Sukup®

Stir-up

+

Stirway II T.M.

Owner's

Installation and Operation Manual

Maintenance and Parts Catalog

Sukup Manufacturing Company

Sheffield, Iowa 50475

Manual L1433 11/96

LIMITED WARRANTY

Sukup Manufacturing Co. guarantees the products they sell to be of good material properly fabricated and to perform the work for which they are intended when properly installed and operated. In order for this warranty to be in effect, all points on warranty page must have been met and the Warranty Registration mailed within two weeks of installation. Should any part prove defective in material or workmanship to the company's satisfaction, under normal service and use within a period of one year from date of sale, such part will be exchanged immediately F.O.B. Sheffield, Iowa, without charge to the user. This warranty does not obligate Sukup Manufacturing Co. to furnish labor in replacement of defective parts.

Trade accessories are subject to the warranty of their respective manufacturers and are not covered by this guarantee. This guarantee shall be void where equipment has been subject to misuse, neglect, alteration, accident, or improper installation. This guarantee is subject to any existing conditions of supply and demand of products which may directly affect our ability to obtain materials or manufacture replacement parts. The manufacturer shall in no event be liable for consequential damages or contingent liabilities arising from the use or installation of this equipment.

This warranty is in lieu of all other warranties expressed or implied and of all other obligations on our part. No representative or other person is authorized or permitted to make any warranty or assume for this company any liability not strictly in accordance with this guarantee.

Sukup Manufacturing Co. reserves the right to make changes and improvements in its products at any time with the express understanding that such change or improvement does not impose any obligation to install such changes or improvements on products previously manufactured.

TO PREVENT VOIDING WARRANTY: USE ONLY SUKUP STIRRING AUGERS (PAINTED GREEN) AND PARTS.

Sukup Manufacturing Company provides the best warranty in the industry. The stirring auger is the most critical component of a successful stirring machine: Variations in pitch can cause overloading of motors; problems with straightness will cause bearing and electrical connection problems; inadequate hard facing can cause excessive wear, etc. For these reasons Sukup Manufacturing Company can not provide its limited warranty unless all components (including stirring augers) are made by Sukup Mfg. CO.

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RECOGNIZE SAFETY ALERT SYMBOL

SAFETY

The above safety-alert symbol means "ATTENTION! Be Alert! Your personal safety is involved!" This symbol draws your attention to important instructions concerning your personal safety. Read the message carefully to avoid personal injury or death.

==========

FOLLOW MACHINE SAFETY SIGNS & MESSAGES

Observe safe operating practices. Carefully read this manual and all safety signs on your equipment. Safety signs and shields must be kept in good condition. Replace missing or damaged safety decals and shields; available from **Sukup Mfg. Co., Box 677, Sheffield, Iowa 50475** at no charge with written request from owner.

Learn how to use controls and operate machine. Do not let anyone operate unit (especailly youth) without thorough training of basic operating and safety procedures.

Make no unauthorized modifications to machine. Modifications may endanger function and/or safety of unit. Periodically check all mechanical and electrical components. Keep unit in good working condition.

==========

EMERGENCIES - KNOW WHAT TO DO

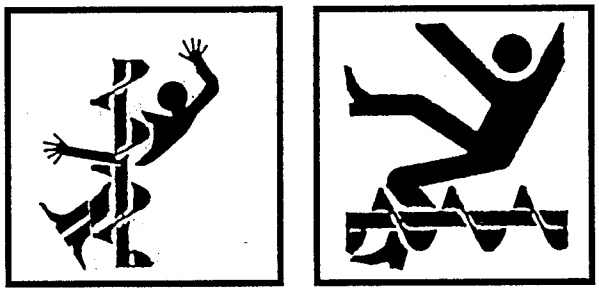
Have emergency numbers near your telephone:

For doctors:
Emergency medical squad:
Ambulance service:
Hospital:
Fire department:

Have written directions to your location:

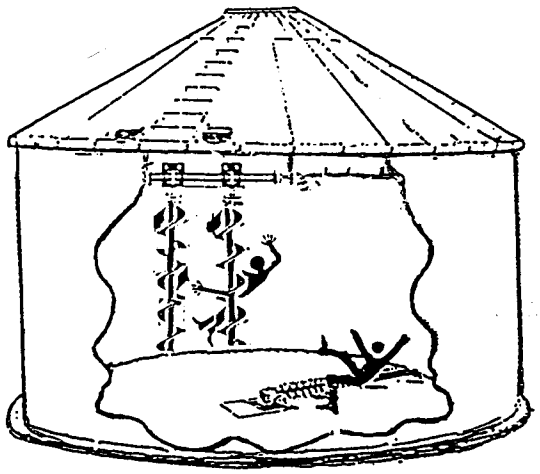
⚠ DANGER!
Never enter bin unless all power is locked off and another person present.

Rotating augers can kill or dismember.



NEVER, NEVER, clean out bin with augers running!

Failure to heed this warning may cause serious injury or death.

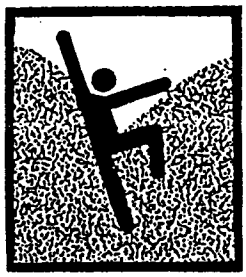


==========

NEVER ENTER BIN

DANGER: Never enter bin, unless all power is **locked off** and another person is present.

Flowing grain may trap and suffocate. If you enter a bin of flowing grain you can be completely submerged in grain in about 8 seconds.

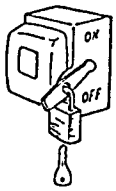


Failure to heed this warning may cause serious injury or death.

⚠ **CAUTION:** To avoid electrocution, all equipment must be properly wired and grounded according to electrical codes. Have unit wired by qualified electrician.

Have your electrician install a main power disconnect switch capable of being locked only in the OFF position. Mark disconnect clearly as to the equipment it operates.

Service Disconnect



Always **LOCK OFF** main power disconnect switch whenever equipment is not in use or when servicing unit.

⚠ **CAUTION:** If a ladder is to be placed against crosstube for installation or maintenance, securely wire outside drive end of crosstube to track to avoid movement of unit. (Be sure to remove wire when work is completed.)

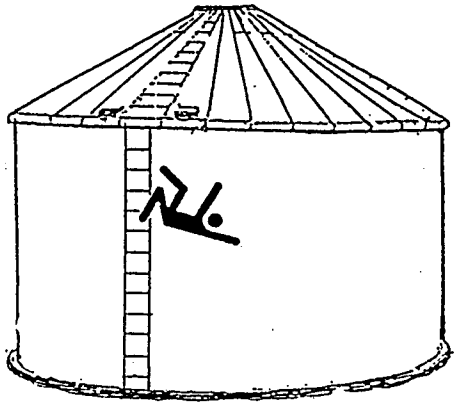
Failure to do so may cause serious injury or death.

⚠ **CAUTION:** When servicing equipment, never enter bin, unless all power is **LOCKED OFF** and another person is present. Always check for power with voltage meter before servicing. To avoid personal injury frequently inspect all mechanical and electrical components. Repair and/or replace warn parts. Be sure all electrical wires are in good condition.

Failure to do so may cause serious injury or death.

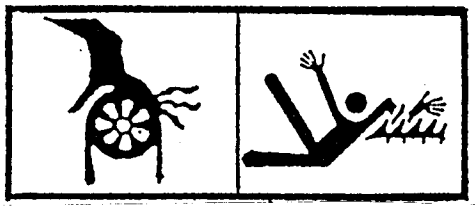
⚠ **CAUTION:** Maintain secure hand and foot holds when climbing on bin. Metal is slippery when wet. Never carry items while climbing on bin to avoid falls.

Failure to do so may cause serious injury or death.



KEEP CLEAR OF ALL MOVING PARTS

Keep people (ESPECIALLY YOUTH) away from equipment, particularly during operation.

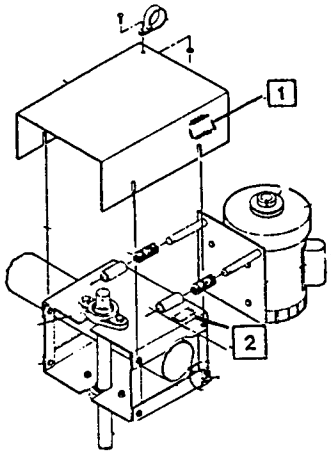


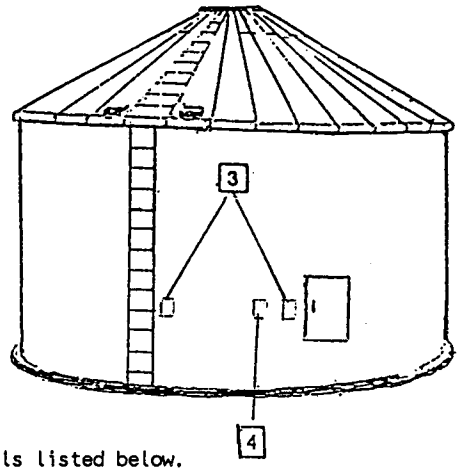
Keep away from all moving parts. Keep all shields in place. **SHUT OFF AND LOCK OUT** all power and test with voltage meter before servicing.

Failure to follow the above precautions may cause serious injury or death.

⚠ **CAUTION:** Metal edges are sharp. To avoid injury wear protective clothing and handle equipment and parts with care.

Failure to do so may cause serious injury or death.





The numbers on the above drawings refer to the location of the safety decals listed below.

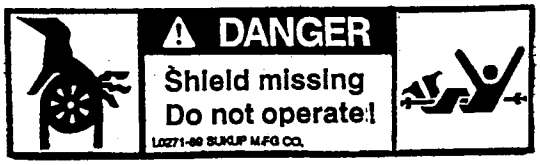
Safety decals are mounted whenever possible at factory. However, #3 and #4 need to mounted during installation. Make sure location area for decal is free from grease, oil and dirt. Remove backing from decal and place in proper position.

IMPORTANT: If suggested locations are not clearly visible, place safety decals in more suitable area. NEVER cover up any existing safety decals.

Please check that all decals and shields are in place according to these drqwings and in good legible condition. To order replacement decals and shields (no charge) contact your dealer or **Sukup Mfg. Co., Box 677, Sheffield, Iowa 50475.** Please specify computer number.

1. WARNING - Keep Away From Moving Parts Decal L0284

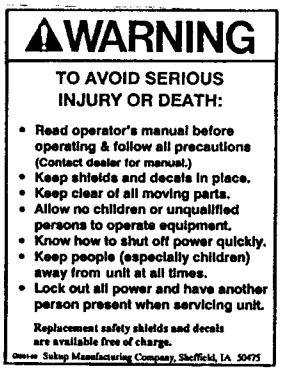
2. Replace Missing Shield Decal - L0271



3. DANGER: Never Enter Bin Decal - L0301

Mount "DANGER NEVER ENTER BIN" decal L0301 on bin sheet next to door handle so it will be seen by anyone entering bin. Also mount decal L0301 at eye level on bin sheet next to ladder going up to roof or next to opening on roof.

4. SAFE OPERATION Decal - L0281



Mount SAFE OPERATION decal L0281 on bin sheet near door handle.

INTRODUCTION

This manual contains an illustrated parts catalog and instructions for installation, operation, serivce of unit. Read carefully and follow instructions.

Parts catalog covers serviceable parts and is broken down into groups for each section of unit.

Parts shown in exploded views of assemblies are reference numbered and correspond to numbers in Ref. No. (Reference Number) column of parts list following each illustration. DO NOT ORDER PARTS BY REFERENCE NUMBERS. Part number and part description are shown with reference numbers. Total number of parts required per unit or assembly is shown opposite each part number.

When ordering parts, always give parts number and part description. If part number can not be found in manual, give clear description of part and its location and function. Specify machine type and size.

Check the following before beginning assembly.

Check the shipping list at back of manual. Do you have all components required?

Check carton contents against label on carton.

Is crosstube correct size for bin?

Are you installing a Stir-Up or a Stirway II? They are the same except a Stirway II has a stationary outside carriage. This manual is written for both so read instructions carefully.

For easiest installation, follow installation steps in order.

TRACK INSTALLATION

NOTE: In many cases, the existing holes in top bin sheet may be used for mounting the track (steps A1-A7). However, in some case, holes will not match and it will be necessary to drill holes to mount track (steps B1-B5).

Track is easiest installed while first ring of bin is being assembled on the ground. It is important that each track size be installed as a unit in the correct size bin, as brackets and curvature vary according to bin diameter.

A. FOR BINS WHERE EXISTING HOLES MATCH TRACK BRACKETS:

NOTE: Where holes are to be drilled in field, see Section B.

1. Insert 1 1/4" bolts in every other hole around top of bin (approximately 18" spacing), for bins smaller than 30'. For bins 30' and larger, place bolts in every hole (approximately 9" spacing) except at seam. Tighten 5/16" spacer nuts onto bolts. Figs. 1 & 2.

2. Mount one length of track over bolts and place a second nut on each top bolt. Do not tighten at this time. Figs. 1 and 2.

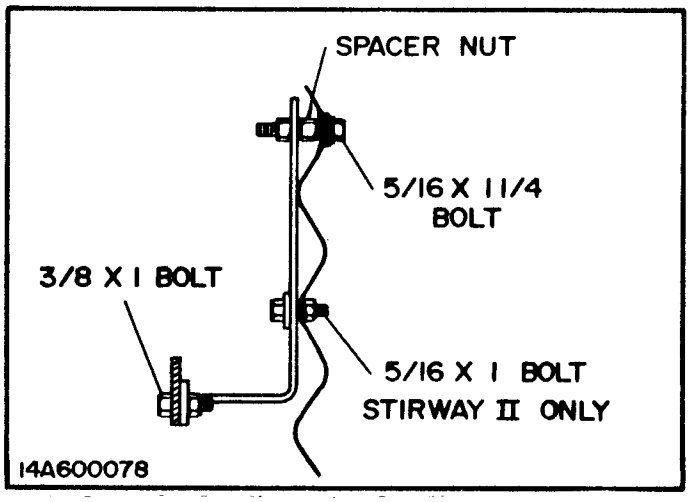


FIG. 1 - TRACK PROFILE - BOLTS

NOTE: On double bracketed track (30' and larger) a gap has been left to prevent interference between seam bolts and track brackets. Install first section of track with seam in place of missing bracket. Fig. 2.

3. Mounting remaining track sections in similar manner.

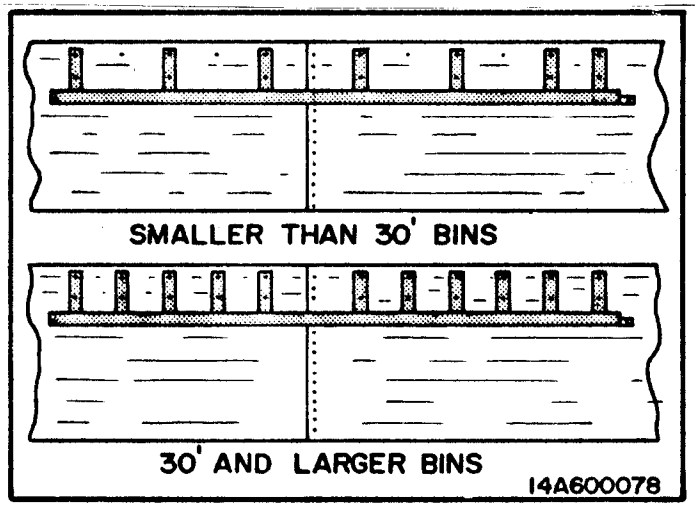


FIG. 2 - SINGLE & DOUBLE BRACKET

4. Join sections together with 3/8" x 1" bolt, lock washer, and nut. Do not tighten at this time. MAKE SURE THAT THESE BOLTS ARE MOUNTED POINTING OUTWARD TOWARD BIN WALL TO AVOID OBSTRUCTING CROSSTUBE. Fig. 3.

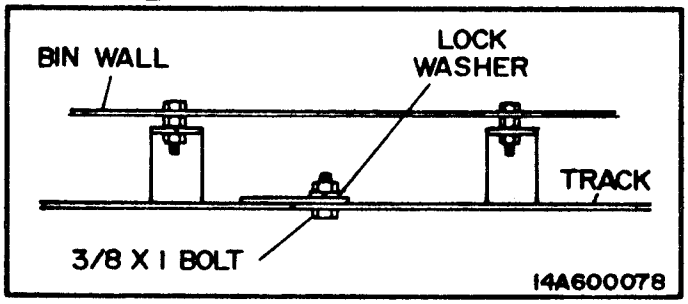


FIG. 3 - TRACK SPLICE

5. On Stirway II only, the lower hole on each track bracket should be drilled or punched through bin sheet using bracket as pattern. Use a 5/16" bolt no longer than 1" or else point this lower bolt outwards in order not to obstruct the movement of the machine. This should be done after all track sections are in place. Fig. 1

6. Tighten nuts on top bolts of brackets. Fig. 1.

7. Tighten bolts at each track splice. When track is completely installed, check joints to be sure track is free from obstructions and smoothly connected.

B. FOR BINS WHERE HOLES FOR TRACK MUST BE PUNCHED IN TOP BIN SHEET:

1. Mount first segment of track in bin. Fig. 1. Punch or drill holes in top sheet to match brackets. On Stirway II only, use both holes per bracket. Bolt top (and bottom) bolts in place on each bracket of the first track section. Figs. 1 and 2.

PREPARATION FOR ASSEMBLY

1. Carry crosstube and hardware into bin. Place outside drive up to wall; other end in center of bin.

2. Remove switch frame and rod bundle (banded to crosstube).

3. Install outside carriage (Stirway II only). For Stir-Up, move to Step 4.

3a. Slide slanted green carriages off inside end of crosstube. Slide one 7" disc (hub first onto crosstube all the way to outer end of tube. Bolt in place. Slide white stationary carriage on beside disc. Slide other disc (hub last) next to stationary carriage and bolt down. See Fig. 4.

3b. Slide slanted green carriages back onto crosstube. IMPORTANT: Make sure slanted and stationary carriages have slot for down auger towards front of crosstube and that slanted carriages all slant the same way to the left. See Fig. 4.

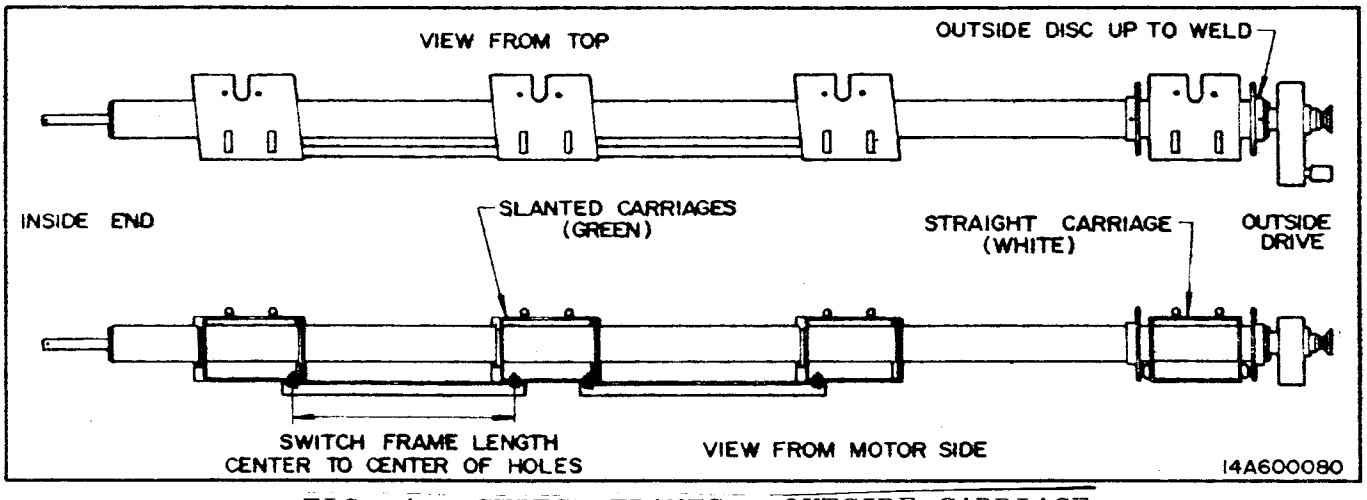


FIG. 4 - SWITCH FRAMES - OUTSIDE CARRIAGE

2. Mount second segment of track in place. Join sections together with 3/8" x 1" bolt, lockwasher, and nut. Tighten at this time. MAKE SURE THAT THESE BOLTS ARE MOUNTED POINTING OUTWARD TOWARD BIN WALL TO AVOID OBSTRUCTING CROSSTUBE. Fig. 3

3. Mount remaining sections and track in similar manner as steps 1 and 2.

4. Because of the large variation in bin diameters, it may be necessary to insert a splice in order to join the last section of track. These splice sections are available from Sukup Mfg. Co. at no charge.

5. Bolt and secure splice sections in place. Check that the entire length of track and bin wall are free of any obstructions which could hinder movement of crosstube or outside carriage and auger around bin.

NOTE: The Stirway II is shipped as a Stir-Up with a stationary outside auger to be added.

4. Completely disassemble switch frame bundle into individual parts. Bolt switch frames between slanted carriages with 5/16 x 1" bolts. See Figs. 4 and 5. Switch frames will have several holes punched in them. Use pair of holes that provide correct spacing between carriages as found on Table 1.

TABLE 1 -
STIR-UP & STIRWAY II SWITCH FRAMES

BIN SIZE	STIR-UP			STIRWAY II		
	DOUBLE	TRIPLE	QUAD	TRIPLE	QUAD	QUINT
17'7 - 18'7	34"	21"	-	28"	-	-
21' - 21'8	44"	25"	-	34"	-	-
23'6 - 24'8	52"	30"	-	44"	28"	-
26'5 - 27'10	61"	39"	25"	-	34"	-
29'4 - 31'	71"	44"	30"	-	39"	24"
33'	82"	48"	34"	-	44"	28"
34'	82"	52"	34"	-	44"	28"
36' - 37'1	91"	56"	39"	-	52"	34"
40'	101"	61"	44"	-	56"	39"
42'	109"	71"	48"	-	-	44"
48'	127"	82"	56"	-	-	52"

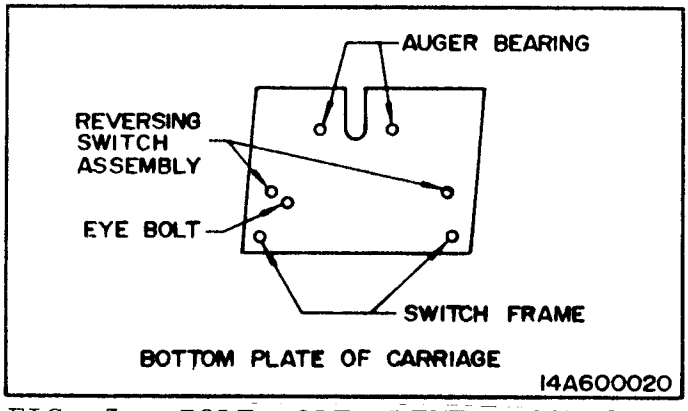


FIG. 5 - BOLT HOLE IDENTIFICATION

INSTALLING CENTER HANGER AND RELATED PARTS

1. Slide shaft of crosstube shown in Fig. 6 through bearing. Loosely bolt bearing to center hanger with 4-3/8" x 1" bolts.

2. Bolt gearmotor onto center hanger with 4 - 5/16" bolts and lockwashers provided on gearmotor.

3. Connect gearmotor shaft to crosstube shaft using 1" tube coupler and 2 - 1/4" x 1-1/2" picker pins. Secure pins with 2 cotter pins. After alignment is completed, tighten bearing in place. Fig. 6.

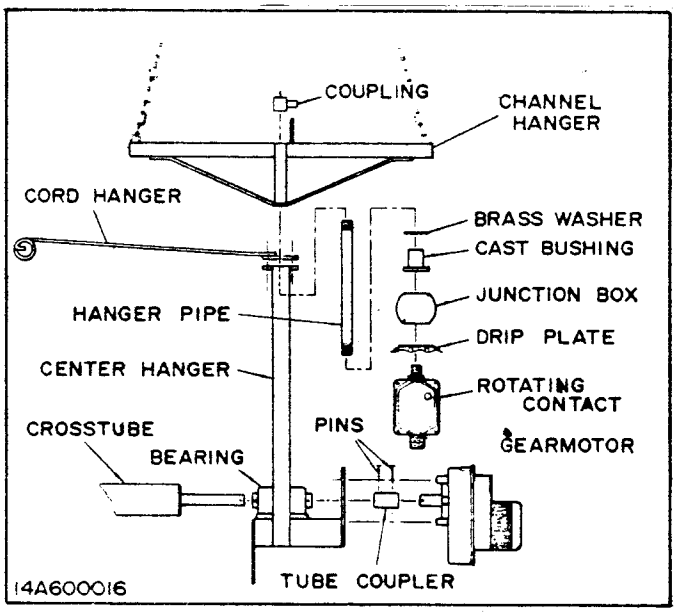


FIG. 6 - CENTER HANGER ASSEMBLY
(See page 30 for additional information)

4. Thread hanger pipe onto cast electrical junction box. Make sure to seat threads properly and to tighten well.

5. Slide cast bushing and brass washer over hanger pipe. Slide cast box and pipe (up from bottom) through hole in top of center hanger. See page 30 if threaded hanger pipe is not the correct length.

6. Slide channel hanger over hanger pipe and thread coupling onto pipe. Fig. 6. Thread liquid tite elbow (not included) into top of coupling. Make sure to seat threads properly and to tighten well.

NOTE: DO NOT THREAD ROTATING CONTACT INTO CAST ELECTRIC JUNCTION BOX UNTIL MACHINE IS RAISED IN BIN. (See page 10)

SETTING UP STIRWAY INSTALLATION JACKS

1. Place installation jacks over center and side openings of bin roof. Lower cables from jacks and carefully secure cable from center opening jack around hanger pipe just below channel hanger. Secure cable from side opening jack to end of crosstube closest to bin wall.

2. Clamp vise grip onto center cable approximately 3' above channel hanger. Wrap top of each channel hanger chain around each v-hanger. Tape and secure v-hangers to vise grip. NOTE: When using "J" style hanger, chain may be hooked in slot.

3. Using jacks, raise crosstube approximately 3' off floor or to a comfortable working level.

INSTALLATION OF INNER CARRIAGES, REVERSING SWITCH AND RELATED PARTS

1. Bolt cord hanger to top of center hanger with 2 - 3/8" x 1" bolts. IMPORTANT: Position cord hanger above and behind direction of travel of crosstube to keep cords away from augers. Fig. 6.

2. Bolt short cord hanger to bottom plate of outside white carriage. Stirway II only. See Fig. 7. Use 5/16" x 1" bolt.

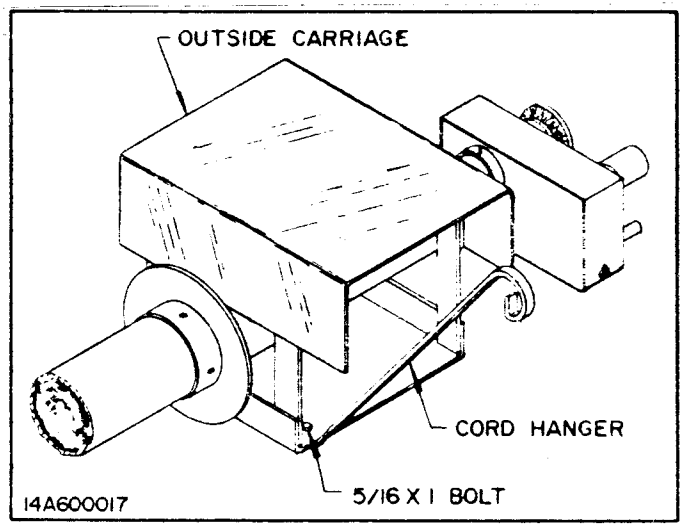


FIG. 7 - OUTSIDE CARRIAGE (STIRWAY II)

3. Bolt reversing switch onto bottom of carriage nearest center of bin. See Figs. 5, 8, 23.

4. Mount switch rod coupler onto reversing switch assembly rod about 1/2". Tighten bolt and lock nut on coupler. Check to see that switch has adequate clearance to reverse by sliding rod back and forth so that a "click" is heard. Fig. 8.

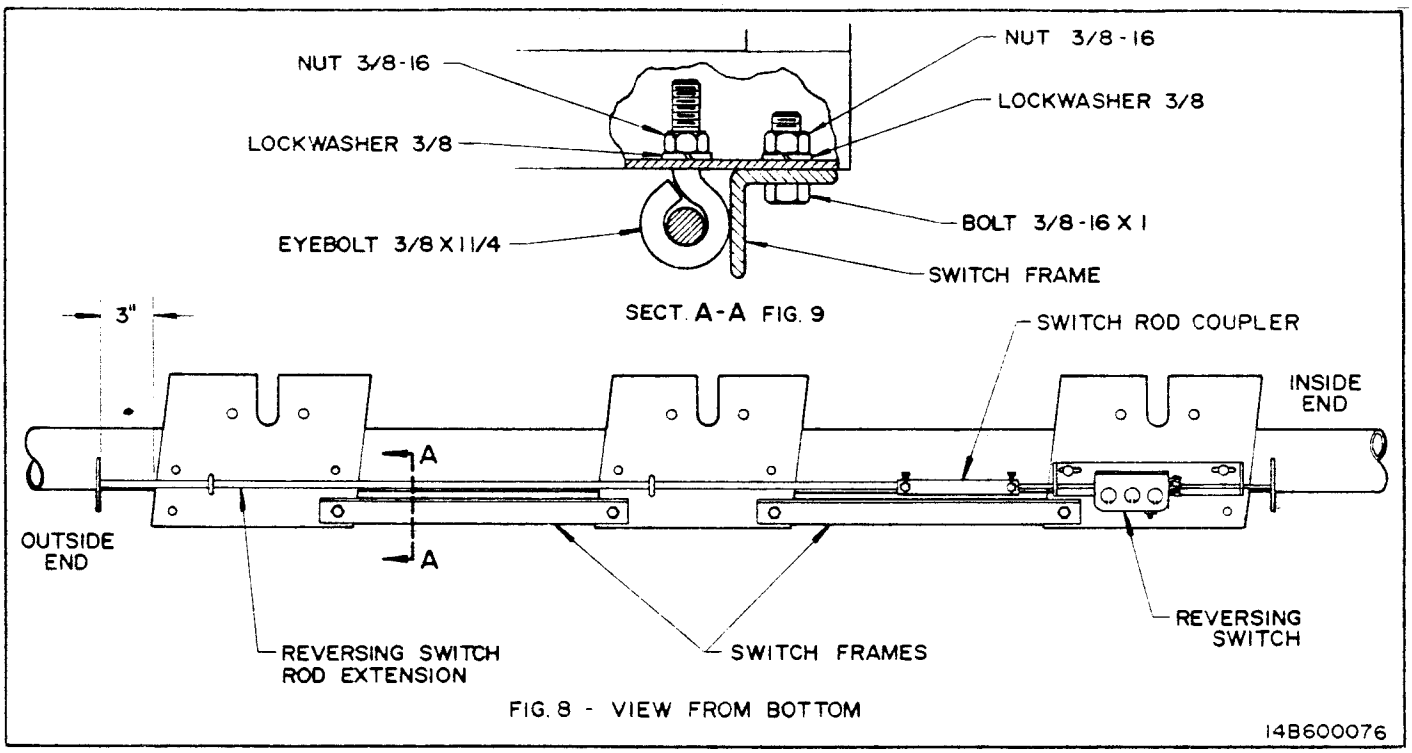


FIG. 8 & 9 - ASSEMBLY SWITCH FRAME & REVERSING SWITCH

5. Place eyebolt(s) (one for each slanted carriage except center carriage) over switch rod extension. Place eyebolt(s) into hole on bottom of carriages(s) and secure with lock washer and nut. Tighten at this time. Be sure eyebolt(s) are straight (see Fig. 9) so extension rod does not bind.

6. Slide switch rod extension into coupler so that opposite end extends approximately 3" beyond carriage. Tighten coupler. Fig. 8.

7. On outside (Stirway II) and middle carriages, mount mercury switch and bracket to bottom corner carriage bolt shown in Fig. 10. Be sure raised tab of mercury switch is up. Slide bottom of bracket up to and even with bottom carriage plate and secure in place.

8. Assemble 1½hp motors to motor mounts with 4 - 5/16" x 1" bolts.

9. Place one spring on each of the motor mount pegs. Mount motors onto carriages. Place hairpin clips through holes in motor mount pegs. Use two clips per carriage. Fig. 10

THE SEQUENCE OF MOTORS, STARTING AT THE CENTER OF BIN IS AS FOLLOWS:

Single auger machine, 1 or 3ph, S
Double auger machine, 1 or 3ph, A-O
Triple auger machine, 1 ph , A-O-O
Triple auger machine, 3 ph , A-B-O
Quad auger machine, 1 or 3ph, A-O-B-O
Quint auger machine, 1 or 3ph, A-B-O-B-O

10. Mount belt shields to carriages. Hole for cord holder should be toward motors. Bolt plastic cord holder to each shield (except outside carriage).

WIRING

GEARMOTOR:

1. Take cord from reversing switch and thread through eye of cord hanger on center hanger. Bring cord down side of center hanger.

2. Take cover off of gearmotor junction box. Place 1/2" electrical connector in hole on gearmotor junction box. Thread cord through connector. Figs. 11 & 12. Provide a drip loop in cord by motor.

3. Take female spade on orange wire from reversing switch and connect to prong on one terminal of capacitor. Take female spade on blue wire (from gearmotor) and connect to prong on opposite terminal of capacitor. Fig. 11.

4. Strip rubber coating back ½" on white, red, and black wires.

5. Take white wire from reversing switch and white wire from gearmotor and scotch lock together.

6. Do the same with red wires and black wires.

7. Attach green ground wire from reversing switch to gearmotor case using cover screw when replacing cover.

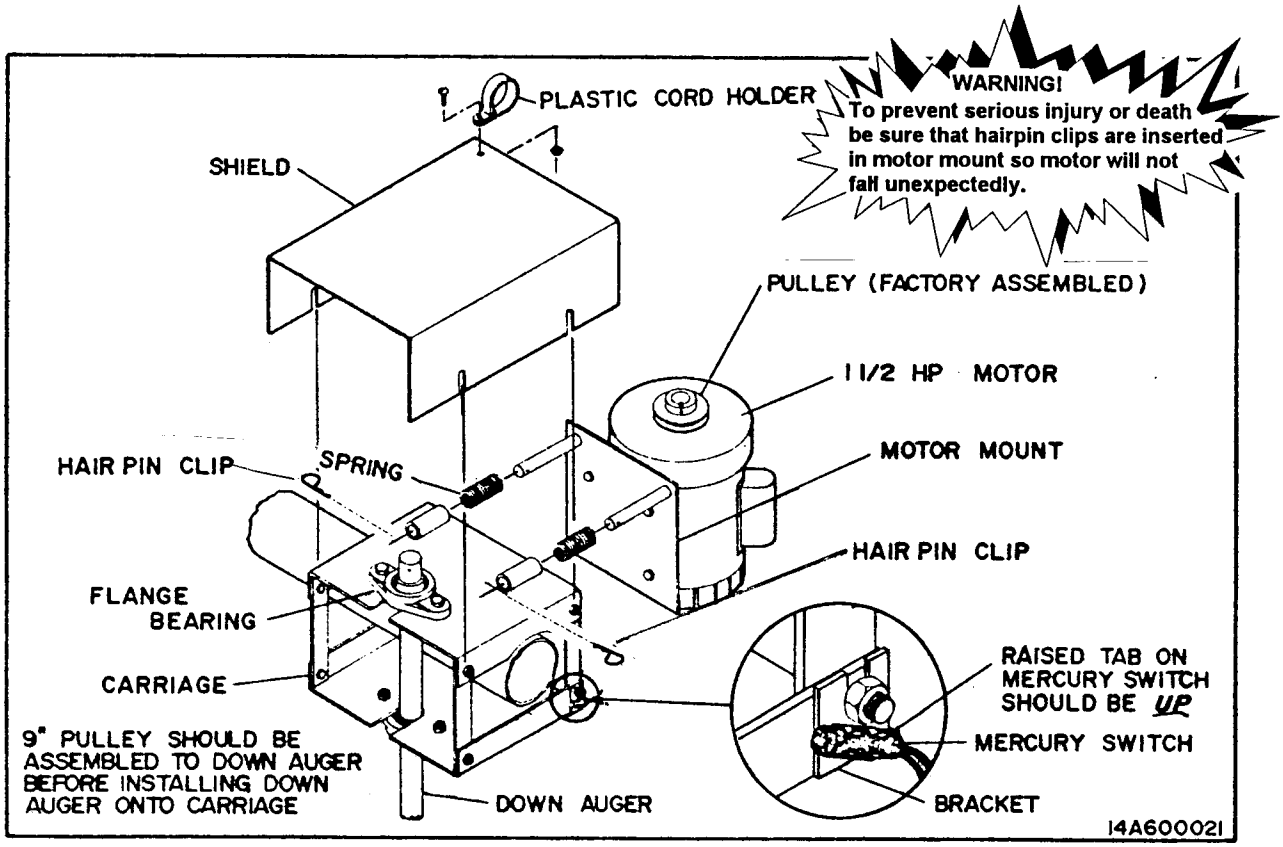


FIG. 10 - ASSEMBLY OF CARRIAGES

NOTE: Make sure scotch locks are on securely or they can vibrate off during use of machine.

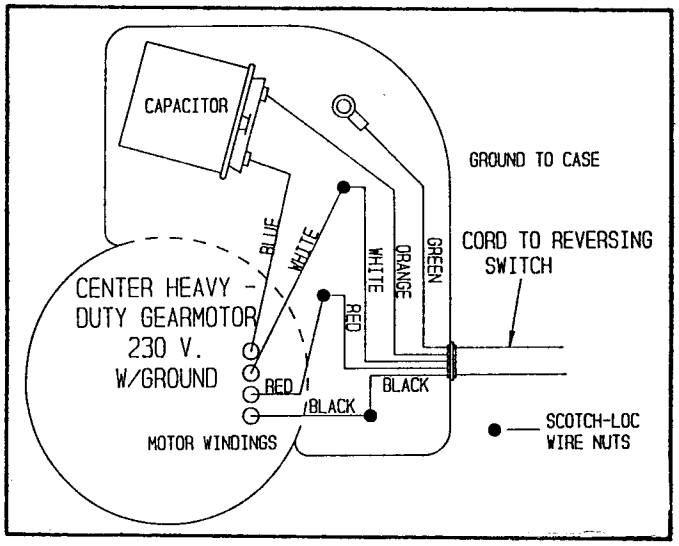


FIG. 11 - GEARMOTOR WIRING

1½ H.P. MOTORS & MERCURY SWITCHES:

1. On 230v machines, take lead(s) from rotating contact, run up center hanger and out to end of cord hanger. Tape cord(s) to hangers. Provide a drip loop by rotating contact. Connect all motors and mercury switches as shown in Figs. 13-20.

NOTE: 460v machines are factory-wired without plug-ins due to the high voltage, and thus all motors are connected before shipment.

2. Mercury switches must be wired in series as shown in Figs. 13-20.

3. Plug reversing switch into plug from "A" or "S" motor.

4. Run cords through plastic cord holders as shown. Run connecting cords across switch frames. Tape cores out of way of all moving parts. See Figs. 16 & 20 for examples. Leave enough slack in cords so carrier can travel entire length of crosstube.

Note: Single phase 3-auger units (or three phase 4-auger units) must use dual lead rotating contact.

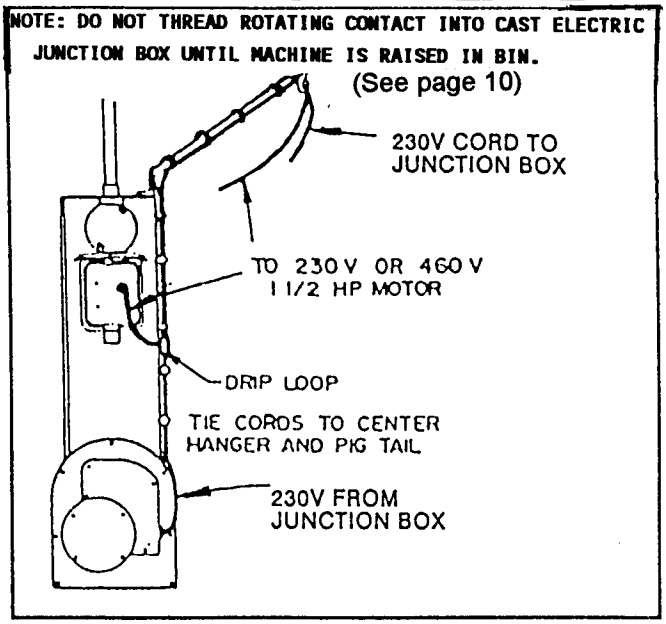


FIG. 12 - CENTER HANGER CORDS

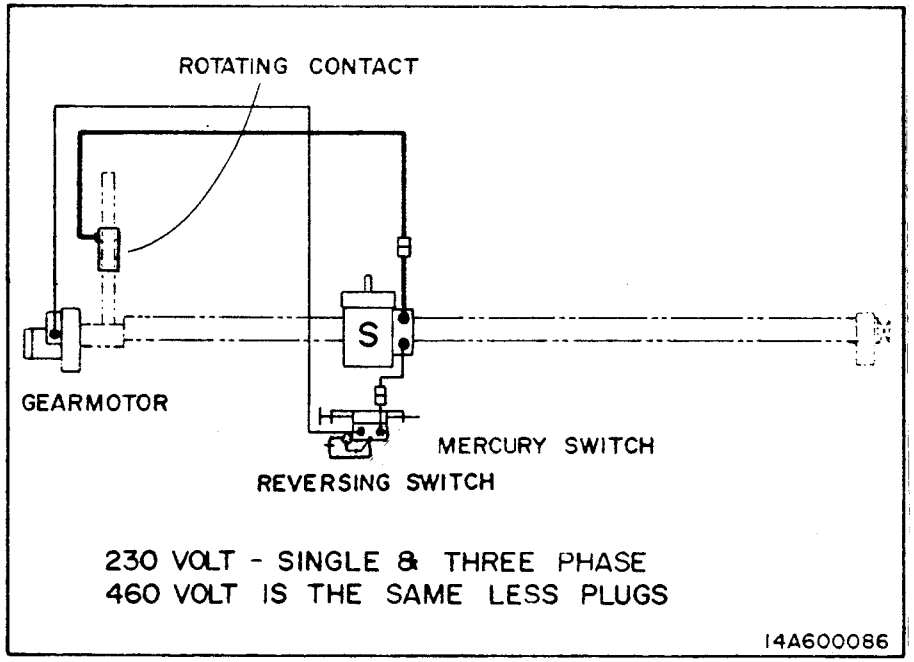


FIG 13 - SINGLE AUGER MACHINE

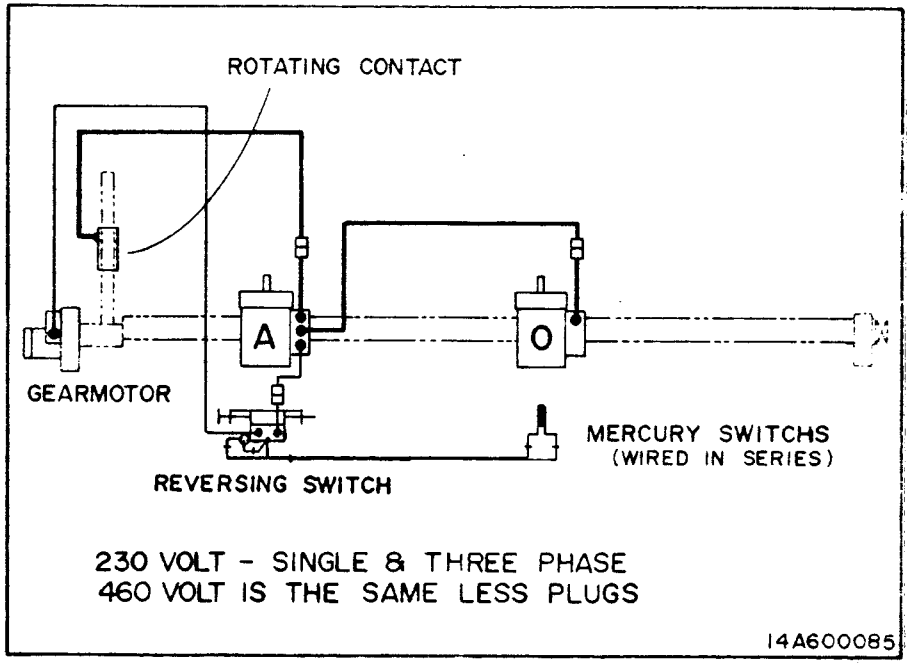


FIG. 14 - DOUBLE AUGER MACHINE

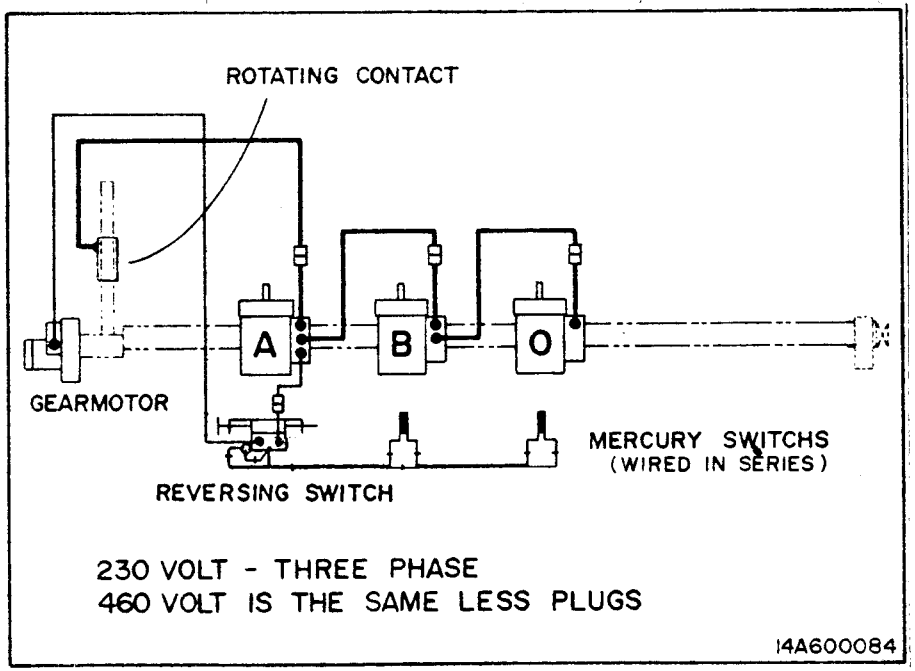


FIG. 15 - TRIPLE AUGER MACHINE 3ph

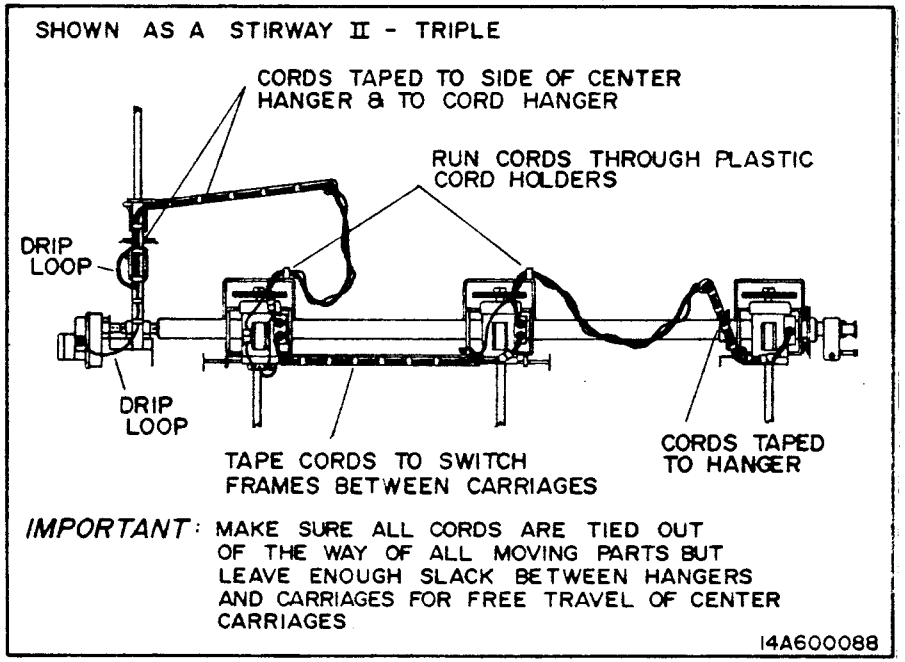


FIG. 16 - ACTUAL CORD CONNECTIONS

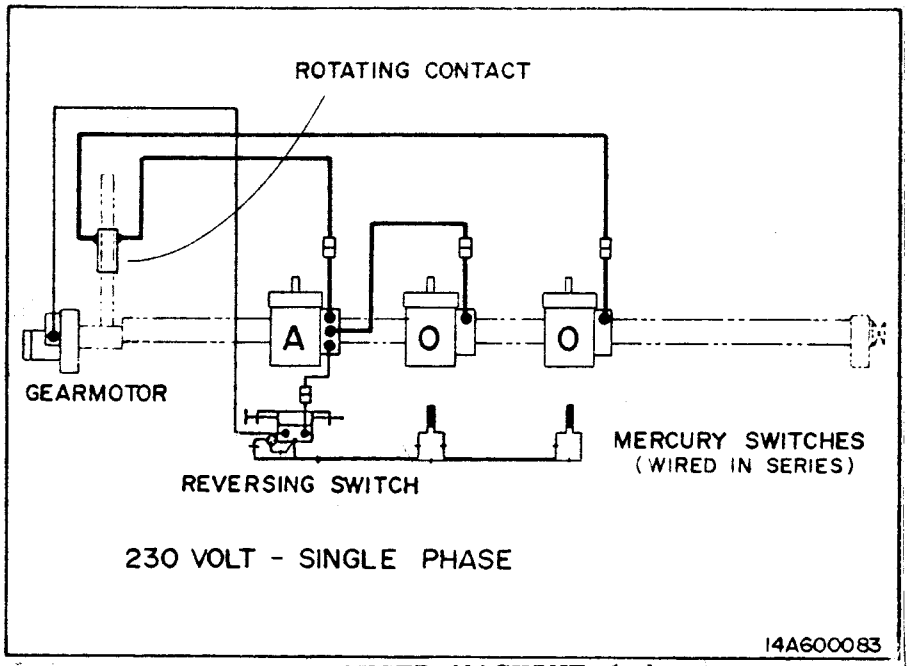


FIG. 17 - TRIPLE AUGER MACHINE 1ph

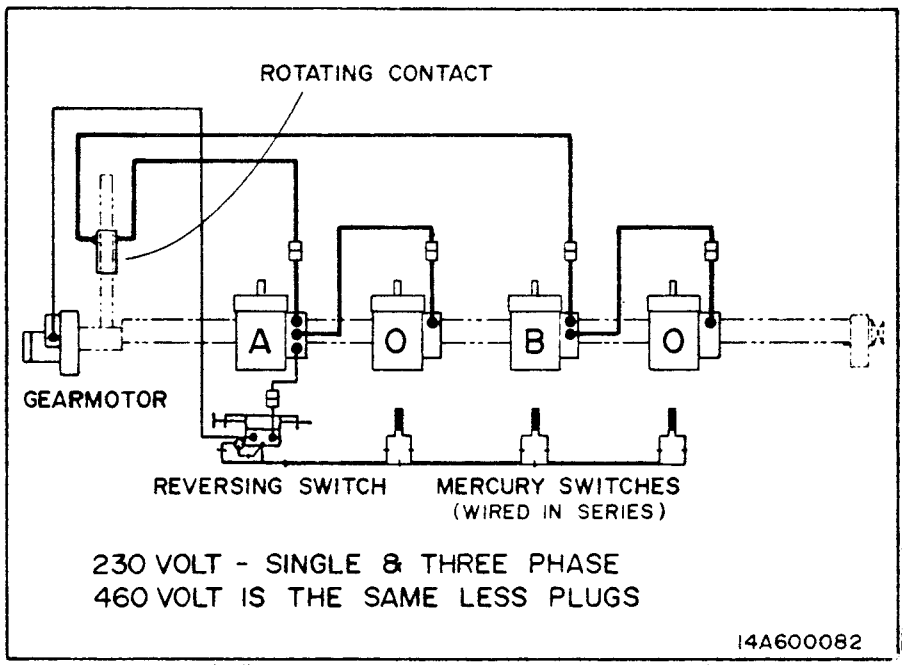


FIG. 18 - QUAD-4 AUGER MACHINE

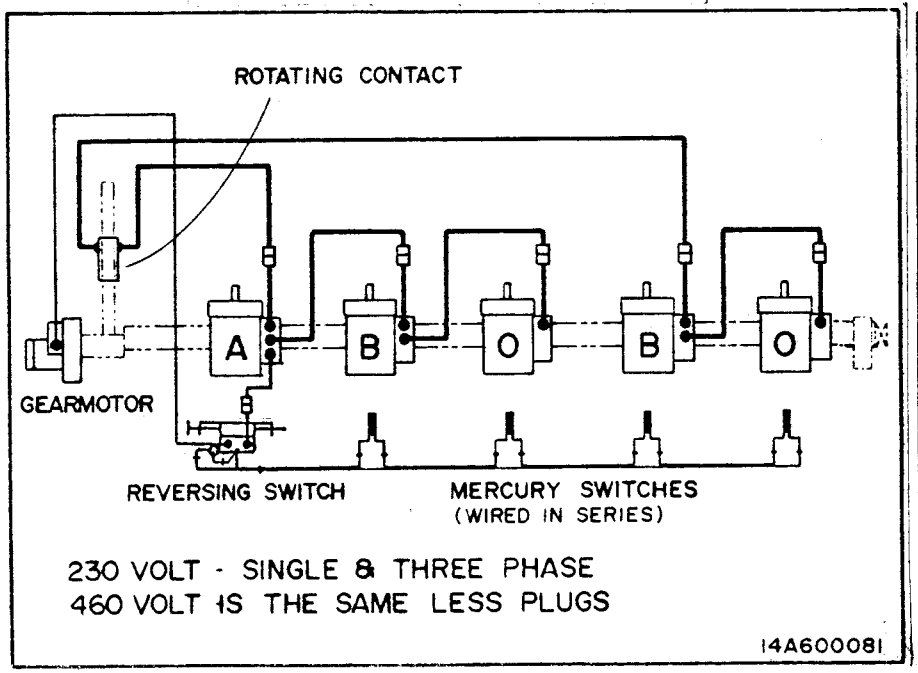


FIG. 19 - QUINT - 5 AUGER MACHINE

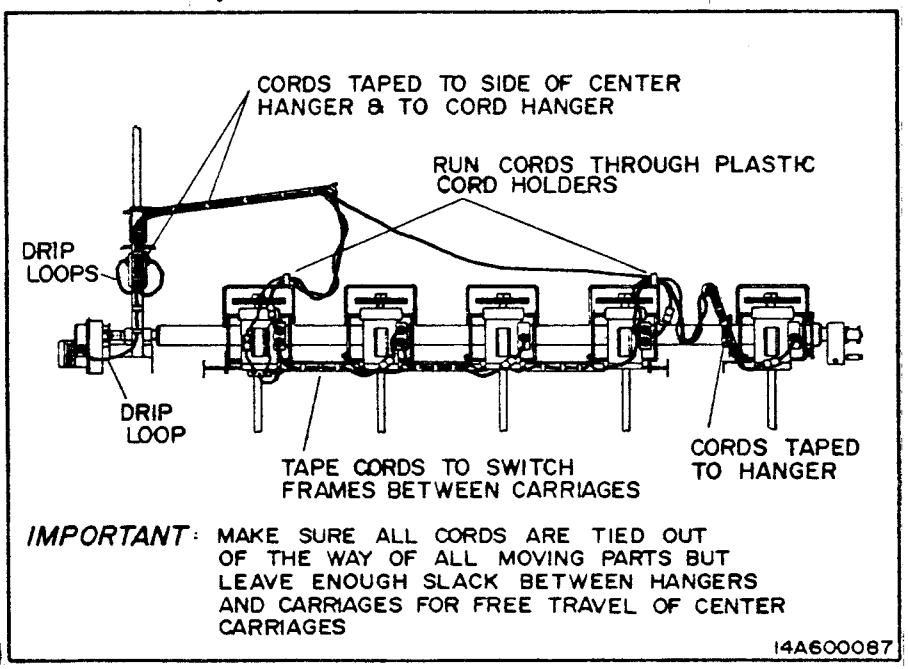


FIG. 20 - ACTUAL CORD CONNECTIONS

INSTALLING MACHINE

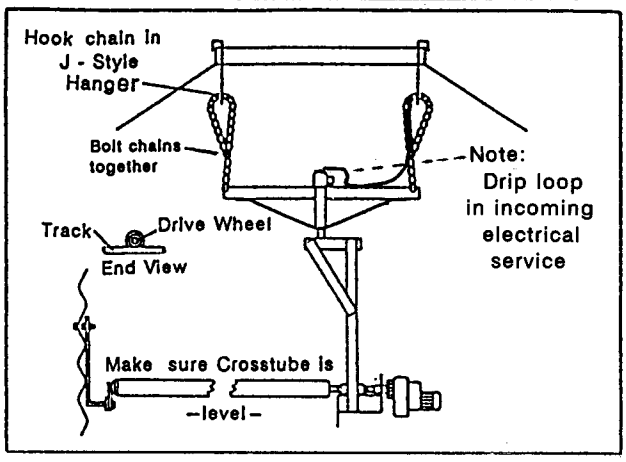


Fig. 14 LEVELING CROSSTUBE

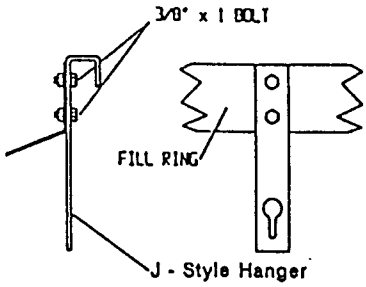
1. Raise the machine to top of bin so that outer end rests on track.

2. **CAUTION:** Wire end of crosstube that rests on track securely to track to avoid movement during installation of machine.

3. Remove vise grip and v-hangers (J-hangers) from cable. Hook hangers over top ring. Fig.21.

4 Hook chain in J-hangers. Adjust chains so that the crosstube hangs level. Secure s-hooks back to chain or bolt chains back to chains. Fig. 21

BOLTING OF J-STYLE BRACKET



J style hanger may be bolted to fill hole ring with two 3/8 x 1" bolts on each hanger as shown.

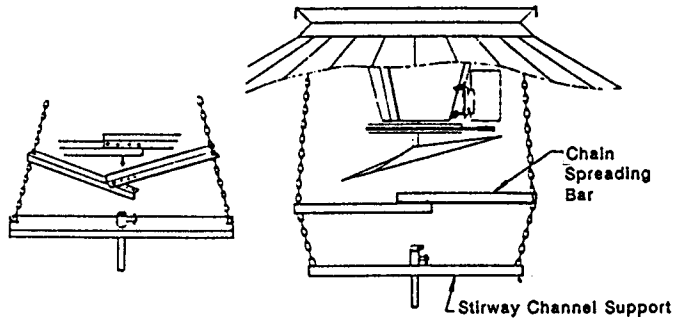
Bolt, 3/8 x 1" Part # J0606
Nut, 3/8 - 16 Part # J1020
SPREADING BAR See picture

INSTALLING ROTATING CONTACT

NOTE: DO NOT THREAD ROTATING CONTACT INTO CAST ELECTRIC JUNCTION BOX UNTIL MACHINE IS RAISED IN BIN.

Place drip plate over threaded end of rotating contact. Thread rotating contact into bottom of cast electrical junction box.

OPTIONAL SPREADER BAR KIT - A5635



On narrow hatch openings, it may be necessary to spread hanger chains to provide clearance for grain spreader fin. Proceed as follows:

1. Determine clearance needed and place one bolt in proper hole in spreading bar.

2. Place slotted ends of spreading bar on chain as shown and force chains apart by pushing bar straight.

3. Place second bolt in matching holes and tighten both bolts.

IMPORTANT: Be sure spreading bar is far enough below grain spreading fins to avoid fans hitting bar in maximum incline position.

PREPARING DOWN AUGERS

1. Cut down augers to length.

NOTE: Down augers must be 3-5" above floor or any unloading equipment which would provide an obstruction at bottom of bin.

a. Before cutting augers, weld or braze flighting slightly above point of cut to prevent unraveling.

b. Where no unloading equipment is used, measure from top track bracket hole (not track splice hole) to floor. Mark this point and weld before cutting. **Down augers should always be cut off from bottom.**

NOTE: In some cases, down augers may be cut after installing on machine.

WARNING!

To prevent serious injury or death be sure that hairpin clips are inserted in motor mount so motor will not fall unexpectedly.

2. Slide the following items over top of each auger shaft in order given. Fig. 22:

   a. Locking collar for bearings (groove up)
   b. Flange bearing (hub down)
   c. Flange bearing (hub up)
   d. Locking collar (groove down)
   e. Pulley (hub up)

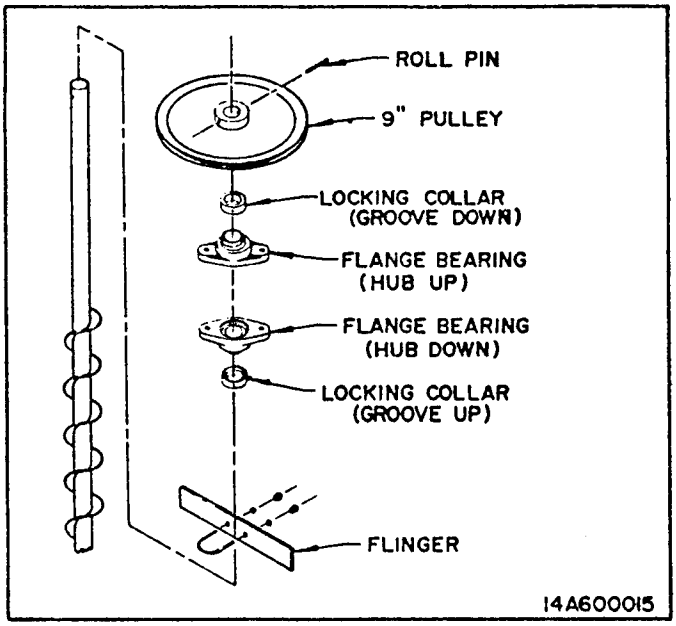


FIG. 22 - DOWN AUGER ASSEMBLY

NOTE: If these items will not slide over shaft, use emery cloth or a file to clean the shaft surface.

3. Attach 9" pulley to top of auger shaft by driving 5/16" rollpin in hole provided.

4. Slide locking collar and top bearing up against pulley. Lock top bearing in place by tapping locking collar lightly in direction of shaft rotation. Tighten set screw. ***IMPORTANT: Be Certain to tighten locking collar in direction of shaft rotation.***

5. Bolt flinger to auger just above flighting.

INSTALLING DOWN AUGERS

1. Hang down augers by top bearing in slot of carriage. Bolt top bearing to carriage with 2 - 7/16 x 1¼" bolts. Fig. 10

2. Slide bottom bearing up and bolt to carriage with 2 - 7/16 x 1¼" bolts. Fig. 23. Lock collar by tapping lightly in direction of shaft rotation. Repeat steps 1 & 2 for each carriage. ***IMPORTANT: Be Certain to tighten locking collar in direction of shaft rotation.***

3. ON EACH CARRIAGE:

   a. Check that there is a clearance of approximately 1/4" between the down auger and the crosstube.

   b. For the slanted carriages: There should be approximately 1/8" between crosstube and roller bearings on the bottom carriage plate. For outside white carriage(Stirway II) only: There should be no clearance, but bearings should move smoothly with no binding.

NOTE: Top and bottom carriage plates must be same distance apart on all four corners, or down auger pulley will not line up with motor pulley.

If necessary, loosen vertical straps bolting top and bottom plates of carriages together to obtain proper clearance. Retighten carriage bolts. Make sure straps are tightly bolted.

4. Mount belts to pulleys; align if necessary.

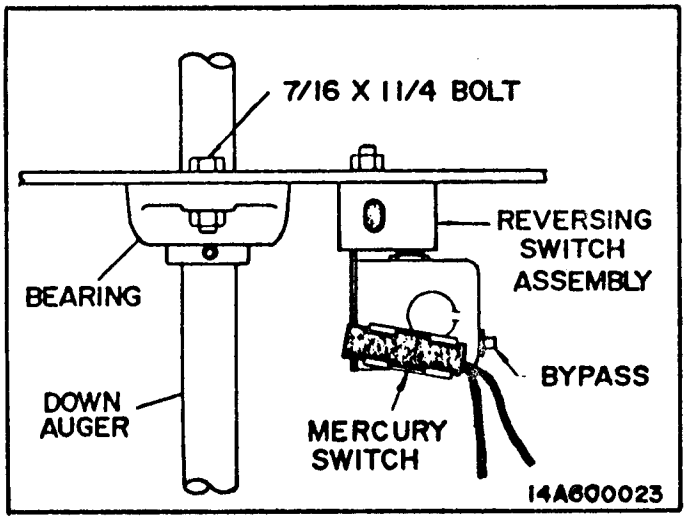


FIG. 23 - DOWN AUGER

COMPLETION

IMPORTANT: Roof vent should remain open during drying.

1. Liquid tite elbow and drip loop provided by electrician. Have electrician bring electrical service into the cast junction box in center of bin. Wire into the leads of rotating contact. Fig. 24.

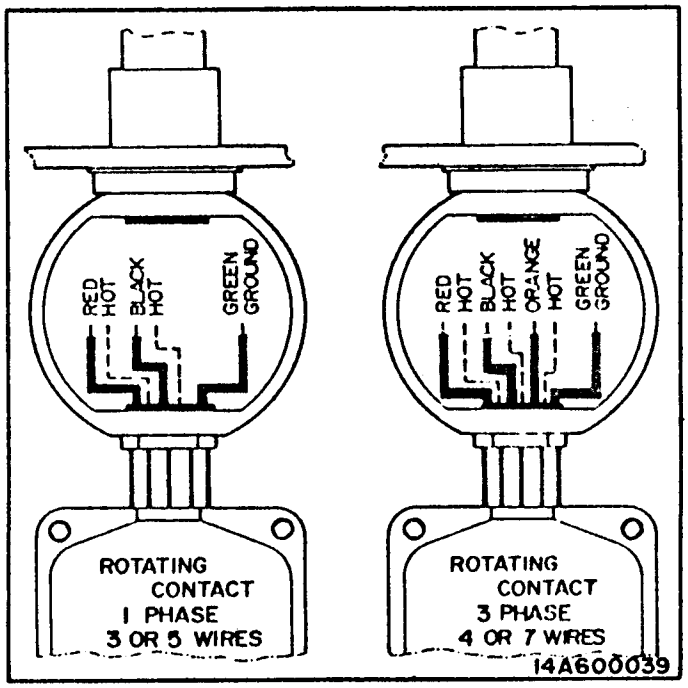


FIG. 24 - WIRING ROTATING CONTACT

2. An electrical disconnect (on-off switch) should be provided at the top of the bin. This is for safety reasons so that machine could not be turned on accidentally during service and also convenience.

3. Be sure to unwire crosstube. Check that entire length of track and bin wall are free of any obstructions which could hinder the movement of crosstube or outside carriage and auger around bin.

OPERATION

⚠ WARNING

NEVER ENTER BIN UNLESS ALL POWER TO EQUIPMENT HAS BEEN DISCONNECTED AND ANOTHER PERSON IS PRESENT!

1. START MACHINE when grain is about 30" or 1 ring deep.

2. NEVER TURN OFF MACHINE while drying grain or when continued filling will take place. In natural air drying or low temperature drying, don't shut machine off until corn is below 22% or it has run at least a week. In situations where a multiple auger machine is used and drying of one bin of grain will take longer than four weeks, the stirring machine should be run for a partial time each day. The amount of time it should be run would be determined by the number of augers and size of bin.

3. DO NOT OVERFILL BIN. Filling must be stopped at the bottom of top ring or 18" below crosstube to prevent belt and motor failure. Filling above this distance voids warranty.

4. REMEMBER, your Sukup Stirring machine was designed to move dry corn off the bottom and bring it to the top. When your grain first test 16% on the top, the entire bin is NOT necessarily dry. Use probe to determine moisture content of the bin.

5. After grain has dried, shut off heater, COOL GRAIN AND CONTINUE STIRRING. Make sure grain is throughly cooled, before shutting off fan, then continue stirring for additional 48 hours. We also recommend periodically running the stirring machine during the winter months if grain is not frozen.

IMPORTANT: When drying grain, center roof opening must be open to prevent rotating contact from shorting out.

RESTARTING YOUR STIR-UP OR STIRWAY II IN GRAIN

If machine has been idle for more than two days, care should be taken in restarting the stirring machine. Shutting off machine allows the grain to "set up" around the augers during inactivity.

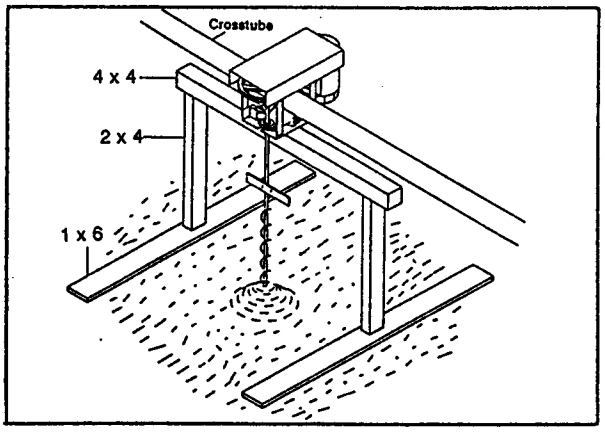


FIG. 25 - RESTARTING AUGERS

1. Support carriage as shown by laying flat board on top of grain. This will prevent distortion of the crosstube. FIG. 25.

2. Before power is applied, down auger should be loosened by turning clockwise.

3. Unplug all 1½hp motors and start each motor individually beginning with motor nearest center of bin.

4. Remove boards from top of grain.

MAINTENANCE

There are three grease zerks on the outer gearcase drive of the Stir-Up or Stirway II.

1. Inside plate (A5631)
2. Drive wheel (A5629)
3. Outside plate (A5632)

Bearings should be greased at the beginning of the drying season and also after each four week period during continuous operation of the stirring machine. When greasing, use only one shot of grease for each zerk.

Check the following items at the beginning of drying season.

1. Check all belts, shields, and electrical connections.

2. Check shear pins and gearmotor.

3. Check that down augers are not bent or worn out and need replacing.

4. Check that locking collars are tight on bearings.

5. Check reversing switch by manually reversing it.

6. Electrical cords are securely taped out of the way of all moving parts.

7. Check that all bolts and nuts are tight.

DRYING INFORMATION

The Stir-Up/Stirway II stirring machine solved two big problems in grain drying: overdrying and the slow speed of in-silo drying. The advantages that a stirring machine brings to grain drying can be better understood through a few basic principles:

* Air removes water from the grain.
* The more airflow, the faster the drying.
* The warmer the air, the more water can be removed, thus the faster the drying.
* For every 20 degrees F heat rise, relative humidity (RH) is cut by about half.
* The warmer the air, the drier the final grain.

Shown below is a specific example that illustrates these principles.

TABLE 2

Outside Air	Heated to	RH	Dries Grain to	Drying Ratio
70°F60%RH	None	60%	13%	1.0
70°F60%RH	90°F	31%	8%	2.6
70°F60%RH	110°F	17%	6%	4.3

As can be seen in the table above, just by increasing outside air temperature by 20 degrees F (to 90 degrees F), the relative humidity is cut by half, and the drying speed is 2.6 times faster than the original rate. However, this increased drying capacity is offset in that the bottom layers of grain would be overdried to 8%. By raising the drying temperature 40 degrees to 110 degrees F, we have increased our drying speed 4.3 times faster than if no heat were added, but the bottom layers would be overdried to 6%. This overdried grain means wasted fuel, lower quality grain, and wasted time. This has been the continual problem of grain drying in silos; as we speed up drying by increasing drying temperature, we overdry the bottom layers of grain. The stirring machine revolutionized in-silo drying by mixing and loosening the grain so higher temperatures may be used to achieve faster drying rates without overdried layers of grain.

ADVANTAGES OF THE STIR-UP/STIRWAY II

1. Mixing the grain from top to bottom to eliminate overdried layes of grain.

2. Higher temperatures can be used (70 to 120 degrees F), which give much faster drying.

3. Stirring loosens the grain, allowing more airflow, thus increasing drying capacity.

It has, therefore, been our goal to bring the advantages of stirring to both low and high temperature bin drying systems. The Stir-Up/Stirway II brings a low-cost stirring device to those situations that require fast filling yet have plenty of time for stirring and drying the grain. The Stir-Up/Stirway II is an excellent tool in providing greater flexibility to any bin drying or storage systems, either in high or low-temperature systems.

NOTE: Should you desire more stirring capacity, additional down augers may be economically added to your machine at any time. See your Sukup dealer for details.

AIRWAYS

In grain drying a great amount of moisture is being removed from the grain. Because of this, we recommend at least four hatch holes in a 24' diameter bin and that the roof be spaced approximately 3/8" from the top of the side walls to minimize the accumulation of moisture inside the bin. The number of openings should be increased as bin diameter increases.

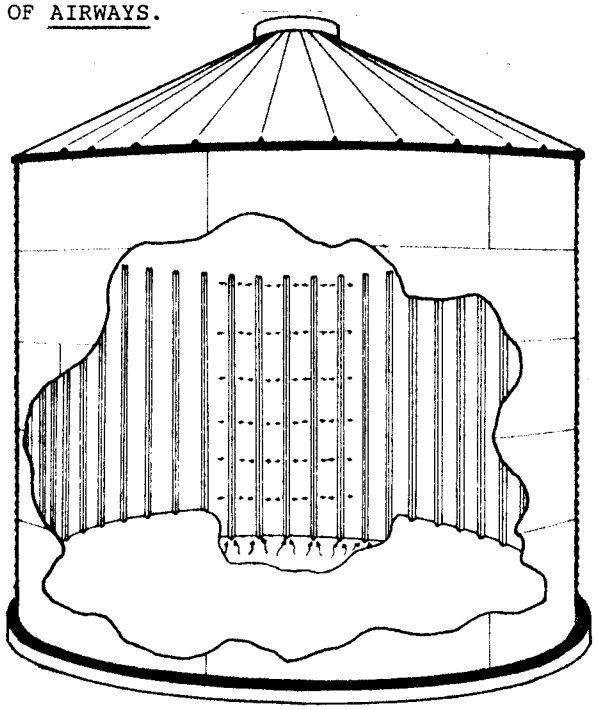
Even with adequate roof openings, problems with wet corn around the bin wall can occur, especially while using high drying temperatures (100° - 140°F) when the outside temperature lowers.

EXAMPLE: When temperatures go below freezing, ice will form on the bin wall. This ice can get up to 1/2" or more thick. When the sun shines on the south sides, the ice will melt, but on the shaded and north sides, it will remain. If you continue filling when this happens, the ice on the shaded sides will be covered over. If you then turn the fan and heater off, thinking the bin is dry, there will still be a layer of ice along the bin wall. When the temperature rises, this ice melts and soaks into the corn, causing caking and spoilage on the wall.

TROUBLE SIGNS TO WATCH FOR:

1. Finding hard spots in bin
2. Opening top hatch and corn smells sour
3. Leakage around middle bin sheets

THESE MAY BE PREVENTED BY THE INSTALLATION OF AIRWAYS.



The Sukup AIRWAYS work like the windshield defrosting system in your car, piping the air from fan and heater to the area where it is needed.

No matter how warm the inside temperature, moisture in the air will cause frost to form on windows in cold weather. This also happens in the bin as the moisture from the grain condenses and freezes on the bin wall, especially when drying extremely wet corn. No stirring auger, no matter how close it gets to the bin wall is able to move this grain once it has frozen to the bin.

AIRWAYS consist of a system of 10' or 12' perforated tubes placed in the floor flashing ever 9" around the bin. Required number of tubes is four times the diameter of the bin. These tubes direct a metered amount of warm air along the bin walls to prevent moisture condensation, thus keeping the grain dry.

TROUBLE SHOOTING GUIDE

⚠ CAUTION !

MAKE SURE ALL POWER IS DISCONNECTED TO THE EQUIPMENT BEFORE BEGINNING ANY SERVICE WORK!

HOW TO CHECK GEARMOTOR:

Set ohmmeter on Rx100 scale to check gearmotor windings for continuity. The reading between lines should be about 60 ohms from black to white and above 80 ohms from red to blue. There should be no reading (infinity) from any of the leads to ground.

HOW TO BENCH TEST GEARMOTOR:

A short pigtail with plug is required. Cord and plug must be for 230v. Connect wires as follows: See Fig. 26.

1. Connect black and red wires from gearmotor windings to black wire of test pigtail.
2. Connect blue wire from gearmotor windings to one terminal of capacitor.
3. Connect other side of capacitor and white wire from gearmotor to white wire of test pigtail.
4. Plug test pigtail into 230v. source. If gearmotor does not run, see gearmotor section of trouble shooting.
5. To reverse direction, disconnect pigtail from power source. Interchange red and blue wires from gearmotor windings.

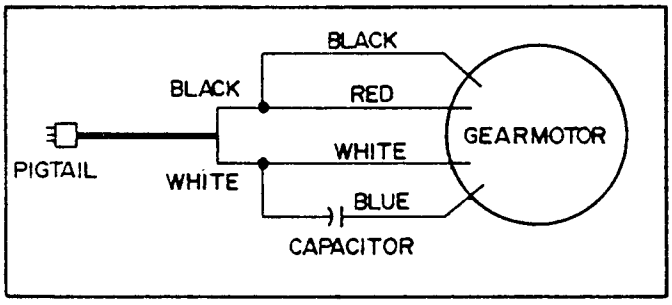


FIG. 26 - GEARMOTOR BENCH TEST

HOW TO CHECK A CAPACITOR:

Set ohmmeter on Rx100 scale. Place leads on terminals of capacitor. This initial connection will slightly charge capacitor. Next, interchange meter leads, the ohmmeter should go to approximately half scale and then slowly drop back to infinity. Interchange leads again - the same should occur. A constant reading of 0 or infinity indicates a bad capacitor.

⚠ CAUTION!

The following procedure is to be used only by experienced electricians.

Electrical shock can cause serious injury or death.

KEEP AWAY FROM "HOT" ELECTRICAL WIRES. KEEP AWAY FROM ALL MOVING PARTS.

HOW TO CHECK REVERSING SWITCH:

Shut off power. Disconnect reversing switch wires from gearmotor junction box. Turn on power and use voltmeter.

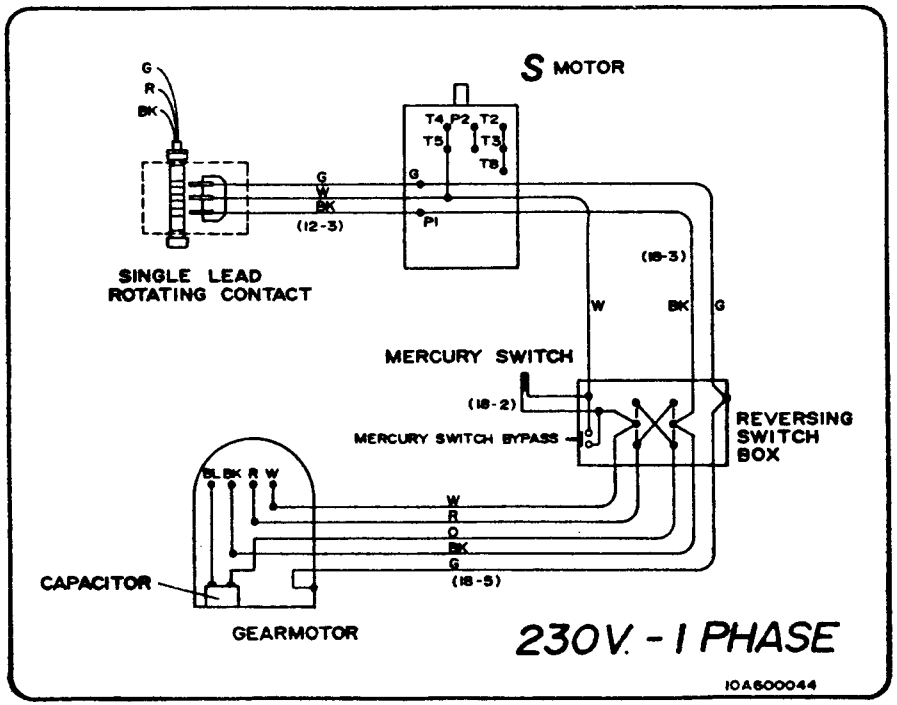
1. Connect one meter lead to the BLACK reversing switch wire (this lead will remain on the black wire for all of the test).
2. Connect the second meter lead to the WHITE wire. A voltage reading of 230V should be present with reversing switch in either direction. If no voltage is present, check all mercury switches.
3. Now connect second meter lead to RED reversing switch lead. With toggle pointting towards center of bin, meter should show same voltage as set #2. With toggle in opposite direction, meter should read 0 volts.
4. Use same procedure with ORANGE wire. The reading with respect to toggle switch position will be opposite of step #3.

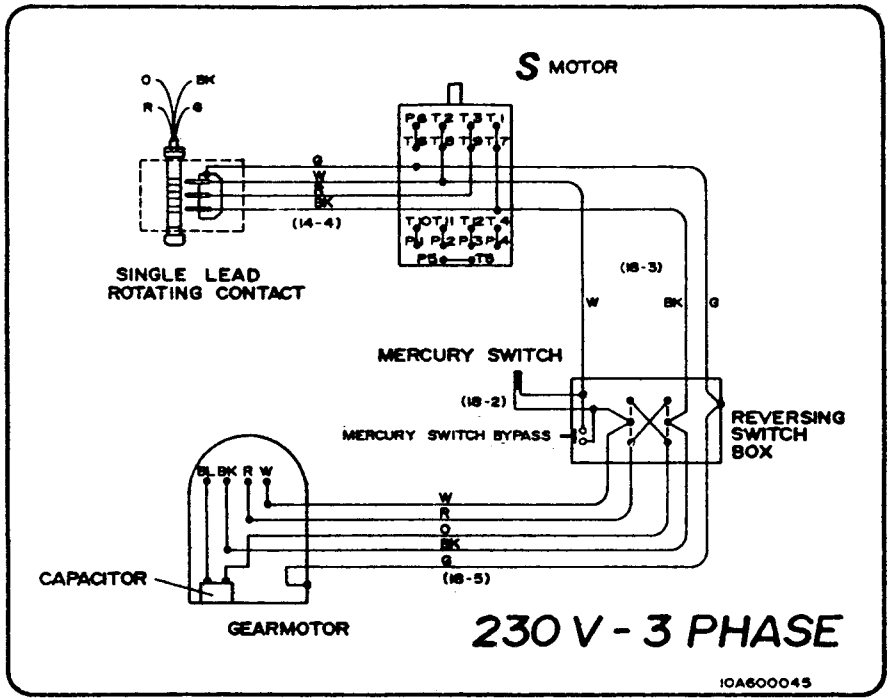
TROUBLE SHOOTING GUIDE

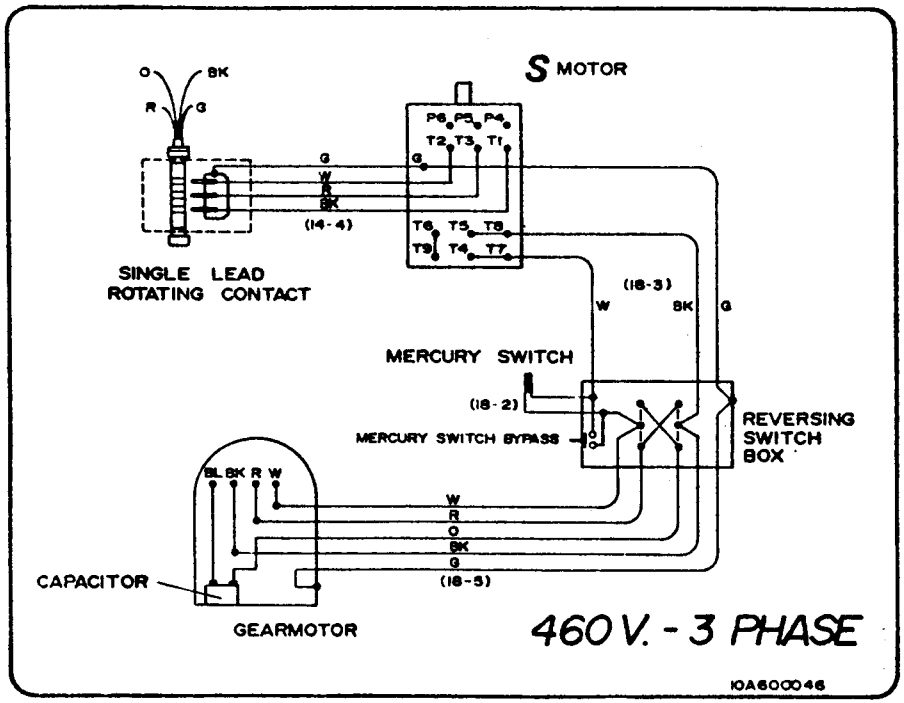
PROBLEM	REASON	SOLUTION
1. Gearmotor not turning.	No electricity.	Check plug-in with volt meter for proper voltage.
	Automatic thermal overload shut off. 230V to 115V gearmotor or 115V to 230V gearmotor.	Check plug-in for proper voltage. Also, check for binding or obstruction on track or tube.
	Weak thermal overload in field of gearmotor.	Replace field in gearmotor.
	Gears may be out of gearmotor.	Feel if gearmotor is running. If so, gears must be replaced.

TROUBLE SHOOTING GUIDE

	PROBLEM	REASON	SOLUTION
1.	Gearmotor not turning.	Capacitor bad.	Replace capacitor.
		Mercury switch(es) on augers shutting off gearmotor on center hanger.	Hold in bypass button on reversing switch, page 11. If gearmotor turns, mercury switch is improperly adjusted or faulty.
2.	1½hp motor not turning.	Thermal overload shut off.	Press re-set button. May be running on 115V. Must be on 230V except on 460V units.
3.	1½hp motor running slow, lacking power.	Wired 115V or one fuse blown.	Must be 230V. Use tester.
4.	Crosstube not turning.	Shearpin sheared.	Replace pin.
5.	Crosstube not moving forward on track.	Shearpin sheared on gearmotor.	Replace shearpin.
		Bearings in outer drive bad.	Replace bearings.
		Races slipping on outer crosstube slug.	Replace outer crosstube slug.
		Obstruction on track.	Remove obstruction.
6.	Breaking reversing switch or switch not reversing.	Wrong installation.	Install so that switch rod is extending in direction of travel.
		Loose connection.	Check tabs on capacitor. Must be tight. All electrical connections must be tight.
		Incorrect wiring to reversing switch.	Check for 230V which must enter reversing switch.
		Broken wires.	Install new switch or rotating contact WIRE if old one has become broken or frayed.
7.	Vibration	Bent down auger.	Straighten or install new down auger.
		Large pulley split or bent.	Replace pulley.
8.	Broken belt.	Belt not properly aligned.	Adjust motor pulley.
			Check that top and bottom carriage plates are same distance apart on all 4 corners (see page 11).
			Adjust motor pulley.
9.	Down auger trailing excessively.	Flighting worn off of down auger.	Replace auger.
10.	Machine hitting top of bin.	Track installed too high.	Lower track.
11.	Down auger getting ahead.	Crosstube not traveling around bin.	Check drive assembly.
		Hard spot or concentration of fines in center of bin.	Remove some grain from center of bin (truck or wagon load).
12.	Cannot get drying air hot enough.	LP gas vaporizes too slowly.	Provide vaporizer on burner.
13.	Carriage moving in wrong direction.	Wired incorrectly.	Remove toggle switch from reversing switch box and turn around so that switch is pointing towards direction of travel.
14.	Rotating contact shorting out.	Too much moisture in center of bin.	Open center roof opening so moisture can escape.







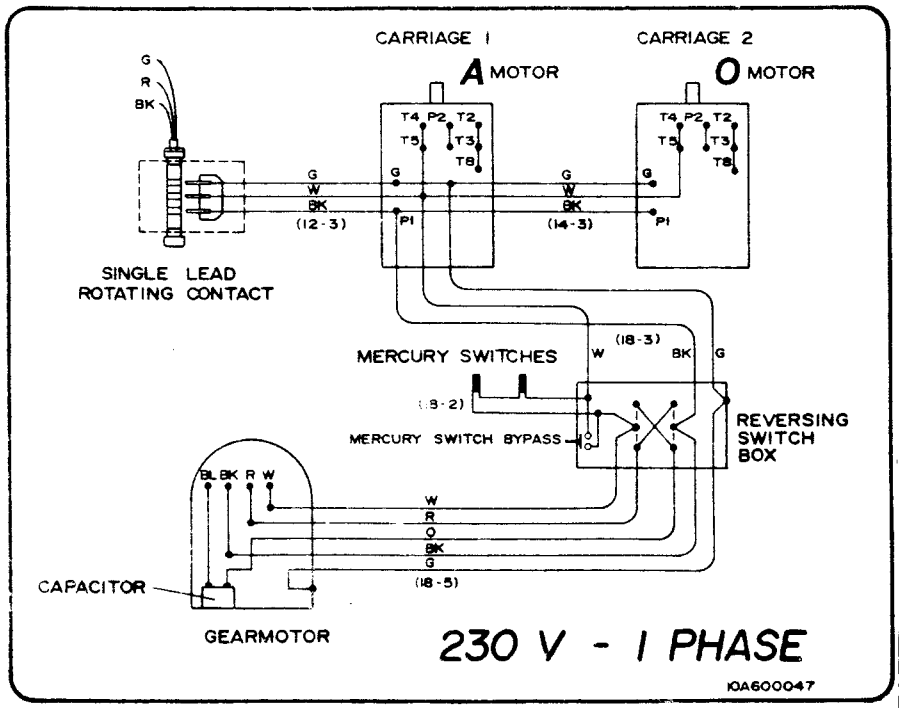
SINGLE AUGER MACHINE
1 1/2 HP MOTOR
STIR-UP
W/230 V. GEARMOTOR

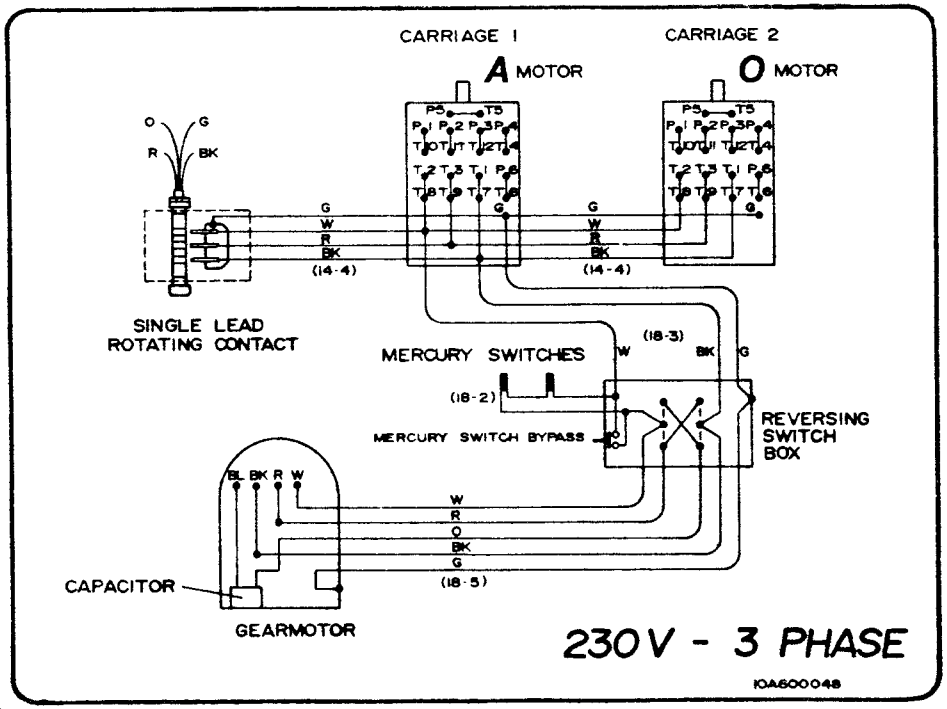
WIRE COLOR CODE:
- W - WHITE
- BK - BLACK
- G - GREEN - GROUND
- R - RED
- O - ORANGE
- BL - BLUE

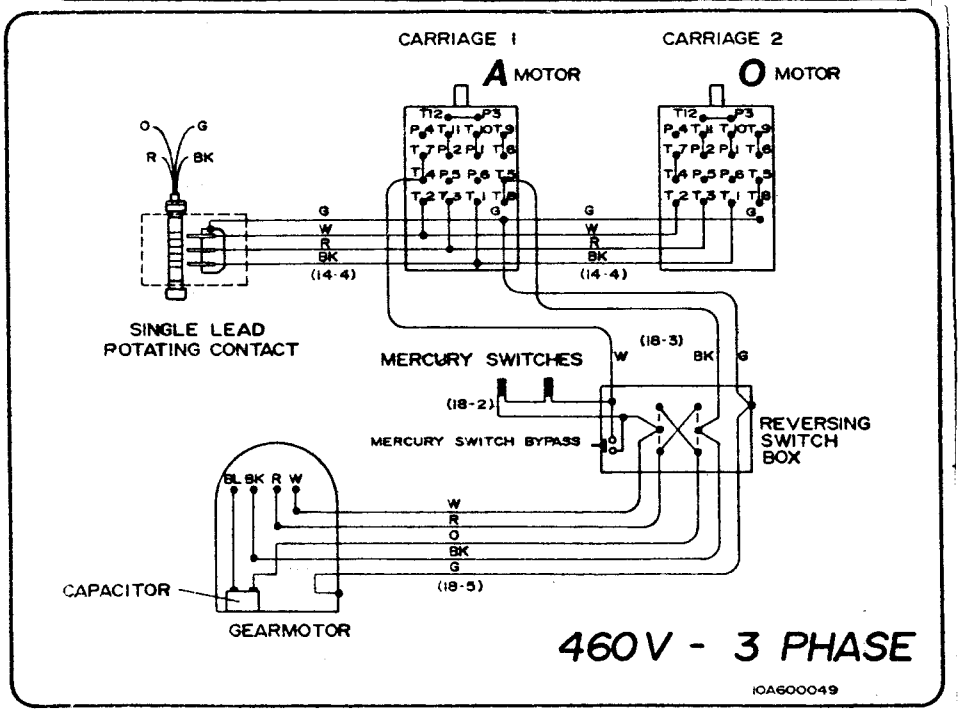
● - WIRE CONNECTION

(18-3) - INDICATES CORD SIZE

THESE DIAGRAMS USE LESSON MOTORS







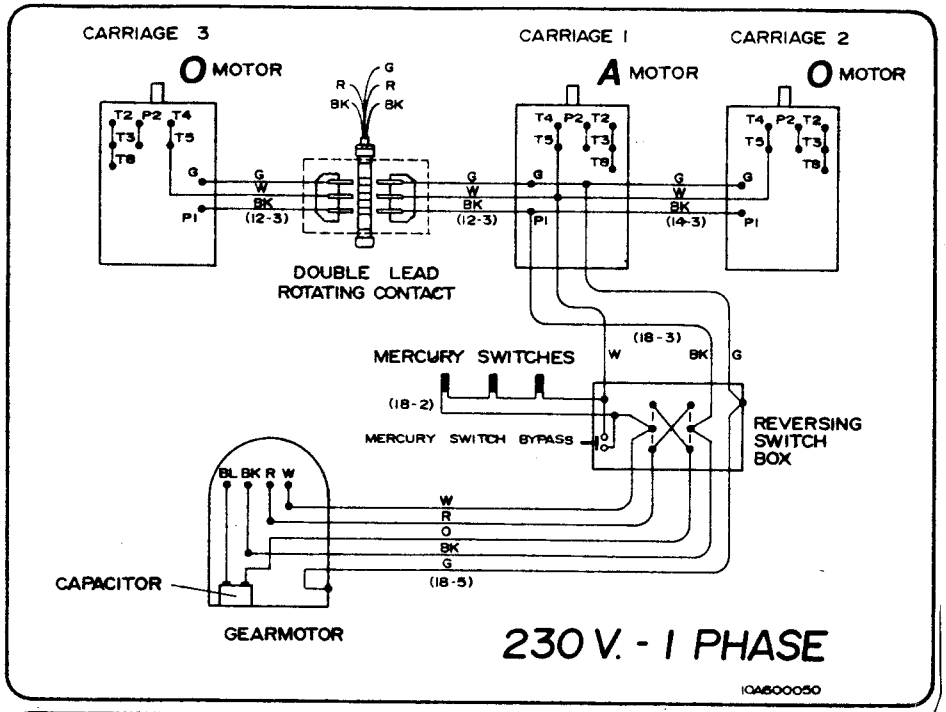
DOUBLE AUGER MACHINE
1 1/2 HP MOTORS
STIR-UP
W/230 V. GEARMOTOR

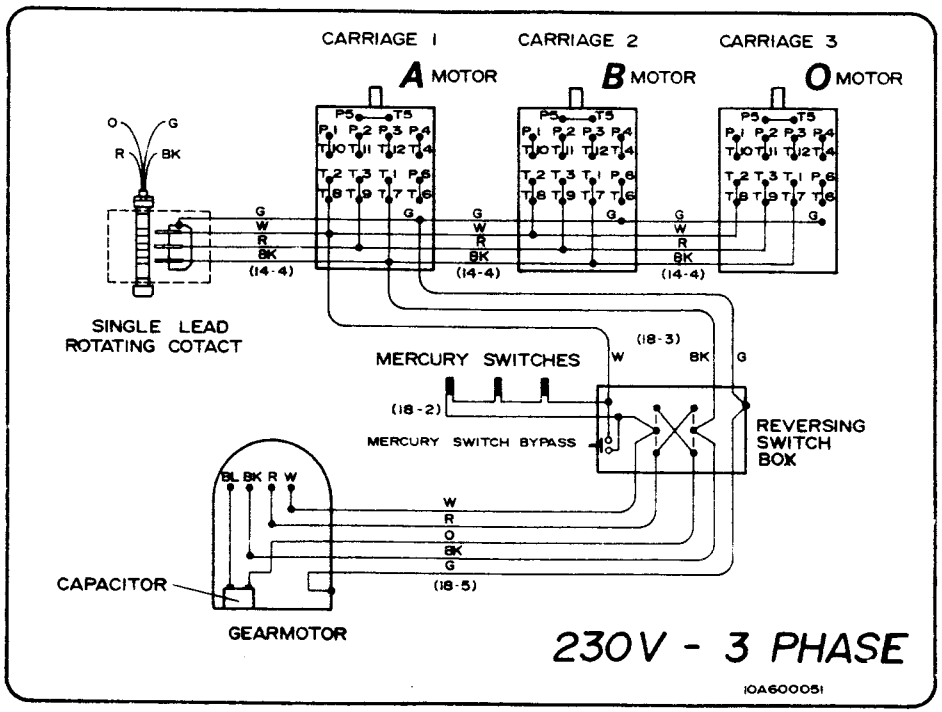
WIRE COLOR CODE: W - WHITE
BK - BLACK
G - GREEN - GROUND
R RED
O ORANGE
BL - BLUE

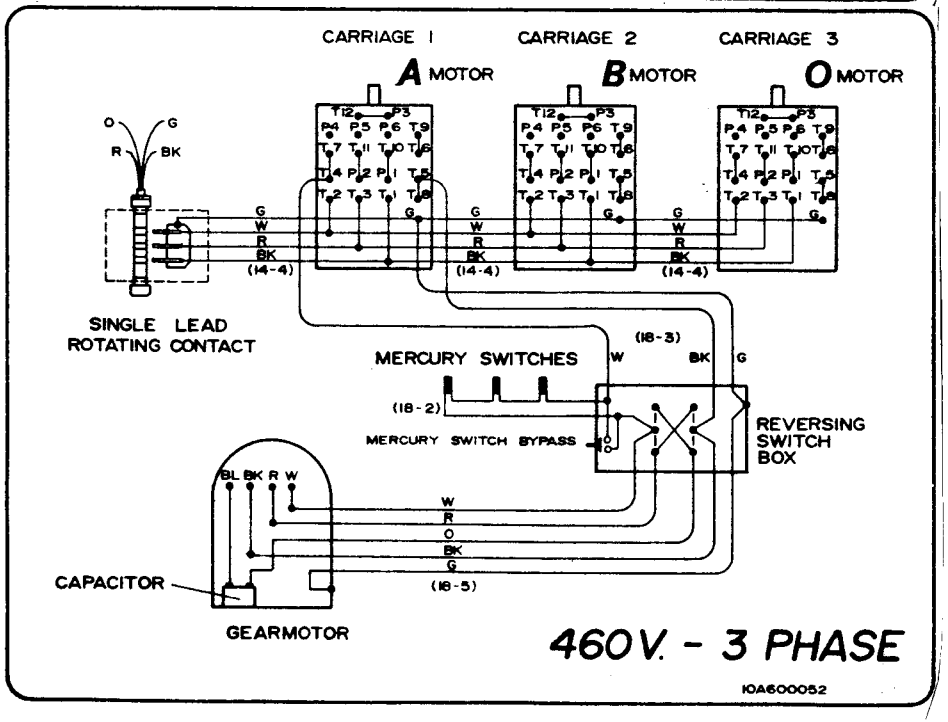
● - WIRE CONNECTION

(18-3) - INDICATES CORD SIZE

THESE DIAGRAMS USE LESSON MOTORS







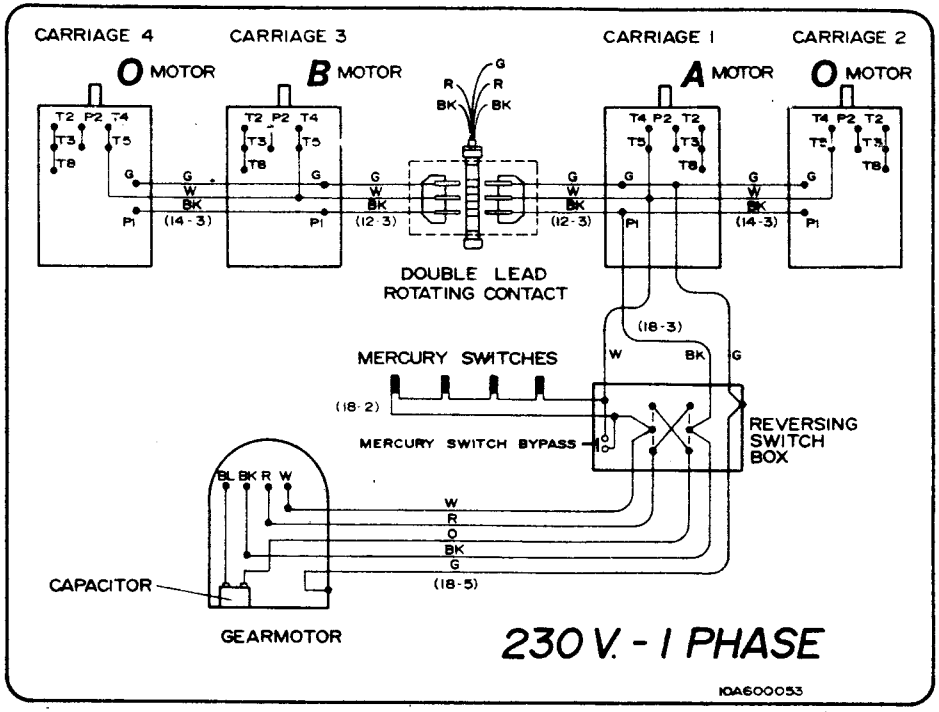
TRIPLE AUGER MACHINE
1 1/2 HP MOTOR - 1725 RPM
STIR-UP & STIRWAY II
W/230 V. GEARMOTOR

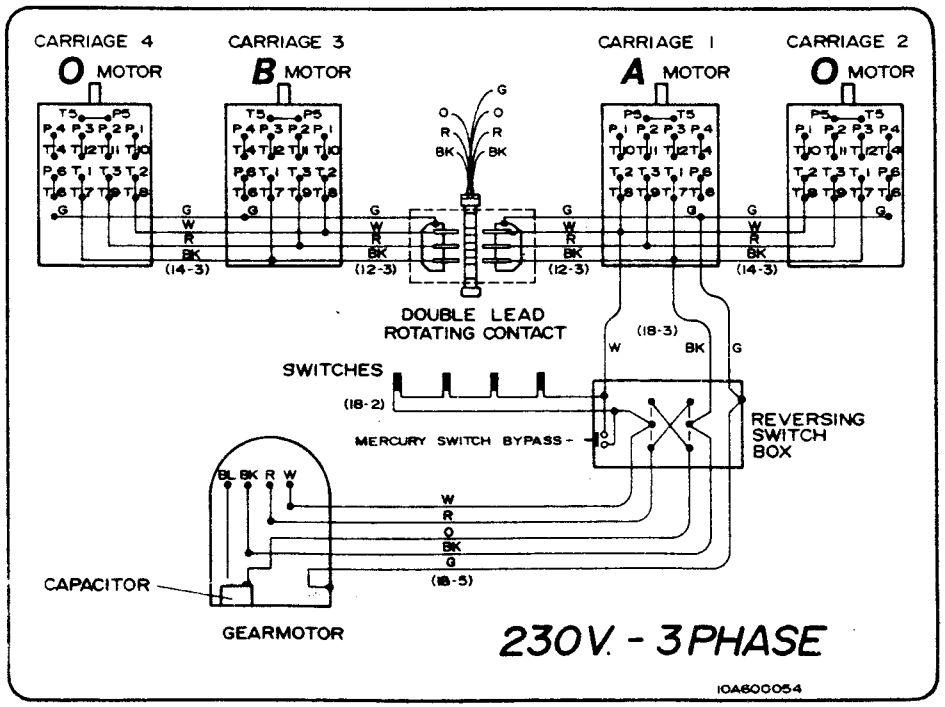
WIRE COLOR CODE:
- W - WHITE
- BK - BLACK
- G - GREEN - GROUND
- R RED
- O ORANGE
- BL - BLUE

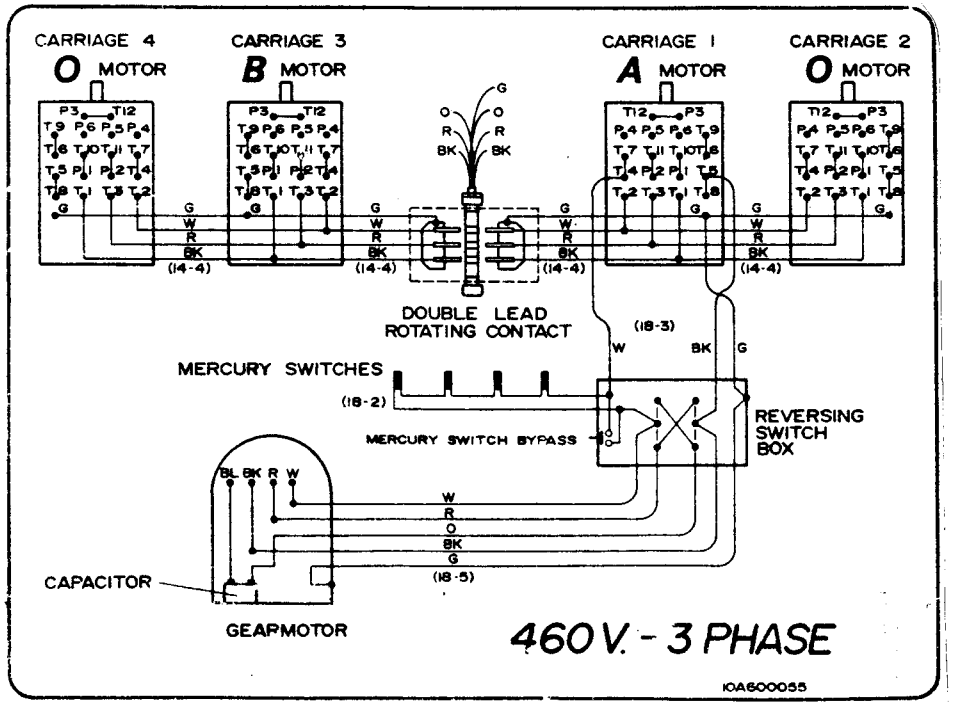
● - WIRE CONNECTION

(18-3) - INDICATES CORD SIZE

THESE DIAGRAMS USE LESSON MOTORS







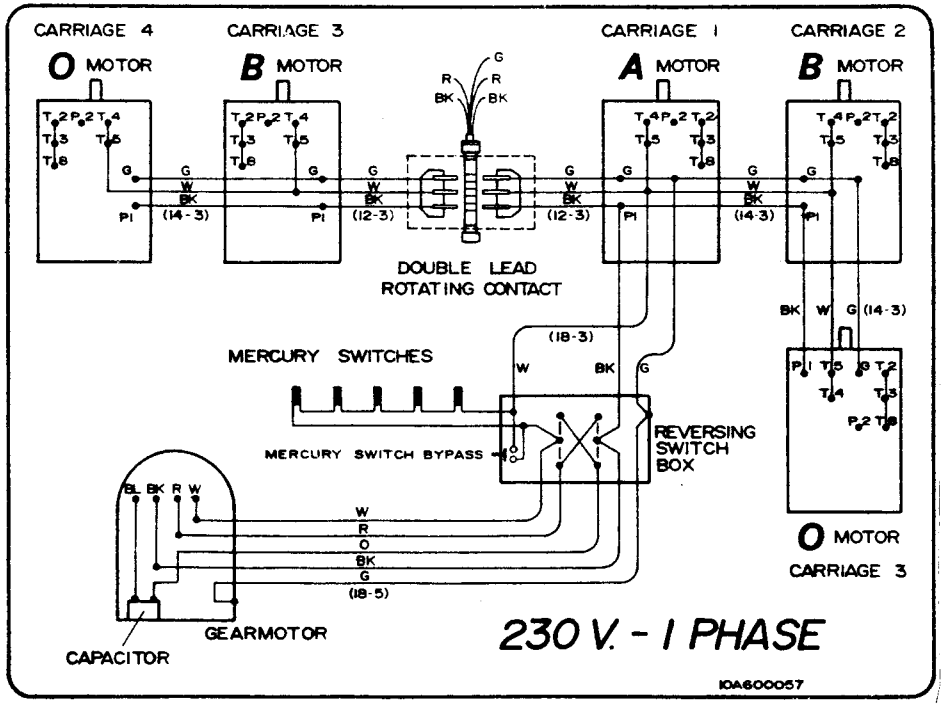
QUAD - FOUR AUGER MACHINE
1 1/2 HP MOTORS - 1725 RPM
STIRWAY II
W/230 V. GEARMOTOR

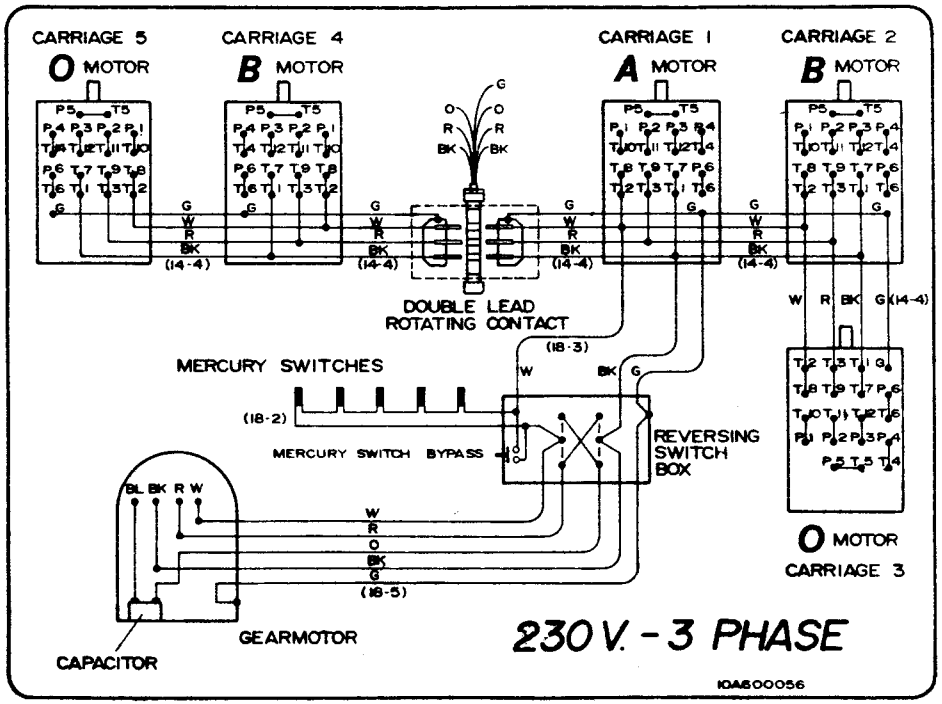
WIRE COLOR CODE:
- W - WHITE
- BK - BLACK
- G - GREEN - GROUND
- R RED
- O ORANGE
- BL - BLUE

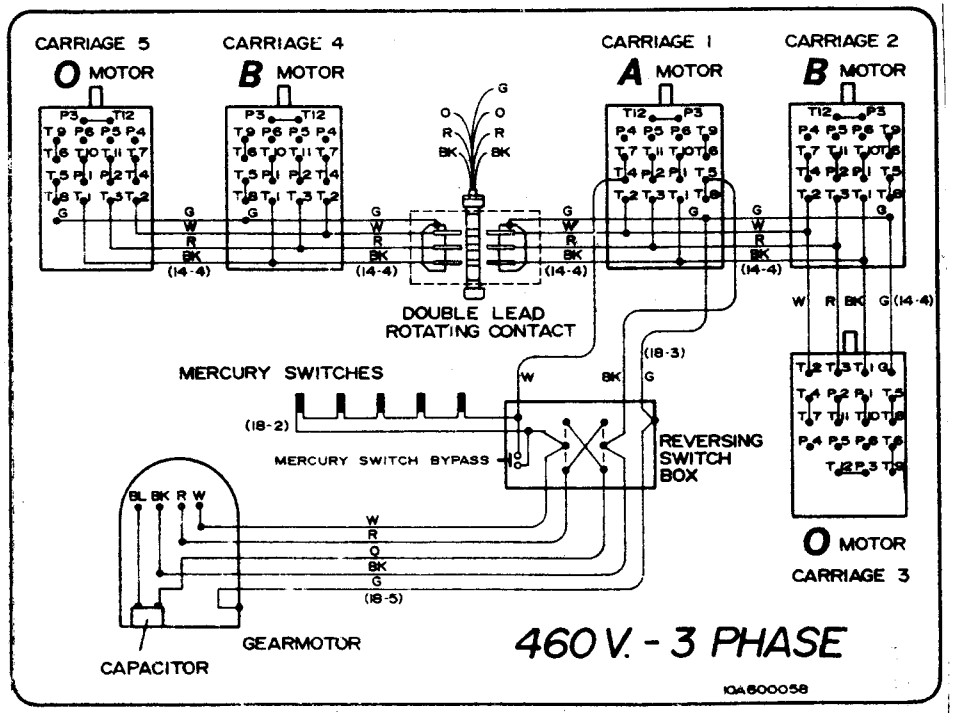
● - WIRE CONNECTION

(18-3) - INDICATES CORD SIZE

THESE DIAGRAMS USE LESSON MOTORS







QUINT - FIVE AUGER MACHINE
1 1/2 HP MOTOR - 1725 RPM
STIRWAY II
W/230 V. GEARMOTOR

WIRE COLOR CODE:

- W - WHITE
- BK - BLACK
- G - GREEN - GROUND
- R RED
- O ORANGE
- BL - BLUE

● - WIRE CONNECTION

(18-3) - INDICATES CORD SIZE

THESE DIAGRAMS USE LESSON MOTORS

TRACK

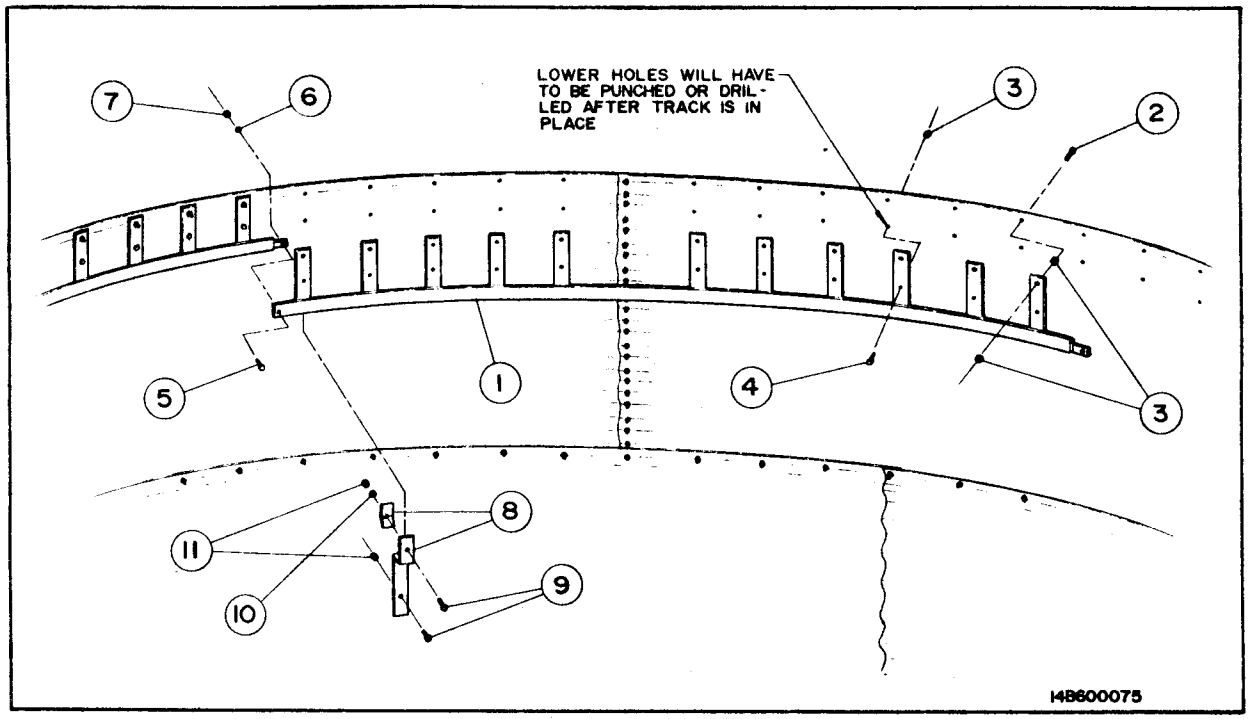


FIG. 27 - TRACK

PARTS LIST

Ref. No.	Part# Bndl.	Part# Ea.pc.	Description	Lgth.	Req.
1	A5700	A5719	15'-18'	Sgl Brk (109 5/8)	1
	A5701	A5728	18'7"	" " (114 3/4)	
	A6810		Bolt Sack Track 18'		
	A5702	A5720	21'	" " (110)	
	A5703	A5728	21'8-22'*	" " (114 3/4)	
	A6811		Bolt Sack Track 21'		
	A5704	A5721	23'6-24'	" " (110 3/8)	
	A5705	A5728	24'8"	" " (114 3/4)	
	A6812		Bolt Sack Track 24'		
	A5706	A5722	26'6-27'	" " (110 3/4)	
	A5707	A5728	27'10"-28'*	" " (114 3/4)	
	A6813		Bolt Sack Track 27'		
	A5708	A5723	29'4-30'	Dbl Brk (110 7/8)	
	A5709	A5729	31'	" " (114 3/4)	
	A6814		Bolt Sack Track 31'		
	A5710	A5724	33'	" " (111)	
	A5711	A5729	34'	" " (114 3/4)	
	A5712	A5725	36'	" " (111 1/2)	
	A5713	A5729	37'1"	" " (114 3/4)	
	A6815		Bolt Sack Track 36'		
	A5714	A5726	40'2"-42'	" " (111 1/2)	
	A6816		Bolt Sack Track 42'		
	A5715	A5727	48'	" " (111 11/16)	
	A6817		Bolt Sack Track 48'		

*Must include short track section (A5718)

Ref. No.	Part# Bndl.	Description	Req/Section SB*	DB**
2	J0555	Bolt 5/16-18x1-1/4 Gr5	7	11
3	J1002	Nut 5/16 -18	21	33
4	J0527	Bolt 5/16-18x1	7	11
5	J0606	Bolt 3/8-16x1 Gr5		1
6	J1205	Lockwasher, 3/8		1
7	J1020	Nut 3/8-16		1

*Single bracketed **Double Bracketed

Optional:

Ref. No.	Part No.	Description	Req'd
		The following support is optional. One used at each track splice for additional support. Bracket A5717 includes hardware listed.	
8	A5717	Track support bracket	1
9	J0555	Bolt 5/16-18x1-1/4 bin blt Gr5	2
10	J1200	Lockwashers,5/16	1
11	J1002	Nut 5/16-18	2

The short track section is needed on some bins to complete track ring. Listed with short section is hardware needed to hang one piece.

A5718	Short track section, 18-1/2	1
J0555	Bolt 5/16-18x1-1/4" bin blt Gr5	2
J1002	Nut 5/16-18	4
J0527	Bolt 5/16-18x1	2
J0606	Bolt 3/8-16x1 Gr5	
J1205	Lockwasher, 3/8	1
J1020	Nut 3/8-16	1

OUTSIDE DRIVE

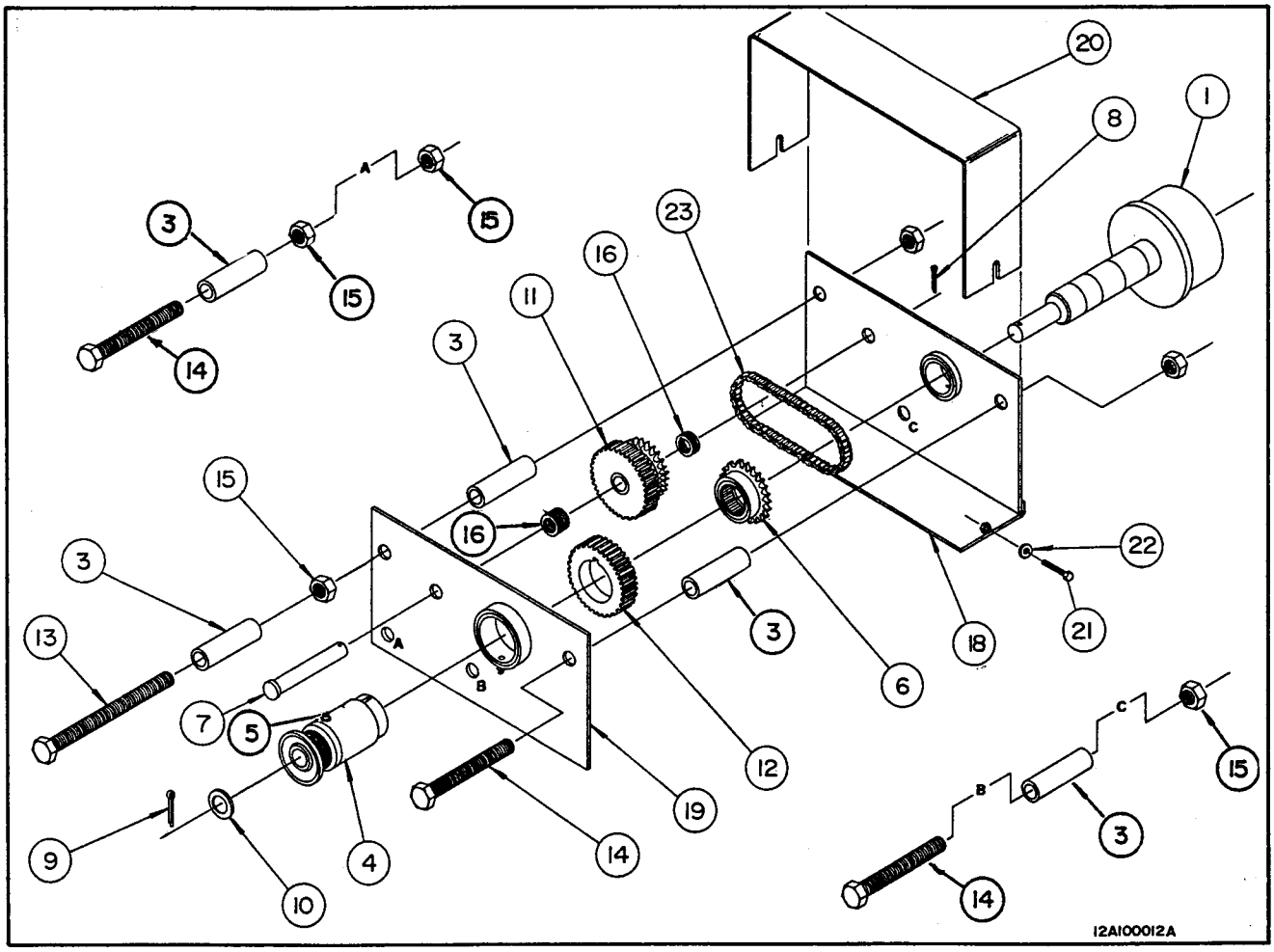


FIG. 28 - OUTSIDE DRIVE PARTS

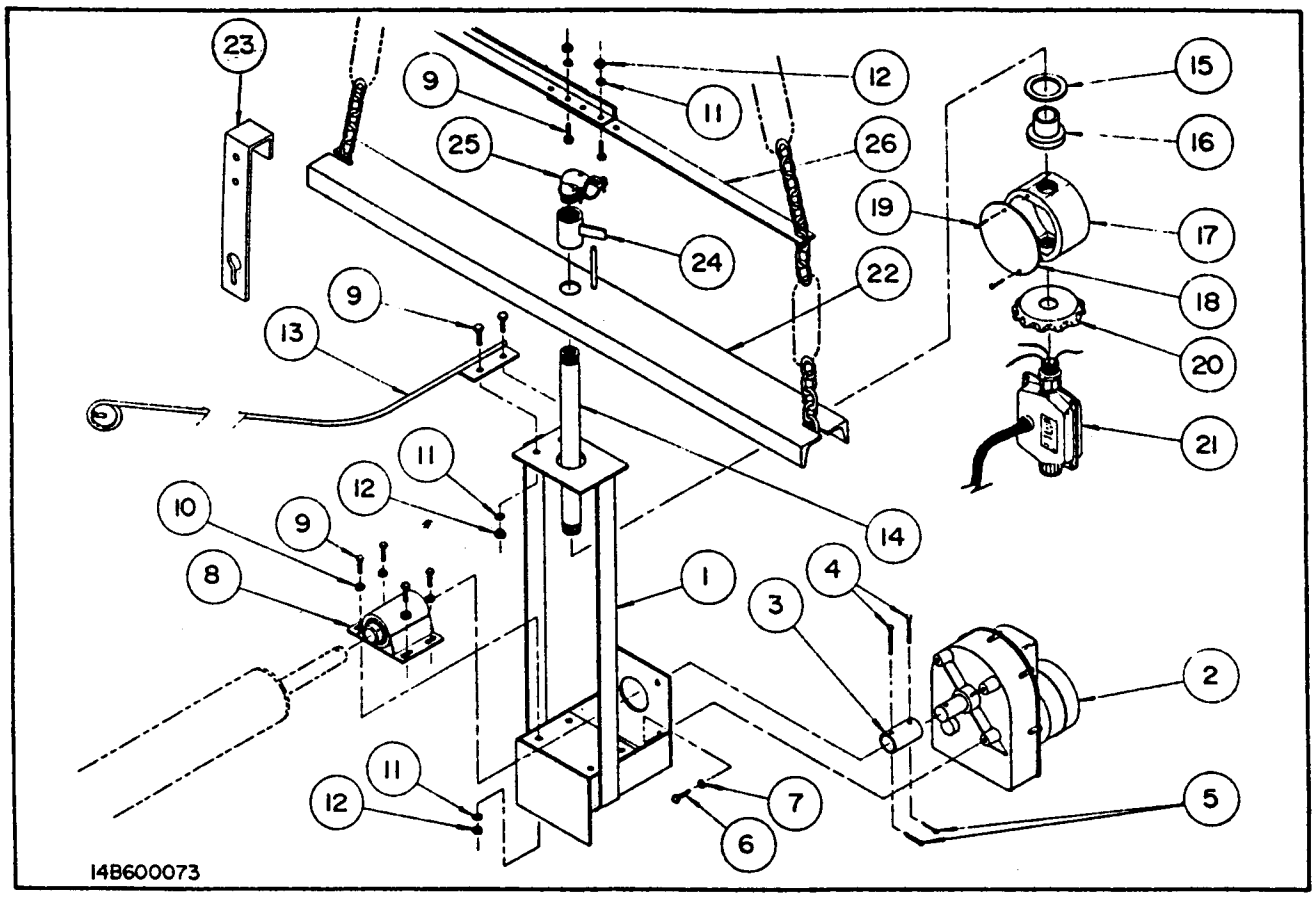
PARTS LIST

Ref. No.	Part Description	Req'd	No.
	Compl. drive assy less slug		A5650
*	Compl. drive assy less slug H.D.		A5670
1	Outr slug only w/races 2-7/8"	1	A5639
	" " " " 3-1/2"		A5626
	" " " " 4-1/2"		A5627
3	Spcr pipe 1/2x2-1/4"lg	5	A5628
4	Drive wheel assy w/brgs	1	A5629
5	Grease zerk, 1/4"	3	J3605
6	Sprocket 40B16x1-5/8" w/ roller clutch	1	A5655
7	Picker pin, 1/2 x 3	3	J1560
8	Cotter pin, 1/8 x 1	1	J1420
9	Cotter pin, 3/16 x 1	1	J1430
10	Machine bushing, 3/4	1	J1260
11	Gear, 42 tooth & 40B16 sprkt assembly w/bushings	1	A5630
12	Gear, 42 tooth w/keyway & ss	1	A5648
	set screw	2	J1078
	woodruff key	1	J3600

Ref. No.	Part Description	Req'd	No.
13	Bolt, 1/2 - 13 x 6 Gr5 Tap	1	J0765
14	Bolt, 1/2-13 x 3-1/2 Gr5 HHCS	3	J0754
15	Nut, 1/2 - 13 Plt	7	J1040
16	Machine bushing, 1/2	10	J1250
17	Flat washer, 1/2 (not shown)	1	J1125
18	Inner sideplate	1	A5631
	brass bushing 1-3/8"	1	A5652
19	Outer sideplate	1	A5632
	brass bushing 2-1/4"	1	A5653
20	Shield	1	A5633
21	Bolt, 1/4 x 1"	2	J0508
22	Flat washer, 1/4	2	J1105
23	Chain, #40, 29 links		A5634
	w/J1750 Chain, #40, 1/2 link.	1	

* For 48' Crosstube

CENTER HANGER



Ref. No.	Description	Req'd.	Part No.
1	Center hanger, 24"	1	A5600
	Offset cntr hger, 30"		A7503
	offset center hanger	1	A7504
	reversing plate	1	A5959
2	Heavy Duty grmtr 230v	1	A5319
	Extra Heavy Duty Gearmotor	1	A5299**
3	Tube coupler, 1" ID	1	A5318
4	Picker pin, 1/4" x 1-1/2	2	J1538
5	Cotter pin, 1/16 x 3/4"	2	J1419
6	Bolt, 5/16-18 x 3/4" Gr5	4	J0520
7	Lockwasher, 5/16"	4	J1200
8	Pillow block w/1" brgs	1	A5649
	" " w/1-1/4" brgs		A5651**
	Cntr brg for pillow blck 1"		J0030
	" " " " " 1-1/4"		J0039
9	Bolt, 3/8 - 16 x 1" Gr5	8	J0606
10	Flat washer, 3/8"	4	J1117
11	Lockwasher, 3/8"	8	J1205
12	Nut, 3/8 - 16	8	J1020
13	Cord hanger	1	A5609
	Extra long cord hanger		A5598
14	Hgr pipe, 8" x 1"	1	A5603*
	" " 24" x 1"		A5604
	" " 32" x 1"		A5605
	" " 48" x 1"		A5607
	" " 62" x 1"		A5606
	" " 78" x 1"		A5608

Ref. No.	Description	Req'd.	Part No.
15	Brass washer	1	A5601
16	Cast bushing	1	A5602
17	Cast elec. junction box	1	A5612
18	Junction box cover	1	A5658
19	Screw,10-32,1/2,SHW Hd S.Tap	3	J0478
20	Drip plate	1	A5611
21	Rotating contact	1	
	(See separate breakdown for sizes)		
22	Channel hgr, reg w/5'chain	1	A4801
	" " "HD w/6' chain		A4803
23	J-hangers (Sept 91 & newer)	2	A7509
24	Coupling w/tab	1	A5610
25	Electrical elbow (Not included)		-----
26	Chain spreader bar kit(opt)	1	A5635
	(Kit includes hdwe & instructions)		

*For hanger pipe length needed, see manual Page 30.

** For 40' and larger bins.

ROTATING CONTACT (PATENTED)

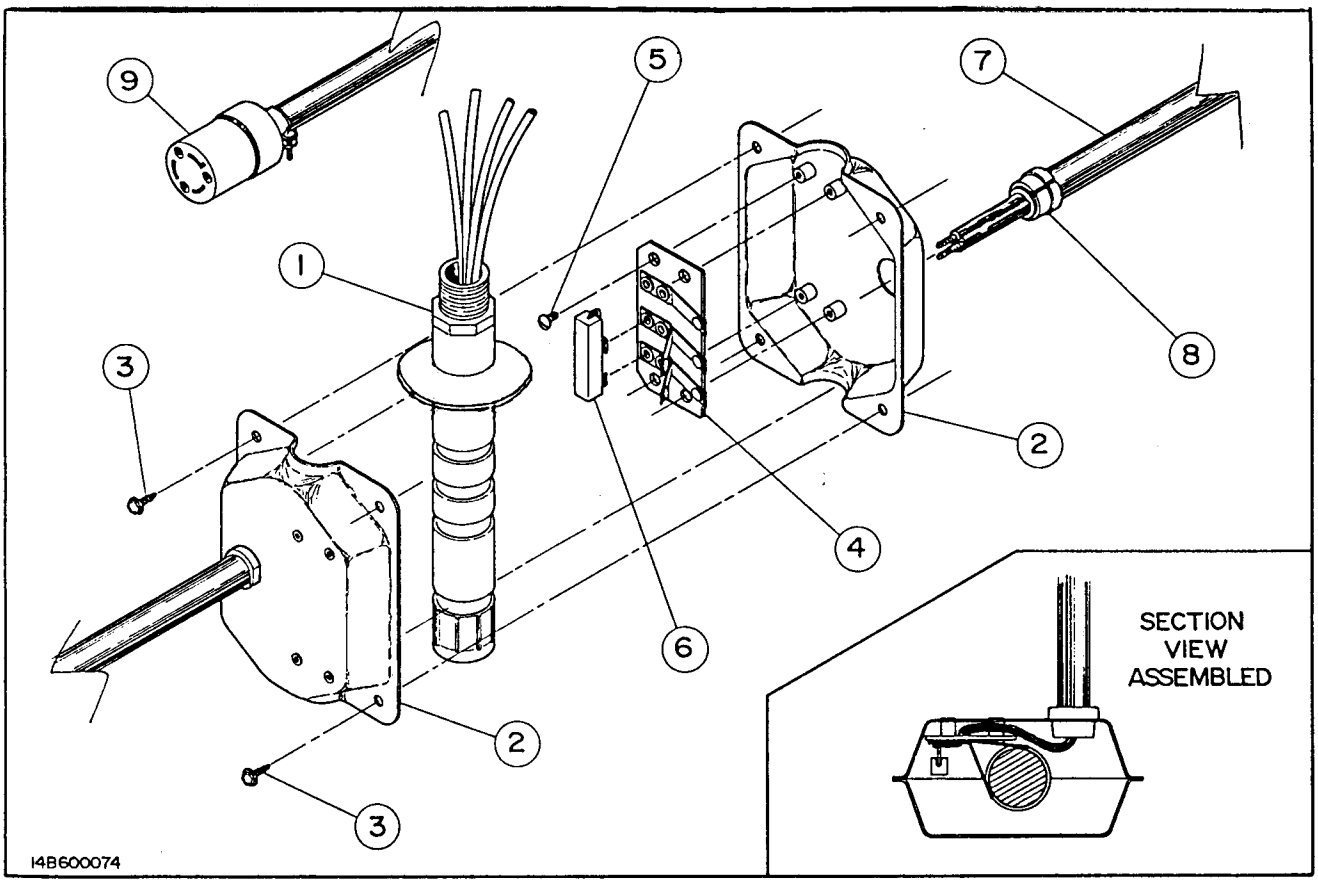


FIG. 30 - ROTATING CONTACT PARTS

PARTS LIST

Ref No.	Part Description	Req'd	Part No.
1	Rot. cont.cntr, 3wire 1ph	1	A5558
	" " " 4 " 3ph		A5559
	" " " 5 " 1ph		A5585
	" " " 7 " 3ph		A5560
2	Rotating Contact, Can, SINGLE	1	A5549
	Can, Lead Side Only		A5594
	Can, Side Only, Single		A5595
3	Screw,#8-18x1/2,PLT S Drill	4	J0460
2	Rotating Contact, Can, DUAL	1	A5550
	Can, Lead Side Only		A5594
	Can, Side Only, Dual		A5596
3	Screw,#8-18x1/2,PLT S Drill	4	J0460
4	Cont. bd 1ph w/htr 3 term	1*+	A5563
	" " w/o htr 3 terminals		A5578
	" " 3ph w/htr 3 terminals		A5561
	" " 3ph w/o htr 3 terminals		A5580
	" " 460V 3ph w/htr,3 term.		A5582
5	#6-32x1/4 pan head mach screw	4*	J0455
6	Contact board heater,230v....	1	J5530
	" " " ,460v,40k		J5532
7	Cord 12-3,state lgth req	1*	K6331
	Cord 14-4 " " "		K6401
8	8P-2 Heyco bushing	1*	J5000
9	3 prong female plug 2494	1*	J3720
	4 prong female plug 2456,460v, wired direct		J3730

*Number required for sg'l lead. Double numbers required for dual lead. +Single lead contacts require 1 board w/htr. Dual lead contacts require 1 board w/heater, 1 without.

The following are complete rotating contacts w/cords. Listed are replacement cord lengths. State length required if different.

Part#	Volts	#Leads	Ph	Spool Wire	Cord Lngth
A5504	230	Single	1	3	17'10"
A5532	230	Single	3	4	17'10"
A5539	460	Single	3	4	19'2"
A5478	230	Dual	1	5	24'10 - 10'10"
A5479	230	Dual	1	5	27'10 - 10'10"
A5483	230	Dual	3	7	24'10 - 10'10"
A5548	460	Dual	3	7	26'2 - 11'4
The following are rotating contacts w/o cord.					
A5551	230	Single	1	3	N/A
A5553	230	Single	3	4	N/A
A5554	460	Single	3	4	N/A
A5555	230	Dual	1	5	N/A
A5556	460	Dual	3	7	N/A
A5557	230	Dual	3	7	N/A

Notes: Can should be sealed w/tub & tile caulk. Spool should spin freely after assembly. If spool binds, find and correct problem before installing on stirring machine.

GEARMOTOR

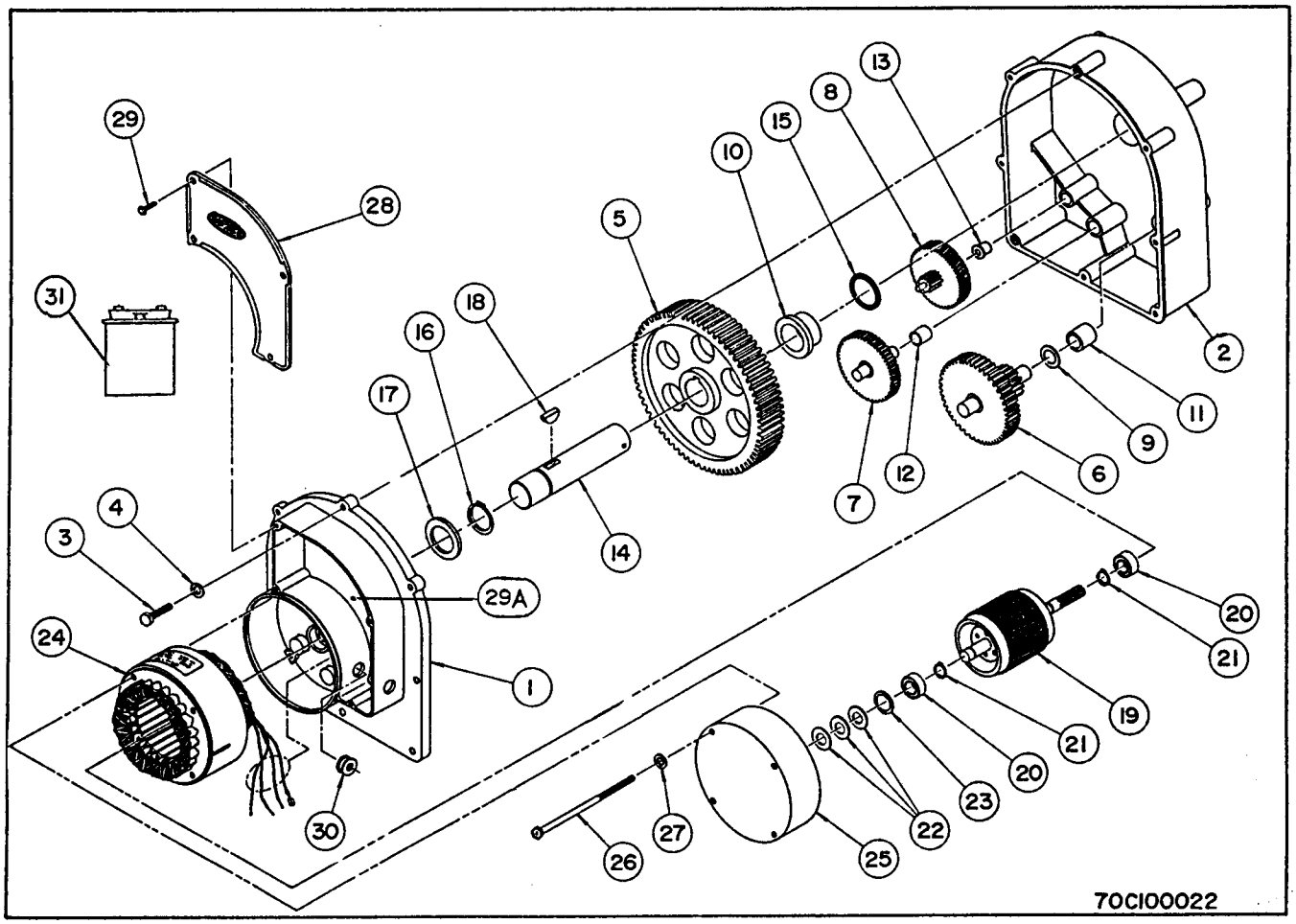


FIG. 31 - GEARMOTOR PARTS

Ref No.	Description	Req'd	Part No.
	Gearmotor,HD, 230v, Reg, W/Capctr	1	A5319
1	Case, Top, W/Junc Box & Bushings	1	A5301
10	Bushing, #1 Shaft	1	J3500
11	Bushing, #2 Shaft	1	J3505
12	Bushing, #3 Shaft	1	J3510
13	Bushing, #4 Shaft	1	J3515
2	Case, Bottom, W/Bushings	1	A5302
10	Bushing, #1 Shaft	1	J3500
11	Bushing, #2 Shaft	1	J3505
12	Bushing, #3 Shaft	1	J3510
13	Busning, #4 Shaft	1	J3515
15	O/Ring, 214, .984ID x .139C/S	1	J3540
6	Gear, #2, (Fiber, 65 Teeth)	1	A5304
7	Gear, #3, (Fiber, 61 Teeth)	1	A5305
8	Gear, #4, (Fiber, 72 Teeth)	1	A5306
14	Shaft, Output, HD GRMTR, 1x4.75"L	1	A5308
19	Armature & Shaft, 230V, Fasco	1	A5310
20	Bearing, .375 ID, .875 OD	2	J0015
21	Snap Ring, .37, 5100-37, Truarc	2	J3580
5	Gear, #1 (Large Metel, 72 Teeth)	1	A5321
25	Cover, Field, End Bell	1	A5325
29	Screw, #10-32, 1/2, SHWH, Self Tap	5	J0478
29A	Ground Screw, ptd green 1/2,SHWH	1	J0478
26	Screw, #10-32, 4.50, PLT, HHMS	4	J0500
3	Screw, 1/4-20, 1, PLT, GR5, HHCS	8	J0508
22	Washer,Spacer, .875 OD x .375 ID	3	J1145
9	Washer, Flat, .875OD, .505, .010	1	J1150
23	Washer, Wafer Spring,WO-8551	1	J1160
4	Washer, Lock 1/4 Split	8	J1195
17	Bushing, Machine, 1- 18Ga	1	J1266
16	Snap Ring, 1.00, 5100-100 Truarc	1	J3585

Ref No.	Description	Req'd	Part No.
18	Key, Halfmoon, HD, .25 x .75 (806)	1	J3600
24	Stator, 230V, Reg & HD	1	J3625
31 *	Capacitor, 5MFD, 370V	1	J4930
30	Grommet, Rubber, #2335, 1/4 x 5/8"	1	J4971
28	Junction Box Lid	1	A5311
	Gearmotor, HD, 115V (Same as A5319 except)		A5300
19	Armature W/Shaft 115V (Fasco)	1	A5309
24	Stator 115V (Fasco)	1	J3620
	Gearmotor, HD, 230V (Same as A5319 except)		A5319L
19	Armature W/Shaft 115v & 230v(Leeson)	1	A5310L
24	Stator, 230V (Leeson)	1	J3626
	Gearmotor, HD, 115V (Same as A5319 except)		A5300L
19	Armature W/Shaft 115v & 230v(Leeson)	1	A5310L
24	Stator, 115V (Leeson)	1	J3621
	Gearmotor, Extra HD, 230v, 40' & larger W/Capacitor/ Steel Gears(Same as A5319 except)		A5299
	Gear, #2, Steel, 65 Teeth Hardnd	1	A5292
	Gear, #3, Steel, 61 Teeth Hardnd	1	A5293
	Gear, #4, Fiber, 72 Teeth Hrd Pinion	1	A53061
	Armature W/Shaft 115v & 230v(Leeson)	1	A5310L
	Stator, 230V (Leeson)	1	J3626

* Capacitor comes installed in gearmotor at factory

SLANTED CARRIAGES

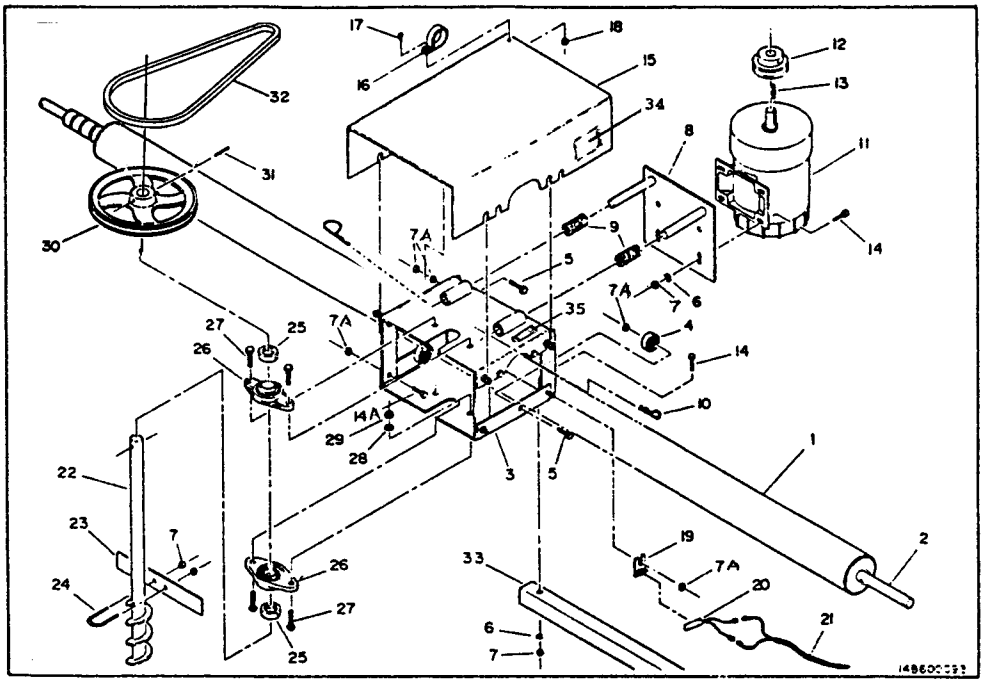


FIG. 32 - SLANTED CARRIAGE PARTS

Ref No.	Description	Req'd	Part No.
1	15'* Crosstube w/dr assy	1	A5102
	17'7 " " "		A5103
	18' " " "		A5104
	18'7 " " "		A5105
	21' " " "		A5107
	21'8 " " "		A5108
	22' " " "		A5109
	22'9 " " "		A5110
	23'6 " " "		A5111
	24' " " "		A5112
	24'8 " " "		A5113
	26'5 " " "		A5115
	27 " " "		A5116
	27'10 " " "		A5117
	28' " " "		A5118
	29'4 " " "		A5119
	30' " " "		A5120
	31' " " "		A5122
	33' " " "		A5123
	34' " " "		A5124
	36' " " "		A5125
	37'1 " " "		A5126
	40' " " "		A5127
	42' " " "		A5128
	48' " " "		A5130
* Refers to bin diameter.			
2	Inner slug 2-7/8"-1" shaft	1	A4805
	Inner slug 3-1/2"-1" shaft		A4806
	Inr. slug 4-1/2"-1-1/4"shft		A4807
3	Carriage(5/8"cant)for 2-7/8 tube w/bearings	1	A5215
	Carriage(1"cant)for 3-1/2 tube w/bearings		A5219
	Carriage(5/8"cant)for 4-1/2 tube w/bearings		A5216
4	Roller bgr 1-1/2"OD 6203RS6C3	6	J0045
5	Bolt, 3/8-16x1-1/4	10	J0616
6	Lockwasher, 5/16"	6	J1200
7	Nut, 5/16-18	12	J1002
7A	Nut, 3/8-16	14	J1020
8	Motor mount	1	A5209
9	Spring, compression 1-1/2" CL x 1/2" ID	2	J2365

Ref No.	Description	Req'd	Part No.
10	Hairpin clip	2	J5410
11	Motor "O" 1-1/2hp 1ph 230v	1	A7725
	Motor "S" 1-1/2hp 1ph 230v		A7720
	Motor "A" 1-1/2hp 1ph 230v		A7721
	Motor "B" 1-1/2hp 1ph 230v		A7728
	Motor "O" 1-1/2hp 3ph 230v		A7729
	Motor "S" 1-1/2hp 3ph 230v		A7730
	Motor "B" 1-1/2hp 3ph 230v		A7731
	Motor "A" 1-1/2hp 3ph 230v		A7732
	Motor "O" 1-1/2hp 3ph 460v		A7733
	Motor "S" 1-1/2hp 3ph 460v		A7734
	Motor "A" 1-1/2hp 3ph 460v		A7735
	Motor "B" 1-1/2hp 3ph 460v		A7736
	(motor includes pulley and key) Motors are wired w/replacement leads.		
12	Pulley, 2-3/4x7/8 "A"	1	J0295
13	Key, 3/16 x 3/16 x 3/4	1	A7522
14	Bolt, 5/16 - 18 x 1"	6	J0527
14A	Bolt, 3/8-16 x 1"	4	J0606
15	Motor shield	1	A5214
	Mtr shield 4-1/2"OD crosstube		A5217
16	Plastic cord holder	1	A5637
17	Screw #10-24 x 1/2"	1	J0514
18	Nut, #10-24	1	J0985
19	Mercury switch bracket	1	A5446
20	Mercury switch 7MP1-46	1	A5445
21	Mercury switch,brckt & cord replacement 9'6"	1	A5424
22	Down auger 15'6 (std.) (other sizes optional)		A4210
23	Flinger	1	A5616
24	U-bolt, 5/16-18x1-3/4"	1	J0810
25	Locking collar	2	J0067
26	Flange brg 1" FHFT 205-16	2	J0003
27	Bolt, 7/16 - 14 x 1-1/4	4	J0700
28	Lockwasher, 7/16	4	J1210
29	Nut, 7/16 -14	4	J1035
30	Pulley 9" "A" gr w/pin hole	1	J0355
31	Rollpin 5/16 x 2-1/4"	1	J1510
32	Belt, 66-4	1	J0180
	Belt AX42 4-1/2" cr tube		J0197
33	Switch frame (specify size		A59--
34	**Warning Decal,Moving Parts**	**1**	**L0284**
35	**Danger Decal,Missing shield**	**1**	**L0271**

REVERSING SWITCH

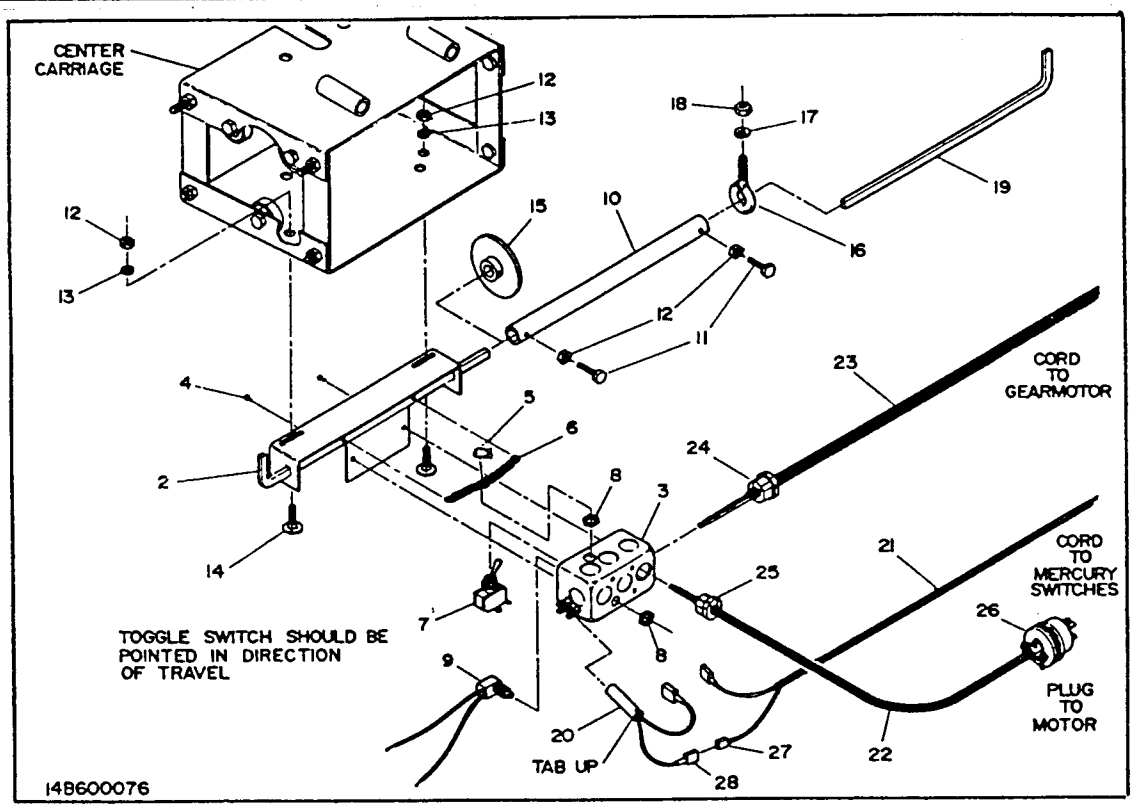


FIG. 33 - REVERSING SWITCH

Ref No.	Description	Req'd	Part No.
2	Rev. switch bracket	1	A5416
3	Rev. switch electric box	1	A5417
4	Screw, #6-32 x 1/4"	2	J0455
5	Snap ring, 1/4"	1	J3579
6	Spring, 1/2" ext	2	J2360
7	Toggle switch,Carling(110 & 220v)	1	A7802
8	Lock ring, 1/2"	4	J4481
9	Push button (normal open)	1	J4485
10	Switch rod coupler	1	A6016
11	Bolt, 5/16"-18 x 1"	2	J0527
12	Nut, 5/16"-18	4	J1002
13	Lockwasher, 5/16"	2	J1200
14	Carriage bolt, 5/16"-18 x 1"	2	J0535
15	Reverse button (sgl aug only)	1	A7520
16	Eyebolt, 3/8-16 x 1-1/4"	1-4	J0855
17	Lockwasher, 3/8	1-4	J1205
18	Nut, 3/8-16	1-4	J1020
19*	Reversing rod extension	1	See Chart
20	Mercury switch w/connectors	1-5	A5445
21*	Mercury sw.cd (18-2)w/connectors	1-4	A54241
22	Power crd w/plug 230V (18-3) 16"	1	A5350
23*	Cord to gearmotor(18-5) w/conn.	1	A53381
24	Heyco bushing, 7-W-2	1	J5005
25	" " 7-K-2	1	J5040
26	Plug 2474 3 prong male	1	J3715
	Receptacle, 2494,3 prong female (Not shown)	1	J3720
27	4x293 female spade		J3826
28	4x292 male spade		J3822
	Rev. switch complete, 230V	1	A5338

* When ordering these parts, machine size, number of down augers, and/or cord lengths must be specified to match proper parts.

Rev.Rod Length	Bin Size Stir-up	Comp#
33"	16'5" Dbl	A5939
40"	18'-18'7" Dbl	A5940
49"	21'-21'8" Dbl	A5941
57"	18'-18'7" Tr	A5942
57"	23'6"-24'8" Dbl	A5942
66"	21'-21'8" Tr	A5943
66"	26'5"-27'10" Dbl	A5943
75"	23'6"-24'8" Tr	A5944
75"	29'4"-30'6 Dbl	A5944
78"	31' Dbl	A5945
88"	33'-34' Dbl	A5946
93"	26'5"-27'10" Tr	A5947
93"	36' Dbl	A5947
100"	37'1" Dbl	A5948
104"	29'4"-31' Tr	A5949
104"	40' Dbl	A5949
114"	33' Tr	A5950
118"	34' Tr	A5951
126"	36'-37'1" Tr	A5952
148"	40' Tr	A5953
160"	42' Tr	A5954
132"	48' Dbl	A5955
178"	48' Tr	A5957

Rev.Rod Length	Bin Size Stirway II	Comp#
40"	18'-18'7" Tr	A5940
40"	21'-21'8" Tr	A5940
49"	24'-24'8" Tr	A5941
66"	23'6"-24'8" Qd	A5943
78"	26'5"-27'10" Qd	A5945
88"	30'-31' Qd	A5946
93"	33'-34' Qd	A5947
114"	36'-37' Qd	A5950
148"	40' QT	A5953
160"	42' QT	A5954
172"	48' QT	A5956

OUTSIDE CARRIAGE (STIRWAY II)

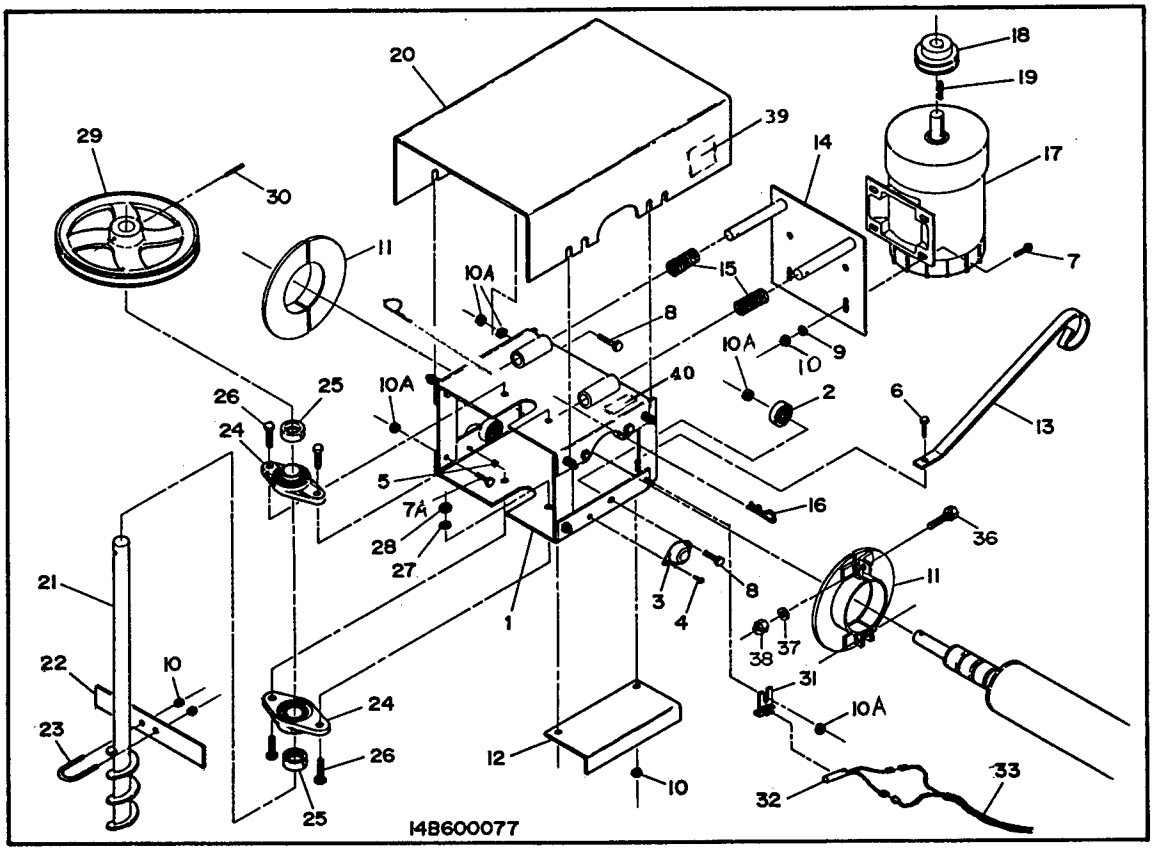


FIG. 34 - OUTSIDE CARRIAGE (STIRWAY II) PARTS

Ref. No.	Description	Req'd	Part No.
1	Outside carriage, 2-7/8" (white)	1	A5220
	" " 3-1/2"		A5210
	" " 4-1/2"		A5211
2	Roller brg 1-1/2" OD 6203RS6C3	6	J0045
3	Ball brg 1"	2	A5222
4	Machine screw #10-24 x 1/2" plated	2	J0514
5	Nut #10-24 plated	2	J0985
6	Bolt 5/16-18 x 3/4"	2	J0520
7	Bolt 5/16-18 x 1"	4	J0527
7A	Bolt, 3/8-16 x 1"	4	J0606
8	Bolt 3/8-16 x 1-1/4"	10	J0616
9	Lockwasher, 5/16"	4	J1200
10	Nut 5/16-18	12	J1002
10A	Nut, 3/8-16	14	J1020
11	Stationary carriage plates 2-7/8"	2	A5240
	" " " 3-1/2"		A5242
	" " " 4-1/2"		A5244
12	Reversing plate	1	A5961
13	Cord hanger	1	A5212
14	Motor mount	1	A5209
15	Springs, compression 1-1/2" CLx1/2 ID	2	J2365
16	Hairpin clip	2	J5410
17	Motor "O" 1-1/2hp 230V 1ph	1	A7725
	Motor "O" 1-1/2hp 230V 3ph		A7729
	(MOTOR INCLUDES PULLEY & KEY)		

Ref. No.	Description	Req'd	Part No.
18	Pulley, 2-3/4 x 7/8 "A"	1	J0295
19	Key 3/16 sq x 3/4	1	A7522
20	Motor shield	1	A5214
	Motor shield, lg. crosstube		A5217
21	Down auger 15'6 (std)other sizes opt.	1	A4210
22	Flinger	1	A5616
23	U-bolt 5/16-18 x 1-3/4"	1	J0810
24	Flange brg 1" FHFT 205-16	2	J0003
25	Locking collar	2	J0067
26	Bolt 7/16 - 14 x 1-1/4"	4	J0700
27	Lockwasher, 7/16	4	J1210
28	Nut, 7/16 - 14	4	J1035
29	Pulley, 9" "A" grove w/pin hole	1	J0355
30	Rollpin 5/16 x 2-1/4"	1	J1510
31	Mercury switch bracket (adj)	1	A5446
32	Mercury switch 7MP1-46	1	A5445
33	Merc. sw. brkt & cord 9'6"	1	A5424
34	Belt 66-4 2-7/8 - 3-1/2 (not shown)	1	J0180
35	Belt AX42 4-1/2" (not shown)	1	J0197
36	Bolt 3/8 - 16 x 1-3/4"	4	J0645
37	Lockwasher, 3/8"	4	J1205
38	Nut 3/8 - 16"	4	J1020
39	**Warning Decal,Moving Parts**	1	**L0284**
40	**Danger Decal, Missing Shield**	1	**L0271**

SHIPPING LISTS

STIR-UP SHIPPING LIST

SINGLE STIR-UP

1 - Stir-up crosstube w/1 carriage w/top hanger, hanger pipe & chain
1 - bundle of track
1 - down auger
1 - "S" motor
1 - single hardware carton (packing list included)

DOUBLE STIR-UP

1 - Stir-up crosstube w/2 carriages w/top hanger, hanger pipe and switch frame
1 - bundle of track
2 - down augers
2 - Motors "A" and "O"
1 - double hardware carton (packing list included)

TRIPLE STIR-UP

1 - Stir-up crosstube w/3 carriages w/top hanger, hanger pipe and switch frame
1 - bundle of track
3 - down augers
3 - motors 1ph A.O.O
3ph A,B,O
1 - triple hardware carton (packing list included)

TRIPLE STIRWAY II SHIPPING LIST

1 - Crosstube w/2 carriages w/top hanger, hanger pipe & triple switch frame
1 - Bundle of track
3 - Down augers
3 - Motors: 1ph A O O
3ph A B O
2 - Hardware cartons marked with white decal "STIRWAY II" and stamped with bin size, no. of augers, "TRIPLE", dia. of crosstube & carton 1 of 2 and carton 2 of 2. Carton 2 contains the outside carriage.

QUAD STIRWAY II SHIPPING LIST

1 - Crosstube w/3 carriages w/top hanger, hanger pipe and quad switch frame
1 - Bundle of track
4 - Down augers
4 - Motors: A O B O
2 - Hardware cartons marked with white decal "STIRWAY II" and stamped with bin size, no. of augers, "QUAD", diameter of crosstube, and carton 1 of 2 and Carton 2 of 2. Carton 2 contains the outside carriage.

QUINT STIRWAY II SHIPPING LIST

1 - Crosstube w/1¼" shaft on inner slug, w/4 carriages, w/top hanger, hanger pipe & quint switch frame.
1 - Bundle of track
5 - Down augers
5 - Motors: A B O B O
2 - Hardware cartons marked with white decal "STIRWAY II" and stamped with bin size, no. of augers, "QUINT", dia. of crosstube, Carton 1 of 2 and Carton 2 of 2. Carton 2 contains the outside carriage.

HANGER PIPE LENGTHS for STIRRING MACHINES

BIN DIA.	1ST HANGER PIPE	2ND HANGER PIPE	CHAIN LENGTH
18´	8"	---	5´
21´	8"	24"	5´
24´	8"	24"	5´
27´	24"	24"	5´
30´	32"	24"	5´
33´	32"	24"	6´
36´	48"	24"	6´
42´	62"	24"	6´
45´	78"	32"*	6´
48´	78"	32"*	6´

*Not in hardware. Shipped with machine.

(Pipe coupling should be packed in all stirring machine parts sacks.)

The pitch of grain bin roofs vary from 22 degrees to 37 degrees, so stirring machines larger than 18´ have two hanger pipes shipped with each unit. The "first hanger pipe" is shipped with the crosstube and top hanger. Use this hanger pipe first and follow installing center hanger and related parts instructions on page 5 of the Stir-Up and Stirway II manual. If the hanger pipe is not the correct length choose one of the following methods to correct the problem:

1. If the "first hanger pipe" is not the correct length substitute the "second hanger pipe" found in hardware carton "A". If "second hanger pipe" is correct length, continue following instructions on page 5 of manual. Make sure to seat threads properly and to tighten well.

2. If "first or second hanger pipe" is not long enough, couple the two pipes together using the **REGULAR** pipe coupler (**NOT** coupler with tab) found in the stirring machine parts sack. Make sure to seat threads properly and to tighten well. Continue following the instructions on page 5 of the manual.