

**MODEL 3000 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: _____

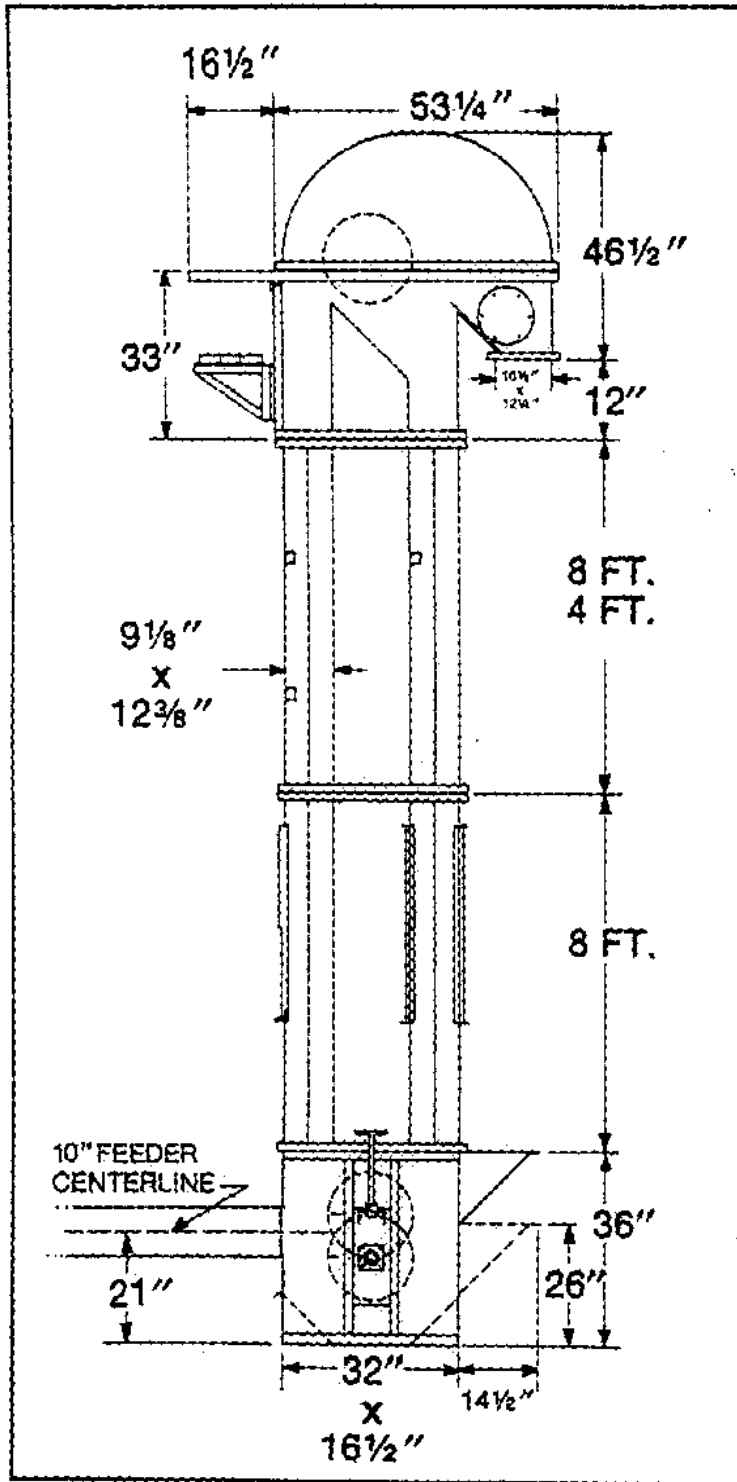
City, State Zip: _____

PLACE
POSTAGE
HERE

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



Engineering Specifications



Model 3000

Maximum height	.....	132 ft.
Capacities*	.....	1000, 1500, 2000, 2500, 3000 bushels per hour
Bucket spacing	.....	12" on 1000 bph, 8" on 1500, 2000 and 2500 bph, 6" on 3000 bph
Bucket size	.....	9" x 5"
Belt speed	.....	329 ft/min for 1000 and 1500 bph, 388 ft/min for 2000 bph, 448 ft/min for 2500 and 3000 bph
Belt width	.....	10"
Belt	.....	1/4" PVC belting standard
Belt adjustment	.....	6"
Belt splice	.....	lap type
Head pulley	.....	18" dia. rubber lagged
Head material	.....	12 ga.
Boot material	.....	12 ga.
Legging material	.....	12 ga. on 8 ft. Access and 8 ft. Upper Leg Sections 14 ga. on all other Leg Sections
Head shaft	.....	1 1/8", 2 1/8" over 100 ft.
Jack shaft	.....	1 3/8"
Boot shaft	.....	1 1/4"

Installation dimensions...

Space required for boot	.....	18" x 35"
Space required for head	.....	28" x 70"
Space required for legging	.....	16" x 38"
Standard boot hopper	.....	13" projection x 12 1/4" wide
Hopper height on "Up" leg	.....	36"
Hopper height on "Down" leg	.....	36" or 28"

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 90% filled. Right angle feed-in and high moisture content lowers the capacity of this siewator.

- 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.



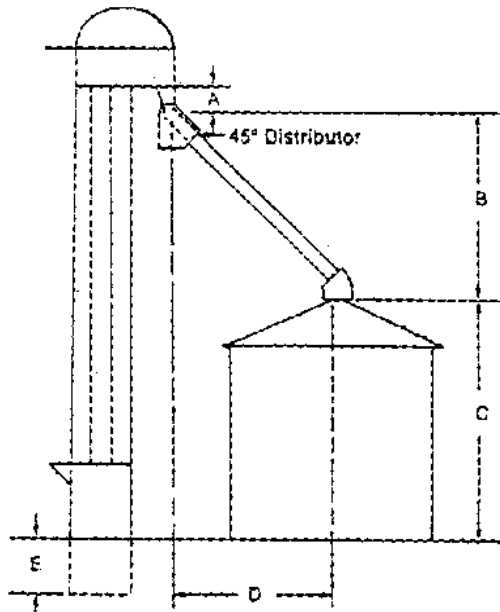
7. ONLY PERSONAL CARE AND COMMON SENSE CAN PREVENT FALLS.



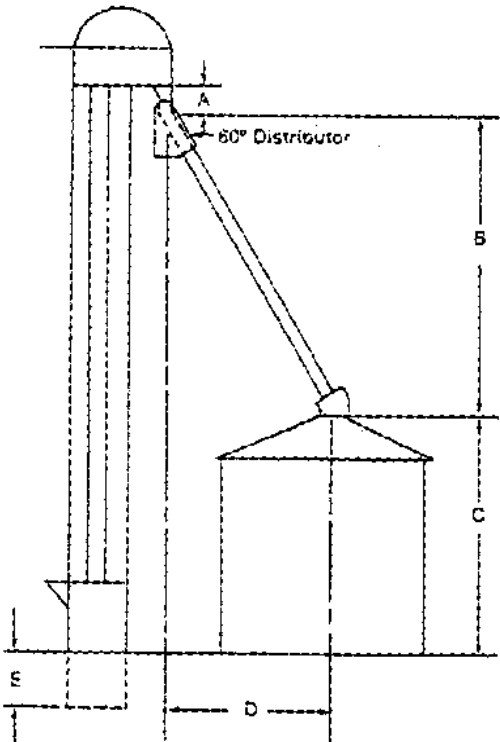
8. DO NOT CLIMB ON ANY PART OF THE UNIT EXCEPT THOSE PLACES MEANT FOR CLIMBING, I.E. LADDERS AND PLATFORM AREAS.



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



DRY GRAIN PROCEDURE



WET GRAIN PROCEDURE

I. Determining The Height

Planning for future expansion is very important if proper heights are determined at the time of the initial installation; often time and expense can be saved at a future date.

A. LOCATION

1. Locate the Bucket Elevator in relation to the farthest bin "D".

B. DRY GRAIN PROCEDURE

For dry grain, the angle of 45° minimum is recommended.

1. Distance D is the same length as distance B.
2. Distance A is approx. 18" on all bucket elevators.
3. Sample problem -
D distance is 40', C bin height is 35', A is always 18", E pit depth -4'
Add: D (40') + B (40' - same as D) + C (35') + E (4') = Elev. height 120'6"

*Additional height required for Cleaner w/By-Pass. Check table.

C. WET GRAIN PROCEDURE

For wet grain the angle of 60° is the minimum recommended.

1. Distance D is multiplied by 1.73 to determine distance B.
2. Distance A is approx. 18".
3. Sample problem -
D distance if 40', C bin height is 35'
A is always 18", E pit depth -4'
Add: D (40') + B (D × 1.73 = 69') + C (35') + A (18") + E (4') = Elevator height - 149'6"

*Additional height required for Cleaner w/By-Pass. Check table.

*For cleaner w/by-pass assembly, add on to Discharge height: 12'

- 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)

- 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 (SEE FIGURE #4 AND #5).

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. SEE FIGURE #6 FOR ASSEMBLY OF THE ACCESS SECTION.

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. SEE FIGURE #7.

ASSEMBLE ANY LANDING OR REST PLATFORMS THAT IS REQUIRED TO THE LEG SECTIONS. SEE FIGURE #8.

ASSEMBLE THE DISTRIBUTOR PLATFORM IN THE DESIRED POSITION. SEE FIGURE #9 OR 9A.

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 #10A, 10B OR 10C) 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. SEE FIGURE 11A OR 11B.

ASSEMBLE THE DISTRIBUTOR HEAD AND HEAD DISCHARGE ADAPTOR TO THE HEAD, SEE FIGURE #12. IF GRAIN CLEANER BY-PASS IS USED, REFER TO FIGURE #13.

IF A GRAIN CLEANER IS USED, COMPLETELY ASSEMBLE THE GRAIN CLEANER AND IT'S PLATFORM AT THIS TIME. SEE FIGURES #14 AND 15A OR 15B.

ASSEMBLE THE SPOUTS ON A LEVEL SURFACE AND ASSEMBLE THE TRUSS SUPPORTS. SEE FIGURE 16 OR 17.

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 AND BOOT SECTION TO PRODUCE YOUR REQUIRED HEIGHT. THE HEAD STYLE YOU DESIRE MUST BE ORDERED SEPERATELY. 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.

	<u>HEIGHT</u>	
BOOT SECTION	3 FT.	
ACCESS LEG. SECTION	8 FT.	
STD. LEG SECTION	8 FT.	
UPPER LEG SECTION	8 FT.	SEE FIGURE #1
ALL HEAD SECTIONS	1 FT.	
4 FT. LEG SECTIONS (IF REQUIRED)	4 FT.	

- 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.

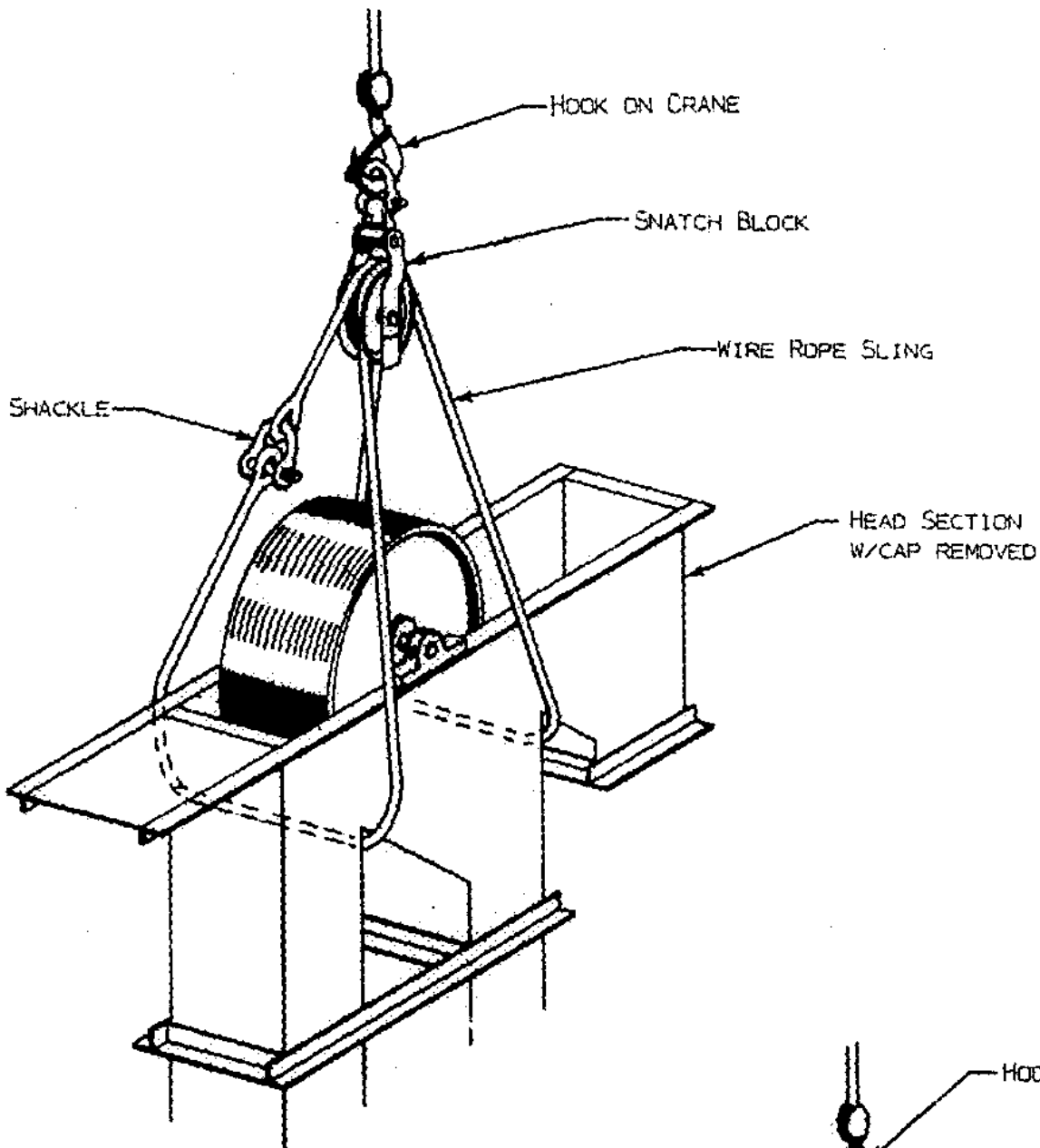
THE MOST EFFECTIVE WAY TO LIFT THE ELEVATOR SECTIONS IS BY USING A CRANE WITH AT LEAST 12 FEET MORE REACH THAN THE DISCHARGE HEIGHT OF THE ERECTED ELEVATOR. A SNATCH BLOCK ARRANGEMENT USING THREE CHOKER CABLES AND TWO SHACKLES SHOULD BE USED. SEE FIGURES AND ON ATTACHING THE CRANE TO THE LEG SECTIONS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

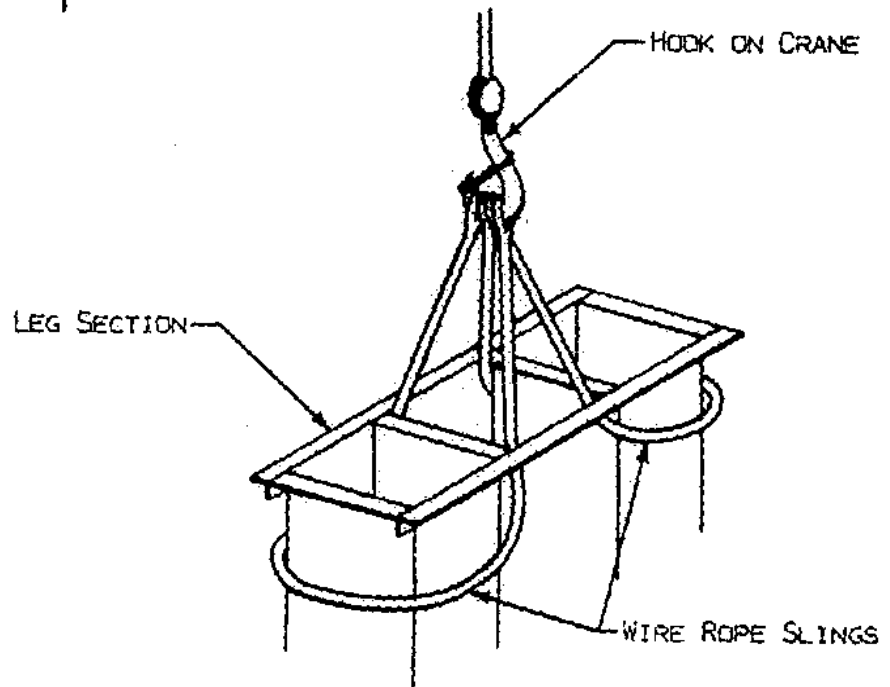
AS EACH SECTION IS "STACKED" ON THE PREVIOUS SECTION BE SURE THE GUY CABLES ARE ALL SECURED TO THE GROUND GUY POINTS BEFORE THE CRANE HOOK IS RELEASED.

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 10" WIDE RUNNING IN A 12" 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

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.



FIGURE



FIGURE

LIFTING INSTRUCTION DIAGRAM

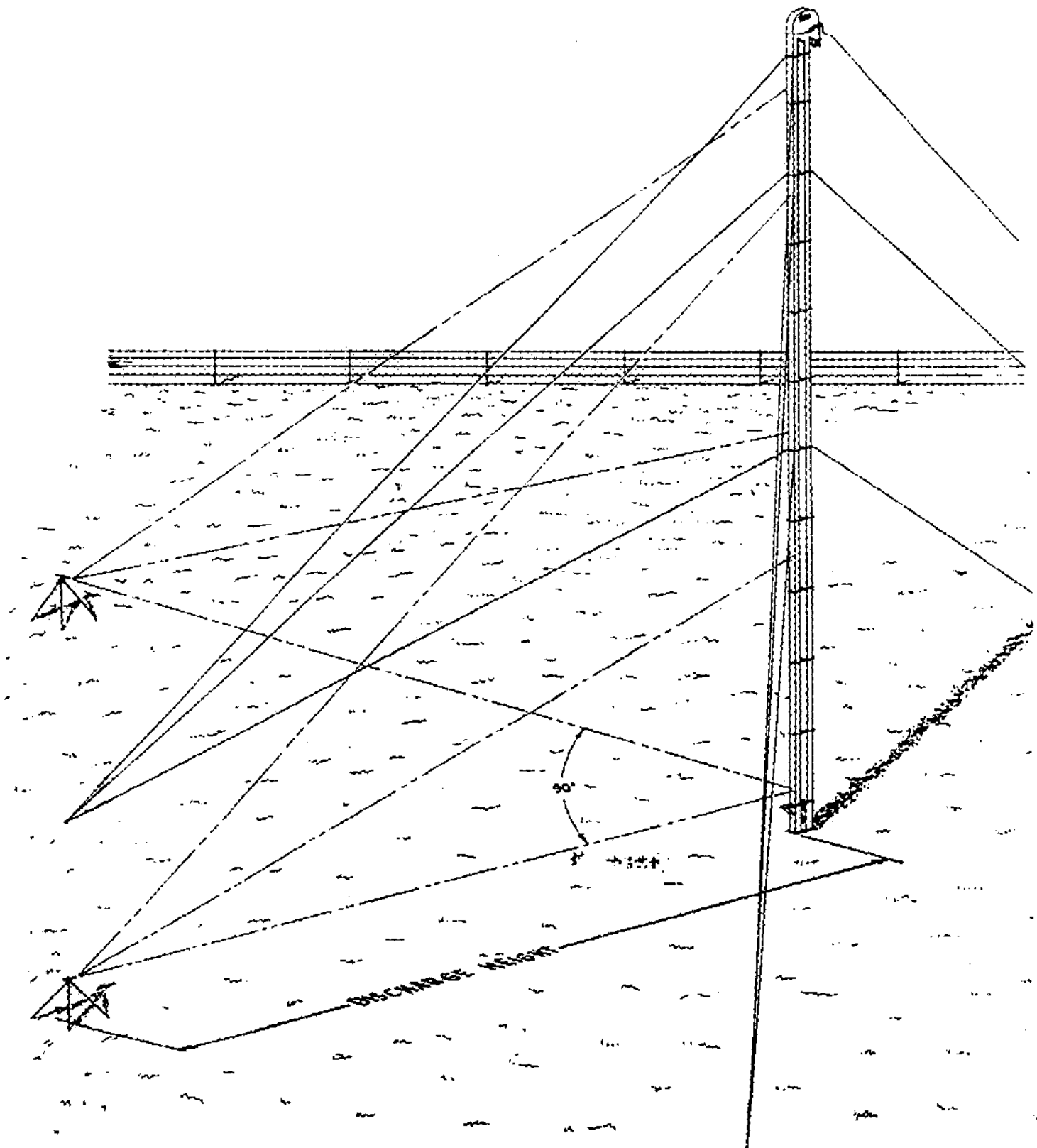
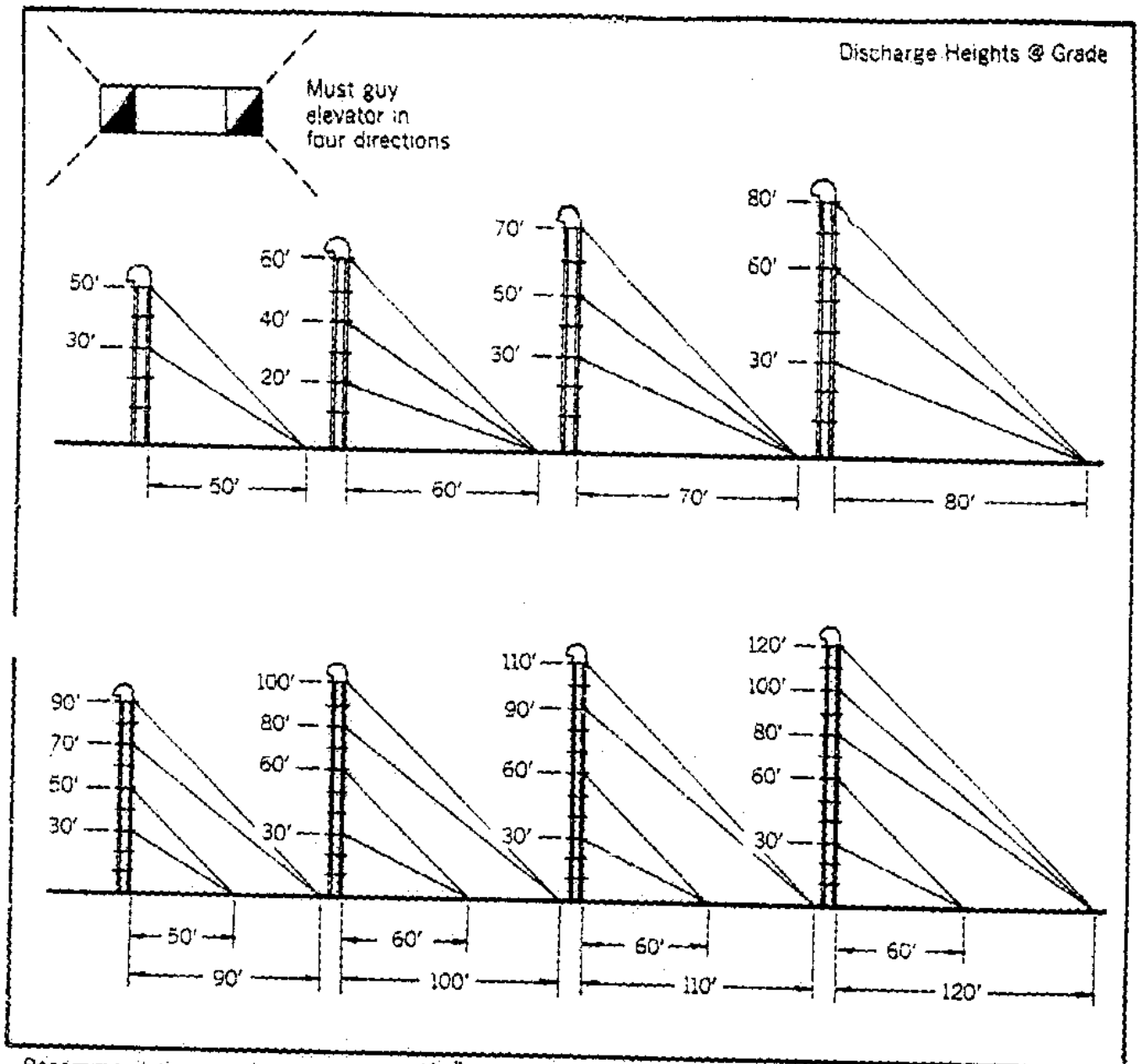
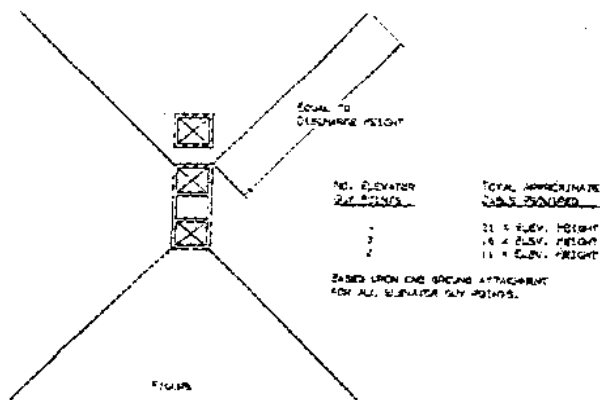


FIGURE
TRANSIT PLUMBING



Recommendations are based on using $5/16"$ 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'
$5/16"$ Cable Clamp	48	72	72	72	96	96	56	120
$1/2"$ x6" Turnbuckle	8	12	12	12	16	16	16	20

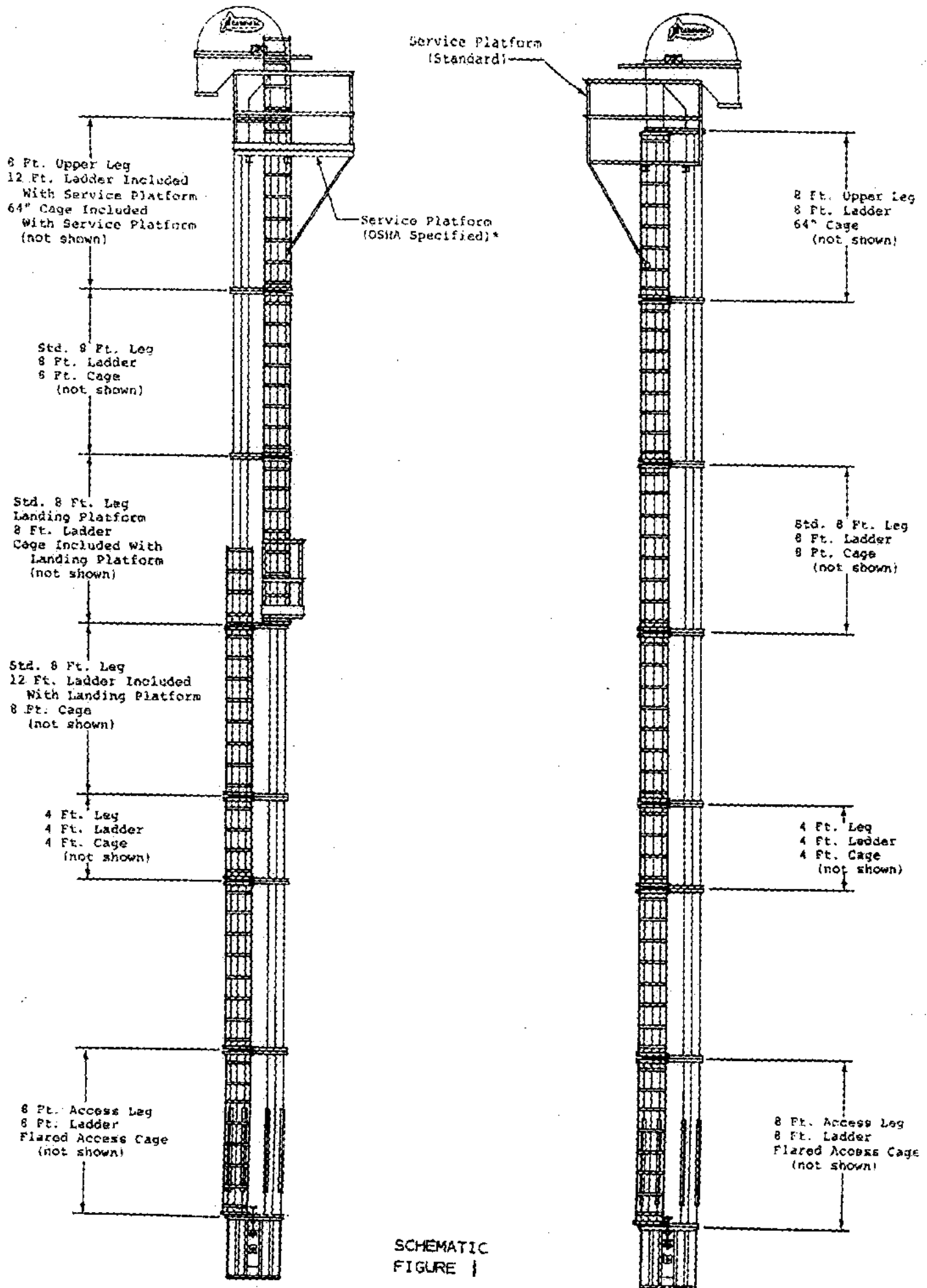


- GUYING EQUIPMENT -

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.



SCHMATIC
FIGURE 1

- 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 -

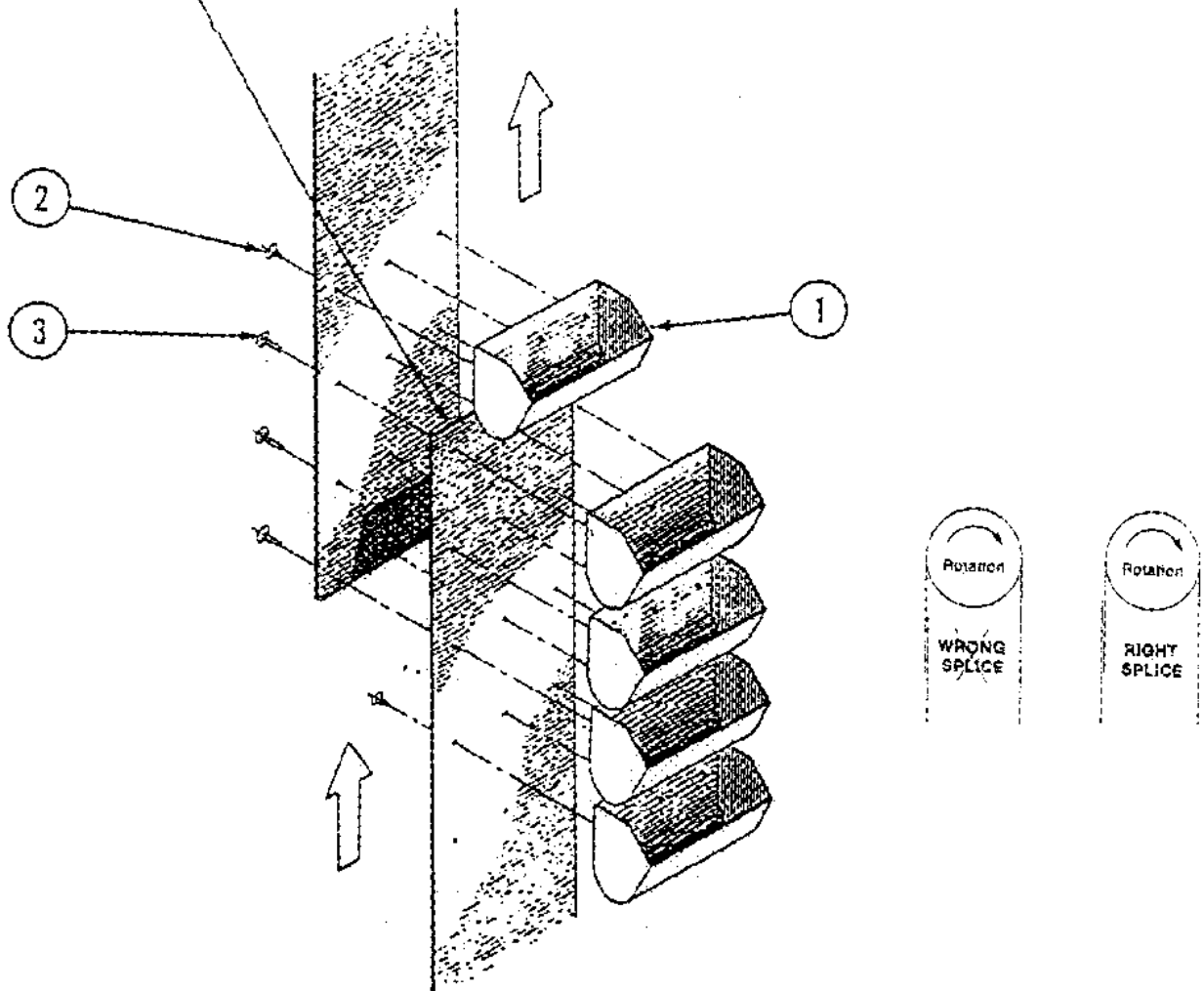
WITH ALL OF THE DRIVE COMPONENTS INSTALLED AND THE UNIT CHECKED OUT, THE ELEVATOR IS READY FOR AN OPERATIONAL CHECK. WITH THE HEAD CAP OFF, START THE ELEVATOR AND CHECK THE BELT FOR TRACKING ON THE HEAD PULLEY. SHIM THE BEARINGS AS NEEDED TO CENTER THE BELT. INSTALL THE HEAD CAP. BE CAREFUL OF FLYING 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, DON'T HAVE MORE THAN $\frac{1}{2}$ " OF RUBBER EXTENDED PAST METAL PLATE! FIG. 10B.

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.

LEADING EDGE OF BELT TO
BE ON CUP SIDE OF SPLICE



KEY NO.	PART NO.	DESCRIPTION
1	23586	9 x 5 Plastic Cup
2	1461	1/4-20NC x 1 Elevator Bolt
3	1462	1/4-20NC x 1 1/2 Elevator Bolt (at Splice only)

* CUPS - EACH CUP USES 3 ELEVATOR BOLTS. ALL OF THESE BOLTS, EXCEPT FOR THE BELT SPLICE BOLTS, ARE 1/4-20NC x 1" FLAT HEAD ELEVATOR BOLTS. THE SPLICE BOLTS ARE 1/4-20NC x 1 1/2" FLAT HEAD ELEVATOR BOLTS. THE SPLICE REQUIREMENT IS AS FOLLOWS:

1000	BU/HR	18 BOLTS
1500-2500	BU/HR	21 BOLTS
3000	BU/HR	27 BOLTS

FIGURE 20

BELT SPLICE ASSEMBLY

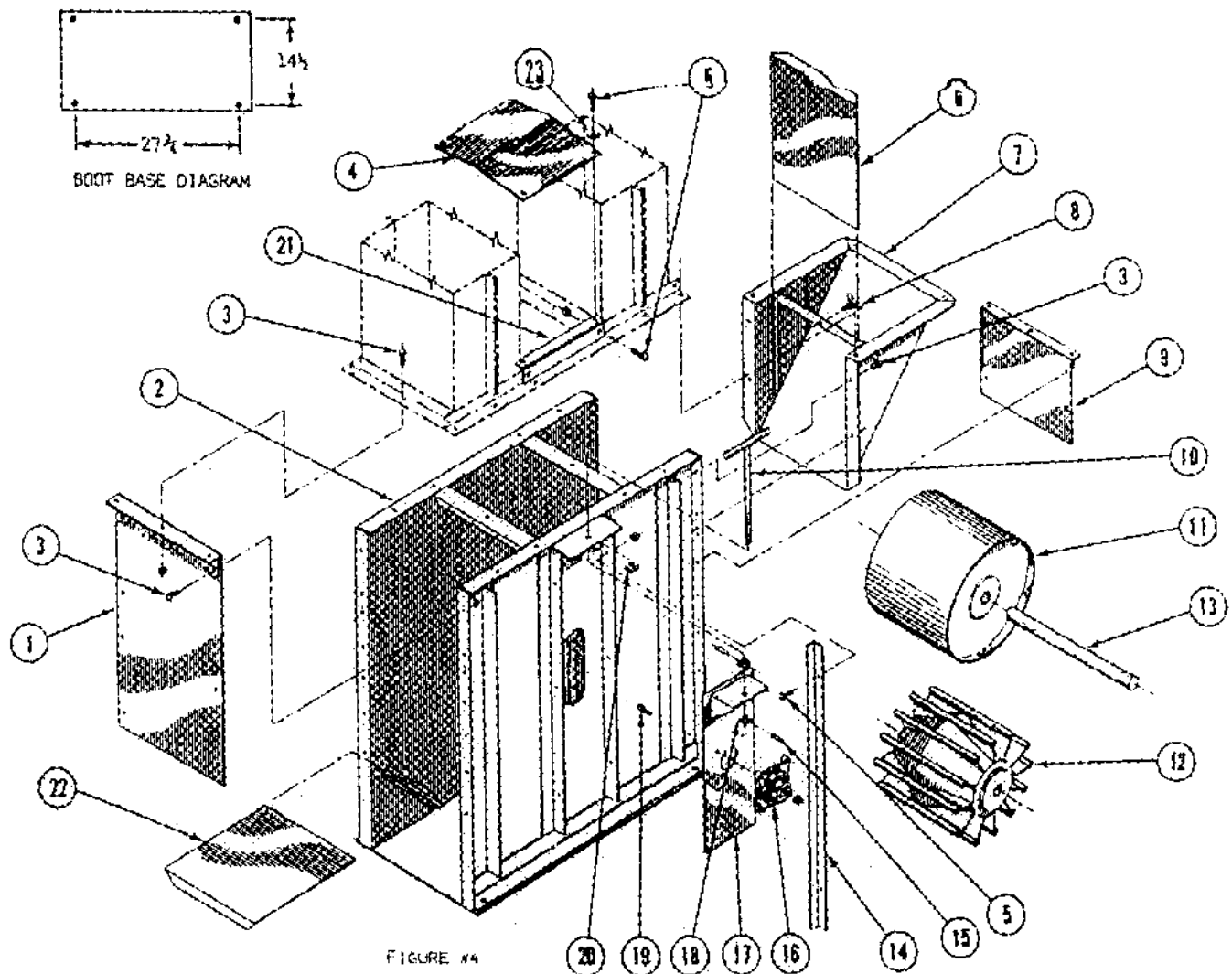
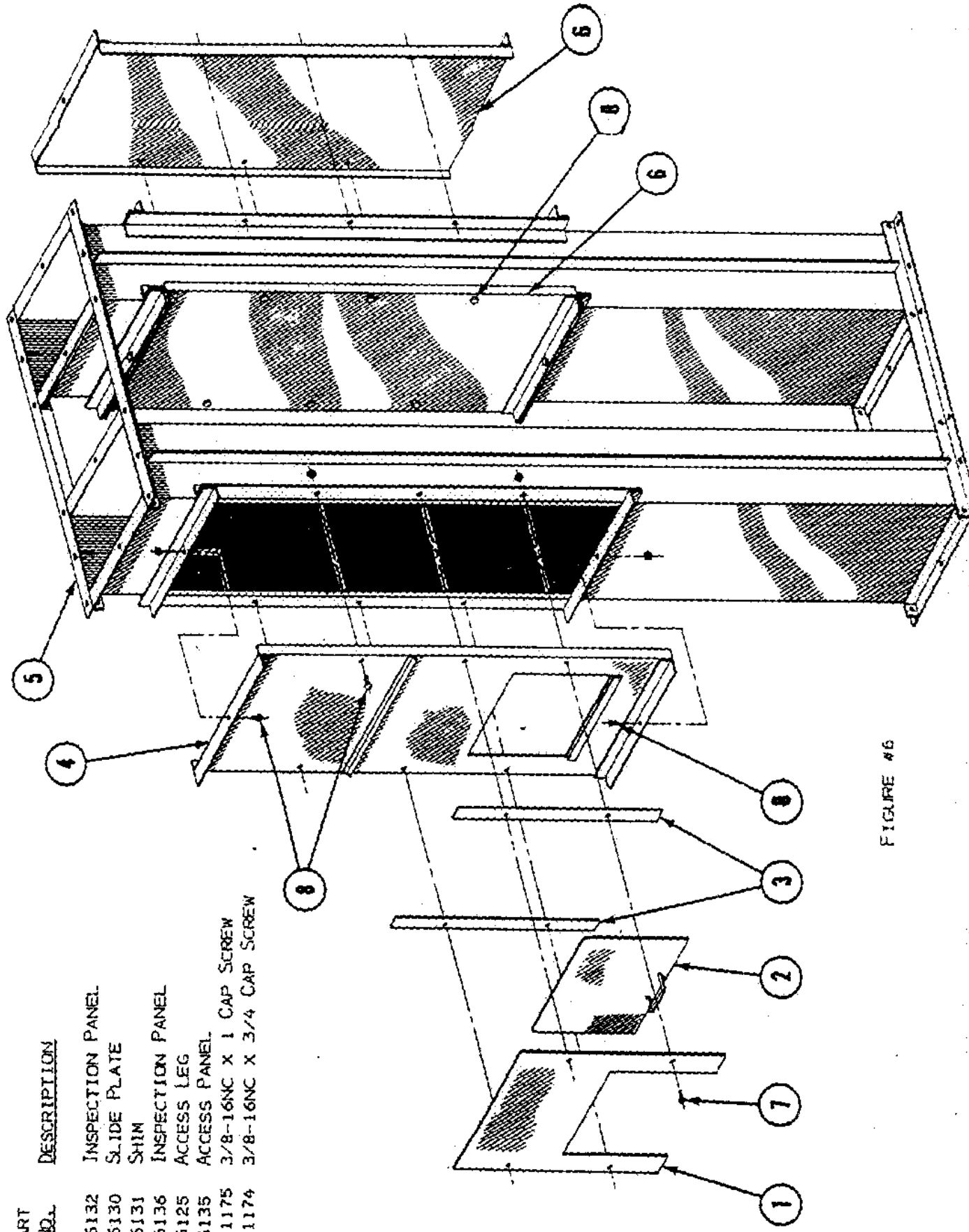


FIGURE #4

BOOT ASSEMBLY
PARTS LIST FIGURE #4

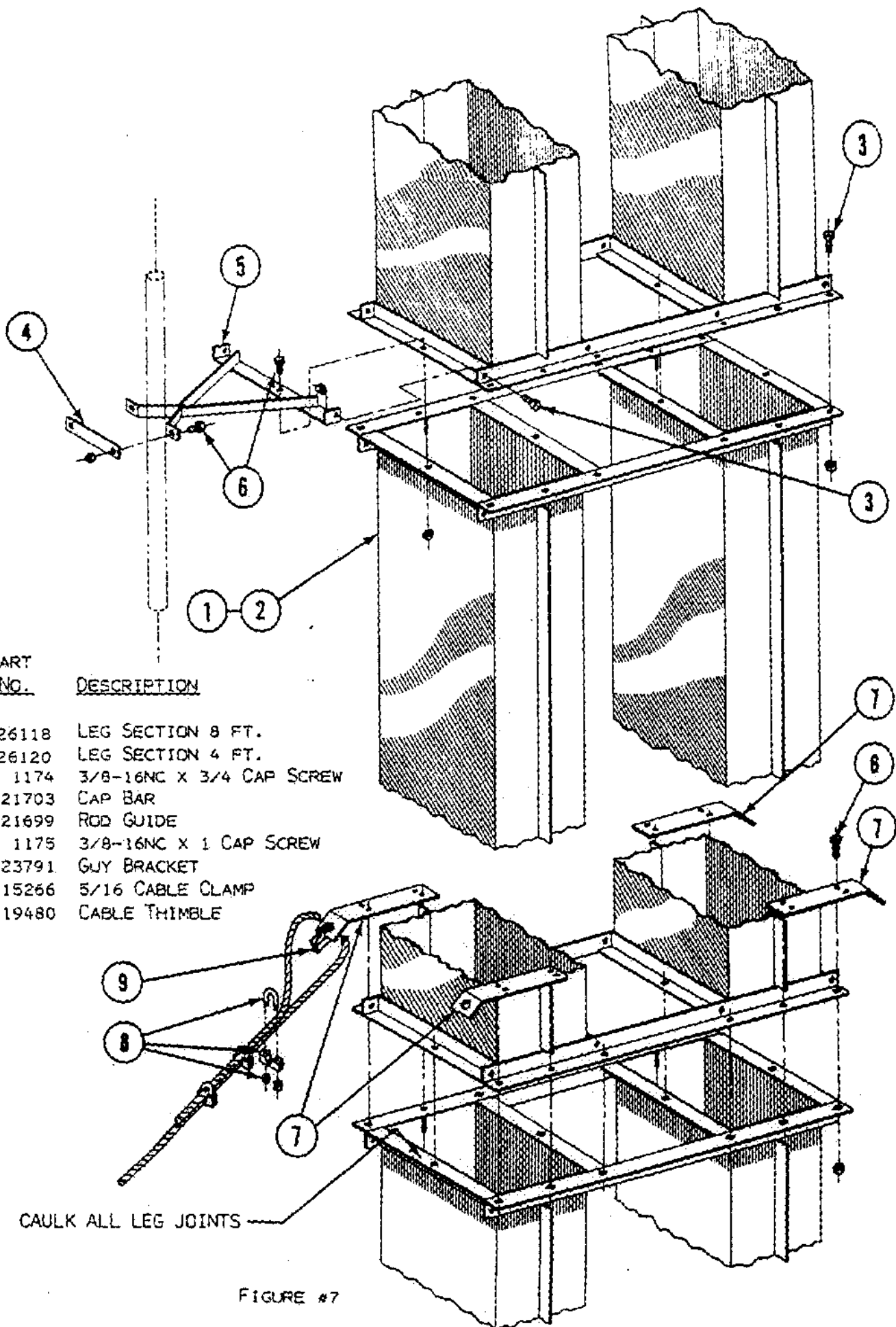
KEY No.	PART NO.	DESCRIPTION
1	A26151	END PLATE, LONG
2	A26148	BOOT SECTION
3	1174	3/8-16NC X 3/4 CAP SCREW
4	26159	BOOT CENTER COVER
5	1195	5/16-18NC X 3/4 CAP SCREW
6	21594	SLIDE GATE
7	A21592	HOPPER
8	10137	THUMB SCREW
9	A26155	END PLATE, SHORT
10	A21126	ADJUSTING BOLT
11	A21346	BOOT PULLEY W/BUSHING
12	A21111	BOOT PULLEY SLATTED (OPTIONAL)
13	Z1140	BODY SHAFT
14	26156	SLIDE ANGLE
15	15389	SPRING PIN
16	A21343	BALL BEARING 1-1/4" (COMPLETE)
17	A26150	BEARING PLATE
18	21372	SQUARE NUT W/HOLE
19	1230	3/8-16NC X 1-1/4 FL. HO. MACH. SCREW
20	1263	3/4-10NC REG. SQUARE NUT
21	A23981	COVER BRACKET
22	26157	CLEAN OUT PLATE
23	1293	5/16 FLAT WASHER



KEY NO.	PART NO.	DESCRIPTION
1	26132	INSPECTION PANEL
2	A26130	SLIDE PLATE
3	26131	SHIM
4	A26136	INSPECTION PANEL
5	A26125	ACCESS LEG
6	26135	ACCESS PANEL
7	1175	3/8-16NC X 1 CAP SCREW
8	1174	3/8-16NC X 3/4 CAP SCREW

ACCESS SECTION ASSEMBLY

FIGURE #6



KEY NO.	PART NO.	DESCRIPTION
1	A26118	LEG SECTION 8 FT.
2	A26120	LEG SECTION 4 FT.
3	1174	3/8-16NC X 3/4 CAP SCREW
4	21703	CAP BAR
5	A21699	ROD GUIDE
6	1175	3/8-16NC X 1 CAP SCREW
7	23791	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

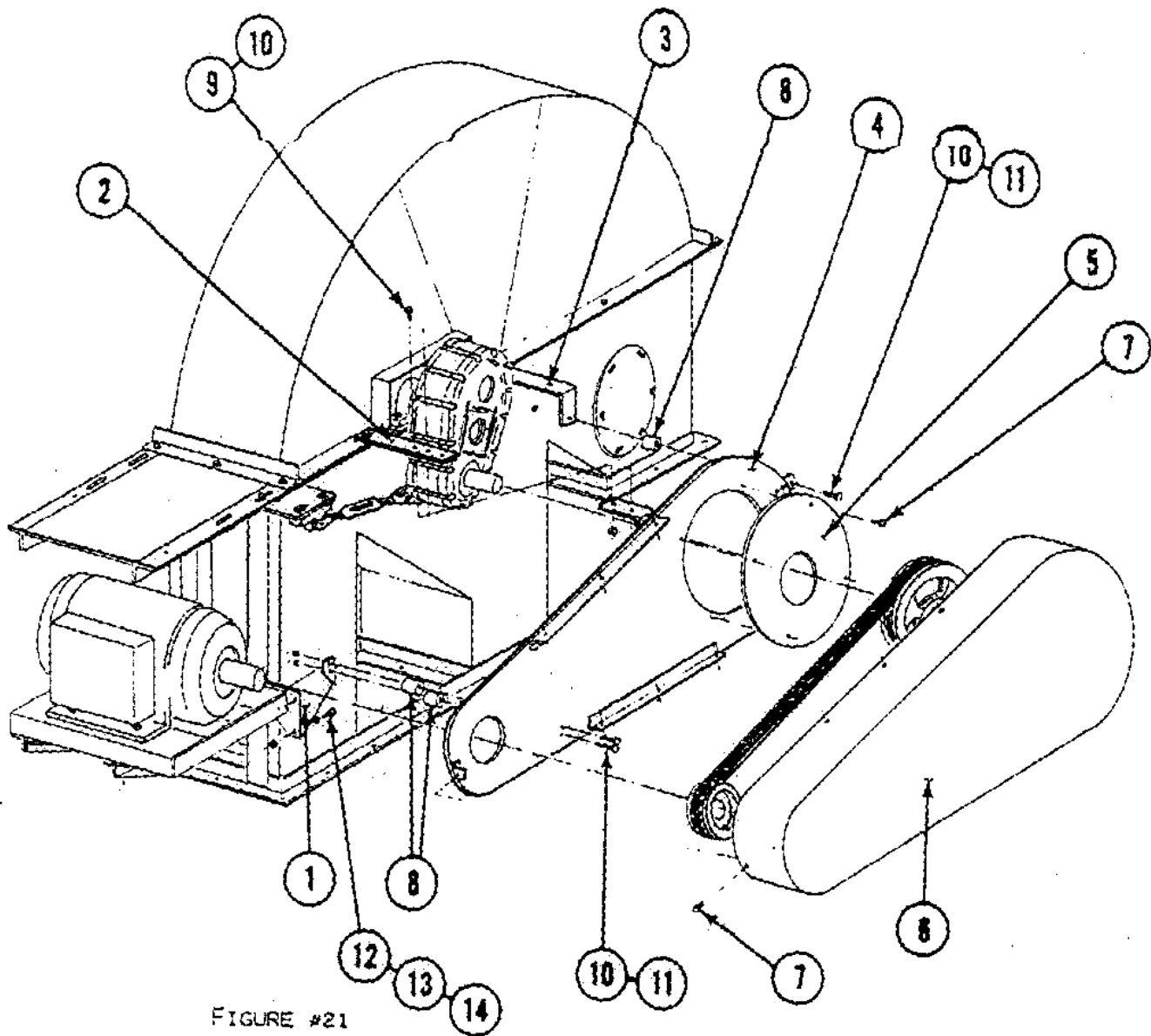
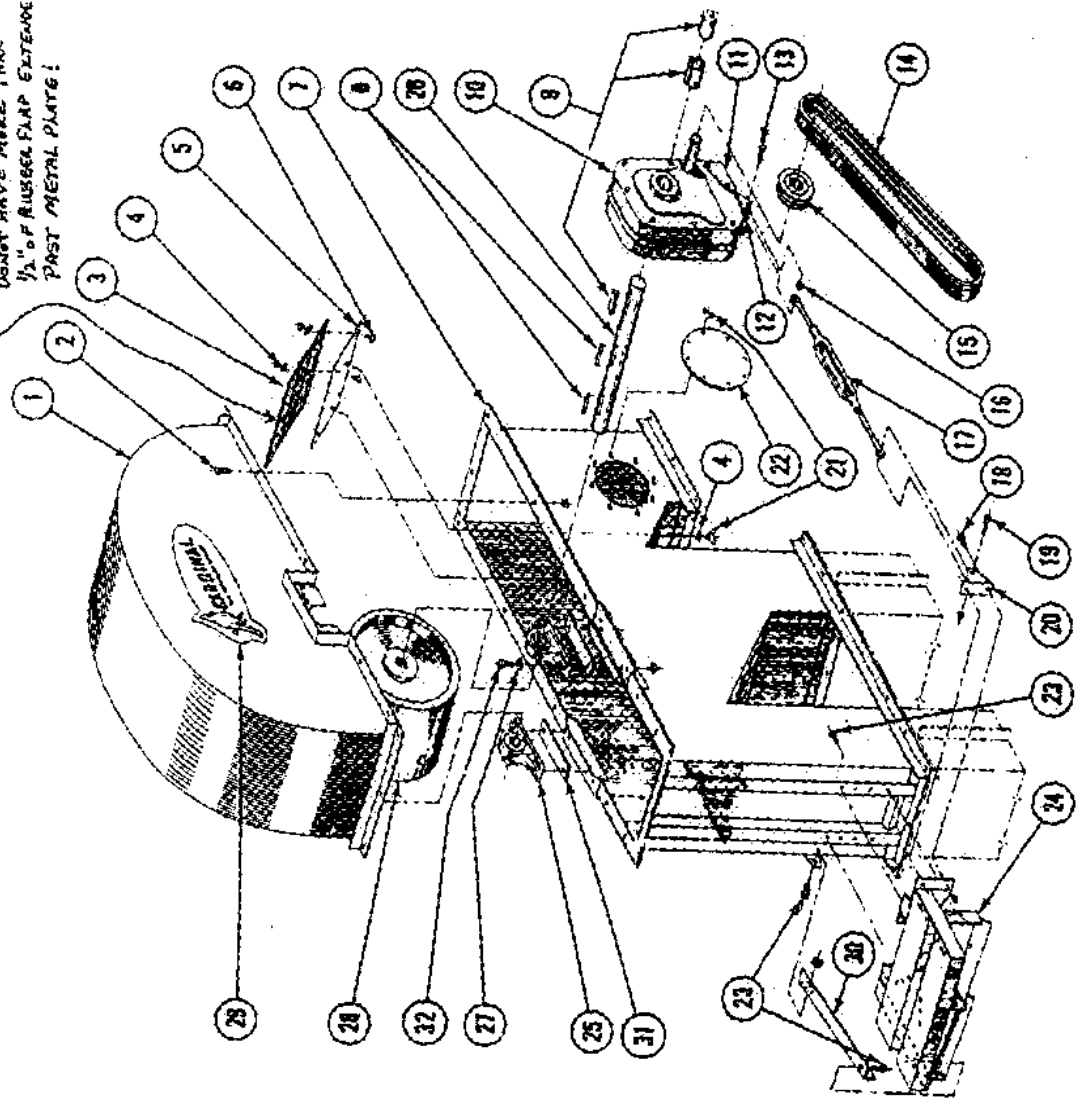


FIGURE #21

KEY NO.	PART NO.	DESCRIPTION
1	24384	MOUNTING BRACKET
2	24383	STANDOFF
3	24382	ANGLE STANDOFF
4	A24380	BACKPLATE
5	24381	COVER PLATE
6	A24379	COVER
7	1319	1/4-20NC X 1/2 H.H. TAP SCREW
8	23445	SPACER
9	1195	5/16-18NC X 3/4 CAP SCREW
10	1273	5/16-18NC LOCKNUT
11	1164	5/16-18NC X 2-1/4 CAP SCREW
12	1175	3/8-16NC X 1" CAP SCREW
13	1274	3/8-16NC LOCKNUT
14	1294	3/8 FLAT WASHER

10 AND 15 HP GEAR REDUCER DRIVE WEATHERGUARD

Ⓢ ADJUST WITHIN $\frac{1}{8}$ " OF GAP AT BELT SPARE LOCATION. DO NOT HAVE MORE THAN $\frac{1}{2}$ " OF RUBBER FLAP EXTEND PAST METAL PLATE!



10HP HEAD SECTION ASSY

PART LIST FIGURE #108

KEY NO.	PART NO.	DESCRIPTION
1	A26160	CAP SECTION
2	1174	3/8-16NC X 3/4 CAP SCREW
3	21176	DISCHARGE FLAP
4	1291	1/4" FLAT WASHER
5	A21174	BACKING PLATE
6	1224	1/4-20NC X 3/4 FLAT HD. ELEV. BOLT
7	A26152	HEAD SECTION
8	21361	SQUARE KEY 3/8 X 2 1/4
9	A25928	BUSHING KIT
10	A25927	GEAR BOX W/D BUSHING
11	26207	TORQUE ARM BRACKET R.H.
12	26206	TORQUE ARM BRACKET L.H.
13		7/16-14NC X 2 CAP SCREW
14	A25933	8PSE V-BELT PAIR
15	A25935	6.9500 V-BELT PULLEY
16	25429	ROD END BUSHING
17	A25430	TORQUE ARM ASSEMBLY
18	1185	7/16-14NC X 1 CAP SCREW
19	1315	5/8-11NC X 2 CAP SCREW
20	25A31	ANCHOR BRACKET
21	21872	1/4-20NC WING NUT
22	21172	COVER PLATE
23	1167	1/2-13NC X 1 CAP SCREW
24	A23696	MOTOR MOUNT
25	A21349	PILLOW BLOCK BALL BEARING 1 11/16
26	25921	HEAD SHAFT
27	1295	1/2 FLAT WASHER
28	A21347	HEAD PULLEY COMPLETE
29	21363	CARDINAL DECAL
30	24323	TIE ANGLE
31	23904	BEARING SHIM
32	1188	1/2-13NC X 2 1/4 CAP SCREW

FIGURE #108

10HP H.D. HEAD SECTION ASSY.

13-HP H.O. HEAD SECTION ASSY.

PARTS LIST FIGURE #10C

KEY NO.	PART NO.	DESCRIPTION
1	A26160	CAP SECTION
2	1174	3/8-18NC X 3/4 CAP SCREW
3	21176	DISCHARGE ELAP
4	1291	1/4" FLAT WASHER
5	A21174	BACKING PLATE
6	1224	1/4-20NC X 3/4 FLAT HD. ELEV. BOLT
7	A26152	HEAD SECTION
8	23895	SQUARE KEY 1/2"
9	23998	BUSHING KIT
10	A23999	GEAR BOX W/O BUSHING
11	25427	TORQUE ARM BRACKET R.H.
12	25428	TORQUE ARM BRACKET L.H.
13		7/16-18NC X 2 CAP SCREW
14	23994	JOINED SECTION V-BELT
15	A23891	V-BELT PULLEY 5V5.3 X 1-7/16
16	25429	ROD END BUSHING
17	A25430	TORQUE ARM ASSEMBLY
18	1185	7/16-18NC X 1 CAP SCREW
19	1315	5/8-11NC X 2 CAP SCREW
20	25431	ANCHOR BRACKET
21	21872	1/4-20NC WING NUT
22	26146	COVER PLATE
23	1187	1/2-13NC X 1 CAP SCREW
24	A23896	MOTOR MOUNT
25	A23990	PELLOW BLOCK BALL BEARING 2-3/16"
26	23668	HEAD SHAFT
27	1342	5/8 FLAT WASHER
28	A23899	HEAD PULLEY COMPLETE
29	21363	CARDINAL DECAL
30	24323	TIE ANGLE

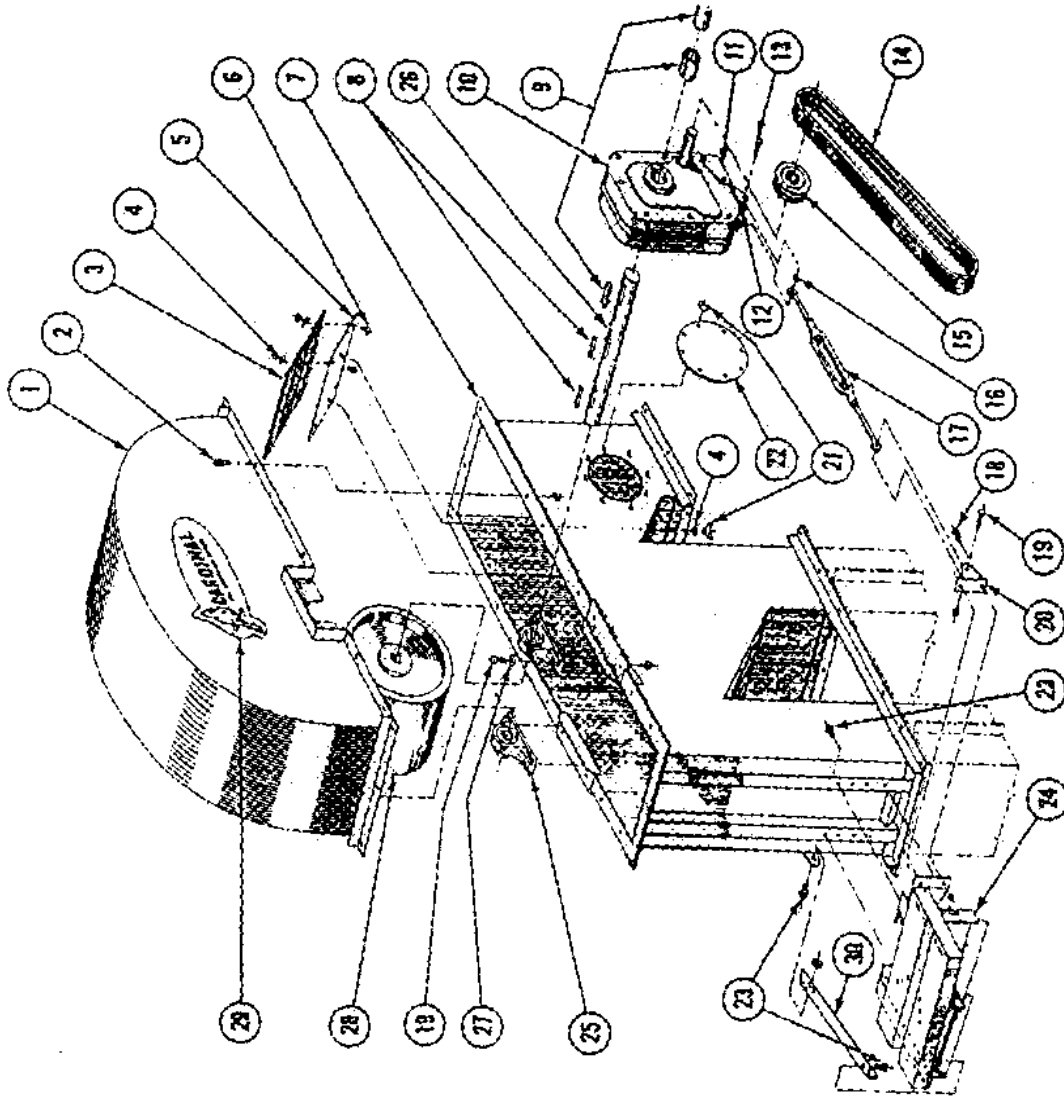
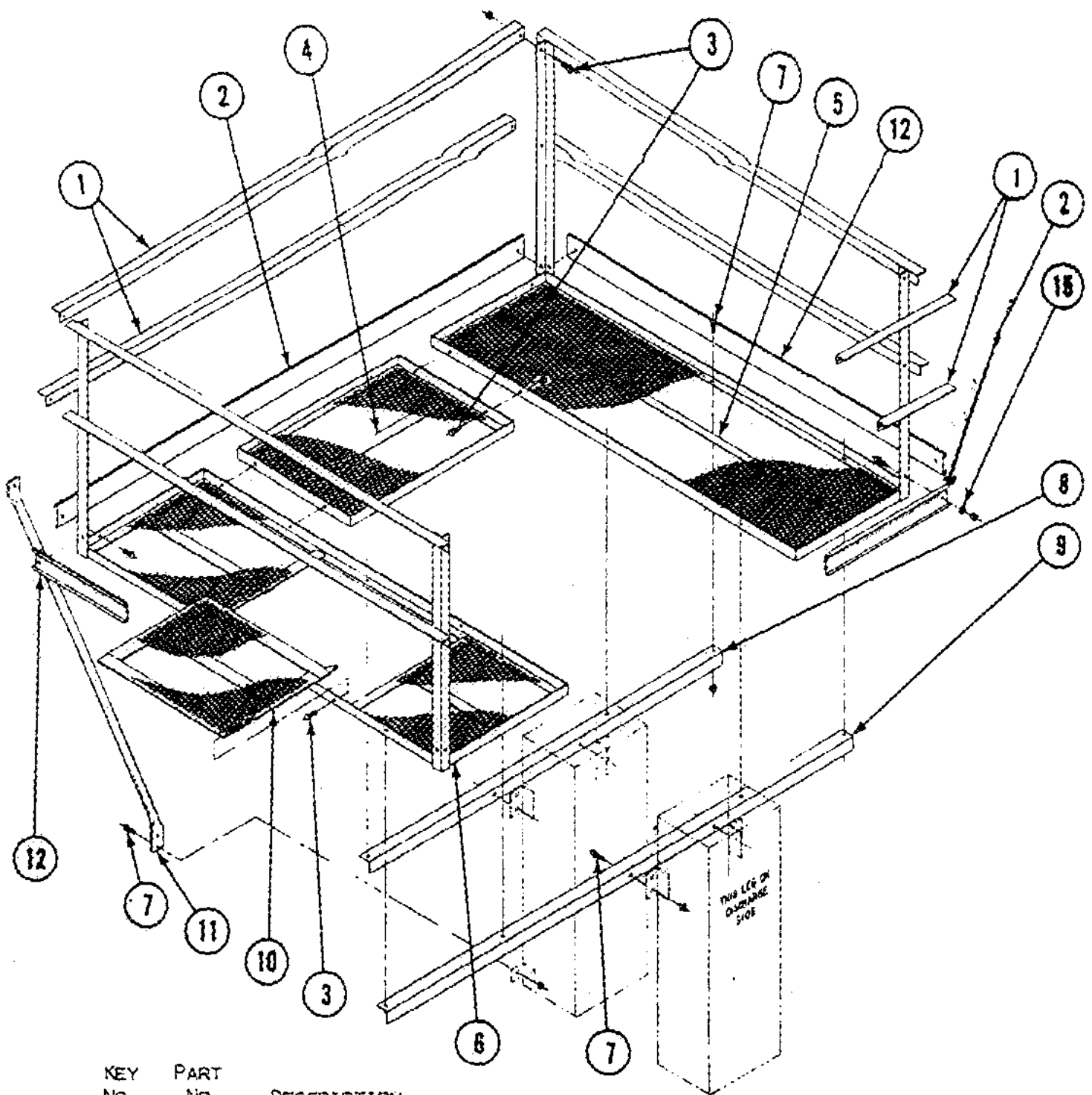


FIGURE #10C

13-HP H.O. HEAD SECTION ASSY.



KEY NO.	PART NO.	DESCRIPTION
1	21930	RAIL
2	23876	TOE BOARD X 67-1/2"
3	1174	3/8-16NC X 3/4 CAP SCREW
4	A21527	PLATFORM, REAR
5	A21512	PLATFORM, LEFT
6	A23868	PLATFORM, ACCESS.
7	1175	3/8-16NC X 1 CAP SCREW
8	23878	PLATFORM SUPPORT 49-7/8"
9	23530	PLATFORM SUPPORT 67-3/4"
10	A21532	DOOR
11	23532	SUPPORT PIPE
12	23872	TOE BOARD X 63"
15	1321	3/8 FLAT WASHER

FIGURE 11B'

STANDARD SERVICE PLATFORM ASSEMBLY

KEY NO.	PART NO.	DESCRIPTION
1	1174	3/8-16NC X 3/4 CAP SCREW
2	A21288	8" HEAD DISCHARGE ADAPTER
3	A21293	6" HEAD DISCHARGE ADAPTER
4	1195	5/16-18NC X 3/4 CAP SCREW GRADE 5
5	A25358	DISTRIBUTOR 8 WAY 8"
6	A25175	DISTRIBUTOR 8 WAY 6"
7	1213	1/4-20NC X 3/4 CARRIAGE BOLT
8	25389	8" RISER LINER LONG
	25390	8" RISER LINER SHORT
9	25418	6" RISER LINER
10	25391	ACCESS DOOR
11	1256	1/4 X 3/4 SELF-DRILLING SCREWS
12	A25040	HANDLE
13	1179	3/8-16NC X 2 CAP SCREW
14	1194	1/4-20NC X 1-1/2 CAP SCREW
15	1342	5/8 FLAT WASHER
16	25401	ROLLER
17	A25039	AXLE
18	1159	5/16-18NC X 1 CAP SCREW
19	25403	CLAMP
20	25404	DIRECTIONAL GUIDE CLAMP
21	A25042	CONTROL STAND
22	1178	3/8-16NC X 1-3/4 CAP SCREW
23	A23778	CLAMP HALF

CONTROL PIPE BY CUSTOMER 1" STD PIPE

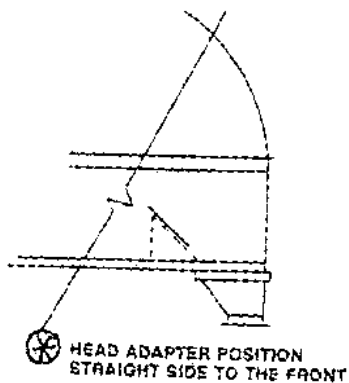
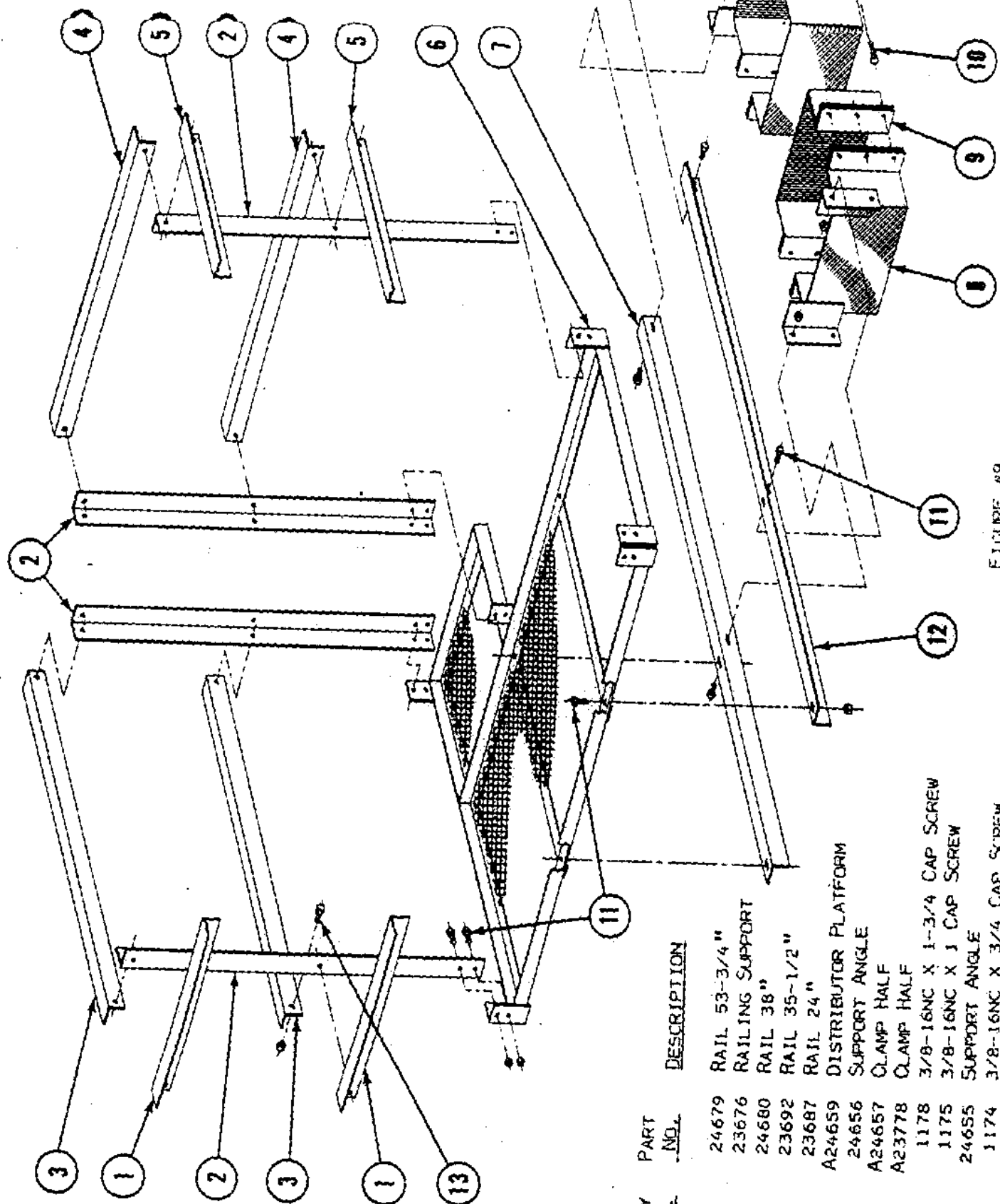


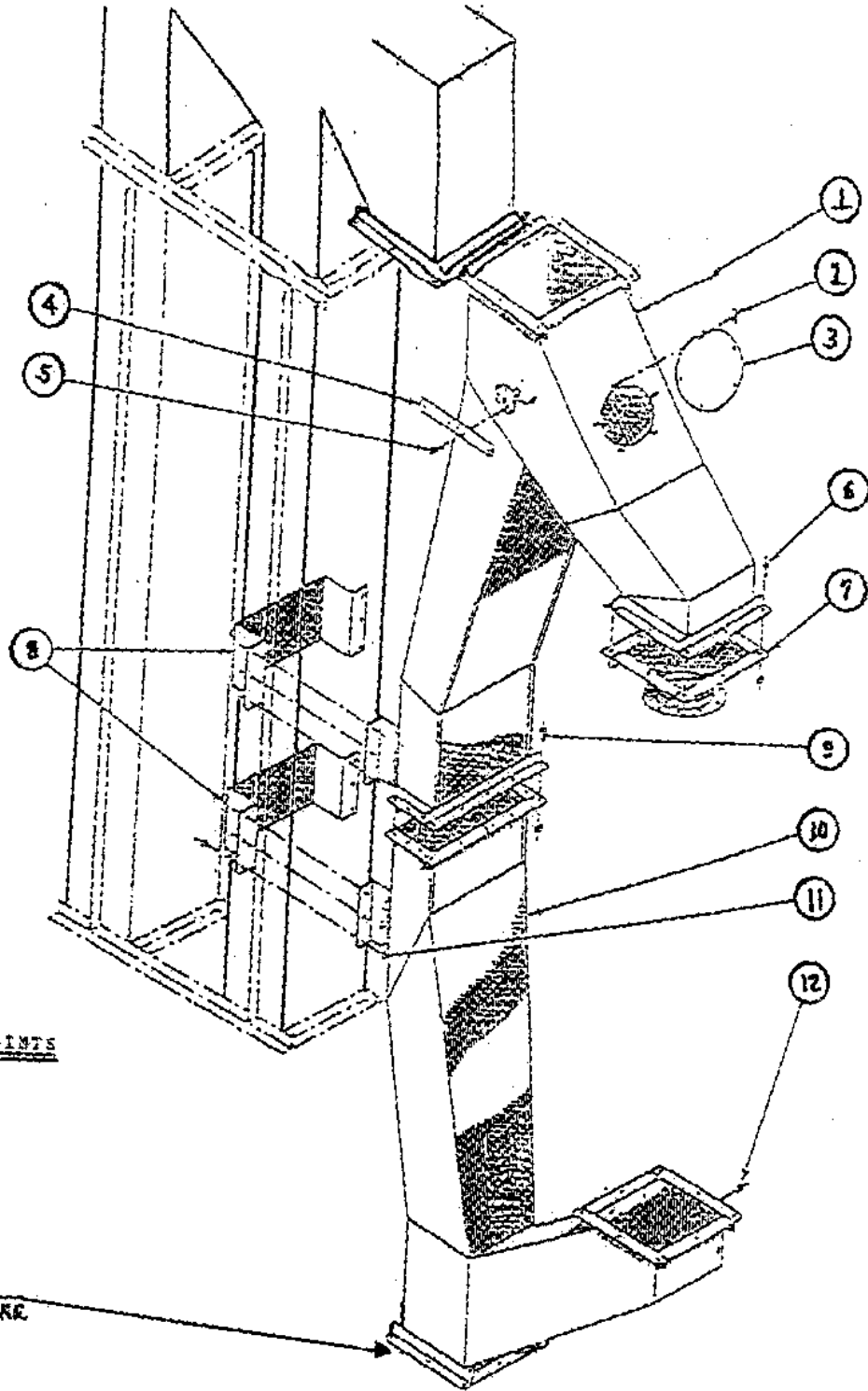
FIGURE *12

8 WAY DISTRIBUTOR HEAD & DISCHARGE ADAPTER ASSEMBLY



KEY NO.	PART NO.	DESCRIPTION
1	24679	RAIL 53-3/4"
2	23676	RAILING SUPPORT
3	24680	RAIL 38"
4	23692	RAIL 35-1/2"
5	23687	RAIL 24"
6	A24659	DISTRIBUTOR PLATFORM
7	24656	SUPPORT ANGLE
8	A24657	CLAMP HALF
9	A23778	CLAMP HALF
10	1178	3/8-16NC X 1-3/4 CAP SCREW
11	1175	3/8-16NC X J CAP SCREW
12	24655	SUPPORT ANGLE
13	1174	3/8-16NC X 3/4 CAP SCREW

FIGURE #9

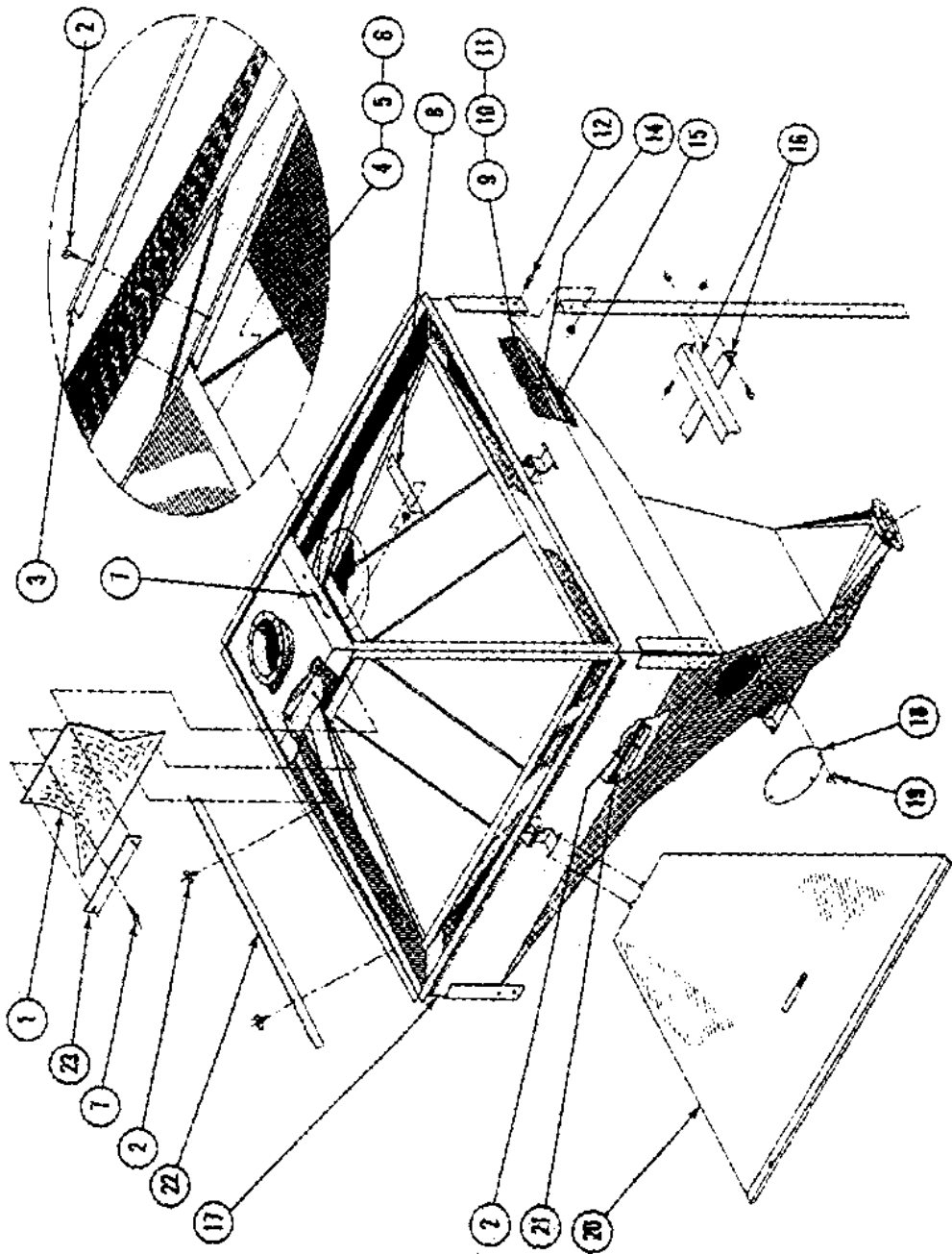


CAULK ALL JOINTS

HEAD DISCHARGE
ADAPTER - BOLTS HERE

GRAIN CLEANER - BYPASS ASSEMBLY: 3000

KEY NO.	PART NO.	DESCRIPTION
1	A24860	BY-PASS UPPER UNIT(3000)
2	21872	WING NUT 1/4-20NC
3	A20921	TUBE SEAL PLATE
4	24877	HANDLE
5	1154	HRCS 1/4-20NC X 1
6	1175	HRCS 3/8-16NC X 1
7	A24838	ADAPTOR 10" SQ. TO 8" END(3000)
8	A23778	CLAMP HALF(3000)
9	1195	HRCS 5/16-18NC X 3/4
10	A24974	BY-PASS LOWER UNIT(3000)
11	1178	HRCS 3/8-16NC X 1 3/4
12	1274	LOCKNUT 3/8-16NC



GRAIN CLEANER ASSEMBLY
FIGURE 14

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	1176	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	21672	WING NUT
20	A23927	COVER
21	23934	SCREEN STRAP
22	23930	COVER CLAMP
23	23932	STRAP

FOAM SEALING TAPE NOT SHOWN P/N 14444

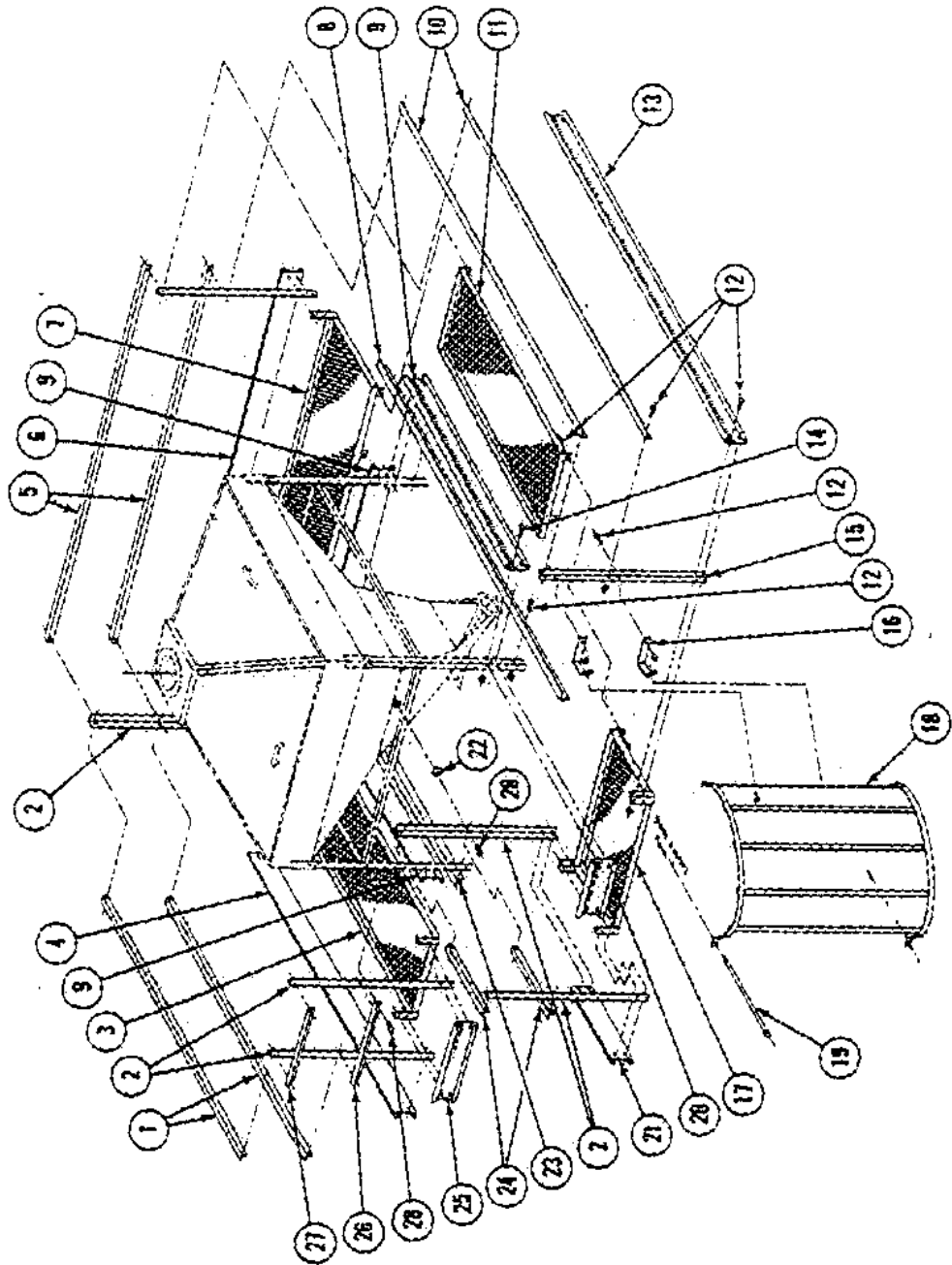
GRAIN CLEANER ASSEMBLY

FIGURE 14

GRAIN CLEANER PLATFORM ASSEMBLY

PARTS LIST FIGURE #15A

KEY NO.	PART NO.	DESCRIPTIONS
1	24766	RAIL X 76-3/4"
2	23676	RAILING SUPPORT
3	A24762	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	24770	TOE BOARD X 96-1/2"
10	24775	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	A23824	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	HOOK-UP RAIL X 24"
27	24769	RAIL X 20-3/4"
28	1176	3/8-16NC X 1-1/4 CAP SCREW



STANDARD GRAIN CLEANER PLATFORM ASSEMBLY