-1/2HP
		1	0	0	230 Volt,Single phase 2 HP
170.	106E020				Switch box to swivel wire 14/4 SO (Specify bin diameter)
		1	1	0	230 Volt, Three phase 1-1/2HP
		1	0	0	230 Volt, Three phase 2 HP
		1	1	1	440 Volt, Three phase 1-1/2HP
		1	0	1	440 Volt, Three phase 2 HP
171.	106E021				Switch box to swivel wire 10/3 SO (Specify bin diameter)
		0	1	0	230 Volt,Single phase 2 HP
172.	106E022				Switch box to swivel wire 10/4 SO (Specify bin diameter)
		0	0	1	230 Volt, Three phase 1-1/2HP
		0	1	1	230 Volt, Three phase 2 HP
		0	1	0	440 Volt, Three phase 2 HP
173.	106E023				Switch box to swivel wire 8/3, SO (Specify bin diameter)
		0	0	1	230 Volt, Single phase 1-1/2 and 2 HP
174.	106E024				Yoke wire 12/3(Specify bin dia) SO
		1	1	0	230 Volt,Single phase 1-1/2HP
		1	0	0	230 Volt, Single phase 2HP
175.	106E025				Yoke wire 14/4(Specify bin dia) SO
		1	1	0	230 Volt, Three phase 1-1/2HP
		1	0	0	230 Volt, Three phase 2 HP
		1	1	1	440 Volt, Three phase 1-1/2HP
		1	0	1	440 Volt, Three Phase 2 HP
176.	106E026				Yoke wire 10/3(Specify bin dia) SO
		0	1	0	230 Volt, Single Phase 2 HP
177.	106E027				Yoke wire 10/4(Specify bin dia) SO
		0	0	1	230 Volt, Three phase 1-1/2HP
		0	1	1	230 Volt, Three phase 2 HP
		0	1	0	440 Volt, Three phase 2 HP
178.	106E028				Yoke wire 8/3, SO (Specify bin diameter)
		0	0	1	230 Volt, Single phase 1-1/2 and 2 HP
179.	106E029				Gear motor wire 18/3 SJ (Specify bin diameter)
		1	1	0	230 Volt, Single phase, 1-1/2 and 2 HP
		0	0	0	230 Volt, Three phase, 1-1/2 and 2 HP
180.	106E030				Gear motor wire 16/3 SJ (Specify bin diameter)
		0	0	1	230 Volt, Single phase 1-1/2 and 2 HP
181.	106E031				Gear motor wire 18/3 SO (Specify bin diameter)
		1	1	1	230 Volt, Three phase 1-1/2 and 2 HP
		1	1	1	440 Volt, Three phase 1-1/2 and 2 HP
193.	106E060	1	1	1	Electrical box, 6" x 6" x 3"
206.	502A0044	1	1	1	E-3442 Gear motor (440 Volt)
207.	502A0040	1	1	1	E-3101 Gear motor (230 Volt)
214.	PT0222	2	4	6	Precision bearing, 1-3/8" with eccentric locking collar
215.	PT0235	1	1	1	Ball bushing, 7/8"
216.	PT0377	7	10	10	Radial ball bearing,17mm (36' diameter bin and larger only)
217.	PT0408	2	4	6	Eccentric locking collar,1-3/8"
218.	PT0421	2	2	2	3 hole stamped flange housing
219.	PT0428	4	8	12	2 hole stamped flangette
220.	PT0489	1	2	3	AX-48 V-belt (1-1/2 HP only)
221.	PT0532	1	2	3	B-50 V-belt (2 HP only)
222.	PT0621	1	2	3	Pulley, 3-1/4" OD x 7/8", 1 GR, B sec., 2 HP, w/set screw (105B0076)

Design III Stir-Ator
Parts List

REF. NO.	PART NUMBER	SINGLE AUGER	DOUBLE AUGER	TRIPLE AUGER	DESCRIPTION
223.	PT0625	1	2	3	Pulley, 3" OD x 7/8", 1 GR, A sec., 1-1/2 HP, w/set screw (105B0076)
224.	PT0670	1	2	3	Pulley w/set screw, 10" OD x 1-3/8" bore, B sec.
225.	PT0808	1	1	1	Single lip seal,3"OD x 2-1/4"ID
226.	PT0883	4	4	4	Flanged bronze bushing, 1-1/4" OD x 1" ID x 3/4"
227.	PT0888	1	1	1	Case bronze bushing, 1-3/4" OD x 1-1/2" ID x 1-3/8" long
228.	PT1048	1	1	1	Connector link, #40
230.	PT1098	1	1	1	Roller chain sprocket, #40-10T w/3/4" bore; STD - under 36 ft.
231.	PT1099	1	1	1	Roller chain sprocket. #40-12T w/3/4" bore; offset - under 36 ft. standard 36 ft. & over
232.	PT1101	1	1	1	Roller chain sprocket, #40-14T w/3/4" bore; offset - 36 ft. & over
239.	MS0058	1	1	1	Plastic plug, 1-1/4" square
240.	MS0070	2	0	0	Rubber wheel, 2" x 13/16" (Single only)
246.	1EL0367	1	1	1	Outlet box,4" x 2-1/8" x 2-1/8"
247.	1EL0401	6	7	8	Cord connector, 3/8"
248.	1EL0403	4	5	7	Cord connector, 3/4"
249.	1EL0405	1	1	1	Cord connector, 1-1/4"
250.	1EL0553	1	1	1	Twist lock wire connector (Black)
251.	1EL0555	A/R	A/R	A/R	Twist lock wire connector (Yellow)
252.	1EL0556				Twist lock wire connector (Red)
		3	3	3	Single phase
		4	4	4	Three phase
253.	1EL0557				Twist lock wire connector(Gray)
		3	3	3	Single phase
		4	4	4	Three phase
254.	1EL0561	2	2	2	Butt splice wire connector
255.	1EL0725				Fuse-30 Amp, Plug type
		0	2	0	230 Volt, single phase 1-1/2 and 2 HP
256.	1EL0726	2	2	2	Fuse-1 Amp cartridge (440 Volt only)
257.	1EL0727	2	2	2	Fuse-1.8 Amp cartridge (230 Volt only) 230 Volt, Three phase, 1-1/2 and 2 HP
259.	1EL0730	0	0	3	Fuse-30 Amp, 250 Volt cartridge 230 Volt, Three phase, 1-1/2 and 2 HP
260.	1EL0734	0	0	2	Fuse-50 Amp, 250 Volt cartridge 230 Volt, Single phase, 1-1/2 and 2 HP
261.	1EL0736	3	0	0	Fuse-10 Amp, 250 Volt cartridge 230 Volt, Three phase, 1-1/2 and 2 HP
262.	1EL0737	3	0	0	Fuse-5 Amp, 600 Volt cartridge 440 Volt, Three phase, 1-1/2 and 2 HP
263.	1EL0738	0	3	0	Fuse-10 Amp, 600 Volt cartridge 440 Volt, Three phase, 1-1/2 and 2 HP
264.	1EL0740	0	0	3	Fuse-15 Amp, 600 Volt cartridge 440 Volt, Three phase, 1-1/2 and 2 HP
265.	1EL0744	2	0	0	Fuse-15 Amp, Plug type,230 Volt Single phase, 1-1/2 and 2 HP
266.	1EL0885	1	1	1	Terminal block - 5 Post - Double row
267.	1EL0887	1	1	1	Terminal block - 3 Post - Double row - Single phase
268.	1EL0888	1	1	1	Terminal block - 4 Post - Double row - Three phase
269.	1EL0895	1	1	1	Line jump strap
271.	1EL2012	3	3	3	"T" bushing, 1" OD flange x 13/32" ID x 1-1/4" long

Design III Stir-Ator
Parts List

REF. NO.	PART NUMBER	SINGLE AUGER	DOUBLE AUGER	TRIPLE AUGER	DESCRIPTION
272.	1EL2046	3	6	9	Rubber grommet, 1" OD x 9/16"ID x 5/16"(Not used on off-set trolley)
273.	1EL2047	1	1	1	Rubber grommet, 1-1/8" OD x 9/32" ID x 5/16"
274.	1EL2114	A/R	A/R	A/R	Cable tie, 1-1/4"
281.	2EL0601	1	1	1	Mercury switch, 6 degrees (Green Label)
288.	3EL5098	1	2	3	Motor, TEFC, 1-1/2 HP, Single phase, 230 Volt
289.	3EL5100	1	2	3	Motor, TEFC, 1-1/2 HP, Three phase, 220/440 Volt
290.	3El5109	1	2	3	Motor, 2 HP, Three phase, 220/440 Volt
291.	3EL5110	1	2	3	Motor, TEFC, 2 HP, Single phase 115/230 Volt
300.	1FH0570	1	1	1	Nylon wingnut, 1/4"
301.	1FH0579	1	1	1	Wingnut, 1/4"
302.	1FH0728	2	2	2	Hex locknut w/nylon insert,1/2"
303.	1FH0734	14	14	16	Hex locknut, 1/4"
304.	1FH0735	6	6	9	Hex locknut, 5/16"
305.	1FH0736				Hex locknut, 3/8"
		0	0	1	under 36' only
		1	1	2	36' bin diameter and larger only
306.	1FH0738	2	2	2	Hex locknut, 1/2"
307.	1FH0763	8	8	8	Hex nut, 1/4"
308.	1FH0764	A/R	A/R	A/R	Hex nut, 5/16"
309.	1FH0765	A/R	A/R	A/R	Hex nut, 3/8"
310.	1FH0762	2	4	6	Hex nut, 1/2", fine thread
311.	1FH0783	4	4	4	Hex machine screw nut, #10-24
313.	1FH0995	14	18	22	Hex flange whiz locknut, 1/4"
318.	2FH0405	4	4	6	U-bolt, 1/4" x 3/4" x 1-1/4"
319.	2FH0420	2	2	2	Spade bolt, 1/4" x 2-3/8"
320.	2FH0427	1	2	3	Wing thumbscrew, 1/4" x 5/8"
321.	2FH0435	2	2	2	Round head knurled shoulder bolt, 1/2" x 1"
322.	2FH0450	1	1	1	Button head cap screw, 1/2" x 1-3/4"
323.	2FH0475	7	7	7	Slotted hex washer head self tapping screw,#10x1/2",Type F
324.	2FH0478	2	2	2	Slotted hex washer head self tapping screw,#10x1", Type AB
325.	2FH0620	1	1	1	Square head set screw, 3/8" x 1-1/4"(36 diameter bin and larger only)
326.	2FH0631	1	1	1	Carriage bolt, 1/4" x 3/4"
327.	2FH0645	A/R	A/R	A/R	Carriage bolt, 5/16" x 3/4"
328.	2FH0646	A/R	A/R	A/R	Carriage bolt, 5/16" x 1"
329.	2FH0660	18	22	26	Carriage bolt, 3/8" x 1"
330.	2FH0680	A/R	A/R	A/R	Carriage bolt, 5/16" x 3", Full thread, Grade 5
331.	2FH0728	2	2	2	Slotted round head machine screw, 1/4" x 1"
332.	2FH0740	4	4	4	Slotted round head machine screw, #10 x 5"
333.	2FH0747	2	2	2	Slotted pan head machine screw, 1/4" x 1/2"
335.	2FH0801	3	3	3	Hex bolt, 1/4" x 1/2"
336.	2FH0806	2	2	2	Hex bolt, 1/4" x 1-1/4"
337.	2FH0807	1	1	1	Hex bolt, 1/4" x 1-1/2"
338.	2FH0855				Hex bolt, 3/8" x 1"
		4	4	4	1-1/2 HP
		8	12	16	2 HP
339.	2FH0861				Hex bolt, 3/8" x 2-1/2"
		0	0	1	Under 36' only
		3	1	2	36' dia. bin and larger only
340.	2FH0863				Hex bolt, 3/8" x 3"
		1	2	0	36' dia. bin and larger only (Single-Double)
		0	0	2	27'1" dia. bin and larger only (Triple)
341.	2FH0867				Hex bolt, 3/8" x 4"
		2	4	0	36' dia. bin and larger only (Single-Double)
		0	0	4	27'1" dia. bin and larger only (Triple)

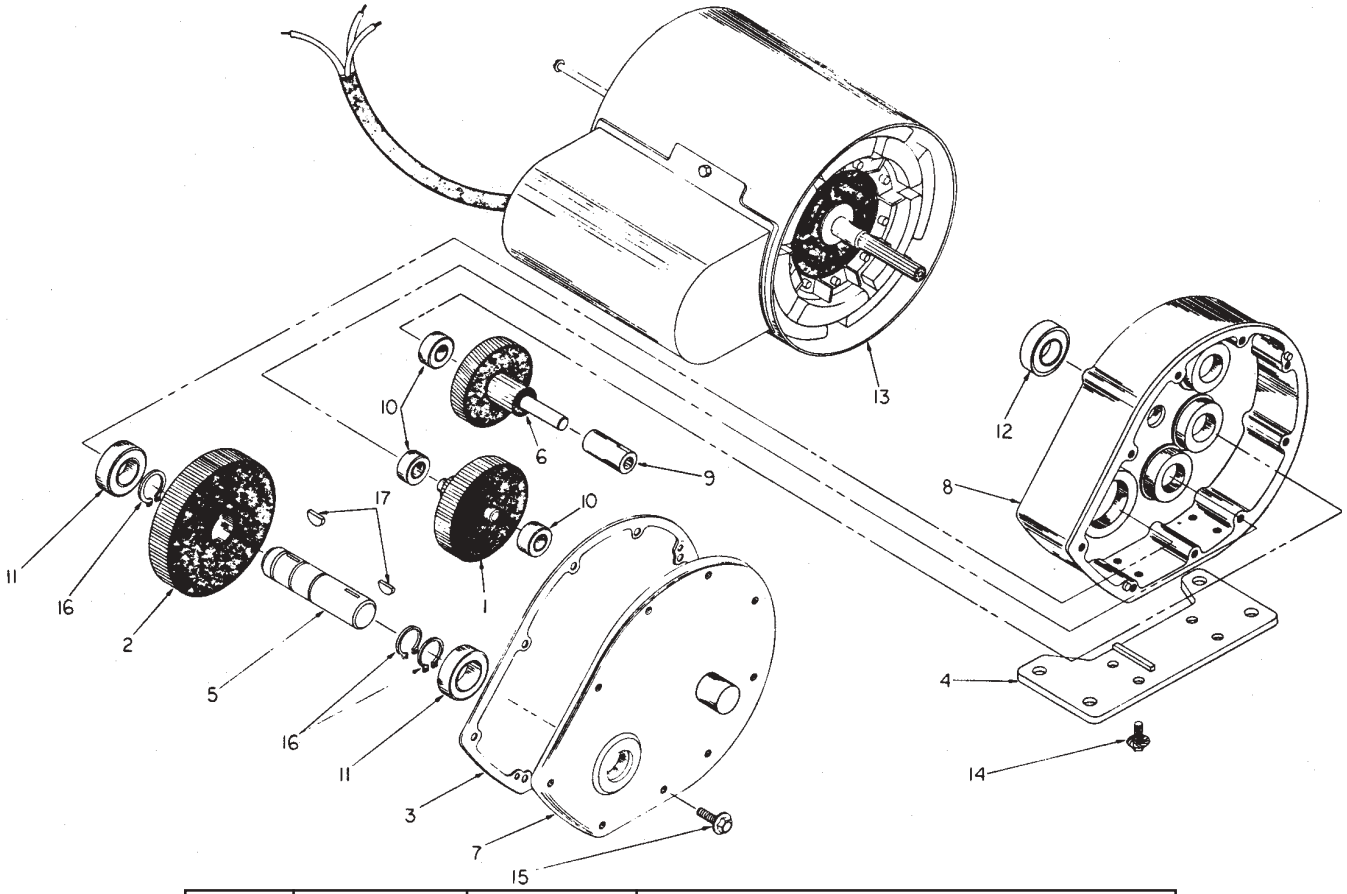
Design III Stir-Ator
Parts List

REF. NO.	PART NUMBER	SINGLE AUGER	DOUBLE AUGER	TRIPLE AUGER	DESCRIPTION
342.	2FH0907	1	1	1	Hex bolt, 1/2" x 2"
343.	2FH0979	14	18	22	Hex flange whiz lock screw, 1/4" x 5/8"
344.	2FH0969	2	4	6	Hex bolt,1/2" x 2-1/2",Grade 5, Fine thread
345.	2FH0983	0	0	3	Screw - flange whiz lock, 3/8-16 UNC x 1
346.	2FH1083	1	1	1	Hex bolt, 5/16" x 1-3/4", Grade 5
347.	2FH0990	2	2	0	Screw - flange whiz lock, 5/16-18 UNC x 1
353.	3FH0568	2	2	2	External retaining ring, 7/8"
354.	3FH0574	2	2	2	Heavy external retaining ring, 1"
355.	3FH0577	1	2	3	External retaining ring, 1-3/8" (Not used on off-set trolley)
356.	3FH0602	1	1	1	External retaining ring, 1/2", Self locking
357.	3FH0712	3	6	9	Cotter pin, 1/8" x 3/4"
358.	3FH0720	2	2	2	Cotter pin, 5/32" x 3/4"
359.	3FH0721	11	9	10	Cotter pin, 5/32" x 1"
360.	3FH0742	2	2	2	Cotter pin, 1/4" x 1-3/4"
361.	3FH0745	1	1	1	Cotter pin, 1/4" x 2-1/2"
362.	3FH0790	A/R	A/R	A/R	Lock washer, 5/16"
363.	3FH0791	A/R	A/R	A/R	Lock washer, 3/8"
364.	3FH0793	2	4	6	Lock wahser, 1/2"
365.	3FH0817	1	1	1	Bushing, 7/8" OD x 33/64" ID x 10 GA
366.	3FH0828	8	8	12	Machinery bushing, 1-1/4" OD x 3/4" ID x 14 GA
367.	3FH0837	2	2	2	Machinery bushing, 1-3/8" OD x 7/8" ID x 18 GA
368.	3FH0831	2	2	2	Machinery bushing, 1-1/2" OD x 1" ID x 14 GA
369.	3FH0851	2	4	6	Plastic flat washer, 29/32" OD x 1/2" ID x 5/64"
370.	3FH0863	2	3	4	Flat washer, 1/4"
371.	3FH0864				Flat washer, 5/16"
		0	0	10	27'1" to 35'11"(Triple)
		7	10	10	36' to 48' (Single-Double-Triple)
372.	3FH0898	1	1	1	Spring pin, 1/4" x 2"
373.	3FH0900	2	3	4	Spring pin, 1/4" x 7/8"
374.	3FH0948	10	8	10	Flat washer, 3/8" SAE
375.	3FH0950	5	6	7	Flat washer, 1/2" SAE
376.	3FH0952	2	0	0	Flat washer, 5/8" SAE(36' dia. bin and larger only)(Single)
377.	3FH0962	1	1	1	Rivet washer, 3/16"
378.	3FH0976	8	8	8	Round cupped washer, 7/8" OD x 17/64" ID
379.	3FH0977	A/R	A/R	A/R	Round cupped washer, 7/8" OD x 5/16" ID
380.	3FH0986	1	1	1	Woodruff key, 3/16" x 5/8"
381.	3FH0998	1	2	3	Woodruff key, 5/16" x 1-1/8"
382.	3FH1013	1	2	3	Square key, 3/16" x 9/16"
388.	5FH0081	2	2	3	"S" hook, #17
389.	5FH0094	3	3	3	Clip
390.	5FH0088	1	1	1	Cable clamp, 3/16"

DMC

MODEL E-3101 - 230V - GEAR MOTOR

502A0040

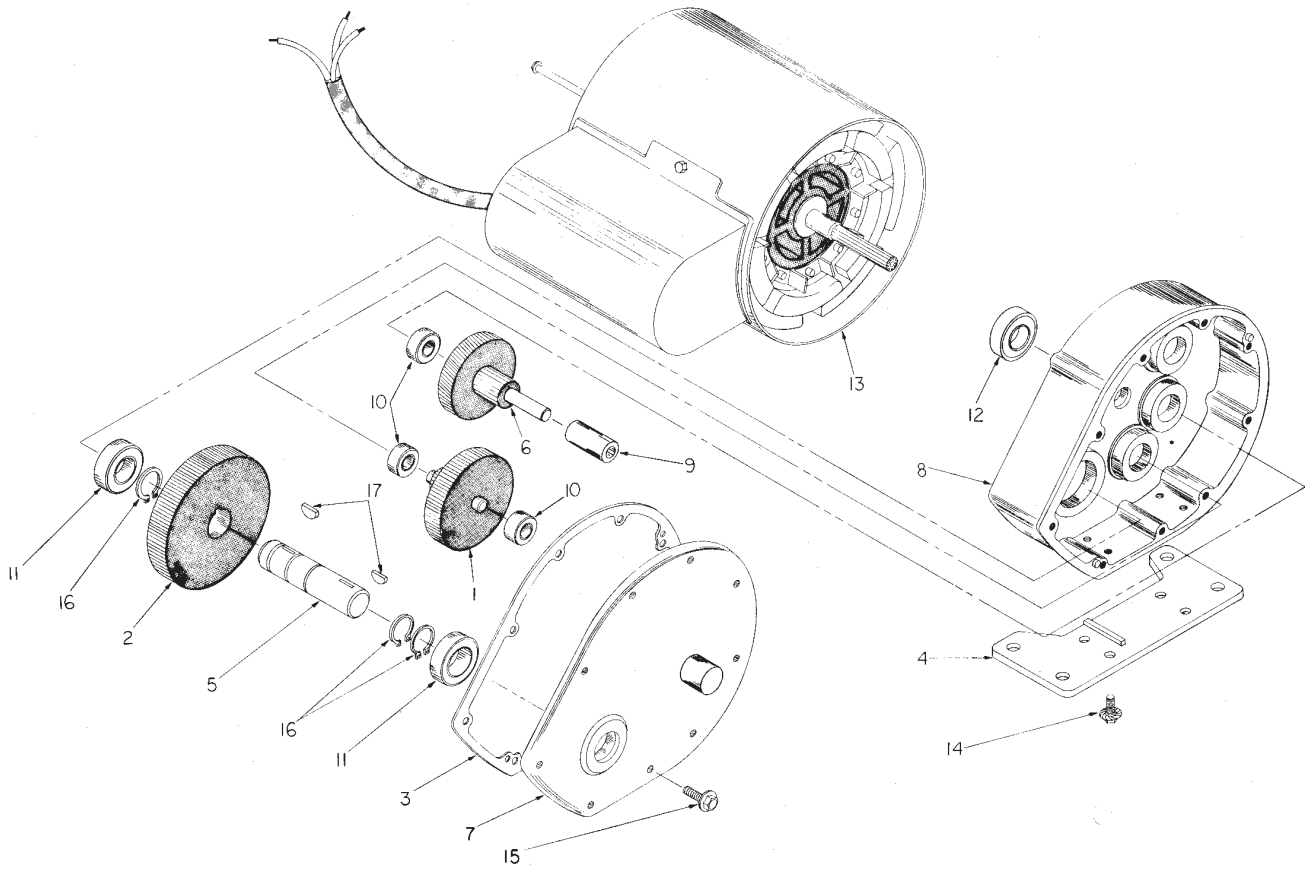


REF. NO.	PART NUMBER	NO. REQ'D	DESCRIPTION
1.	501A0016	1	Gear assembly, 18 and 60 T.
2.	501A0017	1	Gear, 80 T.
3.	501A0018	1	Cover gasket
4.	502A0001	1	Base
5.	502A0002	1	Output shaft
6.	502A0006	1	Gear assembly, 15 and 63 T.
7.	502A0008	1	Cover, with roller clutch and bearing
8.	502A0035	1	Transmission gear housing
9.	PT0241	1	Roller clutch and bearing, 3/8"
10.	PT0361	3	Bearing, 3/8"
11.	PT0376	2	Output shaft bearing, 3/4"
12.	PT0377	1	Bearing, 17mm
13.	3EL4006	1	Motor assembly, 1/8 HP - 230 Volt
14.	2FH0980	4	Hex flange whiz lock screw, 1/4" x 1/2"
15.	2FH0982	9	Hex flange whiz lock screw, 1/4" x 7/8"
16.	3FH0562	3	Retaining ring, 3/4"
17.	3FH0986	2	Woodruff key, 3/16" x 5/8"

DMC

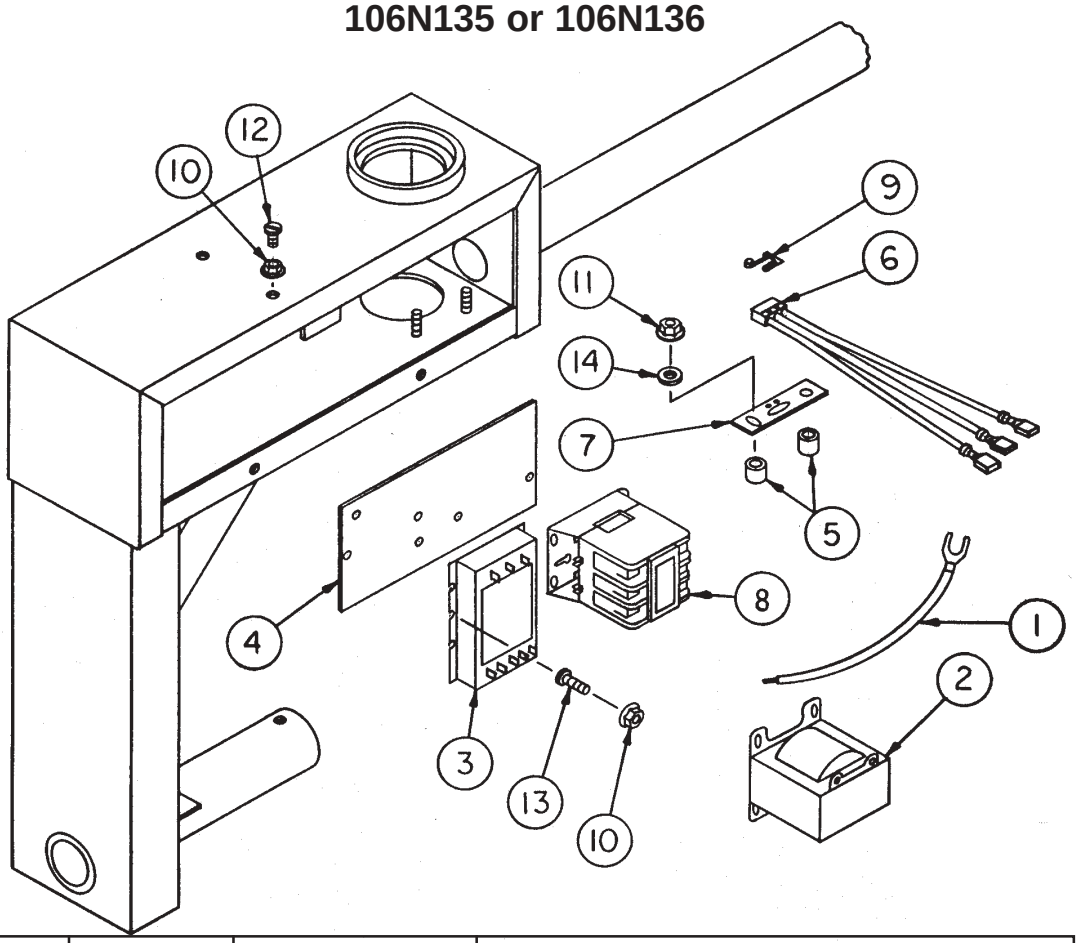
MODEL E-3442 - 440 V - GEAR MOTOR

502A0045



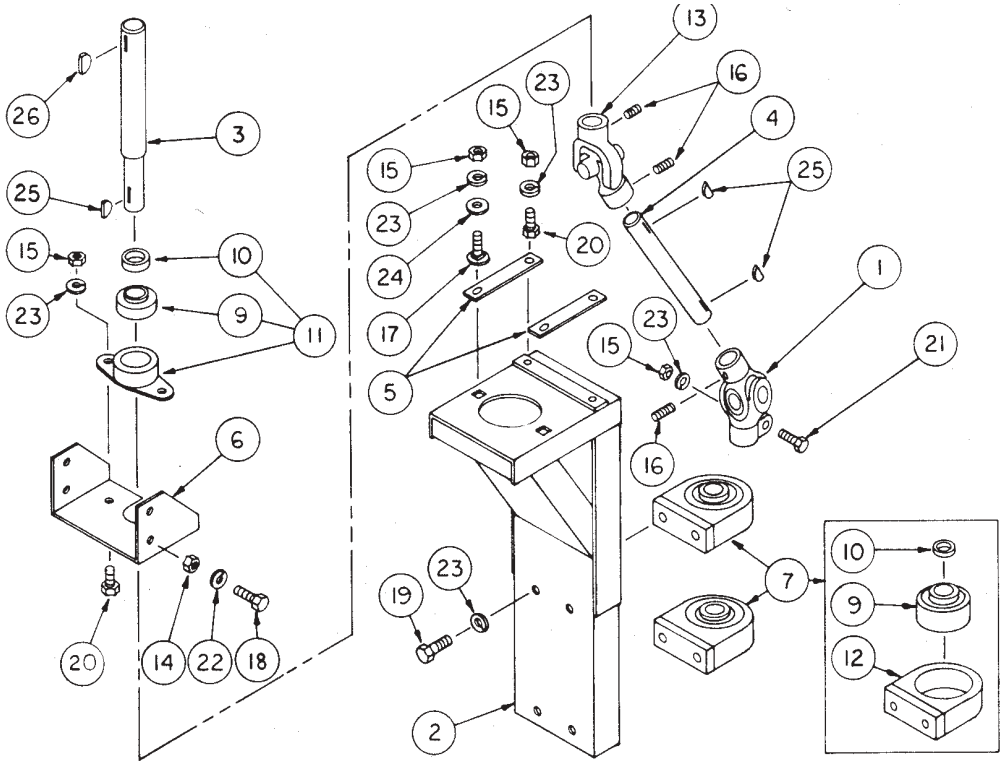
REF. NO.	PART NUMBER	NO. REQ'D	DESCRIPTION
1.	501A0016	1	Gear assembly, 18 and 60 T.
2.	501A0017	1	Gear, 80 T.
3.	501A0018	1	Cover gasket
4.	502A0001	1	Base
5.	502A0002	1	Output shaft
6.	502A0006	1	Gear assembly, 15 and 63 T.
7.	502A0008	1	Cover, with roller clutch and bearing
8.	502A0035	1	Transmission gear housing
9.	PT0241	1	Roller clutch and bearing, 3/8"
10.	PT0361	3	Bearing, 3/8"
11.	PT0376	2	Output shaft bearing, 3/4"
12.	PT0377	1	Bearing, 17mm
13.	502A0044	1	Motor assembly, 1/8 HP - 440 Volt
14.	2FH0980	4	Hex flange whiz lock screw, 1/4" x 1/2"
15.	2FH0982	9	Hex flange whiz lock screw, 1/4" x 7/8"
16.	3FH0562	3	Retaining ring, 3/4"
17.	3FH0986	2	Woodruff key, 3/16" x 5/8"

DESIGN III STIR-ATOR STIR GUARD OPTION
106N135 or 106N136



REF. NO.	PART NUMBER	NO. REQ'D.	DESCRIPTION
1.	106E032	2 - 1 PH	Jumper wire (Black)
	106E032	3 - 3 PH	Jumper wire (Black)
2.	106E061	1	440 Volt transformer (440 Volt only)
3.	106E063	1	Solid state timer - 45 timer
4.	106E066	1	Stir-Guard mounting place
5.	106E073	2	Switch stand-off
6.	106E074	1	Switch with leads
7.	106E075	1	Switch mounting plate w/clinch nuts
8.	2EL0245	1	Magnetic contactor, 40 amp
9.	2EL0641	1	Auxiliary actuator with hardware
10.	1FH0993	6-230V	Hex flange whiz lock nut, #8-32 UNC
	1FH0993	10-440V	Hex flange whiz lock nut, #8-32 UNC
11.	1FH0995	2	Hex flange whiz lock nut, 1/4 - 20 UNC
12.	2FH0772	2	Slotted pan head machine screw, #8-32 UNC x 1/2 (440 Volt only)
13.	2FH0775	4	Slotted pan head machine screw, #8-32 UNC x 3/4
14.	3FH0863	2	Flat washer, 1/4"
	105N0092	1	Stir-Guard wire package (NOT SHOWN)

DESIGN III STIR-ATOR OFFSET AUGER OPTION



REF. NO.	PART NO.	NO. REQ'D.	DESCRIPTION
1.	103B0142	1	Universal joint with coupling end
2.	106B130	1	Off-set weldment
3.	106B135	1	Upper stub shaft (Off-set)
4.	106B136	1	Stub shaft (Off-set)
5.	106B200	2	Pinch strap
6.	106B207	1	Off-set bearing support
7.	PTO120	2	Bearing w/ housing, 1" bore, (Complete w/ bearing)
9.	PTO215	3	Bearing, 1" with eccentric locking collar
10.	PTO401	3	Collar, eccentric lock, 1"
11.	PTO111	1	Bearing with housing, 1" bore (Complete)
12.	PTO422	2	Bearing housing, tapped base (Special)
13.	PTO980	1	1" standard universal joint
14.	1FH0764	4	Hex nut, 5/16"
15.	1FH0765	7	Hex nut, 3/8"
16.	2FH0519	6	Socket head set screw, 3/8" x 5/16"
17.	2FH0660	2	Carriage bolt, 3/8" x 1"
18.	2FH0828	4	Hex bolt, 5/16" x 3/4"
19.	2FH0853	4	Hex bolt, 3/8" x 3/4"
20.	2FH0855	4	Hex bolt, 3/8" x 1"
21.	2FH0858	1	Hex bolt, 3/8" x 1-3/4"
22.	3FH0790	4	Lock washer, 5/16"
23.	3FH0791	11	Lock washer, 3/8"
24.	3FH0948	2	Flat washer, 3/8" SAE
25.	3FH0993	3	Woodruff key, 1/4" x 1"
26.	3FH0998	1	Woodruff key, 5/16" x 1-1/8"

OPERATIONAL ADJUSTMENTS

OUTBOARD AUGER TILT

The standard DESIGN III Stir-Ator has an adjustable outboard auger tilt. When adjusting the auger toward the bin wall or if your Stir-Ator is equipped with an offset trolley, the inside wall ladder can interface with the operation of the Stir-Ator and may have to be removed or reinstalled closer to the bin wall.

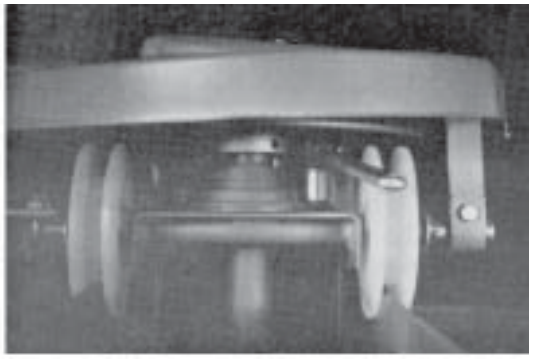


Photo A

To adjust the auger tilt, loosen the 3/8" x 1-1/2" carriage bolts that hold the lower and upper bearings. See Photos A and B. Loosen the 3/8" nuts on the adjustment bolt under the trolley. Adjusting this bolt will move the auger closer or farther from the wall. See Photo C.

By moving the bearing the distance shown (See Chart) the bottom of the auger will move the distance given. The chart is to be used as a guide only.

Auger Length			
Bearing Adj.	**16'**	**18'**	**20'**
1/8"	3-1/8	3-1/2	3-7/8
1/4"	6-1/4	7	7-3/4
3/8"	9-3/8	10-1/2	11-5/8

Cable Tension

To adjust the Stir-Ator cable tension, stop the unit so the trolley is not at the bin wall. Use the two 3/8" nuts to adjust the cable idler in or out to increase or decrease the tension on the cable. See Photo D.

Check the tension between the idler pulleys on all units as shown in the diagram, using 20-25 pounds to move the cable 3/8" midway between the idlers.

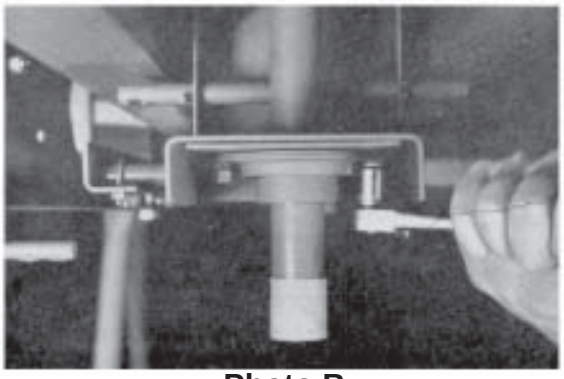
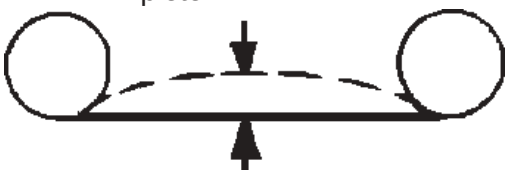


Photo B

Be sure to tighten the adjusting nuts and bearing bolts after the adjustment is complete.



3/8" Deflection requires 20-25# pressure.

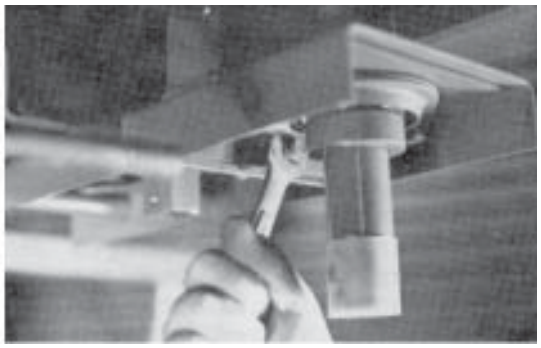


Photo C
Trolley adjustment standard unit.

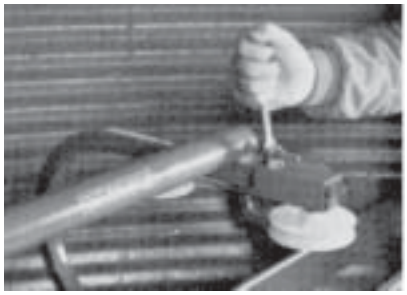


Photo D

Trolley Drive Link

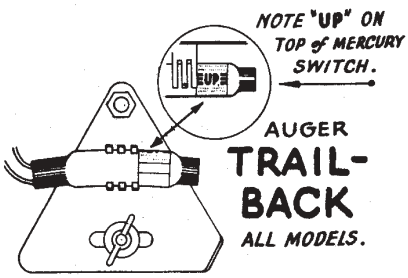
Continuous stirring at any fixed distance from the center of the bin can be done by the use of the enter trolley drive link. To use this feature, run the trolley to the desired location, (unhook the link going through the drive sheave) and hook the drive link to one of the hook slots above the sheave. This will prevent the trolley from moving in or out on 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 rehook itself if the link is dropped off of the hook slots, and resume driving the trolley in and out on the frame rails. See Photo E.

Photo E

Mercury Switch

The transparent mercury switch controls the trailback of the auger in the direction of travel around the bin. This switch is set at the factory for normal trailback, 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 auger 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 degree trail back. Be sure the Photo E mercury switch is installed in the clip with the "UP" in the top-most position.



ADJUST MERCURY SWITCH TO THE RIGHT FOR MORE TRAIL BACK.
ADJUST MERCURY SWITCH TO THE LEFT FOR LESS 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 to the chain itself. This allows the length of the shut-off chain to be adjusted at the switch box. (See Photo 68 on page 15). There should only be enough slack in the chain, with the unit running, so the switch box handle is not pulled down during normal operation. Too much slack in the chain will not shut the unit off if there is a problem and can get caught in the machine itself as the Stir-Ator passes under the shut-off chain. Hold shut-off chain and the electrical wire above the Stir-Ator with the provided shut-off support chain(s). See Drawing A on page 21.

The electrical wire should be held with the extra "S" hook found tied to the end of the support chains. Pass the electric wire through the large loop of the "S" hook, and then hook the cord up on the support chain so it clears the shut-off chain and the Stir-Ator.

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

OPERATION OF THE DESIGN III

The successful drying of the grain is as important as any other phase of your farming operation, and like other farming phases, can be best utilized by combining science, experience, and common sense.

The primary function of the Stir-Ator is to save time and money in your drying bin and improve uniformity of your grain by mixing, loosening, and circulating the grain during the drying process. The Stir-Ator should be started as soon as there is three feet of grain in the bin and the operation continued throughout the filling, drying and cooling. Periodic use of the Stir-Ator in stored grain, with or without the use of the fan, will improve chances of preserving the grain and destroying insect infestations.

The temperature of the air used for stir-drying can range from 70 to 150 degrees, or even higher. When using lower temperatures, a slower rate of drying will be accomplished. High temperature drying is faster but less uniform, and will possibly lessen the feed value or test weight of the grain. A plenum temperature of 90 degrees to 120 degrees is generally regarded as the best compromise between speed and quality. At this temperature, the Stir-Ator will usually maintain moisture variations to within 1% top to bottom.

WET GRAIN at the BIN WALL may be a problem when stored in the drying bin. This can be minimized by drying with a 20 degree or less heat rise, equipping your Design III with the optional offset trolley body or install wall liners or air tubes in your drying bin. They are an excellent condensation preventative and can increase drying capacity because higher drying temperatures can be used.

The Stir-Ator and fan-heater unit should be “matched” for efficient drying. Over-drying of bottom grain, with scallops and channelling in the upper layers, is a frequent result of using a single-auger Stir-Ator with a large capacity fan-heater and high drying temperature combination. Channelling occurs in the first few hours of the drying operation. A Stir-Ator with more down augers is the remedy if high capacity is needed. Conversely, over stirring with low heat and air flow will result in slower drying with increased drying costs. Single auger Stir-Ators should be used in smaller bins (under 24’ diameter) and with 3 to 5 HP fan-heater units. Larger bins and fan-heater units require more down augers. See Stir-Ator Drying Chart SA-15 at your dealer, or see page 47.

It is important to have enough openings at the top of the bin so moisture-laden air can escape. Additional manholes or roof vents can be beneficial in letting moisture-laden air out.

Removing trash and fines will improve the efficiency of your drying operation and reduce storage problems.

Start-up Procedure -- Full Bin

First, have the power turned “off” at the switch box under the bin roof. Turn power on at panel on the ground, then try and start the unit with the switch box under the bin roof. If the augers aren’t set too tight in the grain, the Stir-Ator will run.

Second, if the augers are set tight in the grain, take a pipe wrench and carefully try to break them loose by hand. Do not use too much force, or damage can result to the Stir-Ator frame, Stir-Ator wall track, or the bin roof and/or sidewalls could be ruined. If much torque is needed to turn augers, block the Stir-Ator up until the augers have been broken loose and turn relatively free.

Start-up Procedure -- Full Bin (continued)

Third, if double or triple auger units, lock-out all Stir-Ator auger motors but one. After it is operating, continue to engage remaining motors until they are all in operation.

To lock-out an auger motor simply rotate the handle beneath each motor mount clockwise until it goes past center and remains there. See Photo F.

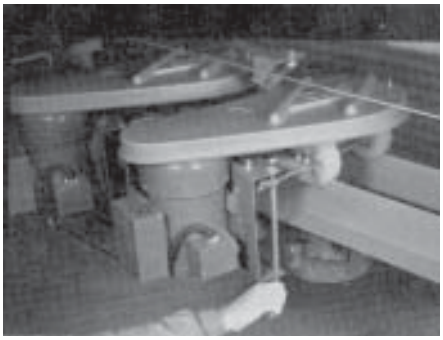


Photo F

DO NOT TURN STIR-ATOR AUGERS BACKWARD AND TURN THE ELECTRIC POWER SWITCH ON. BIN DAMAGE CAN RESULT.

Track Unit Drive Sprocket

Because of the different physical characteristics of the grain, the DESIGN III has the versatility to adapt to these changes. The roller chain sprocket on the gear motor is connected to the track drive wheel by means of the roller chain. The forward speed of the DESIGN III 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 - 10T sprocket - PT1098
Standard trolley units 36' diameter and above - 12T sprocket - PT1099

Off-set trolley units under 36' diameter 12T sprocket - PT1099
Off-set trolley units 36' diameter and above - 14T sprocket - PT1101

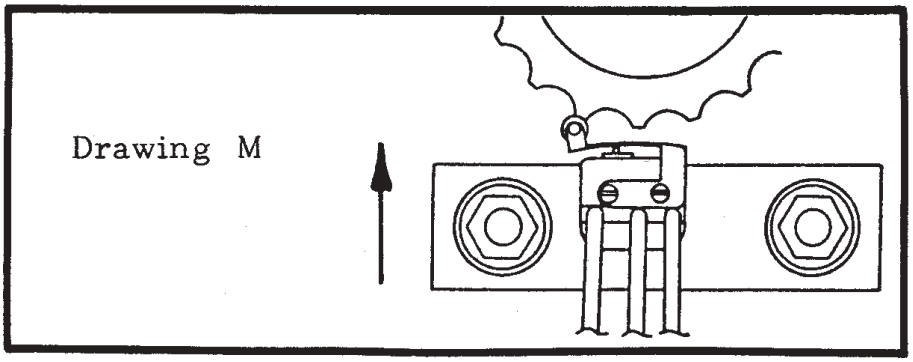
Stir-Guard Operation

The Stir-Guard is designed to protect your grain by shutting off the Stir-Ator if the unit is not advancing around the bin normally. As the gearmotor 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 the unit off should be located and corrected.

If adjustment of the microswitch roller acutator 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 Drawing M). Slide the roller switch plate slowly in until the microswitch just 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 the Trouble Shooting Guide for assistance if a problem is present.



Stir-Ator Travel Time One Revolution

BIN DIAMETER	HOUR	
	TROLLEY LOCATION MIDWAY ON FRAME	AT BIN WALL
18’	39min.	1 hr. 12 min.
21’	45min.	1 hr. 30 min.
24’	52min.	1 hr. 42 min.
27’	58min.	1 hr. 56 min.
30’	1 hr. 6min.	2 hr. 12 min.
33’	1 hr.11min.	2 hr. 22 min.
36’	1 hr.18min.	2 hr. 36 min.
40’	1 hr. 26min.	2 hr. 53 min.
42’	1 hr. 31min.	3 hr. 2 min.
48’	1 hr. 40min.	3 hr. 21 min.

Average forward speed of auger through corn = 9” per min.

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 made. The Stir-Ator guarantee does not extend to this use, although successful tests have been made.

Users of the Stir-Ator sometimes want to utilize more of the capacity of the bin 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, will possibly bend or break parts of the machine or collapse the roof of the bin.

WARRANTY WILL BE VOIDED
IF STIR-ATOR IS COVERED WITH GRAIN

DRYING GUIDE
DRYING IN GRAIN DEPTHS OF OVER 18 FEET 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 have uniform drying.

Grain with a moisture of 20% - 26% from the field is the most profitable harvest-drying range. Grain depths of up to 18' can be used in one fill using air only (no heat) or little heat, until the depth reaches six to eight feet. This helps establish a uniform drying front.

A moisture of 27% - 30% for grain can be successfully harvested and dried, however, some caution should be used. Put up to 15' of grain into the bin during the first fill. This grain should be dried down to 20% - 25% level, then additional grain can be added.

When drying 27% - 30% grain it would be advisable to keep the plenum temperature less than 50 degrees 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 is sometimes done out of necessity. Under such conditions first clean the grain. Then fill to a depth of 12' - 15'. Dry this to 20% - 25%. Filling up to the 18' depth will then give 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 only 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 insure highest quality of grain.

Bin liners, air tubes or Stir-Ator off-set trolley bodies, depending on the severity of the condition, can be used successfully to control the problem of wet walls from condensation.

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.

CAUTION: ALWAYS HAVE THE STIR-ATOR TURNED "OFF" WHEN TAKING SAMPLES

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

These charts are based on ambient air temperature of 50° F., 60% relative humidity, 16 feet (4.9 m) of corn, 7-12% moisture removal (23.5% - 16%). 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 one, two or three augers to fit bins from 18 feet (3.5m) to 48 feet (14.6m). 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.

CORN - 16 FEET						HEATED AIR (Heat Rise Above Ambient Temperature - Fahrenheit)											
		Drying rate Multipliers* for more fans			Static Pressure	25°		50°		75°		100°		125°		150°	
Bin Size	Fan H.P.	2 Fans	3 Fans	CFM for 1 Fan	for 1 Fan	BPD	# Aug	BPD	# Aug	BPD	# Aug	BPD	# Aug	BPD	# Aug	BPD	# Aug
18	5.0	1.2	na	6600	3.5	360	1	750	1	1100	2	1480	2	1850	3	2240	3
	7.5	1.2	na	7100	3.9	490	1	810	1	1180	2	1590	2	1990	3	2400	3
21	5.0	1.2	na	8100	3.0	450	1	920	2	1350	2	1810	3	2270	3	2740	3
	7.5	1.2	na	9100	3.6	500	1	1030	2	1520	2	2030	3	2560	3	3080	3
	10.0	1.2	na	9200	3.6	510	1	1040	2	1530	2	2060	3	2580	3	3120	3
	12.5	1.2	na	10600	4.5	580	1	1200	2	1770	3	2370	3	2980	3	3590	3
24	7.5	1.3	na	10200	2.8	560	1	1160	2	1700	3	2280	3	2860	4	3460	4
	10.0	1.2	na	11000	3.2	610	1	1250	2	1830	3	2460	3	3090	4	3730	4
	10 C	1.5	na	11300	3.3	620	1	1280	2	1880	3	2530	3	3170	4	3830	4
	12.5	1.3	na	12000	3.6	660	1	1360	2	2000	3	2680	3	3370	4	4070	4
	15 C	1.4	na	13100	4.1	720	1	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	1	1240	2	1820	3	2440	3	3060	4	3690	4
	10. C	1.6	na	12000	2.5	660	1	1360	2	2000	3	2680	3	3370	4	4070	4
	10.0	1.3	na	12200	2.6	670	1	1380	2	2030	3	2730	3	3430	4	4130	4
	12.5	1.4	na	13100	2.9	720	1	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	1	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	1	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	1	1450	2	2130	3	2860	4	3590	4	4340	4
	10.0	1.6	na	13200	1.6	730	1	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	1	1490	2	2180	3	2930	4	3680	6	4440	6
	10.0	1.7	na	13500	1.3	740	1	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	.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	.6	760	2	1580	2	2320	3	3110	6	3900	6	4710	6
	12.5	1.8	2.5	16000	.8	880	2	1810	3	2670	6	3580	6	4490	6	5420	6
	15 C	1.9	2.6	16700	.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

NATURAL AIR - CORN - 16 FT.					
Bin Size	Fan H.P.	CFM	Static Pressure	CFM Per BU.	Auger Reqd
18	1 HP-18"	3800	1.6	1.1	1
	3.0	4600	2.1	1.3	1
	5.0	6600	3.5	1.9	1
21	1 HP-18"	4300	1.2	.9	1
	3.0	5100	1.5	1.1	1
	5.0	8100	3.0	1.7	1
	7.5	9100	3.6	1.9	1
	10.0	9200	3.6	2.0	1
24	3.0	5300	1.1	.9	1
	5.0	9200	2.4	1.5	1
	7.5	10200	2.8	1.5	1
	10 C	11000	3.2	1.8	1
	10.0	11300	3.3	1.8	1
	12.5	12000	3.6	2.0	1
27	5.0	10100	2.0	1.3	1
	7.5	10900	2.2	1.4	1
	10 C	12000	2.5	1.5	1
	10.0	12200	2.6	1.6	1
	12.5	13100	2.9	1.7	1
	15 C	14100	3.2	1.8	1
30	5.0	10700	1.6	1.1	1
	7.5	11400	1.7	1.2	1
	10 C	12500	2.0	1.3	1
	10.0	12900	2.1	1.3	1
	12.5	13900	2.3	1.4	1
	15 C	14800	2.6	1.6	1
	20 C	17600	3.3	1.8	2
	10 (2)	18800	3.6	2.0	2
33	5.0	11200	1.3	1.0	1
	7.5	11700	1.4	1.0	1
	10 C	12800	1.6	1.1	1
	10.0	13200	1.6	1.1	1
	12.5	14600	1.9	1.2	1
	15 C	15400	2.0	1.3	1
	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	1
	12.5	15100	1.5	1.1	1
	15 C	15900	1.6	1.1	1
	20 C	18900	2.1	1.4	1
	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

* All multiple fans are in parallel. Multiply drying rates x .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.

DESIGN III Stir-Ator Trouble Shooting

PROBLEM	PROBABLE CAUSE
1. Auger motor (s) and gearmotor does not run	1. a) Main power is not on b) Contactor in swivel box bad (replace) c) Contacts in contactor are dirty or burned (clean or replace) d) Swivel straps loose or broken (replace strap or clip) e) Broken, loose or shorted wire (call electrician) f) Stir-Guard solid state module bad (replace) g) Junction box on trolley improperly wired (New installation only-see wiring diagram) h) Electrical swivel shorted or loose connection
2. Gearmotor runs but auger motor(s)	2. a) Auger motor overload tripped (push do not reset button on motor) b) Augers stuck in grain (see start-up procedures) c) Motor burned out (replace) d) Improper wiring at trolley junction box (new installation only) e) Is motor H.P. adequate for length of auger f) Fuse blown (replace)
3. Auger motors run but gearmotor does not	3. a) Gearmotor fuse blown (replace) b) Low voltage or wired for 115 volts (check trolley junction box for proper wiring) c) Gearmotor burned out (replace) d) Gearmotor case transmission problem (repair or replace) e) Drive chain off sprocket f) Augers trailed back and mercury switch shut gearmotor off (normal -See problem #6) g) Mercury switch not adjusted properly (See Operating Adjustments) h) Gearmotor and mercury switch not wired properly at trolley junction box. i) Auger will not advance through grain (See Auger Problem #6) j) Gearmotor overload tripped - overload will reset automatically when cool. Check for excessive drag.
4. Unit has been tripped off by safety chain	4. a) Chain is adjusted too tight (See shut-off chain adjustments) b) 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. c) augers too long and touch floor d) Foreign object in corn stops e) Trolley binding on frame rails f) Cable connector installed backwards not going around idler pulleys g) Check correct length unit for bin size

DESIGN III Stir-Ator Trouble Shooting

PROBLEM	PROBABLE CAUSE
5. Unit stops after 45 minutes - Stir-Guard turned the unit off	5. a) Stir-Ator not advancing around the bin b) Stir-Guard microswitch acutator roller out of adjustment (See Stir-Guard operation) c) Excessive moisture on switch shorting out microswitch leads (dry and seal with silicone caulk) d) Microswitch bad (replace) e) Stir-Guard solid state module bad (replace) f) Reference problem #3, 6 or 7
6. Auger not advancing through grain	6. a) Mercury switch not adjusted properly (See Operations Adjustment) b) Auger worn out (replace) c) Foreign object in grain (remove object) d) Stir-Ator hung low in center and auger drags on floor (raise center to 1” high for every 18’ diameter) e) Excessive moisture and foreign material caused grain to form hard spots (remove grain - See Drying Guide) f) Frame pivot
7. Track unit does not advance	7. a) Gearmotor fuses blown (replace) b) Track unit caught on bin bolt (cut off excessive bolt length) c) Gearmotor tripped out on overload (leave cool - it is an automatic reset) d) See Problem #3
8. Cable jumps off	8. a) Cable too loose (See Adjustment) b) Large center drive pulley bent (replace) c) Cable connector installed backwards (reverse connector) d) Trolley binding up on frame rails (repair binding cause) e) Check for proper drive arm post location (See Step 13, Photo 27)
9. Trolley will not travel in or out	9. a) Center drive arm unhooked from drive link. (See Adjustment) b) Drive cable too loose (See Adjustment) c) 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	10. a) Auger bent (replace auger) b) Auger shaft not totally inserted up into stub shaft socket (insert and torque clamp bolts to 140 ft-lbs)
11. Channelling in the grain or	11. a) High moisture grain put in the bin being moisture difference dried with too much heat (See Drying Guide) b) Too much fines in grain which restricts air flow and forms hard spots (clean grain) c) Uneven heat distribution under drying floor (contact burner manufacturer) d) Too large of bin and too much heat for the number of augers being used to stir the grain.

DESIGN III SERIES GRAIN STIR-ATOR

DMC markets across the U.S. and around the world.

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