OWNER'S MANUAL

Model 84

GRAIN FLOW

CE

DAVID MANUFACTURING CO.

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

WARRANTY
for
Grain Flow Model 84

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.

TABLE OF CONTENTS

***IMPORTANT!** It is very important for the dealer and/or the person(s) installing the Grain Flow (with Dry Grain Control for the Calc-U-Dri) to go through the Start-Up Checklist Procedure. Failure to do so will invalidate warranty.

⚠ CAUTION ⚠

It is essential in undertaking any maintenance or servicing of the Grain Flow that a safe system of work is strictly followed. Failure to do so may result in serious injury to the operator. Before carrying out any work on the Grain Flow:

1. Stop the Grain Flow and all other machines operating in the silo.

2. Ensure the isolator switch is locked into the “OFF” position, with the only key in your possession.

3. ALL electrical wiring should be in accordance to BS767:1992. Be sure equipment is properly grounded.

4. Note of Noise and Dust Hazard:
   The Grain Flow runs at noise levels below 70 db and should not present any problems.

5. Decals indicating the possibility of dust are provided in the Owner’s Manual bag and should be installed per the diagram shown on page vi. Dust may be created as a normal part of operating the Grain Flow and although no person should be in the silo during the operating, some residual dust may remain in the air after the Grain Flow has been turned “OFF.” The level of dust will vary depending on the condition of the grain. Operators should assess the risk to themselves and others, as required in the EU under the Control of Substances Hazardous to Health Regulations. They should then implement appropriate control measures to reduce the risk to health.

6. If entering the store, ensure that the dust levels are low.

7. Before restarting the Grain Flow, ensure that there is no one remaining in the silo and that the access door is locked closed.

8. Remember to replace all guards before restarting.

⚠ CAUTION ⚠

1. Read and understand the Owner's Manual.

2. Keep all safety shields in place.

3. Attach all safety decals as required.

4. Prior to inspecting, servicing, lubricating or adjusting the Grain Flow, ensure the isolator switch is locked in the "OFF" position with the only key in your possession.

5. All electrical wiring should be in accordance to BS767:1992. Be sure equipment is properly grounded.

6. Do not wear loose-fitting clothes while operating machinery.

7. Keep all hands and feet away from moving parts. Be sure all people are clear of the equipment before start-up.

8. An automatic shut-off device is recommended to shut down the Grain Flow for grain depths less than 2 feet (.6 meters.)

9. Make sure that all people are clear of the storage area while dried grain is being conveyed.

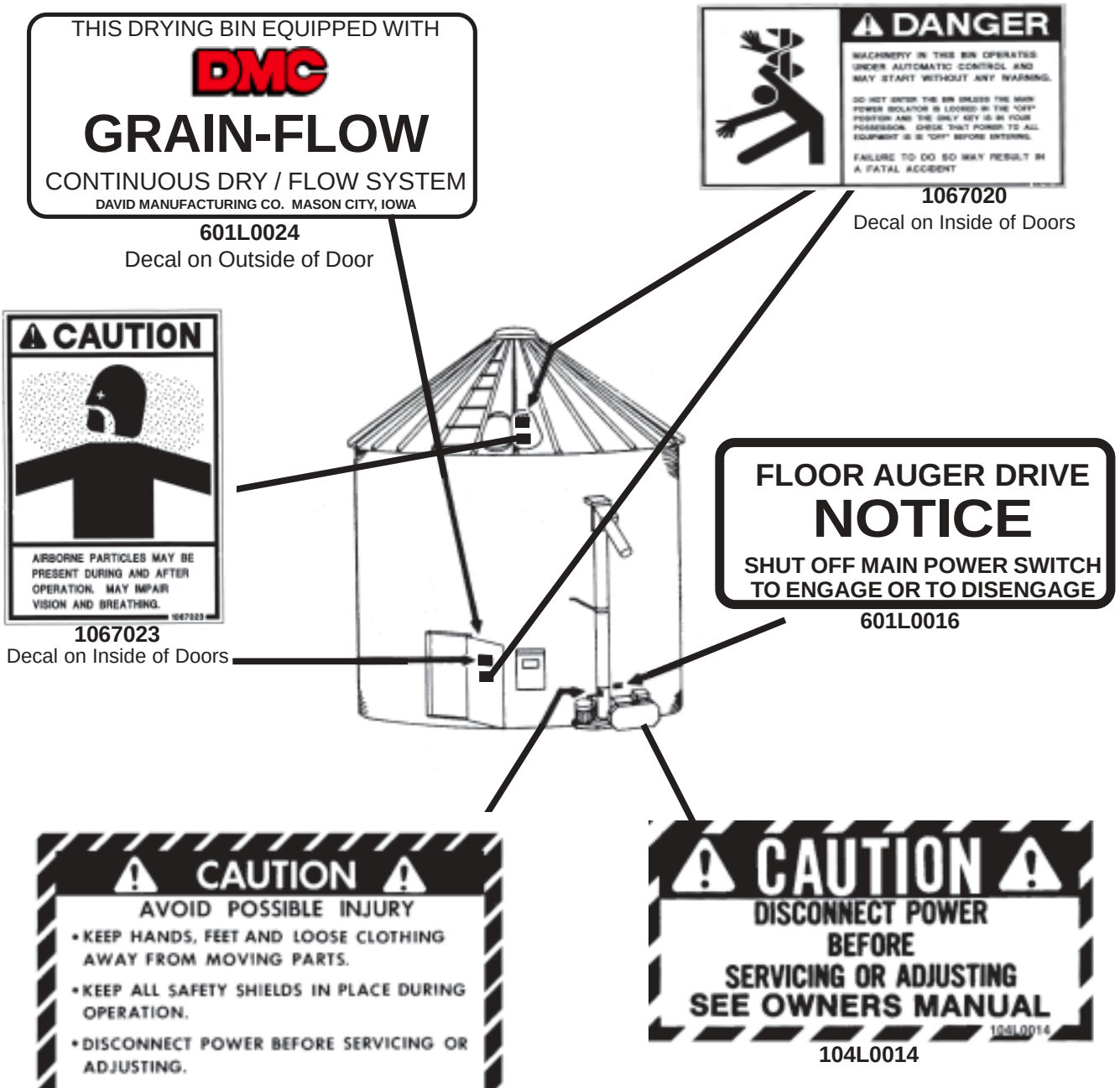
STAY CLEAR OF OPERATING FLOOR AUGERS THEY CAN INJURE OR KILL

THE DECALS SHOWN ON THIS PAGE MUST BE DISPLAYED AS SHOWN

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

David Manufacturing Company
1600 12th Street N.E.
Mason City, Iowa 50401 USA
or
Email: dmc@netins.net

Please note:
1. The decals on this page are NOT 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.



EC DECLARATION OF CONFORMITY 6027153

David Manufacturing Company
1600 12th St NE
Mason City, IA 50401
USA

Declares that:

Machine name: Grain Flow

Type/Model : Model 84 Without Controls

Machine description/uses:

The primary function of the Grain Flow is to remove the dried layer of grain from the floor of a drying bin (or silo) as soon as it has dried. Operation of the Grain Flow is intended to be started and run with grain depths as low as 3 feet (1 meter) of grain in the bin and continued throughout the drying process. The maximum depth of grain should not exceed 18 feet (5.5 meters).

Conforms to the EC Directive 89/392/EEC, (amended by Council Directive 91/368/EEC), the Machinery Directive, and in particular, the Essential Health and Safety Requirements that apply to it. Specifically to:

Schedule 1: General Points

Signed

Keith Braun
for David Manufacturing Company

INTRODUCTION

The DMC Grain Flow turns your bin into the most accurate, efficient and profitable continuous flow drying system available.

Your new Grain Flow Continuous In-bin Dry-Flow system is a quality machine, and with proper maintenance, it will serve you for years to come.

Before operating, familiarize yourself with the machine. It will help you to operate your Grain Flow more efficiently, resulting in better quality returns to you.

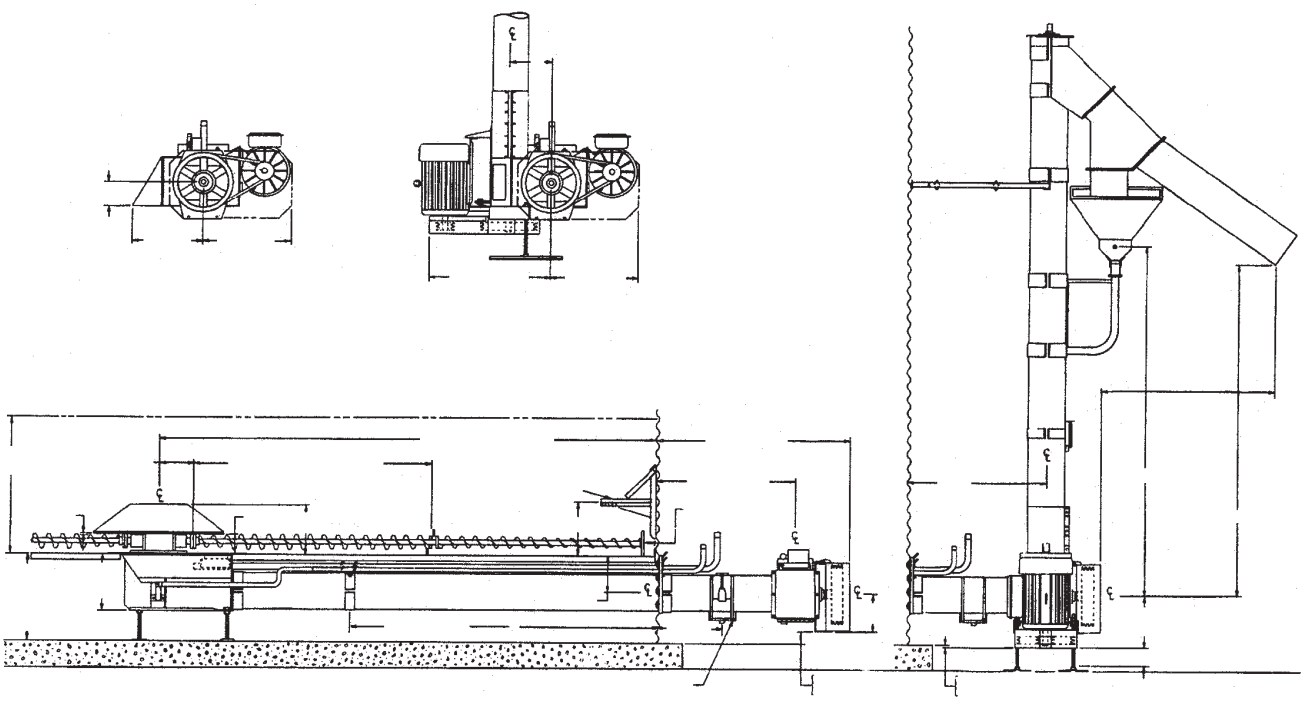
Limit the amount of grain above the Grain Flow to a maximum depth of 4.8 meters.

Having your fan and heater properly sized and operating correctly is necessary to get the capacities specified in the Drying Chart (shown on page 25).

See your dealer for the details on a complete line of available optional equipment to match your drying needs.

PATENT NOTICE: The Calc-u-Dri Control Box is patent pending.

GRAIN FLOW OVERALL DIMENSIONS



	Grain Flow Dimensions (mm)							
	Silo Diameter -feet (meters)							
Component	18' (5.49)	21' (6.40)	24' (7.31)	27' (8.23)	30' (9.14)	33' (10.06)	36' (10.97)	42' (12.80)
Slide Gate Tube Length	2913	3370	3827	4285	4310	4767	5224	6139
Shift Lever Tube Length	2159	2616	3073	3531	3988	4445	4902	5817
Discharge Auger Length	3473	3931	4388	4845	5302	5759	6217	7131
Discharge Tube Length	2997	3454	3912	4369	4826	5283	5740	6655
Floor Auger Length	2465	2923	3380	3837	4294	4751	5209	6123
Floor Auger (Dim "G")	1322	1780	2237	2394	3151	3608	4066	4980

	Vertical Auger Dimensions (mm)				
	2-way valve	3-way valve (upper)	3-way valve (lower)	2-way valve	3-way valve
	"A" Dim.	"A" Dim.	"A" Dim.	"B" Dim.	"B" Dim.
15' (4572) Vertical Auger	3073	3200	3098	2870	2794
18' (5486) Vertical Auger	3988	4115	4013	3785	3708

GRAIN FLOW
INSTALLATION INSTRUCTIONS

When installing a Grain Flow in an existing bin, the drying floor will not have to be totally removed providing the Grain Flow discharge auger is going to be located perpendicular with the drying floor. (See Step 18 and Diagram E.)

1. Locate silo center, then check the silo for roundness. The floor augers will hit the silo wall if the silo is too far out of round.

2. The concrete under the drying floor should be nearly level. If excessive variation exists, corrective action must be taken by chipping away some of the concrete at the center to level the Grain Flow sump.

3. Determine the discharge auger position. BE SURE to consider all take-away equipment in this decision. Remember the Grain Flow position of left or right hand discharge when determining auger position.

4. Measure drying floor height. (Correct measurement is from concrete to top of drying floor).

To get proper placement of the discharge auger hole, use wall plate for guide. For proper position, place the top edge of the wall plate at the same height as the top of the drying floor.

There are three small holes in the wall plate. One is for the shift rod with the other two being for the slide gate control rods. One sump control rod is standard equipment with the second being used only if the optional intermediate sump is installed. (See Diagram A)

NOTE: The sump uses the 4-1/4" legs for floor heights of less than 15" and the 8-1/4" legs for over 15 inch floor heights.

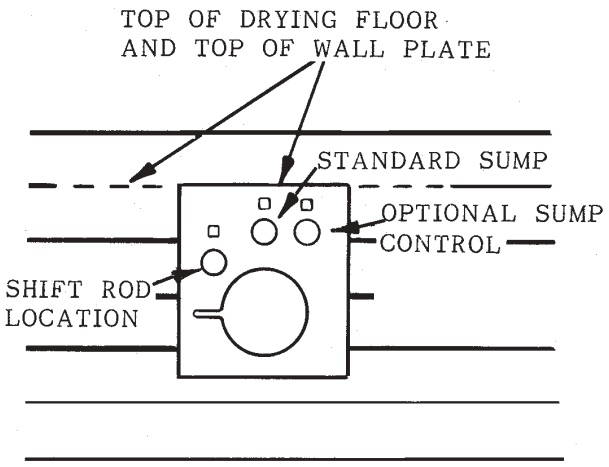


Diagram A

5. Turn the four (4) threaded sump legs into the welded nuts on the Grain Flow sump. If floor height is 305 mm or less, thread the four (4) inch legs into the welded nuts on the Grain Flow sump and put locking jam nuts on top of the welded sump nut. If floor height is greater than 305 mm, thread the four (4) 3/4" jam nuts onto the threaded sump legs, then finish by threading the legs into the welded nuts on the Grain Flow sump. (See Photos 1 & 2 on the next page.)

GRAIN FLOW INSTALLATION INSTRUCTIONS (continued)

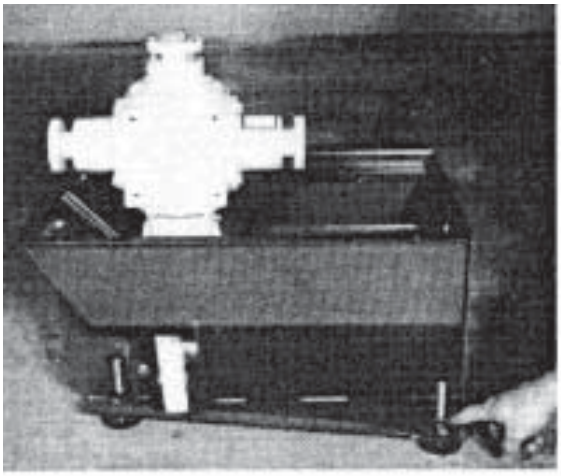


PHOTO 1

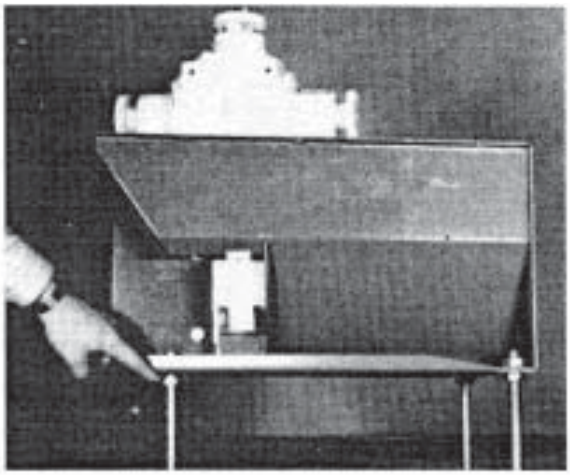


PHOTO 2

6. Assemble the sump face plate to the Grain Flow sump using four (4) 3/8" x 1" bolts, lock washers and nuts. See Photo 3.

7. Bolt the offset shift tube to the shift lever assembly on the gearbox using one (1) 5/16" x 1" grade 5 bolt and locknut. Put the bolt through the hole in the shift tube, then thread the locknut onto the bolt. Next, turn the bolt into the shift lever assembly on the gearbox; thread the bolt into the shift lever until the bolt is holding the shift tube snug. Then back the bolt out 1/2 turn. Lock the bolt in place by tightening the locknut against the shift lever. Be sure the shift tube and shift lever can move freely. See Photo 4.

8. Check the gearbox lubricant level by removing the inspection plate and the oil level plug. If lube is needed, add 90 weight gear lube to the level of the check plugs. Be sure to check upper and lower gear-boxes. See Photo 5.

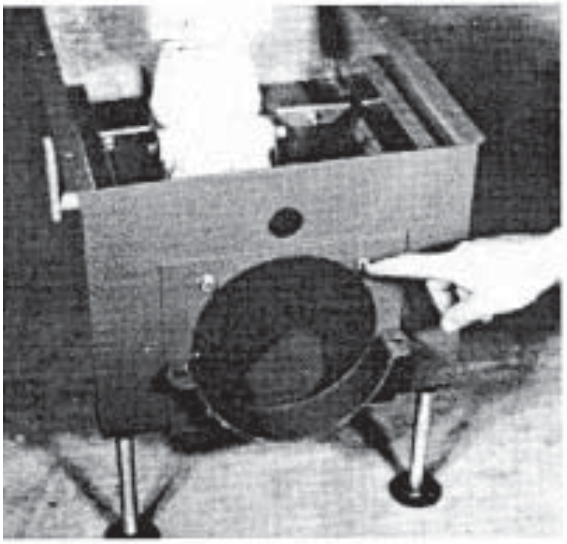


PHOTO 3

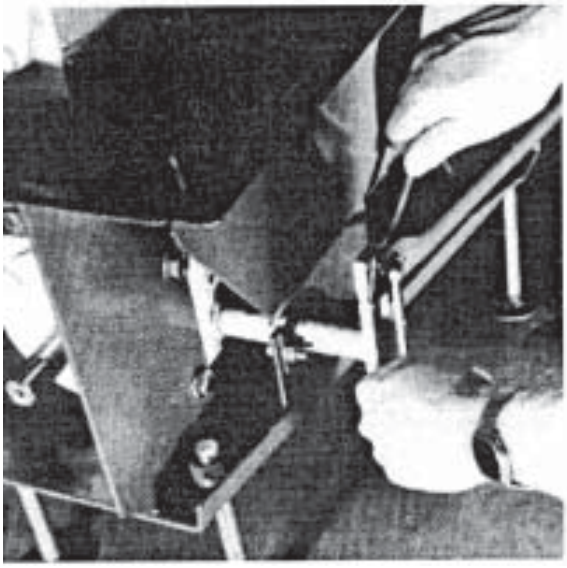


PHOTO 4

PHOTO 5

GRAIN FLOW INSTALLATION INSTRUCTIONS (continued)

9. Set the Grain Flow sump in the center of the bin with the discharge opening pointed in the proper direction. Adjust the legs to the correct height and level to the drying floor. Finish by tightening the jam nuts on the leveling legs. BE SURE the sump is centered in the bin to avoid the floor augers hitting the wall. See Diagram B.

CHECK TO MAKE SURE THAT THE GEARBOX AND SUMP IS LEVEL. See Diagram C.

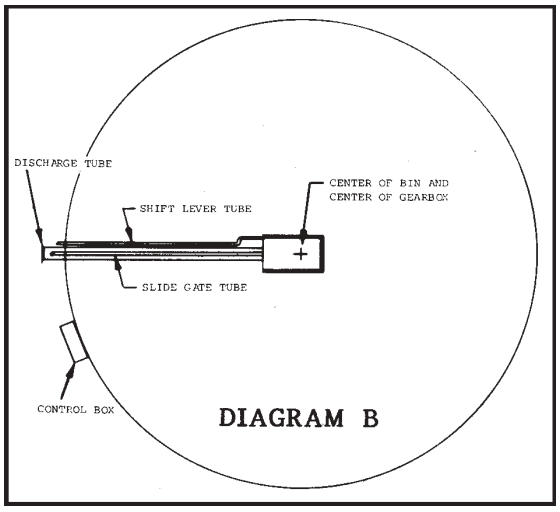


DIAGRAM B

10. Slip the face plate and face seal onto the discharge auger tube. Next, insert the auger tube through the hole cut into the bin in Step 4. See Diagram C, Photos 6 & 7.

NOTE: BE SURE the rectangular hole in the auger tube is LOCATED ON THE BOTTOM.

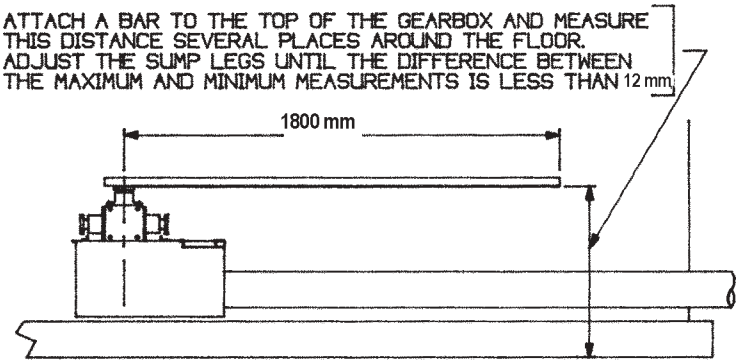


Diagram C

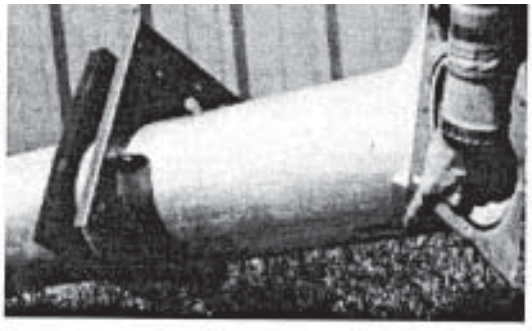


PHOTO 6


PHOTO 7

11. Connect the discharge auger tube to the Grain Flow sump. Be sure that the locator tabs welded on the auger tube are in position between the clamp bands. At this time, check the square flange welded onto the opposite end of the auger tube making sure it is level. Finish by tightening the two (2) 3/8" x 1-1/4" bolts and nuts holding the two clamps together. The square flange on the auger tube must be level to ensure the power unit or vertical augers, if utilized, will be level and plumb. See Photos 8 & 9 on the next page.

GRAIN FLOW INSTALLATION INSTRUCTIONS (continued)

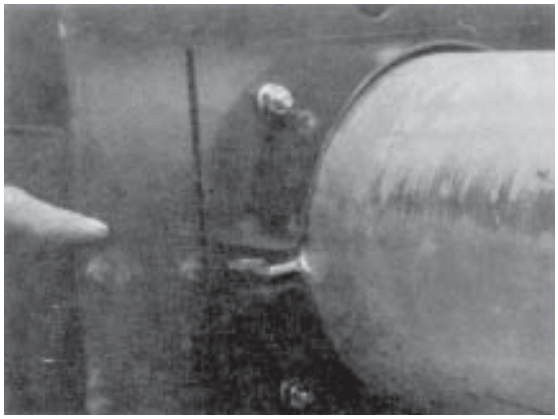


PHOTO 8

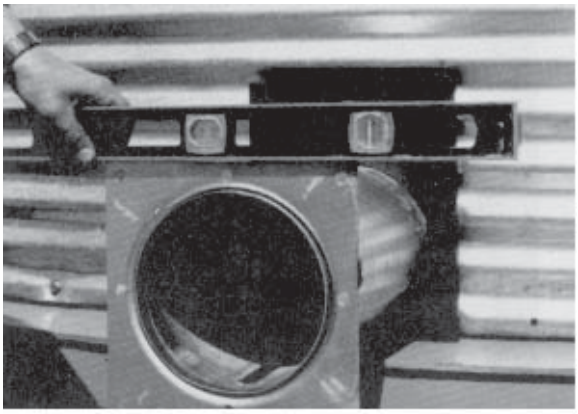


PHOTO 9

12. Slide the discharge auger flighting into the auger tube and connect to the gearbox drive sprocket with a #50 roller chain coupling. Be sure to install the chain retaining clip in the counter- clockwise rotation direction. See Diagram D, Photo 10.

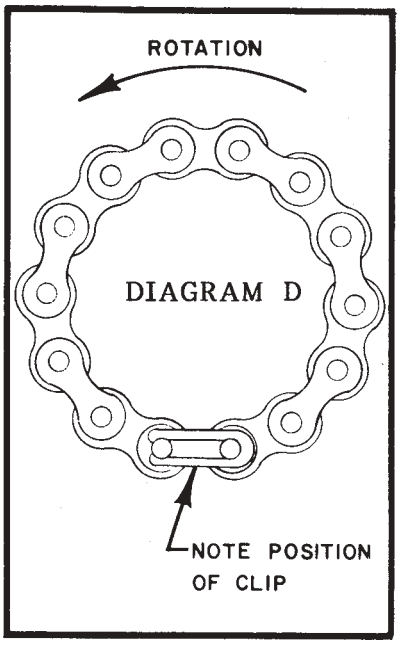


Diagram “D” viewed with the clip on the gearbox side away from the flighting.

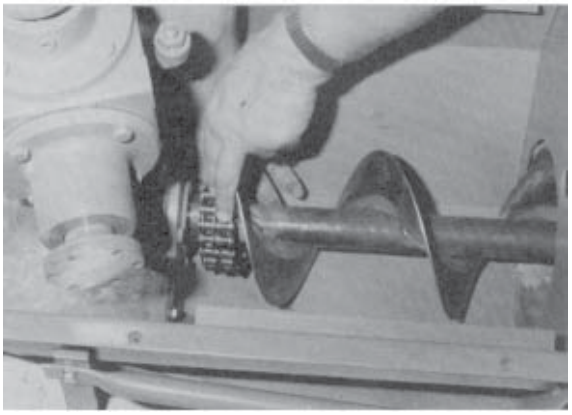


PHOTO 10

13. Mount the control tube support clamps to the auger tube 2/3 of the way from the bin wall to the Grain Flow sump using a clamp band and two (2) 3/8” x 1-1/4” bolts and nuts. If optional intermediate sump is used, it replaces the control tube support bracket. See Photo 11.

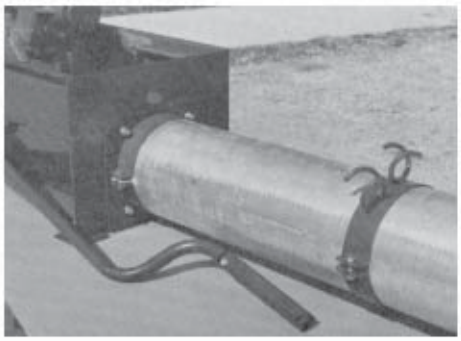


PHOTO 11

For intermediate sump, place the sump on the discharge tube so the slide gate is pushed toward the center of the bin to open it. Install the sump with 1320 mm between the silo wall and the intermediate sump. For silos smaller than 7.5 meters in diameter, the intermediate sump will have to be installed closer to the bin wall so it will not interfere with the auger wear plates. Use the floor augers as guides to determine the position of the wear plates. See Diagram G on page 10.

GRAIN FLOW INSTALLATION INSTRUCTIONS (continued)

14. Place the latches onto the slide gate, intermediate sump (if used) and shift lever tubes. Then insert the tubes into the wall plate holes, through the support rings on the auger tube. Next, put the slide gate tube through the end of the sump and attach to the slide gate using two (2) 5/16" x 2" hexbolts and locknuts. Connect the shift lever tube to the offset shift tube with the connecting sleeve using one (1) 5/16" x 1-1/2" grade 5 bolt and locknut. See Photos 12, 13 and 14.

PHOTO 12

PHOTO 13

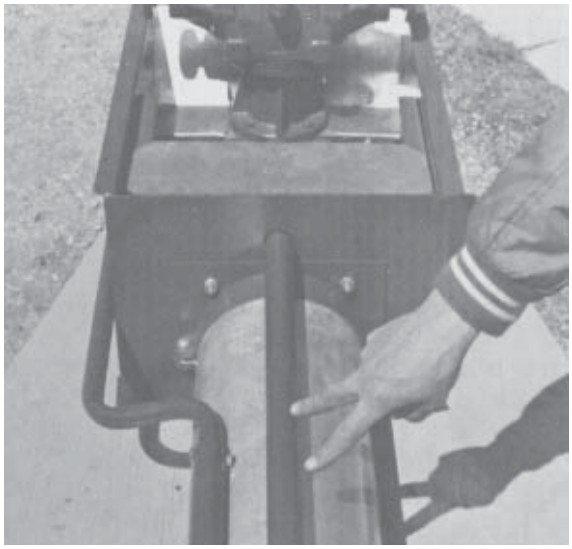


PHOTO 14

On silos smaller than 7.5 meters in diameter, the intermediate slide gate handle will have to be cut off and the holes redrilled to get the proper length. Leave 12"-14" of tube outside the silo wall. Next, close the slide gate and mark the discharge tube along the inside of the intermediate sump. Slide the sump away from the marked area and carefully cut the opening in the discharge tube. Place the sump over the cut-out opening and secure it to the tube with the two connecting bands and hardware. Attach the latching hardware as stated for shift lever and center sump slide gate.

15. Block up the outside end of the discharge tube so that the tube does not rest on the silo wall sheet. Next, insert two (2) 5/16" x 2" carriage bolts which hold the control tube latches onto the face plate, then attach the wall plate and wall seal to the bin wall using eight (8) 1/4" x 1-3/4" self-drilling screws. NOTE: discharge tube cannot rest on silo wall sheet. See Photos 15 & 16 on the next page.

GRAIN FLOW INSTALLATION INSTRUCTIONS (continued)

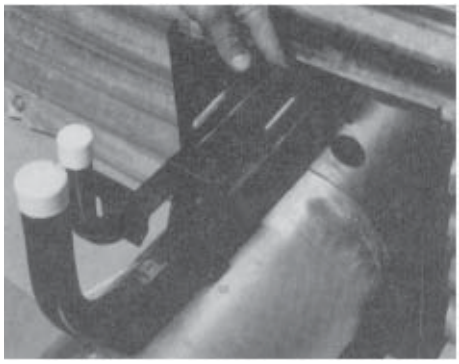


PHOTO 15

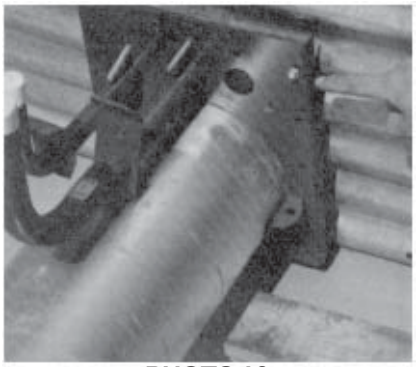


PHOTO 16

BE SURE THE SUMP IS CENTERED AND AT THE RIGHT HEIGHT IN THE SILO BEFORE PROCEEDING.

16. Secure tube to the wall plate with a clamp band and two (2) 3/8” x 1-1/4” bolts and nuts. See Photo 17.

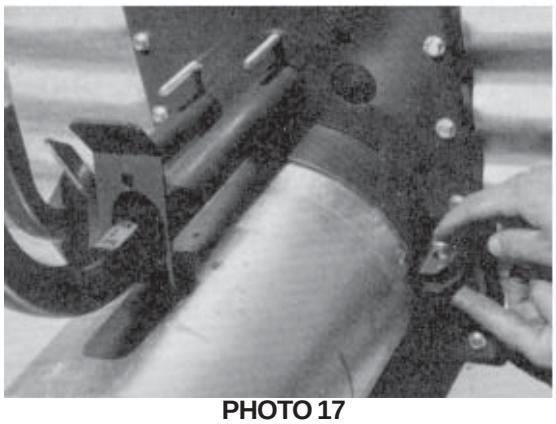


PHOTO 17

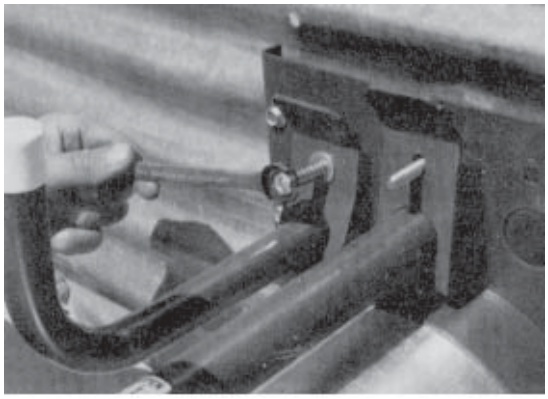


PHOTO 18

17. Place the slide gate and shift lever tube latches onto the 5/16” x 2” carriage bolts. Continue by placing a 1/4” flat washer and the compression spring onto the 5/16” bolt. Secure the locknuts. See Photo 18.

18. Install the drying floor. An area 4.3 meters in diameter in the center of the bin MUST have extra floor supports to hold the extra down pressure that occurs during the operation of the Grain Flow. Install the floor perpendicular to the discharge auger starting on the opposite side of the bin from the auger. See Diagram E on the next page.

    For existing bins, replace the drying floor taken out. Follow Step 18 instructions. See Diagram E on the next page.

GRAIN FLOW INSTALLATION INSTRUCTIONS (continued)

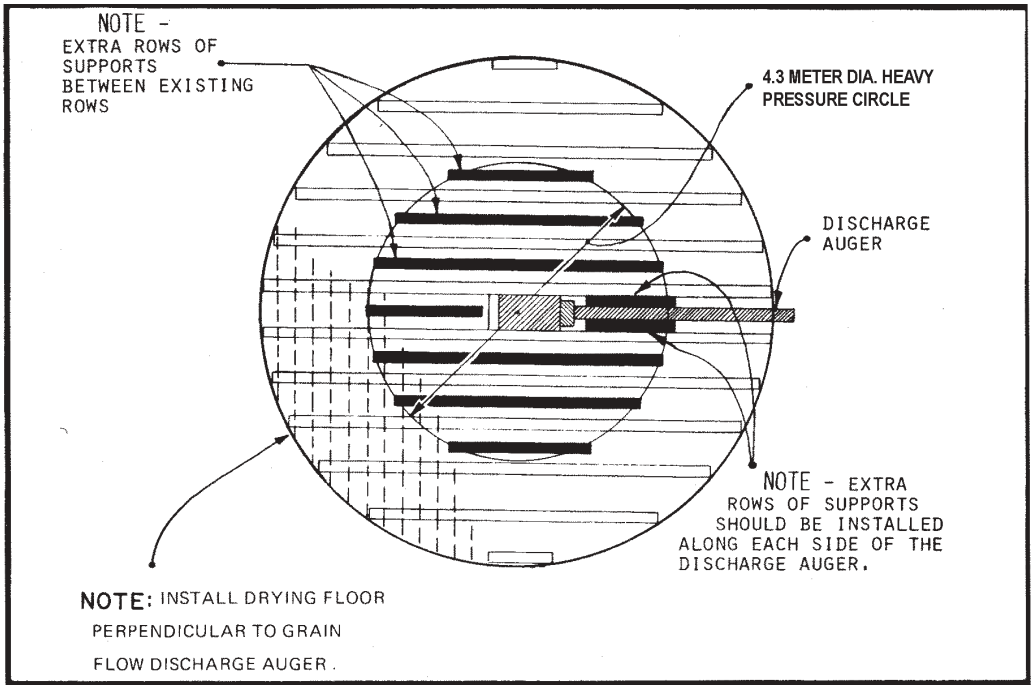


DIAGRAM E

19. After the drying floor has been installed, attach both halves of the perforated cover plate to the sump using nine (9) 1/4" x 1/2" hex flange head screws. Secure to the drying floor with twenty (20) 1/4" x 3/4" self drilling screws. Make sure the angle ring on the perforated cover is sticking up. See Drawing II, Items 8 and 9, page 28.

20. Bolt one floor auger to the gearbox hub using 5/16" x 1-1/2" grade 5 hex bolts and locknuts. For grade 5 identification, See Diagram F.

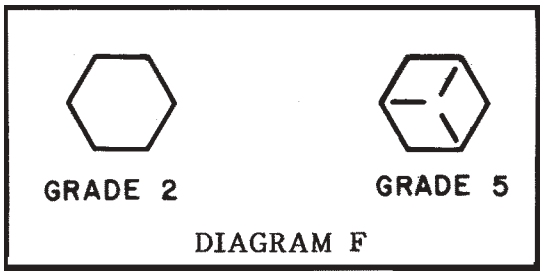


DIAGRAM F

21. Use the floor auger to position the wear plates locating them so the drive wheel and center support feet will not hit the anchoring screw head. Bin sizes 39'1" and larger will use 2 sets of inner wear plates. The wear plates are to be overlapped so the drive wheels can move over them without tearing them loose from the floor. Secure the plates to the floor with 3/16" aluminum rivets. See Diagrams G and H.

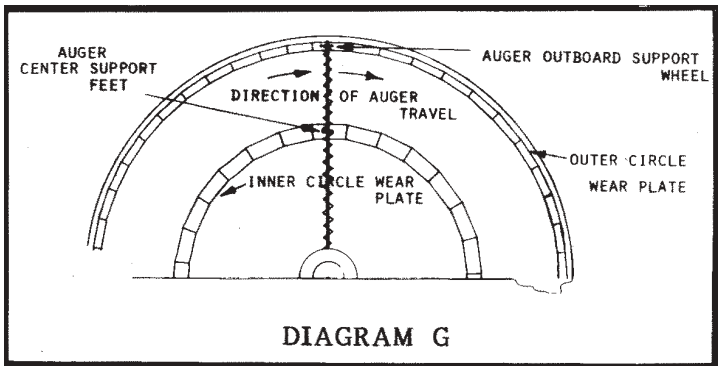


DIAGRAM G

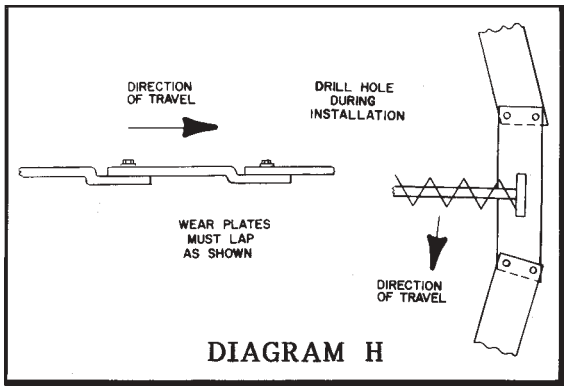


DIAGRAM H

GRAIN FLOW INSTALLATION INSTRUCTIONS (continued)

22. Attach second floor auger. Same as Step 20.

23. Attach the center hood to the top of the gearbox using the hardware that is in the top of the gearbox. (3/8 x 1 1/4" grade 5 bolts with lockwashers.)

24. Place the small perforated cover over the hood and secure it with three (3) 1/4" x 1/2" hex flange head screws. Rotate the hood by hand to insure that it turns freely.

INSTALLATION OF THE GRAIN SAMPLER

25. The sampler may be installed on either side of the discharge tube. If a vertical auger is being attached, a separate sampler is provided for use with the vertical auger. Locate the three small pilot holes on the side of the discharge tube. Drill the outside holes to 4 mm diameter and the center hole to 2 mm diameter. See Photo 19.

To fasten the sampler to the discharge tube, use two (2) #10 x 1" hex flange head, self-tapping screws, and two 5/16" flat washers, place the two (2) flat washers between the grain sampler unit and the discharge auger tube. Tighten the two (2) #10 x 1/2" self-tapping screws. Using the grain sampler as a template, drill two more 4 mm holes into the discharge auger tube. Finish the installation by using two more 5/16" flat washers between the sampler and the discharge auger tube. Secure with #10 x 1/2" hex flange head self-drilling screws.

Hook the extension spring into the holes in the slide gate and sampler cover. See Photos 20, 21, 22 and 23.

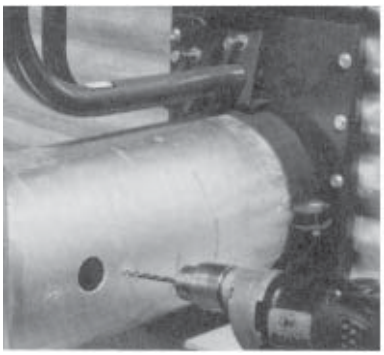


PHOTO 19

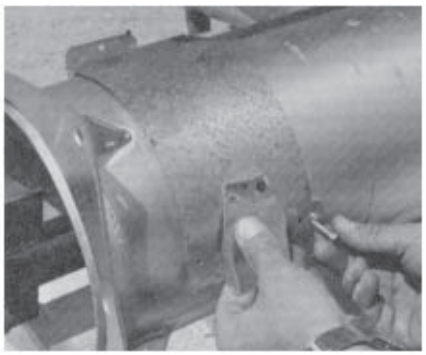


PHOTO 20

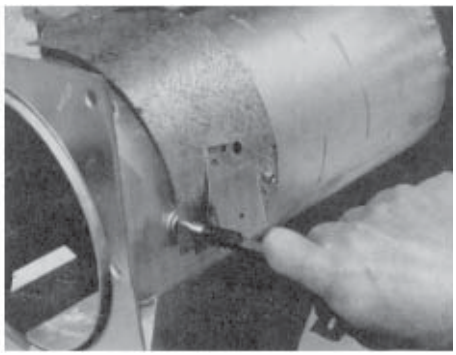


PHOTO 21

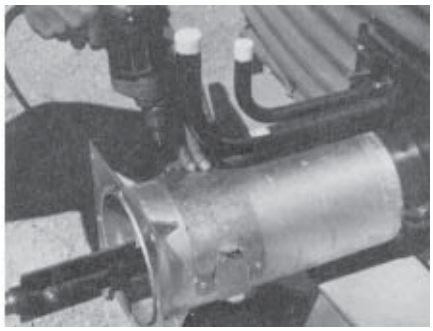


PHOTO 22

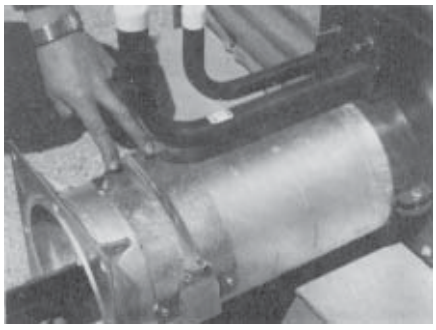


PHOTO 23

GRAIN FLOW INSTALLATION INSTRUCTIONS (continued)

26. Bolt the power unit to the flange on the discharge auger tube using eight (8) 3/8" x 1" he bolts, lock washers and nuts. Note that the power unit is symmetrical and can be assembled to discharge grain to the left or to the right; however, the preferred assembly is to mount the motor on the right side (as viewed from outside). Before tightening, check level of the assembly. See Photos 24 and 25.

27. Install the 1-1/4" bearing and bearing plate assembly onto the auger stub shaft and fasten to the power unit using the six (6) 3/8" x 1-1/4" hex bolts and nuts. Place these six (6) bolt across the top and bottom of the bearing plate. Put two (2) 3/8" x 1" hex bolts, lock washer and nuts in the two (2) side holes. Position the bearing so that the grease fitting is pointed away from the motor. See Photo 26 and Drawing I.

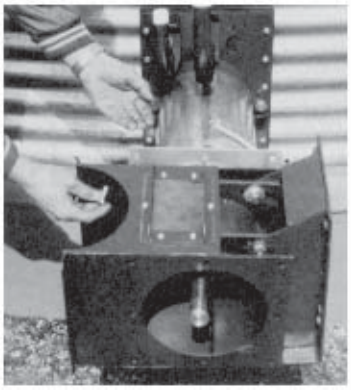


PHOTO 24

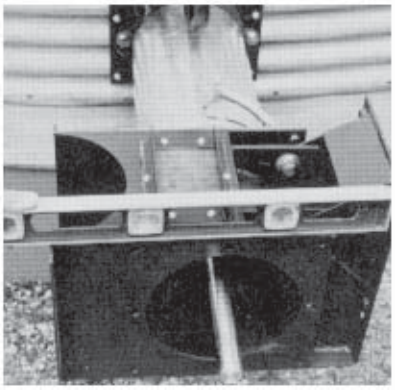


PHOTO 25

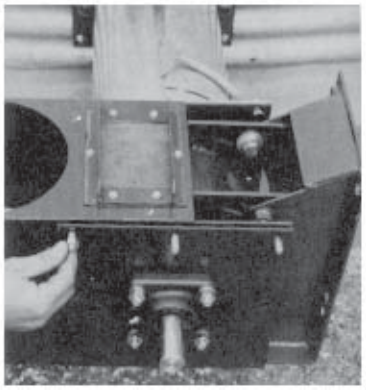


PHOTO 26

28. Place the top and bottom shield mounting brackets onto the six (6) 3/8" x 1-1/4" capscrews protruding through the bearing plate. Secure by using six (6) more 3/8" lock washers and nuts. See Photo 27 or Drawing I on page 26.

FOR INSTALLATION OF OPTIONAL GIMBAL OR STRAIGHT SWIVEL DISCHARGE BOOT, GO TO PAGES 13 OR 14.

29. Install the bearing locking collar on the 1-1/4" bearing. Lock the collar by tapping in a clockwise direction (as viewed from the shaft end) and tightening the locking collar set screw. See Photo 28.

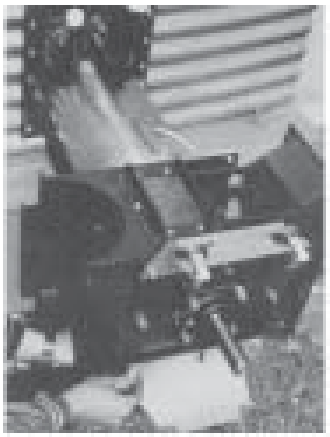


PHOTO 27

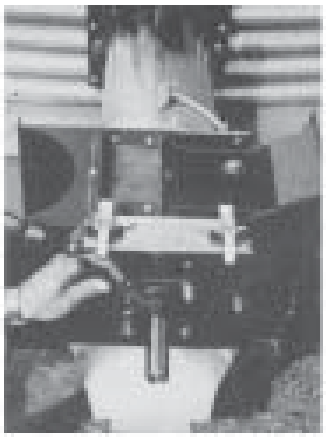


PHOTO 28

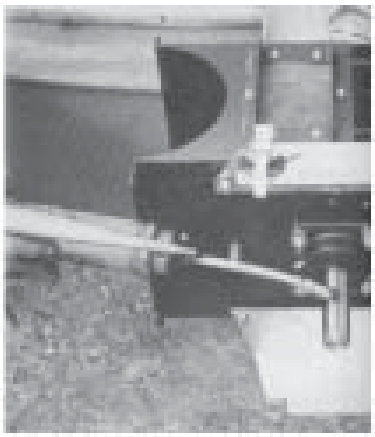


PHOTO 29

30. Coat the surface of the auger stub shaft with grease. See Photo 29.

GRAIN FLOW INSTALLATION INSTRUCTIONS (continued)

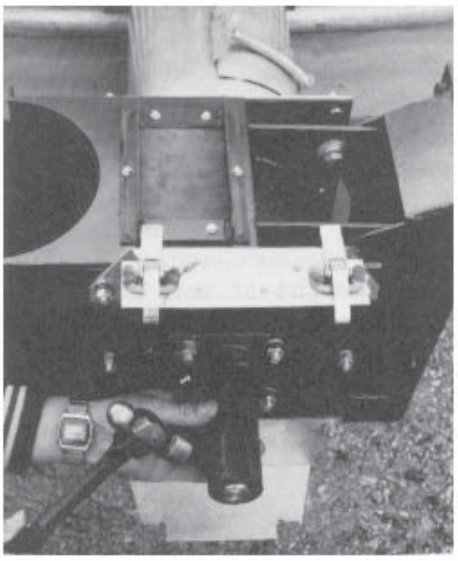


PHOTO 30

31. Slide the 51 mm OD keyed drive hub over the stub shaft until the 3/8" holes in the hub and auger shaft are in line, then drive the 3/8" x 2" roll pin through both shaft and drive hub. See Photo 30.

32. Install the 1/2" x 2" square key into the keyway of the drive hub. Slide the 324 mm diameter drive pulley, with pulley hub pointing outward, onto the shaft. Position the pulley so the inside flange is 79 mm from the bearing plate and tighten. See Photo 31 and 32 and Diagram J or Drawing I on page 26.

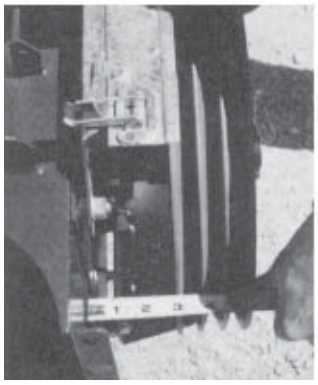


PHOTO 31

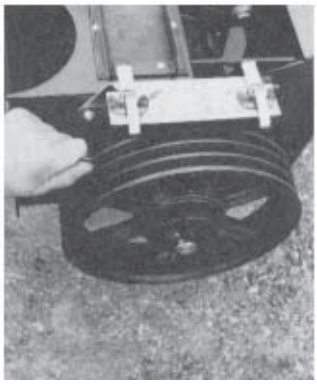


PHOTO 32

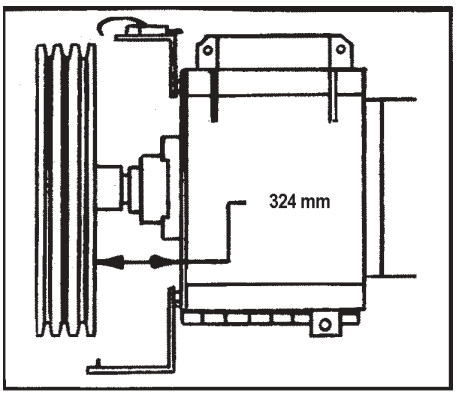


DIAGRAM J

33. Mount the motor onto the base with four (4) 3/8" x 1-1/4" hex flange bolts. See Photo 33.

34. Install the 105 mm OD three (3) groove pulley on the motor shaft using a taper lock bushing. The bushing should be assembled between the motor and pulley for #184 frame motors and on the outside of the pulley for #213 and #215 frame motors. See Diagram K.

PHOTO 33

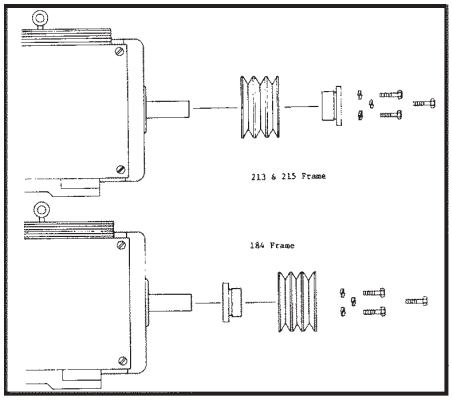


DIAGRAM K

GRAIN FLOW INSTALLATION INSTRUCTIONS (continued)

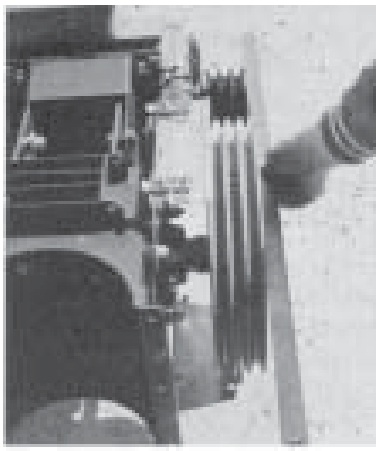


PHOTO 34

35. Use a straight edge to align the pulleys and then tighten the bushing on the motor. See Photo 34.

36. Loosen the two (2) 1/2” bolts on the motor mount allowing it to pivot freely. Next, install three (3) BX-51 V-belts. Check to see that the pulleys are parallel with just the weight of the motor tensioning the belts. If the pulleys are not parallel due to play in the power unit hinge, straighten by loosening the three (3) 3/8” x 1” carriage bolts on the underside of the motor mount. Turn the 3/8” adjusting bolt until the pulleys are parallel to one another. Retighten the three (3) 3/8” x 1” carriage bolts. See Photos 35 and 36.

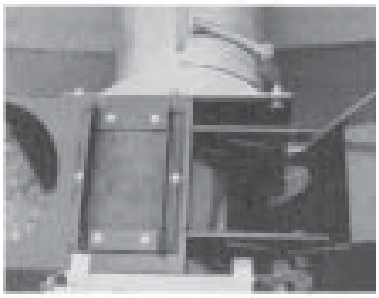


PHOTO 35

37. Tighten the drive belts to 5 mm deflection at 7 kg by pivoting the motor down and retightening the two (2) 1/2” bolts loosened in Step 36. See Photo 37.

38. Attach the drive pulley shield by setting the shield over the tabs on the bottom support, pivot up and latch to the top support with over-center clamps.

PHOTO 36

39. The auger overload switch assembly is installed so that it opens away from the silo wall. Attach to the top of the power unit using a 1/4” x 4-1/4” bolt inserted through two (2) nylon bushings. Secure with a locknut. The cover must pivot freely - DO NOT OVERTIGHTEN THE LOCKNUT. See Photo 38.

PHOTO 37

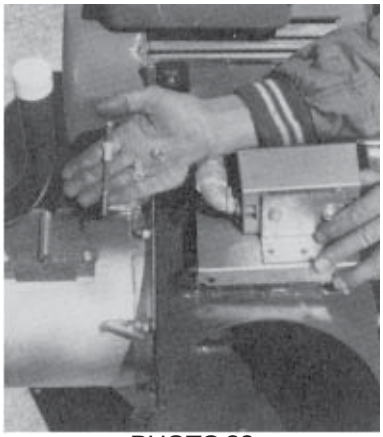


PHOTO 38

GRAIN FLOW INSTALLATION INSTRUCTIONS (continued)

40. Bolt the discharge chute shield to the power unit with six (6) 3/8” x 1-1/4” hex bolts, lock washers and nuts. Leave the discharge chute shield off if vertical auger is to be installed. See Photo 39.

PHOTO 39

41. Put decals in place as follows:

1) Place “This Bin Equipped With DMC Grain Flow” decal on the outside of the grain bin walk-in door.

2) Place “DANGER” decal on the underside of the man-hole cover and “AIRBORN PARTICLES” decal on the inside of the walk-in door.

3) Place the “Slide Gate” decal on bin wall above PHOTO 39 the slide gate control tube.

4) Place the “Floor Auger Drive Notice” decal directly above the shift rod.

STRAIGHT OUT SWIVEL BOOT INSTALLATION

1. Use a straight edge to mark the cutline. See Photo 40.

2. Use the bearing plate as a guide and cut off the mounting flanges as shown in Photos 40,41 and 42.

3. Remove the six (6) 3/8” x 1-1/4” hardware, and bolt the swivel support base onto the Grain Flow discharge chute using the 3/8” hardware just removed. See Photo 43 on the next page.

4. Start the two lower 3/8” x 1-1/4” flange head bolts into the swivel support base. See Photo 43 on the next page.

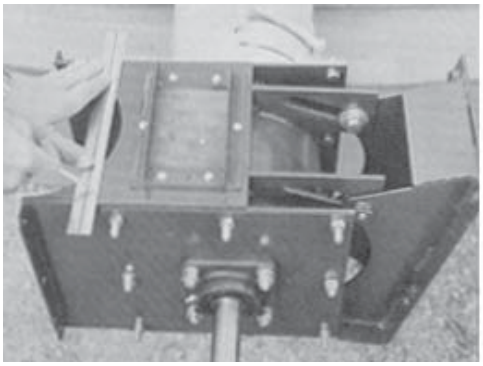


PHOTO 40

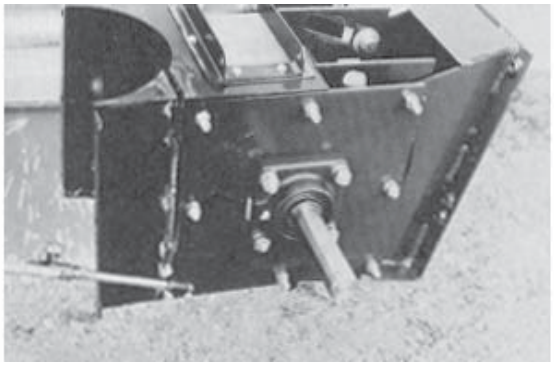


PHOTO 41

PHOTO 42

STRAIGHT OUT SWIVEL BOOT INSTALLATION INSTRUCTIONS (continued)

5. Install the swivel boot onto your take-away auger. Secure by tightening the bolts on the connecting band. See Photo 44.

6. Set the take-away auger swivel boot onto the Two (2) 3/8" bolts installed in Step 4. Hold in position by adding the top two (2) 3/8" x 1-1/14" flange head bolts. Finish by tightening all four bolts. See Photos 45 and 46.

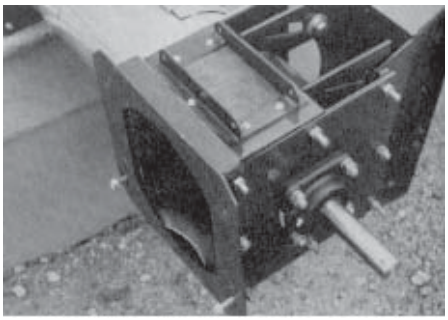


PHOTO 43

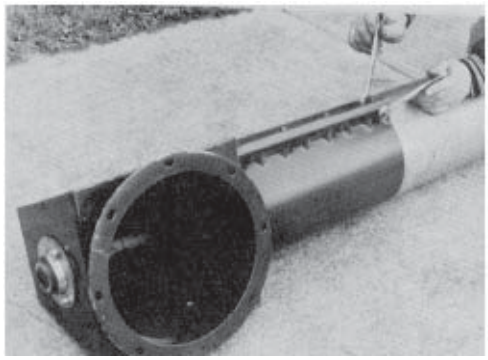


PHOTO 44

PHOTO 45

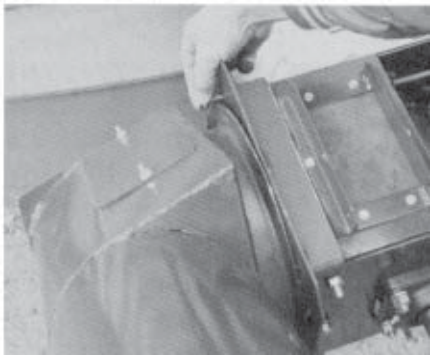


PHOTO 46

GIMBAL SWIVEL BOOT INSTALLATION

1. Use a straight edge to mark cutline. See Photo 40 on the previous page.

2. Use a bearing plate as a guide and cut off the mounting flanges as shown in Photos 40, 41 and 42 on the previous page.

3. To remove the gimbal from the gimbal base, remove the snap ring on the upper stud of the large gimbal ring. Slide the tube and ring assembly up and pull the bottom stud out first. Do not lose the plastic thrust washer or snap ring. See Photos 47 and 48.

4. Remove the six (6) 3/8" bolts next to the cut off edge of the discharge chute. Bolt the gimbal base onto the discharge chute with the wide part of the hoop to the bottom, and secure with the removed 3/8" hardware. See Photo 49.

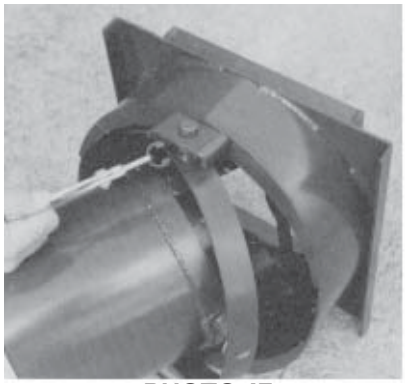


PHOTO 47

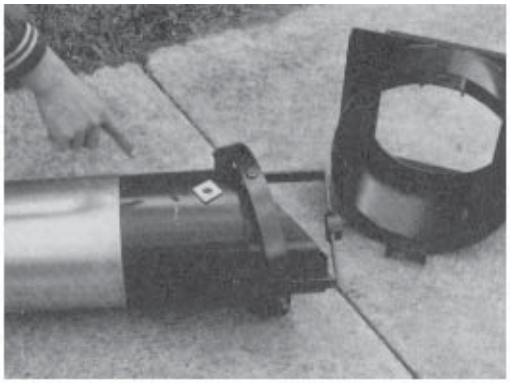


PHOTO 48

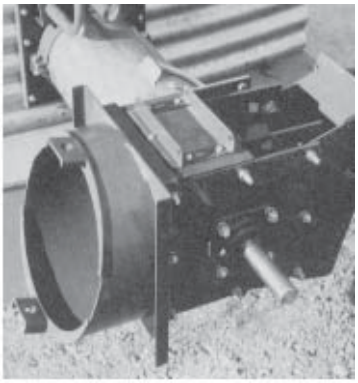


PHOTO 49

GIMBAL SWIVEL BOOT INSTALLATION INSTRUCTIONS (continued)

5. Remove the tail cage from your auger and measure the exposed flighting. NOTE: If your auger stub shaft is not 1-1/4" diameter, the bushing in the gimbal boot will have to be changed prior to assembly.

6. Cut your auger tube so the exposed flighting on your auger is the same length as the gimbal tube including the gimbal bottom bearing, after removing the connecting band from the gimbal boot. See Photo 50.

7. Slide the connecting band onto your auger tube. Install the gimbal boot over the auger with the auger stub shaft fitting into the gimbal bushing. The auger flighting must be as close to the bottom gimbal bearing as possible but should not strike on the gimbal. You may have to cut the extra auger shaft off. See Photo 51.

DON'T TIGHTEN THE CONNECTING BAND UNTIL THE AUGER AND GIMBAL BASE ARE ALIGNED

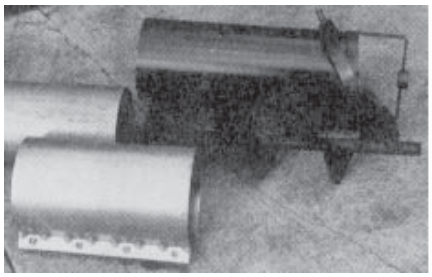


PHOTO 50

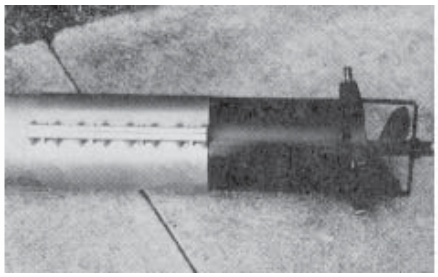


PHOTO 51

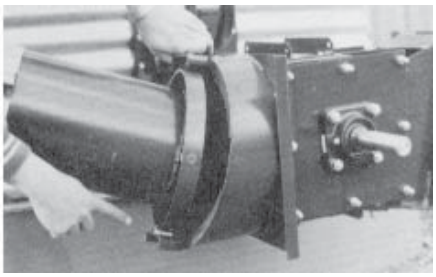


PHOTO 52

8. Install the auger gimbal boot and ring to the discharge chute and gimbal mount. Be sure the plastic thrust washer is positioned between the large ring and the lower support pad. Complete by installing the snap ring to the top ring stud. See Photo 52.

9. Tighten the connecting band left loose in Step 7, being sure the auger flighting will clear and turns freely after the auger is in operating position.

PHOTO 54

10. Wrap the weather cover around the gimbal assembly so water cannot seep through the seam. Keep in place with the fastener straps. See Photo 53.

The gimbal swivel boot installation is now complete.

GRAIN FLOW VERTICAL AUGER INSTALLATION INSTRUCTIONS

Determine if the drive motor is to be mounted at the bottom or the top of the vertical auger.

1. Install the keyed stub shaft into the auger screw on the driven end, and secure with two (2) 1/2” x 2-1/2” grade 5 hex head bolts and lock nuts.

2. Install the plain stub shaft in the opposite end of the auger screw and secure with one (1) 1/2” x 2-1/2” grade 5 hex head bolt and lock nut.

3. Slide the upper head assembly onto the top of the auger tube. Align it with the auger tube discharge hole and secure it with two (2) 3/8” x 1-1/4” hex bolts and hex nuts. See Photo 54.

4. Slide the auger screw stub shaft through the top 1-1/4” bearing until there is 17-3/4” exposed flighting at the bottom end of the auger tube. See Photo 55. Install and tighten the locking collar by tapping it clockwise (viewed from shaft end). Tighten the collar set screw.

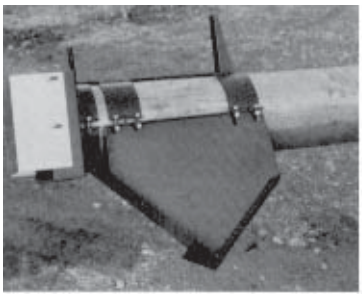


PHOTO 54

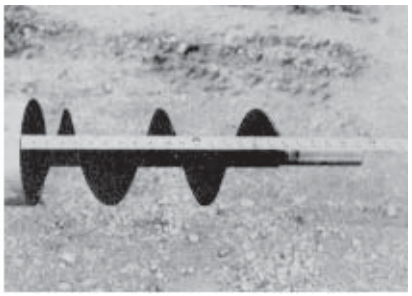


PHOTO 55

5. Loosen the four (4) bolts holding the bearing and seal plate onto the auger tube. Apply grease to the auger stub shaft and slip the vertical auger boot over the auger and tube assembly until the tubes butt together. Be careful not to damage the bearing protective seal in the bottom of the boot. Tighten the four (4) 3/8” x 1-1/2” clamp bolts. See Photo 56.

6. Check to make sure the bearing holder bolts are tight, then install the bearing locking collar by tapping it counter clockwise (as viewed from shaft end). Tighten the collar set screw. See Photo 57.

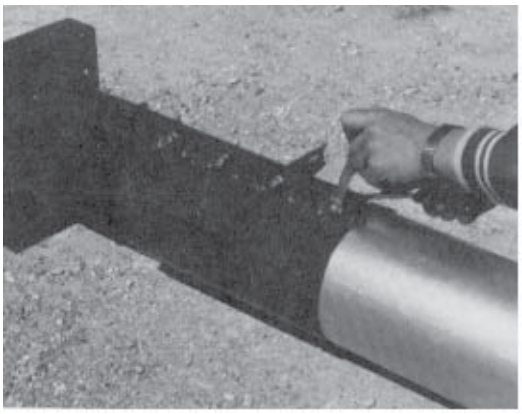


PHOTO 56

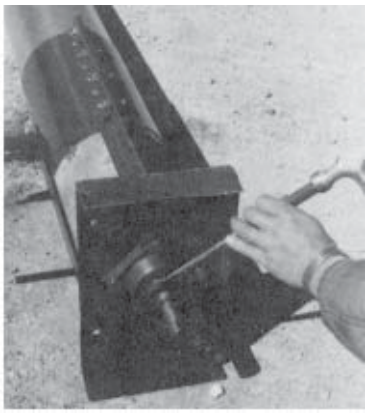


PHOTO 57

GRAIN FLOW VERTICAL AUGER INSTALLATION INSTRUCTIONS (continued)

7. Attach the 45 degree vertical discharge spout to the upper end of the tube over the cut out hole, attach with four (4) 3/8” x 1-1/2” hex head bolts, lock washers and nuts.

8. Thread a 1/2” nut onto the stud bolt of the motor mount utilized, slide the motor mount angle over the stud bolt and secure with another 1/2” nut. Next, bolt the motor mount base plate assembly to the mount assembly being utilized using two (2) 3/8” x 3/4” carriage bolts, lock washers and nuts. See Photos 58 and 59.

9. Attach the motor base plate assembly to the motor angle using two (2) 5/16” x 3/4” carriage bolts, lock washers and nuts. See Photo 60.

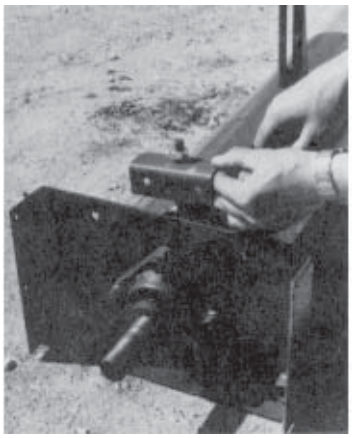


PHOTO 58

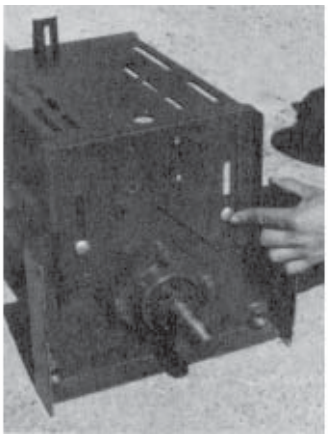


PHOTO 59

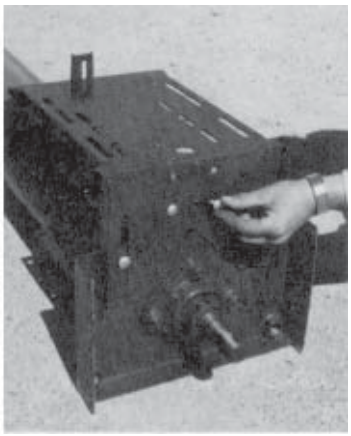


PHOTO 60

10. Bolt the back of the base plate to the auger boot stem with a 5/16” x 3/4” carriage bolt, flat washer, lock washer and nut. See Photo 61.

11. Install 12” OD two (2) groove pulley with tapered bushing and 1/4” square key onto auger stub shaft and tighten. See Drawing IX on page 30.

12. Set the vertical auger assembly into a vertical position and bolt the flanges of the auger boot to the Grain Flow power unit using six (6) 3/8” x 1-1/4” hex bolts, lock washers and nuts. See Photo 62.

13. Thread the two (2) support legs into the welded nuts on the base of the vertical auger boot. See Photo 63.

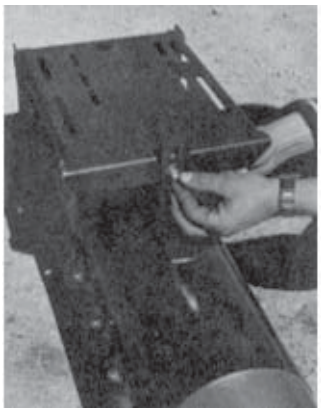


PHOTO 61

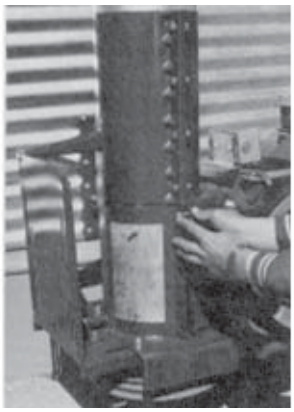


PHOTO 62

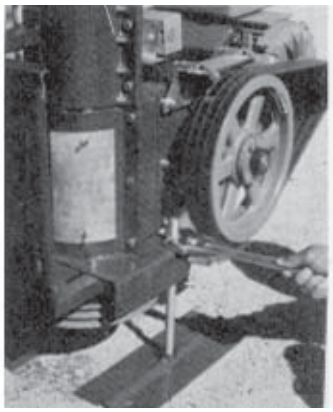


PHOTO 63

GRAIN FLOW VERTICAL AUGER INSTALLATION INSTRUCTIONS (continued)

14. Adjust the legs down into the support pads until they support the weight of the auger assembly. Finish by locking the support leg in place with another 3/4" nut tightened against the base plate.

NOTE: ANNUAL ADJUSTMENT MAY BE NEEDED TO KEEP SUPPORT LEGS CARRYING AUGER WEIGHT

15. Loosen the four (4) clamp bolts on the auger boot and turn the vertical auger tube to the proper position. Retighten the clamp bolts.
16. Anchor the vertical auger tube to the silo wall by assembling the adjustable brackets to the tube and bin. The 15' vertical auger uses one set of braces and the 18' uses two sets. Fasten the angle brackets to the clamping bands with 3/8" x 2" full threaded hex bolts, lock washers and nuts. Fasten the 26" long adjustable tubes to the angle brackets with 3/8" x 2" hex bolts, lock washers and nuts. Assemble the adjustable tubes to the bin wall tubes with clamping channels, 3/8" x 3" carriage bolts, lock washers and nuts. Anchor the adjustable bin wall tubes to the bin by using the backing plates on the inside of the bin and fasten with 3/8" x 1-1/2" hex bolts, lock washers and nuts. See Drawing IX, page 30.
17. Put the 120 mm OD x 2B groove pulley on the motor shaft. Complete by attaching the motor to the base plate with four (4) 3/8" x 1-1/4" hex flange bolts, flat washers, lock washers and nuts.
18. Put two (2) BX-51 V-belts on the motor and auger pulleys. Adjust the pulleys until the belt alignment is proper.
19. Tighten the belt to 5 mm deflection at 7 kg by loosening the 5/16' carriage bolt on the back of mounted plate. Loosen the two (2) 3/8" carriage bolts in front of the base plate and turn the 1/2" nuts on the stud to move the motor out. After proper tension is obtained, retighten all nuts and bolts.
20. For bottom drive, raise the belt shield assembly and attach to the vertical boot using four (4) 1/4" x 1/2" hex flanged head bolts. Install the rain cover on the top of the vertical. See Photo 64. For top drive units, install rain cover at the same time as the belt shield.
21. Slide top half of belt shield in over the motor pulley and attach to the lower shield with two (2) 1/4" x 1/2" hex flange head bolts. See Photo 65.
22. Cut a 32 mm diameter hole into the vertical tube at a location convenient for taking grain samples. See Photo 66.
23. Clamp the sampler assembly over the 32 mm hole with a half band and two (2) 3/8" x 1-1/2" hex washers and nuts. See Photos 66 and 67.

PHOTO 64

PHOTO 65

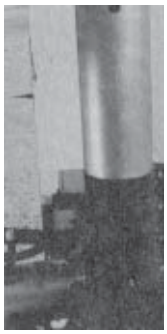


PHOTO 66

PHOTO 67

GRAIN FLOW VERTICAL AUGER OPTIONAL EQUIPMENT

See page 32 for Diagrams

Items B & H are two-way or three-way valve packages which bolt onto the vertical auger, making possible loading grain out of a drying bin as well as spouting grain into take-away auger hopper.

Item C is a 1.2 meter long loading spout which can be used on the vertical auger without any additional equipment, or can be bolted onto a two-way or three-way valve to facilitate truck loading.

Items D and J are transfer auger hopper packages which are bolted directly onto the vertical auger and can be adjusted in any position to facilitate easy take-away auger installation.

Items E and F are supports for six inch take-away augers.

INCLINED AUGER

See page 34 - Drawing XI

Inclined augers come in either 3.05 or 6.1 meter lengths. The various lengths can be bolted together to form any length of auger needed to transfer grain from the Grain Flow vertical auger to the storage bin. If inclined augers need to be longer than 12 meters, cable trusses need to be used to support the inclined augers. When ordering auger extensions, there is a plain extension or a head section in either 3.05 or 6.1 meter lengths. The difference being the head section has a cutout for the grain to flow through into the bin. It also has a longer shaft to accommodate the one (1) inch bore by 3.05 mm OD “B” section pulley. Along with the motor mount and other accessories, the inclined augers are easy to assemble and can be custom fit for any installation. See Diagram L.

Proper Way to Connect 6” Incline Auger Flighting

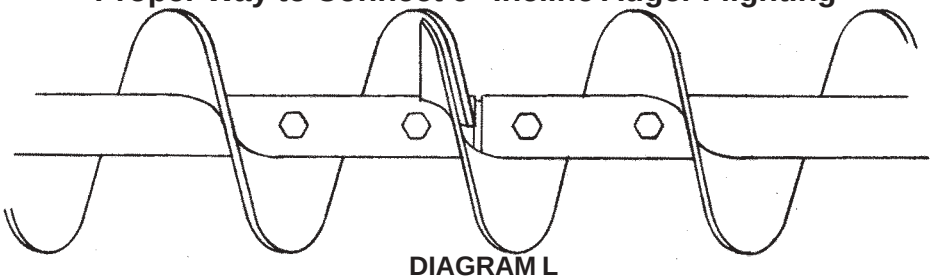


DIAGRAM L

PROPER OVERLAP

If six (6) inch standard utility or distributing auger equipment is used, see the operations manual packed separate with the augers.

MAIN CONTROL BOX INSTALLATION FOR CALC-U-DRI

1. MOUNTING THE MAIN CONTROL BOX (Not supplied by DMC)

Locate the control box near the Grain Flow discharge auger and sampler so that it is easily accessible and convenient for you to use. See Drawing I on page 26 for an example of control box location.

2. INSTALLING THE AUGER OVERLOAD SWITCH

The mercury switch is preadjusted so that when the overload door is raised, the Grain Flow will shut down. This angle may be adjusted by loosening the two 1/4" nuts and turning the mercury switch inside the electrical outlet box (F.S.).

NOTE: THE MERCURY SWITCH SHOULD BE INSTALLED SO THAT IT OVERRIDES ALL OTHER CONTROLS. TO ADJUST, MOVE CLOCKWISE FOR QUICKER SHUT-OFF.

3. INSTALLING THE CALC-U-DRI SENSOR

The discharge auger flighting is designed to provide clearance for the sensor. Before the actual installation of the sensor, check very thoroughly through the slot in the discharge tube to see that the cutout flighting on the discharge auger is positioned so it is centered with the slot in the discharge tube and will not catch the sensor. To check this, insert the clearance gage provided into the sensor slot as shown in Diagram O.

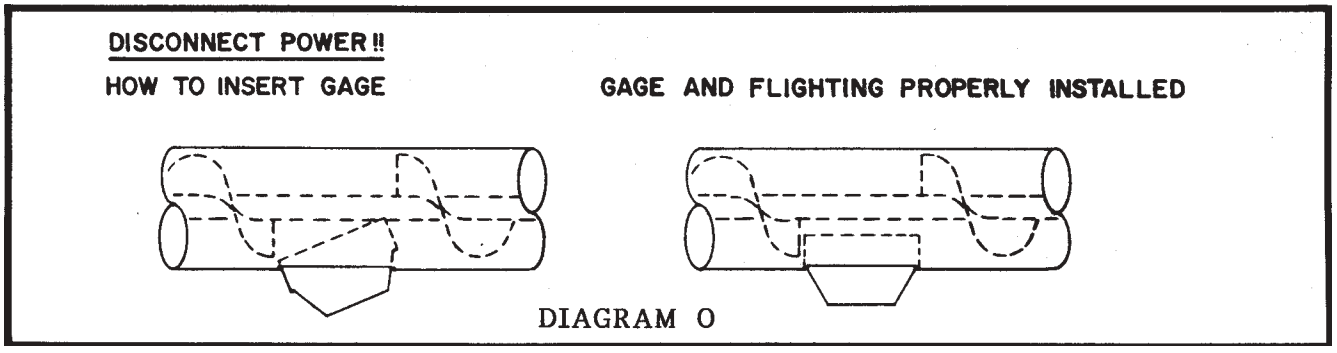


DIAGRAM O

GRAIN FLOW START-UP

Be sure center slide gate is closed. (PULL out on the handle to close.)

After having put 1 to 2 meters of wet grain in your silo, the following step should be taken:

1. Start the fan and heater and select the desired drying temperature by setting your heater control.

2. Ensure the isolator switch is locked into the “OFF” position, with the only key in your possession.

Break loose the floor augers anytime during the initial drying period. Augers will break loose easier if the grain around them has dried down some. To break floor augers loose, remove the drive belt shield and engage the floor augers by pulling on the shift rod while slowly turning the auger pulley by hand. DO NOT USE EXCESSIVE FORCE to engage the floor auger gear box.

Break the floor augers loose by turning the auger pulley CLOCKWISE with the breaker bar. Floor augers can be difficult to break loose and a rocking motion on the breaker bar will help.

OPERATING SUGGESTIONS

1. The grain moisture readings are temperature compensated. This means that whatever temperature the corn is discharged at, the Calc-u-Dri is reading the corrected moisture content. Under normal conditions when the grain cools, it gives up moisture. Your holding silos should have cooling fans to remove the moisture. The hotter the grain being transferred, the more moisture it will give up as it is cooled.

   Example: 50° cent. grain cooled to 5° cent. ambient may dry as much as 1.5 % to 2% during cooling. However, the same 50° cent. grain cooled to 30° cent. ambient may dry only .5% during cooling.

Grain samples should be taken on a daily basis to insure that the electronic equipment is functioning correctly. Use a quality moisture tester that will provide repeatable accuracy.

Use the Following Guidelines for Safe & Reliable Sampling

!!CAUTION!!
USE A SAFE SAMPLE PROCEDURE.
DO NOT SAMPLE FROM A HOPPER WITH AN UNGUARDED AUGER.
KEEP HANDS, FEET AND CLOTHING AWAY FROM ROTATING PARTS.

A. Take several samples from the discharge auger sample gate, not from a storage bin. If you do not have a sample gate on the discharge tube, contact your dealer to have one installed.
B. Take the samples when the displayed moisture is not changing rapidly.
C. Take several samples and record the moisture being displayed when each sample was taken; as well as tested moisture content of each sample.

OPERATING SUGGESTIONS (continued)

3. Make sure the Grain Flow floor augers rotate freely and that there are no obstructions in the silo before filling with wet grain.

4. The slide gate must be CLOSED during automatic Grain Flow operation. The slide gate is closed by PULLING OUT on the control rod and opened by pushing in on the control rod.

5. Drive belts should be checked for proper tension after 10 hours of operation.

6. Cleaning the grain before it is put into the drying silo can increase the capacity and efficiency of the drying system. DMC grain cleaners are recommended.

7. The use of a good grain spreader is highly recommended. DMC grain spreaders are recommended.

8. If the grain is not feeding down evenly, you should find the problem and correct it because this is a compounding problem. This can be caused by one of several things: The grain spreader is not set correctly, the heat and air mix in the plenum is not even or the gear box hood may not be installed correctly.

9. The use of stirring equipment in the drying bin will increase the capacity of the Grain Flow system as the grain depths increase. The bottom of the stirring augers should be 750 mm above the drying floor so that they will not disturb the drying zone. When the grain depth is 1.5 meters or less, it is not necessary to run the stirring device.

10. The capacity of a drying silo equipped with a Grain Flow is dependent on the amount of air and the amount of heat applied to the grain. The rate of discharge when the Grain Flow is running is approximately 16 tons per hour with an eight (8") tube. The drying rate affects the length of time and the frequency that the Grain Flow operates, but will not change the discharge rate.

11. A Grain Flow drying system operates at maximum capacity in grain depths of 1 1/2 to 2 meters. MAXIMUM EFFICIENCY can be obtained at all depths when stirring is used. See page 41.

12. The Grain Flow is equipped with a discharge auger overload switch. The switch must be closed for the Grain Flow to operate. The Grain Flow must be restarted if this is momentarily opened.

13. When a Stir-Ator is used in conjunction with the Grain Flow, it provides more flexibility while increasing the versatility of your drying system.

14. DO NOT LEAVE GRAIN IN THE DISCHARGE AUGER. Grain left in the discharge tube during the off season can cause damage to the sensor, auger, and bearings. To clean this out, disengage the floor augers and run the system until the discharge tube is clean. Stop the system and turn off the power. Then remove the sensor and let the grain fall out. Replace the sensor.

15. If the burner temperature is increased by a large amount, the "drying time" may have to be reduced to prevent over-drying. A large change in burner temperature will have an effect on the amount of drying done in cooling.

NEVER ATTEMPT TO USE THE GRAIN FLOW IN GRAIN DEPTHS OF OVER SIXTEEN FEET

⚠ DANGER ⚠

WHEN EMPTYING YOUR DRYING BIN, STAY CLEAR OF OPERATING FLOOR AUGERS. THEY CAN INJURE OR KILL YOU.

CLEAN ALL BUT A SMALL AMOUNT OF GRAIN OUT, THEN DISENGAGE FLOOR AUGERS TO FINISH CLEANING OUT THE BIN.

GRAIN FLOW DRYING GUIDE

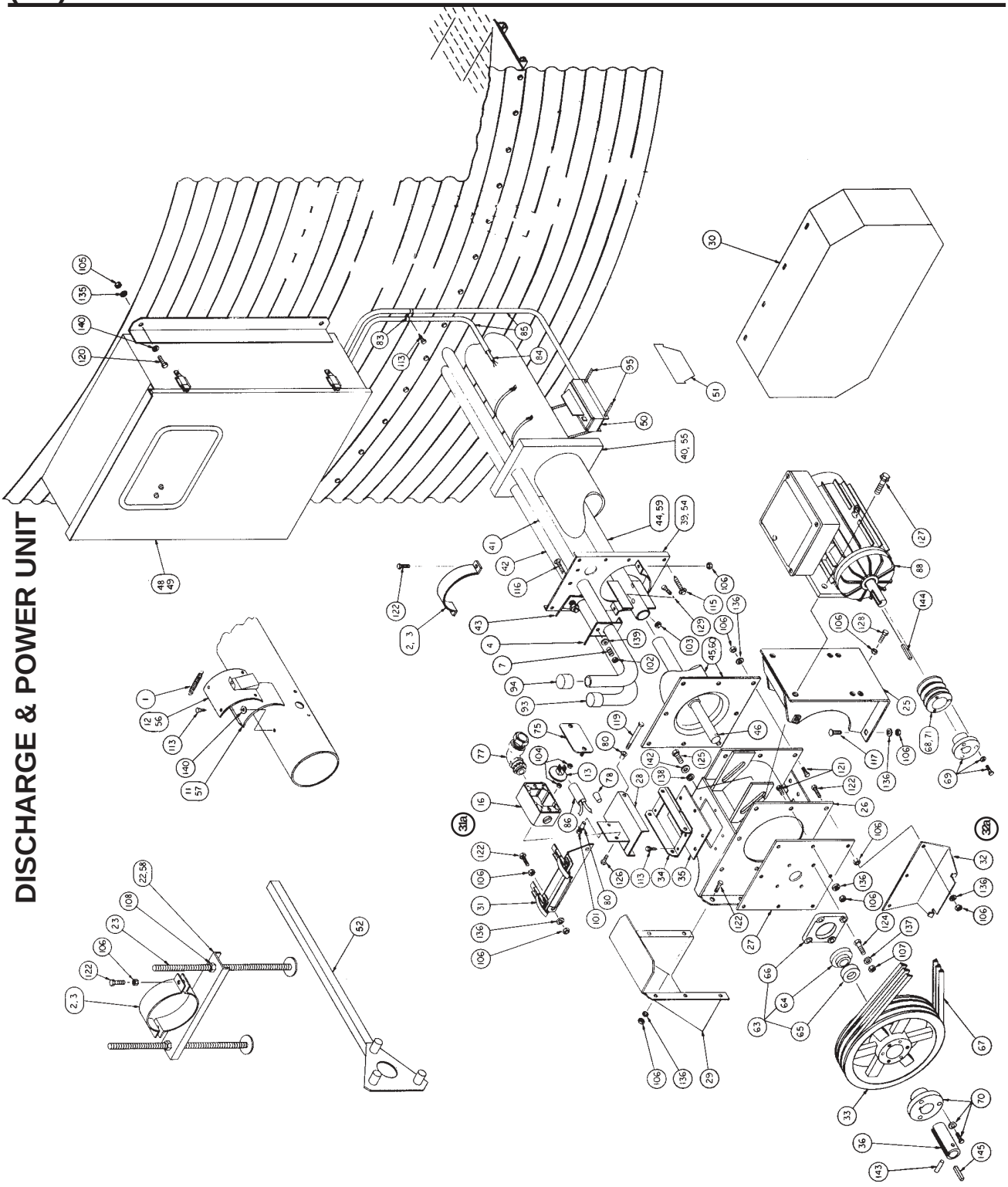
The chart (shown on the next page) is a guide to base your fan and heater size on. It gives the approximate drying capacities that can be expected from the various combinations of silo diameter, heat rise, and fan and heater size. Cooling can remove 1% to 2% moisture from your grain. When grain depths over 1 meter are being dried, a grain Stir-Ator used in conjunction with a Grain Flow can increase drying efficiency.

AIRFLOW & DRYING RATES - 20% to 13% WHEAT, 2.5 M Deep w/Grainflow (15.5 C Ambient Temperature, 60% Relative Humidity)

Silo	Fan	Static Pressure	Airflow		Drying Rate	Drying Rates (metric tons per day)					
Dia	50 hz	(one fan)			Multiplier	Plenum Temperature (C)					
ft(M)	hp(kw)	in.	cu M/hr	cfm	2 fans	24	32	40	49	57	66
18	7.5 (5.6)	4.9	11480	6760	N.R.	12.5	19.5	26.6	33.7	40.9	48.2
(5.49)	10 (7.5)	6.0	13370	7870	N.R.	14.5	22.7	31.0	39.2	47.6	56.1
	15(11.2)	6.3	13910	8190	N.R.	15.1	23.6	32.2	40.8	49.6	58.3
21	7.5 (5.6)	4.4	14420	8490	N.R.	15.7	24.5	33.4	42.3	51.4	60.5
(6.40)	10 (7.5)	5.3	16550	9740	N.R.	18.0	28.1	38.3	48.6	58.9	69.4
	15 (11.2)	6.2	18540	10910	N.R.	20.1	31.5	43.0	54.4	66.0	77.7
	20(14.9)	7.4	21080	12410	N.R.	22.9	35.8	48.9	61.9	75.1	88.4
24	7.5 (5.6)	3.8	16460	9690	N.R.	17.9	27.9	38.2	48.3	58.6	69.0
(7.31)	10 (7.5)	4.4	18650	10980	N.R.	20.3	31.7	43.2	54.8	66.4	78.2
	15 (11.2)	5.6	22650	13330	N.R.	24.6	38.4	52.5	66.5	80.7	94.9
	20(14.9)	6.9	26280	15470	N.R.	28.6	44.6	60.9	77.1	93.6	110.2
27	7.5 (5.6)	3.1	17740	10440	1.4	19.3	30.1	41.1	52.1	63.2	74.4
(8.23)	10 (7.5)	3.5	19930	11730	1.5	21.7	33.8	46.2	58.5	71.0	83.6
	15 (11.2)	4.9	25840	15210	N.R.	28.1	43.9	59.9	75.8	92.0	108.3
	20 (14.9)	6.0	30090	17710	N.R.	32.7	51.1	69.7	88.3	107.2	126.1
	25(18.2)	6.7	32500	19130	N.R.	35.3	55.2	75.3	95.4	115.8	136.3
30	7.5 (5.6)	2.5	18620	10960	1.6	20.2	31.6	43.2	54.7	66.3	78.1
(9.14)	10 (7.5)	2.9	20830	12260	1.6	22.6	35.4	48.3	61.1	74.2	87.3
	15 (11.2)	4.2	28030	16500	N.R.	30.5	47.6	65.0	82.3	99.8	117.5
	20 (14.9)	5.1	32690	19240	N.R.	35.5	55.5	75.8	95.9	116.4	137.0
	25 (18.2)	5.9	36360	21400	N.R.	39.5	61.7	84.3	106.7	129.5	152.4
	30 (22.4)	5.5	34800	20480	1.4	37.8	59.1	80.6	102.1	123.9	145.9
	40 (29.8)	7.3	42830	25210	1.3	46.5	72.7	99.3	125.7	152.6	179.6
33	10 (7.5)	2.4	21530	12670	1.7	23.4	36.5	49.9	63.2	76.7	90.2
(10.06)	15 (11.2)	3.5	29550	17390	1.5	32.1	50.2	68.5	86.7	105.2	123.9
	20 (14.9)	4.3	34610	20370	1.4	37.6	58.8	80.2	101.6	123.3	145.1
	25 (18.6)	5.0	39180	23060	N.R.	42.6	66.5	90.8	115.0	139.5	164.3
	30 (22.4)	4.6	36630	21560	1.5	39.8	62.2	84.9	107.5	130.5	153.6
	40 (29.8)	6.2	46200	27190	1.4	50.2	78.4	107.1	135.6	164.5	193.7
36	10 (7.5)	2.0	22040	12970	1.7	23.9	37.4	51.1	64.7	78.5	92.4
(10.97)	15 (11.2)	2.9	30720	18080	1.6	33.4	52.1	71.2	90.2	109.4	128.8
	20 (14.9)	3.6	35950	21160	1.6	39.1	61.0	83.3	105.5	128.0	150.7
	25 (18.6)	4.3	41130	24210	1.4	44.7	69.8	95.3	120.7	146.5	172.4
	30 (22.4)	3.9	38020	22380	1.6	41.3	64.6	88.1	111.6	135.4	159.4
	40 (29.8)	5.3	48710	28670	1.5	52.9	82.7	112.9	143.0	173.5	204.2
42	10 (7.5)	1.4	22770	13400	1.8	24.7	38.7	52.8	66.8	81.1	95.4
(12.80)	15 (11.2)	2.2	32400	19070	1.7	35.2	55.0	75.1	95.1	115.4	135.8
	20 (14.9)	2.6	37560	22110	1.7	40.8	63.8	87.1	110.3	133.8	157.5
	25 (18.6)	3.1	43750	25750	1.6	47.5	74.3	101.4	128.4	155.8	183.4
	30 (22.4)	2.8	39720	23380	1.7	43.2	67.4	92.1	116.6	141.5	166.5
	40 (29.8)	3.9	52520	30910	1.6	57.1	89.2	121.7	154.1	187.0	220.2

Capacities given are for wheat. Information on drying other grains is available from your DMC distributor. All multiple fans are in parallel. Multiply drying rate x 1.33 for 5 pt. removal. All multiple fan static pressures (where multipliers are shown) fall within acceptable performance guidelines.

DISCHARGE & POWER UNIT



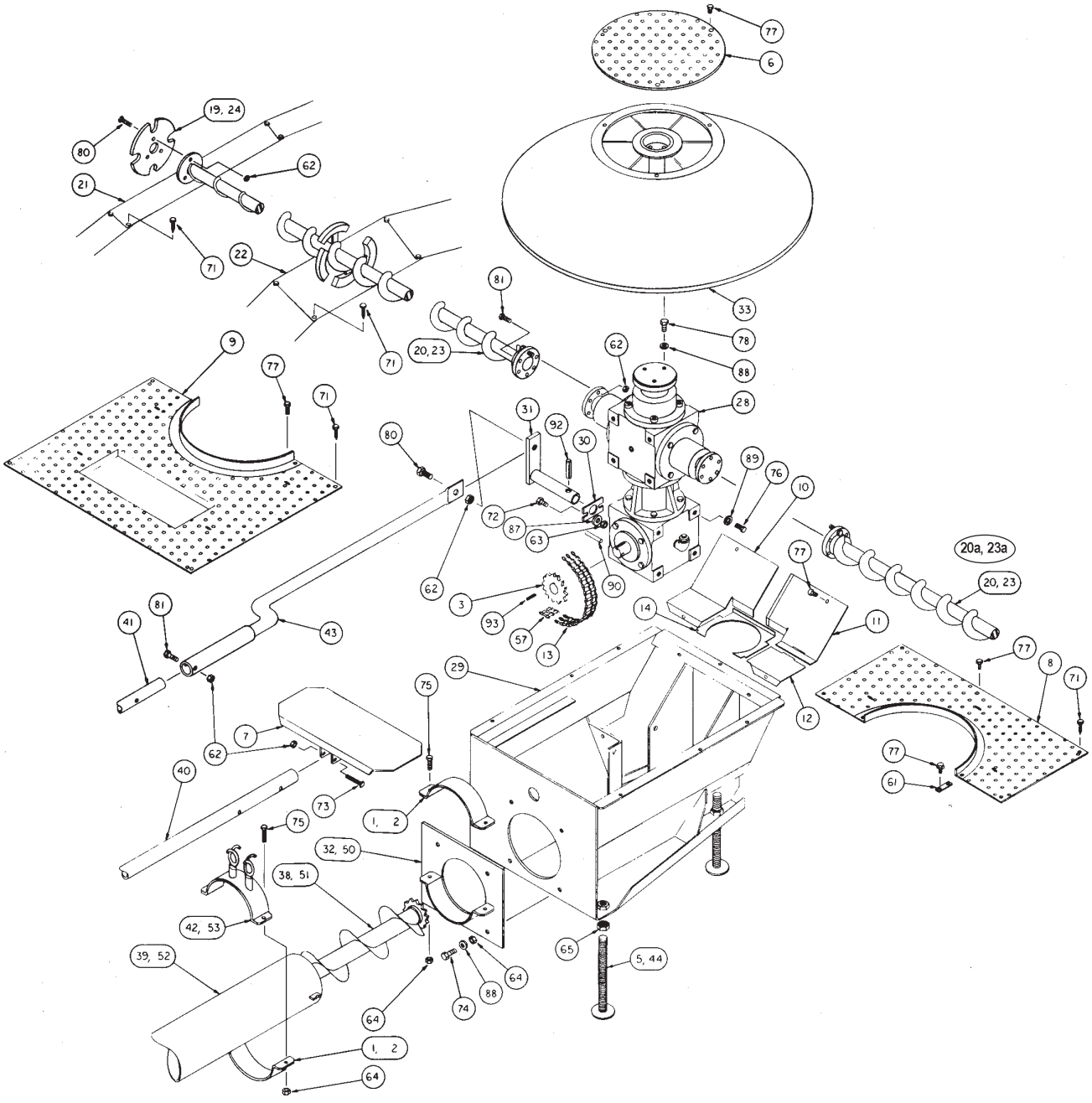
DRAWING I

DISCHARGE & POWER UNIT

REF. NO.	PART NUMBER	NO. REQ'D. 6"	NO. REQ'D. 8"	DESCRIPTION
1	104B2056	1	1	Extension spring
2	205C0002	0	1	Clamping band, 8"
3	601B0003	1	0	Clamping band, 6"
4	601C0021	1	1	Slide gate latch
7	601C0052	2	2	Compression spring
11	601C0081	1	0	Slide gate grain sampler, 6"
12	601C0082	1	0	Retaining cover sample slide gate, 6"
13	601C0103	1	1	Switch holder
16	601E0044	2	2	Outlet box (2" x 4")
22	601C0070	1	0	Tube end support-6" (optional)
23	601C0072	2	2	Adjustable leg-18" (optional)
25	602A002	1	1	Power unit motor mount
26	602A003	1	1	Power unit discharge chute
27	602A020	1	1	Bearing plate
28	602A040	1	1	Auger overload cover
29	602A025	1	1	Discharge chute shield
30	602A026	1	1	Power unit shield
31	602A029	1	1	Shield support latch (top)
31a	**6021049**			**Supt., Shield Top**
32a	**6021052**			**Supt., Shield Bottom**
32	602A032	1	1	Shield support (bottom)
33	602A033	1	1	Pulley, 12.8, 3B (requires taper lock bushing)
34	602A036	1	1	Overload switch frame
35	602A039	1	1	Overload switch rubber diaphragm
36	602C009	1	1	Drive hub-discharge auger
39	602C016	1	0	Wall plate-6" discharge
40	602C018	1	0	Wall seal-6" discharge tube
41	602C019	1	1	Slide gate tube (specify bin diameter)
42	602C021	1	1	Shift lever tube (specify bin diameter)
43	602C025	1	1	Shift lever tube latch
44	**6023064**	1	0	Discharge auger, 5" (specify bin diameter)
45	602C035	1	0	Discharge tube, 6" (specify bin diameter)
46	602C037	1	1	Stub shaft-discharge auger
49	**5041143**	1	1	Calc-U-Dri control box assembly, 1Ø, 230V
	5041144	1	1	Calc-U-Dri control box assembly, 3Ø, 230V
	5041145	1	1	Calc-U-Dri control box assembly, 3Ø, 440V
50	602E020	1	1	Calc-U-Dri sensor assembly ("Calc-U-Dri" only)
51	602E091	1	1	Sensor clearance gage ("Calc-U-Dri" only)
52	602M001	1	1	Breaker bar
54	603C006	0	1	Wall plate-8" discharge tube
55	603C008	0	1	Wall seal-8" discharge tube
56	603C010	0	1	Retaining cover grain sampler, 8"
57	603C012	0	1	Slide gate grain sampler, 8"
58	603C013	0	1	Tube end support, 8" (optional)
59	**6033022**	0	1	Discharge auger, 7" (specify bin diameter)
60	603C019	0	1	Discharge tube, 8" (specify bin diameter)
63	PTO114	1	1	Complete precision bearing, eccentric lock, 1-1/4"
64	PTO212	1	1	Bearing, 1-1/4" with eccentric locking collar
65	PTO403	1	1	Eccentric locking collar, 1-1/4"
66	PTO419	1	1	4-bolt cast bearing housing
67	PTO531	3	3	V-belt, BX-51 (matched)
68	PTO639	1	0	Pulley, 4"-3B (requires taper lock bushing) 6"
69	PT0771	1	0	Taper lock bushing, 1-1/8" w/hardware (6", 18'-36')
	PT0790	1	0	Taper lock bushing, 1-3/8" w/hardware (6", 36'1"-42')
70	PT0783	1	1	Taper lock bushing, 2" w/hardware
71	PT0587	0	1	Pulley, 3-1/2" x 1-1/8"-3B (18'-36') 8"
	PT0588	0	1	Pulley, 3-1/2" x 1-3/8"-3B (36'1"-42') 8"

REF. NO.	PART NUMBER	NO. REQ'D. 6"	NO. REQ'D. 8"	DESCRIPTION
75	1EL0324	2	2	Cover-outlet box
76	1EL0441	1	1	Liquidtite straight connector, 1/2" ("Dry Grain" only)
77	1EL0442	1	1	Liquidtite 90° conduit connector, 1/2"
78	1EL0553	4	4	Wire twist connector, gray
80	1EL2003	2	2	Nylon bushing-.513 OD x .260 ID x 13/16"
81	1EL2020	1	1	Wire clip ("Dry Grain" only)
82	1EL2081	7	7	Cable clamp-nylon, 1/4" ("Dry Grain" only)
83	1EL2084	14	14	Cable clamp-nylon, 13/16"
84	1EL3017	25'	25'	18/3 SJ wire
85	1EL3045	49'	49'	Liquidtite conduit, 1/2"
86	2EL0605	1	1	Mercury switch, 16°
87	2EL0636	1	1	Switch burner shut-off w/activator & mtg. bolts ("Dry Grain" only)
88	3EL5104	1	1	3HP motor-3 phase (18' bins)
	3EL5112	1	1	3HP motor-1 phase (18' bins)
	3EL5114	1	1	5HP motor-1 phase (21'-24' bins)
	3EL5120	1	1	5HP motor-3 phase (21'-24' bins)
	3EL5116	1	1	7-1/2HP motor-1 phase (27'-36' bins)
	3EL5117	1	1	7-1/2HP motor-3 phase (27'-36' bins)
	3EL5118	0	1	10HP motor-1 phase (42' bins)
	3EL5119	0	1	10HP motor-3 phase (42' bins)
93	MS0019	1	1	Plastic caps, 1"
94	MS0083	1	1	Plastic caps, 1-5/16"
95	MS0359	2	2	Worm gear clamp, 32" long ("Calc-U-Dri" only)
100	1FH0725	1	1	Hex lock nut, #8-32 ("Dry Grain" only)
101	1FH0734	1	1	Hex lock nut, 1/4"
102	1FH0735	2	2	Hex lock nut, 5/16"
103	1FH0738	2	2	Hex lock nut, 1/2"
104	1FH0763	4	4	Hex nut, 1/4"
105	1FH0764	4	4	Hex nut, 5/16"
106	1FH0765	30	30	Hex nut, 3/8"
107	1FH0766	4	4	Hex nut, 7/16"
108	1FH0770	4	4	Hex nut, 3/4" (optional)
113	2FH0486	A/R	A/R	Self-drilling hex washer head screw, #10 x 3/4#
115	2FH0491	8	8	Hex washer head screw-self-drilling, 1/4" x 1-1/2""
116	2FH0650	2	2	Carriage bolt, 5/16" x 2"
117	2FH0660	3	3	Carriage bolt, 3/8" x 1"
118	2FH0800	1	1	Machine screw-truss head, #8-32 x 2-1/2" ("Dry Grain" only)
119	2FH0818	1	1	Hex bolt, 1/4" x 4-1/2"
120	2FH0832	4	4	Hex bolt, 5/16" x 1-1/2"
121	2FH0855	10	10	Hex bolt, 3/8" x 1"
122	2FH0856	14	14	Hex bolt, 3/8" x 1-1/4"
123	2FH0857	2	2	Hex bolt, 3/8" x 1-1/2" ("Dry Grain" only)
124	2FH0882	4	4	Hex bolt, 7/16" x 1-1/2"
125	2FH0904	2	2	Hex bolt, 1/2" x 1-1/4"
126	2FH0982	2	2	Hex flange whiz lock screw, 1/4" x 7/8"
127	2FH0984	4	4	Hex flange whiz lock screw, 3/8" x 1-1/4"
128	2FH1034	1	1	Hex bolt, 3/8" x 2", full thread
129	2FH1048	2	2	Hex bolt, 1/2" x 2-1/2", grade 5
135	3FH0790	4	4	Lock washer, 5/16"
136	3FH0791	27	27	Lock washer, 3/8"
137	3FH0792	4	4	Lock washer, 7/16"
138	3FH0793	2	2	Lock washer, 1/2"
139	3FH0863	2	2	Flat washer, 1/4"
140	3FH0864	8	8	Flat washer, 5/16"
141	3FH0865	2	2	Flat washer, 3/8" ("Dry Grain" only)
142	3FH0867	2	2	Flat washer, 1/2"
143	3FH0894	1	1	Spring pin, 3/8" x 2"
144	3FH1030	1	1	Square key, 1/4" x 2"
145	3FH1041	1	1	Square key, 1/2" x 2"

CENTER SUMP AND GEAR BOX ASSEMBLY

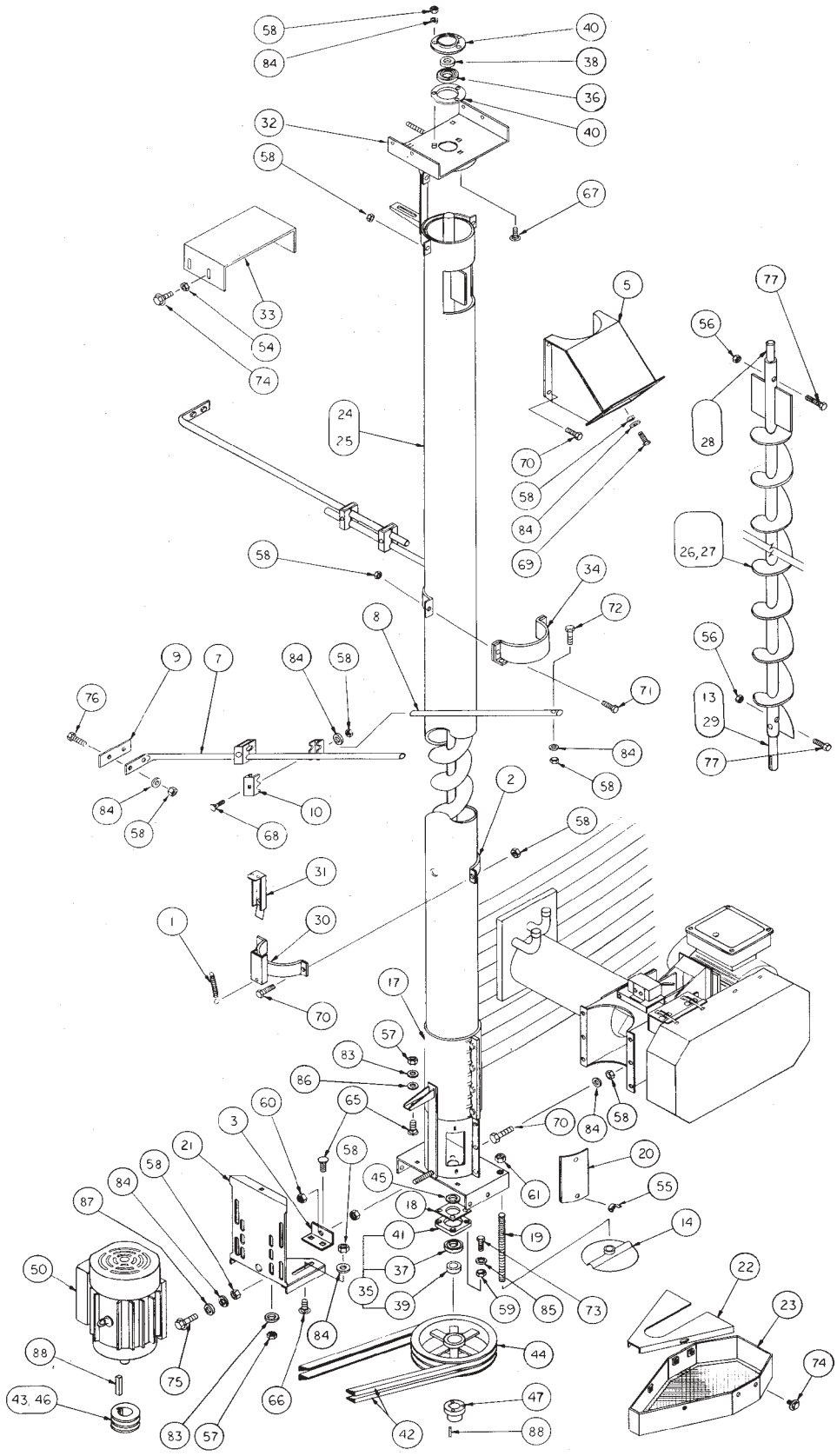


DRAWING II

CENTER SUMP AND GEAR BOX ASSEMBLY

REF. NO.	PART NUMBER	NO. REQ'D. 6"	8"	DESCRIPTION
1.	205C0002	0	2	Clamping Band, 8"
2.	601B0003	2	0	Clamping Band, 6"
3.	601B0005	1	1	Roller Chain Sprocket, 14T.
5.	601B0015	4	4	Adjustable Leg - 8" long
6.	601B0016	1	1	Perforated Hood Cover
7.	601B0038	1	1	Slide Gate
8.	601B0042	1	1	Perforated Cover Plate (Small Section)
9.	601B0043	1	1	Perforated Cover Plate (Large Section)
10.	601B0044	1	1	Gearbox Cover - Left Upper Section
11.	601B0045	1	1	Gearbox Cover - Right Upper Section
12.	601B0046	1	1	Gearbox Cover - Right Lower Section
13.	601B0049	1	1	Roller Chain, #50 Double Strand
14.	601B0091	1	1	Gearbox Center Seal Ring
19.	602C050	2	2	Auger Wheel - Plain (For 1¼ dia. shaft)
20.	602C043	2	2	Floor Auger (Specify Bin Diameter) - Plain (1¼ dia. shaft)
20a	6023069			1450 BU/HR (wtT/hr) Floor Auger
21.	601C0108	A/R	A/R	Floor Wear Plate - Outside (Specify Bin Diameter)
22.	601C0109	A/R	A/R	Floor Wear Plate - Inside (Specify Bin Diameter)
23.	602C052	1	1	Floor Auger - Hardsurfaced (Specify Bin Diameter) (1¼ dia. shaft)
23a	6023075			1450 BU/HR (25T/hr) Hard Surfaced Floor Auger
24.	602C054	2	2	Auger Wheel - Hardsurfaced (For 1¼ dia. shaft)
28.	602B001	1	1	Gearbox (Painted White)
29.	602B012	1	1	Sump
30.	602B014	1	1	Shift Lever Support Plate
31.	602B015	1	1	White Shift Lever
32.	602B018	1	0	Sump Clamp Plate, 6"
33.	602B020	1	1	Center Hood
38.	602C031	1	0	Discharge Auger, 6" (Specify Bin Diameter)
39.	602C035	1	0	Discharge Tube, 6" (Specify Bin Diameter)
40.	602C019	1	1	Slide Gate Tube (Specify Bin Diameter)
41.	602C021	1	1	Shift Lever Tube (Specify Bin Diameter)
42.	602C026	1	0	Support Clamp-Extension Tube, 6"
43.	602C028	1	1	Shift Lever Offset Tube
44.	602B024	4	4	Adjustable Leg, 4" long
50.	603B001	0	1	Sump Clamp Plate, 8"
51.	603C017	0	1	Discharge Auger, 8" (Specify Bin Diameter)
52.	603C019	0	1	Discharge Tube, 8" (Specify Bin Diameter)
53.	603C009	0	1	Support Clamp-Extension Tube, 8"
57.	PT1050	1	1	Connecting Link, #50 Double Strand
61.	1FH0610	2	2	Threaded Strap, 1/4"
62.	1FH0735	22	22	Hex Lock Nut, 5/16"
63.	1FH0764	1	1	Hex Nut, 5/16"
64.	1FH0765	8	8	Hex Nut, 3/8"
65.	1FH0770	4	4	Hex Nut, 3/4"
71.	2FH0491	A/R	A/R	Hex Flange Head Screw, Self-Drilling, 1/4" x 1-1/2"
	3FH0535	A/R	A/R	Rivet, Steel Body & Mandrell , 1/4" .626-.750 Grip Range
72.	2FH0830	1	1	Hex Bolt, 5/16" x 1"
73.	2FH0834	2	2	Hex Bolt, 5/16" x 2"
74.	2FH0855	4	4	Hex Bolt, 3/8" x 1"
75.	2FH0856	4	4	Hex Bolt, 3/8" x 1-1/4"
76.	2FH0903	8	8	Hex Bolt, 1/2" x 1"
77.	2FH0980	18	18	Hex Flange Head Whiz Lock Screw, 1/4" x 1/2"
78.	2FH5293	3	3	Hex Bolt, 3/8" x 1-1/4", Grade 5
80.	2FH5269	7	7	Hex Bolt, 5/16" x 1", Grade 5
81.	2FH5271	11	11	Hex Bolt, 5/16" x 1-1/2", Grade 5
87.	3FH0790	1	1	Lock Washer, 5/16"
88.	3FH0791	7	7	Lock Washer, 3/8"
89.	3FH0793	8	8	Lock Washer, 1/2"
90.	3FH0896	1	1	Spring Pin, 5/16" x 2"
92.	3FH0936	1	1	Spring Pin, 7/32" x 1"
93.	3FH1026	1	1	Square Key, 1/4" x 1"

VERTICAL AUGER

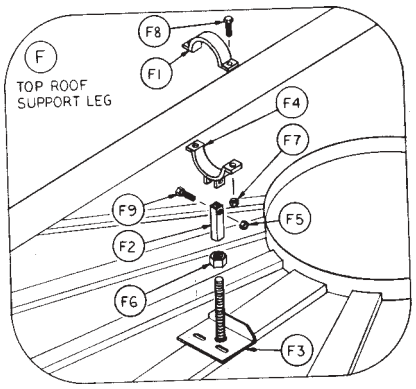


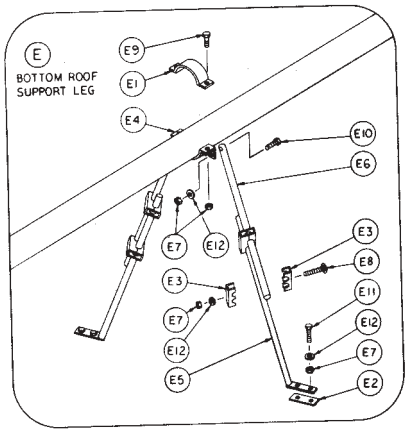
DRAWING IX

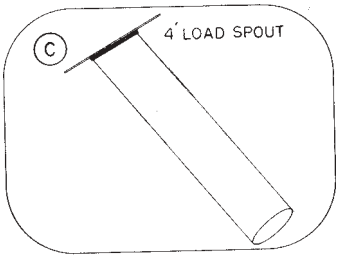
VERTICAL AUGER

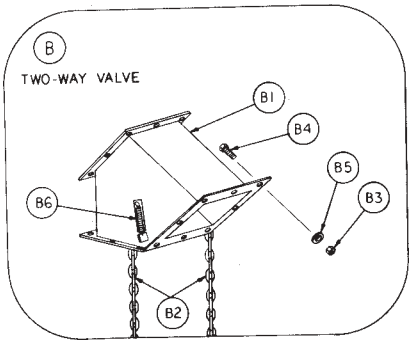
REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
1.	104B2056	1	Extension Spring
2.	205C0002	2	Clamping Band, 8" x 2"
3.	205C0003	1	Motor Mount Angle
5.	601D0060	1	Vertical Discharge Spout 45 degree
7.	601D0062	2	Bin Wall Tube (2 hole)
8.	601D0063	2	Adjustment Tube (1 hole)
9.	601D0064	2	Backing Plate (Bin Wall)
10.	601D0065	8	Clamping Channel
14.	601D0082	2	Support Pad
17.	602D002	1	Auger Boot
18.	602D010	1	Boot Seal Plate
19.	602D011	2	Boot Adjustable Leg
20.	602D012	1	Boot Clean-Out Cover
21.	602D013	1	Boot Motor Mount
22.	602D015	1	Boot Belt Shield - Top
23.	602D016	1	Boot Belt Shield - Bottom
24.	602D024	1	Auger Tube, 15'
25.	602D025	1	Auger Tube, 18
26.	602D026	1	Screw Weldment, 15' (1-3/8" ID No Stub Shafts
27.	602D027	1	Screw Weldment, 18' (1-3/8" ID) No Stub Shafts
28.	602D032	1	Stub Shaft, 6" long, 1-3/8" stepped to 1/4" Dia.
29.	602D033	1	Stub Shaft (Keyed) 10-1/4" long, 1-3/8" stepped to 1-1/4 Diameter
30.	602D036	1	Vertical Auger Sampler
31.	602D037	1	Vertical Auger Sampler Slide Gate
32.	602D041	1	Vertical Auger Head
33.	602D044	1	Rain Shield
34.	602D045	1	8" Clamping Band W/Angle Bracket
35.	PT0116	1	Heavy Bearing 1-1/4" W/Locking Collar & 4 Bolt Hsg.
36.	PT0218	1	Bearing, 1-1/4" W/Eccentric Locking Collar
37.	PT0232	1	Heavy Bearing, 1-1/4" W/Eccentric Locking Collar
38.	PT0403	1	Eccentric Locking Collar 1-1/4"
39.	PT0405	1	Heavy Eccentric Locking Collar, 1-1/4"
40.	PT0425	2	3-Hole Stamped Flangette
41.	PT0429	1	4 Bolt Cast Housing (Heavy)
42.	PT0531	2	V-Belt, BX51 (Matched)
43.	PT0642	1	Pulley, 4" OD x 1-1/8" - 2B (8" Discharge Only)
44.	PT0677	1	Pulley, 11.35 OD x 2B, QD
45.	PT0824	1	Seal, 1-7/8" OD x 1-1/4" x 1/4"
46.	PT0567	1	Pulley, 3-1/2" OD X 1-1/8" 2B(6" Discharge Only)
47.	PT0789	1	Bushing, 1-1/4" SK hub, QD
50.	3EL5114	1	5 HP TEFC, 1 Phase
	3EL5120	1	5 HP 3 Phase
	3EL5116	1	7-1/2 HP TEFC, 1 Phase
	3EL5117	1	7-1/2 HP, 3 Phase
54.	1FH0763	4	Hex Nut, 1/4"
55.	1FH0579	2	Wing Nut, 1/4"
56.	1FH0738	3	Hex Lock Nut, 1/2"
57.	1FH0764	3	Hex Nut, 5/16"
58.	1FH0765	43	Hex Nut, 3/8"
59.	1FH0766	4	Hex Nut, 7/16"
60.	1FH0767	2	Hex Nut, 1/2"
61.	1FH0770	2	Hex Nut, 3/4"
65.	2FH0645	3	Carriage Bolt, 5/16" x 3/4"
66.	2FH0659	2	Carriage Bolt, 3/8" x 3/4"
67.	2FH0660	3	Carriage Bolt, 3/8" x 1"
68.	2FH0679	4	Carriage Bolt, 3/8" x 3", Full Thread
69.	2FH0855	8	Hex Bolt, 3/8" x 1"
70.	2FH0856	14	Hex Bolt, 3/8" x 1-1/4"
71.	2FH0857	2	Hex Bolt, 3/8" x 1-1/2"
72	2FH0859	2	Hex Bolt, 3/8" x 2"
73.	2FH0882	4	Hex Bolt, 7/16" x 1-1/2"
74.	2FH0980	10	Hex Flange Whiz Lock Screw, 1/4" x 1/2"
75.	2FH0984	4	Hex Flange Whiz Lock Screw, 3/8" x 1-1/4"
76.	2FH1034	4	Hex Bolt, 3/8" x 2", Full Thread
77.	2FH1048	3	Hex Bolt, 1/2" x 2-1/2", Grade 5
83.	3FH0790	3	Lock Washer, 5/16"
84.	3FH0791	33	Lock Washer, 3/8"
85.	3FH0792	4	Lock Washer, 7/16"
86.	3FH0864	1	Flat Washer, 5/16"
87.	3FH0865	4	Flat Washer, 3/8"
88.	3FH1030	2	Square Key, 1/4" x 2"

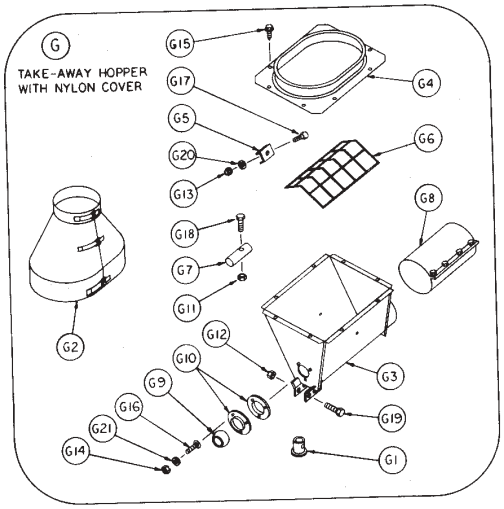
VERTICAL AUGER ACCESSORIES

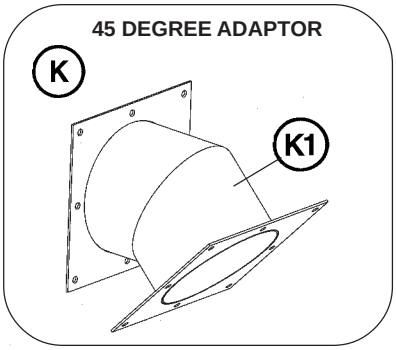


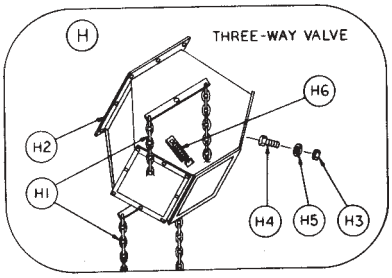


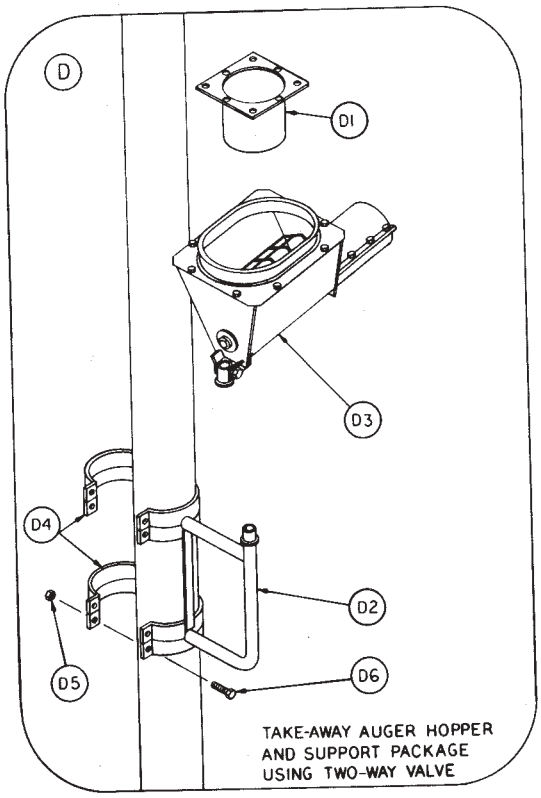


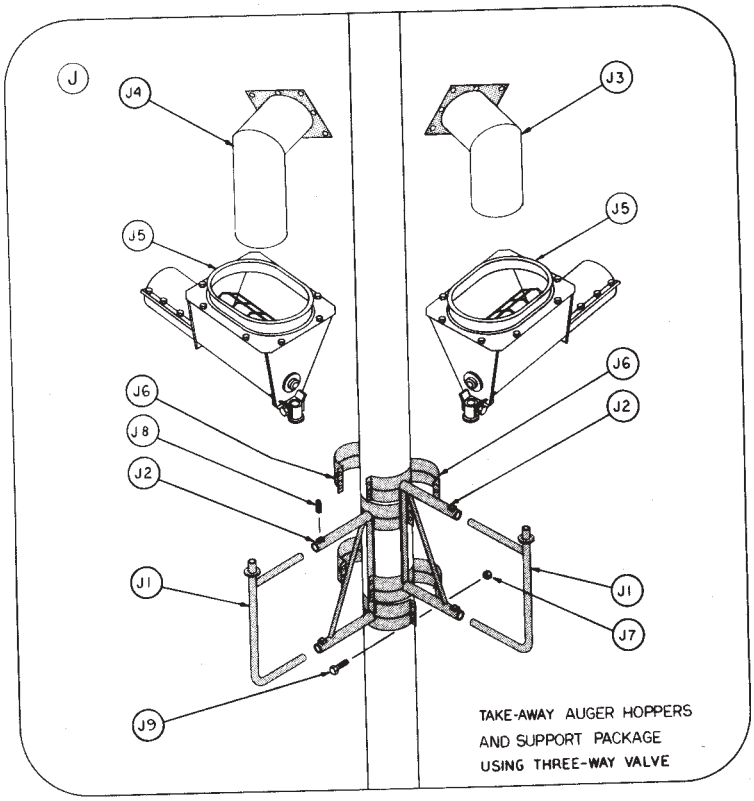








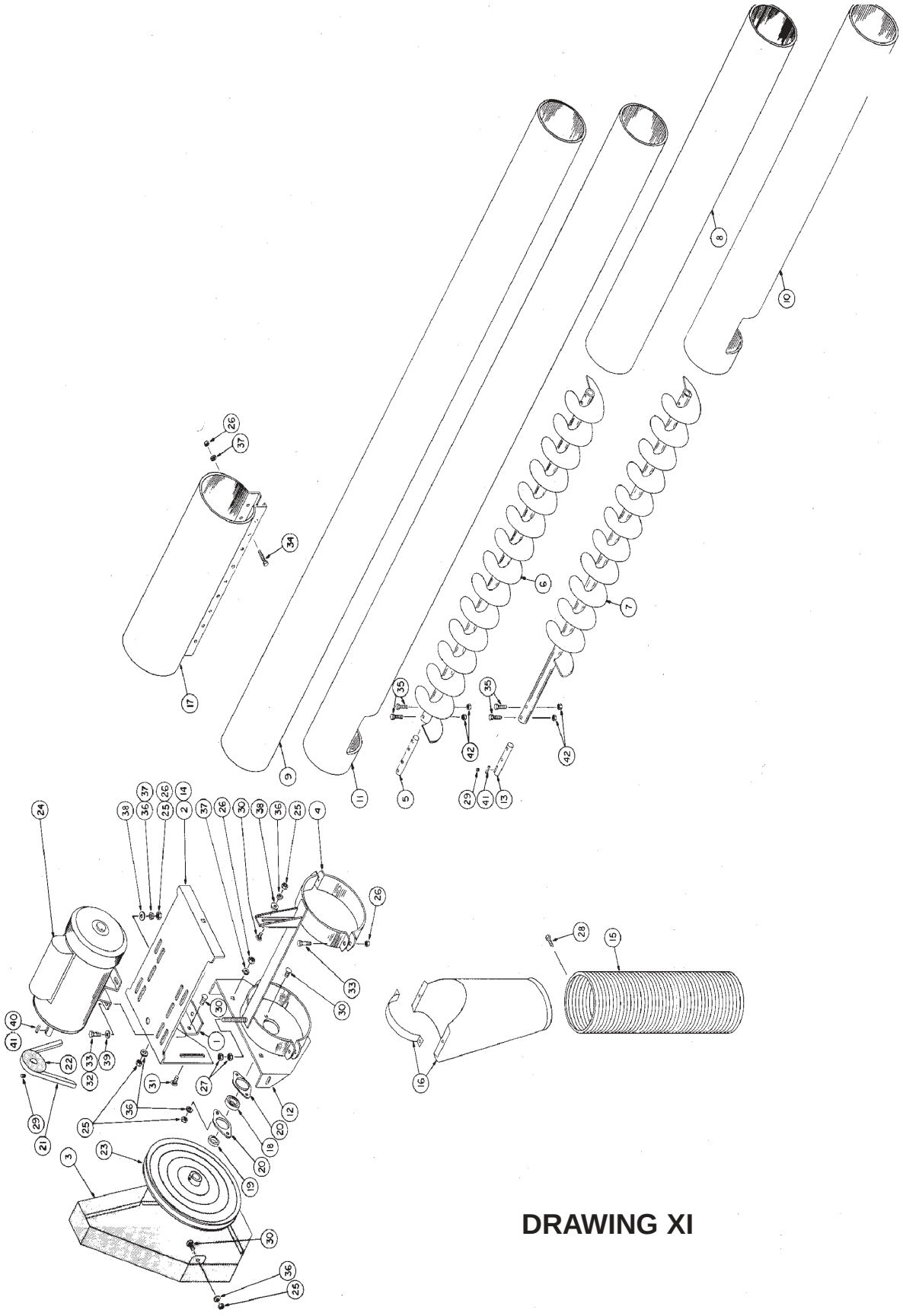




VERTICAL AUGER ACCESSORIES

REF. NO.	PART NUMBER	NO. REQ'D.	DESCRIPTION
B.	601D0036	1	Two-Way Valve W/Control Chain & Hardware
B1.	601D0034	1	Two-Way Valve Weldment
B2.	601D0035	1	Control Chain W/"S" Hooks
B3.	1FH0765	14	Hex Nut, 3/8"
B4.	2FH0855	16	Hex Bolt, 3/8" x 1"
B5.	3FH0791	16	Lock Washer, 3/8"
B6.	103C0025	1	Extension Spring, 5/8" x 4 1/4"
C.	601D0005	1	8" x 4' Loading Spout
D.	601N0057	1	Take-Away Hopper & Support Package (Using Two-Way Valve)
D1.	601D0003	1	8" OD x 8" Transition Down Spout
D2.	601D0014	1	Support for 6" Hopper Base
D3.	602D120	1	Take-Away Hopper Assembly W/Nylon Cover
D4.	205C0002	4	8" x 2" Clamping Band
D5.	1FH0765	8	Hex Nut, 3/8"
D6.	2FH0856	8	Hex Bolt, 3/8" x 1 1/4"
E.	602N026	1	Bottom Roof Support Leg Package
E1.	601B0003	1	6" x 2" Clamping Band
E2.	601D0064	2	Bin Wall Tube Backing Plate
E3.	601D0065	8	Clamping Channel
E4.	602D080	1	6" Clamping Band W/Angle Bracket
E5.	602D081	2	Support Leg (1" x 38" - 2 Holes)
E6.	602D082	2	Adjustment Leg (1" x 40")
E7.	1FH0765	12	Hex Nut, 3/8"
E8.	2FH0679	4	Carriage Bolt, 3/8" x 3" Full Thread
E9.	2FH0857	2	Hex Bolt, 3/8" x 1 1/2"
E10.	2FH0859	2	Hex Bolt, 3/8" x 2"
E11.	2FH1034	4	Hex Bolt, 3/8" x 2" Full Thread
E12.	3FH0791	10	Lock Washer, 3/8"
F.	602N027	1	Top Roof Support Leg Bag
F1.	601B0003	1	6" Clamping Band
F2.	601D0015	1	Adjustable Pivot Tube
F3.	601D0019	1	Roof Support Base W/Adjustable Rod
F4.	601D0020	1	6" Clamping Band W/Pivot Bracket
F5.	1FH0738	1	Hex Lock Nut, 1/2"
F6.	1FH0757	2	Hex Jam Nut, 1"
F7.	1FH0765	2	Hex Nut, 3/8"
F8.	2FH0856	2	Hex Bolt, 3/8" x 1 1/4"
F9.	2FH0909	1	Hex Bolt, 1/2" x 2 1/2"
G.	602D120	1	Take-Away Hopper Assembly W/Nylon Cover
G1.	601D0013	1	Hopper Pivot Tube
G2.	602D118	1	Nylon Cover
G3.	602D121	1	Take-Away Hopper Weldment
G4.	602D122	1	Take-Away Hopper Top Flange Plate
G5.	602D123	2	Take-Away Hopper Screen Clamp
G6.	602D124	1	Take-Away Hopper Screen
G7.	602D134	1	Take-Away Hopper Stub Shaft
G8.	6815P	1	6" Connecting Band
G9.	PT0220	1	Wood Bearing, 1"
G10.	PT0421	2	3 Hole Flangette
G11.	1FH0736	1	Hex Lock Nut, 3/8"
G12.	1FH0738	1	Hex Lock Nut, 1/2"
G13.	1FH0763	2	Hex Nut, 1/4"
G14.	1FH0764	3	Hex Nut, 5/16"
G15.	2FH0479	8	Hex Washer Head Self-Tapping Screw Type AB, 1/4" x 3/4"
G16.	2FH0645	3	Carriage Bolt, 5/16" x 3/4"
G17.	2FH0805	2	Hex Bolt, 1/4" x 1"
G18.	2FH0857	1	Hex Bolt, 3/8" x 1 1/2"
G19.	2FH0911	1	Hex Bolt, 1/2" x 3"
G20.	3FH0789	2	Lock Washer, 1/4"
G21.	3FH0790	3	Lock Washer, 5/16"
H.	601D0106	1	Three-Way Valve W/Control Chain & Hardware
H1.	601D0035	1	Control Chain W/"S" Hooks
H2.	601D0105	1	Three-Way Valve Weldment
H3.	1FH0765	20	Hex Nut, 3/8"
H4.	2FH0855	24	Hex Bolt, 3/8" x 1"
H5.	3FH0791	24	Lock Washer, 3/8"
H6.	103C0025	1	Extension Spring, 5/8" x 4 1/4"
J.	601N0058	1	Take-Away Hopper & Support Package (Using Three-Way Valve)
J1.	601D0095	2	Hopper Support Frame
J2.	601D0096	2	Hopper Support Frame Extension
J3.	601D0100	1	8" OD Angled Transition Down Spout (Short)
J4.	601D0101	1	8" OD Angled Transition Down Spout (Long)
J5.	602D120	2	Take-Away Hopper Assembly W/Nylong Cover
J6.	205C0002	8	8" x 2" Clamping Band
J7.	1FH0765	16	Hex Nut, 3/8"
J8.	2FH0617	4	Square Head Set Screw, 3/8" x 1"
J9.	2FH0856	16	Hex Bolt, 3/8" x 1 1/4"
K1.	602416	1	45 degree Adaptor - Use with 3-way valve

INCLINED AUGER

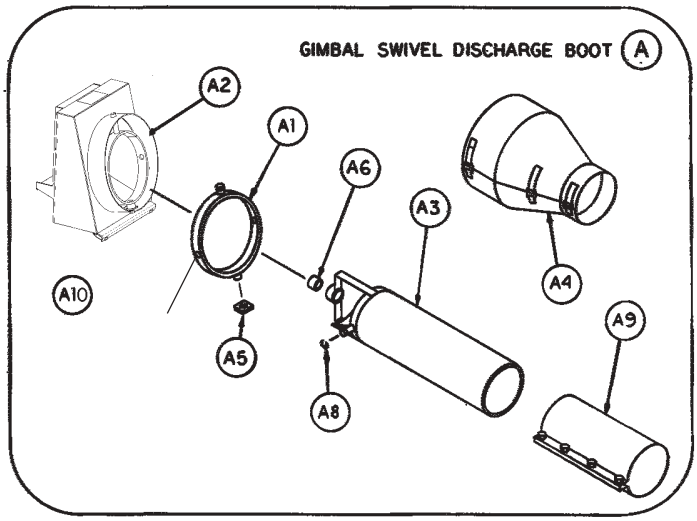


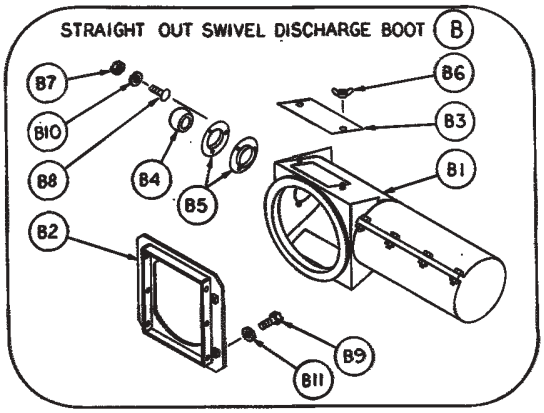
DRAWING XI

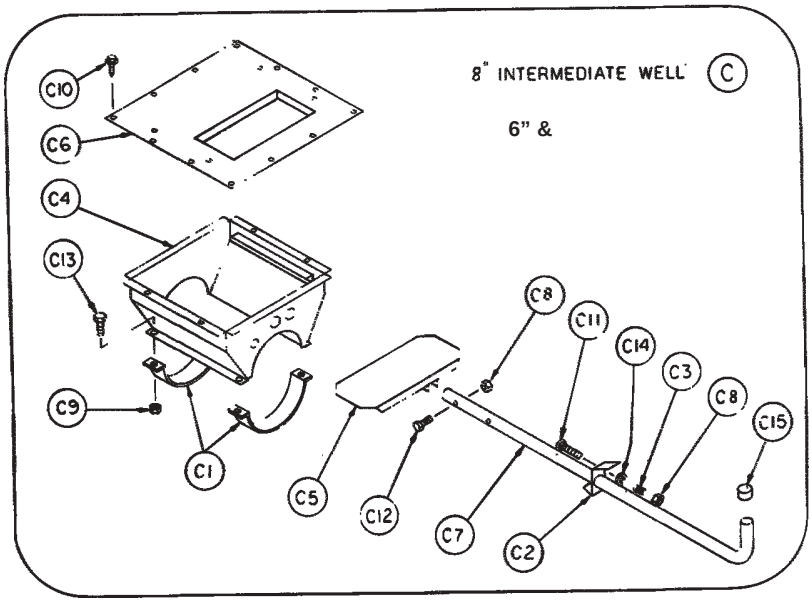
INCLINED AUGER

REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
1.	205C0003	1	Motor mount angle
2.	205C0005	1	Motor mount base plate (47' & under)
3.	205C0012	1	Belt shield
4.	601B0003	1	Tube clamp, 6"
5.	601D0109	A/R	Splice shaft
6.	601D0113	A/R	Extension auger
7.	601D0114	A/R	Extension auger-head section
8.	601D0115	A/R	Extension tube-10'
9.	601D0116	A/R	Extension tube-20'
10.	601D0117	1	Extension tube-head section-10'
11.	601D0118	1	Extension tube-head section-20'
12.	601D0120	1	Auger head
13.	601D0130	1	Stub shaft
14.	602D013	1	Boot motor mount (over 47')
15.	MS0260	A/R	6" discharge sput extension (per foot)
16.	H1607A	1	6" discharge spout
17.	N6309A	1	6" connecting tube splice
18.	PT0203	1	1" bearing with eccentric locking collar
19.	PT0401	1	1" eccentric locking collar
20.	PT0420	2	2 hole bearing flange
21.	PT0490	1	V-belt, B-48 (47' & under)
	PT0490	2	V-belt, B-48 (matched) (over 47')
22.	PT0640	1	Pulley, 4" x 5/8-1B, 1-1/2HP motors
	PT0641	1	Pulley, 4" x 7/8-1B, 2HP motors
	PT0644	1	Pulley, 4" x 1-1/8-1B, 3HP, 5HP, 7-1/2HP motors (47 & under)
	PT0642	1	Pulley, 4" x 1-1/8-2B, 5HP, 7-1/2HP motors (over 47')
23.	PT0681	1	Pulley, 12" x 1"-1B (47' & under)
	PT0684	1	Pulley, 12" x 1"-2B (over 47')
24.	3EL5097	1	Motor, 1-1/2HP, 1PH
	3EL5108	1	Motor, 2HP, 1PH
	3EL5109	1	Motor, 2HP, 3PH
	3EL5112	1	Motor, 3HP, 1PH
	3EL5104	1	Motor, 3HP, 3PH
	3EL5114	1	Motor, 5HP, 1PH
	3EL5120	1	Motor, 5HP, 3PH
	3EL5116	1	Motor, 7-1/2HP, 1PH
	3EL5117	1	Motor, 7-1/2HP, 3PH
25.	1FH0764	11	Hex nut, 5/16" (1-1/2HP)
	1FH0764	7	Hex nut, 5/16" (2HP & larger)
26.	1FH0765	A/R	Hex nut, 3/8"
27.	1FH0767	2	Hex nut, 1/2"
28.	2FH0478	3	Self-tapping screw, #10 x 1"
29.	2FH0512	3	Socket head set screw, 5/16" x 5/16"
30.	2FH0645	7	Carriage bolt, 5/16 x 3/4
31.	2FH0659	2	Carriage bolt, 3/8 x 3/4
32.	2FH0830	4	Hex bolt, 5/16 x 1 (1-1/2HP only)
33.	2FH0856	4	Hex bolt, 3/8 x 1-1/4 (1-1/2HP)
	2FH0856	8	Hex bolt, 3/8 x 1-1/4 (2HP & larger)
34.	2FH0857	A/R	Hex bolt, 3/8 x 1-1/2
35.	2FH1057	A/R	Hex bolt, 3/8 x 1-3/4
36.	3FH0790	11	Lockwasher, 5/16 (1-1/2HP)
	3FH0790	7	Lockwasher, 5/16 (2HP & larger)
37.	3FH0791	A/R	Lockwasher, 3/8
38.	3FH0864	5	Flat washer, 5/16" (1-1/2HP)
	3FH0864	1	Flat washer, 5/16" (2HP & larger)
39.	3FH0865	4	Flat washer, 3/8" (2HP & larger)
40.	3FH1015	1	Square key, 3/16" x 1" (under 47')
41.	3FH1030	2	Square key, 1/4" x 2" (over 47')
42.	1FH0736	A/R	Hex lock nut, 3/8"

GRAIN FLOW
OPTIONAL EQUIPMENT







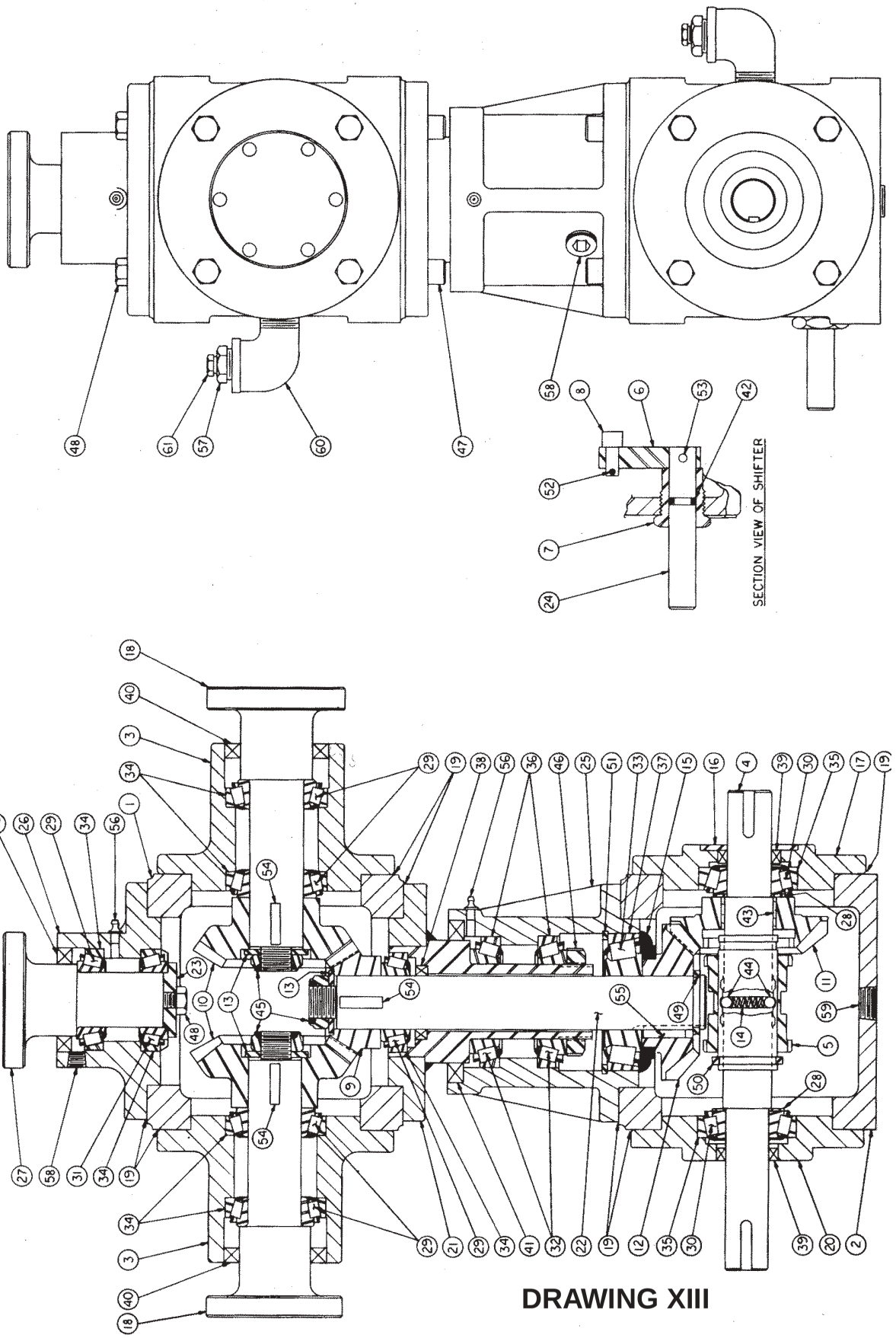
DRAWING XII

GRAIN FLOW
OPTIONAL EQUIPMENT

REF. NO.	6" DISCHARGE	8" DISCHARGE	NO. REQ'D	DESCRIPTION
A.	602D100	603D001	10	Gimbal Swivel Discharge Boot
A1.	602D101	603D002	1	Gimbal Swivel Yoke
A2.	6024151	6024151	1	Gimbal Swivel Boot with Slide Gate
A3.	602D103	603D004	1	Gimbal Swivel Tube
A4.	602D118	602D118	1	Nylon Cover
A5.	602D119	602D119	1	Gimbal Swivel Square Washer
A6.	PTO887	PTO887	1	Bronze Bushing, 1 1/4" ID x 1 1/2" OD x 1"
A8.	3FH0578	3FH0578	3	External Retaining Ring, 5/8"
A9.	6309A	8309A	1	Connecting Band
A10.	6024153	6024153	1	Slide Gate
B.	602D086	602D086	1	Straight Out Swivel Discharge Boot
B1.	602D087	602D087	1	Straight Out Boot
B2.	602D088	602D088	1	Straight Out Boot Mounting Plate
B3.	602D089	602D089	2	Straight Out Boot Clean Out Cover
B4.	PTO219	PTO219	1	Wood Bearing, 1 1/4"
B5.	PTO424	PTO424	2	3-Hole Center Flange
B6.	1FH0579	1FH0579	4	Wingnut, 1/4"
B7.	1FH0765	1FH0765	3	Hex Nut, 3/8"
B8.	2FH0659	2FH0659	3	Carriage Bolt, 3/8" x 3/4"
B9.	2FH0855	2FH0855	4	Hex Bolt, 3/8" x 1"
B10.	3FH0791	3FH0791	3	Lock Washer, 3/8"
B11.	3FH0865	3FH0865	4	Flat Washer, 3/8"
B12.	3FH0866	3FH0866	4	Flat Washer, 7/16" (Not Shown)
B13.	1FH0736	1FH0736	4	Locknut, 3/8" (Not Shown)
B14.	106B110	106B110	4	Spacer (Not Shown)
C.	602N231	603N010	1	8" Intermediate Well
C1.	601B0003	205C0002	2	8" x 2" Clamping Band
C2.	601C0021	601C0021	1	Latch-Slide Gate Tube
C3.	601C0051	601C0052	1	Compression Spring .420 x 1 1/4
C4.	602B031	603B003	1	Intermediate Well Weldment
C5.	603B004	603B004	1	Intermediate Well Slide Gate
C6.	603B009	603B009	1	Intermediate Well Cover
C7.	6022039	603B012	1	Intermediate Well Slide Gate Tube
C8.	1FH0735	1FH0735	3	Hex Locknut, 5/16"
C9.	1FH0765	1FH0765	4	Hex Nut, 3/8"
C10.	2FH0491	2FH0491	16	Hex Washer Head, Self-Tapping Screw 1/4" x 1 3/4", No. 3 TEKS
C11.	2FH0650	2FH0650	1	Carriage Bolt, 5/16" x 2"
C12.	2FH0834	2FH0834	2	Hex Bolt, 5/16" x 2"
C13.	2FH0856	2FH0856	4	Hex Bolt, 3/8" x 1 1/4"
C14.	3FH0863	3FH0863	1	Flat Washer, 1/4"
C15.	MS0083	MS0083	1	Plastic End Cap, 1 1/4"

DUAL CENTER GEAR BOX - DMC #602B001 (Painted White)

(MFG. BY HUB CITY)



DRAWING XIII

DUAL CENTER GEAR BOX - DMC #602B001

REF. NO.	PART NO.	NO. REQ'D	DESCRIPTION
1.	601B0051	1	Upper Gear Case
2.	601B0052	1	Lower Gear Case
3.	601B0055	2	Pinion Extension Housing
4.	601B0059	1	Lower Horizontal Drive Shaft
5.	601B0061	1	Sliding Clutch
6.	601B0063	1	Shifting Arm
7.	601B0064	1	Threaded Bushing
8.	601B0066	1	Shifting Block
9.	601B0077	1	Bevel Gear, 16T.
10.	601B0078	2	Bevel Gear, 24T.
11.	601B0079	1	Bevel Gear, 21T.
12.	601B0080	1	Bevel Gear, 21T.
13.	601B0082	3	Pinion Washer, 3/4"ID x 1-1/2" OD x 1/8"
14.	601B0084	1	Spring, .240 x .038 x 1-1/8"
15.	601B0085	1	Excluder-Inner
16.	601B0086	1	Seal Protector
17.	601B0087	1	Open End Cap (For Seal Protector)
18.	601B0093	2	Upper Pinion Shaft
19	601B0114	A/R	Aluminum Shim, .003
	601B0115	A/R	Aluminum Shim, .005
20.	602B002	1	Open End Cap
21.	602B003	1	Open Cap Weldment
22.	602B004	1	Connecting Shaft
23.	602B005	1	Pinion Washer
24.	602B006	1	Shift Lever Connecting Shaft
25.	602B007	1	Connecting Housing
26.	602B008	1	Top Bearing Support
27.	602B009	1	Top Bearing Shaft
28.	PT0306	2	Thrust Race
29.	PT0322	6	Tapered Bearing, 1-1/4"
30.	PT0323	2	Tapered Bearing, 1"
31.	PT0328	1	Tapered Bearing, 1-1/4"
32.	PT0329	2	Tapered Bearing, 1-3/4"
33.	PT0330	1	Tapered Bearing, 1-1/4"
34.	PT0442	7	Tapered Bearing Cup
35.	PT0443	2	Tapered Bearing Cup
36.	PT0448	2	Tapered Bearing Cup
37.	PT0449	1	Tapered Bearing Cup
38.	PT0825	1	Oil Seal, 1989
39.	PT0811	2	Oil Seal
40.	PT0812	3	Oil Seal
41.	PT0823	1	Oil Seal
42.	PT0851	1	"O" Ring
43.	PT0885	1	Bronze Bushing
44.	MS0025	2	Steel Ball, 1/4" Diameter
45.	1FH0732	3	Hex Jam Nut, Self-Locking, 3/4" UNF
46.	1FH0841	1	Shaft Lock Nut, 1-3/4"
47.	2FH0446	8	Socket Head Cap Screw, 3/8" x 1"
48.	2FH0855	21	Hex Bolt, 3/8" x 1"
49.	3FH0571	1	External Retaining Ring, 1-1/4"
50.	3FH0576	1	Heavy External Retaining Ring 1-3/8"
51.	3FH0593	1	Internal Retaining Ring, 3-1/2"
52.	3FH0701	1	Cotter Pin, 1-1/16" x 1/2"
53.	3FH0890	1	Shear Proof Pin, 3/16" x 7/8"
54.	3FH0993	3	Woodruff Key, 1/4" x 1"
55.	3FH1026	1	Square Key, 1/4" x 1"
56.	4FH0202	2	Grease Fitting, 3/16"
57.	4FH0284	2	Pipe Bushing, 1/2" x 1/8" NPT
58.	4FH0291	2	Socket Head Pipe Plug, 1/4" NPT
59.	4FH0293	3	Socket Head Pipe Plug, 1/2"NPT
60.	4FH0300	2	Street Elbow, 90 degree, 1/2" NPT
61.	4FH0314	2	Pressure Relief Fitting, 1/'

GRAIN FLOW ANNUAL START-UP CHECK LIST

A. Inspect the center gearbox each drying season to make sure that the hood and top gearbox will rotate freely.

B. Remove the hood and the inspection plate in the sump to check to level of lubricant in both the TOP and BOTTOM GEARBOXES. Fill with 90 weight gear lube to the lubricant level up to the inspection hole. Grease the top and center zerks.

C. Grease the bearings located behind the drive pulleys of the discharge and vertical augers. Do not over grease or the bearing seals could be damaged.

D. Inspect the sensor flag located in the discharge tube for wear, being bent, or other damage.

E. Shift the floor augers in and out of gear to see if linkage functions correctly.

F. Clean the drying floor, removing any “fines” that can impede air flow.

G. Check the floor auger wear plates to make sure they are not loose and are in good condition.

H. Inspect the floor augers for wear and damage.

I. Inspect all drive belts on the Grain Flow and take-away augering equipment.

J. Check and clean the auger overload switch to make sure that it is adjusted correctly.

K. Inspect control box for loose or worn wires. Rodents sometimes chew electrical components and ruin them. Disengage floor augers, turn power on, and operate all motors. BE CAREFUL NOT TO HAVE HANDS OR CLOTHING WHERE ENTANGLEMENT IS POSSIBLE!

L. Check all optional equipment installed in the bin (such as Level Monitor, Stir-Ator, and Amp-Alarm) to be sure all are functioning properly.

GRAIN FLOW WITH STIRRING EQUIPMENT

A Grain Flow drying silo equipped with an optional Stir-Ator will increase the drying capacity as grain depths increase. The ends of the stirring augers should be 760 mm above the floor to avoid disturbing the drying zone. BE SURE TO RE-WELD BOTTOM FLIGHTING OF STIR-ATOR AUGER AFTER CUTTING OFF. Constant stirring above the drying zone loosens the grain and allows more air to move through the grain mass, which increases the drying rate. It also allows more grain to be put into the drying silo without fear of bridging or spoiling. With stirring, no side wall stiffeners are required for the drying silo. The number of down augers on the stirring equipment varies with the size of the drying silo. Single auger machines for up to 27 ft. diameter bins, double auger units for 8-10 m diameter bins and triple auger units for 10-13 m diameter silos are recommended.

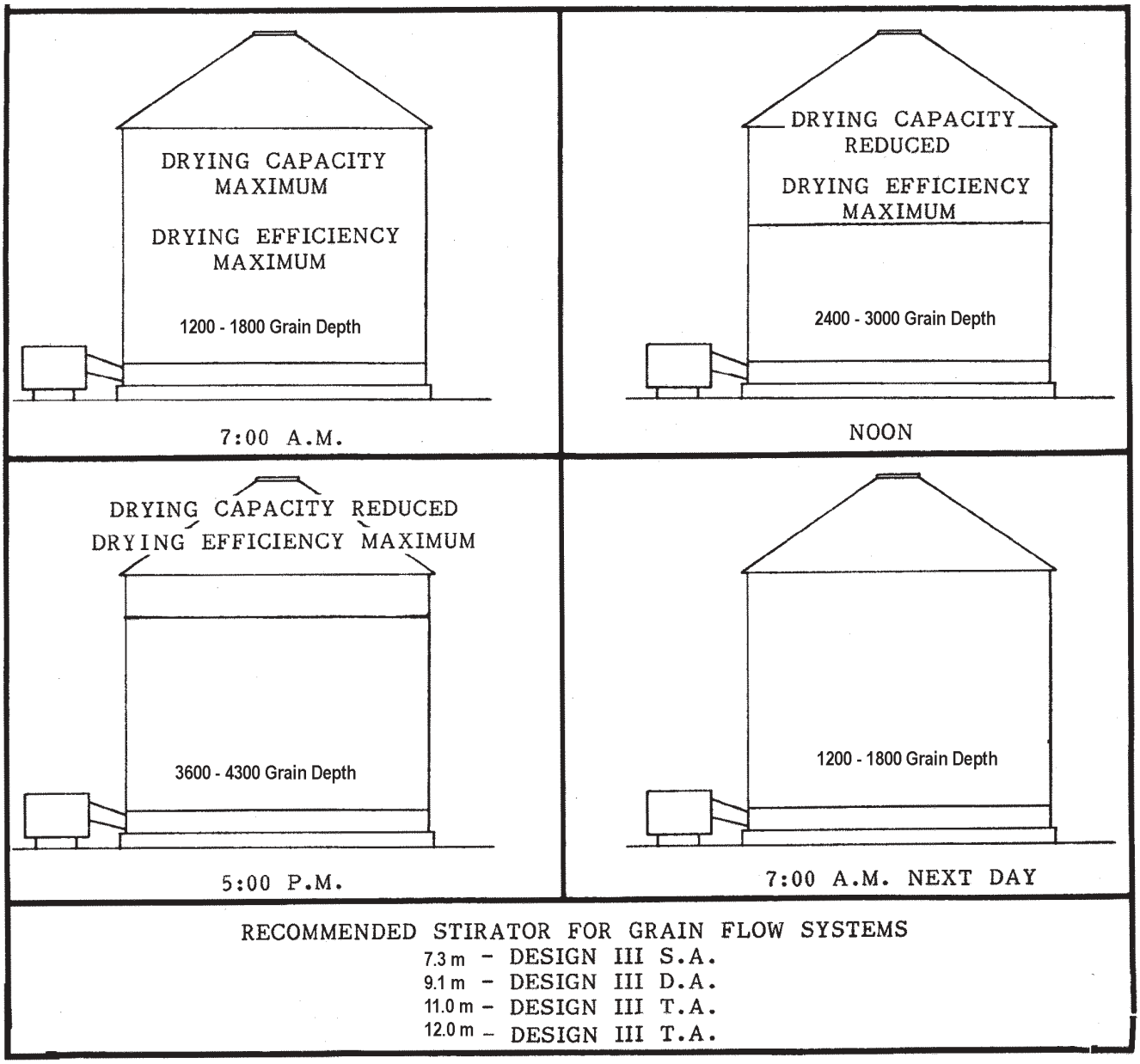
Grain Level Monitors are available that will automatically start and stop the stirring equipment at the desired grain depth. A depth of 1500 mm is usually when stirring should be started and continued until the grain depth is below 1500 mm. However, this depth may differ for some grains.

In an emergency, stirring equipment above a Grain Flow allows the grain in the drying silo to be stir-dried if the Grain Flow becomes inoperative and also provides a useful tool to keep the grain in condition during storage. See Illustration on the next page.

WHY STIRRING IS PART OF YOUR CONTINUOUS IN-BIN SYSTEM

- Wet holding, drying and storage in one silo
- Eliminates need for wall stiffeners
- Sitr-Dry last fill for storage without spoilage
- Mechanical problems with grain flow
  (Stir-dry and transfer dry grain)
- Realities of harvesting (see examples below)
- Maximum drying efficiency

9 m silo equipped with 2- 20 HP centrifugal fans
Drying 24 hours a day - 7.5 T/hr rate
Harvesting 10 hours a day - 18 T/hr rate



MODEL 84
GRAIN FLOW

OWNER'S MANUAL

This product conforms to the EC Directive 89/392/EEC (amended by Council Directive 91/368/EEC), the machinery Directive, and in particular, the Essential Health Safety Requirements that apply to it, specifically, Schedule 1: General Points.

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