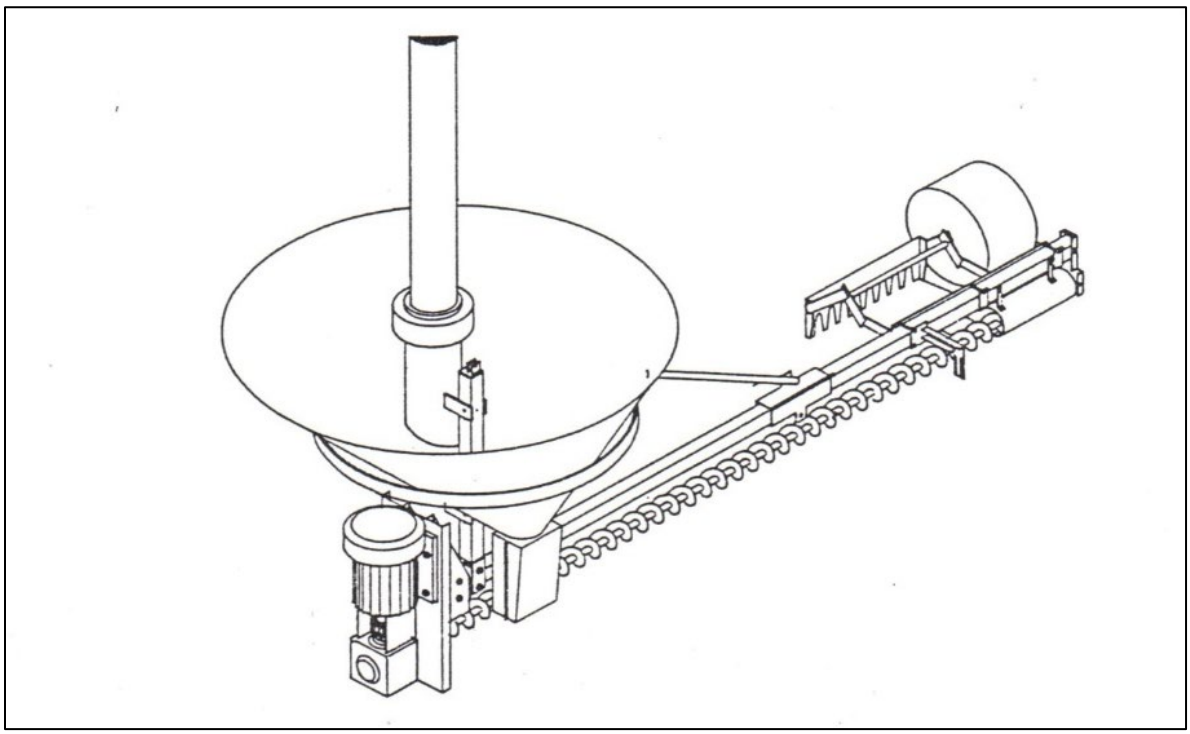
SHIVVERS

Counter-Flow Grain Drying Systems

LEVEL-DRY

Mechanical Installation Instructions



LD8XX1P: Level-Dry, for 8”CV, 6”Auger (Std Cap), XX ft (Bin), 1P (Single-Phase)
LD8XX3P: Level-Dry, for 8”CV, 6”Auger (Std Cap), XX ft (Bin), 3P (Three-Phase)
LDH8X1P: Level-Dry, for 8”CV, 8”Auger (Hi-Cap), XX ft (Bin), 1P (Single-Phase)
LDH8XX3P: Level-Dry, for 8”CV, 8”Auger (Hi-Cap), XX ft (Bin), 3P (Three-Phase)

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P-13416, Rev-E
083123aa

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Level-Dry Systems, Standard Capacity

for Shivvers Circulators 2000 BPH (Corn)
with 8-in Center Verticals by Bin Size and Power Phase

LD8241P	Level-Dry, 8"CV, 24-Ft Bin, 1-Phase 220V
LD8243P	Level-Dry, 8"CV, 24-Ft Bin, 3-Phase 220V
LD8271P	Level-Dry, 8"CV, 27-Ft Bin, 1-Phase 220V
LD8273P	Level-Dry, 8"CV, 27-Ft Bin, 3-Phase 220V
LD8301P	Level-Dry, 8"CV, 30-Ft Bin, 1-Phase 220V
LD8303P	Level-Dry, 8"CV, 30-Ft Bin, 3-Phase 220V
LD8331P	Level-Dry, 8"CV, 33-Ft Bin, 1-Phase 220V
LD8333P	Level-Dry, 8"CV, 33-Ft Bin, 3-Phase 220V
LD8361P	Level-Dry, 8"CV, 36-Ft Bin, 1-Phase 220V
LD8363P	Level-Dry, 8"CV, 36-Ft Bin, 3-Phase 220V
LD8391P	Level-Dry, 8"CV, 39-Ft Bin, 1-Phase 220V
LD8393P	Level-Dry, 8"CV, 39-Ft Bin, 3-Phase 220V
LD8421P	Level-Dry, 8"CV, 42-Ft Bin, 1-Phase 220V
LD8423P	Level-Dry, 8"CV, 42-Ft Bin, 3-Phase 220V
LD8481P	Level-Dry, 8"CV, 48-Ft Bin, 1-Phase 220V
LD8483P	Level-Dry, 8"CV, 48-Ft Bin, 3-Phase 220V

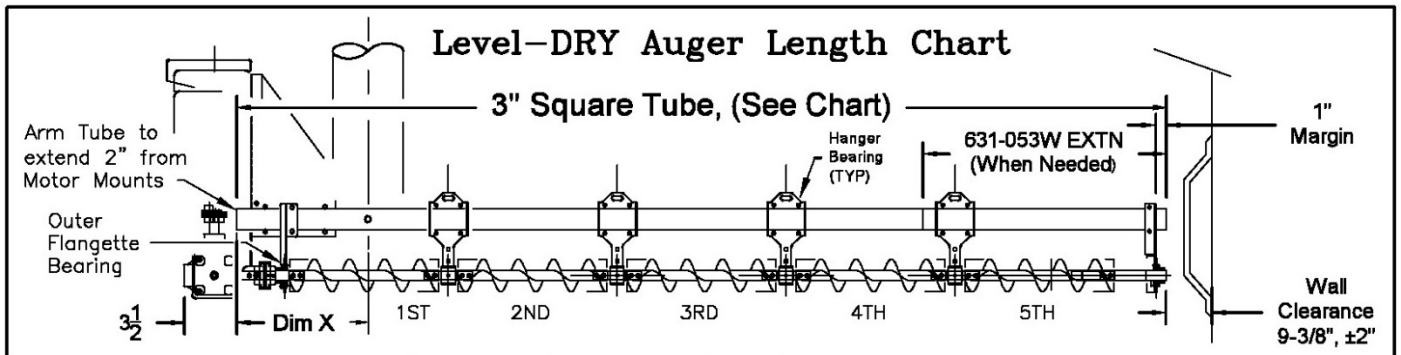
Level-Dry Systems, High Capacity

for Shivvers Circulators, 3000 BPH (Corn)
with 8-in Center Verticals by Bin Size and Power Phase

LDH8241P	Level-Dry, HC, 8"CV, 24-Ft Bin, 1-Phase 220V
LDH8243P	Level-Dry, HC, 8"CV, 24-Ft Bin, 3-Phase 220V
LDH8271P	Level-Dry, HC, 8"CV, 27-Ft Bin, 1-Phase 220V
LDH8273P	Level-Dry, HC, 8"CV, 27-Ft Bin, 3-Phase 220V
LDH8301P	Level-Dry, HC, 8"CV, 30-Ft Bin, 1-Phase 220V
LDH8303P	Level-Dry, HC, 8"CV, 30-Ft Bin, 3-Phase 220V
LDH8331P	Level-Dry, HC, 8"CV, 33-Ft Bin, 1-Phase 220V
LDH8333P	Level-Dry, HC, 8"CV, 33-Ft Bin, 3-Phase 220V
LDH8361P	Level-Dry, HC, 8"CV, 36-Ft Bin, 1-Phase 220V
LDH8363P	Level-Dry, HC, 8"CV, 36-Ft Bin, 3-Phase 220V
LDH8391P	Level-Dry, HC, 8"CV, 39-Ft Bin, 1-Phase 220V
LDH8393P	Level-Dry, HC, 8"CV, 39-Ft Bin, 3-Phase 220V
LDH8421P	Level-Dry, HC, 8"CV, 42-Ft Bin, 1-Phase 220V
LDH8423P	Level-Dry, HC, 8"CV, 42-Ft Bin, 3-Phase 220V
LDH8481P	Level-Dry, HC, 8"CV, 48-Ft Bin, 1-Phase 220V
LDH8483P	Level-Dry, HC, 8"CV, 48-Ft Bin, 3-Phase 220V

Table 0.2

The above systems were designed to operate on the Center Vertical Augers in Shivvers Circulator systems, but will work in Shivvers Dri-Flo systems (which do not have a Center Vertical Auger) by adding an 8" Tube vertically from the Dri-Flo shield above the gearbox. For Dri-Flo installations, order also 1-each of 634G-001A LDRY Dri-Flo Kit and 460G-005P (8"OD Tube x 17'8-5/8"L).



□ Flangettte Bearing
○ Hanger bearing

Hanger Bearing Kits

632D-001A Hanger Bearing KIT, Wood Brg Style

Bin Dia. in FT	1ST Auger Section	2ND Auger Section	3RD Auger Section	4TH Auger Section	5TH Auger Section	DIM X	Level-Dry ARM 3-IN Square Tube	Ft	INs			INs
							631-053W 3' SQ Tube Extension Needed on 39-48FT Bins, Adds 58.5'					
24	□ 4 ○	4 ○	4 □			20'	631AC-001A	12'10"	154			154
27	□ 5 ○	5 ○	4 □			26'	631AD-001A	14'10"	178			178
30	□ 5 ○	5 ○	5 □			20'	631AE-001A	15'10"	190			190
33	□ 5 ○	4 ○	4 ○	4 □		26'	631AF-001A	17'10"	214			214
36	□ 5 ○	5 ○	4 ○	4 □		20'	631AG-001A	18'10"	226			226
39	□ 4 ○	4 ○	4 ○	4 ○	4 □	26'	631AH-001A	15'11.5"	191.5	631-053W	58.5	250
42	□ 5 ○	4 ○	4 ○	4 ○	4 □	20'	631AI-001A	16'11.5"	203.5	631-053W	58.5	262
48	□ 5 ○	5 ○	5 ○	5 ○	4 □	20'	631AJ-001A	19'11.5"	239.5	631-053W	58.5	298

STANDARD CAPACITY AUGER WELDMENTS		HIGH CAPACITY AUGER WELDMENTS	
631M-001A	4FT (Nom.) x5.50x6P (45 1/8")	631P-001A	4FT (Nom.) x7.00x7P (45 1/8")
631N-001A	5FT (Nom.) x5.50x6P (57 1/8")	631Q-001A	5FT (Nom.) x7.00x7P (57 1/8")

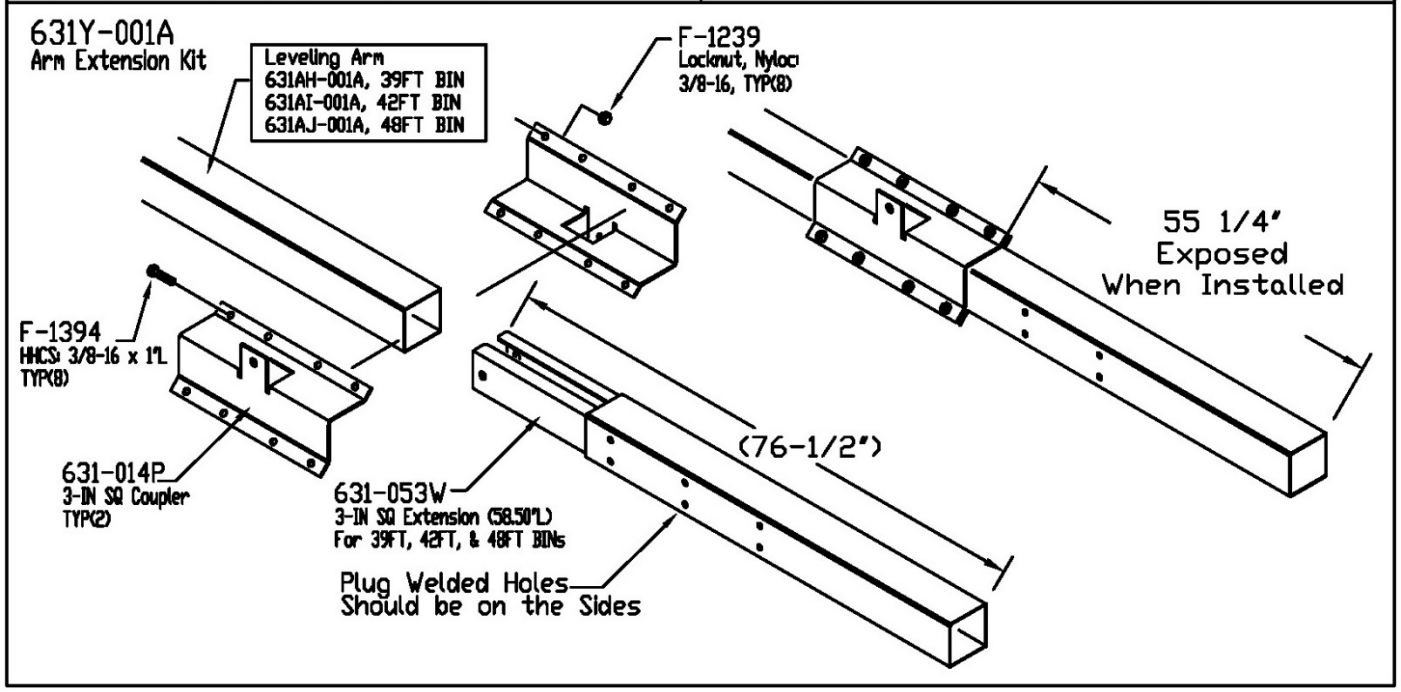


Table 0.4

Note: Use Wall Clearance of 8" if there is no Ladder.

Note: Numbers in Chart under # Auger Section indicates length in FT less 2-7/8" for Bearing.

Level–DRY Sys. to Bin Matchup Chart

SHIVVERS

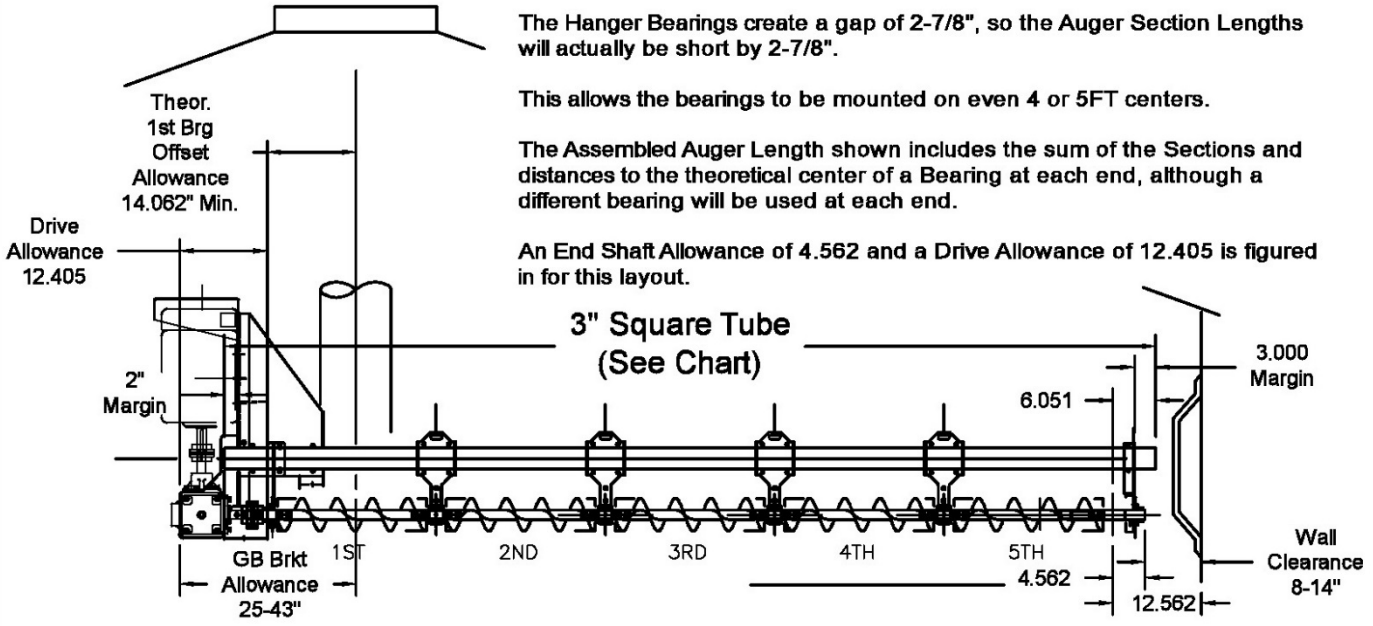
Note: Auger Sections are provided in nominal lengths of 4FT or 5FT. (a 3FT length is available by special order if needed).

The Hanger Bearings create a gap of 2-7/8", so the Auger Section Lengths will actually be short by 2-7/8".

This allows the bearings to be mounted on even 4 or 5FT centers.

The Assembled Auger Length shown includes the sum of the Sections and distances to the theoretical center of a Bearing at each end, although a different bearing will be used at each end.

An End Shaft Allowance of 4.562 and a Drive Allowance of 12.405 is figured in for this layout.



Level–DRY Auger Length Chart

BOLD Numbers represent Level–Dry Systems for common bin sizes
These can be used in other size bins by adjusting the Wall Clearance.

□ Flangettte Bearing
○ Hanger bearing

Bin Dia. Ft' Ins"	INs	Radius	1ST Lgth (Ft)	2ND Lgth (Ft)	3RD Lgth (Ft)	4TH Lgth (Ft)	5TH Lgth (Ft)	Auger L (Nom.) Ft	Auger L (Nom.) INs	Wall Clearance (INs)	GB Brkt Allowance (25–36INs)	3" Sq Tube	Ft	INs
LD8241P, LD8243P, LDH8241P, LDH8243P														
22 00	264	132	□ 4	○ 4	○ 4	□		12	144	8	37	631AC–001A	13	156
22 06	270	135	□ 4	○ 4	○ 4	□		12	144	8	34	631AC–001A	13	156
22 09	273	136.5	□ 4	○ 4	○ 4	□		12	144	8	32	631AC–001A	13	156
7M (23',00")	275.59	137.8	□ 4	○ 4	○ 4	□		12	144	8	29.41	631AC–001A	13	156
23 06	282	141	□ 4	○ 4	○ 4	□		12	144	8	28	631AC–001A	13	156
24 00	**288**	**144**	**□ 4**	**○ 4**	**○ 4**	**□**		**12**	**144**	**8**	**25**	**631AC–001A**	**13**	**156**
24 00	288	144	□ 4	○ 4	○ 4	□		12	144	10	27	631AC–001A	13	156
24 09	297	148.5	□ 4	○ 4	○ 4	□		12	144	14	26	631AD–001A	13	156
25 00	300	150	□ 4	○ 4	○ 4	□		12	144	8	25	631AD–001A	13	156
LD8271P, LD8273P, LDH8271P, LDH8273P														
8M (26',03")	314.96	158.5	□ 5	○ 5	○ 4	□		14	168	8	32	631AD–001A	15	180
26 05	317	158.5	□ 5	○ 5	○ 4	□		14	168	8	34	631AD–001A	15	180
26 09	321	160.5	□ 5	○ 5	○ 4	□		14	168	8	32	631AD–001A	15	180
26 10	322	161	□ 5	○ 5	○ 4	□		14	168	8	32	631AD–001A	15	180
27 00	**324**	**162**	**□ 5**	**○ 5**	**○ 4**	**□**		**14**	**168**	**8**	**31**	**631AD–001A**	**15**	**180**
27 10	334	167	□ 5	○ 5	○ 4	□		14	168	8	26	631AD–001A	15	180
28 00	336	168	□ 5	○ 5	○ 4	□		14	168	10	27	631AD–001A	15	180
28 03	339	169.5	□ 5	○ 5	○ 4	□		14	168	12	27	631AD–001A	15	180

Level-DRY Sys. to Bin Matchup Chart, (cont'd)

Bin Dia. Ft' Ins"	Bin Dia. INs	Radius	1ST Lgth / 2ND Lgth / 3RD Lgth / 4TH Lgth / 5TH Lgth	Auger L (Nom.) Ft	Auger L (Nom.) INs	Wall Clearance (INs)	GB Brkt Allowance (25-36INs)	3" Sq Tube		
									Ft	INs
LD8301P, LD8303P, LDH8301P, LDH8303P										
29 00	348	174	□ 5 o 5 o 5 □	15	180	8	31	631AE-001A	16	192
29 04	352	176	□ 5 o 5 o 5 □	15	180	8	29	631AE-001A	16	192
9M (29',06")	354.33	177.17	□ 5 o 5 o 5 □	15	180	8	24	631AE-001A	16	192
30 00	**360**	**180**	**□ 5 o 5 o 5 □**	**15**	**180**	**8**	**25**	**631AE-001A**	**16**	**192**
30 06	366	183	□ 5 o 5 o 5 □	15	180	12	26	631AE-001A	16	192
31 00	372	186	□ 5 o 5 o 5 □	15	180	14	25	631AE-001A	16	192
LD8331P, LD8333P, LDH8331P, LDH8333P										
33 00	**396**	**198**	**□ 5 o 4 o 4 o 4 □**	**17**	**204**	**8**	**31**	**631AF-001A**	**18**	**216**
33 05	401	200.5	□ 5 o 4 o 4 o 4 □	17	204	8	28	631AF-001A	18	216
34 00	408	204	□ 5 o 4 o 4 o 4 □	17	204	10	27	631AF-001A	18	216
34 03	411	205.5	□ 5 o 4 o 4 o 4 □	17	204	12	27	631AF-001A	18	216
LD8361P, LD8363P, LDH8361P, LDH8363P										
35 10	430	215	□ 5 o 5 o 4 o 4 □	18	216	10	28	631AG-001A	19	228
36 00	**432**	**216**	**□ 5 o 5 o 4 o 4 □**	**18**	**216**	**8**	**25**	**631AG-001A**	**19**	**228**
11M(36',01")	433.07	216.54	□ 5 o 5 o 4 o 4 □	18	216	10	24	631AG-001A	19	228
36 04	436	218	□ 5 o 5 o 4 o 4 □	18	216	10	25	631AG-001A	19	228
37 01	445	222.5	□ 5 o 5 o 4 o 4 □	18	216	15	25	631AG-001A	19	228
LD8391P, LD8393P, LDH8391P, LDH8393P										
39 00	**468**	**234**	**□ 4 o 4 o 4 o 4 o 4 □**	**20**	**240**	**8**	**31**	**631AH-001A**	**21**	**252**
39 06	474	237	□ 4 o 4 o 4 o 4 o 4 □	20	240	8	28	631AH-001A	21	252
40 00	480	240	□ 4 o 4 o 4 o 4 o 4 □	20	240	10	27	631AH-001A	21	252
LD8421P, LD8423P, LDH8421P, LDH8423P										
40 07	487	243.5	□ 5 o 4 o 4 o 4 o 4 □	21	252	8	33	631AI-001A	22	264
41 07	499	249.5	□ 5 o 4 o 4 o 4 o 4 □	21	252	8	27	631AI-001A	22	264
42 00	**504**	**252**	**□ 5 o 4 o 4 o 4 o 4 □**	**21**	**252**	**8**	**25**	**631AI-001A**	**22**	**264**
13M(42',08")	511.81	255.91	□ 5 o 4 o 4 o 4 o 4 □	21	252	10	23	631AI-001A	22	264
43 03	519	259.5	□ 5 o 4 o 4 o 4 o 4 □	21	252	16	25	631AI-001A	22	264
LD8481P, LD8483P, LDH8481P, LDH8483P										
48 00	**576**	**288**	**□ 5 o 5 o 5 o 5 o 4 □**	**24**	**288**	**8**	**25**	**631AJ-001A**	**25**	**300**
15M(49',03")	590.55	295.3	□ 5 o 5 o 5 o 5 o 4 □	24	288	16	25	631AJ-001A	25	300
49 05	593	296.5	□ 5 o 5 o 5 o 5 o 4 □	24	288	17	25	631AJ-001A	25	300

STANDARD CAPACITY AUGER WELDMENTS

2000 BU/HR Input Max @ 25% Corn OR 18% Milo
3000 BU/HR Input Max 14% Corn.
Normally a 8" Auger Input, not smaller than 6" Input

631L-001A	3FT (Nom.) x5.50x6P (33 1/8")	(Spec. Order)
631M-001A	4FT (Nom.) x5.50x6P (45 1/8")	
631N-001A	5FT (Nom.) x5.50x6P (57 1/8")	

HIGH CAPACITY AUGER WELDMENTS

3000 BU/HR Input Max @ 25% Corn OR 18% Milo
4000 BU/HR Input Max 14% Corn.
Normally a 10" Auger Input, not smaller than 8" Input

631O-001A	3FT (Nom.) x7.00x7P (33 1/8")	(Spec. Order)
631P-001A	4FT (Nom.) x7.00x7P (45 1/8")	
631Q-001A	5FT (Nom.) x7.00x7P (57 1/8")	

1a. Safety

The installer of this machinery must assume the responsibility for his own safety, and that of those who are working with him. He must also make sure that the equipment is installed as shown in this manual.

If any items covered in this manual are not completely understood, or there is a concern with the safety of the product, contact Shivvers Mfg, Inc. at the address shown on the front page.

TAKE NOTE ANYTIME THIS SYMBOL APPEARS.
YOUR SAFETY, AND THAT OF PERSONS AROUND
YOU IS AT STAKE.

TAKE NOTE ANYTIME THIS SYMBOL APPEARS. YOUR SAFETY, AND THAT OF PERSONS AROUND YOU IS AT STAKE.

ALL ELECTRICAL WIRING SHALL BE INSTALLED IN COMPLIANCE WITH THE LATEST EDITION OF THE ANSI/NFPA STANDARD 70, NATIONAL ELECTRICAL CODE, AS A MINIMUM REQUIREMENT, AND IN COMPLIANCE WITH LOCAL WIRING CODES AS APPLICABLE.

WIRING MUST BE DONE BY A COMPENT ELECTRICIAN. A LICENSED ELECTRICIAN IS RECOMMENDED, AND MUST BE USED WHEN REQUIRED BY LOCAL OR STATE STATUTES.

1b. Installing a Master Disconnect

A Master Disconnect switch box must be wired immediately ahead of the Circulator/Dri-Flo and Level-Dry Control boxes. It must be of sufficient capacity to safely switch the grain removal system, (i.e. Circulator and Continuous Flow Augers), Level-Dry, Fans and Heaters, and if applicable, grain Input system. It should not switch off lights or electrical outlets.

This switch must also have the capability of being locked into the OFF position. It should be placed in close proximity to the grain bins' main entry door. Contact Shivvers Mfg, Inc. if assistance is needed to size the proper Disconnect.

When Level-Dry is lowered. And this system is locked OFF, it will be electrically safe to enter the drying bin, or open the Control Panels. If the separate light and outlet circuit is provided, it is more convenient to use the Disconnect. The Fans and Heaters must be switched off with the same disconnect because their circuits run to the Circ-U-trol, Compudry, Command Center, or Premier.

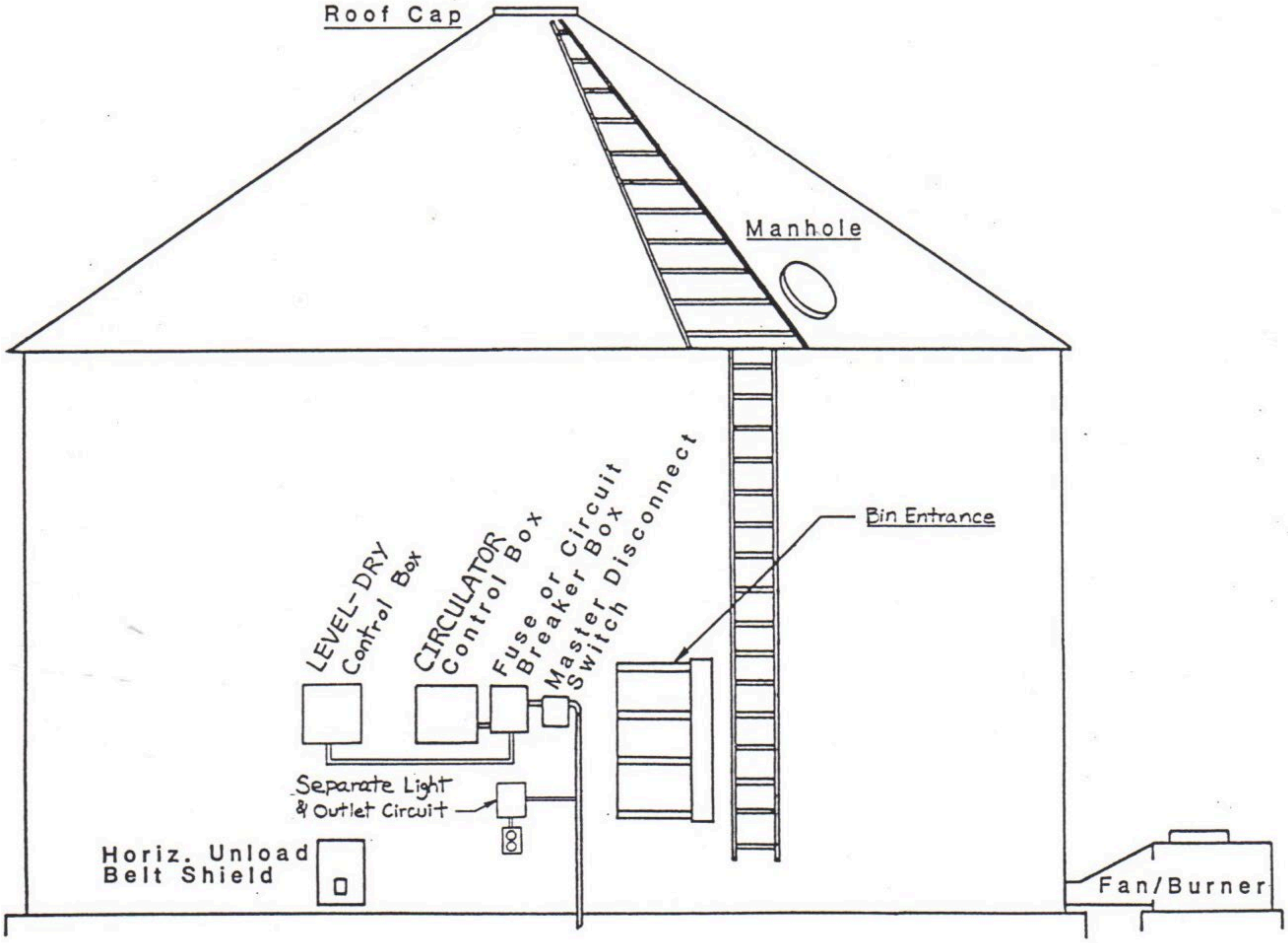
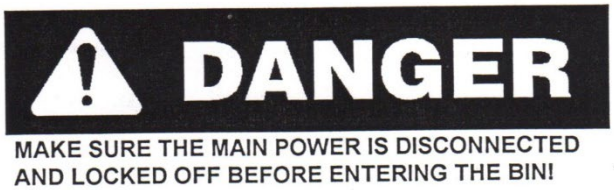


Fig 1.4



1c. Installing the Safety Lock Kit

630A-001A Deluxe Level-Dry Control Box (Single Phase), 220V, (Box: 24”x16”x12”)
630B-001A Deluxe Level-Dry Control Box (Three Phase), 220V, (Box: 24”x16”x12”)
└ 632-191A Safety Lock Kit, (Bag: 6”x8”x5-mil)

1). Locate the 632-191A (Safety Lock Kit) in the Deluxe Level-Dry Control Box. If the dryer Bin is not equipped with a lockable Entry Door in good condition, attach one end of the cable assembly to the bin sidewall. Use an existing bolt, or use the hardware provided. Attach the staple Plate to the Bin Entrance Door within reach of the opposite end of the cable assembly. Use the Hardware provided, or weld the Staple Plate securely to the door.

2). Try the lock, and make sure the entrance to the bin is denied with the lock in place.

3). Shut off the Main Power Disconnect Box. Remove the lock from the bin entrance and make sure it works on the Main Disconnect Box. If it doesn’t work, find one that will or contact Shivvers Mfg, Inc. for assistance. Leave the Power Locked off.

4). Install a Safety Lock Kit on the Manhole Cover also.

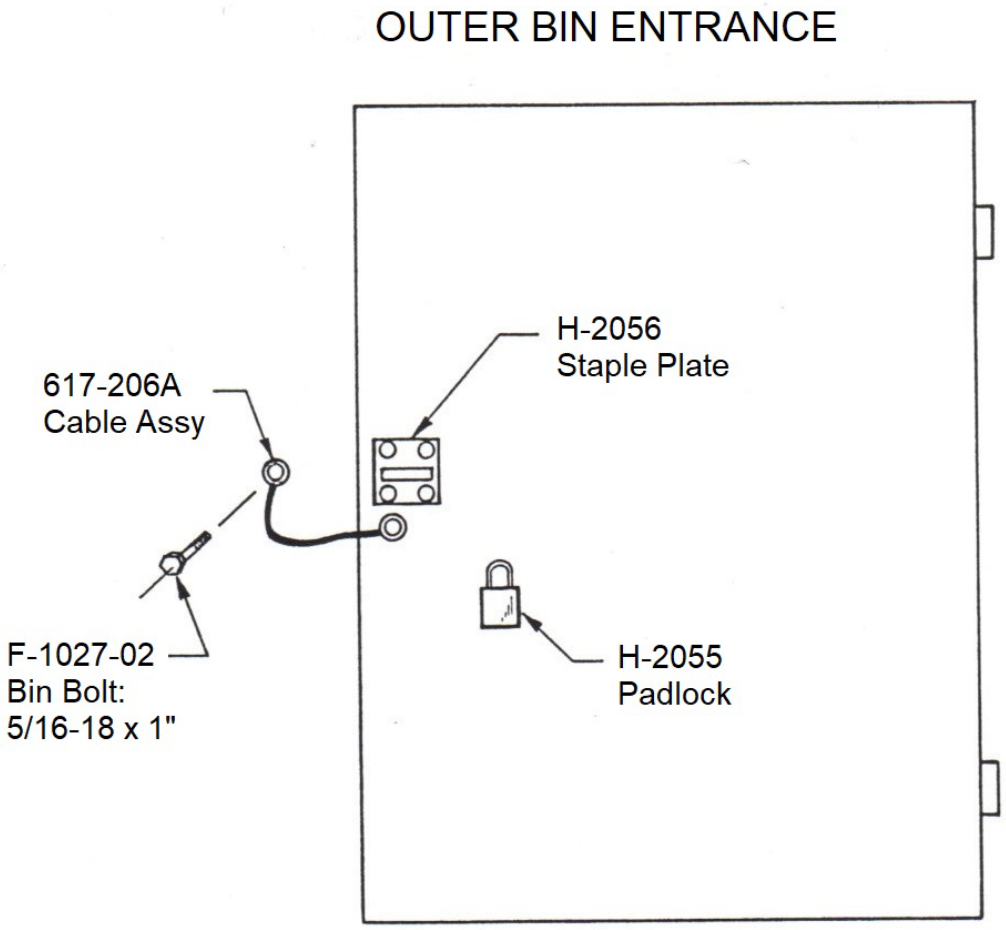


Fig 1.6

2. Installing the Safety Decals

630A-001A Deluxe Level-Dry Control Box (Single Phase), 220V, (Box: 24”x16”x12”)
630B-001A Deluxe Level-Dry Control Box (Three Phase), 220V, (Box: 24”x16”x12”)
└ 632-012A Manual Sack – Level-Dry, (Bag: 9”x12”x4-mil)

1). Before applying Decals, make sure the mounting surfaces are clean (not oily) and dry. Locate the Decals where they are easily readable. Some decals may already be in place. If they are, inspect them and replace them if they are illegible. Contact Shivvers Mfg, Inc. if additional decals or separate mounting plates are required.

2). On the outside of the inner and outer main entrance doors, install decals P-10717 and P-10809.

3). On the inside of the outer bin entry door, install decal P-10125.

4). At each bin roof manhole cover that has a ladder going down inside the bin, install decals P-10125, P-10222, and P-10717.

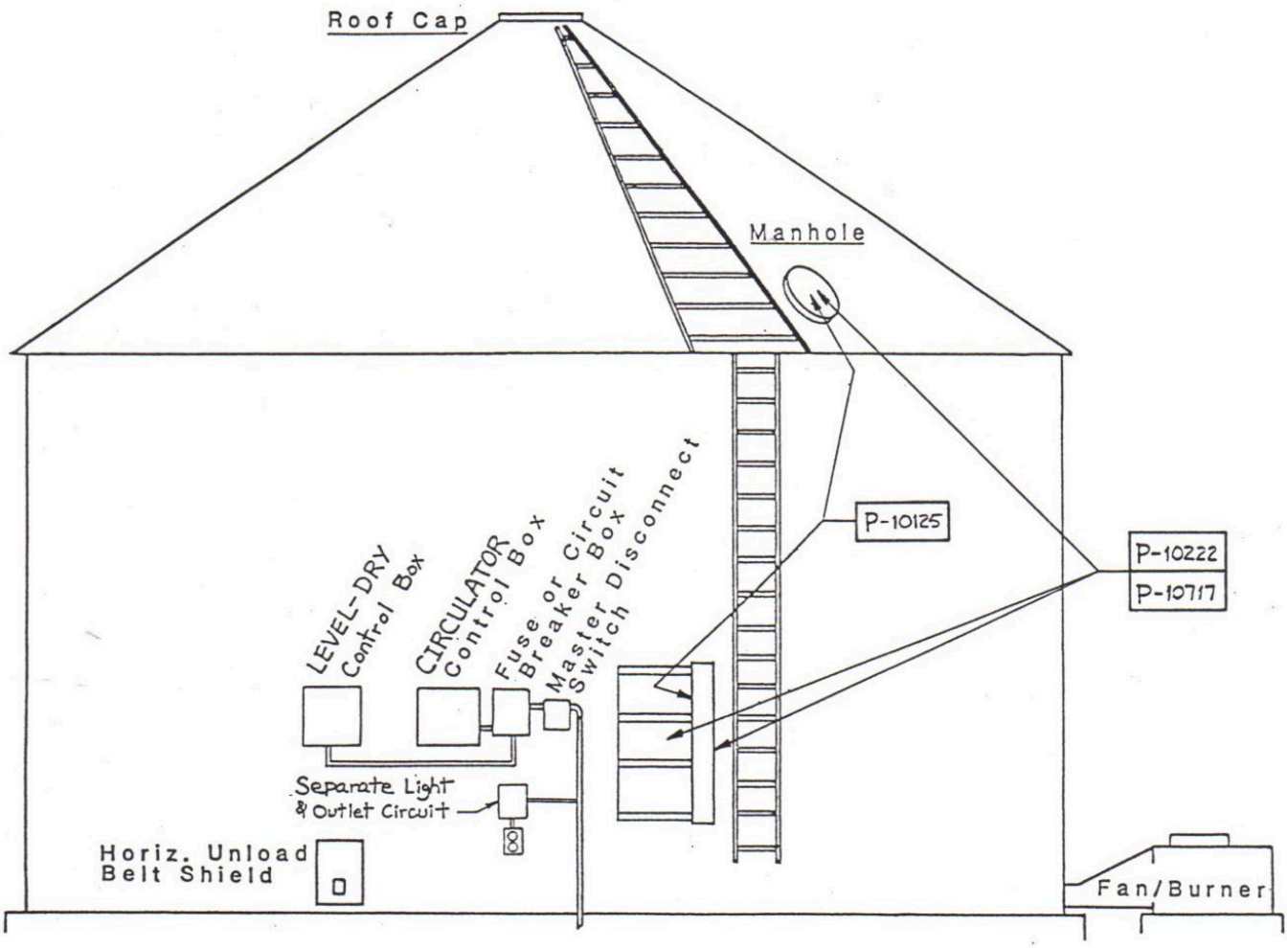


Fig 2.1

2. Installing the Safety Decals (cont'd)

630A-001A Deluxe Level-Dry Control Box (Single Phase), 220V, (Box: 24"x16"x12")
630B-001A Deluxe Level-Dry Control Box (Three Phase), 220V, (Box: 24"x16"x12")
└ 632-012A Manual Sack – Level-Dry, (Bag: 9"x12"x4-mil)

5). On or near the Main Disconnect Switch, install decal P-10811.

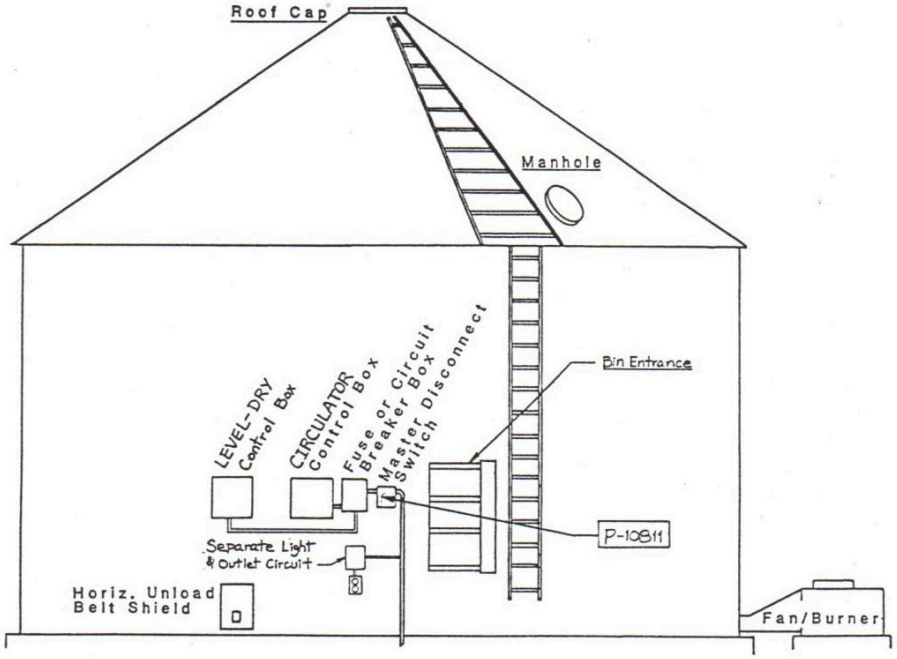


Fig 2.4

6). If an automatic grain Input system is to be wired to the Level-Dry, install decal P-10223 at an appropriate spot on it. Also, if there is a Wet Holding Tank, install Decal P-10125 on the door and manhole cover of it.

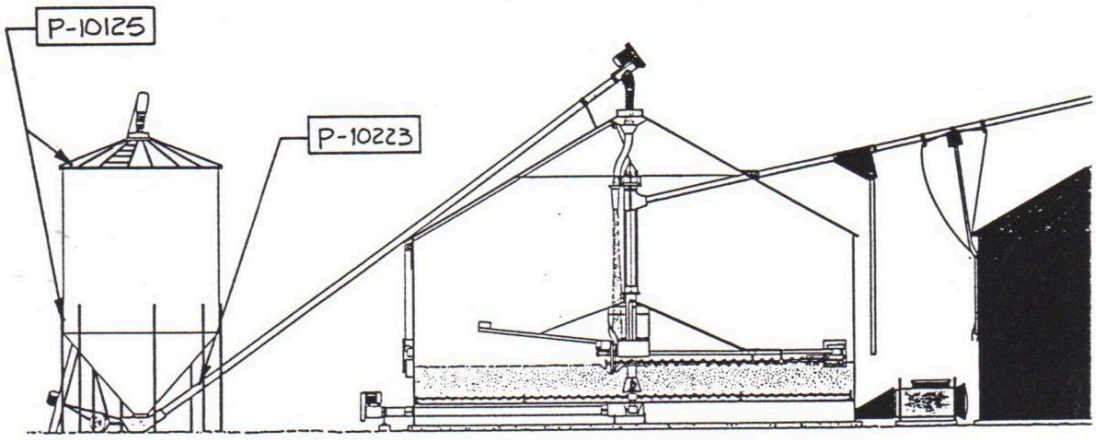


Fig 2.6

3. Mounting the Control Box

630A-001A Deluxe Level-Dry Control Box (1-Phase, 220v)
630B-001A Deluxe Level-Dry Control Box (3-Phase, 220V)
└ 630-017A Panel Mounting hardware Sack

Note a. The Level-Dry Control Box will require a space 30” wide for mounting.

Note b. If possible select a location within sight of where the Winch will mount.

Note c. Mount the Control Box so it is convenient for the user to operate and read the front decals.

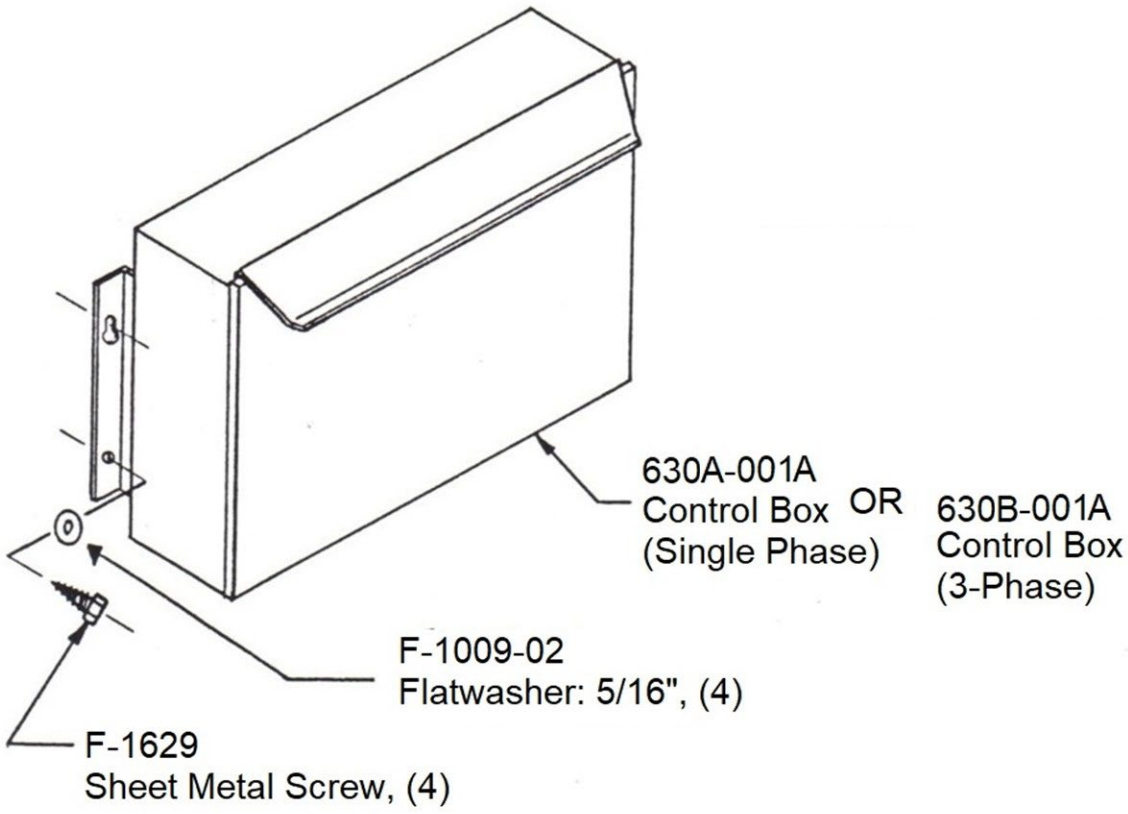


Fig 3.1

Step 1: Position the Control Panel on the Bin Wall so the Mounting Holes will contact Corrugations and mark the hole locations.

Step 2. Drill ¼” pilot holes for the screws.

Step 3. Use the sheet metal screws and washers that are provided in sack labeled 630-017A for attaching the box to the bin.

Note: The sack 630-017A is found in the box labeled 630A-001A or 630B-001A.

Note: Additional hardware may be required for other mounting locations.

4: INSTALLING THE CENTER TUBE ASSEMBLY

DANGER

MAKE SURE THE MAIN POWER IS DISCONNECTED AND LOCKED OFF BEFORE ENTERING THE BIN!

4a. Remove the existing Grain Spreader. The Spreader Support Ring may need to be removed, if there is one.

4b. Using a Winch (rated for the load) fastened securely to the Bins' Center Roof Opening, lower the hook down and fasten it securely to the top of the Center Vertical, and take up the slack without lifting it.

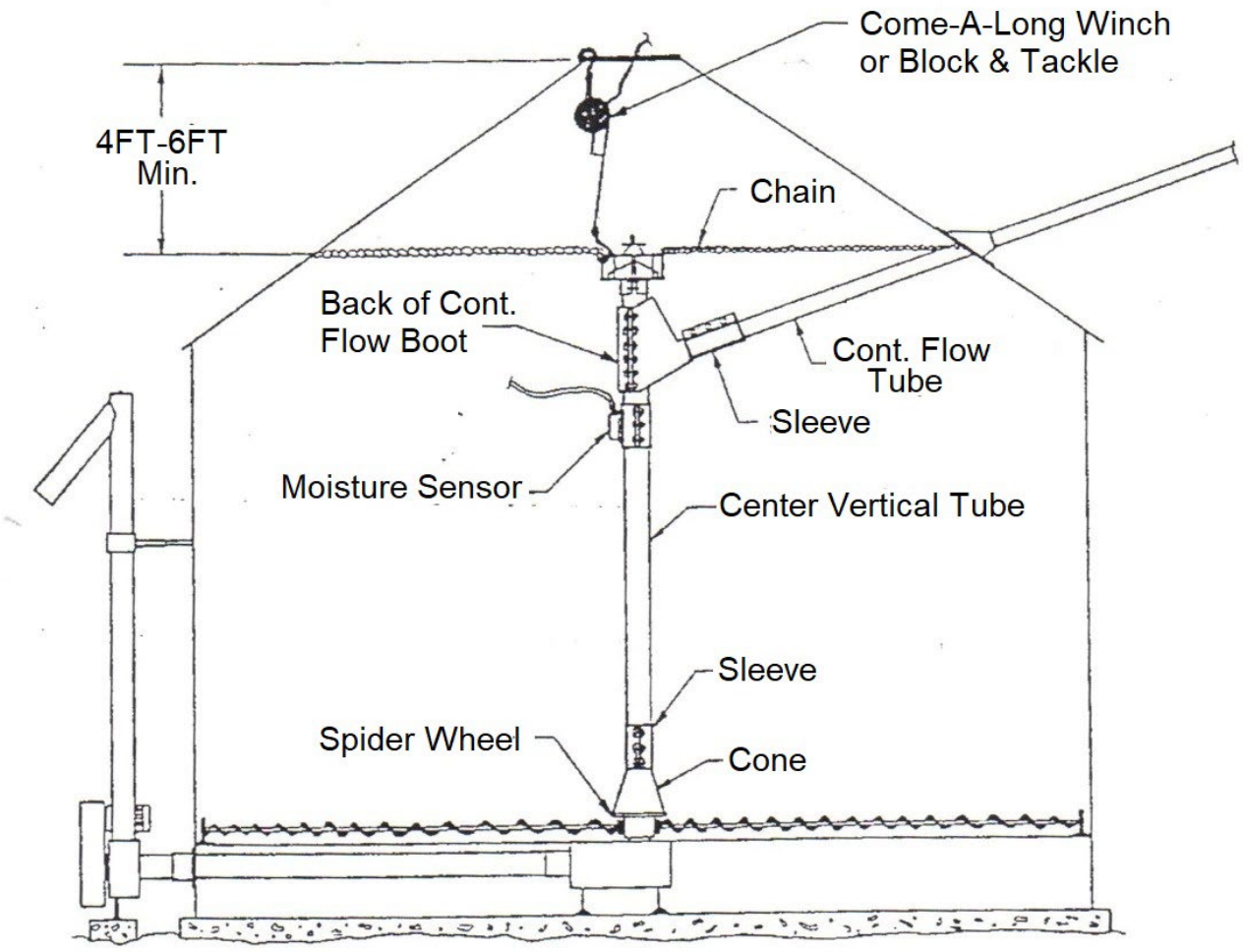


Fig 4.1

4c. Remove the Moisture Sensor.

Note: The Moisture Sensor Cable maybe attached to one of the chains. Un-hook the chain by unscrewing the turnbuckle and attach a rope to the chain with the Moisture Sensor cable and lower it to the floor.

4d. Remove the Boot Half-Bands from all Continuous Flow Boots.

4: INSTALLING THE CENTER TUBE ASSEMBLY (Cont'd)

DANGER

MAKE SURE THE MAIN POWER IS DISCONNECTED
AND LOCKED OFF BEFORE ENTERING THE BIN!

4e. Remove the rest of the chains.

4f. Raise the Center Vertical till it clears the Gearbox, Then lower it until it is lying on the Floor.

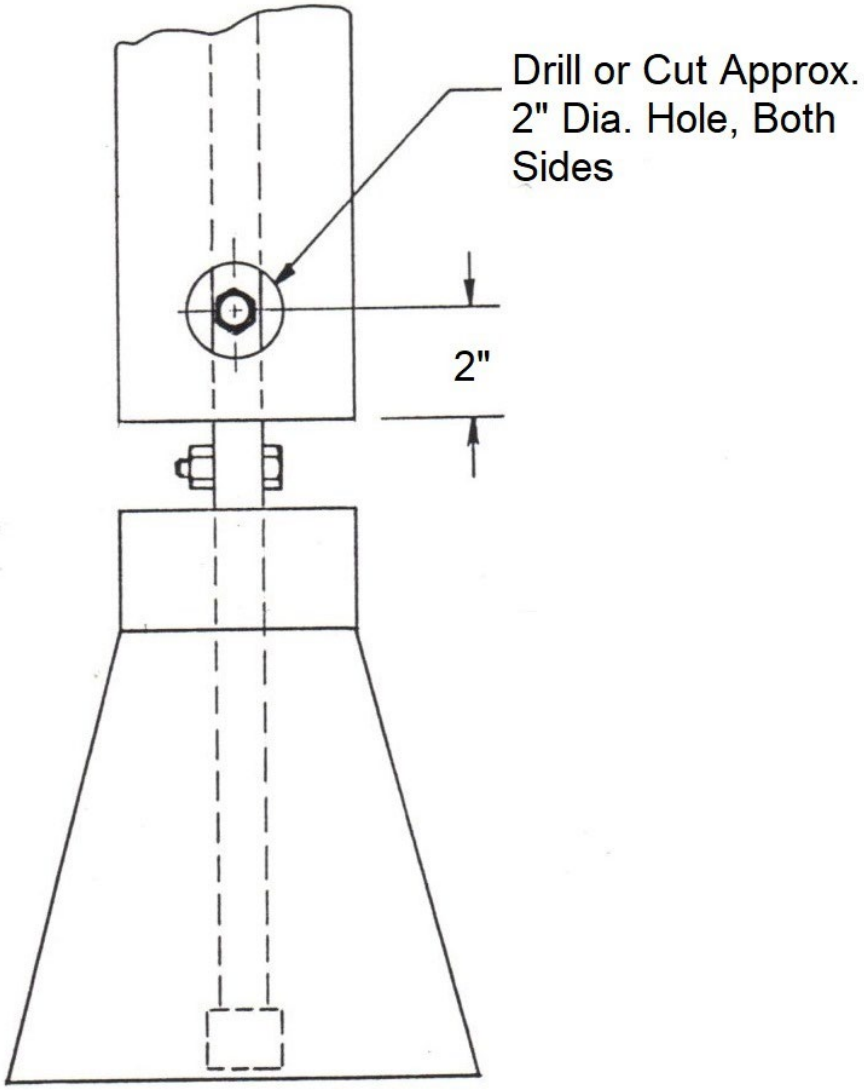


Fig 4.3

4g. Remove Cone Weldment, Sleeve or Half-Bands and Pickup Finger Weldment.

Note: inspect the Cone, Pickup Finger and the Center Vertical flite for wear. Now would be a good time to replace it, if needed.

4: INSTALLING THE CENTER TUBE ASSEMBLY (Cont'd)

634B-001A Level-Dry Parts
- └ 632-227A Level-Dry Misc. Parts Box #2, (13.5"x13.5"x7.5")
  - └ 630-011A Hardware Sack, Control Mounting (8"x 10"x.006")

4h. Take the Center Tube Assembly. and slide it over the outside tube of the Center Vertical Assembly.
Note: Using a screw driver, pull up the brush bristles on the top of the Center Tube Assembly.

4i. Reinstall the Cone Weldment, Pickup Finger and Sleeve or Half-Bands. Also, install the Bottom Stop Slides 632-217P (2) to top of CV Cone Halfband, both sides if necessary, to prevent damage to nylon bushing at base of Center Tube Assembly as it rotates at the lowest position.

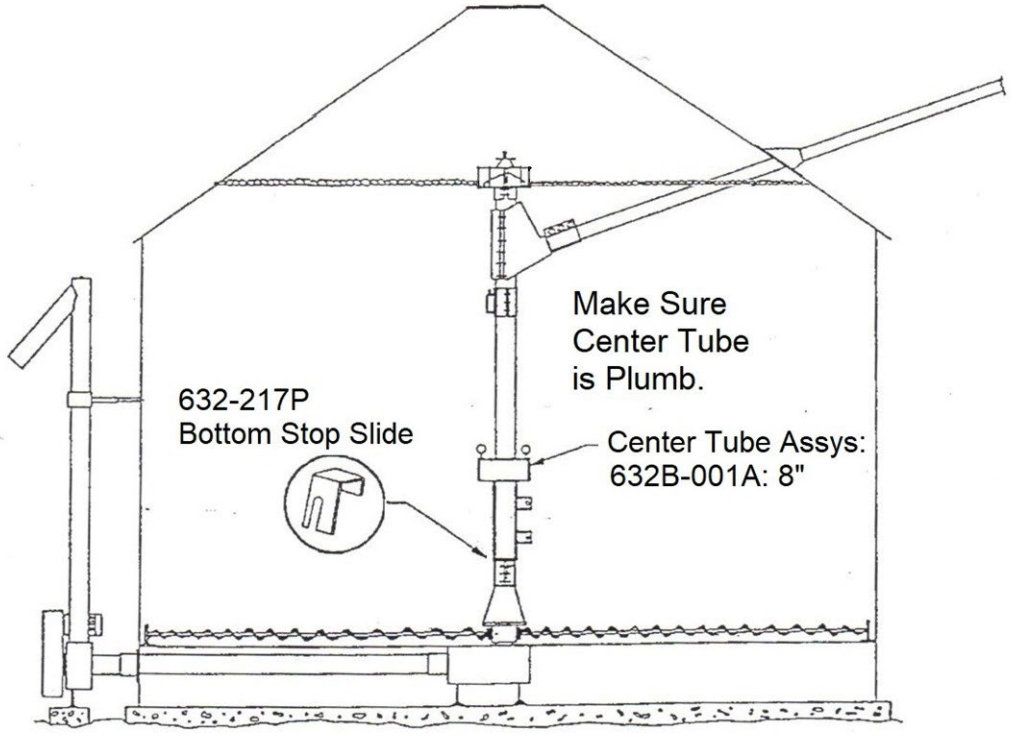


Fig 4.5

4j. Raise the Center Vertical back into place and reinstall the Continuous Flow Boot, Halfbands and Moisture Sensor.

4k. Reinstall the Chains and plumb the Center Vertical.

4l. Remove the Lifting Device used to raise the Center Vertical.

4m. Installing a Center Tube for Installation in Dri-Flo Units, (having no Center Vertical Auger):

Note: Only 8" Level-Drys will be sold for Dri-Flo Systems. Shivvers Circulators already have the Center Vertical Augers, but our Dri-Flo bottom unloading systems do not. For these units it will be necessary to install:

634G-001A DRI-FLOW LEVEL-DRY PARTS BOX, (Includes P-10883 Dri-Flo/Level-Dry Installation Instructions)
460G-005P 8" TUBE, 17'8-5/8", (8-in OD, 12ga Steel (.104") min. Wall), Electro-plated Galvanized)

Note: 8" Tube must have an 8" Outside Diameter, a minimum wall thickness of 12ga (0.104"), and electroplated Galvanized (not dip galvanized). Customer supplied tubes must meet these specifications or risk voiding the warranty.

5: Installing the Winch and Cable System

634A-001A Grain \ Winch System
- └ 632-223A D.L. Winch Assembly Mounted Box, (16”x10”x8”)
  - └ 632-219A Winch Mount Hardware Sack, (6”x8”x.005”)

5a: Determining the Level-Dry Winch Location: Locate the Grain\Winch System Parts Box (634A-001A), and remove the Electric Winch Assembly (632-223A).

Note: This will give you an idea of the mounting space required for the Winch

5b. Measure the distance from the top of the Level-Dry Center Tube assembly to the lowest item above it on the Center Vertical tube. The distance from the eave of the bin to the winch mounting location should be at least 3ft more than this distance.

Note: This is the maximum vertical movement possible for the Level-Dry.

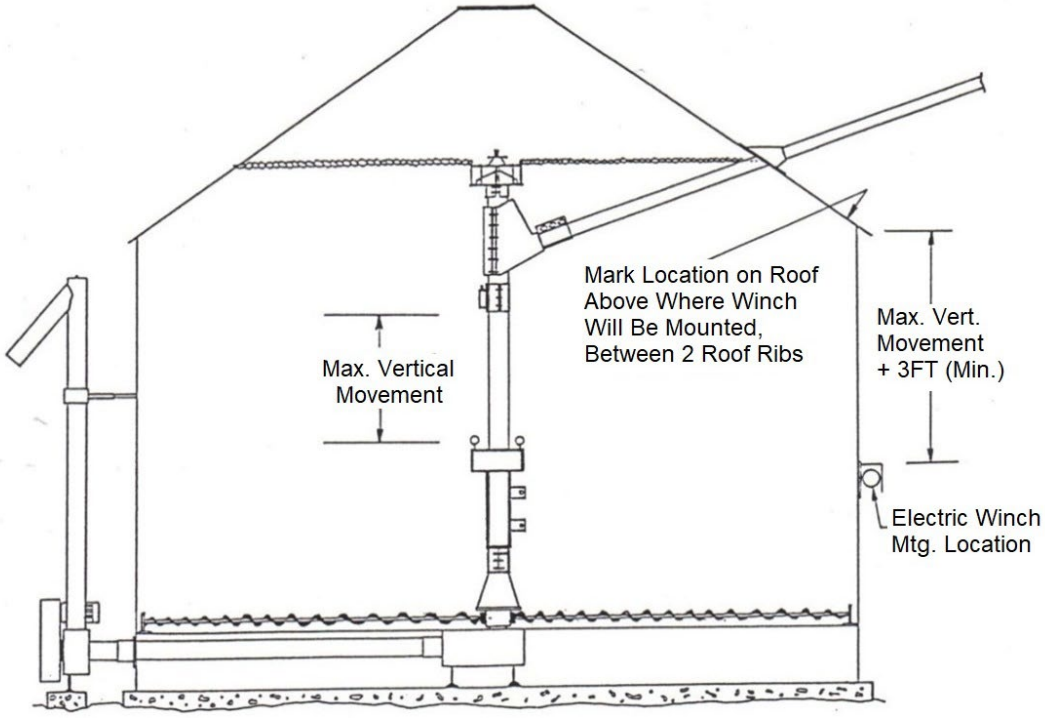


Fig 5.1

5c. Select a location on the bin to mount the Winch. There cannot be any conduit, bracing other obstructions to where the Winch will mount. If possible select a location that is close to where the Level-Dry Control Box is located.

Note: A location that will be close to where the Level-Dry Control Box is located will make for less wire and conduit, and it is nice to see what the Winch is doing from the Control Box. It is not absolutely necessary however.

Note: Once the proper location is found, mark the roof of the bin directly above where the winch will be mounted. This would preferably be between two roof ribs.

5d. Measure the distance from the eave: Between 2 roof ribs, measure the distance from the eave to where the Winch will mount. At minimum, this distance will be the maximum vertical movement plus 3ft.

5e. Mark the roof directly above where the Winch will mount.

5f. Mark where the Winch will be mounted, but don’t mount it yet.

5: Installing the Winch and Cable System

634A-001A Grain \ Winch System
- └ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
  - └ 632-017W Long Rod Weldment, (1)
  - └ 632-043W Middle Rod Weldment, (1)
  - └ 632-015W 1” Tube Cross Weldment, (1)
  - └ 632-021W Short Rod Weldment, (1)
  - └ 632-151P Roof Ring Support (4)
  - └ 632-018W Middle Rod Weldment, (1)
  - └ 632-224A Cross Tube Hardware Sack, (6”x8”x.005”)

5g: Installing the Cross Tube Assembly to the Bin Top Opening: 5g. Locate the Grain\Winch System Parts Box (634A-001A), and pull the following parts out the following parts: 632-043W Middle Rod Wldt. , 632-015W 1” Tube Cross Wldt. , 632-021W Short Rod Wldt., 632-151P Roof Ring Support (4), 632-018W Middle Rod Wldt., 632-017W Long Rod Wldt., and 632-224A Cross Tube Hardware Sack, according to sketch below.

Note: This will accommodate 30” to 48” openings. For smaller openings the Cross Tube and Rods may have to be cut down. For openings more than 30” install ¾”-10 Nuts on the Short Rod.

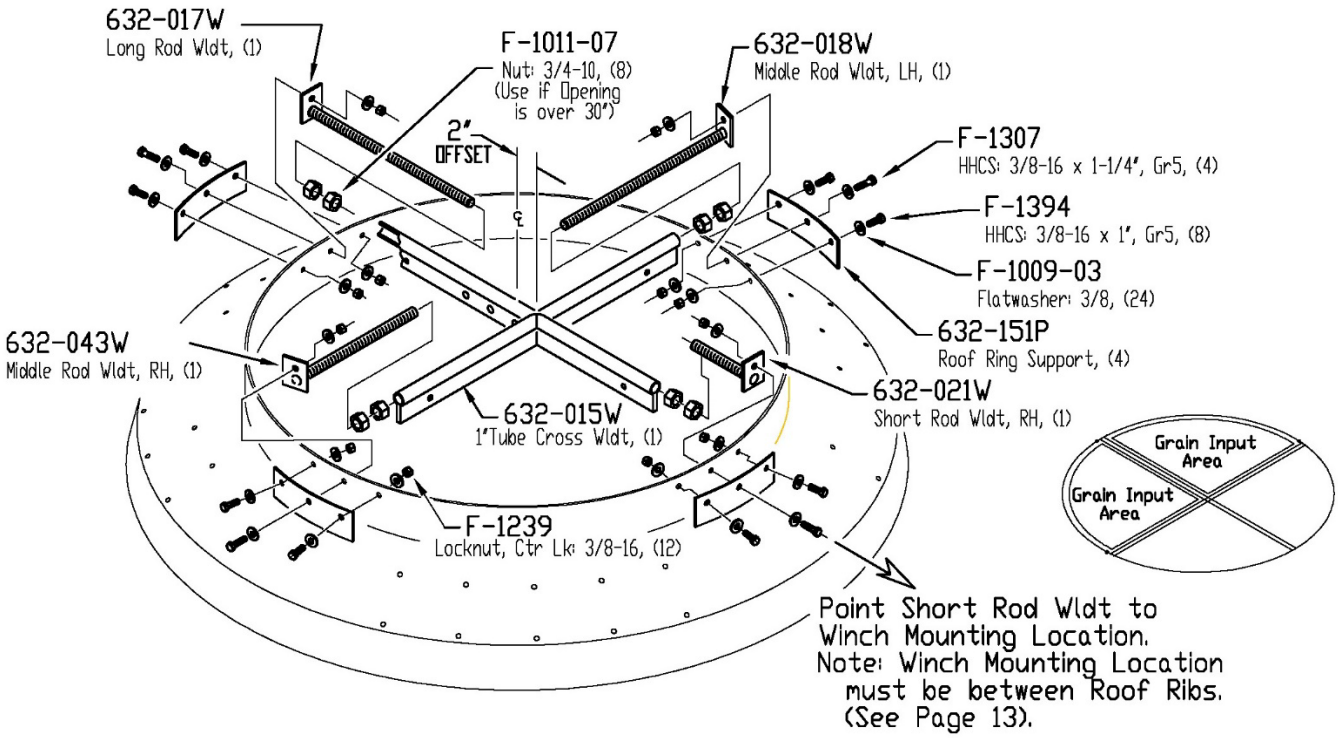


Fig 5.2

5h. Point the Short Rod toward the location of the Winch mounting.
Note: use the Roof Ring Supports if Bin Ring seems light.

5i. Verify that grain can flow through one of the back large quadrants.

5j. Adjust the cross by slightly shifting one way or the other to accommodate the grain input. Drill the holes and mount the hardware as shown.

5: Installing the Winch and Cable System

634A-001A Grain \ Winch System
- └ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
  - └ 632-112A Lift Pulley Assembly, (1)
  - └ 632-109A Winch System hardware Sack, (8”x10”x.006”), (1)
- └ 283B-001A Stiffener: 8GA x 6FT, Orange, (use 2 of 4 provided)

5k. Installing the Lift Pulley to Top of Bin Wall: In the 634A-001A grain Winch parts box, locate the 632-112A Lift Pulley Assembly and the 632-109A Winch Hardware Sack. Also locate two 283B-001A 6’ stiffeners.

5i. Install according to sketch below.

Note: install approximately in line with Short Rod on Cross Weldment. Locate as close to the top of bin side wall as possible, making sure the cable will not interfere with bin eave.

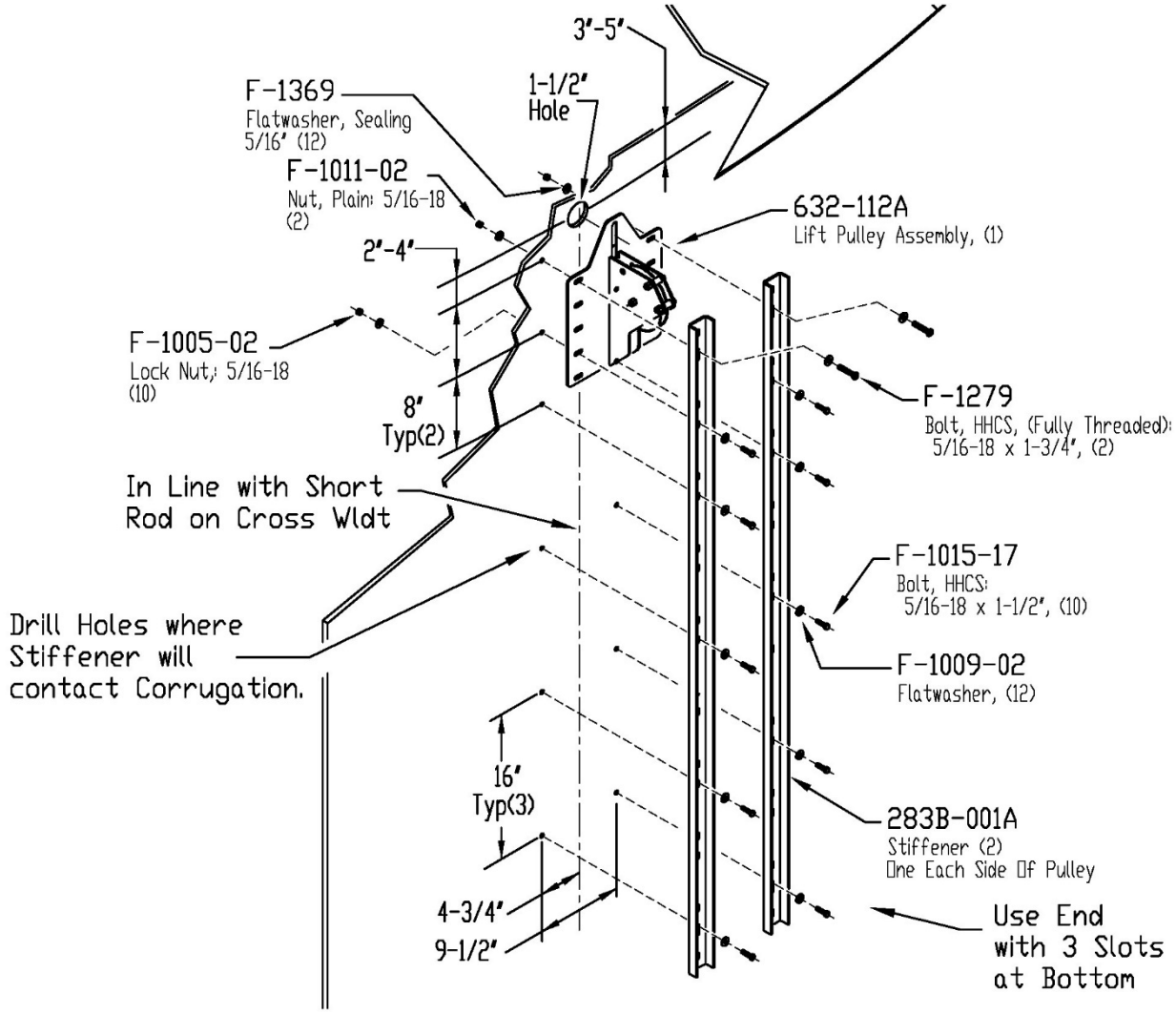


Fig 5.3

Note: These instructions are only to be used as a guideline and may not work in all situations.

5: Installing the Winch and Cable System

634A-001A Grain \ Winch System
- └ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
  - └ 632-148P Roof Mounting Pad, (2)
  - └ 632-109A Winch System hardware Sack, (8”x10”x.006”), (1)

634B-001A Level-Dry: Miscellaneous Parts Box
- └ 632-211P Roof Brace, (2)

5m. Installing Roof Mounting Pads: Locate the two 632-148P Roof Mounting Pads from the 634A-001A\632B-002A parts box and two 632-211P 48” Roof Braces from 634B-001A Misc. Parts Box. The hardware to use is from the 632-109A hardware sack.

5n. Attach the Roof Braces and Roof Pads as shown in Fig 5.4 below.

Note: make sure the Roof Pads straddle a roof rib if at all possible. Use whichever three holes in the Roof Pads that work out the best.

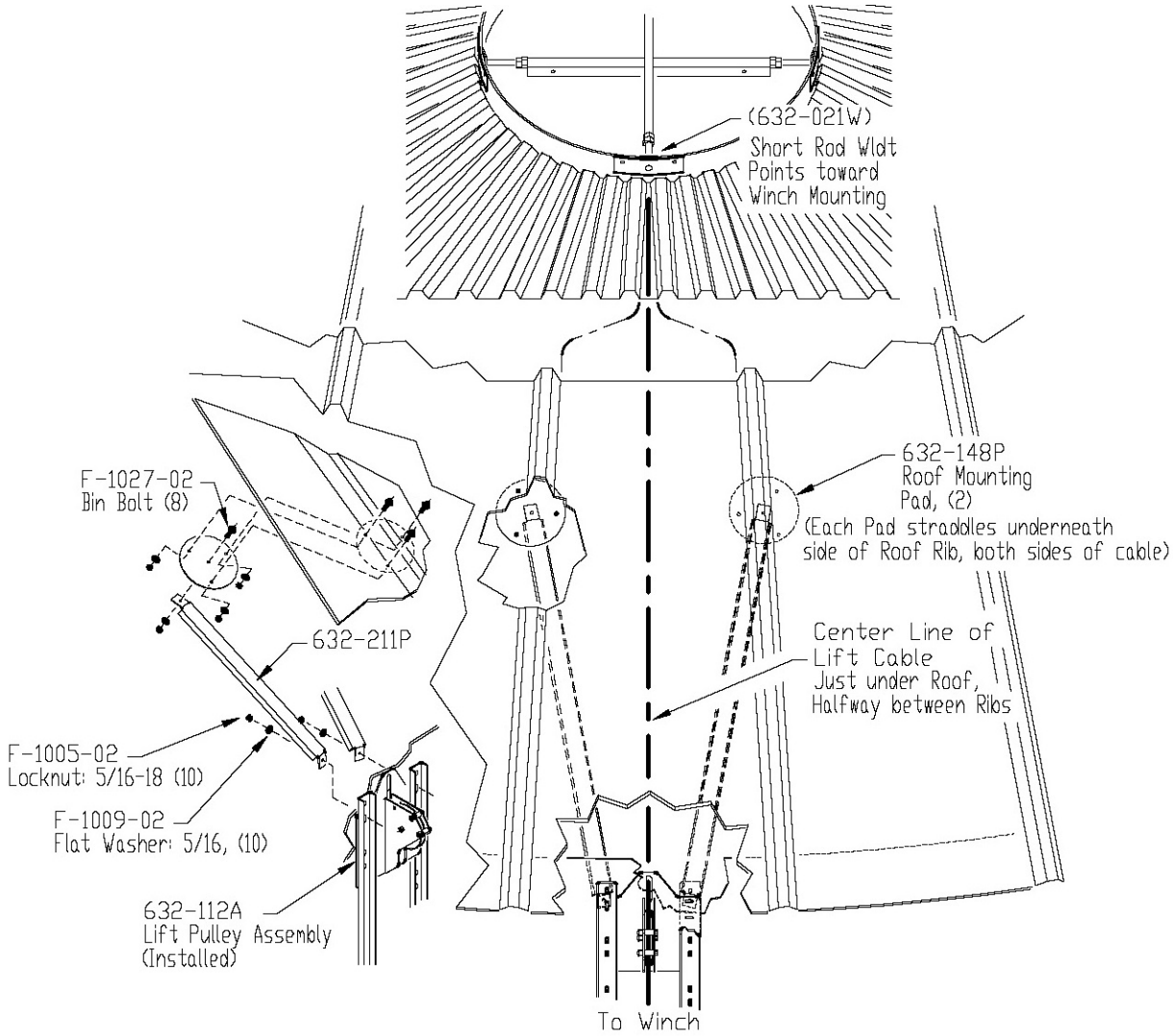


Fig 5.4c2

5: Installing the Winch and Cable System

634A-001A Grain \ Winch System
└ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
└ 632-223A D.L.Winch Assembly Mounted, (1)

5o. Wire up Winch to operate during installation: Locate the electric Winch Assembly. Since the Winch Motor operates on 90 volts dc, it will be necessary to temporarily to hook up the Winch as shown to operate it.

IMPORTANT: Do not hook the Winch directly to 120VAC !

To Operate Winch During Installation:

1. Connect Winch Black Lead to Terminal #15.
2. Connect Winch White Lead to Terminal #17.
3. Connect Winch Green Lead to Level-Dry Control Box.
4. Put Temporary Jumper from Terminal #8 to #12.
5. Put a Temporary Jumper from Terminal #8 to #10.
6. Put a Temporary Jumper from Terminal #4 to #5.
7. Connect Power Cord Green Wire to Level-Dry Control Box.
8. Connect Power Cord White Wire to Terminal #1.
9. Connect Power Cord Black to Terminal #3.
10. Close Level-Dry Control Box.
11. Turn Level-Dry Power “ON”. And use MANUAL UP/DOWN Switches to control the Winch.

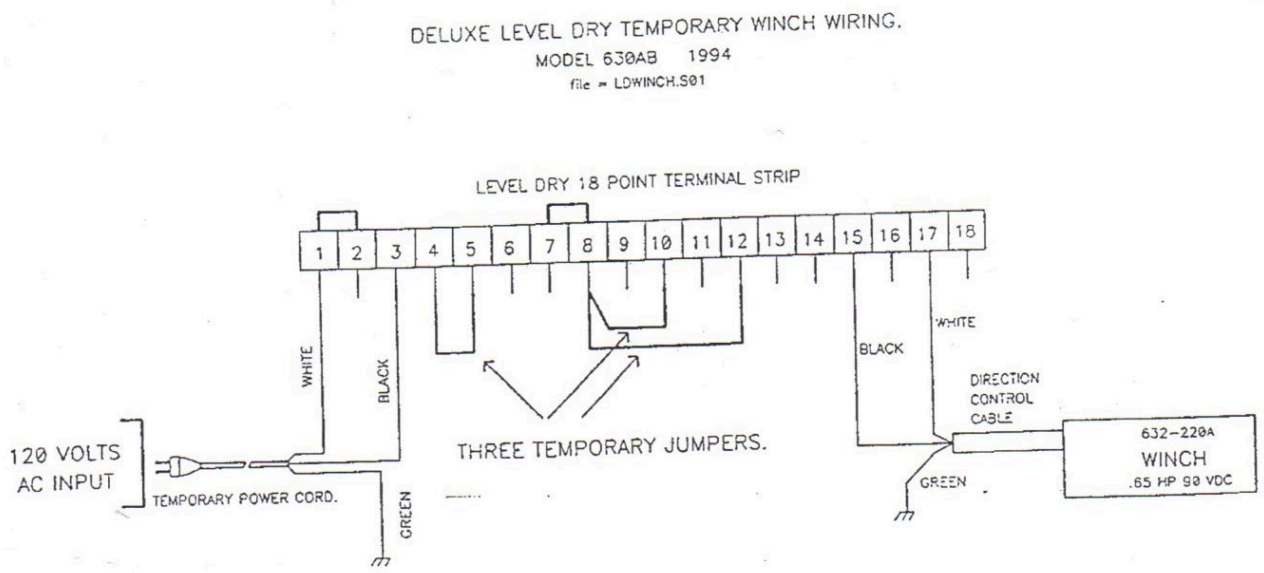


Fig 5.5

5: Installing the Winch and Cable System

634A-001A Grain \ Winch System
- └ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
  - └ 632-111A Winch Pulley Block, (1)
  - └ 632-223A D.L.Winch Assembly Mounted (Electric Winch), (1)
  - └ 632-219A Winch Mounting Hardware Sack (6”x8”x5m), (1)

5p. Extend Winch Cable (Outside Cable): Turn the Level-Dry Power “ON” and press the Manual Down Switch to extend the Winch Cable. Extend the cable far enough to reach from the Lift Pulley Assembly (632-112A) to desired mount position.

Note: make sure that the end of the Winch cable is hooked in the U-Bolt of the Winch Mounting Plate.

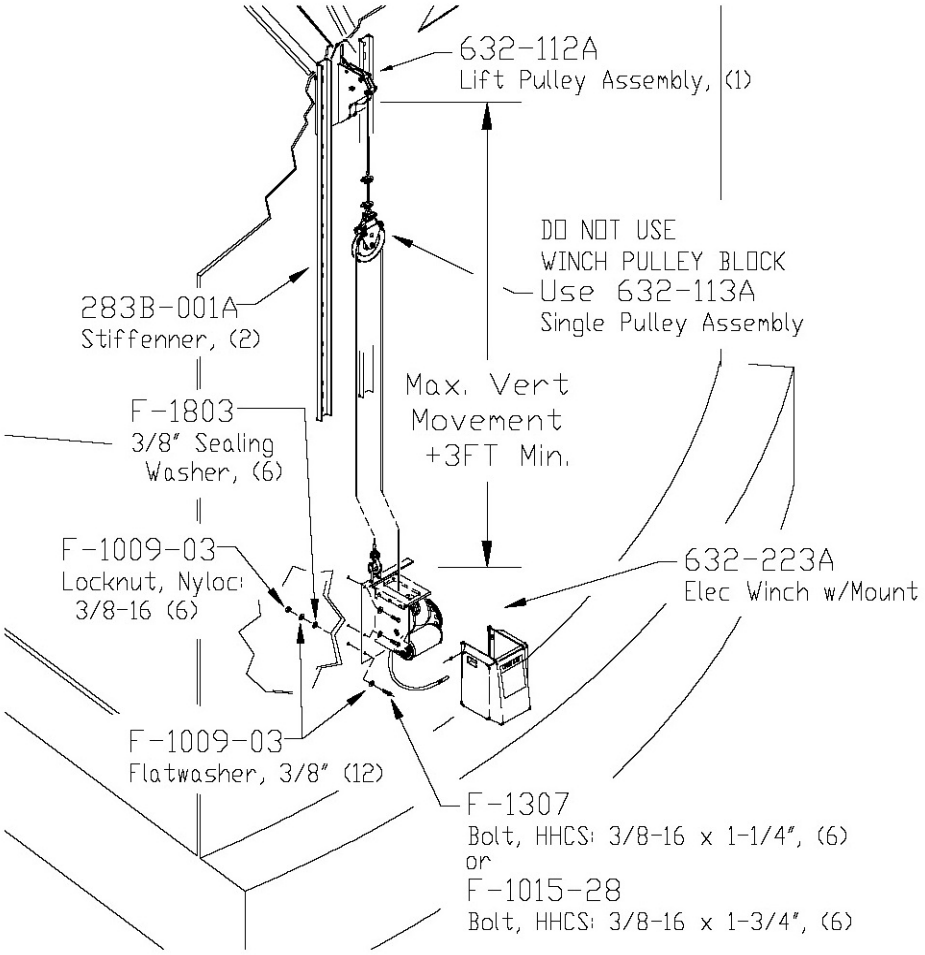


Fig. 5.6

5q. Stop the Cable when it is about in the center of the Winch Drum.

5r. Hold the Winch Pulley Block 632-111A at the lift pulley 632-112A letting the Winch and Mounting Plate hang straight down.

Note: Make sure the distance from the Lift Pulley to the Winch is at least 3’ more than the maximum vertical movement of the Level-Dry as shown earlier.

5s. Mount the Winch to the bin using hardware from the Winch Mounting sack 632-219A.

Note: Try to mount the Mounting Plate over a horizontal seam for extra strength. Some reinforcement plates may have to be used inside the bin.

5: Installing the Winch and Cable System

634A-001A Grain \ Winch System
- └ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
  - └ 632-027A Pulley Assembly. (2)

5t. Install Pulley Assemblies to Top of Center Vertical: Locate the two Pulley Assembly’s 632-027A from the 634A-001A\632B-002A Grain/Winch Parts Box and attach to the top of the Center Vertical.

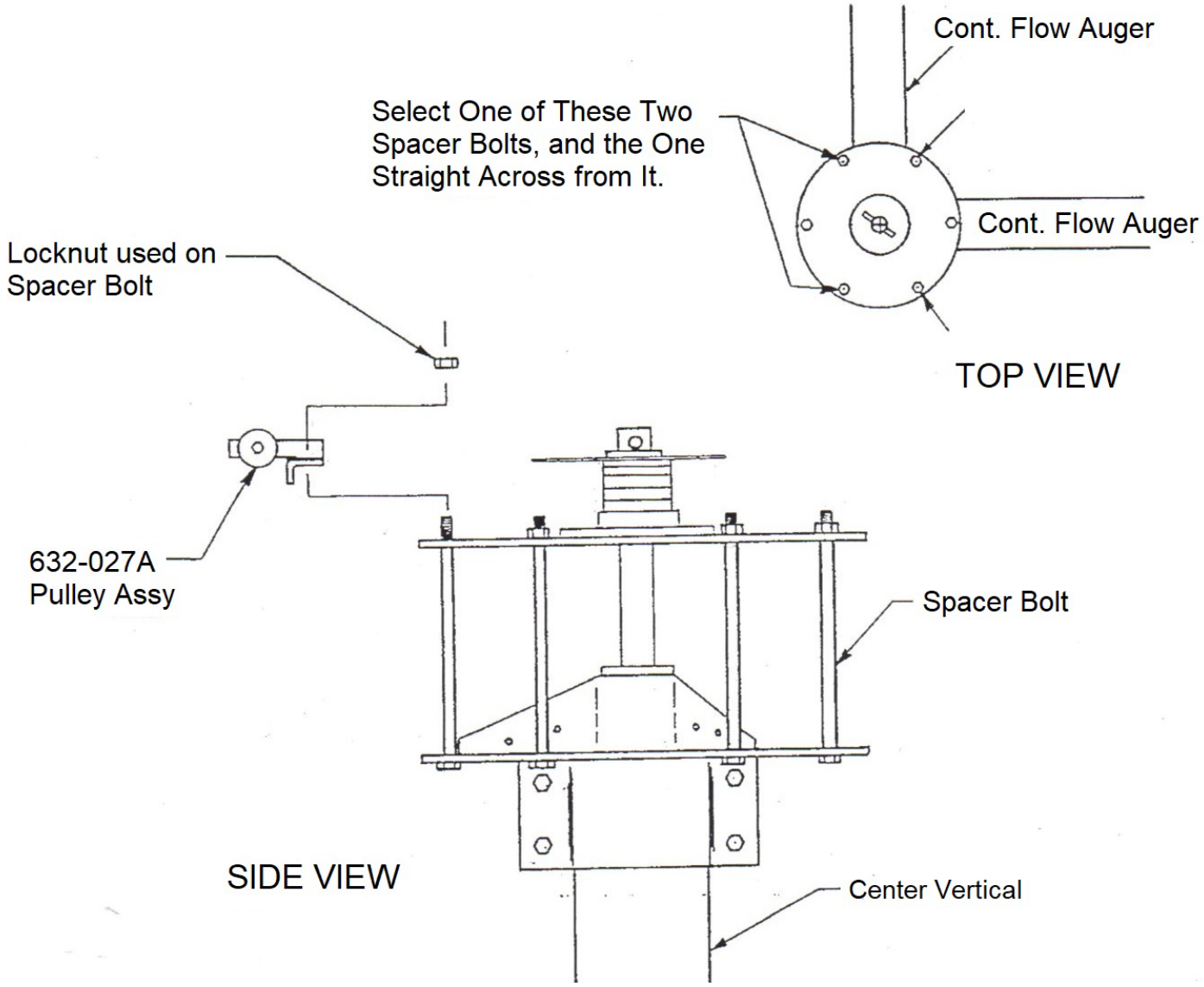


Fig. 5.7

Note: Select two Spacer Bolts that are straight across from each other and have a clear line of sight down the Center Vertical to the Level-Dry Center Tube Eye Bolts, and install the Pulley Assemblies as shown.

5: Installing the Winch and Cable System

634A-001A Grain \ Winch System
- └ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
  - └ 632-109A Winch System hardware Sack, (8”x10”x.006”), (1)
  - └ 632-205P Boom Arm Support, (1)

634B-001A Level-Dry: Miscellaneous Parts Box
- └ 632-188W Boom Arm Weldment, (1)

5u. Install Boom Arm Wldt to Top of Center Tube Assembly: Locate the Boom Arm Wldt 632-188W from the 634B-001A Miscellaneous Parts Box and the Boom Arm Support 632-205P from the 634A-001A Grain/Winch Parts Box.

Note: visualize where the grain will be coming down the Center Vertical to the Level-Dry hopper

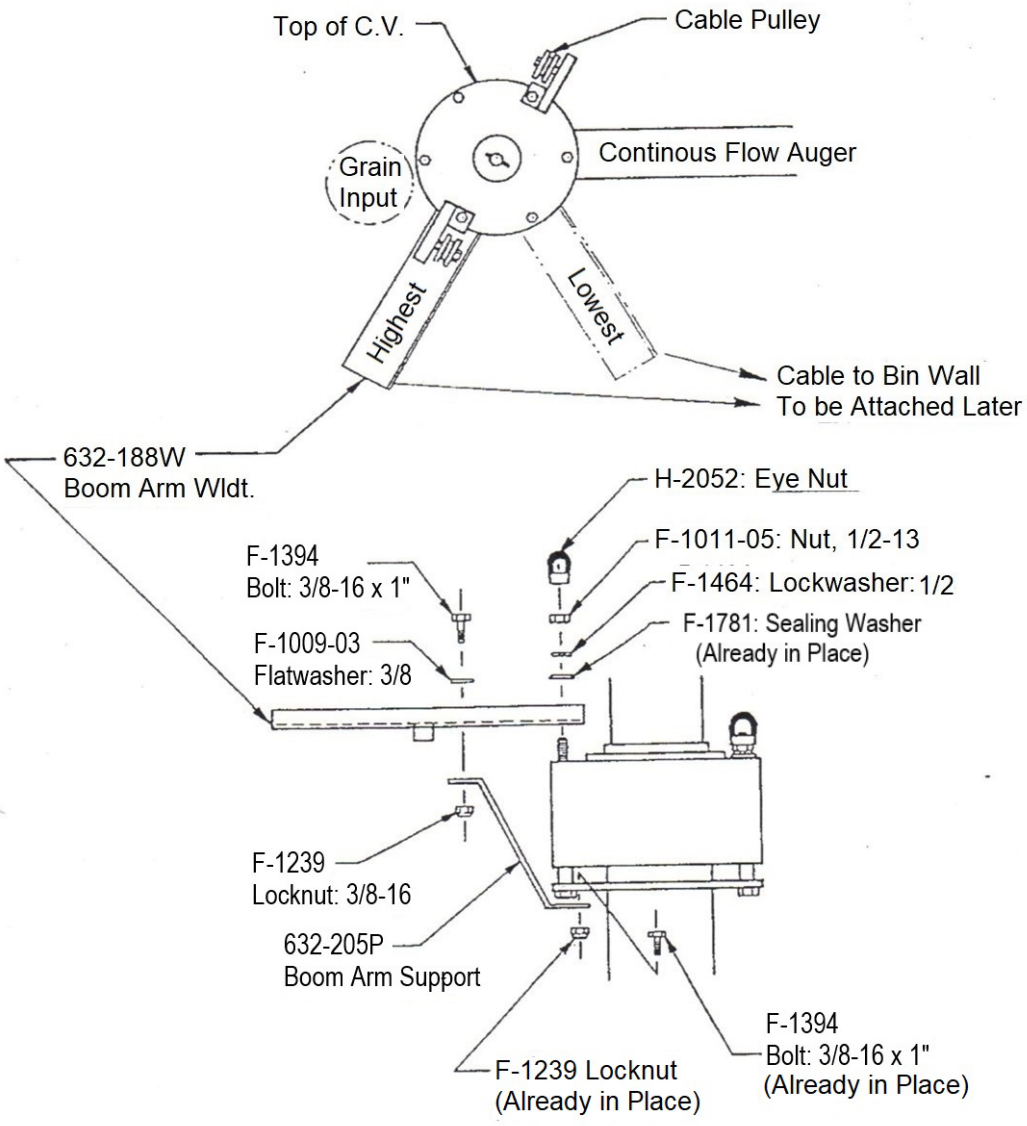


Fig 5.8

5v. Mount the Boom Arm and Support to top of the Center Tube Assembly. Placing it near where the incoming grain will be and not hit it.

Note: it would be best to install the Boom Arm under an Eye Nut.

Note: a cable will run from the end of the Boom Arm to the bin wall to keep the Slip Rings in place.

Note: It usually works out the best to run electrical conduit down this cable.

5: Installing the Winch and Cable System

634A-001A Grain \ Winch System
- └ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
  - └ 632-113A Leveler Pulley Assembly, (1)
  - └ 632-110A Bin Roof Pulley Assembly, (1)
  - └ H-2018 3/16” wire cable
  - └ 632-109A Winch System hardware Sack, (8”x10”x.006”), (1)

5w. Install Leveler Pulley Assembly and Inside Cable: Locate the 632-113A leveler pulley Assembly, and the H-2018 3/16” wire cable and 632-110A roof pulley Assembly from the 634A-001A grain Winch parts box.

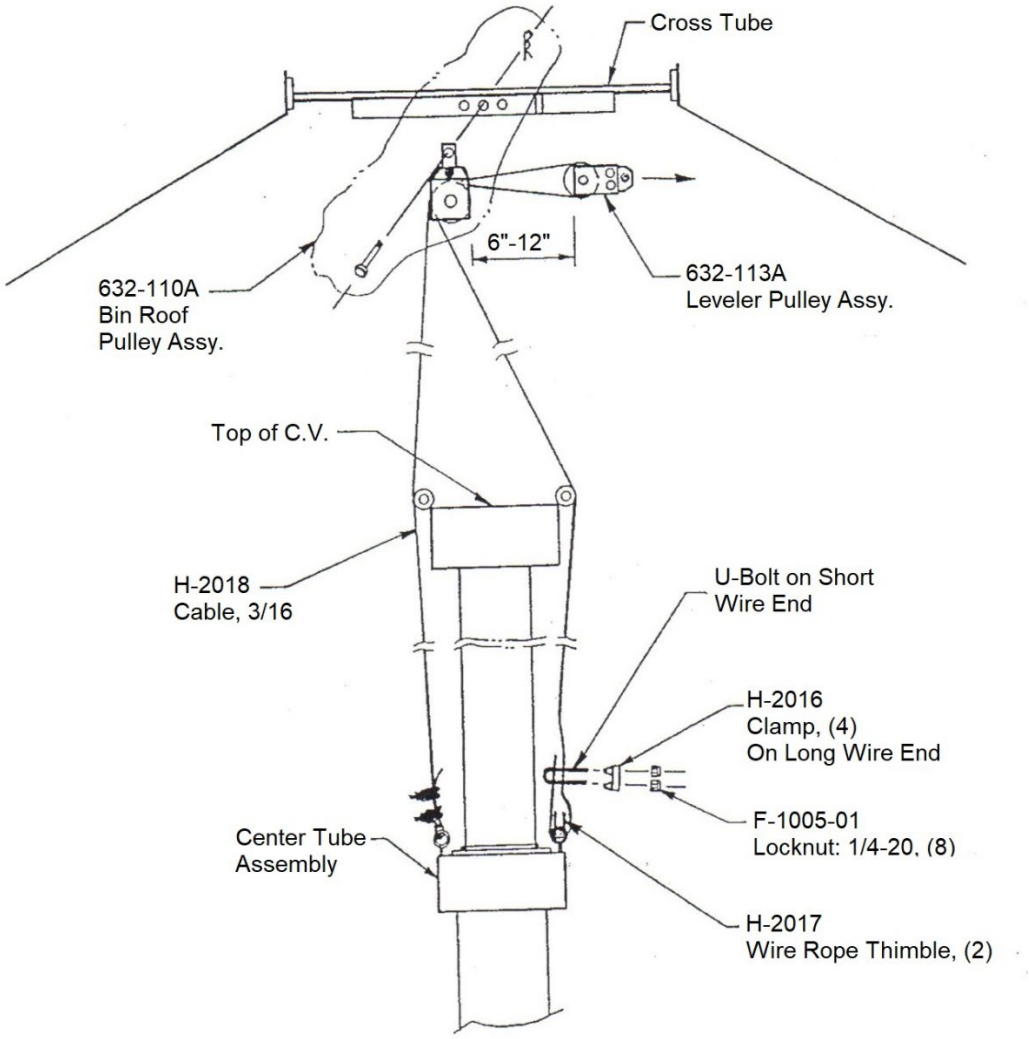


Fig 5.85

5x. Hang the 632-110A bin roof pulley from the center cross tube using the hole in the center or the one next to it.

5y. Run one end of the H-2018 3/16 cable up and over the pulley on top of the Center Vertical then through the Bin Roof Pulley then through the leveler pulley, back through the Bin Roof Pulley and then back down the Center Vertical.

Note: attach the Cable to the Level-Dry Center Tube Assembly Eye Bolts. Use hardware from Winch Hardware Sack 632-109A.

5: Installing the Winch and Cable System

634A-001A Grain \ Winch System
- └ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
  - └ 632-113A Leveler Pulley Assembly, (1)
  - └ 632-110A Bin Roof Pulley Assembly, (1)
  - └ H-2018 3/16” wire cable
  - └ 632-109A Winch System hardware Sack, (8”x10”x.006”), (1)

5z. Install Under Roof (Middle Cable): Go outside the bin to where Winch is mounted and proceed with installing the Winch cable system. Drill or cut a hole or slot through the bin side wall above the lift pulley Assembly.

Note: try to line the hole up from the top of lift pulley to the bin roof pulley.

5aa. Thread the H-1382 1/4” cable through this hole and using a thimble and two clamps attach it to the Leveler Pulley. Then pull cable tight and add another thimble and two clamps on the end outside the bin so the loop is about 1’ below the bottom of the lift pulley bracket.

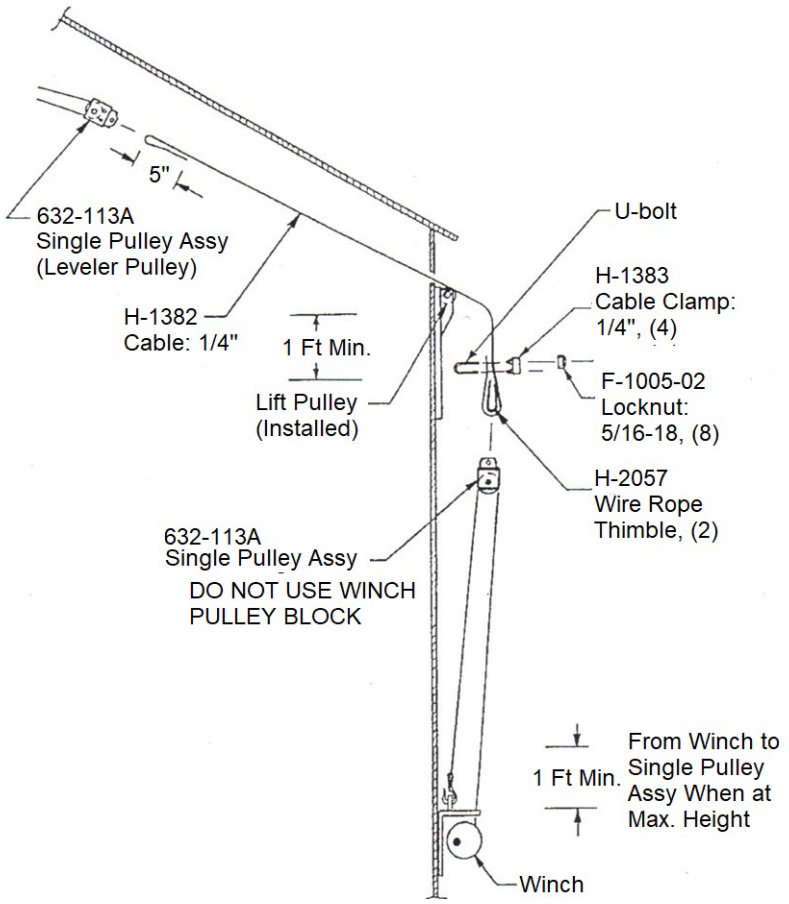


Fig.5.87

5ab. Attach the 632-113A Winch pulley block to the cable loop below the Lift Pulley.

Note: Make sure the cable on the Winch is tight and straight. If not, let more cable out then rewind it.

5ac. Test run raising the Center Tube Assembly up and down the Center Vertical.

Note: make sure everything is working properly. Be careful not to raise it too high, but make sure it can raise to the maximum level. There should be at least one foot above the Winch to the Winch pulley block when the Level-Dry is at the maximum height.

6: Installing the Grain Input Tube

634A-001A Grain \ Winch System
- └ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
  - └ 632-115A Grain Input & Hardware Sack, (8”x10”x.006”), (1)

Step 1. Locate the cone weldment 219-009W, one 10.5” piece of chain 222z-032P, two 8” x 1” wide 632-127P Half-Bands, Grain Input sack 632-115A and one piece of 8” flex tube 8ft long from the 634A-001A Winch\Grain System.

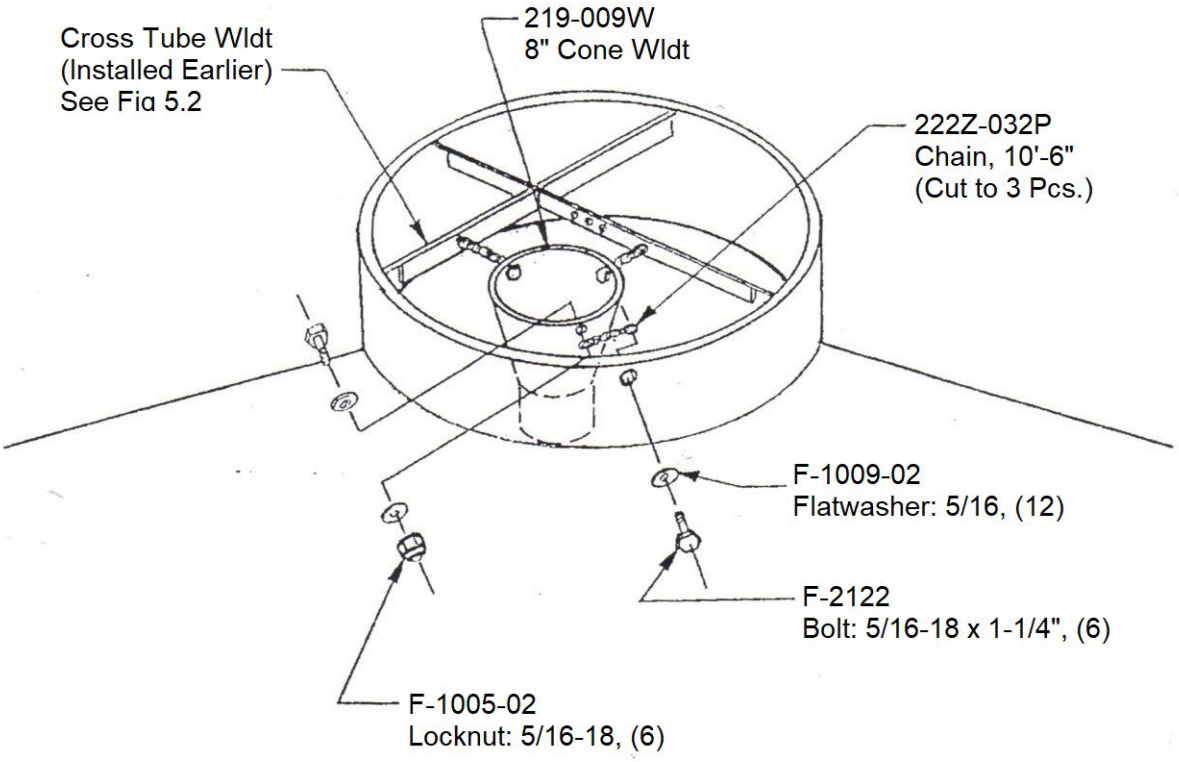


Fig. 6.1

Step 2. In the large end of the Cone Weldment, drill three 5/16” dia. equally spaced holes 1” down from the top.

Step 3. Cut the chain into three pcs of equal length and attach them to the cone weldment with 5/16” x 1-1/4” bolt and washers and nuts.

Step 4: attach the chains to the cross or to the bin roof ring so the incoming grain will hit the cone.

Note: make sure the cone does not interfere with the cable system. Cut off any extra chain.

6: Installing the Grain Input Tube

634A-001A Grain \ Winch System
└ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
└ 632-115A Grain Input & Hardware Sack, (8”x10”x.006”), (1)
ST-9262 Flex Tube: 8” x 8ft

Step 5. Assemble the 632-127P 8” x 1” wide Halfbands to the top of the Center Vertical with 632-084P clamp end.
Note: If there is a chain at the desired grain input, it can be moved and doubled up with another.
Note: the grain input should be close to the boom arm, but not directly above it at any vertical position of the Level-Dry

Step 6. Attach the 8” flex tube to the Cone Wldt. Use at least (3) F-1231 Self-Drilling screws. For Center Vertical Machines, mark the length of the 8” Flex Tube and cut it so it is flush with the top of the Center Vertical. For Dri-Flo (Bottom Unloading) Machines, it may work better to extend the 8” Flex Tubing down further.

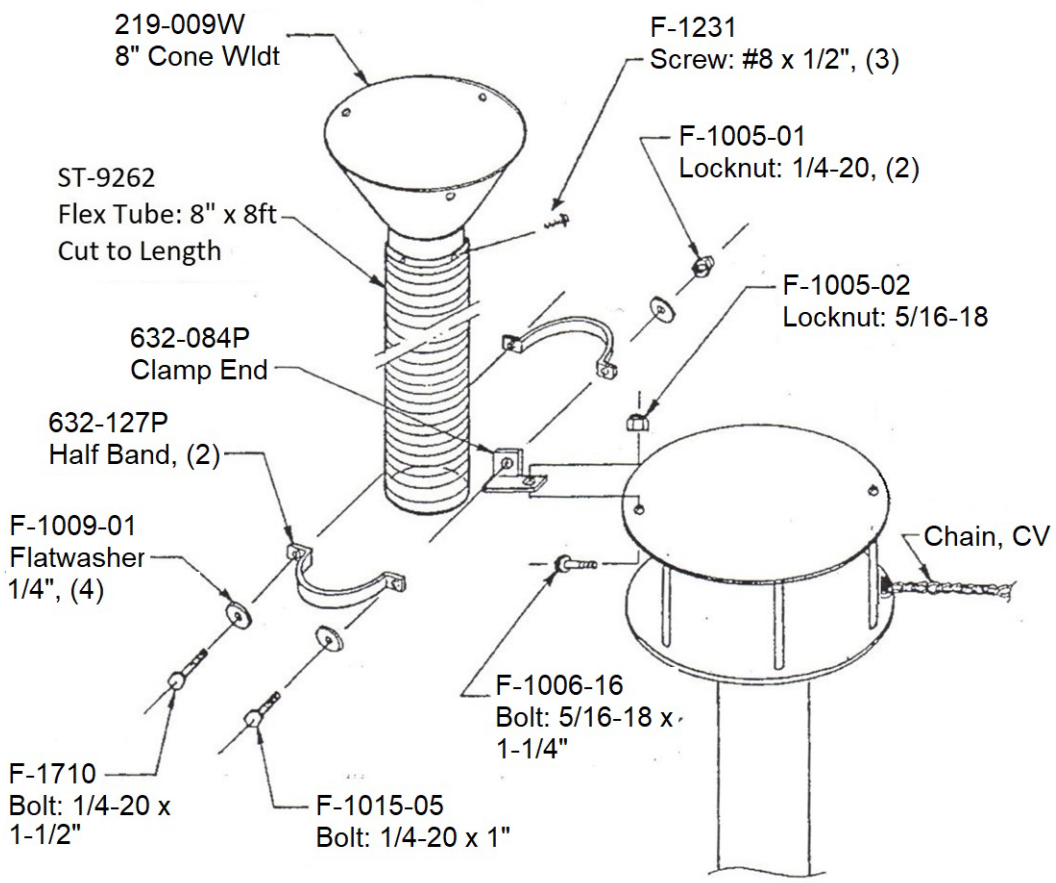


Fig 6.3

Step 7. Insert the bottom end of the flex tube in the Half-Bands, and clamp it in place to the 632-084P Clamp End mounted on the Center Vertical Top Plate.

Note: Be careful not to extend the Flex Tube past the top of the Center Vertical Top Plate, as this would interfere with recirculation.

6: Installing the Grain Input Tube

634A-001A Grain \ Winch System
- └ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
- └ 632-115A Grain Input & Hardware Sack, (8”x10”x.006”), (1)

634B-001A Level-Dry: Miscellaneous Parts Box
- └ 631-076P Lower Cone, (1)

Step 8. Attach the top end of the Lower Cone 631-076P to the bottom plate of the Center Vertical.

Note: if it hangs below the lowest item on the Center Vertical, the bottom of it may be cut off..

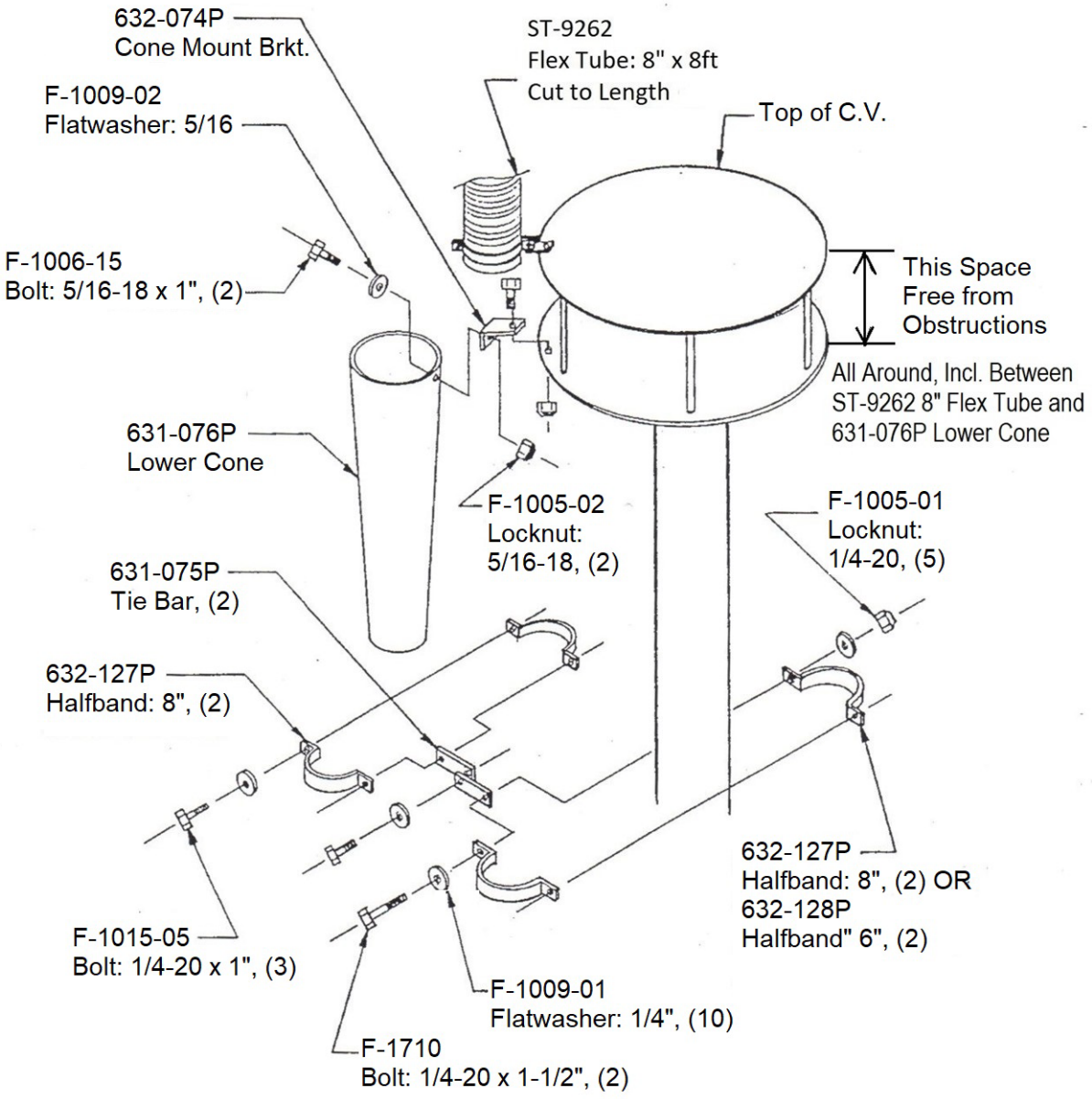


Fig 6.5

Step 9. Secure the bottom of the lower cone with clamps and tie bars as shown.

Note: if there are any obstructions on the Center Vertical tube, use H-2029 plumbers strap to fabricate mountings. Grain may need to be run through the system to make final adjustments to the Tie Bars.

6: Installing the Grain Input Tube

634A-001A Grain \ Winch System
- └ 632B-002A Winch \ Grain System Box, (34.5”x 29.5”x 14”)
  - └ 10A-047P SPREADER FIN, SMALL, (3)
  - └ 10H-048P SPREADER FIN, MED, (3)
  - └ 658-023P FIN NO.3, WSCV, (2)
  - └ 632-253A LDRY: HDWE SACK (FOR WSCV FINS), (1)

Note: Since the maximum grain height with the Level-Dry will be lower than normal, the recirculation spreader fins on top of the Center Vertical must be changed down a size. If they are not changed, too much grain may go toward the Outer Wall of the bin and interfere with operation of the Level-Dry.
Step 10. Locate the spreader fins in the 634A-001A Grain\Winch parts box and change down a size as shown below.

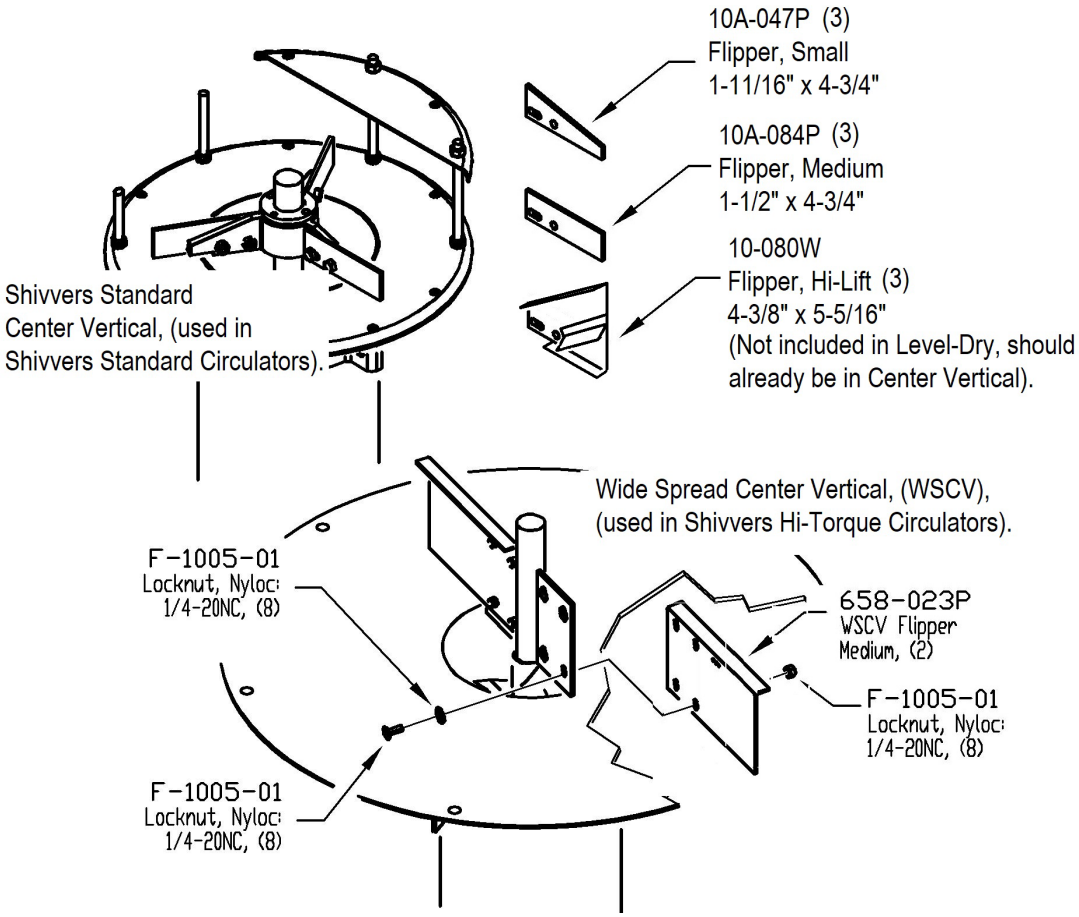


Fig 6.7

Note: For Standard 8-in Shivvers Center Verticals in Bin diameters of 42-48ft, the High Lift Spreader Fins (10-080W x 3), should already be installed. (Not included with the Level-Dry).

Note: For Hi-Torque 2-Sweep & 3-Sweep Systems with WSCVs, (Wide Spread Center Verticals):
Use: the 658-023P Flipper (2) and 632-253A Hardware Sack included in the 632B-002A Winch\Grain System Box.

7: Installing the Hopper

634B-001A Miscellaneous Parts Box
└ 632-251A LD MISC PTS BOX #1 (34.5”x 29.5”x 14”)
└ 632-125A Hopper Assembly Parts Sack, (1)

7a. **Locate Parts:** Locate the Mast Wldt 632-210W and the 632-125A Hopper Sack in 634B-001A Miscellaneous Parts Box.

7b. **Install Mast Weldment:** Step 2. Attach the Mast Weldment to the Center Tube Assembly. As shown in Fig 7.1.

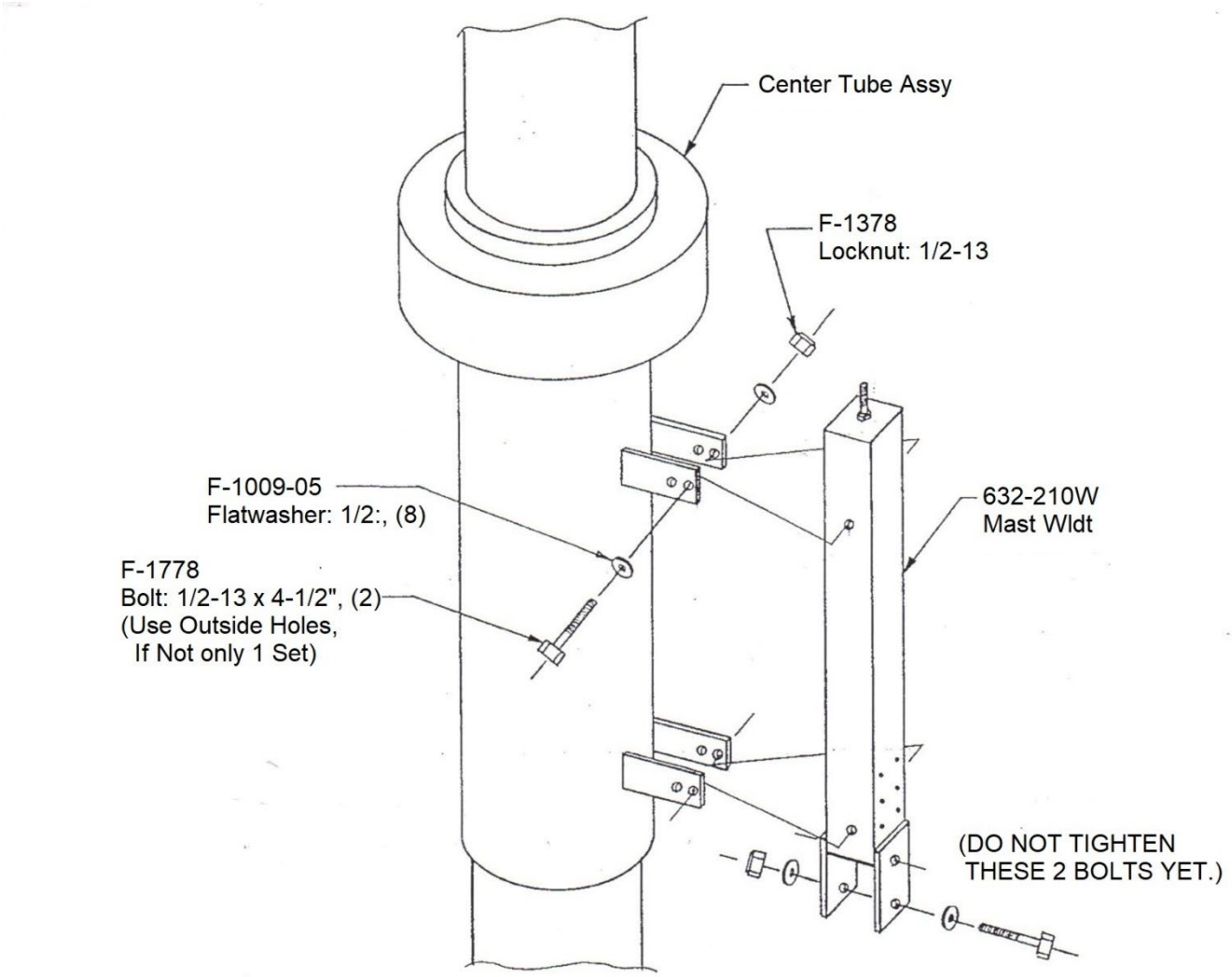


Fig 7.1

7: Installing the Hopper

634B-001A Miscellaneous Parts Box
- └ 632-251A LD MISC PTS BOX #1 (34.5”x 29.5”x 14”)
  - └ 632-125A Hopper Assembly Parts Sack, (1)

7c. Locate/Identify Support Rods: Locate the 634-143P Support Rod LH long, 634-144P Support Rod RH Short, 634-142P Support Rod RH Long, 634-145P Support Rod LH Short, 634-200W RH Ring Wldt and 634-201W LH Ring Wldt also 632-125A Hopper Assembly Hardware Sack.

Note: see below for identifying parts. Make sure there are two different Short Supports, two different Long Supports, and two different Hopper Rings, …or it won’t go together. It may help to mark the pieces RH or LH and Top and Bottom.

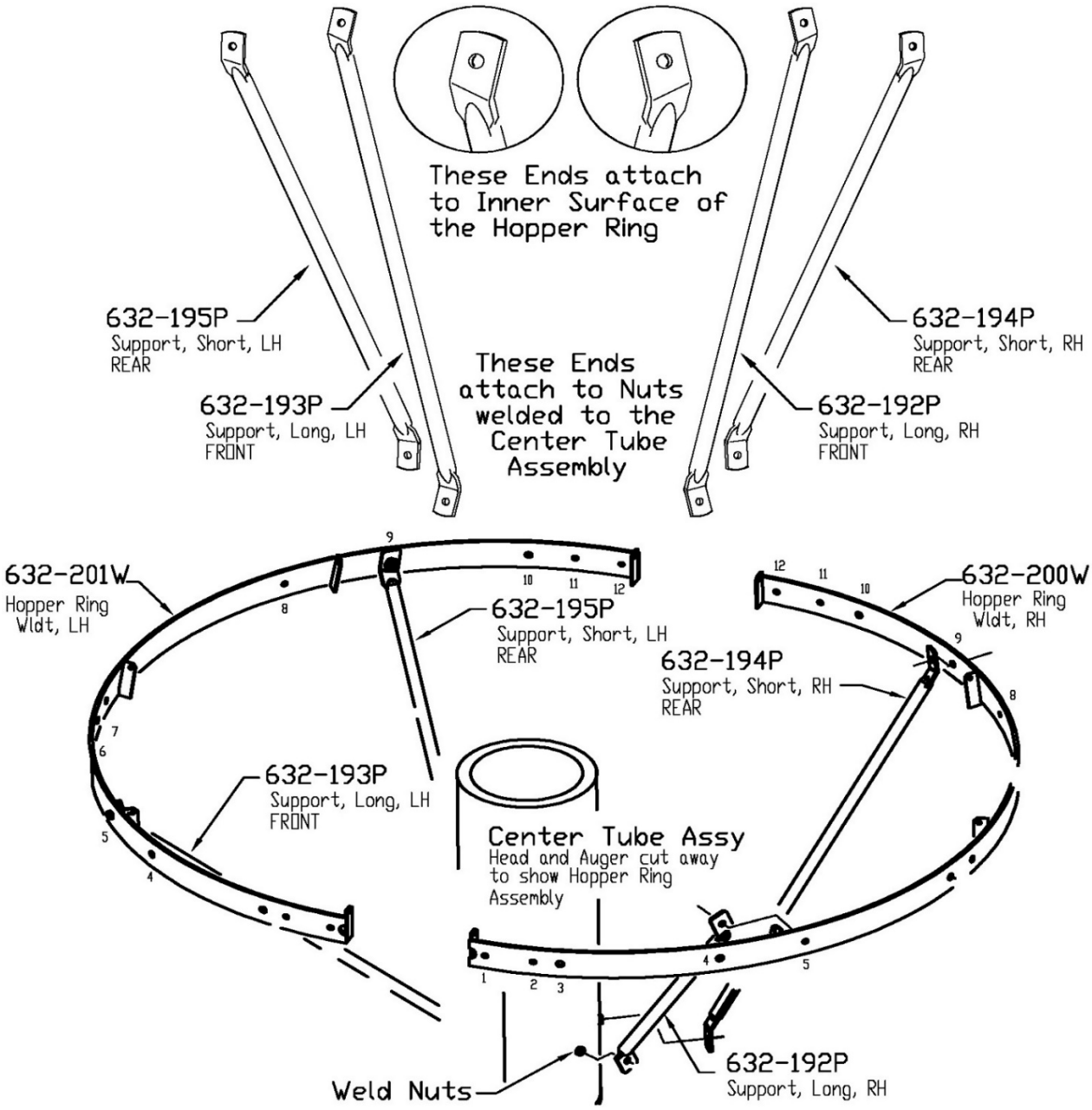


Fig 7.3

7: Installing the Hopper

634B-001A Miscellaneous Parts Box
- └ 632-251A LD MISC PTS BOX #1 (34.5”x 29.5”x 14”)
  - └ 632-125A Hopper Assembly Parts Sack, (1)
  - └ 632-199P Hopper Ring Plate, (2)

7d. Install Support Rods: Using hardware from 632-125A Hopper Assembly Sack, attach the Bottom ends of the Support Rods to Center Tube Assembly. While installing the Support Arms, pay attention to Tops and Bottoms, RH and LH, and Short and Long. Tighten the bolts enough that the Support Rods will remain upright. Using the 632-199P Connector Plates, assemble the two Hopper Ring Weldments around the Center Tube Assembly with the tabs up. (See Fig 7.5a).

Note: Do not tighten any hardware at his time.

Connector Plates (632-199P) attach at holes 1 &2, and 11 & 12.
Brace (632-192P) attach at hole 5 on RH Hopper Ring. Brace (632-193P) attach at hole 5 on LH Hopper Ring.
Brace (632-194P) attach at hole 9 on RH Hopper Ring. Brace (632-1925) attach at hole 9 on LH Hopper Ring.
Leg Yokes (653-205W) attach at holes 4, 6, & 8 on the RH Ring, and holes 6 & 10 on the LH.

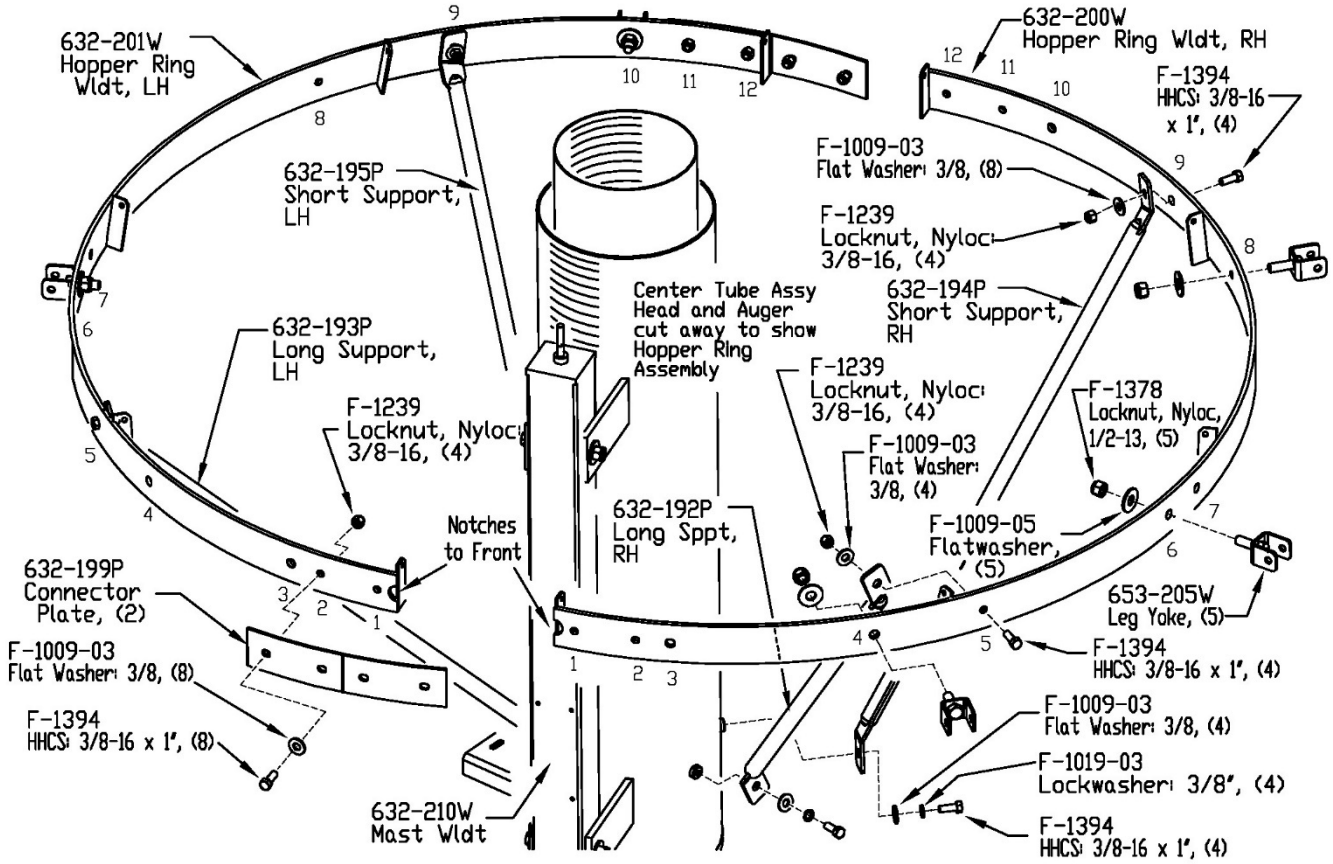


Fig 7.5a

IMPORTANT: This Hopper and its supporting framework are made up of many parts and fasteners. It is important that the parts are allowed to shift during assembly. Nyloc nuts are used extensively, which allow the fasteners to be held in place during the build without being fully tightened. As each Bolt and Nyloc nut is put in, turn them together far enough they won’t shake apart or out. It is recommended not to fully tighten any fasteners until all the fasteners of the last Hopper sections are in place. After that, tighten all Supports and Ring Fasteners, followed by the Ring Braces (at the Top of the Mast (inside the Hopper) and Ring (outside the Hopper), then all the Hopper Bolts.

7: Installing the Hopper

634B-001A Miscellaneous Parts Box
- └ 632-251A LD MISC PTS BOX #1 (34.5”x 29.5”x 14”)
  - └ 632-125A Hopper Assembly Parts Sack, (1)

(See Fig 7.7a, p.28)

7e. Locate the parts: 634-204W Ring Brace Wldts Qty of 4, the 634-206P Arm Brace Tab, the 8 hopper sections 632-178P, 632-179P, 632-180P, 632-181P, 632-182P, 632-183P, 632-184P, and 632-185P from 634B-001A Miscellaneous Parts Box. Also the 632-125A Hopper Hardware Sack found in 632-251A Misc Pts Box #1.

7f. Install Hopper Sections 1 & 2, (632-178P & 632-179P respectively), and fit them around the Mast & Center Tube Assembly including all the 1/4” Nyloc nuts and bolts they will have in common. The third hole from the Top connects the Hopper to the Hopper Ring. This seam goes between the Rear Tabs of the Hopper Rings.

7g. Install Hopper Sections 3 & 4, (632-185P & 632-184P respectively), including all the 1/4” Nyloc nuts and bolts they will have in common. This seam goes between the Front Tabs of the Hopper Rings.

7h. Install 1/2" Plain Nuts (F-1011-05) 1-each onto 2 of the Ring Braces (632-204W) with 3-7/8” of thread extending through as shown in Fig 7.61.

Fig 7.61

7i. Install Ring Braces through holes in Hopper Sections 3 & 4, the holes in the Hopper Ring, and over the bolt atop the Mast Weldment. Then install a 1/2” Nyloc Nut onto each of the threads outside the Hopper Ring.

7j. Install Hopper Sections 5 & 6, (632-183P & 632-182P respectively), including all the 1/4” Nyloc nuts and bolts they will have in common with sections 3 & 4.

7k. Install 1/2" Plain Nuts (F-1011-05) 1 each onto the 2 remaining Ring Braces (632-204W) with 2-1/8” of thread extending through as shown in Fig 7.62.

Fig 7.62

7l. Install these Ring Braces through holes in Hopper Sections 5 & 6, the holes in the Hopper Ring and over the bolt atop the Mast Weldment. Then install a 1/2” Nyloc Nut onto each of the threads outside the Hopper Ring, Then a 1/2” Flatwasher and a 1/2” Nyloc Nut atop the Mast Weldment inside the Hopper which may now be fully tightened.

7m. Install Hopper Sections 7 & 8, (632-181P & 632-180P respectively), including all the 1/4” Nyloc nuts and bolts they will have in common with sections 5 & 6, also 1 & 2.

7n. Tighten the bolts in the following order: (1) Hopper Ring Plates, (2) Hopper Support Arms Top and Bottom.

7o. Adjust the Ring Braces to Level the Hopper visually. The Top of the Hopper needs to be somewhat level and centered with the Center Tube, but is not critical.

7p. Tighten all the 1/4” Nyloc Nuts and Bolts that join the Hopper Sections.

7: Installing the Hopper

634B-001A Miscellaneous Parts Box
- └ 632-251A LD MISC PTS BOX #1 (34.5”x 29.5”x 14”)
  - └ 632-125A Hopper Assembly Parts Sack, (1)

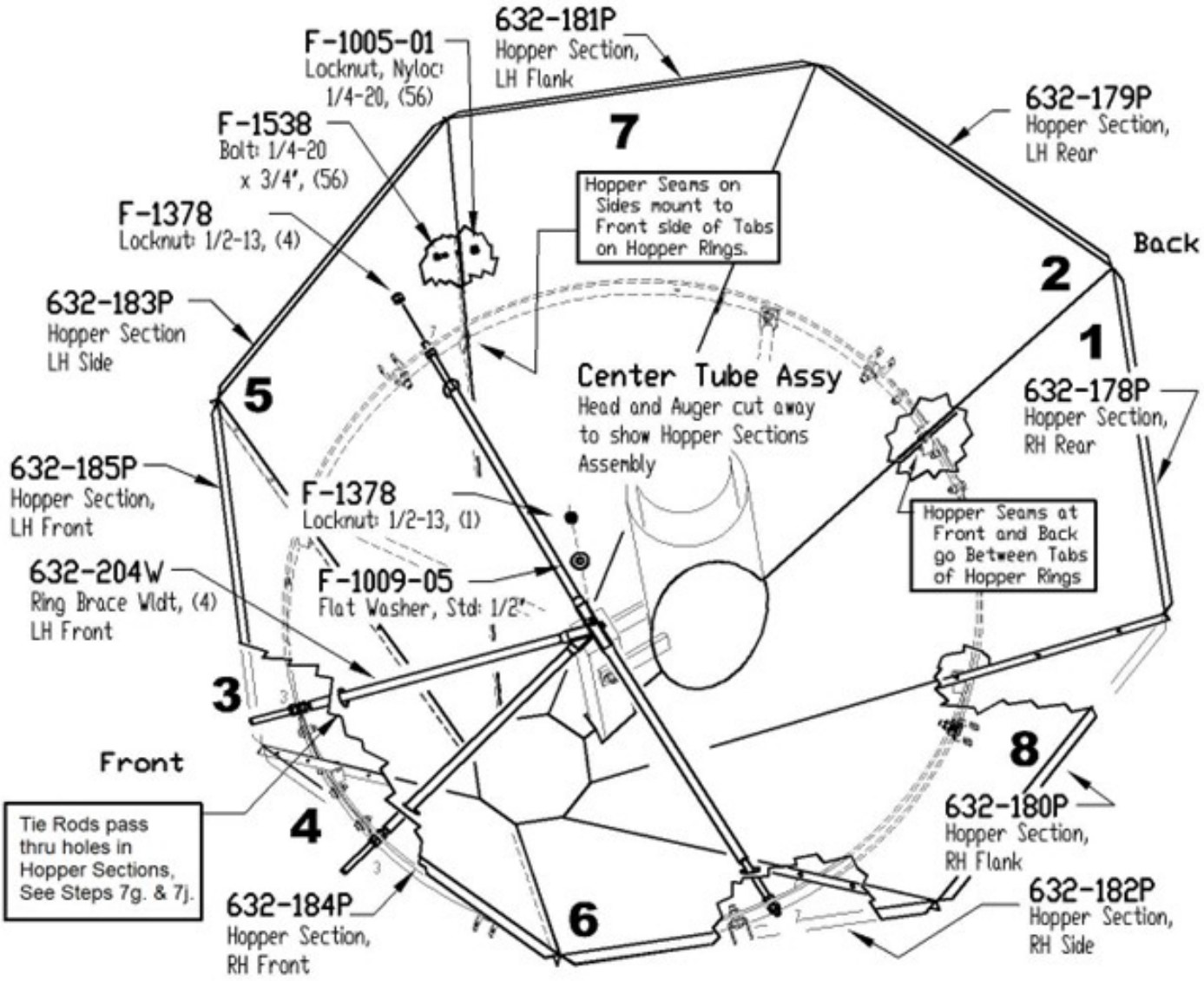


Fig 7.7a

Note: A couple of small Tapered Pin Punches are useful.

Note: This works better with two workers.

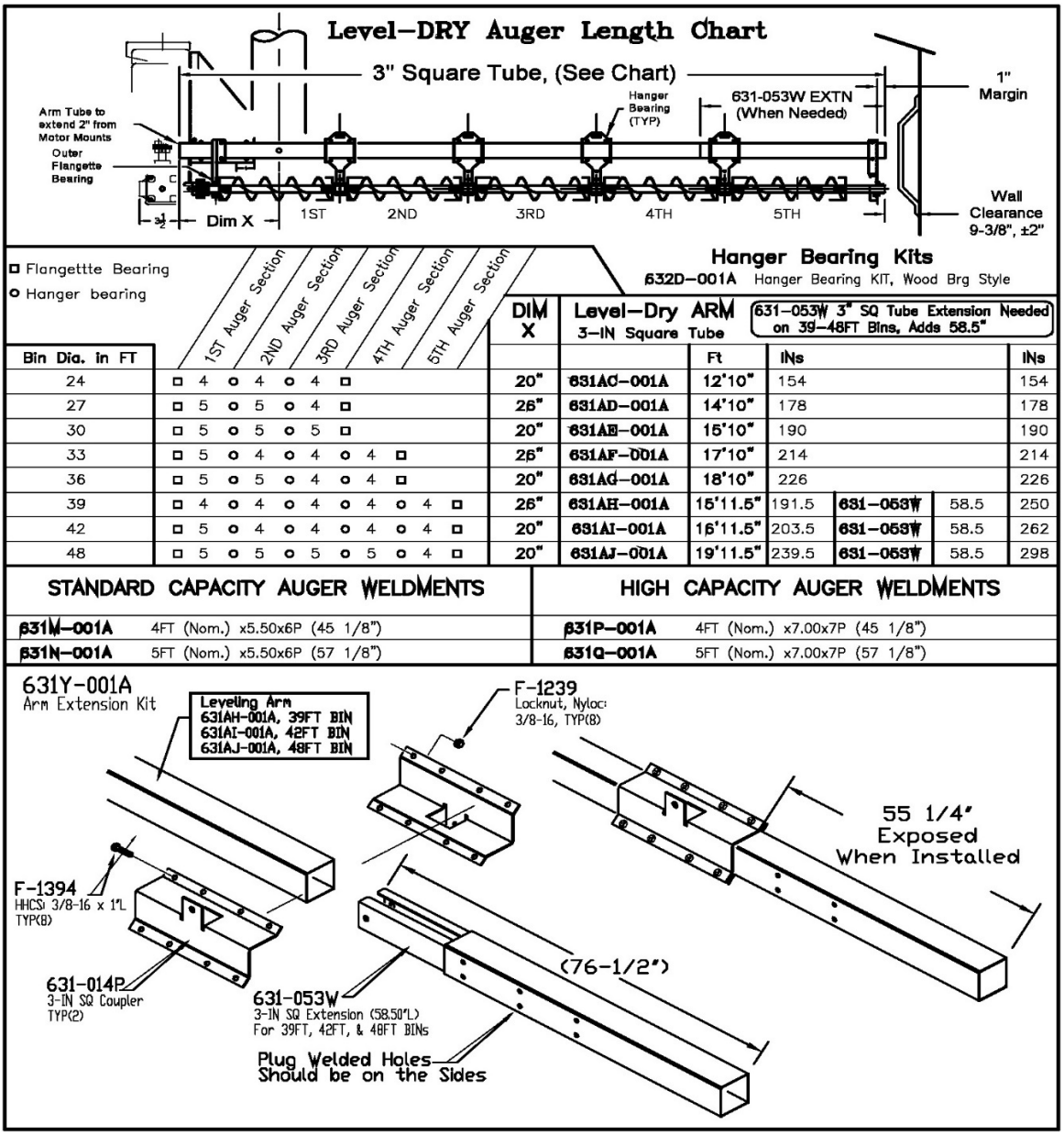
IMPORTANT: Follow the steps above to avoid having to “backtrack” during the assembly, since some components require installation at critical stages. After all parts are assembled, rotate the assembly to make sure it clears the Boom Arm and is fairly level. Don’t forget to lock the 1/2” Nuts against the Hopper Ring.

8: Installing the Leveling Arm (3in Square Tube)

631(AA-AJ)-001A LDRY Arm Tube (See Chart)
634B-001A LDRY Miscellaneous Parts
└ 632-251A LDRY Miscellaneous Parts Box #1, (18”x 8”x 6”)
└ 631-131A Hardware Sack: L-Dry Leveling Arm, (6”x8”x.005”), (1)

8a. Lower Center Tube: Lower the Center Tube Assembly all the way down until it rests on the Bottom Stop Slide (632-217P) mounted to the Halfbands of the Center Vertical earlier.

8b. Reference Chart: From Chart, verify you have the proper length 3” Square Tube (Arm Tube) for your Bin Size.



Bin Dia. in FT	1ST Auger Section	2ND Auger Section	3RD Auger Section	4TH Auger Section	5TH Auger Section	DIM X	Level–Dry ARM 3–IN Square Tube	Ft	INs		INs	
							631–053W 3" SQ Tube Extension Needed on 39–48FT Bins, Adds 58.5"					
24	□ 4	o 4	o 4	□		20"	631AC–001A	12'10"	154			154
27	□ 5	o 5	o 4	□		26"	631AD–001A	14'10"	178			178
30	□ 5	o 5	o 5	□		20"	631AE–001A	15'10"	190			190
33	□ 5	o 4	o 4	o 4	□	26"	631AF–001A	17'10"	214			214
36	□ 5	o 5	o 4	o 4	□	20"	631AG–001A	18'10"	226			226
39	□ 4	o 4	o 4	o 4	o 4 □	26"	631AH–001A	15'11.5"	191.5	631–053W	58.5	250
42	□ 5	o 4	o 4	o 4	o 4 □	20"	631AI–001A	16'11.5"	203.5	631–053W	58.5	262
48	□ 5	o 5	o 5	o 5	o 4 □	20"	631AJ–001A	19'11.5"	239.5	631–053W	58.5	298

STANDARD CAPACITY AUGER WELDMENTS		HIGH CAPACITY AUGER WELDMENTS	
631M–001A	4FT (Nom.) x5.50x6P (45 1/8")	631P–001A	4FT (Nom.) x7.00x7P (45 1/8")
631N–001A	5FT (Nom.) x5.50x6P (57 1/8")	631Q–001A	5FT (Nom.) x7.00x7P (57 1/8")

Table 8.1

8c. Mark 3-in Square Arm Tube at Dim-X: Determine the Dim X, and mark the Arm Tube that distance from one end, any side.

Note: This mark is to be lined up with the centerline of the Mast Weldment (See Fig 8.61, p.30)

8d. Install two 1/2” bolts, washers, and nuts in the bottom of Mast Weldment, do not tighten.

8: Installing the Leveling Arm (3in Square Tube), cont'd

631(AA-AJ)-001A	LDRY Arm Tube (See Chart)
634B-001A	LDRY Miscellaneous Parts
└ 632-251A	LDRY Miscellaneous Parts Box #1, (18"x 8"x 6")
└ 631-131A	Hardware Sack: L-Dry Leveling Arm, (6"x8"x0.005"), (1)

8e. Install 3-in Square Tube: Slide the Arm Tube through the bolts on the bottom of the Mast Weldment until the mark is visually centered up with the Mast Weldment. Make sure the long end of the Arm Tube goes to the right of the Mast as shown below. Tighten the Bolts till just snug

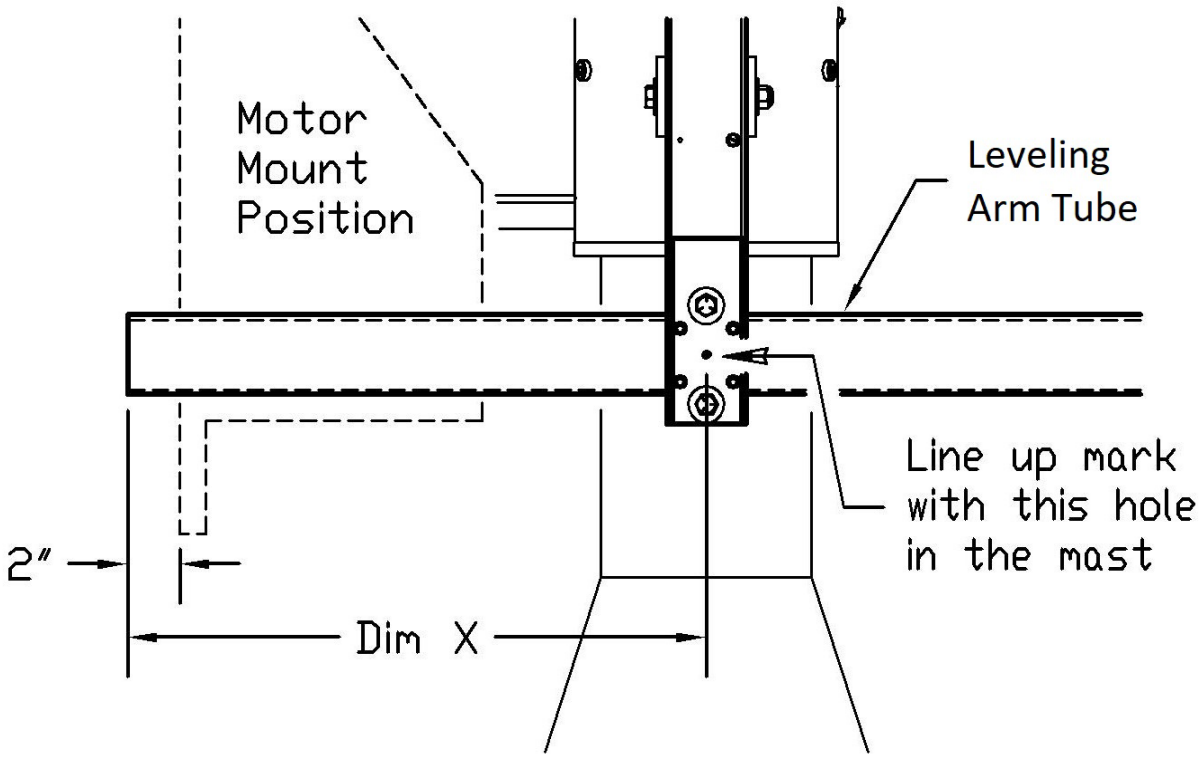


Fig 8.61

8f. Adjust 3-in Square Tube for final location: Using a 1500-2000 lb. rated Ratchet Style Tie-Down with hooks, hook from the outer end of the Arm Tube to the closest point on the Hopper Ring. Adjust Arm Tube for an upward angle. The outer end of the Arm Tube should be 4-6" higher than at Center Tube.

Note: The 2-in Margin shown above is to allow the Arm to extend another 2 inches if needed.

Note: Dim-X should work in most cases, but may have to be adjusted to clear inside ladders or other obstructions.

8: Installing the Leveling Arm (3in Square Tube), (Cont'd)

631(AA-AJ)-001A LDRY Arm Tube (See Chart)
634B-001A LDRY Miscellaneous Parts
└ 632-251A LDRY Miscellaneous Parts Box #1, (18"x 8"x 6")
└ 631-131A Hardware Sack: L-Dry Leveling Arm, (6"x8"x.005"), (1)

8g. Rotate Assembly: Rotate the Assembly, making sure the arm clears all inside obstructions (like ladders) by at least 2-Ins. Outer End should be about 6-1/2" from wall. Adjust Dim-X at Mast Weldment at Center Tube as needed.

Note: Do not make allowance for inside door to be opened inward. Inside Doors must be shut as Level-Dry Arm passes.

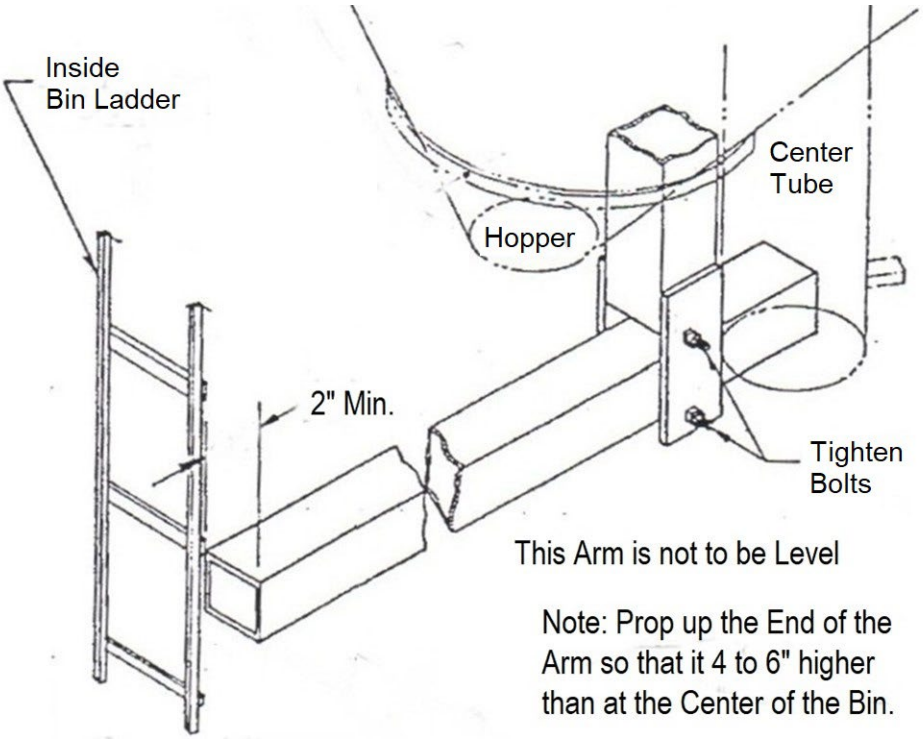


Fig 8.51

8h. Position Arm in bin: Rotate the Assembly so the Arm Tube points to the 3 to 5-O'Clock position in the Bin when the Door is behind you at the 6-O'Clock position. (Best position during Installation).

8i. Block up the Outer End of the Arm Tube, (or provide a rugged anchor point inside the wall) to support it during the assembly process.

8j. Install Drill Screws: Install 4 Drill Screws at the Mast Weldment to hold Leveling Arms' Position. (See Fig 9.12, p.32), Then tighten bolts clamping the Arm Tube, being careful not to crush the tube.

8k. Arm Tube should now be ready for Gearbox Drive Assembly.

9: Installing the Motor and Drive Assembly, (Cont'd)

631X-001A LDRY: Gearbox/Drive Assembly
└ 632-252A LDRY: Parts Box for Gearbox/Drive Mount (15"x 32"x 12")
└ NA Hardware in Box

9a. Install RH and LH Motor Mounts: See Fig 9.12

Note: Install the Motor Mounts (632-146P, RH & 632-145P, LH) onto the end of the Arm Tube that is under the Hopper, The Tube should extend 2" from the Motor Mounting surface(s), (See Fig 8.61, p.30). Also install Spacer Bracket (632-249P)

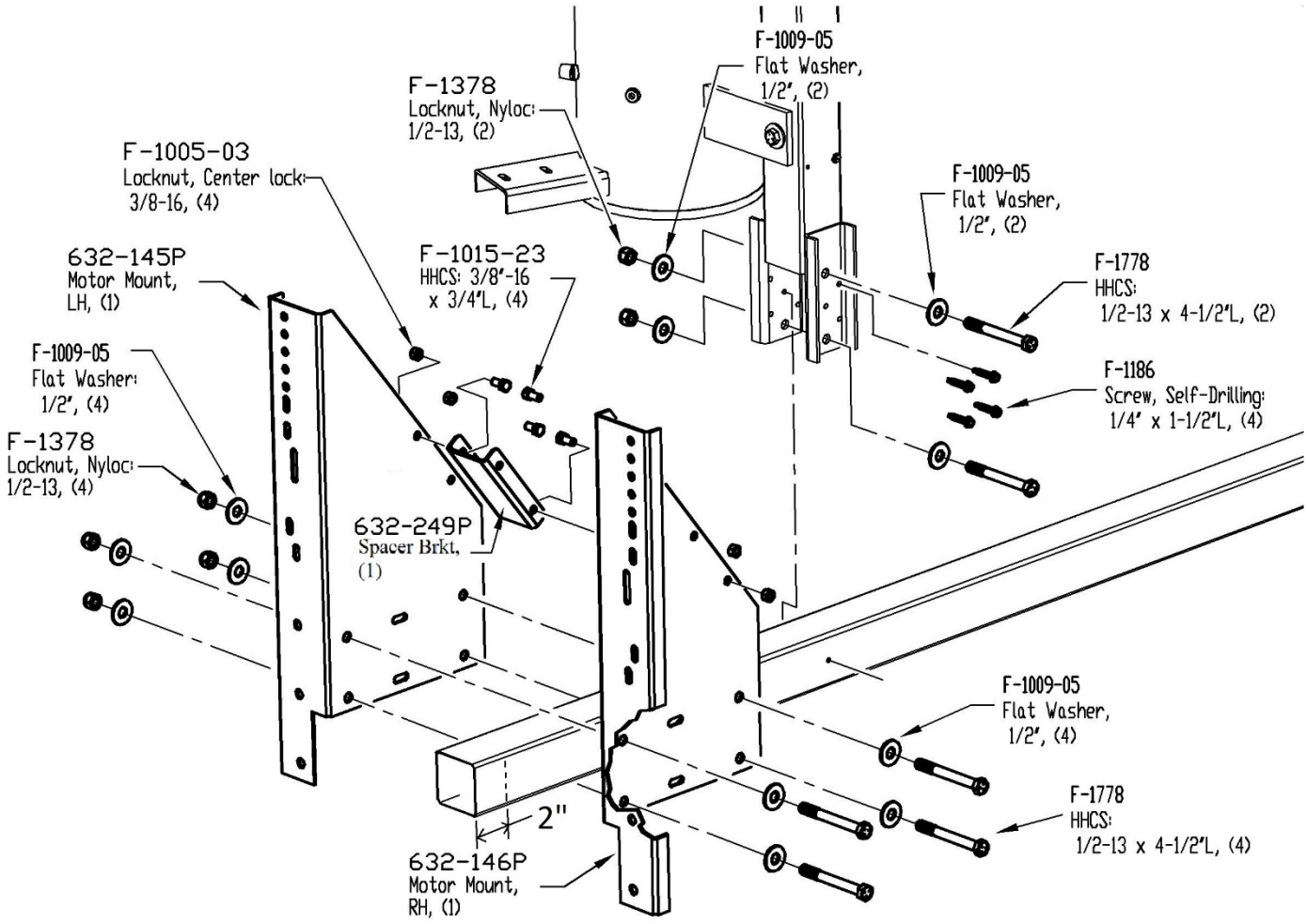


Fig 9.12

9: Installing the Motor and Drive Assembly, (Cont'd)

631X-001A LDRY: Gearbox/Drive Assembly
└ 632-252A LDRY: Parts Box for Gearbox/Drive Mount (15"x 32"x 12")
└ NA Hardware in Box

9b. Install RH & LH Gearbox Mounts: (See Fig 9.2a, p.34)

9c. Install Gearbox:

9d. Check Oil in Gearbox: Fill as needed. (Shivvers # C-6168: 80w90 Gear Lube)

9e. Install Chain Coupler Sprockets to Gearbox:

Note: The 631V-001A Chain/Sprocket Kit will be used between Gearbox Output Shaft and Hanger Bearing Shaft 631-070P in all cases. (Both Couplers (D-3576) have 1-1/8"IDs). It is also used between the Gearbox and 5HP Motors having a 1-1/8" shaft.

Note: For systems with the 7-1/2HP Motors having a 1-3/8" Shaft, one of the Chain/Sprocket Kits will be 631W-001A and it will include one sprocket (D-3577) with a 1-3/8" ID for the Motor.

Note: Recommend coating all Shafts with Anti-Seize Lubricant during installation.

9f. Install Key: Install Key 632-170P (alum), and Sprocket (D-3576) flush with Top Gearbox Shaft

9g. Install Key: Install Key 656-027P (steel), and Sprocket (D-3576) flush with End of Gearbox Output Shaft.

9h. Install Motor Key, and Sprocket: (D-3576) flush with End of 5HP Motor Shaft.
(D-3577 from 631W-001A for 7-1/2HP Motors with 1-3/8" shaft)

Note: Remove Condensation Plug from Motor if there is one.

9i. Install Key: Install Key 656-027P (steel), and Sprocket (D-3576) flush with keyed End of Hanger Bearing Shaft (632-070P).

9j. Mount Motor to Motor Mount Brkts:

Note: Use 632-147P Spacers between the motor base and the Motor Mounts for 5HP Motors

Note: Align Motor Sprocket and Gearbox Sprockets with no more than 1/64" off center,parallel with each other, and with about 3/8" space between them. Adjust Gearbox, Gearbox Mounts, and Motor as needed.

9k. Attach Motor Cover: 632-156P as shown.

9: Installing the Motor and Drive Assembly, (Cont'd)

631X-001A LDRY: Gearbox/Drive Assembly

└ 632-252A LDRY: Parts Box for Gearbox/Drive Mount (15"x 32"x 12")

└ NA Hardware in Box

(See Fig 9.2a)

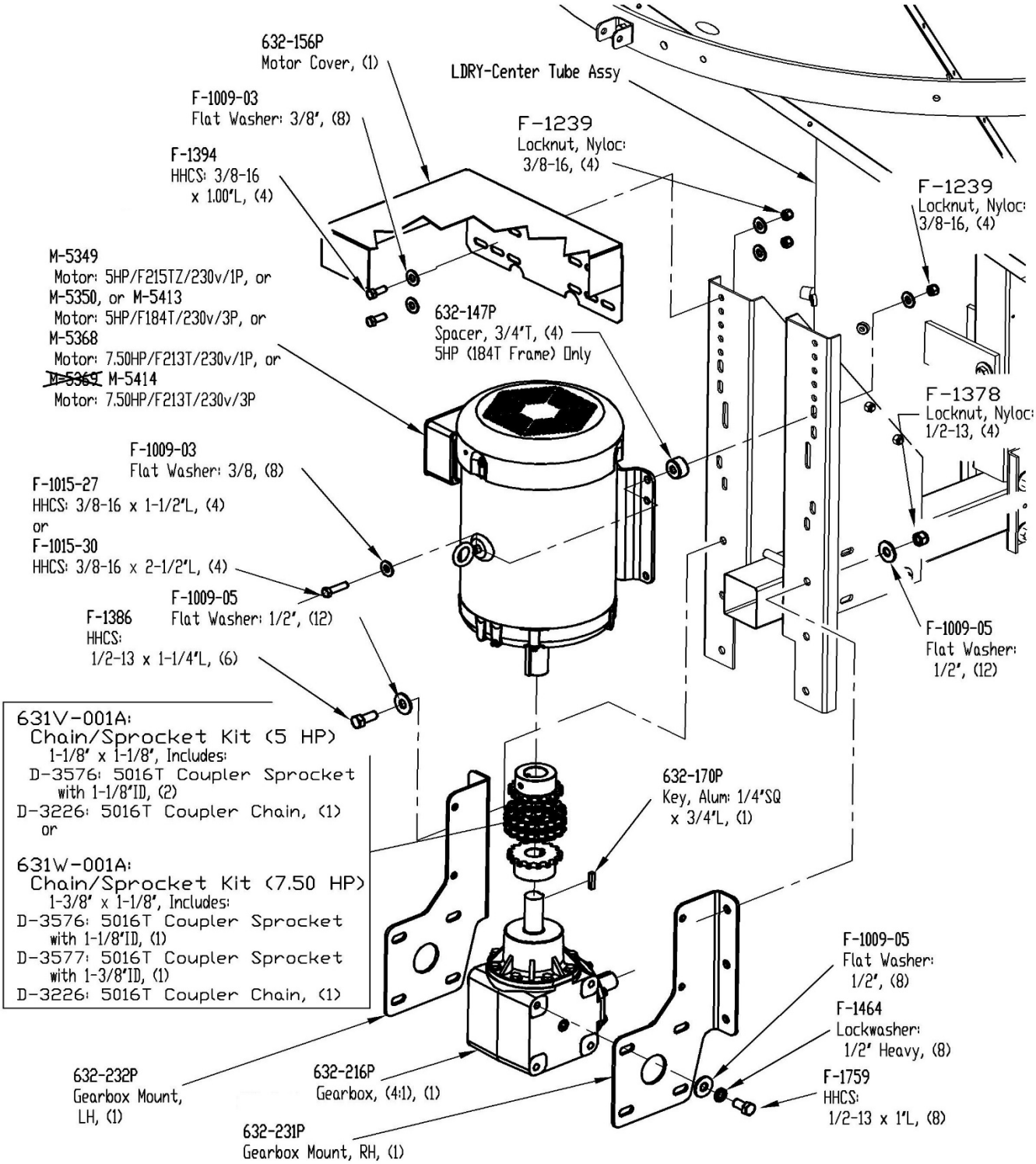


Fig 9.2a

Note: Keep bottom edges of Cover just below the top of the Motor.

9: Installing the Motor and Drive Assembly, (Cont'd)

631X-001A LDRY: Gearbox/Drive Assembly
└ 632-252A LDRY: Parts Box for Gearbox/Drive Mount (15"x 32"x 12")
└ NA Hardware in Box
(See Fig 9.5a)

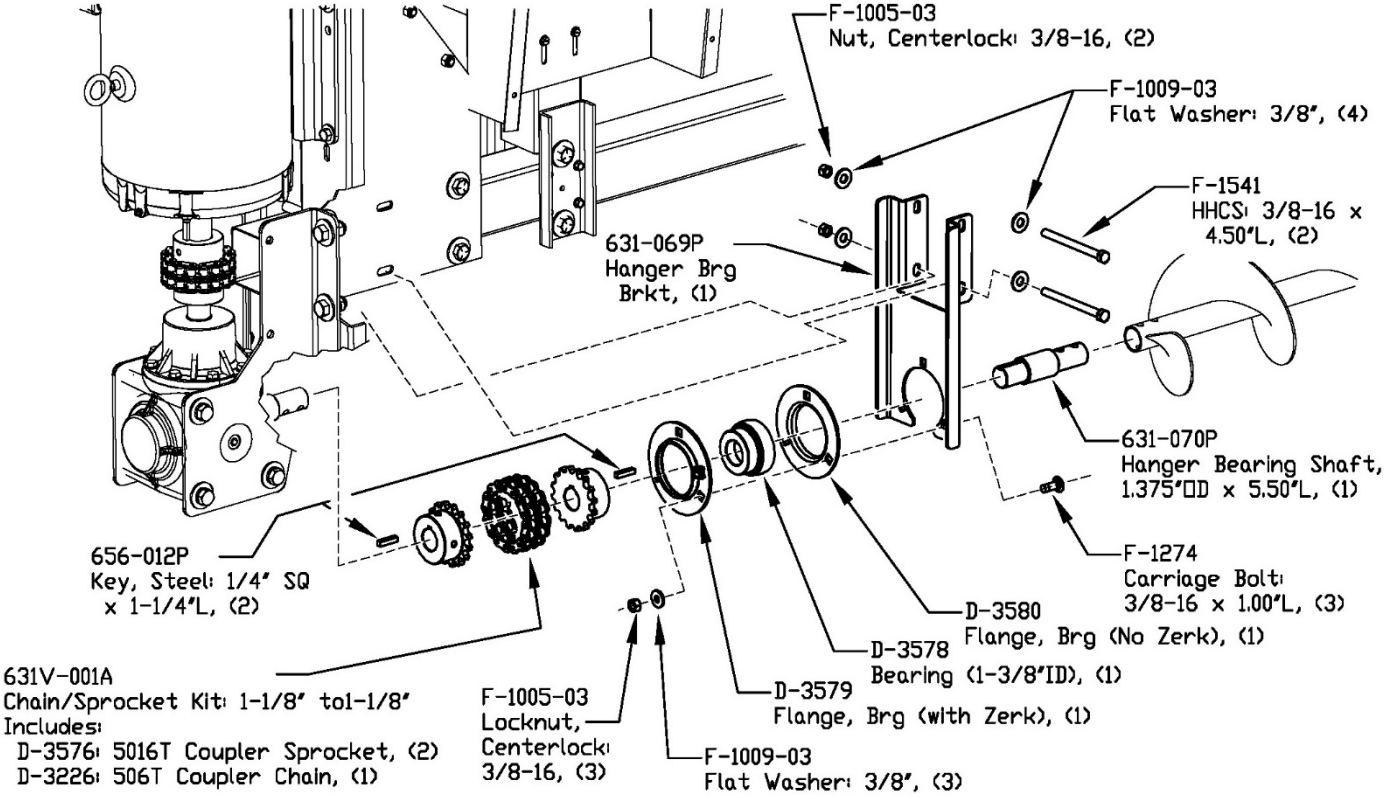


Fig 9.5a

9l. Install Hanger Bearing bracket (631-069P) to Motor Mounts as shown.

9m. Install Bearing Flanges (D-3579 & D-3580), Bearing (D-3578), and Shaft (631-070P) with Sprocket into the Bracket.

Note: Align Sprockets with no more than 1/64" off center, parallel with each other, and with about 3/8" space between them. Adjust Hanger Bearing Mount as needed.

The Arm should now be ready for the first Auger Section.

About the Auger Sections:

- Auger Sections are provided in nominal lengths of 4ft or 5ft in the quantities needed for each bin size to avoid custom fitting in the field.
- The Hanger Bearing creates a gap of 2-7/8", so the Auger Sections will actually be short by 2-7/8".
- This allows the hanger bearings to be mounted on even 4 or 5ft Centers.
- Keep Fliting Welds toward the Gearbox.

10: Installing the Auger Sections

632D-001A LDRY: Hanger Bearing Kit (Wood Hanger Bearing)
└ 632-250A Hardware Sack for Level-Dry Wood Hanger Bearing, (9”x 12”x .004”)

10a. Locate the Auger Sections and Prepare the 1st as shown in Fig 10.21 .

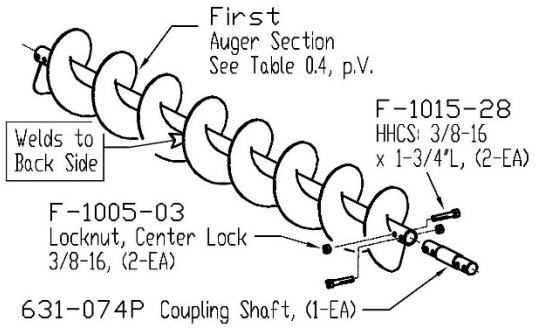


Fig 10.21

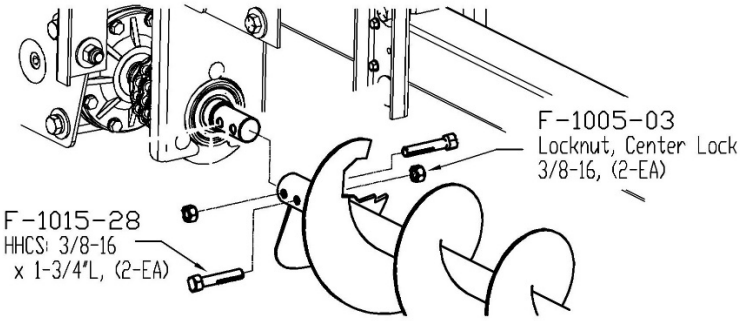


Fig 10.22

10b. Install the 1st Auger Section and Wood Hanger Bearing

-Install the Hanger Bearing Shaft from the Wood hanger Bearing Kit into the Discharge end of the 1st Auger Section and fasten as shown in Fig 10.21.

-Place the Intake End of the Auger onto the last shaft installed and fasten as shown in Fig 10.22.

-Install the rest of the Wood Hanger Bearing kits as shown in Fig 10.23.

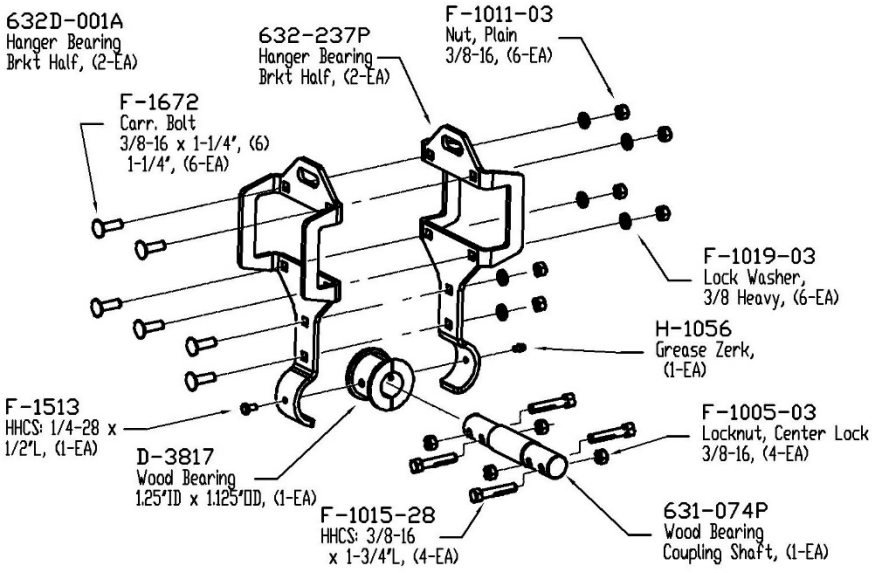


Fig 10.23

10c. Install the 2nd Auger Section and Wood Hanger Bearing, Attach Support Legs as Shown in Fig 10.1.

-Repeat 10b. (Verify Slope of Leveling Arm, See 2nd Note in Fig 10.1, p37).

10d. Install the 3rd Auger Section and Wood Hanger Bearing for Bins 33ft to 36ft., Attach Support Legs as shown in Fig 10.1. (Attach Support Legs and Verify Slope of Leveling Arm, See 2nd Note in Fig 10.1, p37).

-Repeat 10b., or go to 10f.

10e. Install the 4th Auger Section and Wood Hanger Bearing for Bins 39ft to 48ft.

-Repeat 10b., or go to 10f. (Attach Support Legs and Verify Slope of Leveling Arm, See 2nd Note in Fig 10.1, p.37).

10: Installing the Auger Sections (Cont'd)

632D-001A LDRY: Hanger Bearing Kit (Wood Hanger Bearing)
└ 632-250A Hardware Sack for Level-Dry Wood Hanger Bearing, (9"x 12"x .004")

10f. Install the Last Auger Section, Long End Shaft, and Outer End Ball Bearing. (All Bin Sizes)

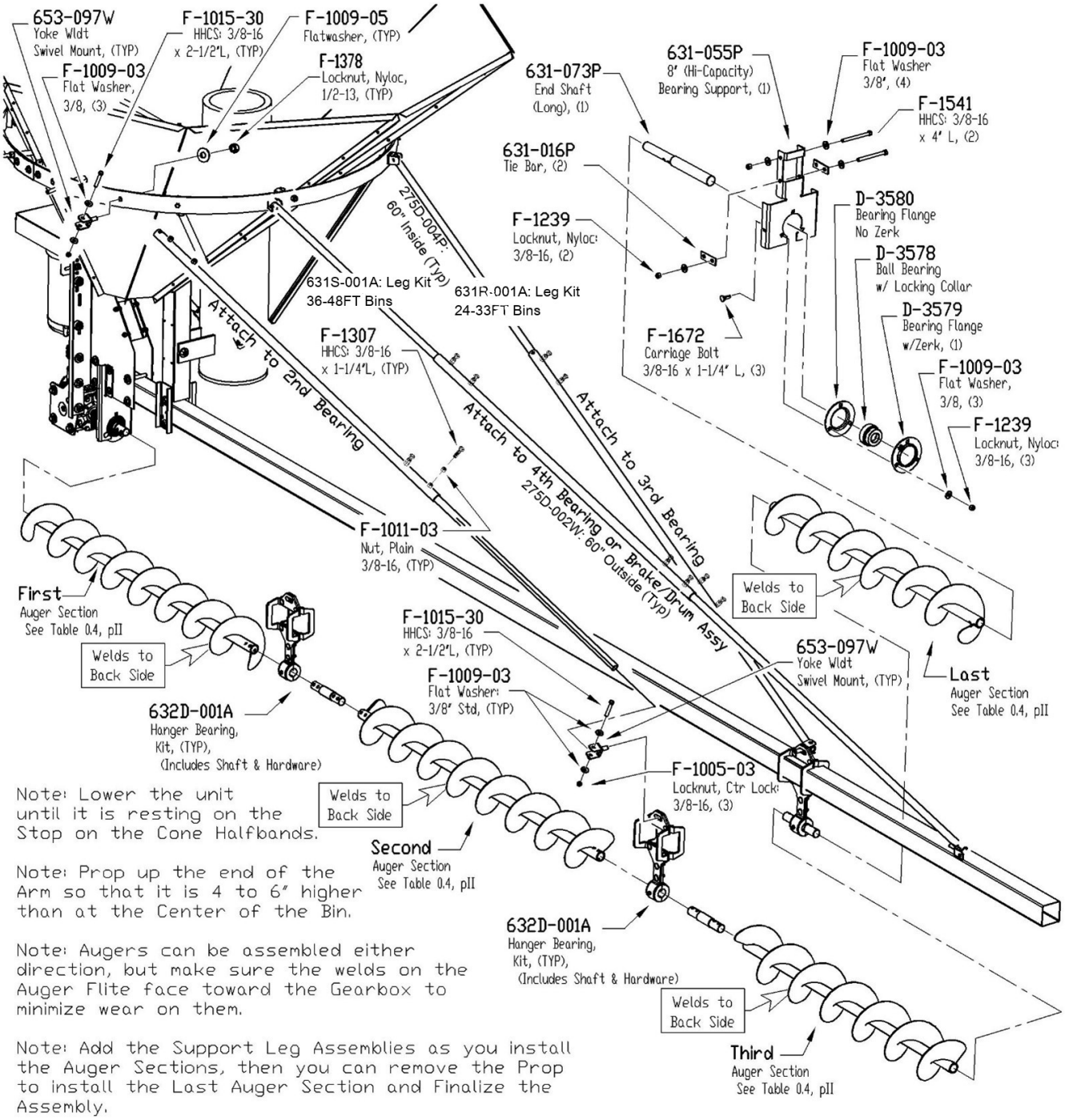


Fig 10.1

Note: Do not completely tighten the Carriage Bolts until the Last Auger Section is in place. Once Auger is in place, tighten the Bearing Flange Bolts evenly and alternately until tight. Double check to make sure Flange Bolts are tight at Gearbox End as well. Rotate auger by hand to make sure it is straight and there are not any spots that are binding.

11: Installing the Brake & Drum Assembly

634D-001A Brake\Drum Assembly Box, (43”x 20”x 11-1/2”)
- └ 631-021A Drum\Brake Assembly
  - └ 631-025A Hardware Sack for Drum\Brake Assembly, (8” x 10” x 0.006”)

11a. Install the Brake & Drum Mount Bracket Weldment onto the 3” square tube closest to the bin wall. Mount remaining components as shown in Fig 11.1.

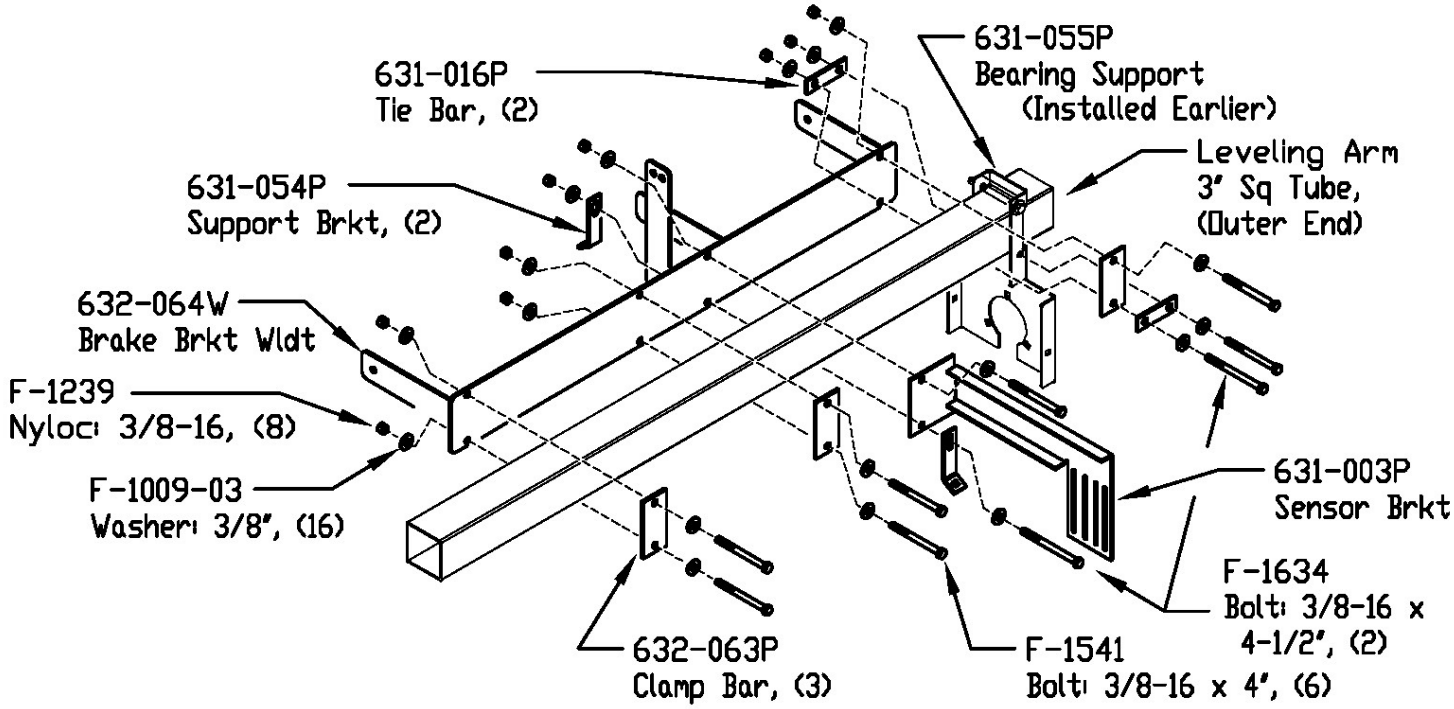


Fig 11.1

11b. Install the Auger Shield and assemble it as shown in Fig 11.2 to the assembly mounted earlier on the 3” tube. Note: The front edge will be lower than the back edge. Also make sure the fliting clears the Shield.

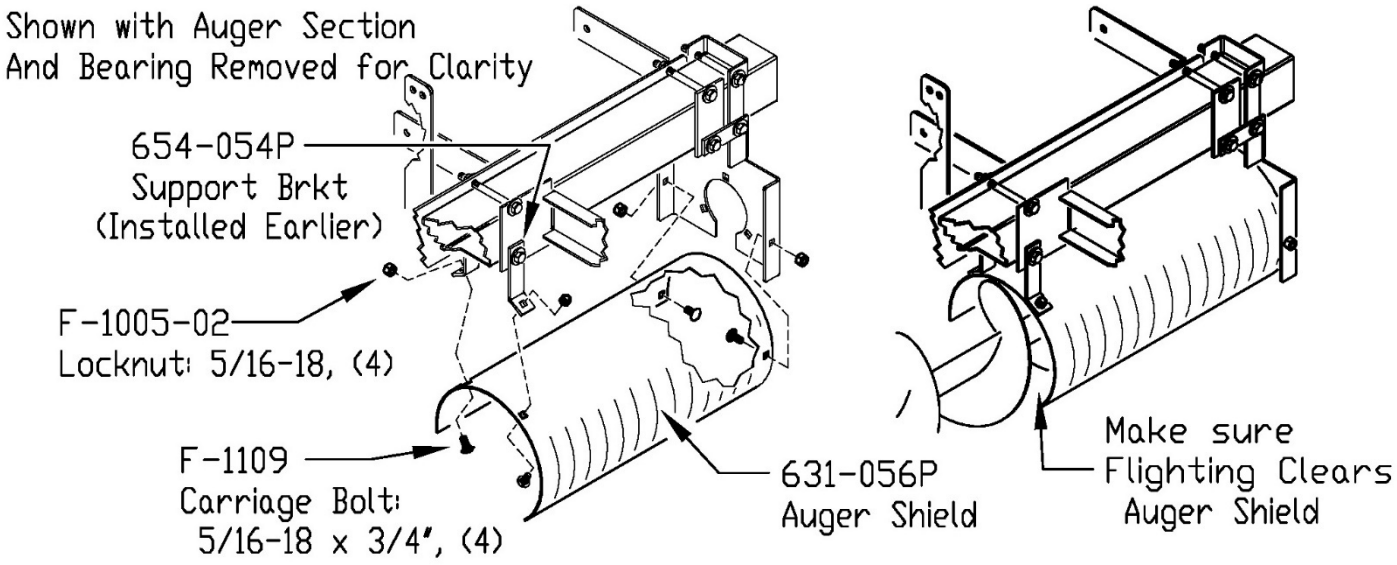


Fig 11.2

11: Installing the Brake & Drum Assembly, (Cont'd)

634D-001A Brake & Drum Assembly Box, (43"x 20"x 11-1/2")
- └ 631-021A Drum\Brake Assembly
  - └ 631-026A Hardware Sack for Brake & Drum Assembly, (6" x 8" x 0.006")

11c. Assemble the Brake and Drum Mounting Arms and Linkages to the Brake & Drum Mount Bracket as shown in Fig 11.5, use 606-152P Nylon Washers at the Pivot Points.

11d. Assemble the Drum. Put the Drum Shaft first through the Drum and press the D-3359 Bushings over the Shaft and into the Drum, on both sides of the Drum.

Note: Make sure there are no burrs or weld splatter on the ends of the Drum Weldments

11e. Install the Brake Blade to the Brake Arm Weldment.

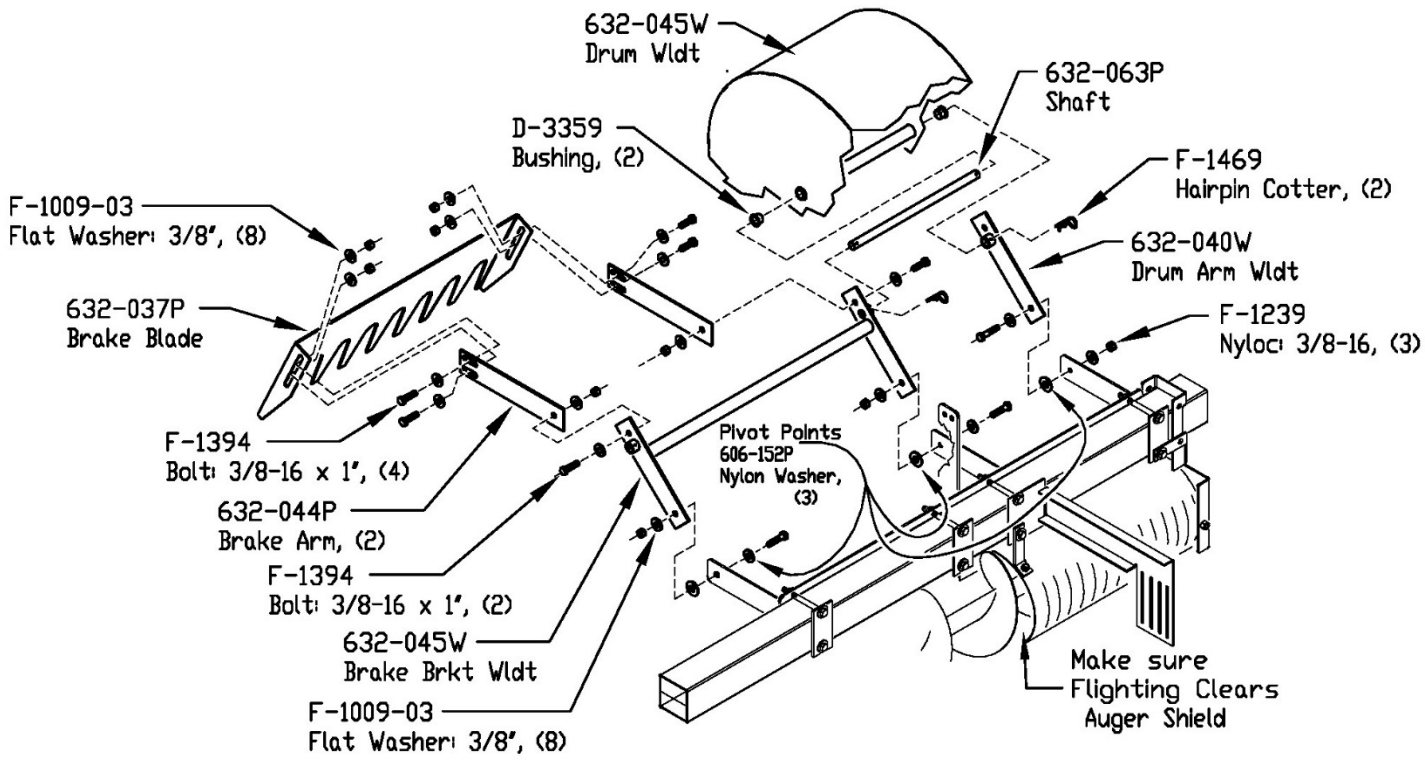


Fig 11.5

11f. Assemble the Drum to the Drum Arm and Brake Arm Weldment, then put F-1469 pins through the Shaft on each end, then tighten the Pivot Points so they can move easily.

Note: the Drum must rotate smoothly. Fig 11.7, p.40.

11: Installing the Brake & Drum Assembly, (Cont'd)

634D-001A Brake & Drum Assembly Box, (43"x 20"x 11-1/2")
- └ 631-021A Drum\Brake Assembly
  - └ 631-026A Hardware Sack for Brake & Drum Assembly, (6" x 8" x 0.006")

11g. Install Chain and Adjust Brake Components. Place one end of the Chain around tube of the Brake Arm Weldment and fasten as shown in Fig 11.7. Bolt the other end of the Chain to the bracket so Drum is 2-4" from the auger Shield when all the way down.

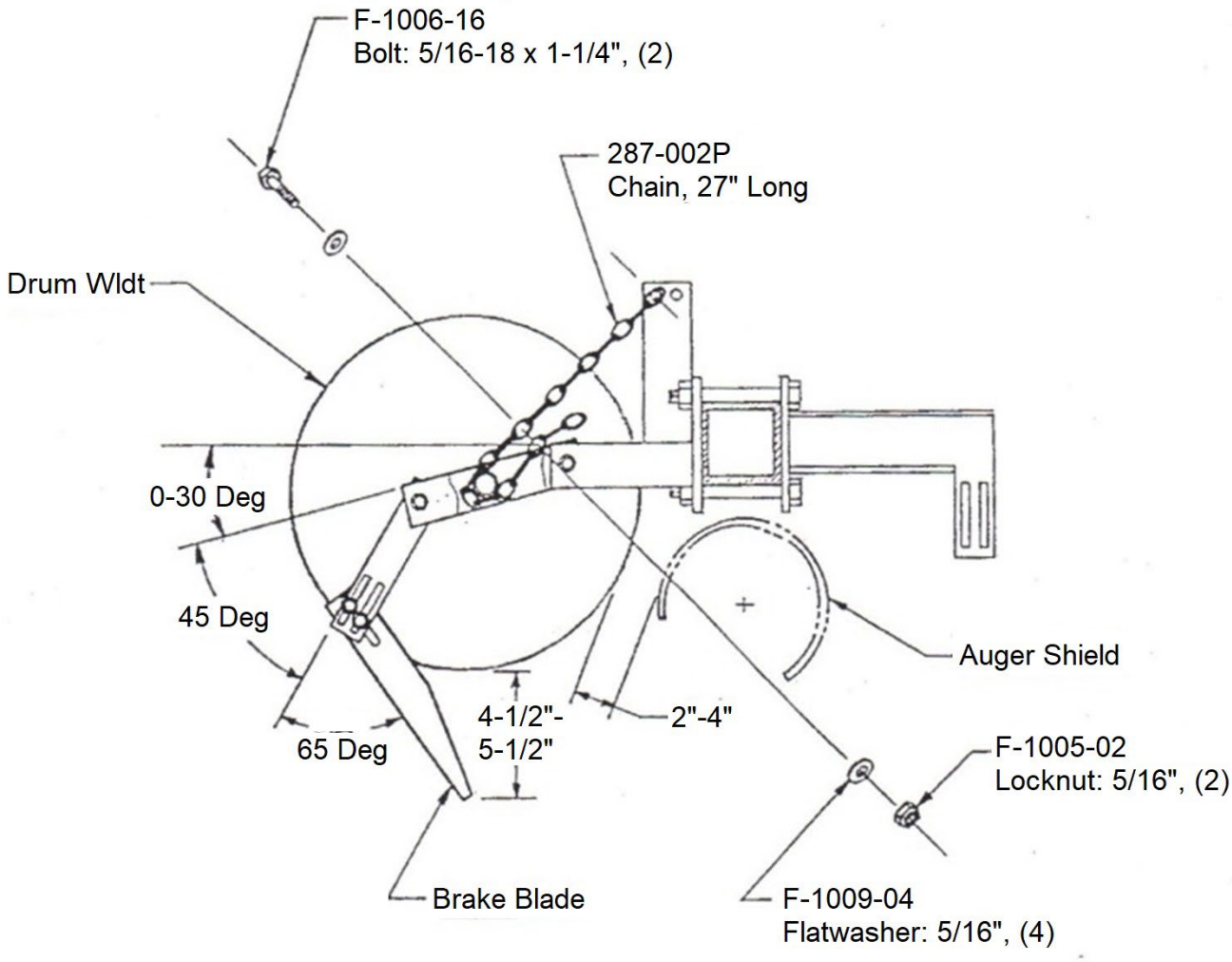


Fig 11.7

11h. Tighten the Brake Arm Bolts at the approximate angle shown and tighten bolts securely. (See Fig 11.7)

Note: Do not tighten pivot points, lift the drum up and down several times to be sure everything is working smoothly and the drum does not hit the auger shield.

Note: The Brake Blade will probably need to be re-adjusted once the system is running with grain.

12: Finalizing the Leveling Arm Assembly

634B-001A LDRY Miscellaneous Parts
└632-251A Level-Dry Miscellaneous Parts Box #1, (18”x 8” x 6”)
└ 632-225A Deflecting Chute Hardware Sack, (3” x 5” x 0.006”)

12a. Install the Grain Deflecting Chute, (Consisting of two 632-207Ps), to mast weldment as shown in Fig 12.1.
Note: make sure P-7080 Shivvers decal is on the front.

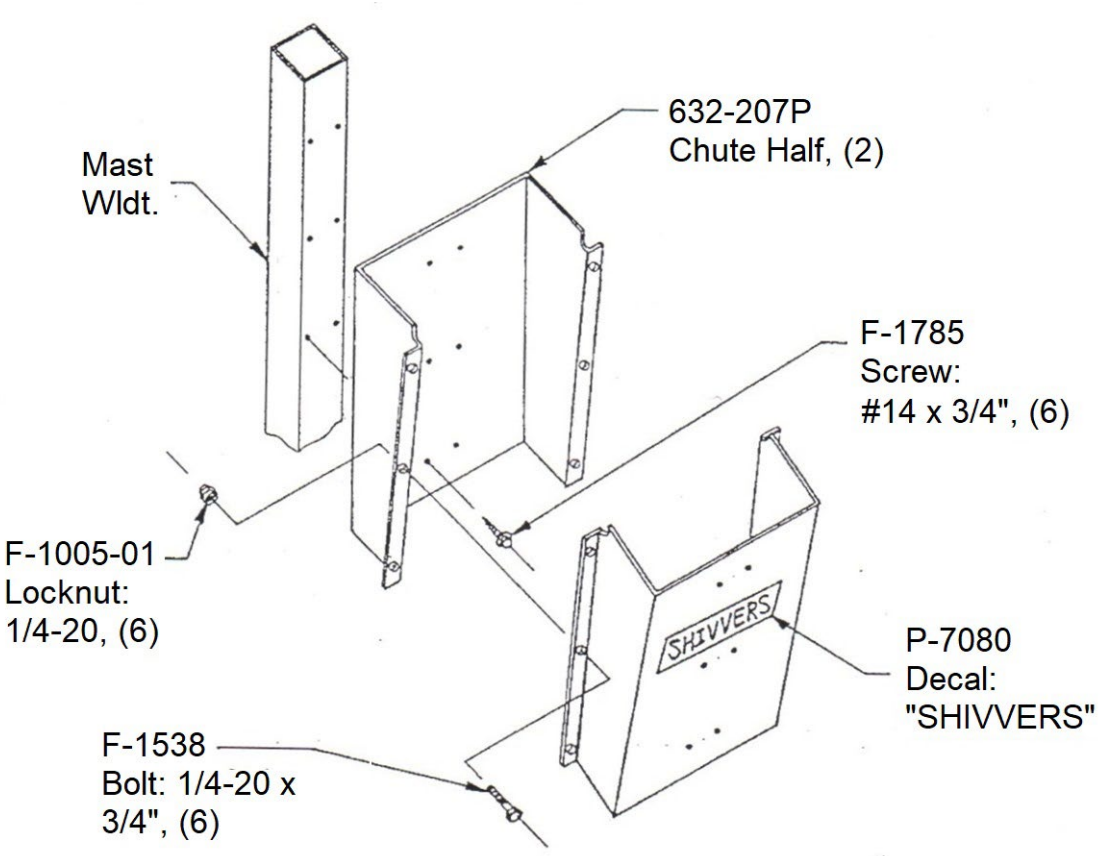


Fig 12.1

12: Finalizing the Leveling Arm Assembly, (cont’d)

634F-001A Level-Dry Anti-Bury Kit, (15”x 32” x 12”)
└ 631-043A Anti-Bury Kit Hardware Sack, (6” x 8” x 0.006”)

12b. Install the Anti-Bury Kit, only if Level-Dry will be used in Float Mode.

Note: The Anti-Bury kit is designed to prevent the arm from digging in as the unit is being lowered manually into the grain. It will not prevent the Leveling Arm from being buried from above if the intake runs over.

Note: The Installation Instructions for the Anti-Bury Kit (P-10805) are provided inside the Kit.

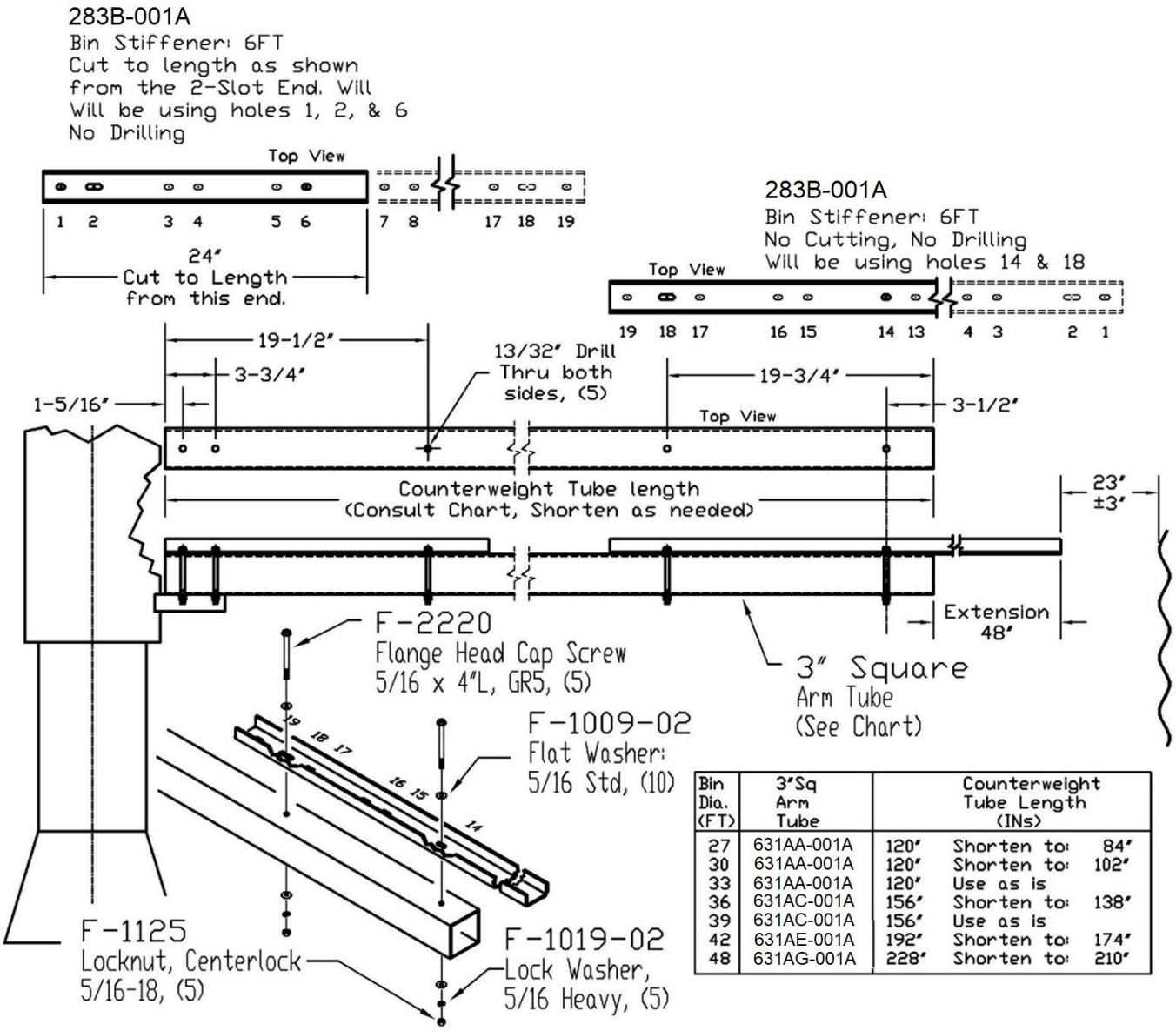
13: Installing the Counterweight Arm

634C-001A Level-Dry Counterweight
283B-001A Stiffener: 8GA x 6FT, Orange, (use 2 of 4 provided)
634K-001A Level-Dry Parts Box for 30-48FT Bins, (20" x6" x 6")
└ 632-254A Level-Dry LDRY: Counterweight Hardware Sack, (8" x 10" x 0.006")
631AA-001A-631AJ-001A 3" Square Tube for Counterweight Arm

13a. Locate two 283B-001A bin stiffeners, two 222Z-032P chains, (10-1/2ft Long), the 634C-001A Counterweight, and the 3-in Square Counterweight Tube.

13b. Attach one end of each chain to the Yokes provided in the Hopper Ring.
Note: Chains may need to be extended. An extra length is provided in 634E-001A Parts Box.

13c. Modify one of the 283B-001A Stiffeners, Cut to length and Drill the 3" Square Tube , and assemble as shown in Fig 13.22.
Note: Do not tighten the bolts on the Center Tube, just snug them up.



Bin Dia. (FT)	3"Sq Arm Tube	Counterweight Tube Length (INs)		
27	631AA-001A	120"	Shorten to:	84"
30	631AA-001A	120"	Shorten to:	102"
33	631AA-001A	120"	Use as is	
36	631AC-001A	156"	Shorten to:	138"
39	631AC-001A	156"	Use as is	
42	631AE-001A	192"	Shorten to:	174"
48	631AG-001A	228"	Shorten to:	210"

Fig 13.22

13: Installing the Counterweight Arm

634C-001A Level-Dry Counterweight
634K-001A Level-Dry Parts Box for 30-48FT Bins, (20" x6" x 6")
└ 632-254A Level-Dry LDRY: Counterweight Hardware Sack, (8" x 10" x 0.006")
631AA-001A-631AJ-001A 3" Square Tube for Counterweight Arm

13d. Lift the outer end up of the Counterweight Arm and attach the two chains 20 to 26" from the end of the outside stiffener. Note: The outside end of the Stiffener should be about 6" higher than the Center Tube end.

13e. Slide the Counterweight 634C-001A onto the outside end as shown in Fig 13.51b, p.44.

13f. Raise the winch so there is a couple of inches between the center tube assembly bottom and the pickup finger sleeve.

13g. Adjust Counterweight in and out and swing it side to side, to balance the Leveling Auger.
Note: Looking at the bottom nylon bushing in the Center Tube Assembly will show which way to move the weight.
Note: Level-Dry must be balanced so it goes up and down smoothly on the Center Vertical Auger Tube.

13h. After balancing the level dry, tighten all hardware.

13: Installing the Counterweight Arm

634C-001A Level-Dry Counterweight
283B-001A Stiffener: 8GA x 6FT, Orange, (use 2 of 4 provided)
634K-001A Level-Dry Parts Box for 30-48FT Bins, (20" x6" x 6")
└ 632-254A Level-Dry LDRY: Counterweight Hardware Sack, (8" x 10" x 0.006")
631AA-001A-631AJ-001A 3" Square Tube for Counterweight Arm

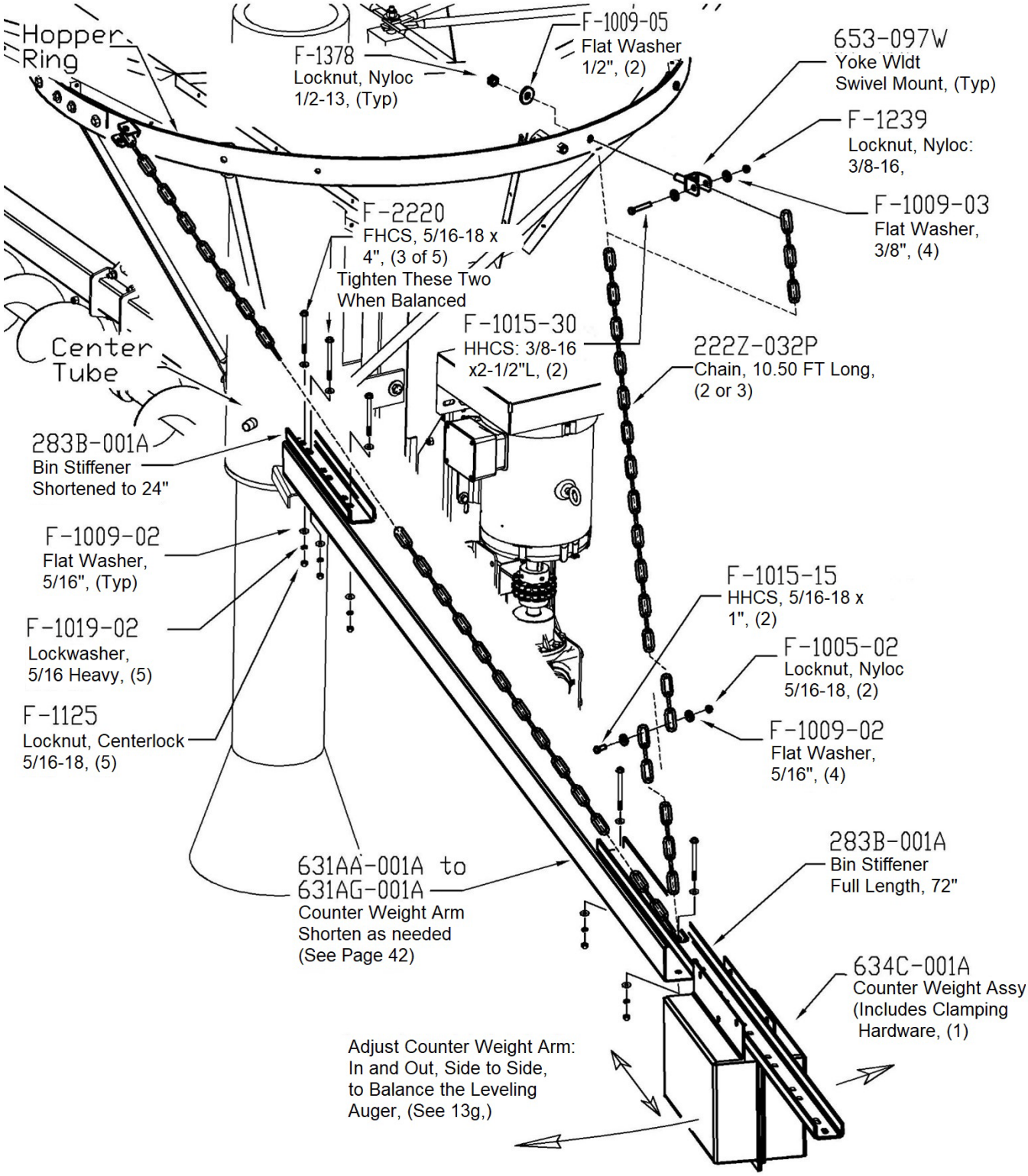


Fig 13.51b

14: Final Adjustments

634B-001A LDRY Miscellaneous Parts
- └632-251A Level-Dry Miscellaneous Parts Box #1, (18”x 8” x 6”)
  - └ 630-014P LGSO COVER: LEVEL-DRY
- └ 632-227A Level-Dry Misc. Parts Box #2, (13.5”x13.5”x7.5”)
  - └ 630-011A HARDWARE SACK CONTROL MTG

217-059P Sleeve: 8” x 1-ft L

14a. Set the low limit of the leveling auger at 18” minimum and 3’ maximum.

Note: The lower the limit is, the less grain it will take to get a complete, level layer in the bin.

Note. The sleeve on the center vertical can be adjusted up or down a few inches to help set the low limit, or if the Center Vertical has 2’ long Halfbands, you can use the 1ft long Sleeve (217-059P) in place of the Halfbands.

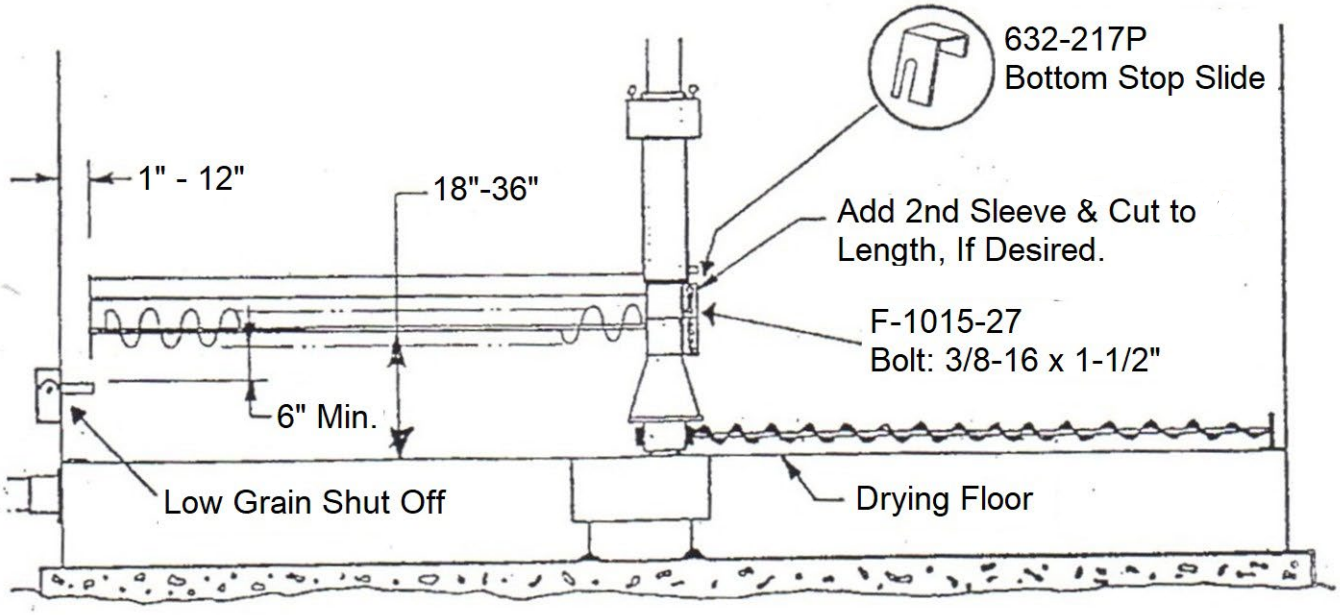


Fig 14.1

14b. Make sure the 632-217P bottom Stop Slide(s) were installed on top of the sleeve or half bands so there aren’t any sharp edges, when the Center Tube Assembly is all the way down on the Sleeve.

14c. Make sure the brace on the Grain Thermostat, (If installed), doesn’t interfere with the level dry. You may have to modify the brace.

14d. Make sure the low grain shut off, (if installed), is at least 6” below the bottom of the Leveling Auger.

Note: A plate, (630-014P), and hardware, (in 630-011A), is provided to cover the hole if you have to move the LGSO (Low Grain Shut Off).

14e. Rotate the leveling auger around the bin to check clearances. There should be at least 1” clearance to the closest point.

Note: The maximum distance to the bin wall should not be more than 12”, adjust the 3” Square Tube in or out as needed. Also, it may be necessary to adjust the Support Legs to maintain the 2” to 4” higher on the outer end than the center.

14: Final Adjustments, (Cont'd)

634B-001A LDRY Miscellaneous Parts
└ 632-227A Level-Dry Misc. Parts Box #2, (13.5"x13.5"x7.5")
└ 630-011A HARDWARE SACK CONTROL MTG

14f. Locate the E-6183 J-Box and E-6182 Cover found in the 634B-001A Miscellaneous Parts Box, and put on the Boom Arm.

14g. Put the E-6171 Power Pack, E-6172 Flex Coupler, E-6173 3 Blade Paddle Rotary Paddle Switch on the Boom Arm.

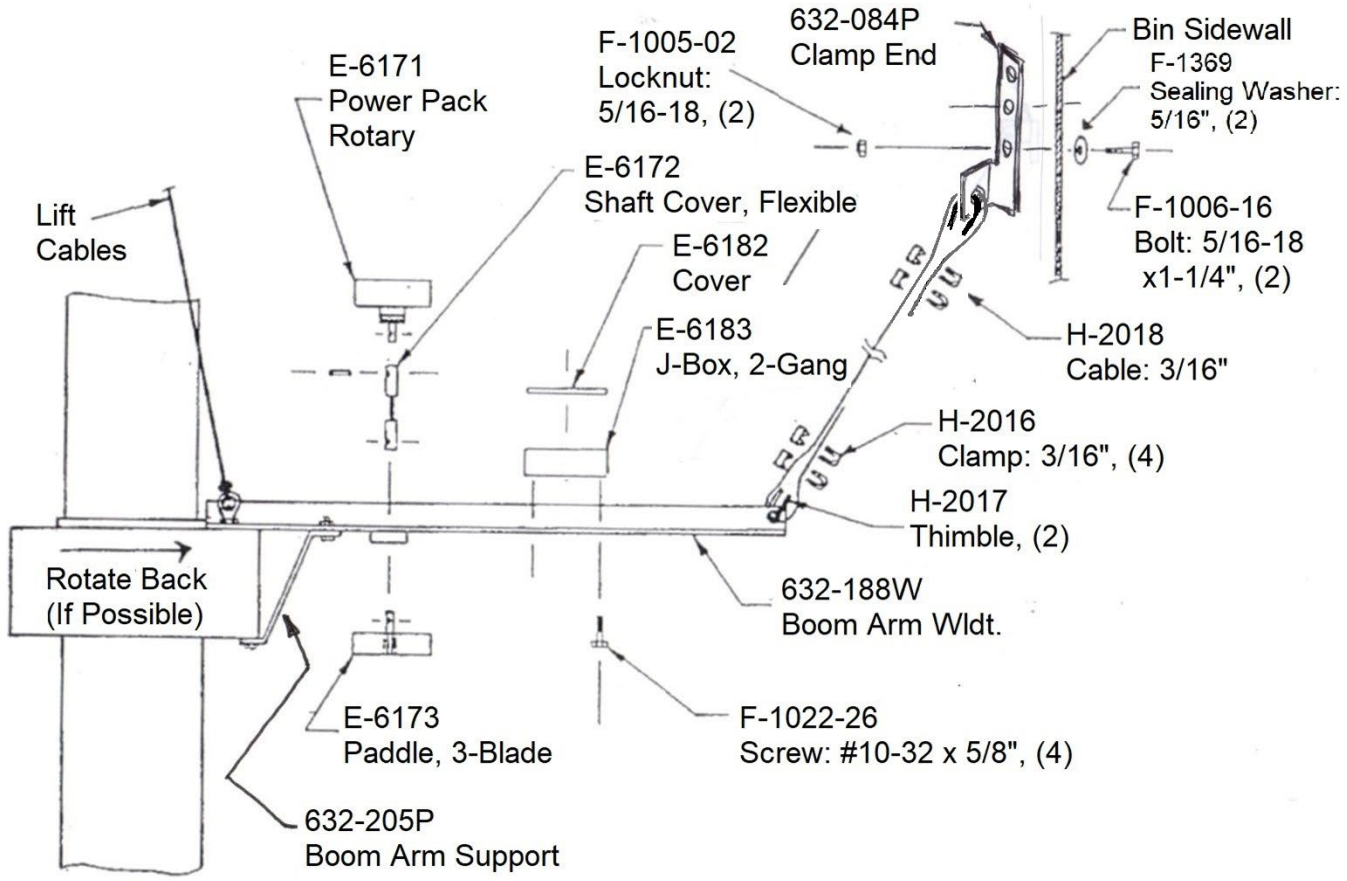


Fig 14.3

14h. Make sure the Level-Dry is at its lowest position and install 3/16" Cable with Thimble and two Clamps on the outside end of the Boom Arm.

14i. Attach the Clamp End Bracket to the bin wall at a point above the maximum height of the Level-Dry
Note: The Clamp End Bracket should be located close to where the electrical cable for the Level-Dry comes into the bin.
Note: Use an existing bin bolt or one from 630-011A Hardware Sack.

14j. Wrap the Level-Dry Lift Cables counter-clockwise, (as viewed from the top), so the Boom Arm will swing forward as the Level-Dry dry goes up. Make sure the incoming grain stream will be near the Boom Arm, but won't hit it at any point of Level-Dry vertical travel. (See Fig 5.8, p.17).

14k. Secure the Boom Arm Cable to the Clamp End, (632-084P), on the bin side wall.

14: Final Adjustments, (Cont'd)

14l. Assemble the Grain Proximity Sensor Switch on to the Mounting Bracket as shown in Fig 14.5.
Note: Keep the bottom of the Switch Paddle even with the bottom of the Fliting on the leveling auger.
Note: This Switch may need to be adjusted UP or DOWN after operating with grain.

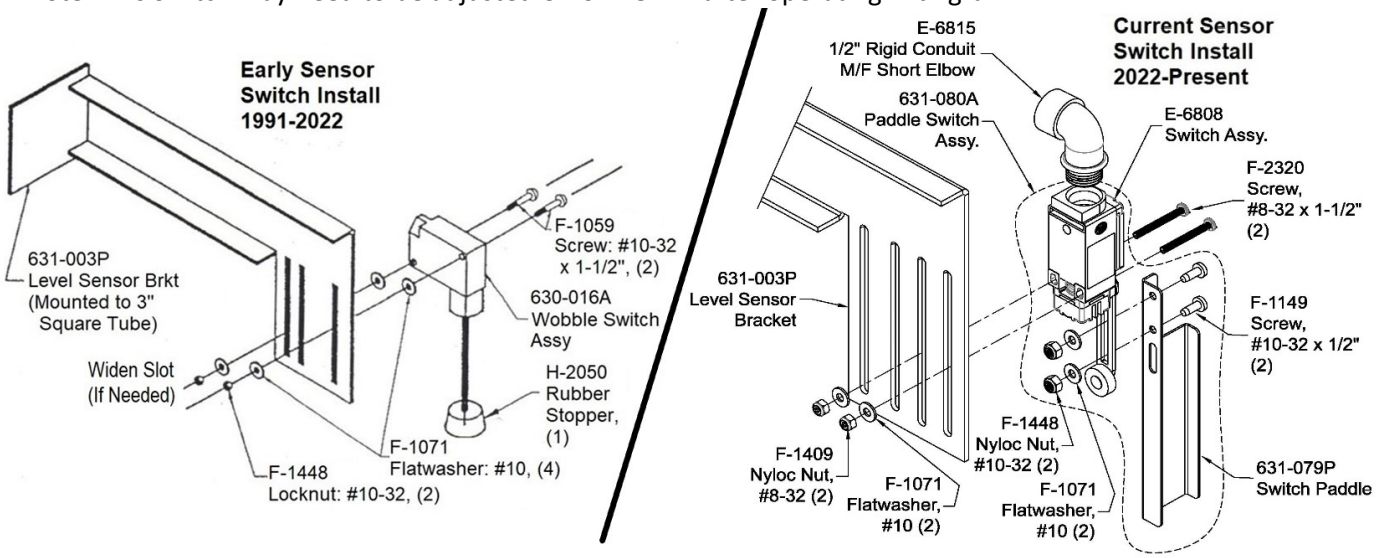


Fig 14.5

14m. Install the 632-007P High Stop Plates on the 1/4" cable outside the bin. **Make Sure the Level-Dry is at the Lowest Position!**

Note: These are found in the 630-011A Control Mounting Sack along with the hardware needed. Keep the Stop Plates as close as possible to the bottom of Lift Pulley Mounting plate.

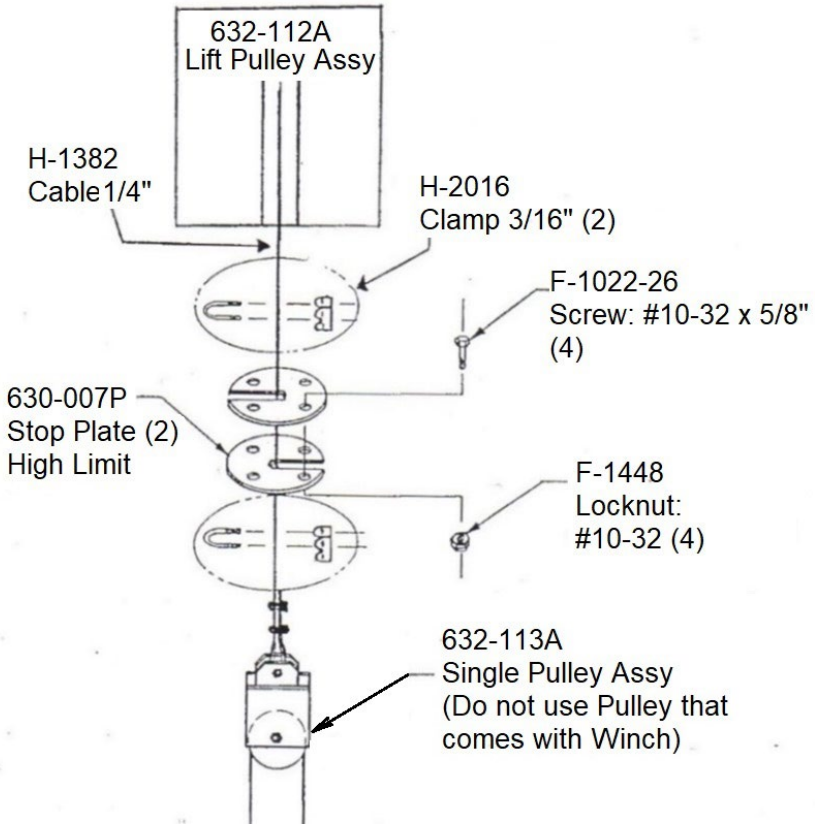


Fig 14.7

14n. Install the Cable Clamps over and under Stop Plates keeping as close together as possible.

14: Final Adjustments, (Cont'd)

Never work on, or get under Leveling Auger when it is in the raised position. Failure to heed may result in death or personal injury.

14o. Adjusting the Upper and Lower Limits (See Fig 14.8). Make sure everyone is clear of the Winch and Cable System.

14p. Raise the Level-Dry to its highest position, and check clearance to the bin side wall along the way.

Note: Only run the Winch "ON" for 10 seconds maximum, wait at least 30 seconds before starting it again. The Circuit Breaker is sized small so it will open before doing serious damage to the bin. This is why the winch can only be used intermittently.

14q. Using a rope to swing the Leveling Auger around the bin so you are not standing under it, monitor the movement up carefully to make sure there isn't interference with anything.

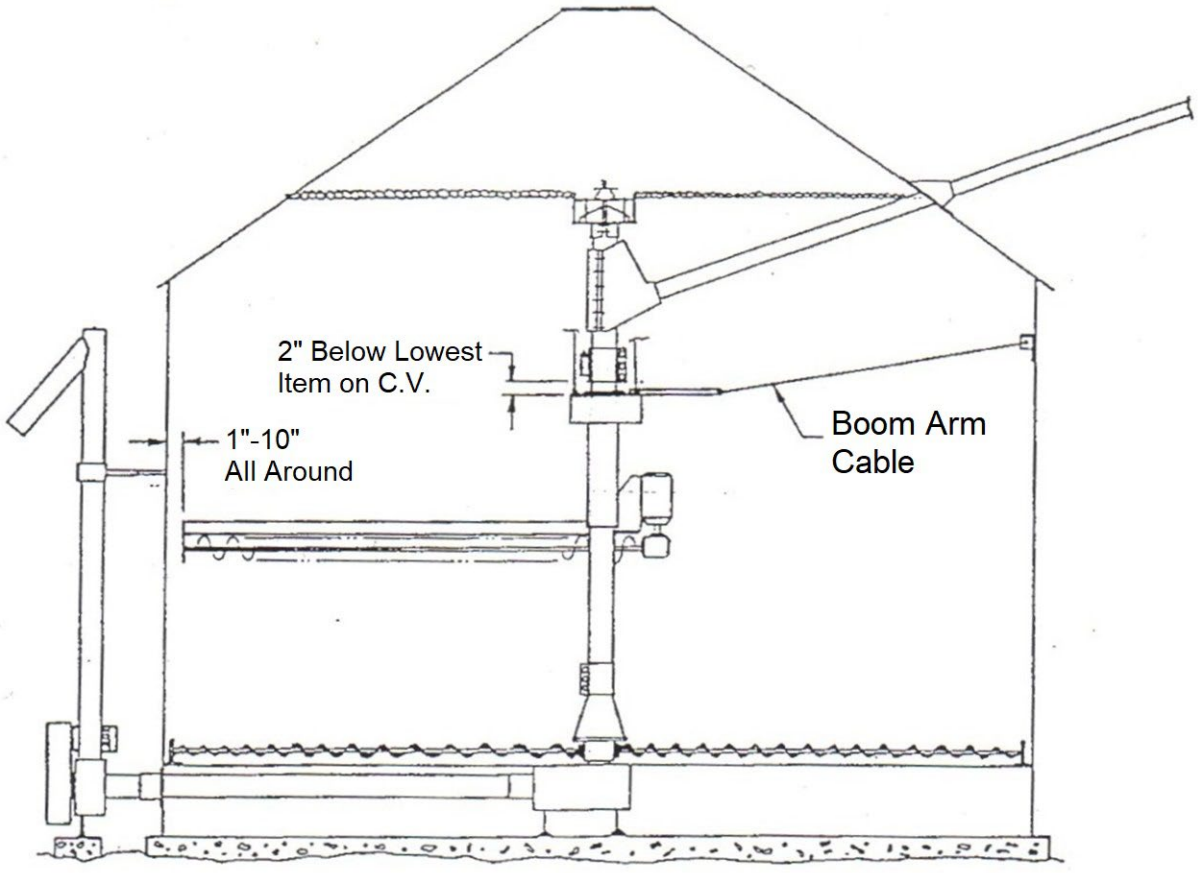


Fig 14.8

14r. Stop at least 2" below the lowest item on the Center Vertical. Make sure the boom arm cable doesn't droop enough to interfere with counter-weight chains or support rods.

Note: On Installations with a lot of vertical movement, something may need to be rigged up to pull the cable up, out of the way.

14: Final Adjustments, (Cont'd)

14s. Mount Wobble Switches to the 630-009P High Limit Mount and 630-010P Slack Switch Mount. Install them as shown in Fig 14.81 with the Level-Dry in its Highest Position.

Note: The Switch Conduit openings should point down. The High Limit Switch is activated by the High Limit Stop to keep the Winch from going any Higher. The Spring pulls the Cable into the Slack Switch when the tension is off the Cable which keeps the cable from going any lower.

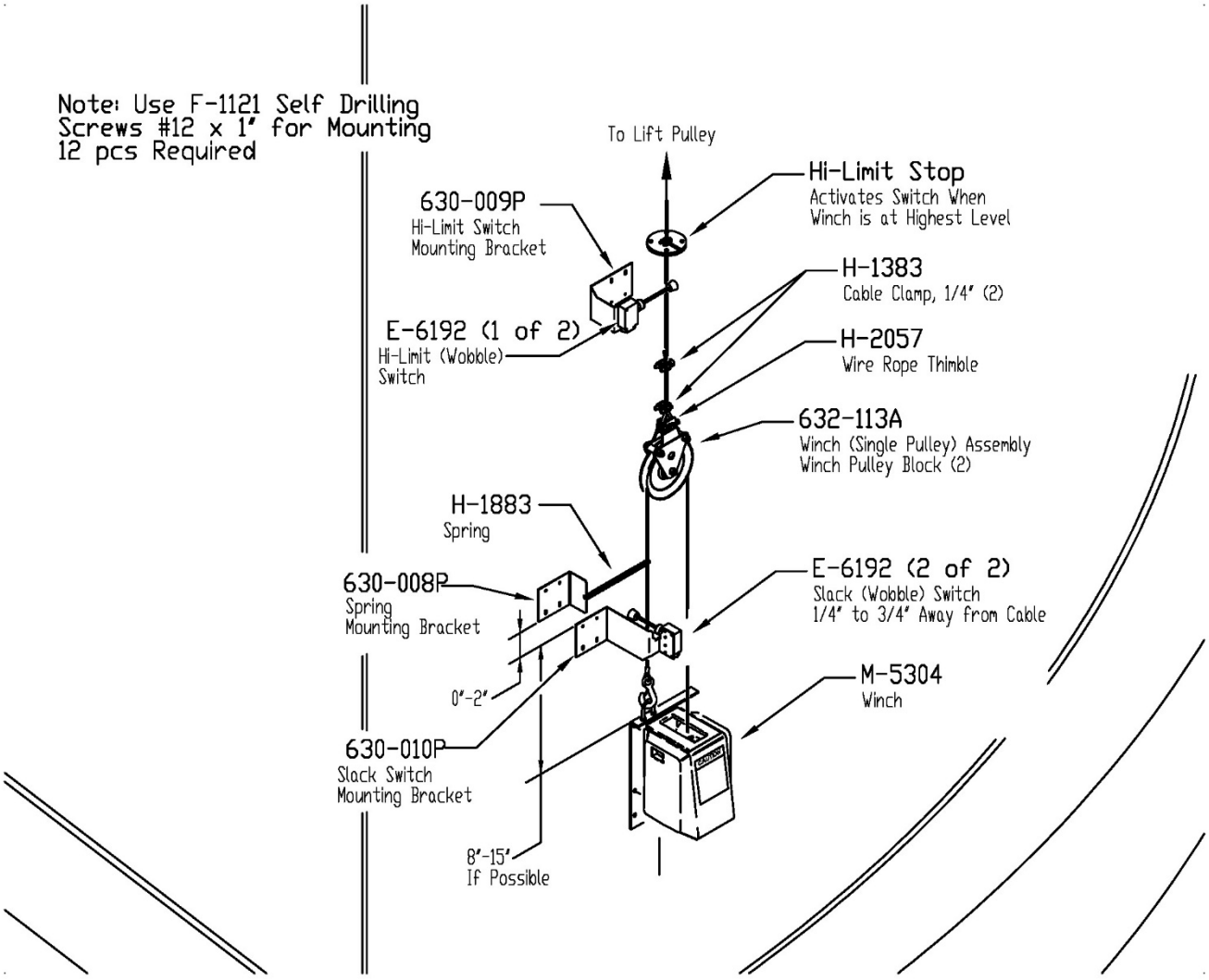


Fig 14.81

14t. Pull the Spring fairly tight, then mount the Slack Switch so the Switch Rod is 1/4" to 3/4" away from Cable.
Note: It may be necessary to bend the brackets slightly for proper switch operation.

14u. Lower the Level-Dry, make sure it comes down smoothly.
Note: If it doesn't, the Counter Balance needs to be adjusted.

14: Final Adjustments, (Cont'd)

14v. Run the Level-Dry up and down several times to make sure everything is mounted properly, and that there is smooth movement, not jerky up and down the Center Vertical Auger Tube. Watch the bin sidewall and roof above the winch. Add reinforcement if required.

14w. Watch the switches closely and manually shut the Winch off as soon as they activate. Make sure the Winch Pulley Block and Cable Clamps don't activate the High Limit Switch when they go past. Only the High Limit Stop should activate the High Limit Switch.

14x. Leave the level dry at its lowest point.

14y. Make sure all nuts, bolts are tight and all safety decals installed and are easily read. Also, make sure the safety lock kits are installed.

14z. The Level-Dry is now ready to be wired. Remember to remove the temporary winch power cord and jumpers.