

**MODEL 4500 SERIES
BUCKET ELEVATOR**

MODEL & HEIGHT: _____
SERIAL NUMBER: _____
DATE PURCHASED: _____

MANUAL



Cardinal™ Brand Grain Handling Equipment One Year Limited Warranty

Novae Corp. warrants to the original owner that your Cardinal equipment will be free from defects in material and workmanship for the one (1) year period commencing with the date of purchase, except as herein limited. The obligation of this warranty is limited to repairing or replacing any part or parts which, in the opinion of Novae Corp. is/are defective in material or workmanship under normal use and service.

90 Day Limited Warranty

Excluded from this One Year Limited Warranty are driveline components such as gearboxes, PTO drive shafts, chain and belt drives, and universal joints, which are warranted for a 90 day period commencing with the date of purchase.

Warranty Validation

Your new equipment should be registered with Novae Corp within ten (10) days of the original purchase. Warranty registration forms are available on the web at www.cardinalgrain.com or by calling customer service at 888-400-3545 to have one mailed to you.

How to Obtain Service

1. All warranty claims must be presented to Novae Corp. and proper arrangements must be made and approved by Novae Corp. prior to any work being done.
2. All warranty repairs must be performed at Novae Corp. unless prior approval is obtained from Novae Corp. In certain cases, Novae Corp may, at its sole discretion, elect to have warranty work performed by a qualified repair facility.
3. Novae Corp. will not be obligated in any way to pay for: repairs made without specific advance approval, labor charges in excess of those deemed reasonable by Novae Corp., or for any part costs in excess of the cost if Novae Corp. had supplied the parts. The cost of any replacement items will be limited to the amount of the original cost of that item as installed and sold by Novae Corp.
4. Any charges for: overtime labor, service calls, towing charges, expediting, freight or transportation costs are the sole responsibility of the consumer and will not be paid by Novae Corp.

Items Not Covered In This Warranty

1. Wheels and Tires. Contact the tire manufacturer for warranty information
2. Running Gear including axle and suspension assemblies. Present all claims directly to the axle manufacturer or their authorized dealers.
3. Paint finish and durability are not covered under this warranty.
4. Damage or defects resulting from misuse (including, but not limited to, improper operation, negligence, alteration, accident or lack of maintenance.)
5. Maintenance items that are worn through normal use.
6. Damage caused by loose nuts, bolts or screws including improperly torqued wheel lug nuts.
7. Damage caused by improper hitching or improper installation of drive motors.
8. Loss of time, inconvenience, loss of equipment use, rental or substitute equipment, loss of revenues, or any other losses.
9. Damage or loss resulting from towing equipment that exceeds the tow vehicle manufacturer's specific towing limitations.
10. Any travel time or expenses, such as food, fuel, lodging, etc., incurred to obtain service.

Any express warranty not provided herein, and any remedy for breach of contract which, but for this provision, might arise by implication or operation of law, is hereby excluded and disclaimed. The implied warranties for merchantability and of fitness for a particular purpose are expressly limited to a term of one (1) year. Under no circumstances will Novae Corp. be liable to purchaser or any other person for any special, incidental, or consequential damages, whether arising out of a breach of warranty, breach of contract or otherwise. This warranty gives you specific legal rights and you may have other rights which vary from state to state.

Novae Corp. neither assumes nor authorizes any other person to give any other warranty on its behalf. This warranty is not transferable from the original owner.

Cardinal™ Equipment Warranty Registration Form

Model: _____ Date: _____

Serial Number: _____

Owners Name: _____ Phone Number: _____

Street: _____

City, State Zip: _____

Primary Use: _____

Store and Location where purchased: _____ Delivery Date: _____

Store Representative: _____ Owner Signature: _____

(Fold to conceal information, tape closed, affix postage and mail)

Name: _____

Address: _____

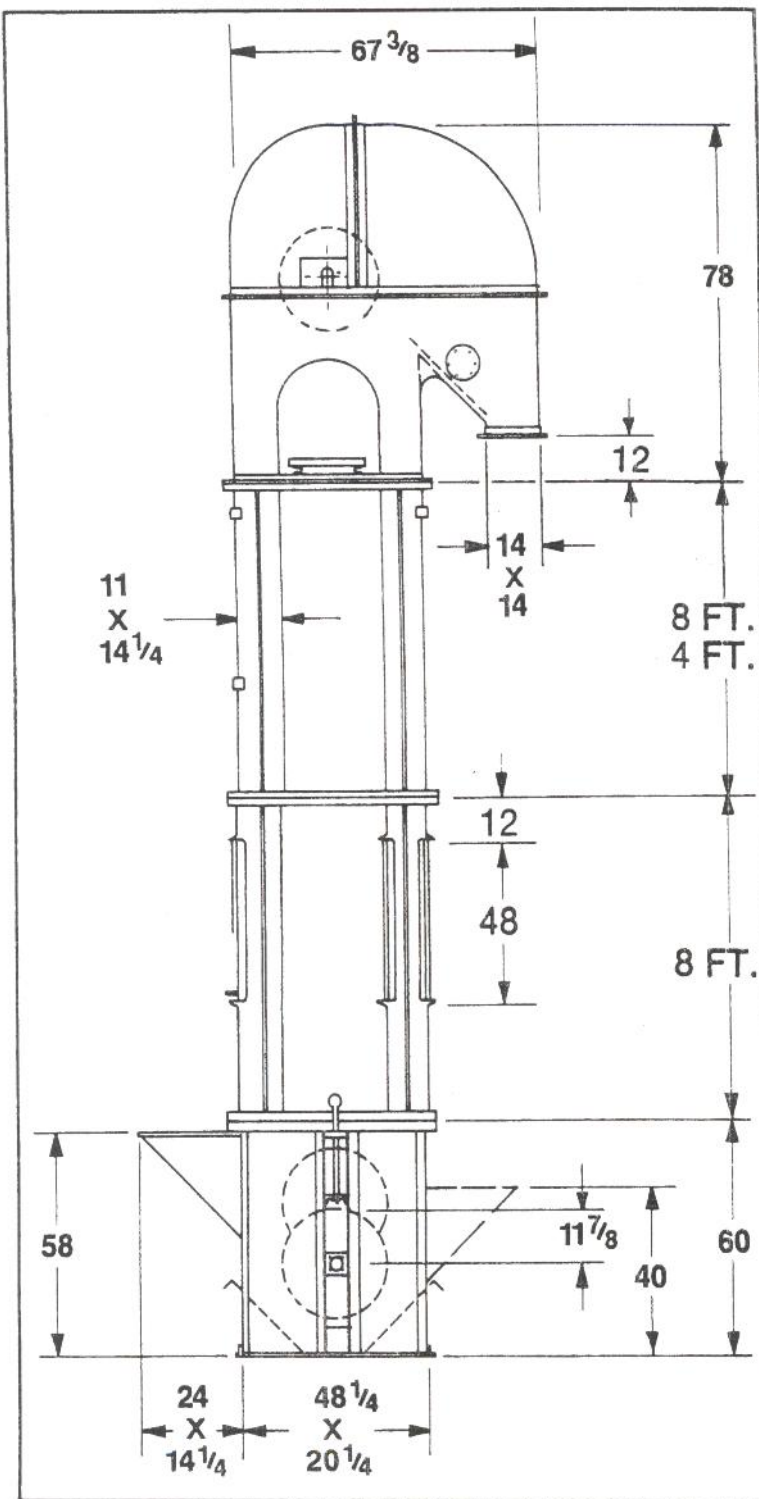
City, State Zip: _____

PLACE
POSTAGE
HERE

**NOVAE CORP. / CARDINAL GRAIN
607 S CHAUNCEY ST
COLUMBIA CITY, IN 46725**



Engineering Specifications



Model 4500

Maximum height	142 ft.
Capacities*	3500,4000,4500 bph
Bucket spacing	9" on 3500 bph 8" on 4000bph, 7" on 4500 bph
Bucket size	10" x 6"
Belt speed	478 fpm
Belt width	11"
Belt thickness	9/32" PVC Belting Standard
Belt adjustment	12"
Belt splice	lap type
Head pulley	24" dia. rubber lagged
Boot pulley	24" dia. crown faced
Head material	10 ga.
Boot material	10 ga.
Legging material	12 ga. on 8 ft. Access and 8 ft. Upper Leg Sections 14 ga. on all other Leg Sections
Head shaft	3-3/16" dia.
Boot shaft	1-11/16" dia.

Installation dimensions ...

Space required for boot	24" x 50"
Space required for head	40" x 68"
Space required for legging ...	15" x 48"
Standard boot hopper	24" Projection x 14 1/4" Wide
Hopper height on "Up" leg	58"
Hopper height on "Down" leg	58" or 40"

*Important

Capacity ratings shown are based on handling dry grain (14% moisture maximum) and with feed-in equipment installed so that belt cups are at least 95% filled. Right angle feed-in and high moisture content lowers the capacity of this elevator.

- SAFETY -



1. LADDERS AND CAGES MUST BE INSTALLED CORRECTLY AND SECURELY.



2. PERSONS OF POOR HEALTH OR IRRESPONSIBLE PERSONNEL SHOULD NOT ASCEND THE LADDER.



3. BE SURE GUARDS ARE INTACT AT ALL TIMES DURING OPERATIONS.



4. DO NOT REMOVE OR OPEN ANY INSPECTION DOORS OR COVERS WHILE THE ELEVATOR IS IN OPERATION. FLYING GRAIN MAY INJURE YOUR EYES.



5. ENCLOSED AREAS AROUND THE ELEVATOR MUST BE VENTILATED TO PREVENT DUST EXPLOSIONS.



6. DO NOT WELD ON ANY PART OF THE UNIT AFTER THE ELEVATOR HAS BEEN USED TO MOVE GRAIN, AS THIS MAY CAUSE A DUST EXPLOSION.



7. ONLY PERSONAL CARE AND COMMON SENSE CAN PREVENT FALLS.



8. DO NOT CLIMB ON ANY PART OF THE UNIT EXCEPT THOSE PLACES MEANT FOR CLIMBING, I.E. LADDERS AND PLATFORM AREAS.



9. STAY CLEAR OF THE ELEVATOR AND IT'S APPURTENANCES WHEN WEATHER CONDITIONS ARE SUSCEPTIBLE TO LIGHTNING OR HIGH WINDS.

- SYSTEM PLANNING -

A GRAIN SYSTEM BUILT AROUND A CARDINAL BUCKET ELEVATOR AFFORDS THE MOST VERSATILE SYSTEM TO OPERATE, MAINTAIN, AND EXPAND THAN ANY OTHER TYPE OF SYSTEM.

WHEN PLANNING YOUR SYSTEM TAKE WHAT YOU NEED TODAY AND DOUBLE YOUR PLAN. YOU MIGHT NOT INSTALL THIS PLAN TODAY, BUT YOU MUST ALLOW FOR IT TODAY TO ASSURE YOURSELF OF A COMPLETE WORKABLE SYSTEM WHEN THE TIME ARISES.

USE THIS FUTURE PLAN AND LEAVE ROOM FOR IT WHEN YOU PICK THE SITE. ALSO, LOOK FOR A PLACE WHICH WILL BE FREE FROM SURFACE WATER DRAINING INTO OR STANDING AROUND THE COMPLETED SYSTEM. THE SITE MUST ALSO OFFER A GOOD WORKABLE TRAFFIC PATTERN TO ASSURE A MORE EFFICIENT LOADING AND UNLOADING OPERATION.

WHEN THE SITE AND THE SYSTEM IS ESTABLISHED, THE DISCHARGE HEIGHT CAN BE DETERMINED. ALWAYS HAVE EACH SPOUT RUN FALLING AT LEAST AT A 37° ANGLE FOR DRY GRAIN AND AT LEAST 45° FOR WET GRAIN. THESE ANGLES ARE ABSOLUTE MINIMUMS WHICH MAY NOT WORK PROPERLY WITH LESS THAN TOP QUALITY GRAIN. THE 37° FALL ANGLES ARE MEANT FOR NO MORE THAN 15% MOISTURE CONTENT WITH MINIMAL FOREIGN MATERIAL, AND FINE CONTENT. THE 45° FALL ANGLES ARE MEANT FOR GOOD QUALITY GRAIN AND A MAXIMUM OF 28% MOISTURE CONTENT. AS THE MOISTURE CONTENT RISES AND/OR THE QUALITY DROPS, STEEPER FALL ANGLES ARE REQUIRED. IN GENERAL, IF ALL DRY GRAIN SPOUTS ARE 45° AND ALL WET GRAIN SPOUTS ARE 60°, THESE STEEPER FALLS WILL ALLOW FOR ERRORS AND THE FUTURE ADDITIONS OF BINS AND ACCESSORIES. (ALL FALL ANGLES ARE STATED IN DEGREES FROM HORIZONTAL.)

PROPER SIZING OF SPOUTING DIAMETER WILL INCREASE THE FLOW CHARACTERISTICS OF A GIVEN SPOUT. IF THE MINIMAL FALL ANGLES ARE USED, ALWAYS USE SPOUT DIAMETERS AS SHOWN IN THE FOLLOWING TABLE:

THROUGHPUT CAPACITY (BU/HR) DRY GRAIN 15% MC

<u>SPOUTING DIAMETER</u>	<u>37° FALL</u>	<u>45° FALL</u>
6"	0-1500	0-2000
8"	2000-3500	2500-4000
10"	3500-7000	4500-8000

THROUGHPUT CAPACITY (BU/HR) 28% MC MAXIMUM

<u>SPOUTING DIAMETER</u>	<u>45° FALL</u>	<u>60° FALL</u>
6"	0-1500	0-2000
8"	2000-3500	2500-4000
10"	3500-7000	4500-8000

(THESE CAPACITIES RELATE TO GOOD QUALITY #2 GRADE SHELLED CORN)

EACH SPOUT SHOULD BE TERMINATED WITH A SELF-CLEANING BIN ENTRANCE CUSHION BOX. THIS UNIT HAS A REMOVEABLE END PLATE WHICH ALLOWS THE OPERATOR TO CHECK FOR PLUGGING OR EXCESSIVE WEAR. IT ALSO AFFORDS A CUSHION OF GRAIN TO BUILD UP IN THE BIN ENTRANCE SO THE INCOMING GRAIN IMPACTS AGAINST GRAIN INSTEAD OF METAL.

WHEN THE SYSTEM IS PLANNED, A DISTRIBUTOR HEAD WHICH ALLOWS FOR THE FUTURE ADDITIONS OF SPOUT RUNS SHOULD BE INCORPORATED.

FOR EACH RUN OF SPOUT WHICH IS LONGER THAN 30' LONG AND IS AT LEAST 45° NEEDS TO BE TRUSSED WITH CARDINAL TRUSS SUPPORTS. IF YOUR SPOUT RUNS ARE AT A STEEPER 60° ANGLE, BEGIN TRUSSING AT 50' OF SPOUT RUN. SEE THE FOLLOWING TABLE FOR FIGURING YOUR TRUSS REQUIREMENT. THE CHART SHOWS THE NUMBER OF TRUSS SUPPORTS NEEDED AND THE SPAN OF EACH TRUSS SUPPORT.

LENGTH OF SPOUT

SPOUT DIA.	30'-50'	50'-70'	70'-90'	90'-110'	110'-130'
6"	1-3'	2-4'	2-3'; 1-6'	2-4'; 1-8'	N/R
8"	1-4'	2-6'	2-4'; 1-6'	2-4'; 1-8'	2-6'; 1-8'
10"	1-6'	2-6'	2-6'; 1-8'	2-6'; 1-8'	2-6'; 1-8'

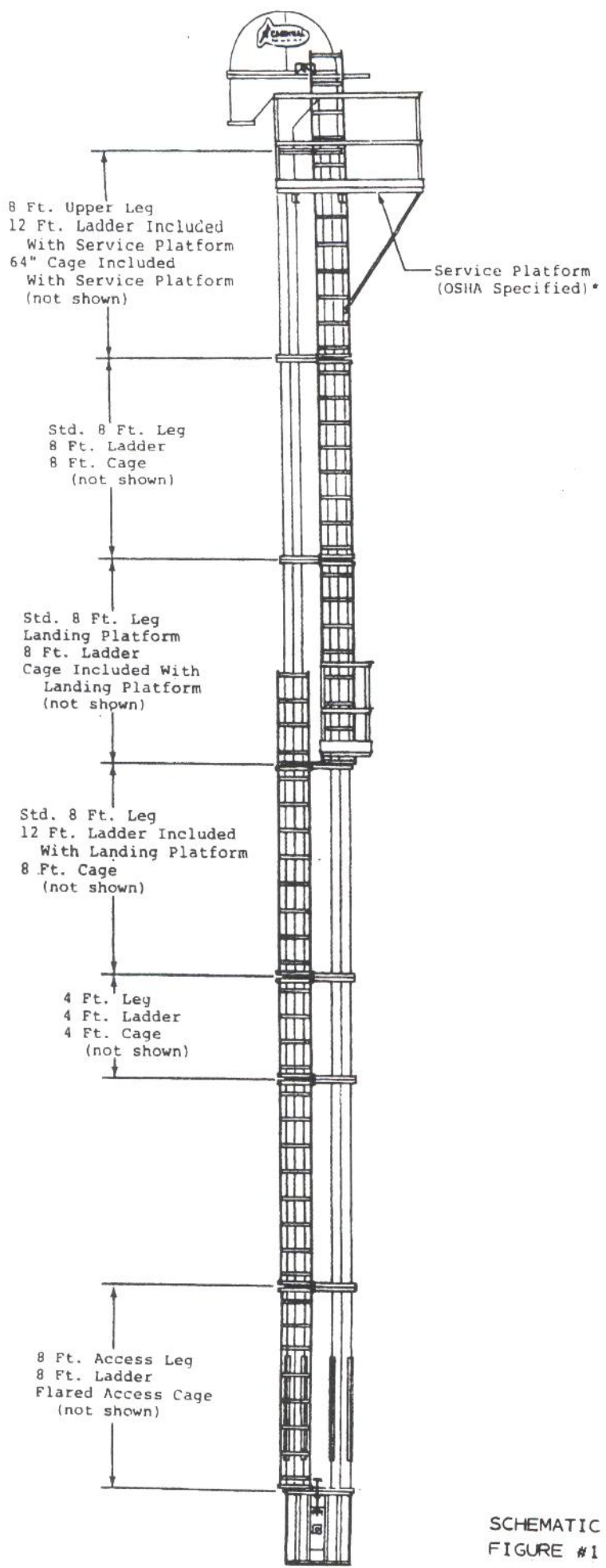
EACH TRUSS SUPPORT MUST BE ORDERED SEPARATELY AND ONE HOOK-UP KIT FOR EACH RUN OF SPOUT MUST BE ORDERED. THE HOOK-UP KIT INCLUDES THE TURNBUCKLES AND THE THIMBLES LESS THE CABLE REQUIRED. ORDER CABLE 5 TIMES THE SPOUT RUN FOR EACH SPOUT.

FOR ALL PRACTICAL PURPOSES, THE DISTRIBUTOR HEAD DOES NOT REQUIRE ANY ADDITIONAL HEIGHT TO BE ADDED TO THE BUCKET ELEVATOR. HOWEVER, THE HEAD DISCHARGE ADAPTOR, WHICH ATTACHES DIRECTLY ABOVE THE DISTRIBUTOR, REQUIRES AN ADDITIONAL ONE FOOT TO THE DISCHARGE HEIGHT OF THE BUCKET ELEVATOR. ALWAYS USE THE HEAD DISCHARGE ADAPTOR, EXCEPT WHEN THE GRAIN CLEANER IS ATTACHED TO THE DISCHARGE OF THE ELEVATOR. THE HEAD DISCHARGE ADAPTOR CREATES A GOOD FLOW PATTERN WITHIN THE GRAIN FLOW BEFORE THE GRAIN ENTERS ANY SORT OF DISCHARGE ACCESSORIES.

WITH ALL OF THE DISCHARGE EQUIPMENT REQUIREMENTS DECIDED, A SCHEMATIC DRAWING (SEE FIGURE #1) OF THE ELEVATOR SHOULD BE DONE. THIS DRAWING WILL HELP YOU DECIDE WHAT SUPPORT EQUIPMENT IS REQUIRED AND WHAT SERVICE EQUIPMENT WILL BE NEEDED.

WHEN THE MODEL NUMBER IS USED FOR ORDERING, IT WILL GIVE YOU THE REQUIRED LEG SECTIONS, BOOT SECTION, AND HEAD SECTION TO PRODUCE YOUR REQUIRED HEIGHT. THE DISCHARGE HEIGHT ADDED BY THE HEAD IS FIGURED IN THE MODEL NUMBER FOR THE BASIC ELEVATOR. THE EQUIPMENT THAT COMES WITH THE BASIC ELEVATOR IS CHARTED BELOW WITH IT'S DISTANCE TAKEN UP IN THE FINAL STRUCTURE.

	HEIGHT	
BOOT SECTION	5 FT.	SEE FIGURE #1
ACCESS LEG. SECTION	8 FT.	
STD. LEG SECTION	8 FT.	
UPPER LEG SECTION	8 FT.	
ALL HEAD SECTIONS	1 FT.	
4 FT. LEG SECTIONS (IF REQUIRED)	4 FT.	



SCHEMATIC
FIGURE #1

IF A 98 FT. LEG WAS THE REQUIRED HEIGHT YOU WOULD GET 1-BOOT SECTION, 1-ACCESS SECTION, 1-UPPER LEG SECTION, 1-HEAD SECTION, WHICH WOULD EQUAL 22 FEET OF DISCHARGE HEIGHT. THE REMAINING 76 FEET WOULD BE STANDARD LEG SECTIONS, 9 PCS. OF 8 FOOT LEG SECTIONS AND 1 PIECE OF A FOUR FOOT LEG SECTION.

WITH THE SCHEMATIC DRAWING DONE YOU CAN FIGURE THE SERVICE EQUIPMENT NEEDED.

- SERVICE EQUIPMENT -

THE SERVICE EQUIPMENT REQUIRED FOR YOUR ELEVATOR WILL BE DETERMINED BY THE AMOUNT OF BUCKET ELEVATOR LEG SECTIONS THAT WILL NEED A LADDER AND/OR A CAGE. EACH LADDER END ATTACHES TO EACH LEG SECTION. FOR EXAMPLE, THE 98 FOOT LEG WOULD REQUIRE THE FOLLOWING, IF THE BOOT IS AT GROUND LEVEL:

- 1 - 8 FOOT LADDER.....FOR THE ACCESS SECTION
- 1 - 8 FOOT LADDER.....FOR THE UPPER LEG SECTION
- 9 - 8 FOOT LADDERS....FOR THE STD. LEG SECTIONS
- 1 - 4 FOOT LADDER.....FOR THE 4 FOOT LEG SECTION
- 9 - 8 FOOT CAGES.....FOR THE STD. LEG SECTIONS
- 1 - 4 FOOT CAGE.....FOR THE 4 FOOT LEG SECTION
- 1 - 64" CAGE.....FOR THE UPPER LEG SECTION
- 1 - 4 FOOT FLARED ACCESS CAGE FOR THE ACCESS SECTION

THIS EXAMPLE IS BASED ON USING A STANDARD TYPE SERVICE PLATFORM. IN FIGURE #1 BOTH STANDARD TYPE, AND OSHA TYPE SERVICE EQUIPMENT IS SHOWN. FOR THE SAKE OF CLARITY, ALL CAGES HAVE BEEN OMITTED.

THE OSHA TYPE SERVICE PLATFORM - INCLUDES THE COMPLETE SERVICE PLATFORM, A 64" LONG CAGE FOR UNDER THE PLATFORM, AND A 12 FOOT LONG LADDER WHICH EXTENDS THRU THE PLATFORM FROM THE BOTTOM OF THE UPPER LEG SECTION.

LANDING OR REST PLATFORM - TO BE INSTALLED EVERY 30 FEET. THIS PLATFORM INCLUDES ALL THE CAGING FOR THE 8 FOOT LEG SECTION ABOVE IT AND THE 12 FOOT LADDER FOR THE 8 FOOT LEG BELOW IT.

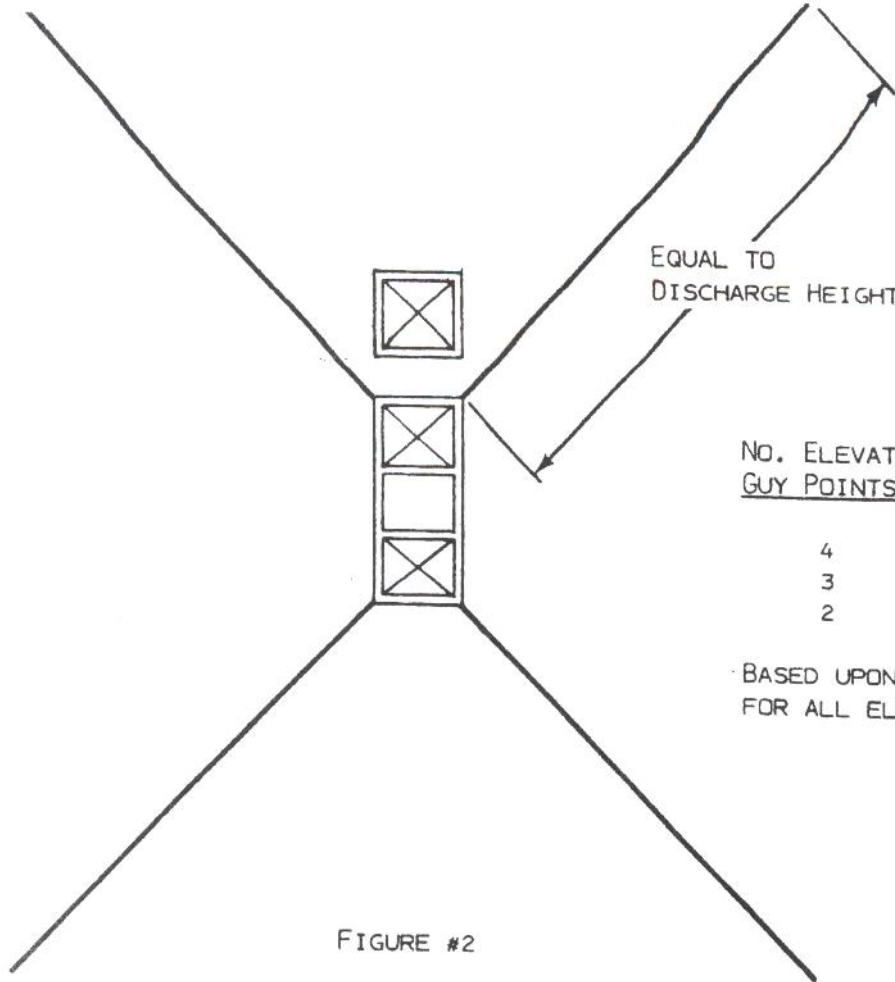
THEREFORE, FOR EACH KIND OF OSHA TYPE PLATFORM, EITHER SERVICE OR LANDING, THAT IS REQUIRED, YOU SHOULD DEDUCT ONE LADDER AND ONE CAGE FROM YOUR TOTAL LADDER AND CAGE REQUIREMENT.

- GUYING EQUIPMENT -

THE RECOMMENDED POINTS FOR ATTACHING GUY CABLES TO THE BUCKET ELEVATOR IS AT THE FIRST 40 FEET OF TRUNKING AND EVERY 32 FEET THEREAFTER. PLOT THIS ON THE SCHEMATIC DRAWING.

THE GROUND POINT ATTACHMENT SHOULD BE AS FAR FROM THE BASE OF THE BUCKET ELEVATOR AS THE ELEVATOR IS TALL. THE GROUND ATTACHMENT SHOULD BE ON A DIAGONAL WITH THE ELEVATOR. SEE FIGURE #2.

YOU SHOULD ALSO ORDER ONE DISTRIBUTOR ROD CONTROL GUIDE WITH EACH GUY CABLE BRACKET THAT IS NEEDED.



NO. ELEVATOR GUY POINTS

TOTAL APPROXIMATE CABLE REQUIRED

4	21 X ELEV. HEIGHT
3	16 X ELEV. HEIGHT
2	11 X ELEV. HEIGHT

BASED UPON ONE GROUND ATTACHMENT FOR ALL ELEVATOR GUY POINTS.

FIGURE #2

- FEED IN-EQUIPMENT -

THIS BUCKET ELEVATOR IS VERY VERSATILE IN THE MANY WAYS IT CAN BE FED. PROPER FEEDING IS THE ONE MAIN CONCERN IN MAKING SURE THE ELEVATOR OPERATES AT FULL CAPACITY. IT CAN BE FED ON EITHER THE UP OR DOWN LEG SIDE. (UP LEG OR DOWN LEG REFERS TO THE DIRECTION OF CUP TRAVEL) WITH THE STANDARD HOPPER, WHICH COMES WITH THE BOOT SECTION, THERE ARE TWO MOUNTINGS, HIGH AND LOW, ON EITHER SIDE OF THE BOOT. FOR UP LEG FEEDING, THE HOPPER SHOULD BE IN THE HIGH POSITION; AND FOR DOWN LEG FEEDING, THE HOPPER SHOULD BE IN THE LOW POSITION. THE LARGE DUMP HOPPER SHOULD BE USED FOR DOWN LEG FEEDING ONLY.

THE FEEDING OF THE ELEVATOR WITH AN AUGER DOES NOT PRESENT ANY PARTICULAR PROBLEMS AS FAR AS PLACEMENT ON THE BOOT.

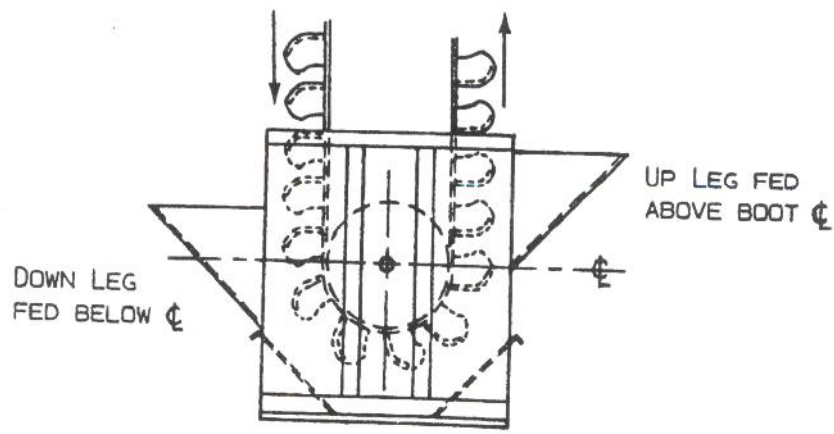


FIGURE #3

- PLANNING THE ERECTION AND ASSEMBLY -

THE BOOT AND AT LEAST ONE LEG SECTION SHOULD BE PLACED IN IT'S PROPER POSITION ON A CONCRETE PAD. THE FIRST LEG SECTION ABOVE THE BOOT CAN BE ANY OF THE REGULAR 4' OR 8' LEG SECTIONS OR THE ACCESS LEG SECTION DEPENDING ON THE DESIRES OF THE CUSTOMER.

PLACE THE BOOT AND LEG SECTION, WITH IT'S LADDER AND CAGE ATTACHED.

THE ACCESS SECTION OPENINGS ARE USED TO INSTALL THE BELT AND BUCKETS AFTER THE ELEVATOR IS STANDING. THEREFORE, THE OPENINGS SHOULD BE PLACED PROPERLY TO EASE THE INSTALLATION OF THE BELT. THE SMALL INSPECTION DOOR IS REVERSIBLE AND WILL FIT ON EITHER TRUNK. DO NOT REMOVE ANY OF THE DOORS BEFORE ERECTION BECAUSE THIS LEG SECTION IS PUT UNDER GREAT STRAIN DURING THE ERECTION PROCEDURE. NO PROBLEMS WILL BE ENCOUNTERED IN REMOVING THE DOORS AFTER THE ELEVATOR IS SET.

THE SMALL INSPECTION DOOR CAN BE CHANGED TO THE DESIRED POSITION AFTER THE LEG IS STANDING.

ASSEMBLE THE LEG SECTIONS ON A LEVEL SURFACE WITH ONE TRUNK UP AND ONE TRUNK DOWN. DO NOT ASSEMBLY MORE THAN 40 FEET OF LEG SECTIONS AS THIS IS THE MAXIMUM RECOMMENDED LIFT AT ONE TIME. BE SURE THAT A GUY POINT IS AVAILABLE ON EACH LIFT AND THAT THE GUY BRACKET DOES NOT COME AT THE JOINT OF ONE LIFT TO THE NEXT LIFT.

ASSEMBLE ANY LANDING OR REST PLATFORMS THAT IS REQUIRED TO THE LEG SECTIONS.

ASSEMBLE THE DISTRIBUTOR PLATFORM IN THE DESIRED POSITION.

ATTACH THE ASSEMBLED HEAD SECTION TO THE LAST LIFT. PLAN TO LEAVE AT LEAST TWO 8 FOOT LEG SECTIONS AND NO MORE THAN THREE SECTIONS TO BE ERECTED WITH THE HEAD. THE HEAD SECTION IS SOMEWHAT TOP HEAVY AND THE ADDITIONAL LEG SECTIONS WILL STABILIZE THE HEAD CONSIDERABLY. (SEE FIGURE) ALWAYS PUT THE UPPER LEG SECTION DIRECTLY UNDER THE HEAD. STENCILED ON THE UPPER LEG ARE INSTRUCTIONS PERTAINING TO THE PROPER PLACEMENT IN RELATION TO THE HEAD.

ASSEMBLE THE SERVICE PLATFORM TO THE UPPER LEG SECTION.

ASSEMBLE THE DISTRIBUTOR HEAD AND HEAD DISCHARGE ADAPTOR TO THE HEAD.
IF GRAIN CLEANER BY-PASS IS USED, REFER TO FIGURE .

IF A GRAIN CLEANER IS USED, COMPLETELY ASSEMBLE THE GRAIN CLEANER AND IT'S PLATFORM AT THIS TIME.

ASSEMBLE THE SPOUTS ON A LEVEL SURFACE AND ASSEMBLE THE TRUSS SUPPORTS.

- ERECTION -

TO PREPARE THE ASSEMBLED ELEVATOR FOR ERECTION FOLLOW THE FOLLOWING CHECK LIST:

1. ATTACH ALL GUY CABLES TO THE LEG SECTIONS AND CUT TO THE LENGTH.
2. CHECK ALL GROUND GUY POINTS TO BE SURE THEY ARE FIRMLY PLANTED AND ALL CONCRETE IS CURED AND HARD.
3. CHECK THAT ALL BOLTS AND NUTS ARE SECURELY TIGHTENED.
4. REMOVE THE HEAD CAP AND SECURELY FASTEN TO THE PLATFORM FLOOR.
5. CHECK THE UP LEG AND DOWN LEG RELATIONSHIPS TO THE HEAD. WILL THE LADDER BE ON THE CORRECT SIDE OF THE ELEVATOR?
6. CHECK AGAIN THE DISCHARGE HEIGHT. IS THE PROPER NUMBER OF LEG SECTIONS ASSEMBLED?
7. CHECK ALL LADDERS, CAGES, PLATFORMS, ETC. TO BE SURE THAT NONE ARE MISSING.
8. CHECK THAT ALL UNASSEMBLED LEG JOINTS ARE CAULKED.
9. CHECK THE TOTAL WEIGHT OF THE LIFTS AGAINST THE CRANE CAPACITIES.

THE MOST EFFECTIVE WAY TO LIFT THE ELEVATOR SECTIONS IS BY USING A CRANE WITH AT LEAST 12 FEET MORE REACH THAN THE DISCHARGE HEIGHT OF THE ERECTED ELEVATOR. A SNATCH BLOCK ARRANGEMENT USING THREE CHOKER CABLES AND TWO SHACKLES SHOULD BE USED. SEE FIGURES 18A AND 18B ON ATTACHING THE CRANE TO THE LEG SECTIONS AND THE HEAD.

THIS SNATCH BLOCK WILL KEEP ALL THE CABLES TIGHT AT ALL TIMES AND ALLOW FOR THE LIFTED UNIT TO "HANG" STRAIGHT UP AND DOWN WHEN IT CLEARS THE GROUND.

AS EACH SECTION IS "STACKED" ON THE PREVIOUS SECTION BE SURE THE GUY CABLES ARE ALL SECURED TO THE GROUND GUY POINTS BEFORE THE CRANE HOOK IS RELEASED.

EACH LIFT SHOULD BE PLUMBED AFTER THE CRANE IS RELEASED. GOOD PLUMBING PRACTICES DICTATE THAT A TRANSIT SHOULD BE USED TO PLUMB THE ELEVATOR. THE ELEVATOR CONVEYOR BELT IS 11" WIDE RUNNING IN A 13" WIDE TRUNK. IF THE ELEVATOR IS OUT OF PLUMB MORE THAN ONE INCH IN ANY SPOT, THE BELT WILL RUB ON TRUNK. SINCE THE BELT MIGHT TRACK TO ONE SIDE OR THE OTHER ONCE IN A WHILE, THE OVERALL PLUMBNESS SHOULD BE WITHIN 1/2" AND NOT BE OUT OF PLUMB AT ANY ONE SPOT MORE THAN 1/2". IT IS NOT OUT OF THE QUESTION TO HAVE THE UNIT STAND PERFECT. SEE FIGURE #19

AFTER THE ELEVATOR IS STANDING AND PLUMBED, THE SPOUTING CAN BE ASSEMBLED TO THE UNIT. AS THE SPOUTING IS BEING ATTACHED WATCH THE PLUMBNESS OF THE ELEVATOR. THE PLUMBNESS OF THE UNIT CAN BE MAINTAINED BY BEING SURE THAT THE SPOUTS ARE CUT TO THE PROPER LENGTH AND ATTACHED WITHOUT PULLING THE ELEVATOR ONE WAY OR ANOTHER.

- BELT INSTALLATION -

AFTER THE ELEVATOR AND IT'S SPOUTING IS COMPLETED, THE BELT CAN BE INSTALLED. REMOVE ALL OF THE INSPECTION DOORS FROM THE ACCESS LEG. STRING A ROPE OR CABLE OVER THE HEAD PULLEY. ATTACH ONE END OF THE ROPE OR CABLE TO THE END OF THE BELT. RUN THE OPPOSITE END OF THE ROPE OR CABLE UNDER THE BOOT PULLEY. PULL ON THIS END OF THE ROPE OR CABLE PULLING THE BELT THROUGH ONE OF THE INSPECTION DOORS. BE SURE THE CUPS, IF THEY ARE ASSEMBLED TO THE BELT, ARE ORIENTED CORRECTLY.

LET THE BELT HANG OVER THE HEAD PULLEY OVER NIGHT BEFORE SPLICING. SEE FIGURE #20 FOR SPLICING INSTRUCTIONS.

- OPERATIONAL CHECK -

WITH ALL OF THE DRIVE COMPONENTS INSTALLED AND THE UNIT CHECKED OUT, THE ELEVATOR IS READY FOR AN OPERATIONAL CHECK. WITH THE HEAD CAP OFF, START THE ELEVATOR AND CHECK THE BELT FOR TRACKING ON THE HEAD PULLEY. SHIM THE BEARINGS AS NEEDED TO CENTER THE BELT. INSTALL THE HEAD CAP. BE CAREFUL OF FLYING MATERIAL WHEN THE HEAD CAP IS OFF.

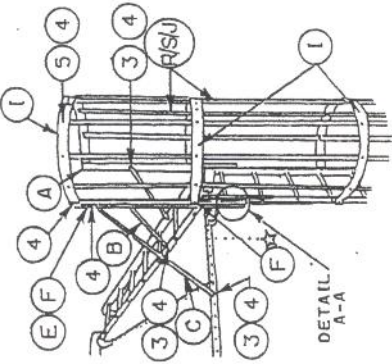
1. CENTER THE BELT IN THE BOOT WITH THE ADJUSTMENT SCREWS.
2. RECHECK ALL COMPONENTS FOR LUBRICATION.
3. INSTALL THE BACKSTOP, IF ONE IS NEEDED, AT THIS TIME.
4. ADJUST THE DISCHARGE FLAP TO WITHIN $\frac{1}{8}$ " OF A CUP AT BELT SPlice LOCATION, DONOT HAVE MORE THAN $\frac{1}{2}$ " OF RUBBER EXTENDED PAST METAL PLATE! FIG. 108

LET THE UNIT RUN WITHOUT GRAIN FOR A PERIOD OF TIME AND LISTEN FOR CUPS OR THE BELT HITTING THE TRUNKS. IF THIS OCCURS, RECHECK THE PLUMBNESS AND/OR TIGHTEN THE BELT.

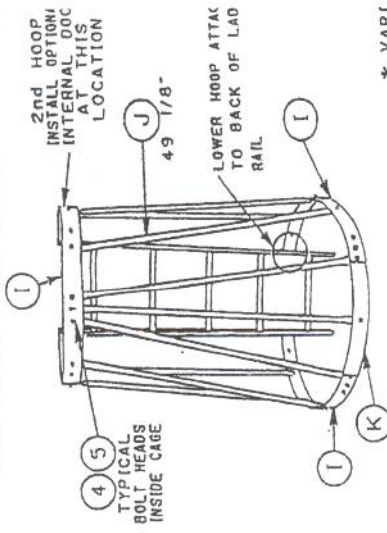
RUN SMALL AMOUNTS OF GRAIN THROUGH ALL PARTS OF THE SYSTEM TO CHECK FOR OBSTRUCTIONS AND ALIGNMENTS OF SPOUTS.

CAGE INSTRUCTIONS

HOPPER BIN CAGE ATTACHMENT



CAGE BOTTOM FLARE DETAIL



★ HOOP HALF ATTACHES TO LADDER RAIL WITH LOCKING CLIP

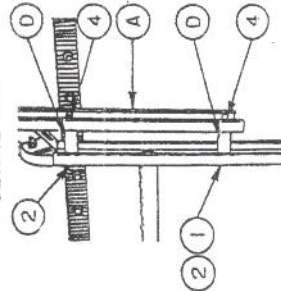
KEYPART NO.	DESCRIPTION	QTY
1	39-20245 WASHER, FLAT 11/32 I.D. X 1 1/2 O.D.	2
2	39-20246 BOLT, H.H. 5/16 X 2 1/2 #5	4
3	39-20072 BOLT, BIN SEAL 5/16 X 3/4 #8.2	6
4	39-20152 NUT, FLANGE 5/16	*
5	39-20145 BOLT, TR. NO. BIN SEAL 5/16 X 3/4 #8.2	*
6	39-20116 COTTER, HAIR PIN	2

* VARI

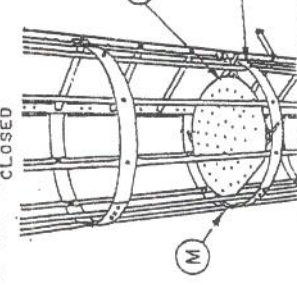
KEYPART NO.	DESCRIPTION
A	9-24142 RAIL, EXTENSION 54" O.A.
B	3-24318 BRACE, EXT. RAIL FRONT 25 1/2" O.A.
C	9-24317 BRACE, EXT. RAIL SIDE 46" O.A.
D	9-24339 SPACER, TUBE, EXT. RAIL
E	9-24316 BRACKET, EXT. RAIL BRACE
F	9-23779 CLIP ASSEMBLY, LOCKING
G	9-23777 HOOP HALF, CAGE
H	9-24071 TUBE, CAGE 25 1/8" O.A.
I	9-24072 TUBE, CAGE 49 1/8" O.A.
J	9-24021 EXPANDER, CAGE HOOP
K	9-24065 DOOR ASSEMBLY, INTERNAL
L	9-24075 ROD, INTERNAL DOOR HINGE
M	

NOTE: IF LADDER STANDOFF BRACKETS INTERFERE WITH THE CAGE FLARE HOOP, MOVE THEM UP OR DOWN ONE CORRUGATION, FIELD DRILL AND ATTACH.

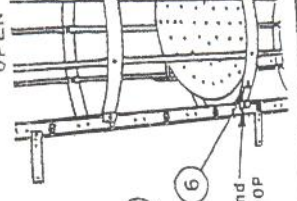
LADDER EXTENSION DETAIL



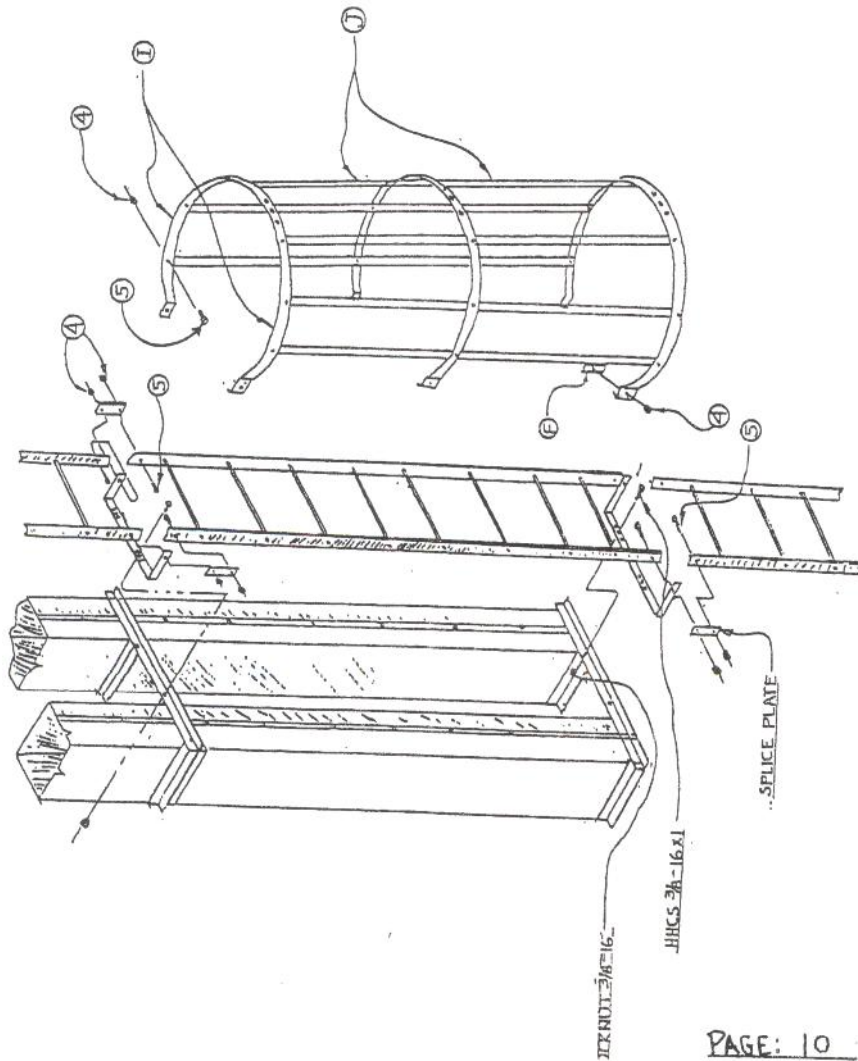
OPTIONAL INTERNAL DOOR CLOSED

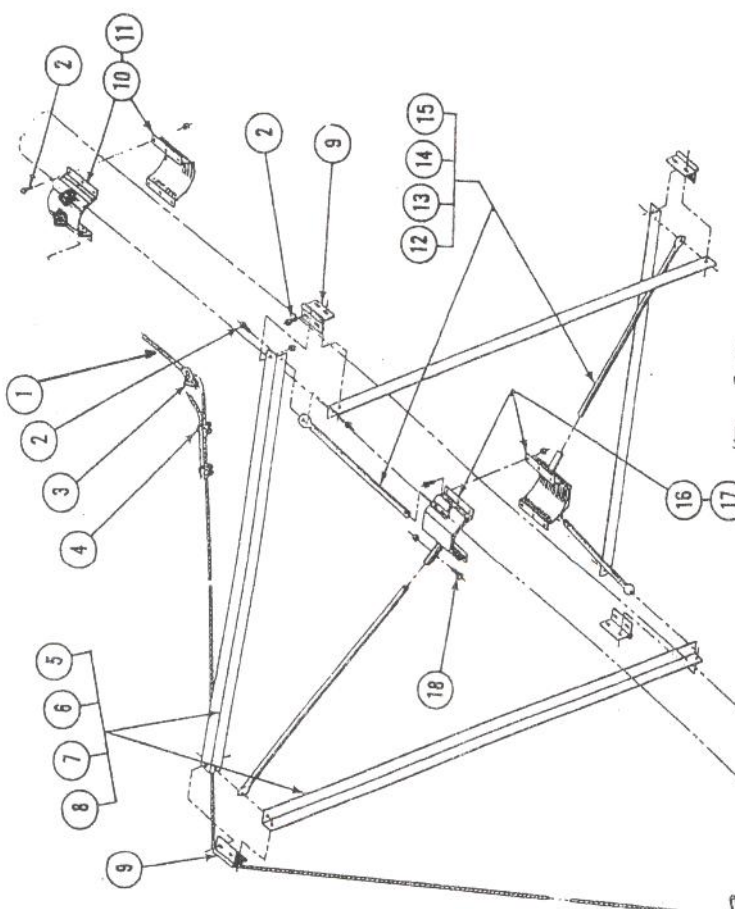


OPTIONAL INTERNAL DOOR OPEN



INTERMEDIATE CAGE & LADDER ASS'Y





WELD ALL JOINTS AFTER ASSEMBLY
PAINT ALL WELDS

FIGURE #16

10" SPOUTING TRUSS ASSEMBLY

KEY NO.	PART NO.	DESCRIPTION
1	A28415	WELDED EYEBOLT - 1/2" x 8"
2	1175	3/8-16NC X 1 CAP SCREW
3	24292	CABLE THIMBLE
4	15266	CABLE CLAMP
5	24294	FRAME ANGLE (3 FT)
6	24302	FRAME ANGLE (4 FT)
7	24304	FRAME ANGLE (6 FT)
8	24315	FRAME ANGLE (8 FT)
9	A24295	CABLE GUIDE
10		
11	A30028	CABLE HOOK-UP - 10"
12	24293	TRUSS SUPPORT (3 FT)
13	24301	TRUSS SUPPORT (4 FT)
14	24303	TRUSS SUPPORT (6 FT)
15	24311	TRUSS SUPPORT (8 FT)
16	A25021	SPIDER HOOK-UP 8"
17	A25017	SPIDER HOOK-UP 6"
18	1196	5/16-18NC X 1-1/2 CAP SCREW

FIGURE #16

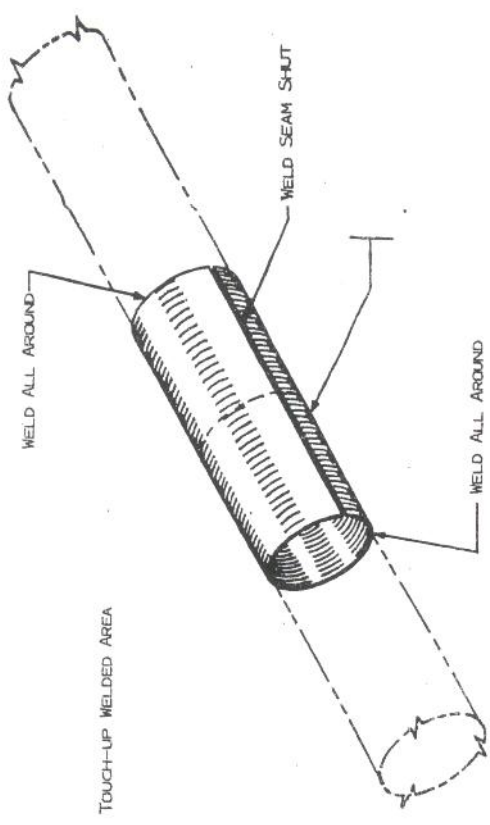


FIGURE #17

SPOUTING JOINER DETAILS

LEADING EDGE OF BELT TO
BE ON CUP SIDE OF SPLICE

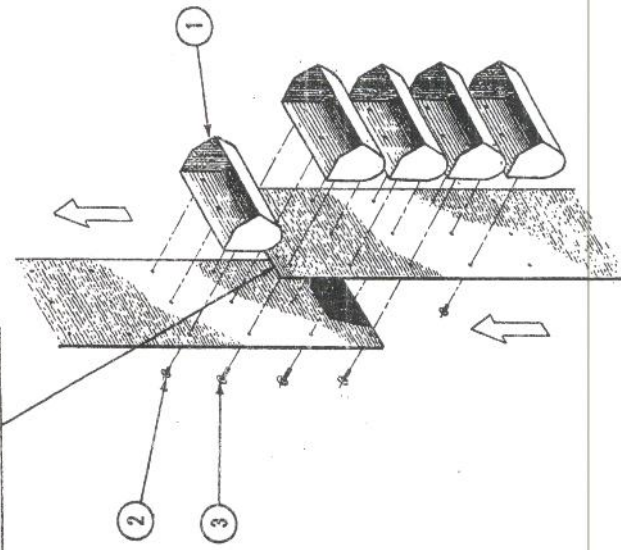


FIGURE #20

BELT SPLICE ASSEMBLY

KEY NO.	PART NO.	DESCRIPTION
1	25544	10 x 6 Plastic Cup
2	1461	1/2-20NC x 1 Elevator Bolt
3	1462	1/2-20NC x 1 1/2 Elevator Bolt (at Splice only)

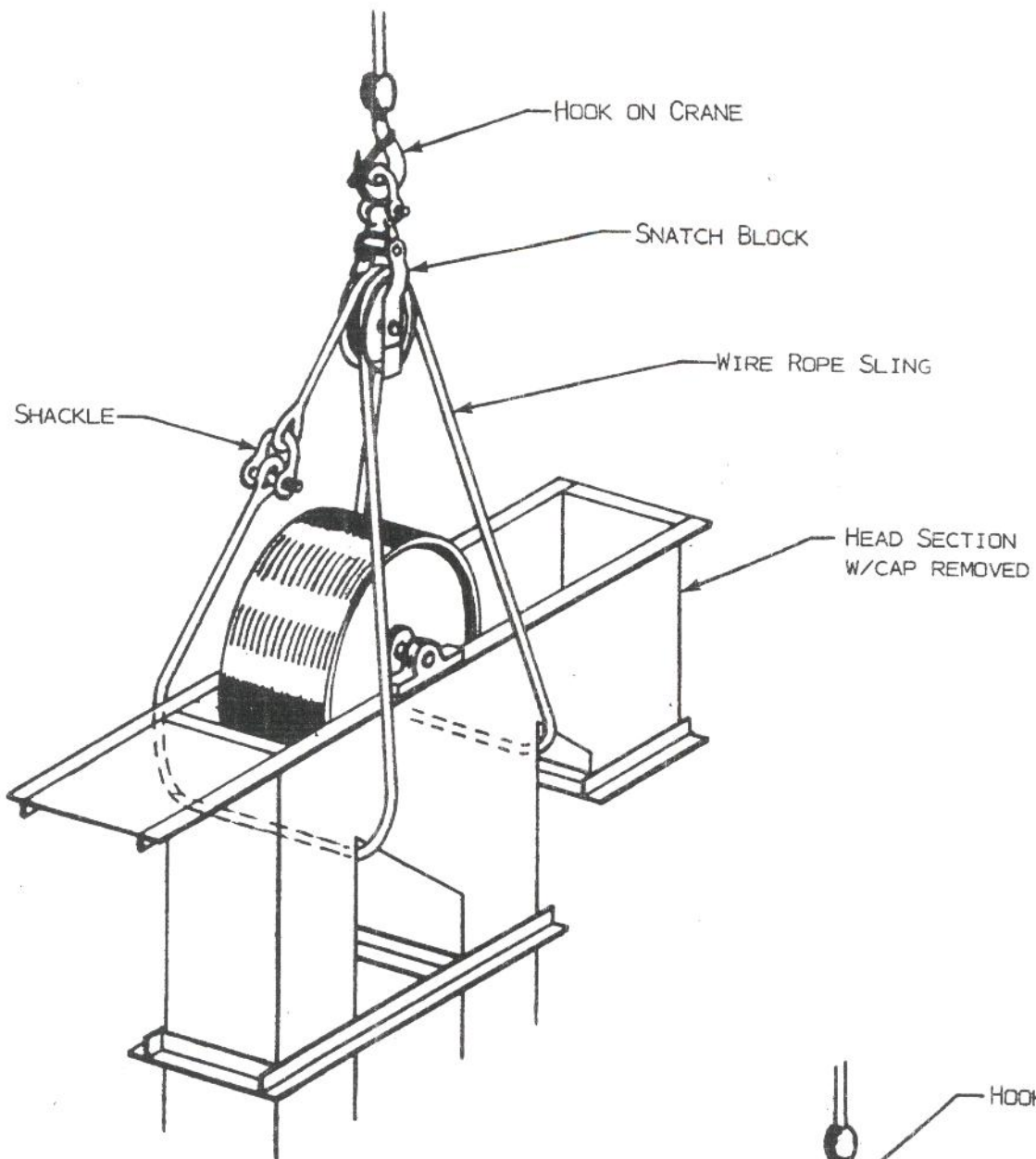


FIGURE #18B

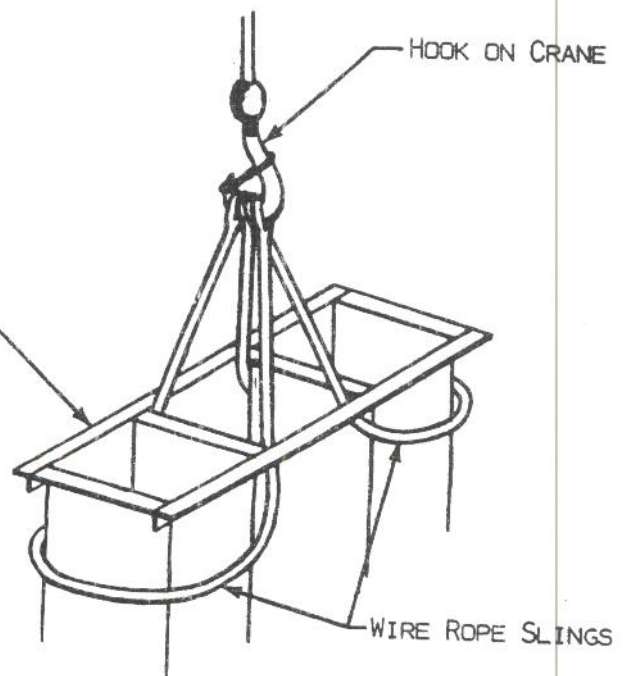
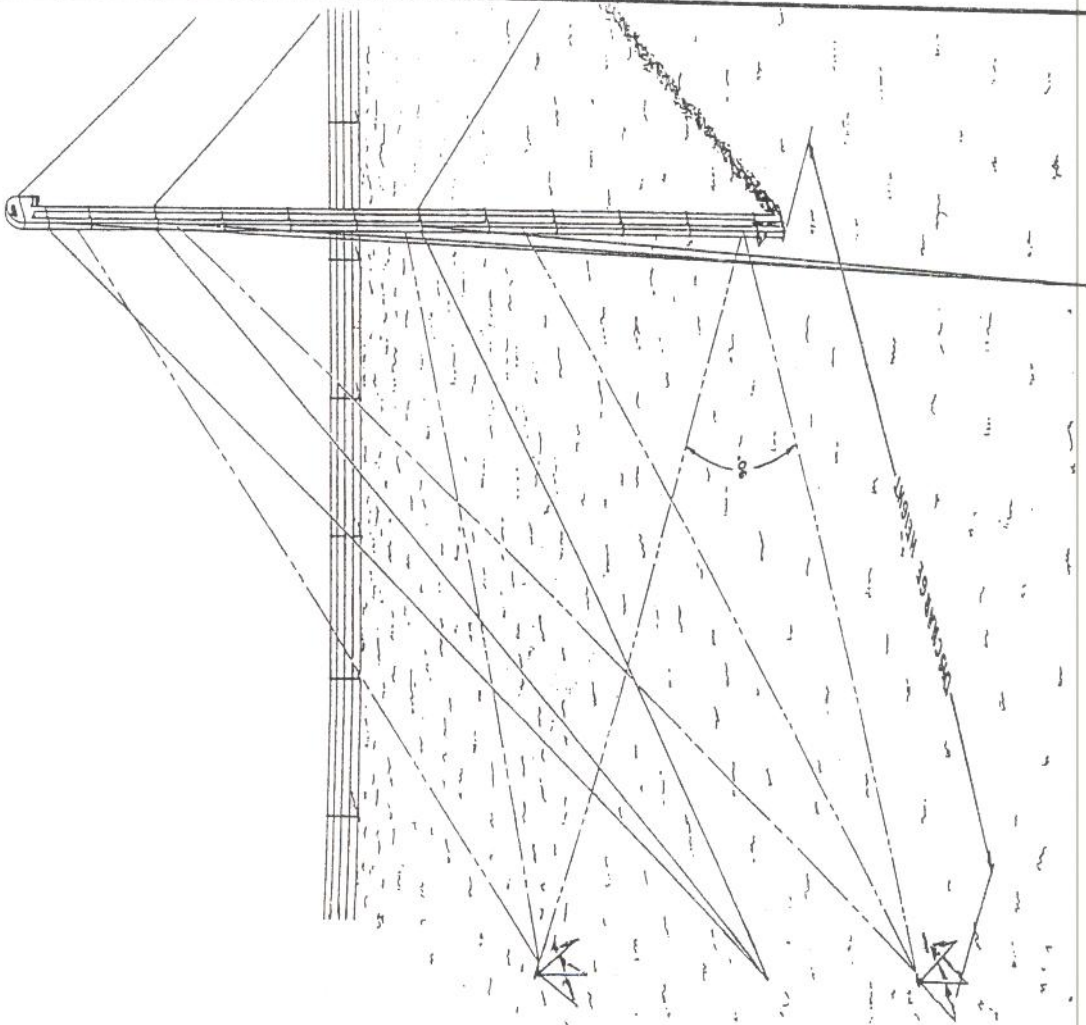
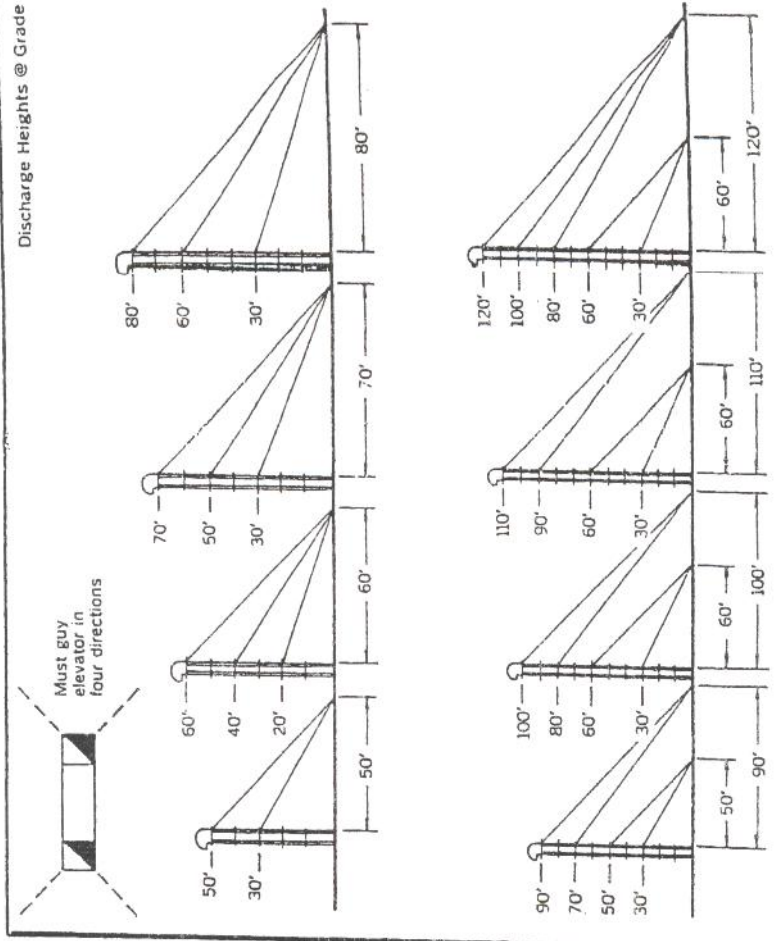


FIGURE #18A

LIFTING INSTRUCTION DIAGRAM



SUGGESTIONS FOR GUYING BUCKET ELEVATORS



Recommendations are based on using 3/8" dia. (7x19) Aircraft Cable

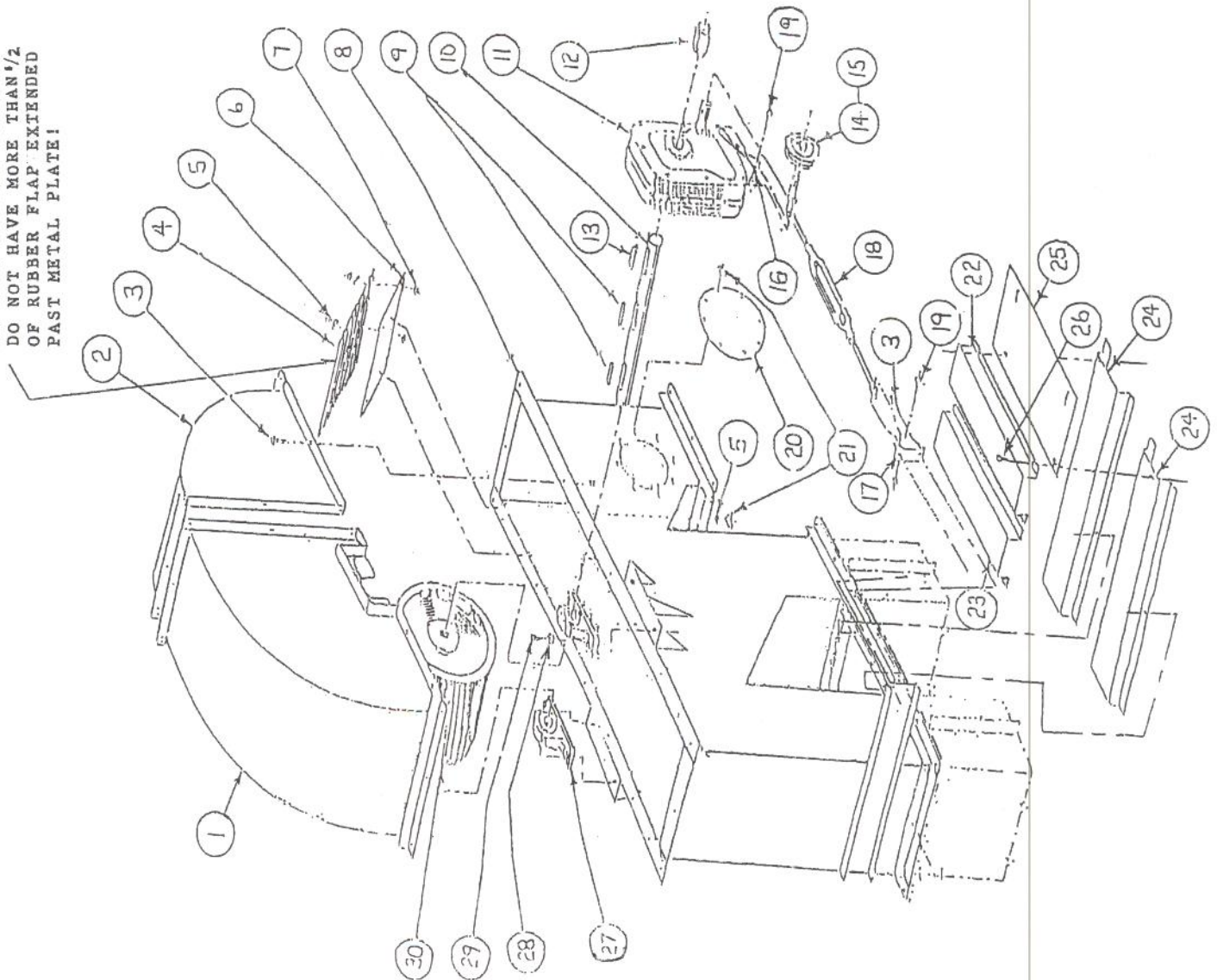
CABLE AND FITTING REQUIREMENTS										
Discharge Height	50'	60'	70'	80'	90'	100'	110'	120'		
Approx. Cable	520'	885'	1050'	1200'	1485'	1690'	1800'	2490'		
3/8" Cable: Clamp	48	72	72	72	96	96	96	120		
1/2"x6" Turnbuckle	8	12	12	12	16	16	16	20		

FIGURE # 15

TRANSIT PLUMBING

4500 HEAD ASSEMBLY
10/15, 20, 25 H.P.

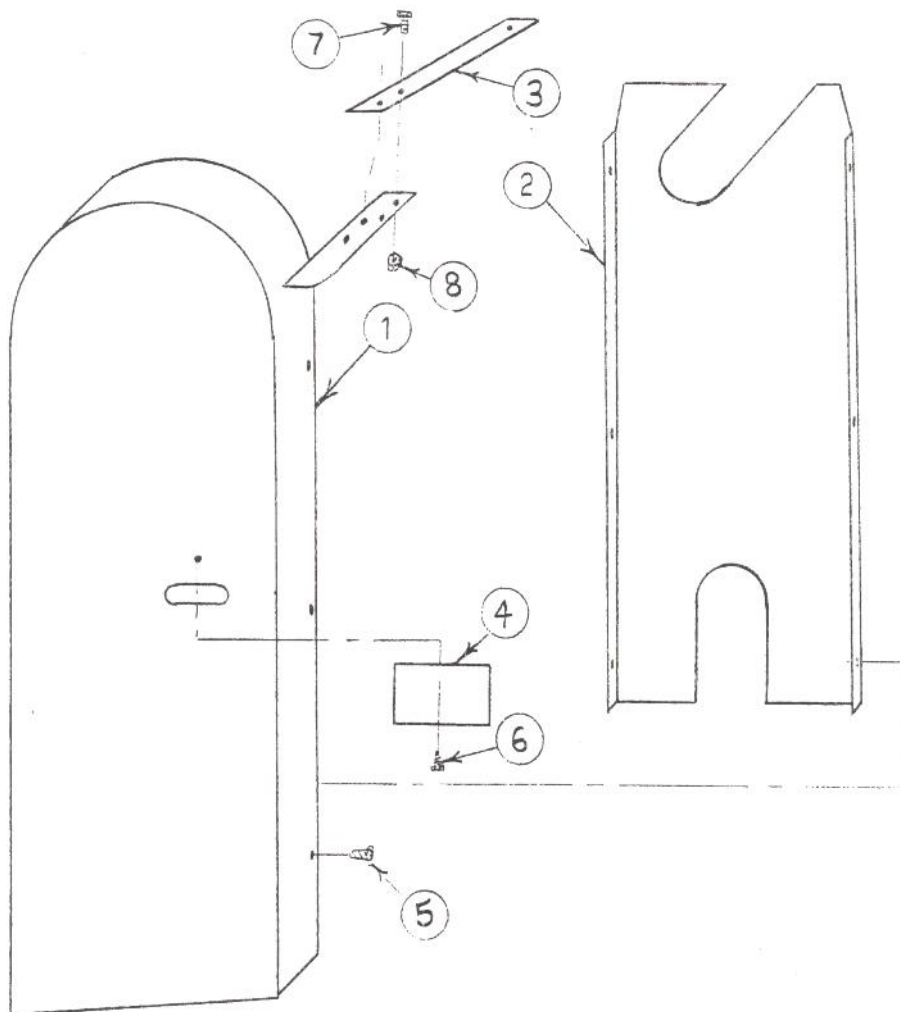
NOTE ADJUST WITHIN 1/8" OF CU.
AT BELT SPLICE LOCATION.
DO NOT HAVE MORE THAN 1/2
OF RUBBER FLAP EXTENDED
PAST METAL PLATE!



KEY NO.	PART NO.	DESCRIPTION
1	A25531	REAR CAP ASSEMBLY
2	A25536	DISCHARGE CAP ASSEMBLY
3	1175	HHCS 3/8-16NC x 1
4	25539	DISCHARGE FLAP
5	1291	FLATWASHER 1/4"
6	A25538	DISCHARGE PLATE
7	1461	ELEV. BOLT 1/4-20NC x 1
8	A25523	HEAD ASSEMBLY
9	30038	SQUARE KEY 7/8 x 5/8 x 4
10a	25618	HEAD SHAFT-10/15 H.P.
10b	25619	HEAD SHAFT-20 H.P.
10c	25620	HEAD SHAFT-25 H.P.
11a	A23897	GEAR REDUCER-10/15 H.P.w/TORQUE AR
11b	A25621	GEAR REDUCER-20 H.P.w/TORQUE ARM
11c	A25622	GEAR REDUCER-25 H.P.w/TORQUE ARM
12a	A23897A	BUSHING KIT-10/15 H.P.
12b	A25621A	BUSHING KIT-20 H.P.
12c	A25622A	BUSHING KIT-25 H.P.
13	25954	SQUARE KEY 3/8 x 3/8 x 4
14	25113	V-BELT SHEAVE-10/15 H.P.
15		V-BELT SHEAVE-20 & 25 H.P.
16		TORQUE ARM BRACKET
17		ANCHOR BRACKET
18		TORQUE ARM ASSEMBLY
19	1189	HHCS 1/2-13NC x 1 1/4
20	21172	COVER PLATE
21	21872	WINGNUT 1/4-20NC
22	25441	OUTER MOTOR MOUNT CHANNEL
23	25442	INNER MOTOR MOUNT CHANNEL
24	25540	LOWER MOTOR MOUNT CHANNEL
25	25823	MOUNTING PLATE
26	1187	HHCS 1/2-13NC x 1
27	A25626	PILLOW BLOCK BALL BEARING
28	1297	FLATWASHER 3/4"
29	1192	HHCS 3/4-10NC x 3
30	A25616	HEAD PULLEY ASSEMBLY

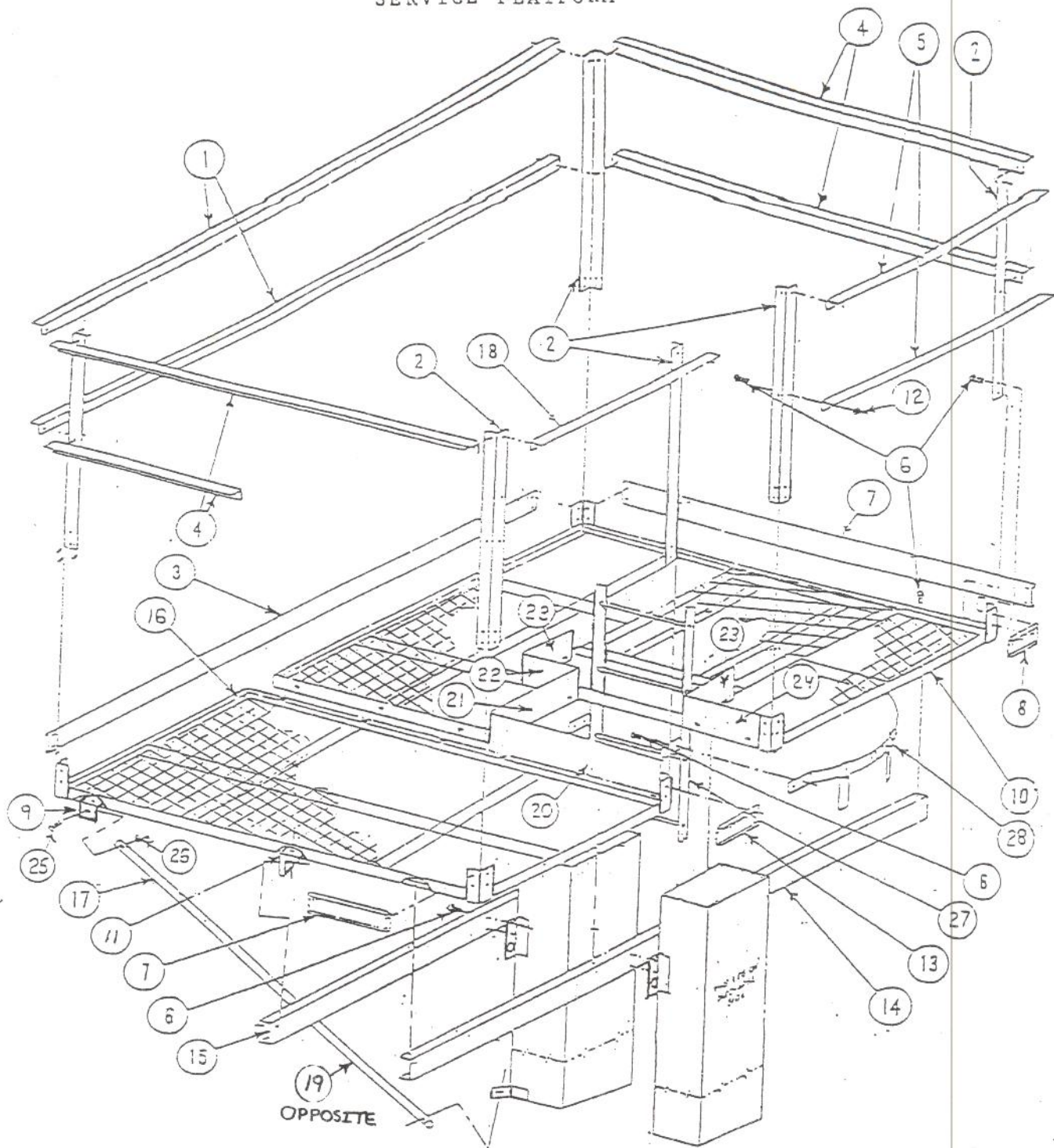
BELT GUARD ASSEMBLY

NOTE USE 5/16-18NC x 3/4 CARRIAGE BOLT AND 5/16-18NC LOCKNUT TO ATTACH BASE OF BELT GUARD TO MOUNTING PLATE ON HEAD SECTION. ATTACH MOUNTING BAR TO DISCHARGE CAP OF HEAD SECTION, USING EXISTING HARDWARE.



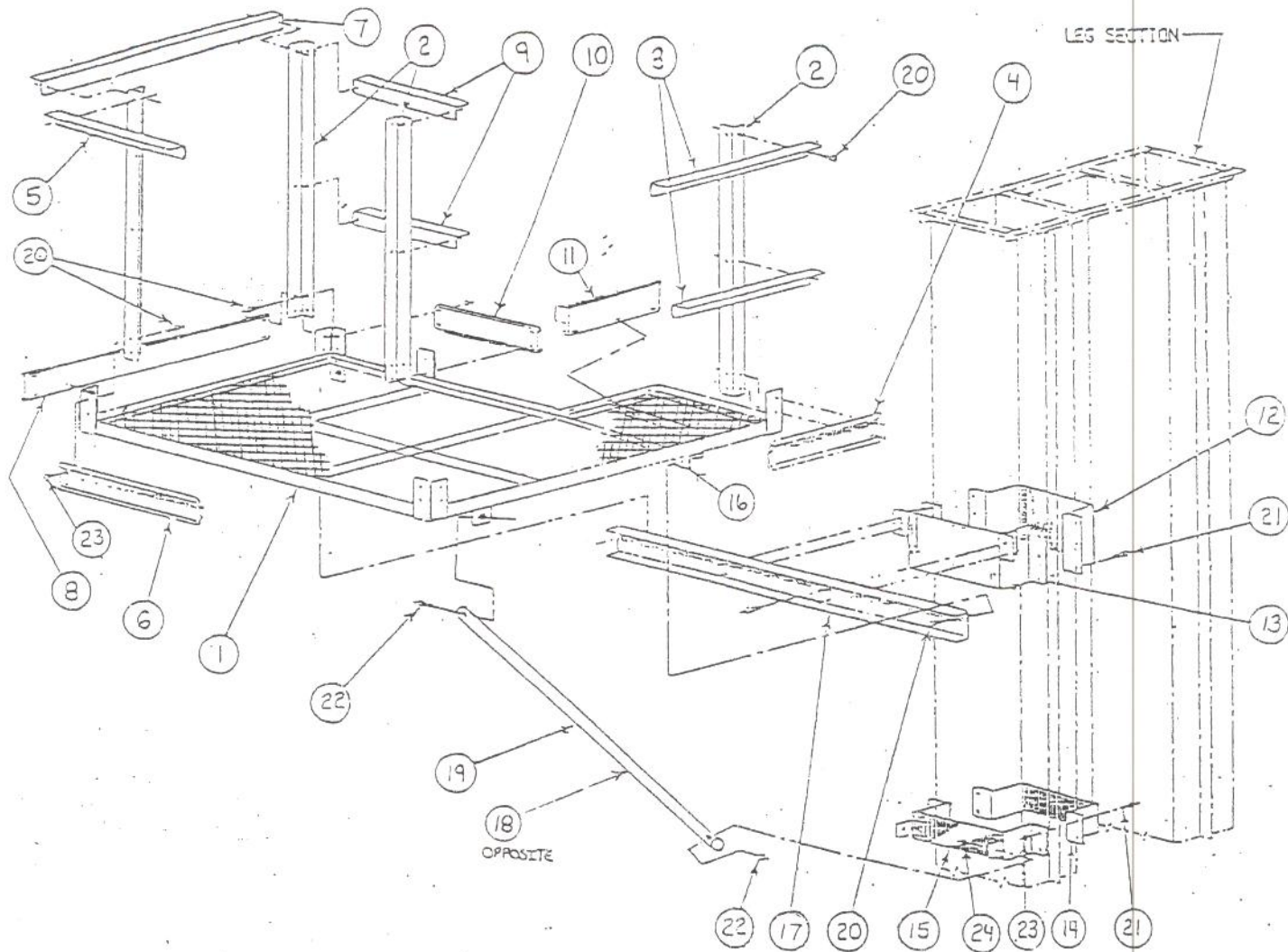
KEY NO.	PART NO.	DESCRIPTION
1	A25874	DRIVE BELT GUARD WELDED ASSEMBLY
2	25878	GUARD BACK
3	25875	MOUNTING BAR
4	25872	INSPECTION PLATE
5	1319	TAP SCREW 1/4 x 1/2 HH BF
6	1531	SELF-TAP SCREW #10 x 1/2 AB HEX WASH
7	1357	HHCS 5/16-18NC x 3/4
8	1273	LOCKNUT 5/16-18NC

SERVICE PLATFORM



KEY #	PART #	QTY	DESCRIPTION	KEY #	PART #	QTY	DESCRIPTION
1	25767	2	RAILING, 103"	15	25715	1	PLATFORM MTG CHANNEL, 63"
2	23676	6	RAILING SUPPORT	16	A 25761	1	ACCESS PLATFORM WELDED ASSY
3	25784	1	TOEBOARD, 103"	17	25776	1	PLATFORM BRACE, 78 1/8"
4	25768	4	RAILING, 72 3/4"	18	25770	2	RAILING, 42 3/4"
5	24125	2	RAILING, 41 1/2"	19	25777	1	PLATFORM BRACE, 80 7/16"
6	1175	83	HHCS 3/8-16NC X 1	20	25800	1	TOEBOARD, 34 1/4"
7	25783	2	TOEBOARD, 72 3/4"	21	25801	1	TOEBOARD, 18 1/2"
8	25782	1	TOEBOARD, 41 1/2"	22	25803	1	TOEBOARD, 7 1/2"
9	25775	2	BRACE MOUNTING CLIP	23	25802	1	TOEBOARD, 5 1/2"
10	A 25724	1	PLATFORM WELDED ASSY	24	25935	1	TOEBOARD, 12"
11	25739	2	PLATFORM MOUNTING CLIP	25	1201	4	HHCS 3/8-24NF X 2
12	1274	83	LOCKNUT 3/8-16NC	26	1280	4	LOCKNUT 3/8-24NF
13	25781	1	TOEBOARD, 42 3/4"	27		1	8' LADDER ASSY
14	25716	1	PLATFORM MTG CHANNEL, 103"	28		1	8' CAGE ASSY

220 32
DISTRIBUTOR PLATFORM



KEY #	PART #	QTY	DESCRIPTION	KEY #	PART #	QTY	DESCRIPTION
1	A 25830	1	DISTRIBUTOR PLATFORM W/A	13	A 25838	1	CLAMP HALF
2	23676	5	RAILING SUPPORT	14	A 25845	1	CLAMP HALF
3	25847	2	RAILING, 56 1/2"	15	A 25844	1	CLAMP HALF
4	25849	1	TOEBOARD, 56 1/2"	16	25775	3	BRACE & SUPPORT MOUNTING CLIP
5	23785	2	RAILING, 50 3/8"	17	23783	1	SUPPORT CHANNEL
6	25850	1	TOEBOARD, 50 3/8"	18	25859	1	PLATFORM BRACE, 72 3/16"
7	23692	2	RAILING, 35 1/2"	19	25861	1	PLATFORM BRACE, 73 1/4"
8	25851	1	TOEBOARD, 35 1/2"	20	1175	44	HHCS 3/8-16NC X 1"
9	25848	2	RAILING, 15 1/4"	21	1178	10	HHCS 3/8-16NC X 1 3/4"
10	25852	1	TOEBOARD, 15 1/4"	22	1201	4	HHCS 3/8-24NF X 2"
11	25853	1	TOEBOARD, 22 29/32"	23	1274	54	LOCKNUT 3/8-16NC
12	A 25840	1	CLAMP HALF	24	1280	4	LOCKNUT 3/8-24NF

BOOT ASSEMBLY
PARTS LIST FIGURE #4

KEY NO.	PART NO.	DESCRIPTION
1	25459	END PLATE, LONG
2	A25434	BOOT SECTION
3	3/8-16NC X 3/4	CAP SCREW
4	25482	BOOT CENTER COVER
5	5/16-18NC X 3/4	CAP SCREW
6	25478	SLIDE GATE
7	A25476	HOPPER
8		THUMB SCREW
9	25460	END PLATE, SHORT
10	A25455	ADJUSTING BOLT
11	A25461	BOOT PULLEY W/BUSHING
12		BOOT PULLEY SLATTED (OPTIONAL)
13	25682	BOOT SHAFT
14	25506	SLIDE ANGLE
15	70023	SPRING PIN
16	A25458	BALL BEARING 1 1/16" (COMPLETE)
17	A25450	BEARING PLATE
18	50034	NUT W/HOLE
19		3/8-16NC X 1-1/4 FL. HD. MACH. SCR
20		NUT
21	A25481	COVER BRACKET
22	25681	CLEAN OUT PLATE
23		5/16 FLAT WASHER

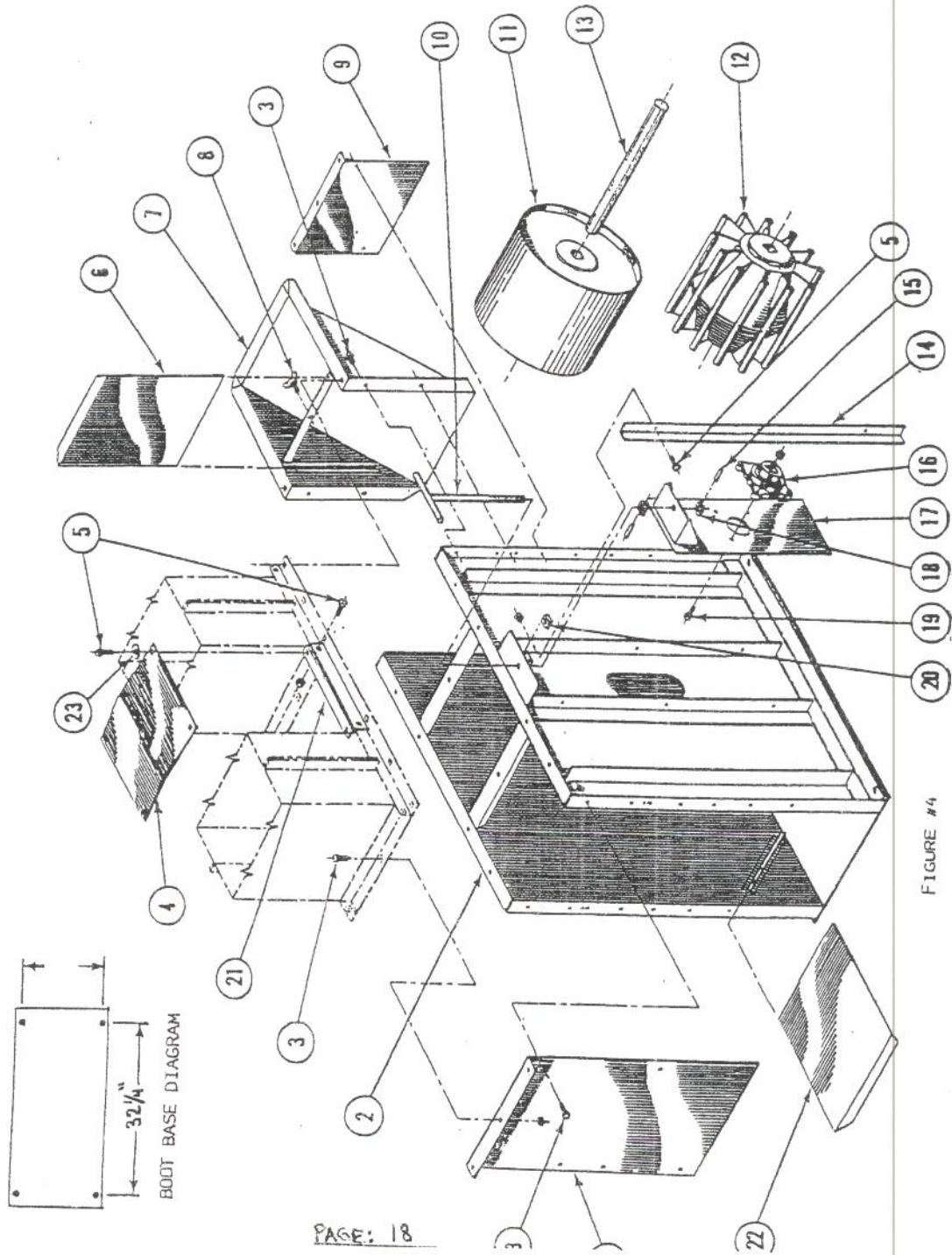
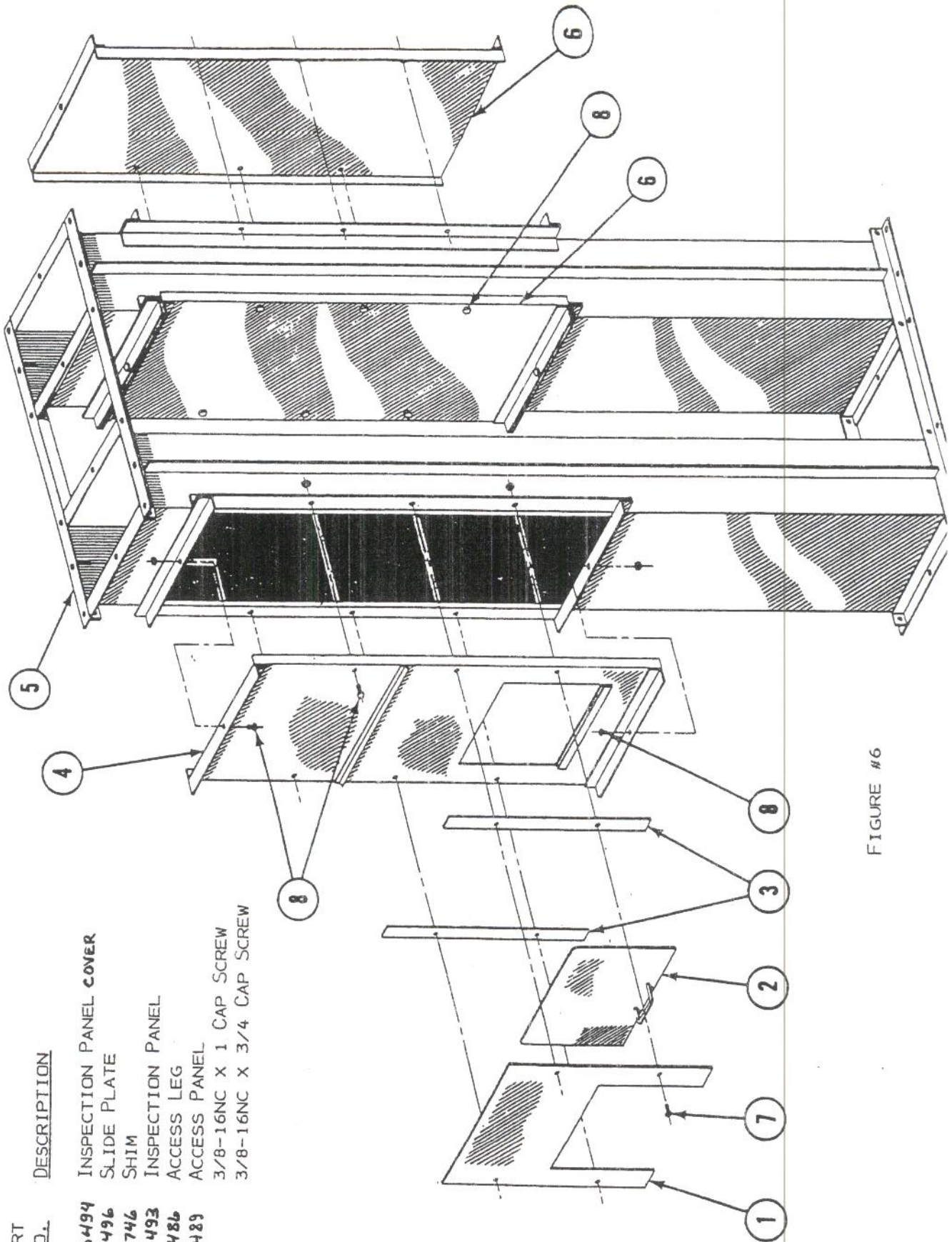


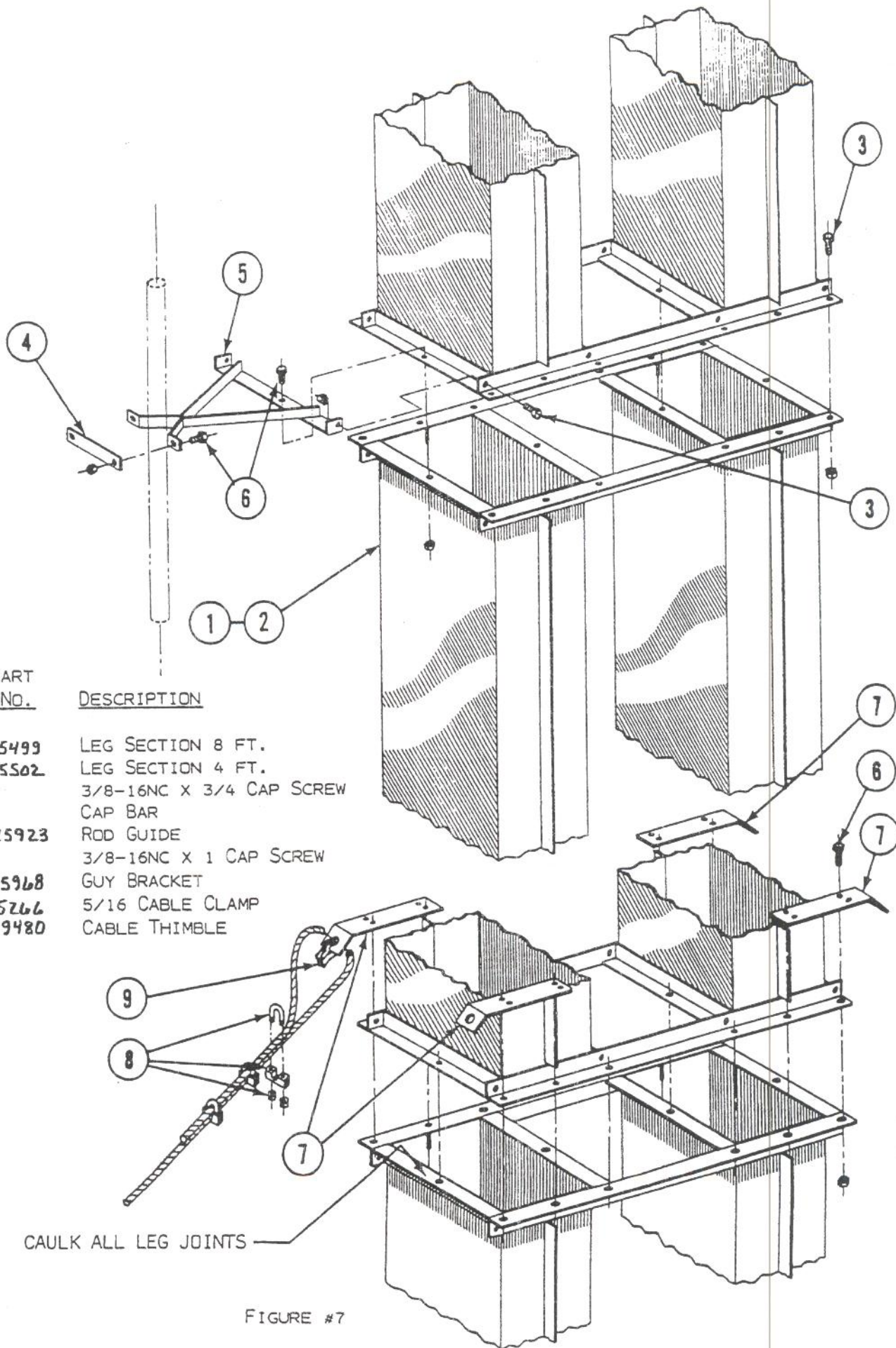
FIGURE #4



KEY NO.	PART NO.	DESCRIPTION
1	25494	INSPECTION PANEL COVER
2	A25496	SLIDE PLATE
3	23746	SHIM
4	A25493	INSPECTION PANEL
5	A25486	ACCESS LEG
6	A25489	ACCESS PANEL
7		3/8-16NC X 1 CAP SCREW
8		3/8-16NC X 3/4 CAP SCREW

ACCESS SECTION ASSEMBLY

FIGURE #6



KEY No.	PART No.	DESCRIPTION
1	A25499	LEG SECTION 8 FT.
2	A25502	LEG SECTION 4 FT.
3		3/8-16NC X 3/4 CAP SCREW
4		CAP BAR
5	A25923	ROD GUIDE
6		3/8-16NC X 1 CAP SCREW
7	A25968	GUY BRACKET
8	15266	5/16 CABLE CLAMP
9	19480	CABLE THIMBLE

CAULK ALL LEG JOINTS

FIGURE #7

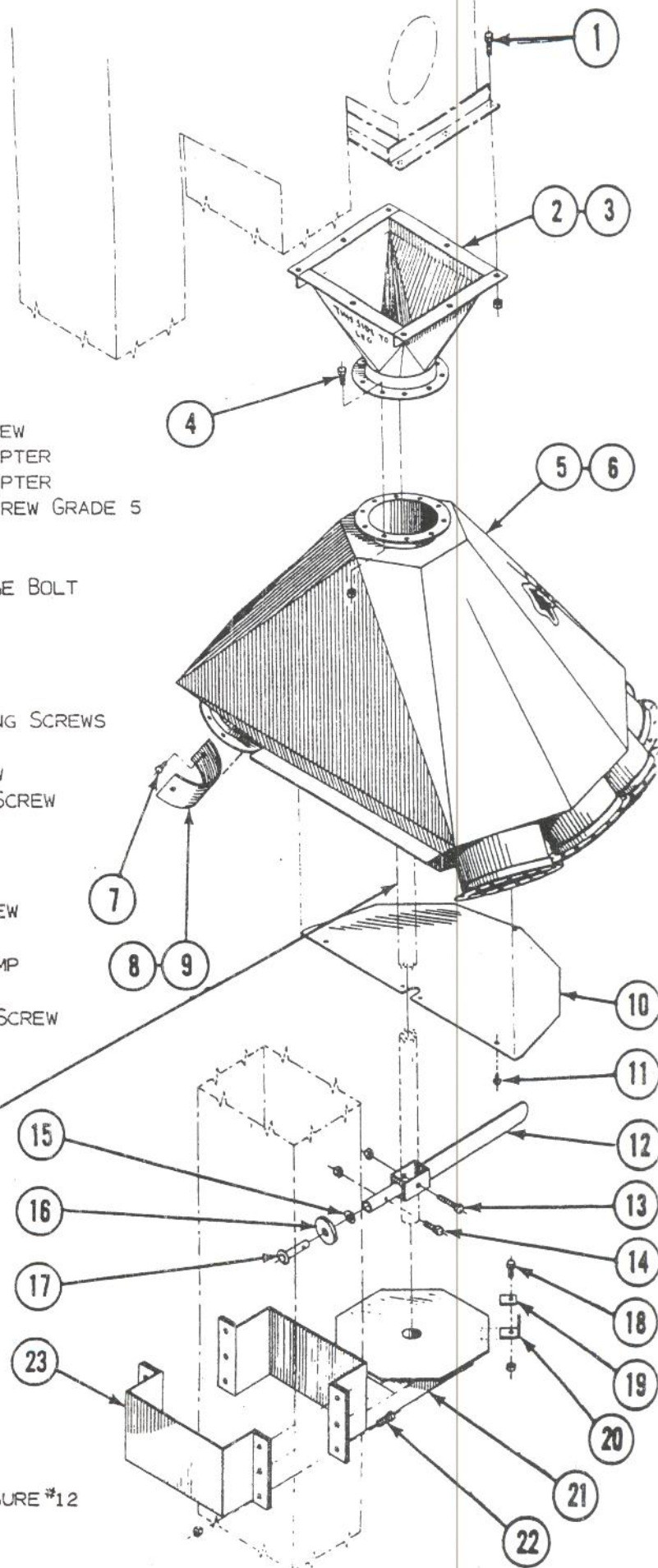
LEG SECTION - GUY BRACKET - ROD CONTROL ASSEMBLY

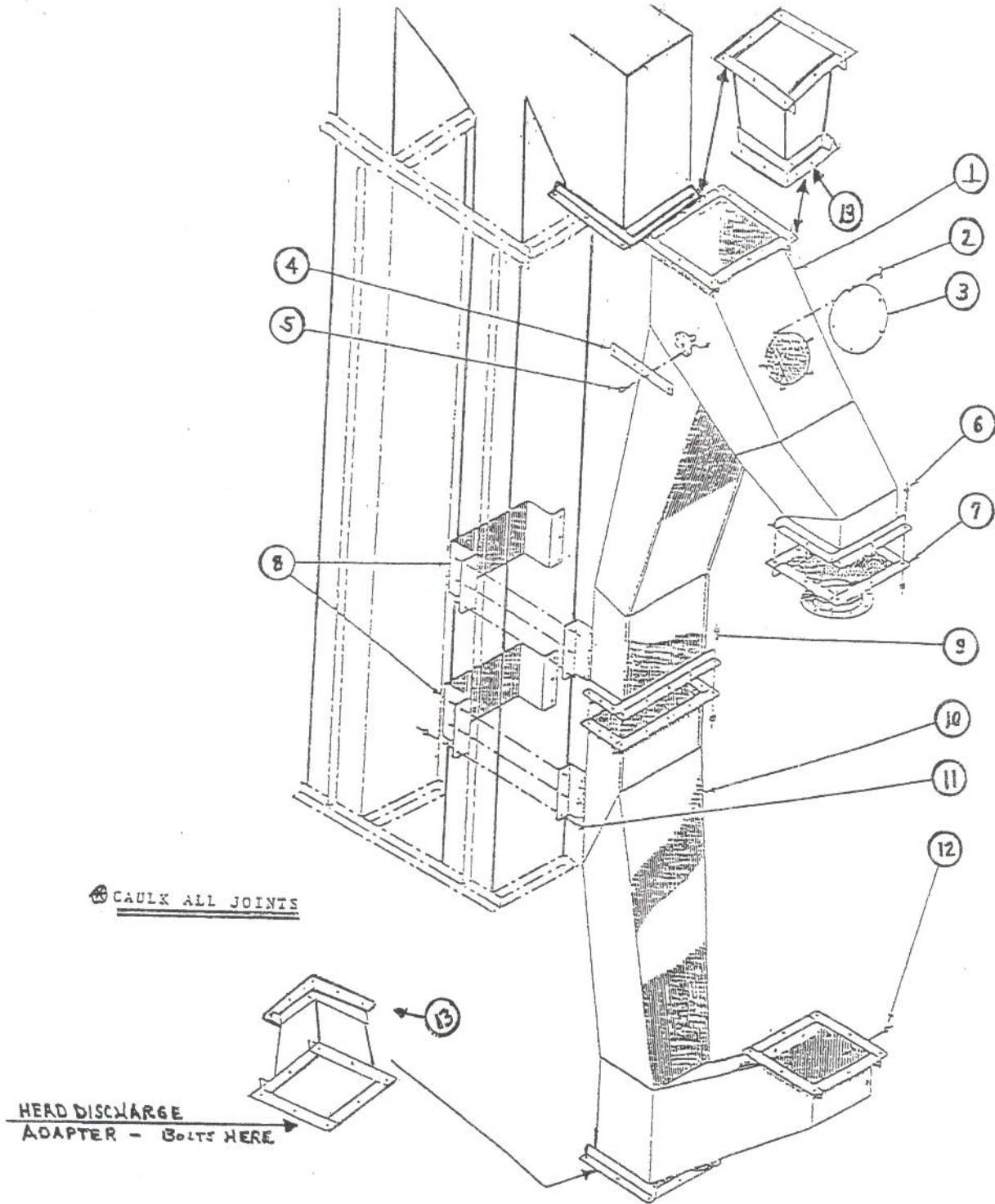
KEY No.	PART No.	DESCRIPTION
1		3/8-16NC X 3/4 CAP SCREW
2		8" HEAD DISCHARGE ADAPTER
3		HEAD DISCHARGE ADAPTER
4		5/16-18NC X 3/4 CAP SCREW GRADE 5
5		DISTRIBUTOR 8 WAY 8"
6		DISTRIBUTOR 8 WAY
7		1/4-20NC X 3/4 CARRIAGE BOLT
8		8" RISER LINER LONG
		8" RISER LINER SHORT
9		RISER LINER
10		ACCESS DOOR
11		1/4 X 3/4 SELF-DRILLING SCREWS
12		HANDLE
13		3/8-16NC X 2 CAP SCREW
14		1/4-20NC X 1-1/2 CAP SCREW
15		5/8 FLAT WASHER
16		ROLLER
17		AXLE
18		5/16-18NC X 1 CAP SCREW
19		CLAMP
20		DIRECTIONAL GUIDE CLAMP
21		CONTROL STAND
22		3/8-16NC X 1-3/4 CAP SCREW
23		CLAMP HALF

CONTROL PIPE BY CUSTOMER 1" STD PIPE

FIGURE #12

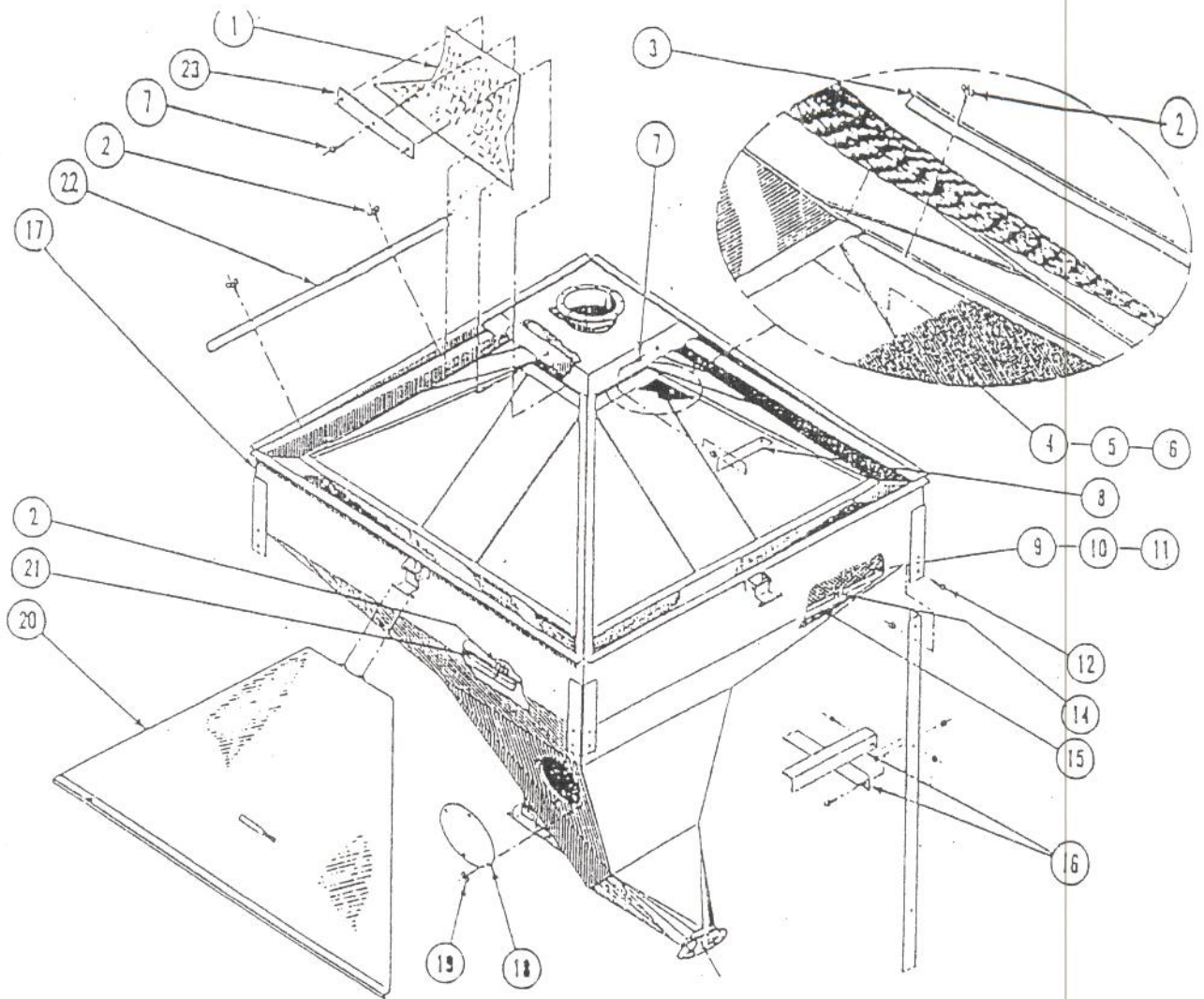
8 WAY DISTRIBUTOR HEAD & DISCHARGE ADAPTER ASSEMBLY





GRAIN CLEANER - BYPASS ASSEMBLY : 4500

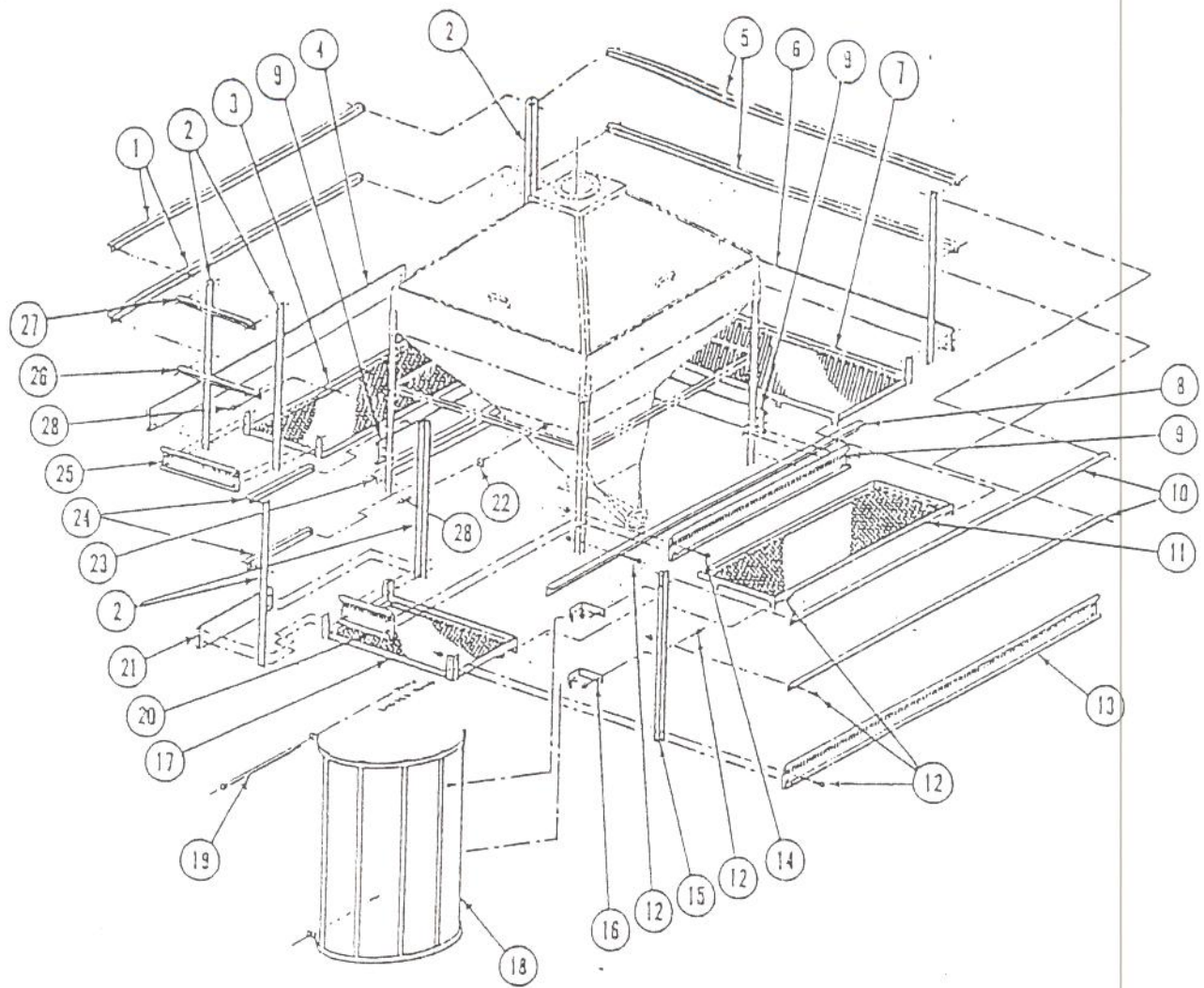
KEY NO.	PART NO.	DESCRIPTION
1	A25991	BY-PASS UPPER UNIT(4500)
2	21872	WING NUT 1/4-20NC
3	A20921	TUBE SEAL PLATE
4	24877	HANDLE
5	1154	HCNS 1/4-20NC X 1
6	1175	HCNS 3/8-16NC X 1
7	A26019	ADAPTOR 10" SQ. TO 10" RND(4500)
8	A25840	CLAMP HALF(4500)
9	1195	HCNS 5/16-18NC X 3/4
10	A25994	BY-PASS LOWER UNIT(4500)
11	1178	HCNS 3/8-16NC X 1 3/4
12	1274	LOCKNUT 3/8-16NC
13	A25985	ADAPTOR 14" SQ. TO 10 3/4 X 12 1/2 SQ.(4500) (2)



KEY NO.	PART NO.	DESCRIPTION
1	23936	FLAP
2	1326	1/4-20NC X 3/4 WING SCREW
3	23928	UPPER SCREEN HOLD DOWN
4	24306	7/32 UPPER SCREEN - CORN
5	24309	5/32 UPPER SCREEN - SOYBEAN
6	24313	7/64 UPPER SCREEN - WHEAT
7	1217	1/4-20NC X 1 CARRIAGE BOLT
8	23937	WEATHER SEAL
9	24307	7/32 LOWER SCREEN - CORN
10	24310	5/32 LOWER SCREEN - SOYBEAN
11	24314	7/64 LOWER SCREEN - WHEAT
12	1175	3/8-16NC X 1 CAP SCREW
13	23931	CLEANER LEG
14	1251	1/4-20NC X 1 WING SCREW
15	23929	LOWER SCREEN HOLD DOWN
16	23933	LEG RAIL
17	A23926	GRAIN CLEANER
18	23935	COVER PLATE
19	21872	WING NUT
20	A23927	COVER
21	23934	SCREEN STRAP
22	23930	COVER CLAMP
23	23932	STRAP

FOAM SEALING TAPE NOT SHOWN P/N 14444

GRAIN CLEANER PLATFORM ASSEMBLY



KEY NO.	PART NO.	DESCRIPTION
1	24766	RAIL X 76-3/4"
2	23676	RAILING SUPPORT
3	A24742	WALKWAY 22" X 54-3/4"
4	24776	TOE BOARD X 76-3/4"
5	24771	RAIL X 98-3/4"
6	24778	TOE BOARD X 98-3/4"
7	A24740	WALKWAY 22" X 98-3/4"
8	24764	PLATFORM SUPPORT ANGLE X 96-1/2"
9	24775	TOE BOARD X 54-3/4"
10	24770	RAIL X 96-1/2"
11	A24741	WALKWAY 22" X 54-3/4"
12	1175	3/8-16NC X 1 CAP SCREW
13	24777	TOE BOARD X 96-1/2"
14	1174	3/8-16NC X 3/4 CAP SCREW
15	24765	RAILING SUPPORT (12 HOLES)
16	23519	CAGE BRACKET
17	A24743	WALKWAY 19-3/4" X 36"
18	A23626	LANDING CAGE
19	A23524	BOLT
20	24774	TOE BOARD X 14"
21	24772	TOE BOARD X 19-3/4"
22	24762	SPACER BLOCK
23	24763	PLATFORM SUPPORT ANGLE X 76-3/4"
24	24768	RAIL X 19-3/4"
25	24773	TOE BOARD X 20-1/4"
26	24767	HOCK-UP RAIL X 24"
27	24769	RAIL X 20-3/4"
28	1176	3/8-16NC X 1-1/4 CAP SCREW

GRAIN CLEANER ASSEMBLY

PAGE: 24



Elevator Trouble Shooting

PROBLEM	CAUSE	SOLUTION
Down legging	belt loose	tighten take up or shorten belt when necessary
	improper head shaft speed	see (pg.61) for correct speed
	bent cups	replace or straighten; find out reason for being bent
	obstruction in head discharge, distributor or spouting	visually inspect and remove obstruction or repair
	spouting size too small	see (pg.66) for correct size
	spouting too flat	angle to be 45° or steeper for dry material, wet material requires steeper angles
	overfeeding	check screw conveyor output; make adjustments at inlet
	air locked	vent may be needed at the boot or in the head
	convey light material	replace buckets with perforated buckets
	head baffle not adjusted	clearance in the head should be appx. ½" between the cup & baffle at the splice
	wrong style cup	if Plastic cup is used a Dura Buket on 14" & 16" pulley is satisfactory
	overloading	check loading capacity
	wrong head shaft speed	correct sheaves, check motor speeds (drives calculated on motor speeds of 1750 RPM)
Cups not full	under feeding	check conveyor output
	Boot pulley too high	pulley should operate low in the boot section to be fully loaded
Caking on cups	material wet or powder type	material too wet
Noise in up-leg	cups fully loaded	system okay. Full cup will pump grain up an elevator for several feet. The noise is material rolling off
Belt runs to one side	out of plumb	re-check and align
	legging bent due to stress	repair or replace bent section
	lagging on pulley worn	replace with new lagging kit
	bearings on head uneven	shim lower side until belt centers or shift one head bearing for. or rev. within bearing slots
	head pulley has no crown	replace pulley
	bearing worn	defective bearing head or boot; needs replaced
	pulley build up with material	clean pulleys or use slatted pulley on boot
	boot pulley out of adjustment	move take-up rods to center
Bent cups	belt loose	check boot tension or replace belt
	leg bowed and catching	re-plumb
	obstruction within leg	repair or remove
	too large for casing	replace with proper size
	belt not running smooth	may require special splice, not just a lap splice
Build up on boot pulley	powder or sticky material	slatted boot pulley required
Low capacity	boot pulley high	lower pulley in boot to insure full loading of cups
	air lock	venting of bins you are loading or venting on elevator head or boot
	spouting too small or too flat	check recommendations for sizing
	not feeding enough	check to insure you are getting the required material to the elevator. Timing by visual checks is not good enough
	belt loose	check for slippage; make sure belt is snug. Check head pulley lagging and replace if damaged
	wrong style cup	use only V cup or Dura Buket on 14" or 16" head pulley. Under certain circumstances, Rd. bottom cup will cut capacity
	obstruction in boot or head	remove and replace damaged cups
	feeding boot in wrong location	check recommendations enclosed
	wrong head RPM	check enclosed specifications for YOUR elevator
	cups caked or bent	visually inspect. clean or replace damaged cups



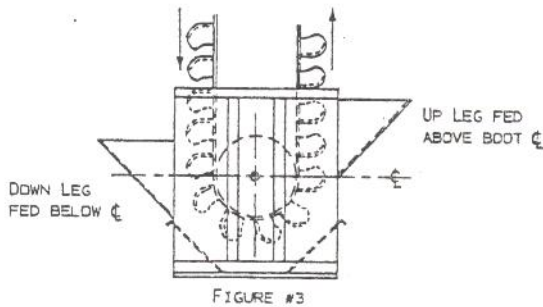
Pit Screw Conveyor Trouble Shooting

PROBLEM	CAUSE	SOLUTION
No capacity	improper speed	consult factory recommended speeds
	improper feeding	loading auger on the wrong side
	not enough material	adjust hopper baffles
	inclined conveyor	more horsepower & RPM needed
	wet material	high moisture material requires more horsepower
Material damage	too fast RPM	slow down or replace with larger conveyor unit
	not loaded	¼ full screw will damage more grain than when fully loaded
Motor won't start	screw fully loaded	don't stop when loaded, especially with wet material
	screw plugged	obstruction in U trough
Lid hooves up and breaks bolts	dump hopper installed wrong	consult factory
	over-loading	hip roof cover installed in place of flat cover

- FEED IN-EQUIPMENT -

THIS BUCKET ELEVATOR IS VERY VERSATILE IN THE MANY WAYS IT CAN BE FED. PROPER FEEDING IS THE ONE MAIN CONCERN IN MAKING SURE THE ELEVATOR OPERATES AT FULL CAPACITY. IT CAN BE FED ON EITHER THE UP OR DOWN LEG SIDE. (UP LEG OR DOWN LEG REFERS TO THE DIRECTION OF CUP TRAVEL) WITH THE STANDARD HOPPER, WHICH COMES WITH THE BOOT SECTION, THERE ARE TWO MOUNTINGS, HIGH AND LOW, ON EITHER SIDE OF THE BOOT. FOR UP LEG FEEDING, THE HOPPER SHOULD BE IN THE HIGH POSITION; AND FOR DOWN LEG FEEDING, THE HOPPER SHOULD BE IN THE LOW POSITION. THE LARGE DUMP HOPPER SHOULD BE USED FOR DOWN LEG FEEDING ONLY.

THE FEEDING OF THE ELEVATOR WITH AN AUGER DOES NOT PRESENT ANY PARTICULAR PROBLEMS AS FAR AS PLACEMENT ON THE BOOT.

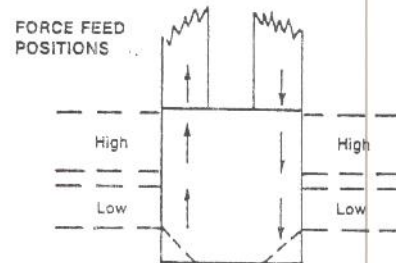


HOPPER AND FEEDING POSITIONS FOR SCREW CONVEYORS

Force Feed

When force feeding the elevator, the screw conveyor may enter the up or down leg of the elevator in either the high or low position.

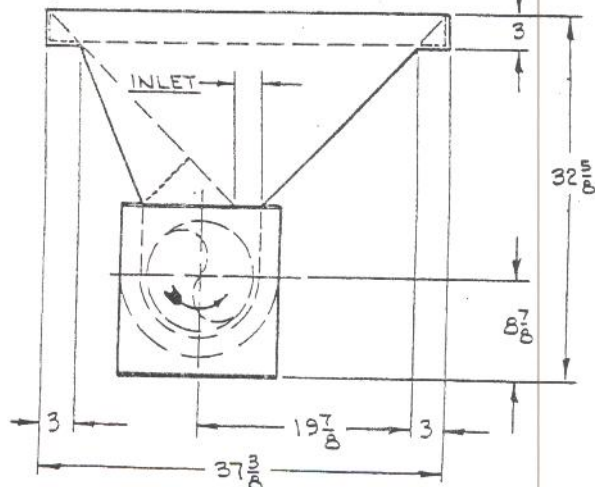
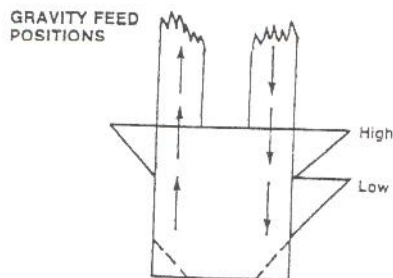
The boot pulley must be in a low position in order to insure that the cups are fully loaded. If the pulley is too high, the cups cannot completely fill.



Gravity Feed

When gravity feeding the elevator, the screw conveyor should enter either:

1. Up or Down leg in high position.
2. Down leg only in low position.





Grain Distributor Trouble Shooting

PROBLEM	CAUSE	SOLUTION
Turnhead won't lock in outlet	controls on a bind, turnhead worn, inlet collar worn, outlet liner worn	make sure cables are in line w/tackle pulleys mounted on elevator leg when the turnhead spout is lifted in the turning position. Replace worn parts.
	spouting on outlet pulled	remove spout, straighten the outlet and reinstall with elbows
	pipe binding in bottom dist. case	cable controls installed improperly
Unable to change from hole to hole	case full of grain	clean and inspect for wear in turnhead or inlet collar
	turnhead spout frozen in outlet	remove service door or bottom and thaw
	cable controls binding	install tackle pulleys with cable wheel in up position
Excessive water build up inside dist. case	condensation from dryer or drying bin	install backdraft damper in that spout
Chaff and dirt build up	airflow from bins	install better venting in storage bin

Erection Check List

- ___ Boot firm and level (shim if necessary)
- ___ Determine location of inspection door
- ___ Align sections and caulk
- ___ Remove head cover, leave on ground
- ___ Check set screws in head pulley
- ___ Install gear reducer, secure
- ___ Add oil to required level (check instruction sheet)
- ___ Install motor
- ___ Leave off drive belts to check rotation
- ___ Head adapter straight side forward
- ___ Bolt cleaner and by-pass assembly if required
- ___ Install cleaner platform if applicable
- ___ Bolt valve or grain distributor in place
- ___ Locate platforms (std. or OSHA)
- ___ Install ladder
- ___ Install safety cage
- ___ Erect legging, guy as you go
- ___ Attach spouting w/trussing
- ___ Install belt and cups
- ___ Tighten belt with pulley operating low in the boot
- ___ Check rotation of motor
- ___ Install B belts
- ___ Run elevator without a load
- ___ Adjust boot takeup so belt runs in center of pulleys
- ___ Adjust the head discharge or throat baffle to clear the cups, at lap splice, by 1/2 of an inch
- ___ Check valve or distributor location to be sure of material flow

