INSTRUCTION MANUAL

24" MODULAR PRECISION SIZER

224 - 424 - 624

STYLE NUMBER: DFT1

MANUAL NUMBER: 630-1EC
Revision A

CARTER DAY
Carter Day International, Inc.
500 73rd Avenue N.E., Minneapolis, Minnesota 55432
(763)571-1000 • FAX: (763)571-3012

READ AND FOLLOW THE GUIDELINES ESTABLISHED WITHIN THIS MANUAL TO ENSURE WARRANTY COVERAGE AND YEARS OF LOW-COST OPERATION.

*** WARNING ***

INTERNAL MOVING PARTS CAN BE DANGEROUS.

BEFORE ATTEMPTING SERVICE OR INTERNAL INSPECTION, DISCONNECT AND LOCKOUT ELECTRIC POWER.

DO NOT OPERATE THIS EQUIPMENT WITHOUT REQUIRED SAFETY GUARDS OR COVERS IN PLACE.

KEEP HANDS CLEAR OF INLETS AND OUTLETS.

CARTER DAY

IMPORTANT

Shown below is an example of a nameplate from a Carter Day machine. Please locate the nameplate on your machine and fill in the Order No., Serial No., and Style No. from it onto the nameplate on this page, for future reference. Having this information at hand when you call us for parts or service will be helpful.

Carter Day International, Inc.

Machinery Storage Requirements

Machinery should be placed into service as soon as possible after delivery.

If storage is required Carter Day recommends the following storage guidelines for its finished products.

While in storage machinery should be protected from corrosion and contamination.

The storage area temperature should be maintained between 0 degrees C (32 degrees F) and 40 degrees C(l04 degrees F), temperature fluctuations should be limited to no more than 5 degrees C per 24 hour period.

The relative humidity should be maintained below 60%.

The storage area should be kept free from airborne contaminants such as, but not limited to: dust, dirt, harmful vapors, etc.

The storage area should be isolated from undue vibration.

Extreme conditions of any kind should be avoided.

If storage exceeds one month, shafts should be rotated monthly to insure proper lubrication of the bearings.

Failure to follow these guidelines may result in reduced product performance and component life. Equipment failure attributable to corrosion or contamination will not be covered by warranty. For example corrosion will cause shaft bearing failures, typically indicated by high bearing temperatures.

Table of Contents

Introduction

The 24 Modular Precision Sizer is designed to use a perforated cylinder for sizing granular material. The smaller material passes through the perforations in the cylinder shells and the large material is carried to the end of the cylinder to discharge as overs. Refer to the Installation Data drawing for the location of the discharge outlets.

All material should be precleaned to remove all roughage and metal before it enters this machine.

Pre-Installation Check

Upon arrival, check equipment for damage and missing parts. Notify Carter Day immediately, if there are any problems. Once this inspection is completed, ensure that all shipping blocks and packing material are removed.

The section of this manual dealing with installation should be read carefully to ensure that any items shipped loose or wired to the equipment are assembled before proceeding. If the unit was shipped with motors check voltages.

All equipment is test run, for a short period, before leaving the factory; however, a rough or long transport can loosen bolts. Check all bolts visually and with proper tools where this is practical. Pay particular attention to auxiliary items that may be bolted to the machine. These could include drive bases, spouts, ladders, platforms, etc.

All machinery leaves the factory suitably protected from the elements. These protective measures have been designed to accommodate normal shipping and installation schedules. If the equipment will be subjected to weather for more than a few days before installation, special arrangements should be made to keep it dry. An accumulation of moisture on sensitive parts could lead to premature failure and unnecessary maintenance costs.

WARNING

Do not attempt to run the machine without reading this manual completely.

Failure to do so could result in serious injury to the operator and other personnel or cause damage to the machine.

Installation

This machine may have been shipped in sections with the feeder and some drive components dismounted. These sections and parts can be added by refering to the drawings in the back of this manual.

Lifting the Precision Sizer

Only licensed personnel should lift the Precision Sizer. Incorrect lifting techniques can result in damage to the machine. Use the provided lifting lugs to lift the Precision Sizer. Make certain that all product has been emptied from the machine before lifting.

*** * * CAUTION * * ***

Chain angles should not be less than 45° from the horizontal.

See Installation Data drawing for the net weight of the machine.

Installation Site / Foundation

Referring to the Installation Data drawing, check the site for clearances noted for maintenance, adjustments, spouting, etc.

The machine requires a level and solid floor or structure to function. It should be fastened to the floor structure using Grade 8 / Class 10.9 DIN 931 bolts. Holes are provided on the end or side plate flanges.

Electrical Connections

Electrical connections are to be made by licensed personnel. Starters and controls are supplied by the customer. Motors may also be customer supplied.

◆ ◆ ◆ ◆ ◆ ◆ ATTENTION ◆ ◆ ◆ ◆ ◆ ◆

This equipment is suitable for IIG hazardous locations provided it is equipped with a IIG rated motor installed to meet IIG electrical requirements.

Pre-StartUp

The primary concern of the pre-startup check is to ensure the safety of any personnel that may be in the proximity of the machine. All guards should be installed.

All windows, doors, and piping connections should be in their operating positions. Check to see if the process adjustments are close to their operating positions.

Machine Startup

After all spouting has been connected, the equipment should be test run empty for a minimum of 10 to 15 minutes. Once the machinery is processing material, noise levels will be higher and mechanical problems may go unnoticed.

Specifically check the following:

1. Motors must rotate in the direction as indicated on the Installation Data drawing.
2. Check motor running amps against the nameplate rating.
3. Belt tension,sheave, and coupling alignment.

WARNING

Do not attempt to make any adjustments unless the machine is stopped and all motors are locked out.

Any guards removed to install motors/drives, etc., must be in place at all times when the equipment is operating.

Failure to do so could result in serious injury to the operator and other personnel or cause damage to the machine.

Operation

Capacity and Surge Feeding

Low feed rates could result in poor distribution of product to the cylinder or cause some products to bounce excessively and misgrade.

For best results, stay within Carter Day's stated low and high capacity recommendations and avoid surging product. A steady even flow at the inlet will provide uniform results.

Gravity Feeders (optional)

The gravity feeder has counter weights on the feed gates which should be regulated so that the material level will be maintained within the sight glass range of visibility. The cams on the front of the feed hopper can be set to establish the minimum opening of the valve in the feed hopper, thus reducing the travel on the valve, and still use the pressure of the weights on the valve to hold the material level up to the glass.

Feed Control

It is necessary that the material be discharged from the feeder in a uniform depth across the full width of the feeder to evenly distribute the material into the compartments directing the material to separate cylinders.

Air Suction

The top cover plate has a 3" x 15" opening where a suction line may be attached. a suction volume of 100 CFM is recommended for normal operating conditions.

Speed

Normal operating speeds are from 37 to 44 RPM on the cylinder. The factory speed setting in 39 RPM which is adequate for most separations. If you are having difficulty achieving a separation the Carter Day factory or representative can recommend an optimal speed for your separation. The most efficient speed varies with the type of material being handled. A variable pitch sheave on the motor is used to change the speed.

To adjust this sheave; disconnect the power to the machine, remove the guard, then loosen the motor mounting bolts and move the motor to create slack in the belt. The machine face can be screwed in or out to change the pitch diameter by loosening the set screws which lock the sheave face and turning to the desired pitch. (Close to greater increase the speed of the cylinder.) Now tighten the set screw, reattach the belt and move the motor to re-tension the belt. Replace the guard(s) and restore power to the machine.

Safety Considerations

This machine contains dynamic components which can be dangerous if precautions are not taken. Below is a list of items which require specific attention.

- Never operate the machine with guards, access windows, or doors removed.
- Never open the doors, remove guards, or make any mechanical adjustments to the machine before **ALL POWER IS LOCKED OUT TO ALL COMPONENTS.**
- Use care when using machine elements as steps. A properly designed catwalk or access platform is recommended for operator safety.
- Do not clean the machine before **ALL POWER IS LOCKED OUT TO ALL COMPONENTS.**
- Do not reach in or attempt to unplug any process connection (i.e., liftings discharge, etc.) before **ALL POWER IS LOCKED OUT TO ALL COMPONENTS.**
- Read and thoroughly understand the operator's manual prior to startup.
- Utilize licensed personnel for electrical maintenance, rigging, piping, and mechanical maintenance.
- Provide operational checklists at the machine control area, to provide quick reference.

Service

WARNING

LOCK OUT ALL ELECTRICAL POWER.

Failure to do so could result in serious injury to the operator or other personnel.

Lubrication

Reducers (See Appendix "C")

The reducers are filled with Mobil SHC 634 synthetic; when topping off or refilling use only this lubricant. It is recommended that the lubricant be changed after the first 100 hours of operation, 2500 hour intervals thereafter. Note that the breather should be clear of paint, grease or other obstructions. For more details consult the full instructions in Appendix "C".

All shafts are equipped with sealed ball bearings which are lubricated for the life of these bearings. The trunnion bearings supporting each cylinder at the feed inlet end have been sealed with lubricant.

Indexed Cleaning Wheel Assembly

The cleaning wheels for the cylinder are a self-contained assembly which is spring loaded and driven by the rotating cylinder assembly.

To replace the cleaning wheel modules (20 per assembly) remove the bolts holding the assembly to the stub shaft at the discharge end of the machine and the bolts holding the spring tensioner at the feed end. Now remove the assembly out the side opening. Then remove the spring components and the drive wheel components from the assembly; the modules can then be slid off and on.

Be sure to note and correctly position the new cleaning wheel modules for both wiping and spiral sequencing to ensure efficient cleaning and to prevent damage to the drive.

Changing the Cylinder

WARNING

LOCK OUT ALL ELECTRICAL POWER.

Failure to do so could result in serious injury to the operator or other personnel.

Please Note: Care must be exercised in handling the cylinders and/or shell segments because any distortions of the perforations will affect the separation performance.

The perforations on the cylinders and/or shell segments can be sharp, care should be taken when handling them.

First Method: (Changing Shell Segments)

1. Remove either side panel (6 bolts).
2. Using the pointed pry tool provided, raise the cleaning wheel drive wheel off the shell inlet ring (about 1/4"/6 mm) by inserting the tool into the slot next to the cleaning wheel drive wheel and pushing in while moving the tool up and down.
3. Next, turn the interlocking collar on the coupling to disengage the cylinder, then loosen the collet nut on the coupling by hand or using the wrench provided and slide coupling back to the movable stop attached to the end plate; in this position the cylinder will free wheel to facilitate removing the segments.
4. Remove clamping bars using an Allen wrench; as these are removed, the three shell segments will come free, remove these after removing the end band fasteners.
5. To install the new shell segments reverse the above procedure. Note that the shell segments have some built in spring to insure a good fit on the receiving head, this slight spring needs to be overcome during installation. Also make sure the interlocking collar is locked to the cylinder socket and that the collet nut is tight, it is neither required nor desirable that the nut be over tightened.

Second Method: (Changing Cylinder Assembly)
(Caution: Each cylinder assembly w/screens weighs approximately 160 lbs.)

1. Remove either side panel (6 bolts each).

2. Using the pointed pry tool provided, raise the cleaning wheel drive wheel off the shell inlet ring (about 1/4"/6 mm) by inserting the tool into the slot next to the cleaning wheel drive wheel and pushing in while moving the tool up and down.
3. Next, release the shell at the drive end by turning the interlocking collar on the coupling to disengage the cylinder. Now loosen the collet nut by hand or with the wrench provided then slide the coupling toward the end plate with the "C" tool after swinging the coupling stop away from the shaft to allow the coupling full travel. The cylinder assembly can now be slid off the feed end trunnions while rotating the cylinder assembly out the side opening.

4. To install a cylinder assembly the procedure above is reversed, however, care should be taken to start the assembly onto the trunnions squarely to ensure an easy installation. Make sure the interlocking collar is locked into the cylinder groove now position the cylinder properly to the feed end before tightening the collet nut. Refer to the illustration on the following page or use the groove on the "C" tool as a gauge to insure the correct seal spring compression and tighten the collet nut to lock the assembly at this position.

Belt Drive

The belts should be inspected every 300 hours of operation for wear, cracking, tension and alignment.

Factory Testing Service

In the event of a problem on a particular separation, contact the factory and submit a five pound sample of the material. A laboratory test will be run to duplicate the operation of the machine. An analysis of the results and a recommendation will then be made.

To Order Parts

The appendices of this manual include assembly drawings making it possible to identify the components of the machine. When ordering parts, have the manual handy and try to identify the piece required by number and description.

Since equipment is constantly being updated and improved, the **style** and **serial number** should also be quoted. This information should have been recorded in the front of your instruction manual. If for some reason the information is not available, the information found on the metal tag affixed to the machine will have to be specified.

All of the above data is essential if parts are to be supplied quickly and correctly.

The **job number**, approximate **shipping date** and approximate **running time** would also be helpful when inquiring about a particular machine.

Call your local Carter Day Sales Representative

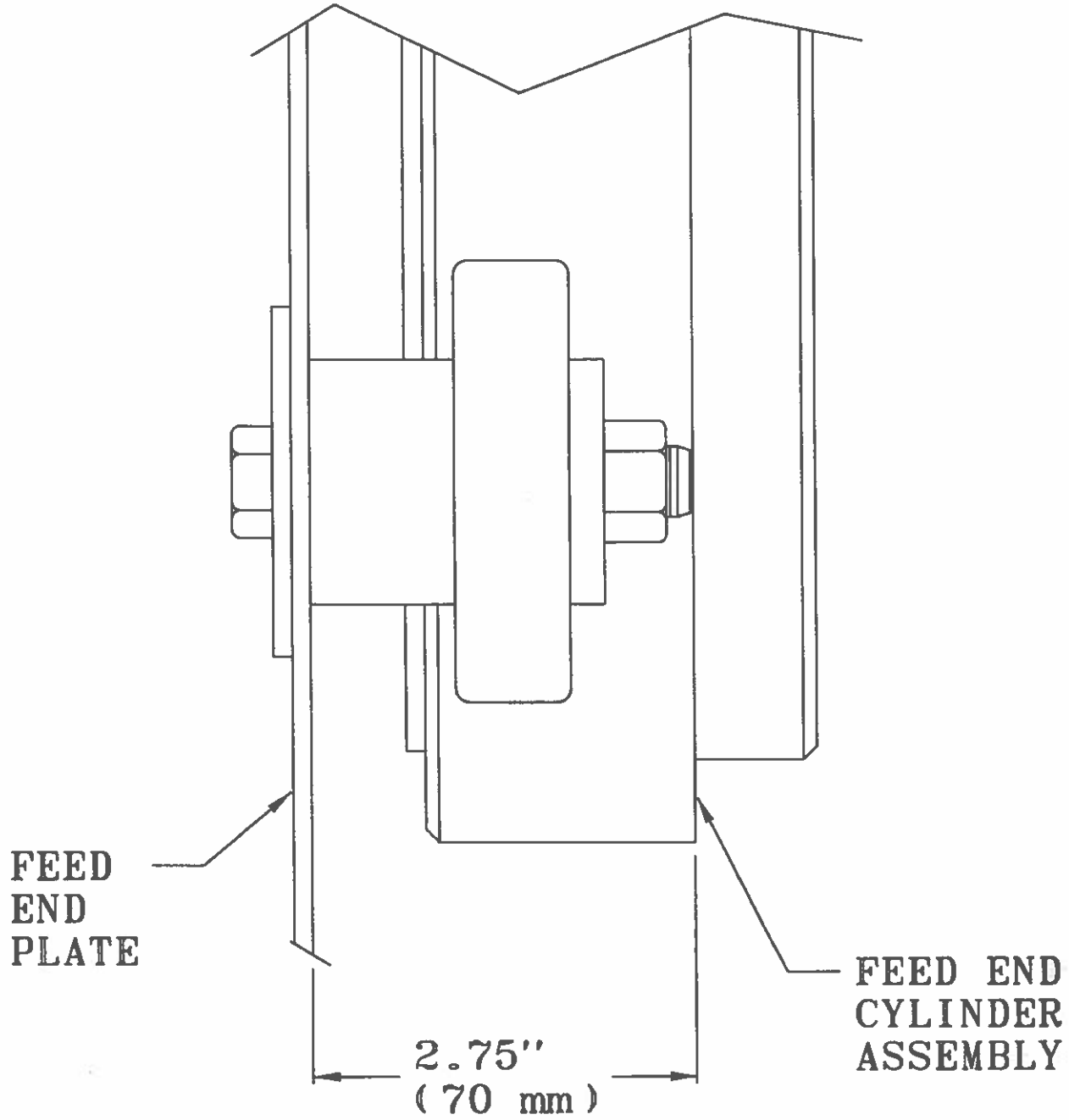
Or

The Carter Day telephone number is (763) 571-1000.
Ask for customer service.

The Carter Day fax number is (763) 571-3012.

In many countries UPS or an equivalent parcel service is available to your site.

SET CYLINDER POSITION BEFORE LOCKING COUPLING



Appendix A

Recommended Spare Parts

Recommended Spare Parts

for

Part No. 49947 - 424" Modular Precision Sizers

The following list specifies minimum requirements for this unit. Keeping these parts on hand will minimize loss of production time in the event of a failure.

Any additional parts can be ordered from the assembly prints included.

224	424	624	Part No.	Description
2	4	6	424053	Cylinder Seal
2	2	2	421768	Die, Spring
1	2	2	425605	V-belt, BX-48
0	1	2	425606	V-belt, B-103
20*	20*	40*	421764	Wiper Module
2	2	2	420991	Socket, Cylinder Coupling
2	4	6	14807	Trunnion Bearing
2*	2*	2*	424737	Discharge Cylinder Head
2*	2*	2*	424738	Receiving Head
2	4	6	419670	Bearing, Cleaning Wheel
1	2	2	424407	Coupling, Flex Drive

*These are the most common parts supplied with this machine.

Appendix B

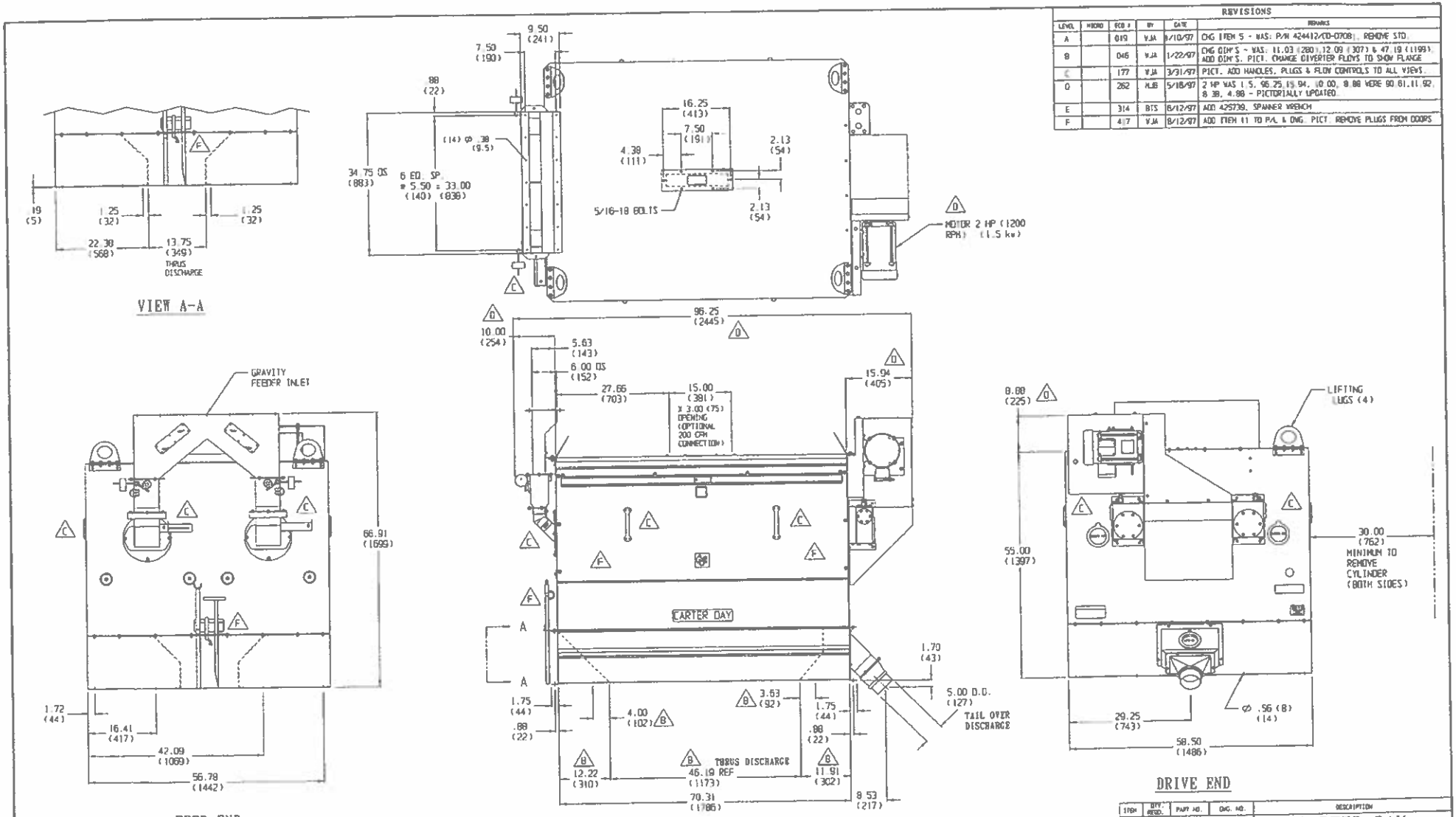
Drawings

Drawings

for

24" Modular Precision Sizers

Description	224	424	624
Data Installation	CD-D7185	CD-D7186	CD-D7187
Assembly, Double Cylinder Module	CD-D7148	CD-D7148	CD-D7148
Kit, Drive / Finish	CD-D7162	CD-D7162	CD-D7162
Kit, Stacking	N/A	CD-D7166	CD-D7166
Kit, Motor Drive	CD-D7342	CD-D7342	CD-D7342
Kit, Assembly, Cylinder	CD-D7081	CD-D7081	CD-D7081
Assembly, Gravity Feeder	CD-D7149	CD-D7057	CD-D7158



REVISIONS					
LEVEL	MICRO	ECO #	BY	DATE	REMARKS
A		019	VJA	9/10/97	CHG ITEM 5 - WAS: P/N 424412/CD-0708, REMOVE STD.
B		045	VJA	1/22/97	CHG DIM'S - WAS: 11.03 (280), 12.09 (307) & 47.19 (1199). ADD DIM'S. PICT. CHANGE DIVERTER FLOYS TO SHOW FLANGE.
C		177	VJA	3/31/97	PICT. ADD HANDLES, PLUGS & FLOW CONTROLS TO ALL VIEWS.
D		262	KLB	5/16/97	2 HP WAS 1.5, 96.25, 15.94, 10.00, & 8.88 WERE 90.61, 11.92, 8.38, 4.88 - PICTORIALLY UPDATED.
E		314	BTS	8/12/97	ADD 425739, SPANNER WRENCH
F		417	VJA	8/12/97	ADD ITEM 11 TO P/L & DWG. PICT. REMOVE PLUGS FROM DOORS

SOUND LEVEL = XX dB (A)
NET WEIGHT = 1500 lbs. (680 kg.)

SEE SHEET 2 FOR BILL OF MATERIAL AND CALLOUTS.

INCHES (mm)

ITEM	QTY. REQD.	PART NO.	DWG. NO.	DESCRIPTION
MATERIAL				CARTER DAY
				ASSEMBLY, FINAL 224 PS
				STYLE: OFT1

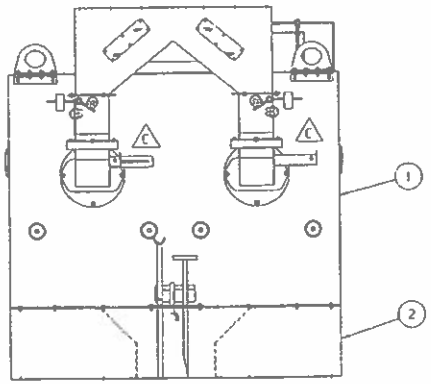
WEIGHT:
FIRST USED ON: 24" MODULAR PRECISION SIZER

DRAWN BY: V.J.A. DATE: 11-14-96
CHECKED BY: SCALE: 3/32
APPROVED BY: SHEET: OF 2

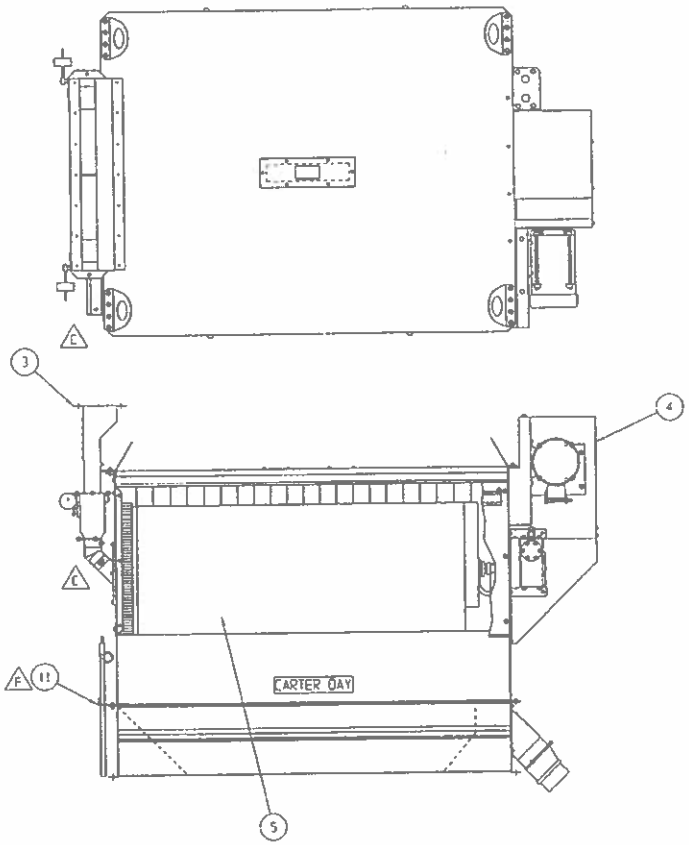
CD-07185

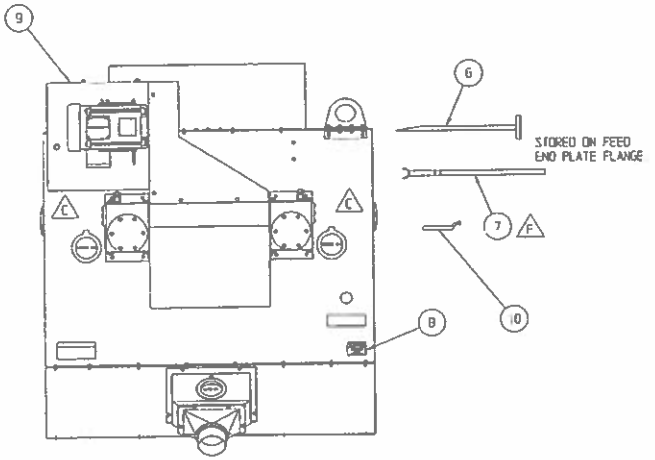
PART NO. 49946

REVISIONS					
LTR	MICRO	ECO #	BY	DATE	REMARKS
A		009	WJA	1/10/97	SEE SHEET 1 FOR ECO
B		045	WJA	1/22/97	SEE SHEET 1 FOR ECO
C		177	WJA	3/31/97	SEE SHEET 1 FOR ECO
D		262	MJB	5/07/97	SEE SHEET 1 FOR ECO
E		314	BTS	5/12/97	SEE SHEET 1 FOR ECO
F		417	WJA	8/12/97	SEE SHEET 1 FOR ECO



FEED END





DRIVE END

ITEM	QTY REQD	PART NO.	DWG. NO.	DESCRIPTION
11	1	426040	CD-C5842	BRACKET, 224 TCDR
10	1	425739	CD-A3107	WRENCH, SPANNER
9	1	REF	CD-07342	KIT, MOTOR DRIVE (VARIES BY MOTOR)
8	1	REF	CD-07170	KIT, LABELING (VARIES BY LANGUAGE)
7	1	424321	CD-05760	FORK, CYLINDER
6	1	424322	CD-05761	LEVER, WIPER LIFTING
5	2	SEE P&O	SEE P&O	KIT, CYLINDER ASSEMBLY
4	1	424750	CD-07162	KIT, DRIVE/FINISH
3	1	424715	CD-07149	ASSEMBLY, 224 GRAVITY FEEDER
2	1	424287	CD-07047	WELDMENT, BOTTOM BROUGH
1	1	424709	CD-07148	ASSY, DOUBLE CYLINDER MODULE

MATERIAL

WEIGHT:

FIRST USED ON
24" MODULAR PRECISION SIZER
30 DEG MODULAR VERSION

TOLERANCES UNLESS SPECIFIED
DECIMAL .XX ±.010"
.XXX ±.030"
FRACTIONAL ±1/32"
ANGULAR ±1/2

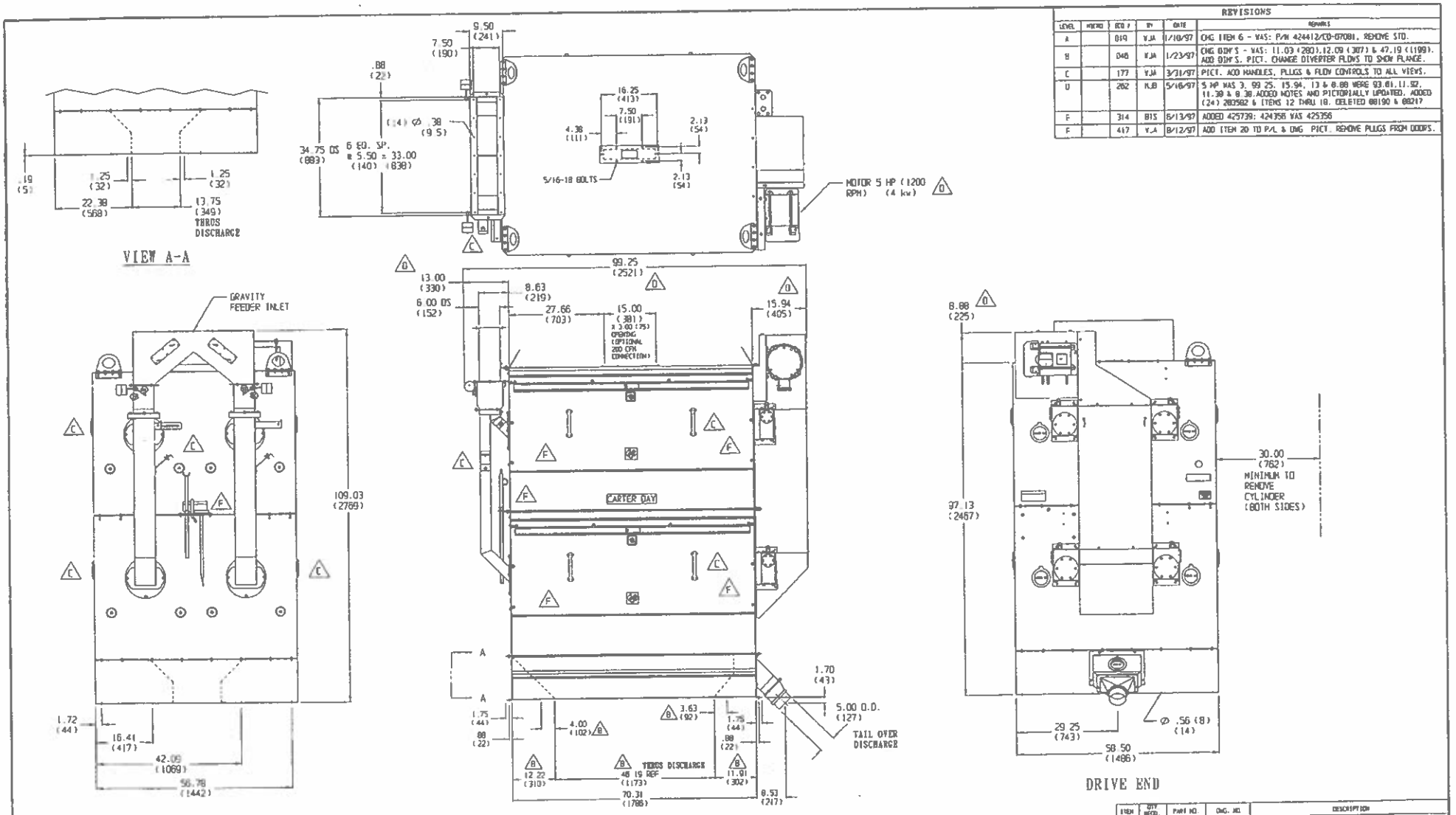
CARTER DAY
ASSEMBLY, FINAL 224 PS
STYLE: OFT1

DRAWN BY WJA DATE 11-14-96
CHECKED BY
APPROVED BY
SCALE 1/2
SHEET 2 OF 2

CD-07185

SEE SHEET 1 FOR DIMENSIONS

PART NO.
49945



REVISIONS					
LEVEL	MICRO	ECO #	BY	DATE	REMARKS
A		019	V.JA	1/10/97	CHG ITEM 6 - WAS: P/N 424412/CO-07081, REMOVE STD.
B		048	V.JA	1/23/97	CHG DIM'S - WAS: 11.03 (280), 12.09 (307) & 47.19 (1199). ADD DIM'S. PICT. CHANGE DIVERTER FLOWS TO SHOW FLANGE.
C		177	V.JA	3/31/97	PICT. ADD HANDLES, PLUGS & FLOW CONTROLS TO ALL VIEWS.
D		262	K.B	5/16/97	5 HP WAS 3, 99.25, 15.94, 13 & 8.88 WERE 93.81, 11.32, 11.38 & 8.38 ADDED NOTES AND PICTORIALLY UPDATED. ADDED (24) 280582 & ITEMS 12 THRU 18. DELETED 08190 & 08217
E		314	BTS	6/13/97	ADDED 425739; 424356 WAS 425356
F		417	V.A	8/12/97	ADD ITEM 20 TO P/L & DWG PICT. REMOVE PLUGS FROM DOORS.

SOUND LEVEL = XX dB (A)
NET WEIGHT = 3300 lbs. (1497 kg.)

SEE SHEET 2 FOR BILL OF MATERIAL AND CALLOUTS.

INCHES (mm)

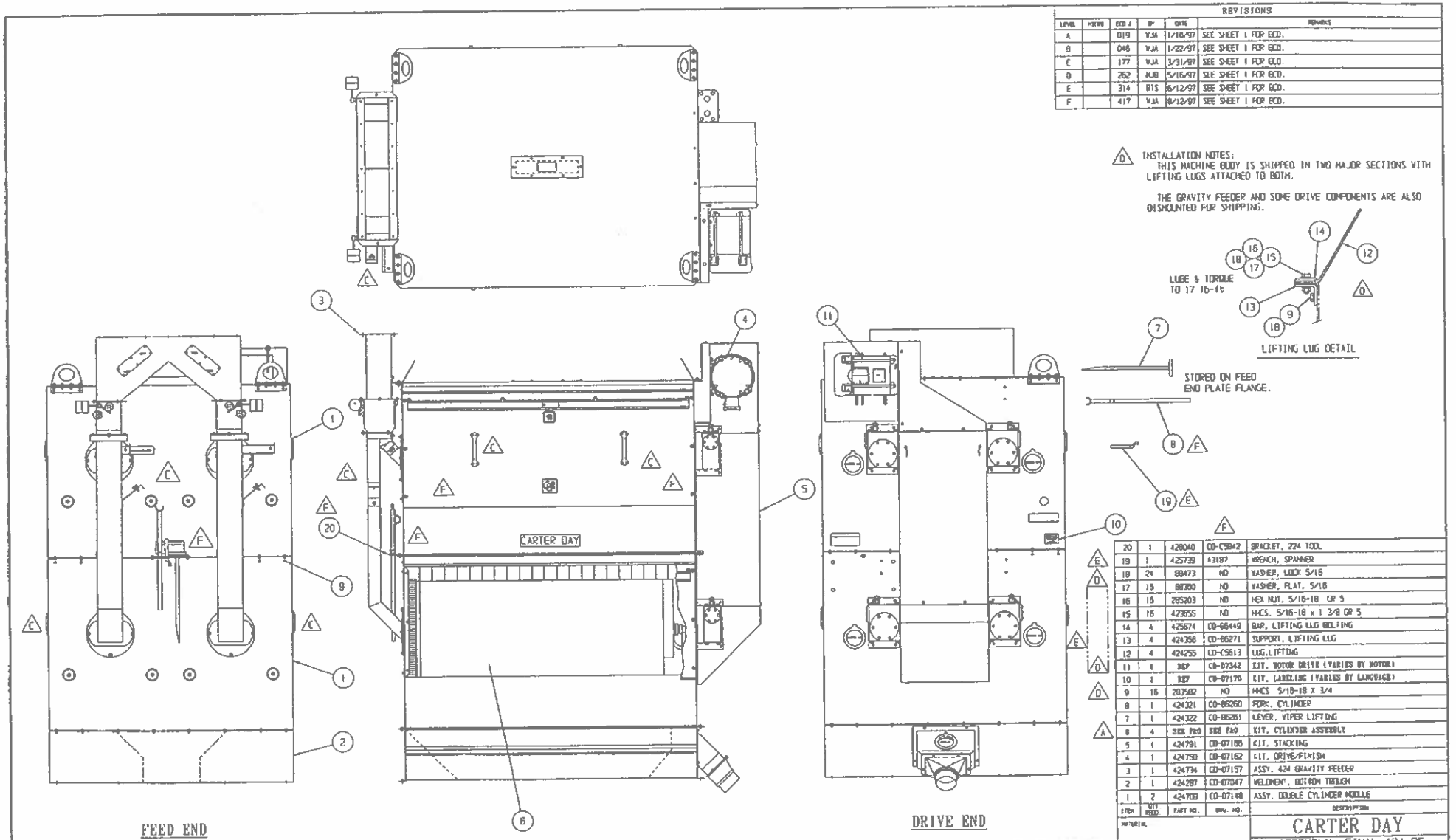
ITEM	QTY REQD.	PART NO.	DWG. NO.	DESCRIPTION
MATERIAL				CARTER DAY ASSEMBLY, FINAL 424 PS STYLE: OFTI

WEIGHT:
FIRST USED ON: 24" MODULAR PRECISION SIZER

DRAWN BY: V.JA — DATE: 11-14-96
CHECKED BY: — SCALE: 5/64
APPROVED BY: — SHEET: 1 OF 2

CO-07186

PART NO. 49947



SEE SHEET 1 FOR DIMENSIONS

REVISIONS					
LEVEL	MKTG	ECO #	BY	DATE	REMARKS
A		019	WJA	1/16/97	SEE SHEET 1 FOR ECO.
B		046	WJA	1/22/97	SEE SHEET 1 FOR ECO.
C		177	WJA	3/31/97	SEE SHEET 1 FOR ECO.
D		262	MJB	5/16/97	SEE SHEET 1 FOR ECO.
E		314	BTS	6/12/97	SEE SHEET 1 FOR ECO.
F		417	WJA	8/12/97	SEE SHEET 1 FOR ECO.

ITEM	QTY REQD	PART NO.	ENG. NO.	DESCRIPTION
20	1	428040	CD-C5842	BRACKET, 224 TOOL
19	1	425739	A3187	WRENCH, SPANNER
18	24	88473	NO	WASHER, LOCK 5/16
17	16	88300	NO	WASHER, FLAT, 5/16
16	16	265203	NO	HEX NUT, 5/16-18 GR 5
15	16	423655	NO	HHCS, 5/16-18 x 1 3/8 GR 5
14	4	425674	CD-86449	BAR, LIFTING LUG BOLTING
13	4	424356	CD-86271	SUPPORT, LIFTING LUG
12	4	424255	CD-C5613	LUG,LIFTING
11	1	REF	CD-07342	KIT, MOTOR DRIVE (VARIES BY MOTOR)
10	1	REF	CD-07170	KIT, LABELING (VARIES BY LANGUAGE)
9	16	283582	NO	HHCS 5/16-18 X 3/4
8	1	424321	CD-86260	FORK, CYLINDER
7	1	424322	CD-86261	LEVER, WIPER LIFTING
6	4	SEE PAG	SEE PAG	KIT, CYLINDER ASSEMBLY
5	1	424791	CD-07186	KIT, STACKING
4	1	424750	CD-07162	KIT, DRIVE/FINISH
3	1	424734	CD-07157	ASSY. 424 GRAVITY FEEDER
2	1	424287	CD-07047	WELDMENT, BOTTOM TROUGH
1	2	424700	CD-07148	ASSY. DOUBLE CYLINDER MODULE

MATERIAL:

WEIGHT:

FIRST USED ON: 24" MODULAR PRECISION SIZER

DO NOT SCALE DRAWING

TOLERANCES UNLESS SPECIFIED: DECIMAL .XXX ±.010", .XX ±.030", FRACTIONS ±1/32", ANGULAR ±1/2°

CARTER DAY

ASSEMBLY, FINAL 424 PS

STYLE: DFT1

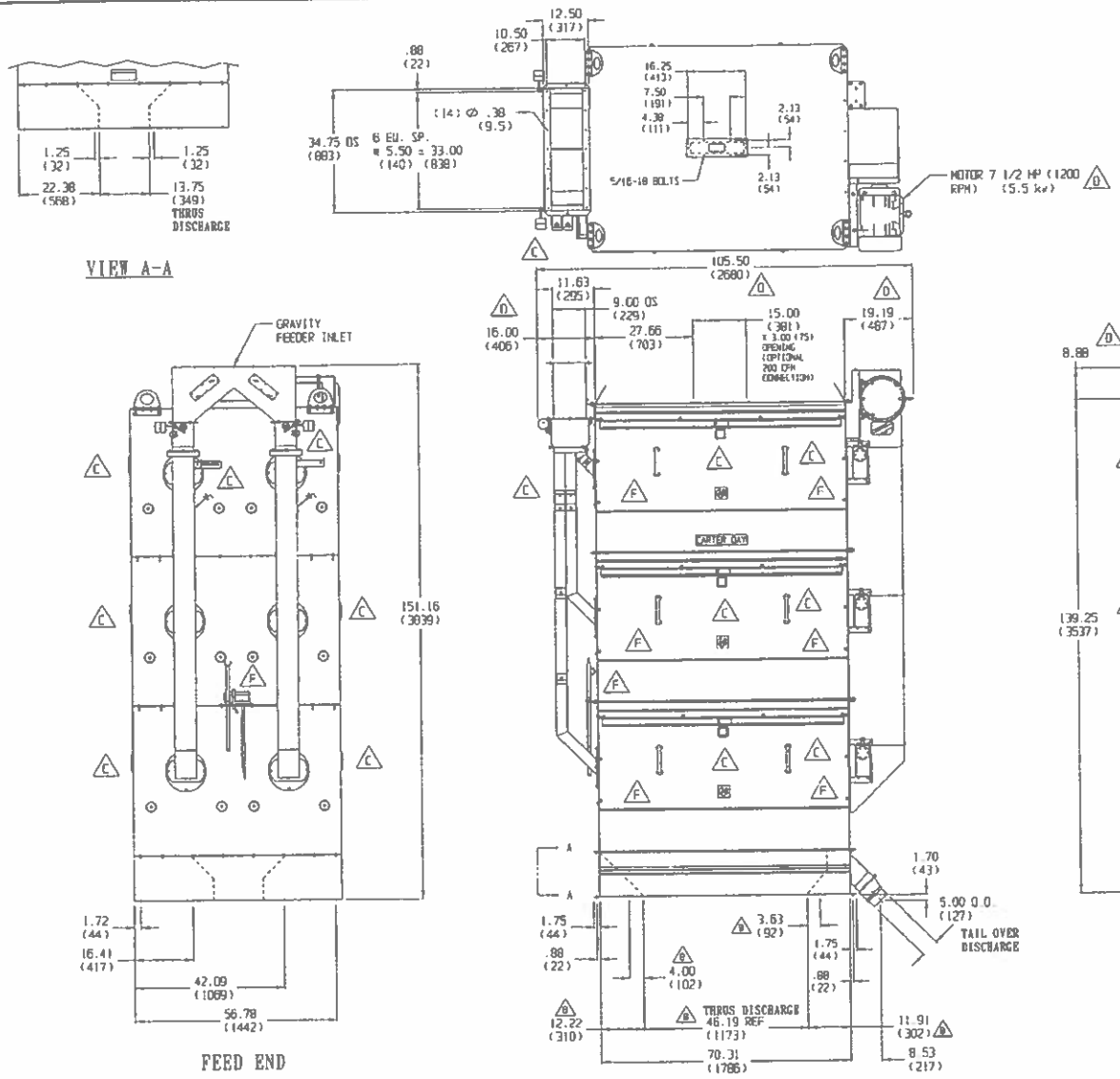
DRAWN BY WJA | DATE 11-14-96

CHECKED BY | SCALE 1/8

APPROVED BY | SHEET 2 OF 2

CO-07186

PART NO. 49947



REVISIONS					
LEVEL	MICRO	ECO #	BY	DATE	REMARKS
A		019	WJA	1/10/97	CHG ITEM 6 - WAS: P/N 424412/CD-G7081. REMOVE STD.
B		046	WJA	1/23/97	CHG DIM'S - WAS: 11.03 (280), 12.09 (307) & 47.19 (1198). ADD DIM'S. PICT. CHANGE DIVERTER FLOWS TO SHOW FLANGE
C		177	WJA	3/31/97	PICT. ADD HANDLES, PLUGS & FLOW CONTROLS TO ALL VIEWS.
D		262	WJA	5/16/97	7.5 HP WAS 5, 105.50, 19.19, 16 & 8.88 WERE 98.61, 11.92, 14.38 & 4.88. ADDED NOTES & PICTORIALLY UPDATED. ADDED (24) 283582 & ITEMS 12 THRU 18, DELETED 88190 & 88217
E		314	BTS	6/11/97	ADDED 425739; 424356 WAS 425756
F		417	WJA	8/12/97	ADD ITEM 20 TO P/L & DWG. PICT. REMOVE PLUGS FROM DOORS

SOUND LEVEL = XX dB (A)
NET WEIGHT = 5100 lbs. (2313 kg.)

SEE SHEET 2 FOR BILL OF MATERIAL AND CALLOUTS.

ITEM	QTY. REQD.	PART NO	DWG NO	DESCRIPTION
MATERIAL				

CARTER DAY
ASSEMBLY, FINAL 624 PS
STYLE: DFTI

WEIGHT:
FIRST USED ON
24" MODULAR PRECISION SIZER
DO NOT SCALE DRAWING

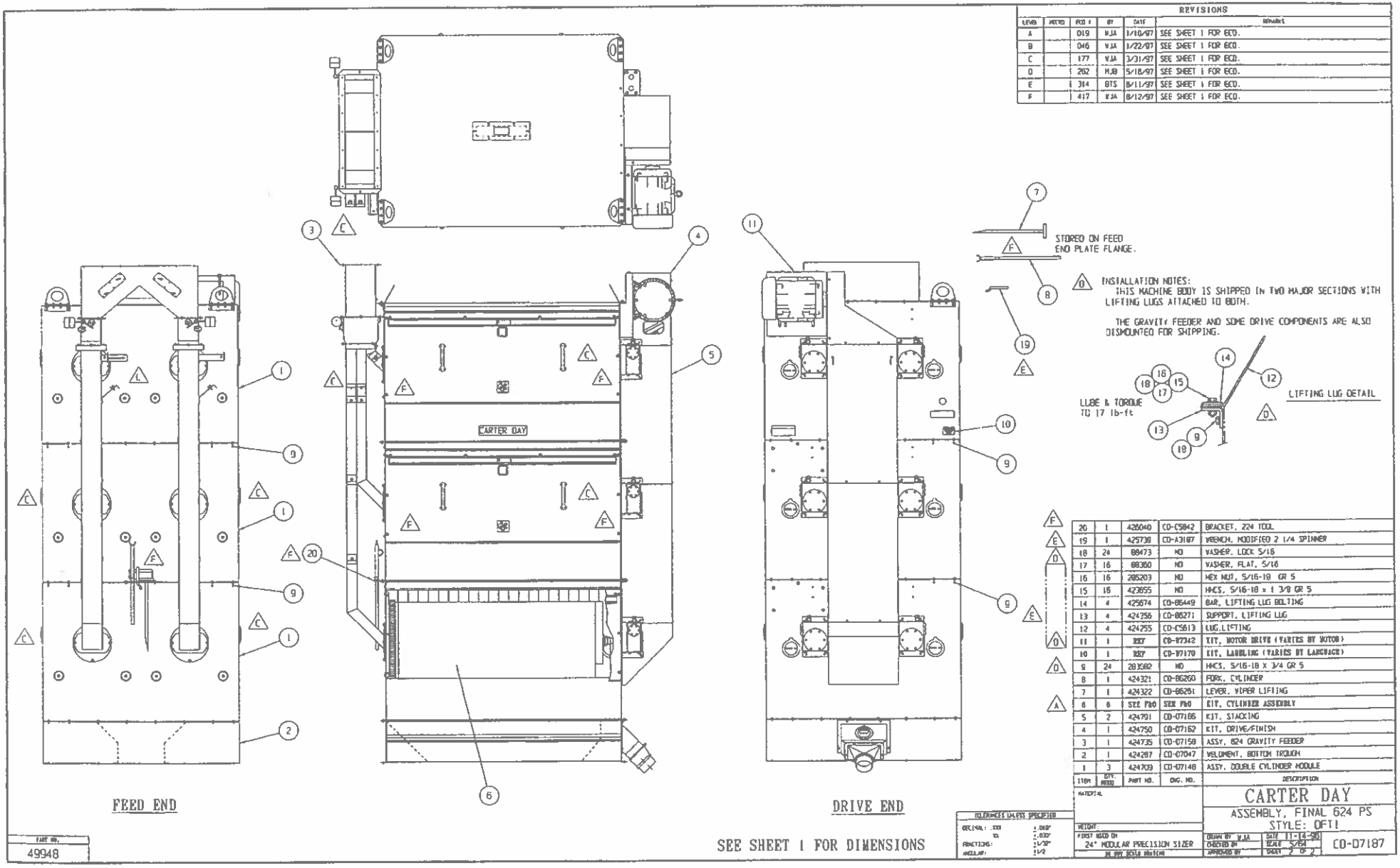
DESIGN BY WJA | DATE 11-15-96
CHECKED BY | SCALE 1/16
APPROVED BY | SHEET 1 OF 2

CD-07187

INCHES (mm)

TOLERANCES UNLESS SPECIFIED
DECIMAL: .XXX ± .010"
.XX ± .030"
FRACTIONS ± 1/32"
ANGULAR: ± 1°

PART NO.
49948



REVISIONS					
LEVEL	PRINTED	ECO #	BY	DATE	REMARKS
A		019	MJA	1/16/97	SEE SHEET 1 FOR ECO.
B		046	MJA	1/22/97	SEE SHEET 1 FOR ECO.
C		177	MJA	3/31/97	SEE SHEET 1 FOR ECO.
D		262	MJB	5/16/97	SEE SHEET 1 FOR ECO.
E		314	BTS	8/11/97	SEE SHEET 1 FOR ECO.
F		417	MJA	8/12/97	SEE SHEET 1 FOR ECO.

ITEM	QTY. REQD	PART NO.	DWG. NO.	DESCRIPTION
20	1	426040	CD-C5842	BRACKET, Z24 TOOL
19	1	425739	CD-A3187	WRENCH, MODIFIED 2 1/4 SPINNER
18	24	88473	NO	WASHER, LOCK 5/16
17	16	88360	NO	WASHER, FLAT, 5/16
16	16	285203	NO	HEX NUT, 5/16-18 GR 5
15	16	423655	NO	HHCS, 5/16-18 x 1 3/4 GR 5
14	4	425674	CD-B5449	BAR, LIFTING LUG BOLTING
13	4	424256	CD-B5271	SUPPORT, LIFTING LUG
12	4	424255	CD-C5813	LUG,LIFTING
11	1	XXX	CD-07342	KIT, MOTOR DRIVE (VARIES BY MOTOR)
10	1	XXX	CD-07170	KIT, LABELING (VARIES BY LANGUAGE)
9	24	283592	NO	HHCS, 5/16-18 X 3/4 GR 5
8	1	424321	CD-B6260	FORK, CYLINDER
7	1	424322	CD-B6261	LEVER, WIPER LIFTING
6	6	SEE PNO	SEE PNO	KIT, CYLINDER ASSEMBLY
5	2	424791	CD-07186	KIT, STACKING
4	1	424750	CD-07162	KIT, DRIVE/FINISH
3	1	424735	CD-07158	ASSY, 624 GRAVITY FEEDER
2	1	424287	CD-07047	WELDMENT, BOTTOM TROUGH
1	3	424709	CD-07148	ASSY, DOUBLE CYLINDER MODULE

MATERIAL:
WEIGHT:
FIRST USED ON: 24" MODULAR PRECISION SIZER
ALL RIGHTS RESERVED

TOLERANCES UNLESS SPECIFIED
DECIMAL: .XXX ±.010" .XX ±.020"
FRACTIONS: ±1/32"
ANGULAR: ±1/2

CARTER DAY

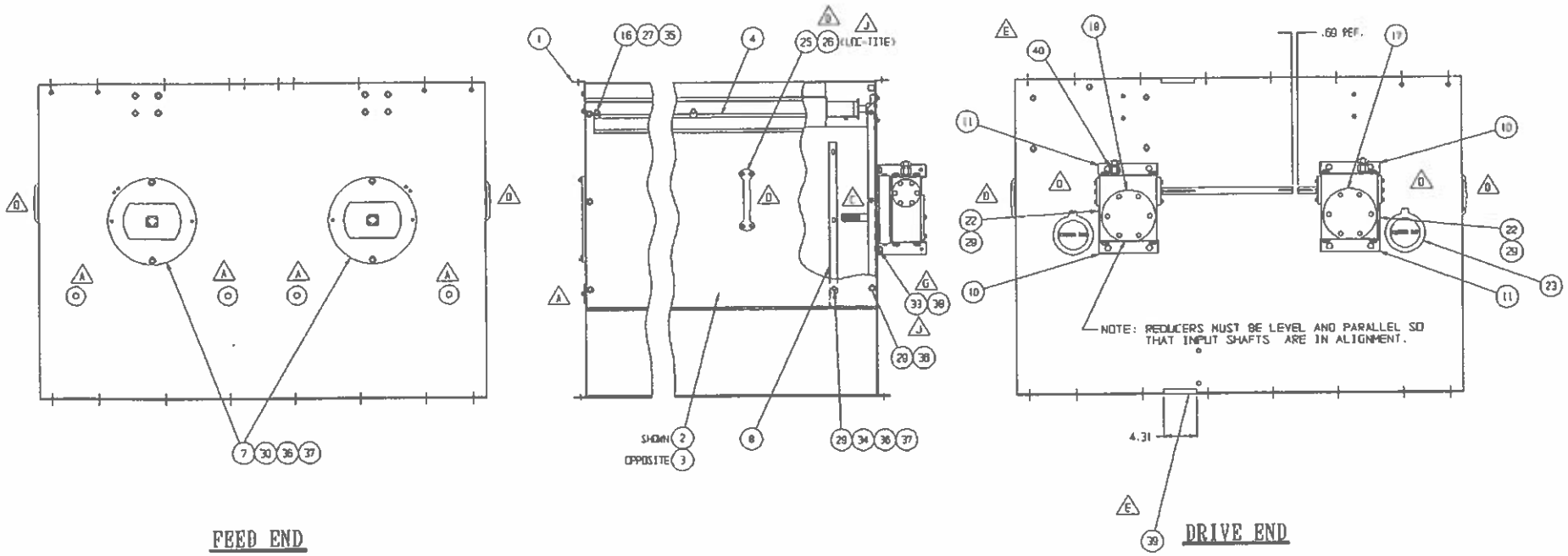
ASSEMBLY, FINAL 624 PS
STYLE: OFT!

DRAWN BY: MJA DATE: 11-14-96
CHECKED BY: SCALE: 3/64
APPROVED BY: SHEET 2 OF 2

CD-07187

PART NO. 49948

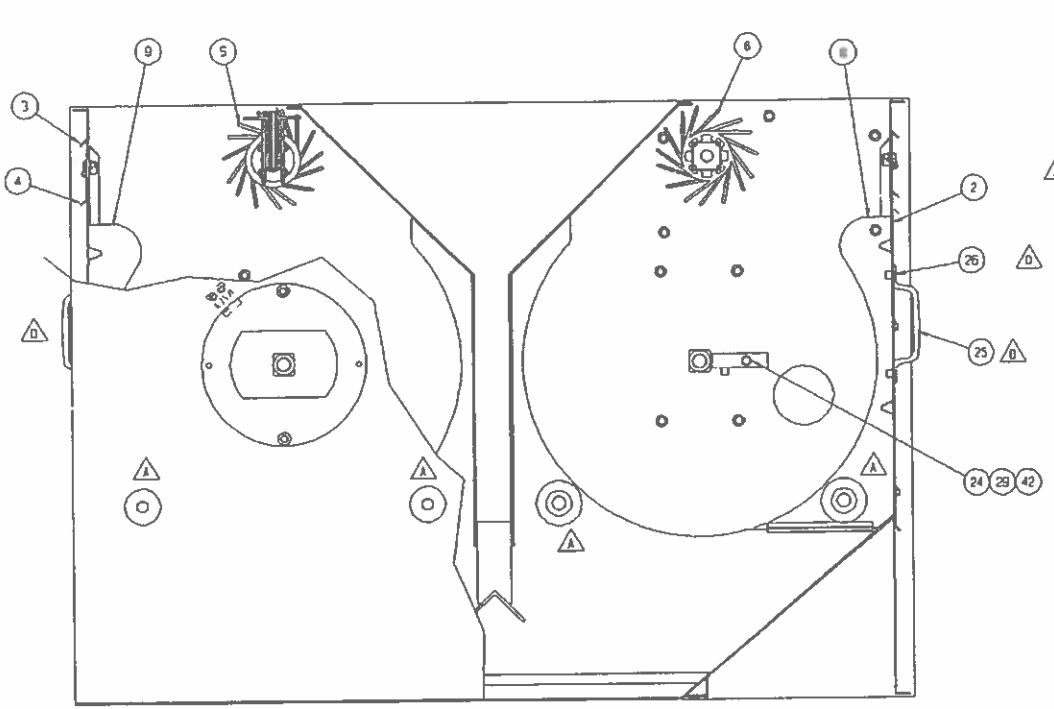
REVISIONS					
LEVEL	ZONE	ECO #	BY	DATE	REMARKS
A		091	WJA	2/18/95	PICT. CHG TRUNNION BRG ASSY TO NEW DESIGN.
B		019	WJA	1/16/97	PICT. CHG ITEMS 14,15 & WIPER DRIVE ROLLER. DEL. 2.19 REF & ADD 1.72 REF.
C		145	MJB	3-3-97	ITEM #15 WAS 421782. PICTORIALLY UPDATED
D		177	WJA	3/26/97	ADD HANDLE & HDWR (ITEMS 30,31 & 32). ADD PLUG (ITEM 33) & SEAL (ITEM 34).
E		200	MJB	5/05/97	ADDED 419106,427703,425051, 688372 - 88092 WAS 88183 - 207592 688473 WAS QUAN.(5E) - 88184 & 88958 WAS QUAN. (4)
F		313	BTS	8/18/97	ADDED 425787, 425774, 425777, & 88188; REMOVED 424051, 425741 WAS 425325; QUAN. 415305 WAS (4), 207592 WAS (42)
G		381	MJB	9/26/97	CHANGED QUAN.OF #21,29, 31, 43 & 37 - PICT UPDATED
H		387	MJB	10/01/97	CHANGED QUAN OF #24 TO (2)
J		423	WJA	8/13/98	SHT 3 - CHG ITEM 32 - WAS: P/N 88548/NUT HEX 1/4-20. ADD P/N 438334MCS OS 1/2-13 X 1.50 (NEW ITEM 33) CHG ITEM 33 THRU 41 TO 34 THRU 42. SHT 2 - CHG FROM ITEM 29 TO 30 & 30 TO 32. CHG BALLOONS SHT 1 - DEL ITEM 32. CHG FROM ITEM 31 TO 33. CHG BALLOONS

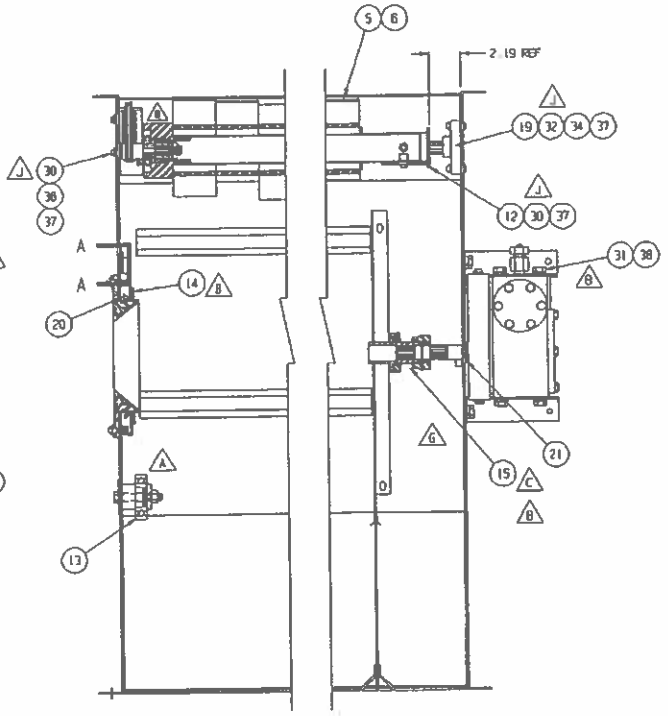


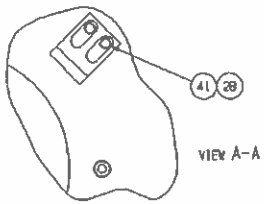
SEE SHEET 2 FOR SECTION VIEWS
SEE SHEET 3 FOR BILL OF MATERIAL

PART NO.	424709		
DESCRIPTION:	CARTER DAY		
	ASSY, CYLINDER MODULE		
	#24 MODULAR PRECISION SIZER		
DRAWN BY	W.J.A.	DATE	10/31/95
TRACED BY		SCALE	3/8
DRAWING NO.	CD-07148	SHEET	1 OF 3

REVISIONS					
LTR	MOD	ECO #	BY	DATE	REMARKS
K		387	MJB	8/01/97	SEE SHEET 1 FOR ECO.
J		423	V.M	8/13/97	SEE SHEET 1 FOR ECO.







VIEW A-A

SEE SHEET 1 FOR OVERVIEWS
SEE SHEET 3 FOR BILL OF MATERIAL

ITEM	QTY. REQD.	PART NO.	DWG. NO.	DESCRIPTION
MATERIAL				
WEIGHT:				
FINISH UNLESS OTHERWISE SPECIFIED				

CARTER DAY
ASSY, CYLINDER MODULE
F724 MODULAR PRECISION SIZER

DRAWN BY V.M. DATE 10/21/96
ENGINEER APPROVAL DATE
MANUFACTURING APPROVAL DATE
SCALE 1/4 SHEET 2 OF 3

CD-07148

PART NO.
424709

ITEM	QTY. REQD.	PART NO.	DWG. NO.	DESCRIPTION
1	1	424294	CD-07051	WELDMENT, MAIN BODY
2	1	424273	CD-07041	PANEL, CYLINDER ACCESS RH.
3	1	424272	CD-07040	PANEL, CYLINDER ACCESS LH.
4	2	421113	CD-C5351	DOOR, CYLINDER INSPECTION
5	1	424401	CD-07075	SUB ASSY, WIPER SHAFT, L.H.
6	1	424402	CD-07075	SUB ASSY, WIPER SHAFT, R.H.
7	2	424048	CD-06958	INLET, SPOUT RING
8	1	424299	CD-C5832	DIVIDER, RH. ACCESS PANEL
9	1	424300	CD-C5633	DIVIDER, LH. ACCESS PANEL
10	2	424258	CD-C5816	BRACKET, REDUCER MOUNTING RH
11	2	424257	CD-C5815	BRACKET, REDUCER MOUNTING LH
12	2	423001	CD-86041	SUPPORT, WIPER STUB SHAFT
13	4	424260	CD-C5818	ASSEMBLY, TRUNNION BRG.
14	2	424053	CD-86233	ASSEMBLY, CYLINDER SEAL
F A	2	425741	CD-86476	ASSEMBLY, 24° CYLINDER COUPLING
16	4	422046	CD-A3099	CLIP, HINGE
E	1	424405	CD-07076	REDUCER, 25:1 MODIFIED, SHAFT LH THRD.
E	1	424406	CD-07077	REDUCER, 25:1 MODIFIED, LG SHAFT STD.THRD.
19	2	423010	CD-A3115	BRG, BALL 2-HOLE 7/8 BORE
20	2	424050	CD-A3158	WAVE SPRING
21	2	421569	NO	SEAL, 'FORSHEDA' V-25A
22	2	424253	CD-86247	GUARD, REDUCER SIDE
A	2	415325	CD-85033	PLUG, SAMPLING/CLEANOUT
A	2	425767	CD-86482	ANGLE, COUPLING STOP
25	4	411630	PPD	HANDLE, GRAB, HEAVY DUTY
26	16	88159	NO	FHMS, 1/4-20 X 1/2
E	8	88181	NO	HHCS, 1/4-20 X 1.00
A	4	88188	NO	HHCS, 5/16-18 x 1/2
A	24	283582	NO	HHCS, 5/16-18 x 3/4
J	16	88952	NO	HHCS, 5/16-18 x 1.00
A	16	419186	NO	HHCS, 1/2-13 x 3/4
D	4	423655	NO	HHCS, GS 5/16-18 X 1 3/8
J	8	43833	NO	HHCS, GS 1/2-13 X 1 1/2
34	16	285203	NO	NUT, HEX 5/16-18
E	8	88358	NO	WASHER, FLAT 1/4
36	20	88380	NO	WASHER, FLAT 5/16
A	32	88473	NO	WASHER, SPRING-LOC 5/16
A	24	88372	NO	WASHER, SPRING-LOC 1/2
E	.75'	423763	CD-86156	RUBBER GROMMET STRIP
E	2	425651	NO	ADAPTER, BRASS 1/2 x 1/2 PIPE
A	2	425774	CDA3189	BRACKET, SEAL STOP
A	2	425777	CD-A3191	BELLEVILLE DISC SPRING (REF MCMARR #8712K66)

REVISIONS					
LEVEL	MICRO	ECO #	BY	DATE	REMARKS
H		397	MJB	8/01/97	SEE SHEET 1 FOR ECO
J		423	VJA	8/13/97	SEE SHEET 1 FOR ECO

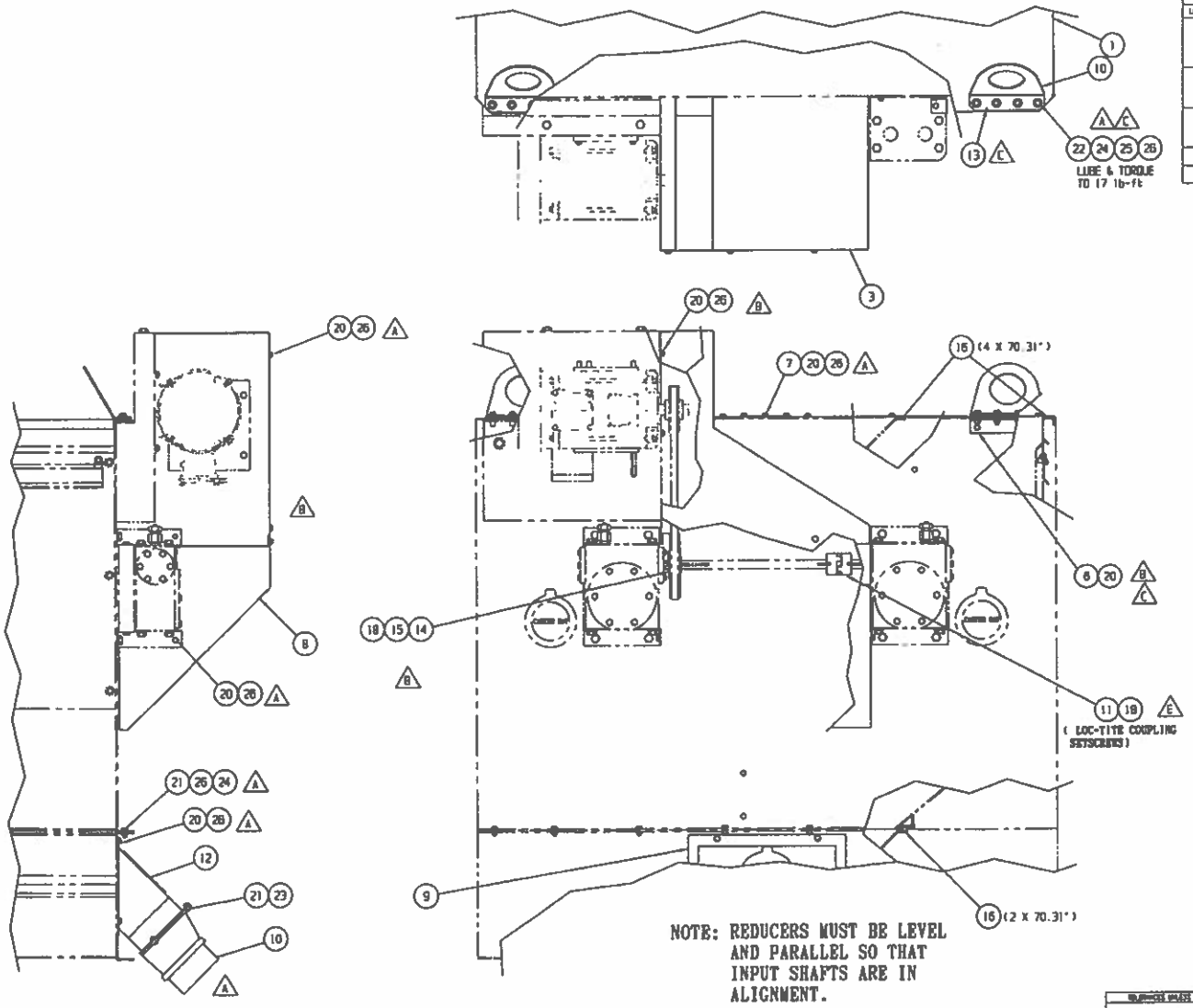
SEE SHT. 1 FOR OVERVIEWS
SEE SHT. 2 FOR SECTIONS

ITEM	QTY. REQD.	PART NO.	DWG. NO.	DESCRIPTION
				CARTER DAY
				ASSY, CYLINDER MODULE
				#224 MODULAR PRECISION SIZER
				CO-07148

UNLESS OTHERWISE SPECIFIED	
DECIMAL: .XX	± .010"
.XXX	± .005"
FRACTIONS:	± 1/32"
ANGLES:	± 1/2°

DRAWN BY: MJB DATE: 10/31/2001
CHECKED BY: SCALE: 1/2
APPROVED BY: SHEET 1 OF 2

NEXT NO.
424709



REVISIONS					
LEVEL	FROM	ECO #	BY	DATE	REMARKS
A		630	MJA	11/22/96	SHT 1 - UPDATE BALLOONS TO MATCH NEW PARTS LIST. SHT 2 - CHG QTY ON ITEMS 5,6,22,24 & 25 - WAS: 2,2,8,16 & 32. CHG ITEMS 8,10,15 & 22 - WAS: 424303,424389, 42032 & 43833.
B		251	MJB	5/03/97	PICTORIALLY UPDATED FOR NEW DRIVE - REMOVED BELT, RE-NUMBERED ITEMS 15-24 - 425804 WAS 424416 - 75476 WAS 75718 - 424358 WAS QUANITY OF (4)
C		278	MJB	5/15/97	PICTORIALLY UPDATED LIFTING LUGS -ADDED 425870 & DELETED - 423855 WAS 88184 - 260582 WAS QUANITY OF (25), 68473 WAS (40) - RENUMBERED AND ADDED TORQUE NOTE TO LUGS
D		377	MJB	7/23/97	67495 WAS 425804, 425840 WAS 424407
E		422	MJB	8/12/97	ADDED NOTE

ITEM	QTY REQD.	PART NO.	DWG. NO.	DESCRIPTION
MATERIAL: SEE SHEET 2 FOR BILL OF MATERIAL				CARTER DAY
VENDOR:				KIT, DRIVE/FINISH
FINISH: 24" MODULAR PRECISION SIZER				

DRAWN BY: MJA	DATE: 11/22/96
CHECKED BY:	SCALE: 3/16
APPROVED BY:	SHEET 1 OF 2

CD-07162

PART NO. 424750

REVISIONS					
LEVEL	ZONE	ECO #	BY	DATE	REMARKS
E		422	KLB	6/12/92	SEE SHEET 1 FOR ECO.

ITEM	QTY. REQD	PART NO.	DWG. NO.	DESCRIPTION
1	1	424295	CO-07052	PLATE, TOP
2	1	424319	CO-07057	BRACKET, MOTOR GUARD SUPPORT
3	1	424301	CO-07054	GUARD, DRIVE, UPPER
4	1	REF	CO-07342	KIT, MOTOR DRIVE (OPTION)
5	4	424255	CO-C5813	LUG, LIFTING
6	3	424358	CO-86271	SUPPORT, LIFTING LUG
7	1	421804	CO-85921	COVER, TOP AIR CONNECTION
8	1	424302	CO-07055	GUARD, DRIVE, LOWER
9	1	424877	CO-C5707	SPOUT, OVERS DISCHARGE
10	1	424875	CO-07208	SPOUT, 5.00 OVERS CAST DISCHARGE
11	1	425940	CO-86511	COUPLING, 'LOVEJOY' .875 B.
12	1	415325	CO-85033	PLUG, SAMPLING/CLEANOUT
13	4	425874	CO-86449	BAR, LIFTING LUG BOLTING
14	1	87498	NO	SHV., 1 GRV. 6.2 PD. 'B'
15	1	75479	NO	BUSHING, 'QD' SDS .875 BORE
16	24'	285907	NO	TAPE, NEOP. 1/4 x 1 1/4 SCE41 HARD
17	12'	285922	NO	TAPE, NEOP. 1/2 x 1 SCE41 HARD
18	3	14607	NO	KEY, 3/16 SQ. x 1 1/8
19	4	286278	NO	HHCS, 1/4-20 x 5/8
20	6	284457	NO	HHCS, 5/16-18 x 5/8
21	31	283582	NO	HHCS, 5/16-18 x 3/4
22	18	423655	NO	HHCS, 5/16-18 x 1 3/8
23	4	285202	NO	NUT, HEX 1/4-20
24	24	285203	NO	NUT, HEX 5/16-18
25	18	88380	NO	WASHER, FLAT 5/16
26	48	88473	NO	WASHER, SPRING-LOC 5/16

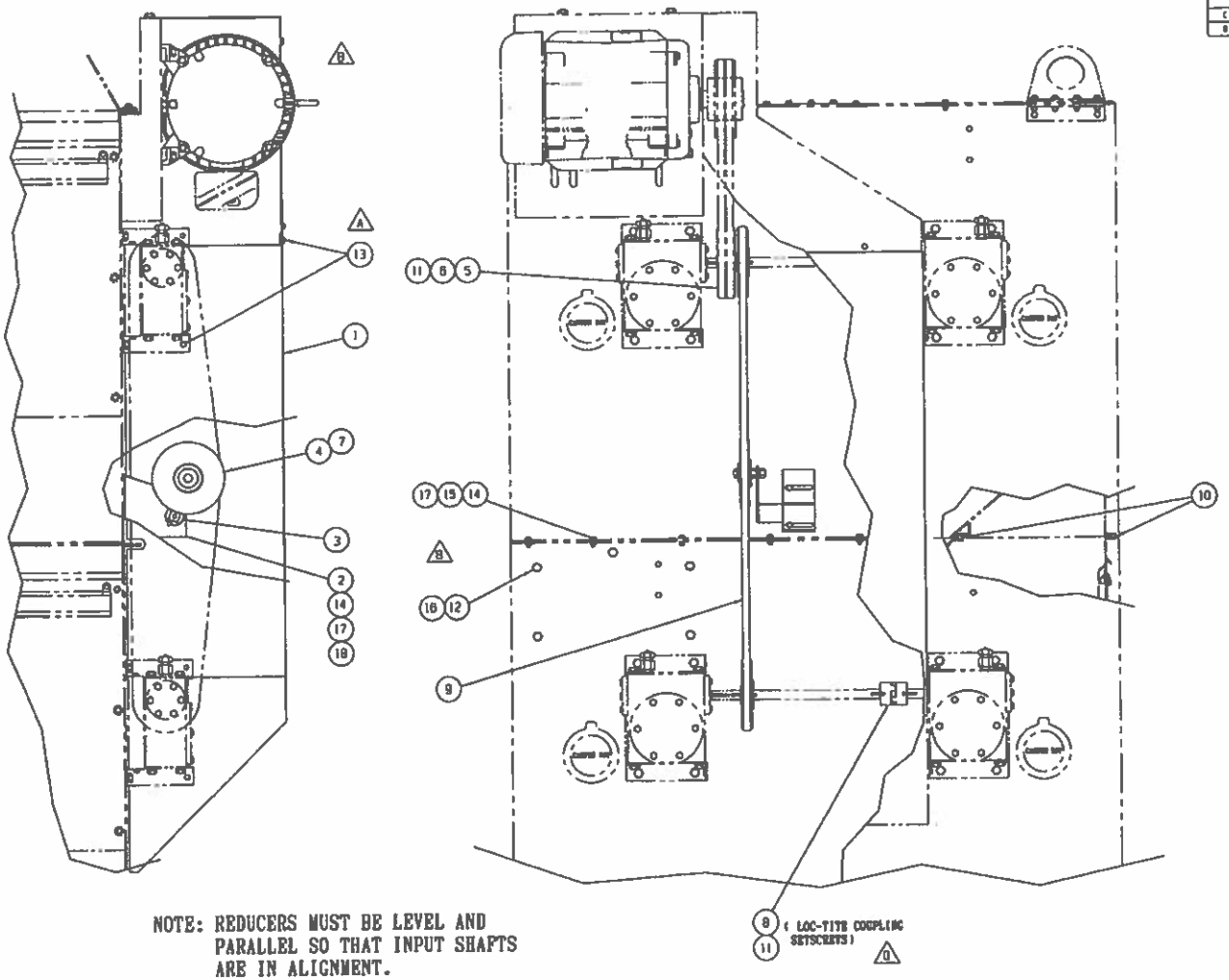
SEE SHEET 1 FOR OVERVIEWS

ITEM	QTY. REQD.	PART NO.	DWG. NO.	DESCRIPTION
				CARTER DAY
				KIT, DRIVE/FINISH

DRAWN BY	K.L.A.
DATE	6/5/92
ENGINEER	
SCALE	1/2
CHECKED BY	
SIZE	D

CO-07162

PART NO. 424750



REVISIONS					
LEVEL	ECO#	BY	DATE	REMARKS
A				
B				
C				
D				

ITEM	QTY. PER	PART NO.	ENG. NO.	DESCRIPTION
18	2	88010	NO	WASHER, FLAT 5/16
17	10	88473	NO	WASHER, SPRING-LOC 5/16
19	9	88372	NO	WASHER, SPRING-LOC 1/2
15	10	205203	NO	NUT, HEX 5/16-18
14	10	203502	NO	HHCS, 5/16-18 X 3/4
13	5	204457	NO	HHCS, 5/16-18 X 5/8
12	5	1010001	NO	HHCS, 1/2-13 X 1.00 GR.8
11	3	14807	NO	KEY, 3/16 SQ. X 1 1/8
10	24'	205022	NO	TAPE, NEOP. 1/2 X 1 SIDED HARD
9	1	425808	NO	V-BELT, B100
8	1	425840	CO-08511	COUPLING, "LOVEJOY" .875 B.
7	1	43802	NO	BUSHING, IDLER SDS
6	1	75479	NO	BUSHING, "QD" SDS .875 BORE
5	2	88880	NO	SHR., 6.2 PD. B. 2 GRV.
4	2	87458	NO	SHR., 6.2 PD. B. 1 GRV.
3	1	420080	NO	TENSIONER, SE-15
2	1	425807	CO-C5773	BRACKET, 24' TENSIONER
1	1	424788	CO-07183	GUARD, LONG VERTICAL DRIVE

MATERIAL: SEE PARTS LIST

FINISH:

PURPOSE: 24" MODULAR PRECISION SIZER

DRAWN BY: [illegible] DATE: 11/20/95

CHECKED BY: SCALE: 3/16

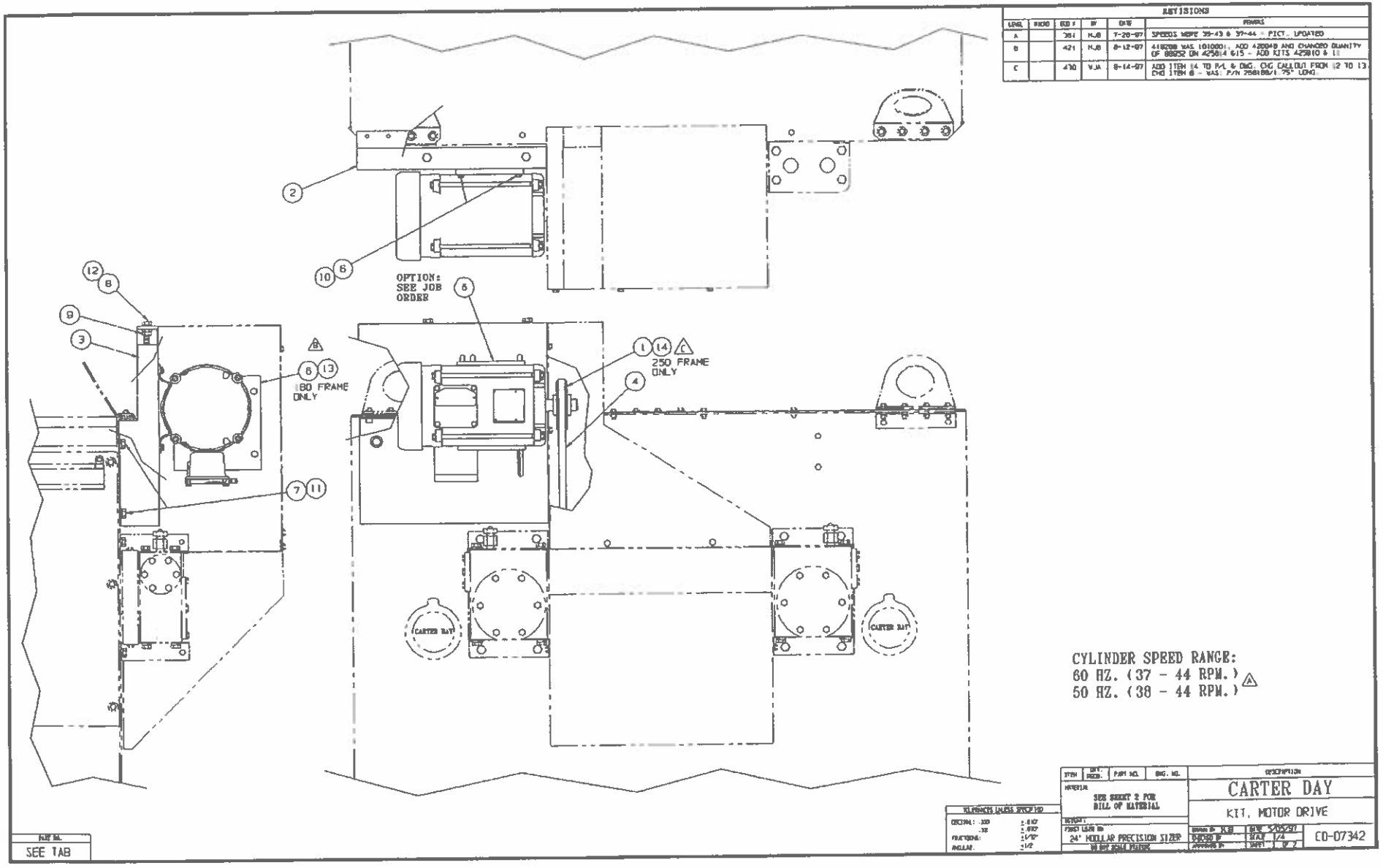
APPROVED BY: SIZE: D SHT. 1

CARTER DAY

KIT, STACKING

CO-07166

PART NO. 424791


OPTION:
SEE JOB
ORDER
180 FRAME
ONLY
250 FRAME
ONLY
CARTER DAY
CARTER DAY
CYLINDER SPEED RANGE:
60 HZ. (37 - 44 RPM.) △
50 HZ. (38 - 44 RPM.)
SEE TAB
CARTER DAY
KIT, MOTOR DRIVE
CD-07342

PN.425614 KIT, MOTOR DRIVE 180/60 Hz.

ITEM	QTY. REQD.	PART NO.	ORG. NO.	DESCRIPTION
1	1	425598	NO	SHEAVE, VP 6.00 OD 4.9-5.9 PD, 1 GR.1.13 B
2	1	425808	CD-07332	PLATE, MOTOR SUPPORT 180
3	1	425811	CD-C5770	PLATE, MOTOR BACKING 180
4	2	425805	NO	V-BELT, BX-48 COG "TORQUE-FLEX"
5	1	OPTION	REF.	MOTOR
6	0	88952	NO	HHCS, 5/16-18 x 1
7	5	410288	NO	HHCS, 1/2-13 x 1.25
8	2	425587	CD-A3183	HHCS, 1/2-13 x 8.00 FULLY THREADED
9	4	88264	NO	NUT, JAM 1/2-13
10	4	88473	NO	WASHER, SPRING-LOC 5/16
11	5	88372	NO	WASHER, SPRING-LOC 1/2
12	2	47526	NO	WASHER, NYLON 1/2
13	1	428048	CD-88523	COVER, 180 MOTOR FILLER

PN.425615 KIT, MOTOR DRIVE 180/60 Hz.

ITEM	QTY. REQD.	PART NO.	ORG. NO.	DESCRIPTION
1	1	425801	NO	SHEAVE, VP 7.30 OD 6.3-7.3 PD, 1 GR.1.13 B
2	1	425809	CD-07332	PLATE, MOTOR SUPPORT 180
3	1	425811	CD-C5770	PLATE, MOTOR BACKING 180
4	2	425805	NO	V-BELT, BX-48 COG "TORQUE-FLEX"
5	1	OPTION	REF.	MOTOR
6	0	88952	NO	HHCS, 5/16-18 x 1
7	5	410288	NO	HHCS, 1/2-13 x 1.25
8	2	425587	CD-A3183	HHCS, 1/2-13 x 8.00 FULLY THREADED
9	4	88264	NO	NUT, JAM 1/2-13
10	4	88473	NO	WASHER, SPRING-LOC 5/16
11	5	88372	NO	WASHER, SPRING-LOC 1/2
12	2	47526	NO	WASHER, NYLON 1/2
13	1	428048	CD-88523	COVER, 180 MOTOR FILLER

PN.425616 KIT, MOTOR DRIVE 210/60 Hz.

ITEM	QTY. REQD.	PART NO.	ORG. NO.	DESCRIPTION
1	1	425599	NO	SHEAVE, VP 6.00 OD 4.9-5.9 PD.2 GR.1.375 B
2	1	425809	CD-07332	PLATE, MOTOR SUPPORT 210
3	1	425812	CD-C5771	PLATE, MOTOR BACKING 210
4	2	425805	NO	V-BELT, BX-48 COG "TORQUE-FLEX"
5	1	OPTION	REF.	MOTOR
6	4	941043	NO	HHCS, 3/8-16 x 1.50
7	5	410288	NO	HHCS, 1/2-13 x 1.25
8	2	425587	CD-A3183	HHCS, 1/2-13 x 8.00 FULLY THREADED
9	4	88264	NO	NUT, JAM 1/2-13
10	4	88548	NO	WASHER, SPRING-LOC 3/8
11	5	88372	NO	WASHER, SPRING-LOC 1/2
12	2	47526	NO	WASHER, NYLON 1/2

PN.425617 KIT, MOTOR DRIVE 210/50 Hz.

ITEM	QTY. REQD.	PART NO.	ORG. NO.	DESCRIPTION
1	1	425802	NO	SHEAVE, VP 7.30 OD 6.3-7.3 PD.2 GR.1.375 B
2	1	425808	CD-07332	PLATE, MOTOR SUPPORT 210
3	1	425812	CD-C5771	PLATE, MOTOR BACKING 210
4	2	425805	NO	V-BELT, BX-48 COG "TORQUE-FLEX"
5	1	OPTION	REF.	MOTOR
6	4	941043	NO	HHCS, 3/8-16 x 1.50
7	5	410288	NO	HHCS, 1/2-13 x 1.25
8	2	425587	CD-A3183	HHCS, 1/2-13 x 8.00 FULLY THREADED
9	4	88264	NO	NUT, JAM 1/2-13
10	4	88548	NO	WASHER, SPRING-LOC 3/8
11	5	88372	NO	WASHER, SPRING-LOC 1/2
12	2	47526	NO	WASHER, NYLON 1/2

PN.425618 KIT, MOTOR DRIVE 250/60 Hz.

ITEM	QTY. REQD.	PART NO.	ORG. NO.	DESCRIPTION
1	1	425600	NO	SHEAVE, VP 8.00 OD 4.9-5.9 PD.2 GR 1.625 B
2	1	425810	CD-07334	PLATE, MOTOR SUPPORT 250
3	1	425813	CD-C5772	PLATE, MOTOR BACKING 250
4	2	425805	NO	V-BELT, BX-48 COG "TORQUE-FLEX"
5	1	OPTION	REF.	MOTOR
6	4	410826	NO	HHCS, 1/2-13 x 2.00
7	5	410288	NO	HHCS, 1/2-13 x 1.25
8	2	425587	CD-A3183	HHCS, 1/2-13 x 8.00 FULLY THREADED
9	4	88264	NO	NUT, JAM 1/2-13
10	0	NA	NA	(NOT USED)
11	9	88372	NO	WASHER, SPRING-LOC 1/2
12	2	47526	NO	WASHER, NYLON 1/2
13	0	NA	NA	(NOT USED)
14	1	428053	NO	KEY, 1/4 X 3/8 X 3.00

PN.425619 KIT, MOTOR DRIVE 250/50 Hz.

ITEM	QTY. REQD.	PART NO.	ORG. NO.	DESCRIPTION
1	1	425803	NO	SHEAVE, VP 7.30 OD 6.3-7.3 PD.2 GR 1.625 B
2	1	425810	CD-07334	PLATE, MOTOR SUPPORT 250
3	1	425813	CD-C5772	PLATE, MOTOR BACKING 250
4	2	425805	NO	V-BELT, BX-48 COG "TORQUE-FLEX"
5	1	OPTION	REF.	MOTOR
6	4	410826	NO	HHCS, 1/2-13 x 2.00
7	5	410288	NO	HHCS, 1/2-13 x 1.25
8	2	425587	CD-A3183	HHCS, 1/2-13 x 8.00 FULLY THREADED
9	4	88264	NO	NUT, JAM 1/2-13
10	0	NA	NA	(NOT USED)
11	9	88372	NO	WASHER, SPRING-LOC 1/2
12	2	47526	NO	WASHER, NYLON 1/2
13	0	NA	NA	(NOT USED)
14	1	428053	NO	KEY, 1/4 X 3/8 X 3.00

PN.425610 KIT, MOTOR DRIVE 100/50 Hz.

ITEM	QTY. REQD.	PART NO.	ORG. NO.	DESCRIPTION
1	1	426037	NO	SHEAVE, VP 7.30 OD 6.3-7.3 PD.2 GR 20mm B
2	1	426044	CD-07486	PLATE, MOTOR SUPPORT 100
3	1	426048	CD-C5843	PLATE, MOTOR BACKING 100
4	2	425805	NO	V-BELT, BX-48 COG "TORQUE-FLEX"
5	1	OPTION	REF.	MOTOR
6	4	88952	NO	HHCS, 5/16-18 x 1
7	5	410288	NO	HHCS, 1/2-13 x 1.25
8	2	425587	CD-A3183	HHCS, 1/2-13 x 8.00 FULLY THREADED
9	4	88264	NO	NUT, JAM 1/2-13
10	4	88473	NO	WASHER, SPRING-LOC 5/16
11	5	88372	NO	WASHER, SPRING-LOC 1/2
12	2	47526	NO	WASHER, NYLON 1/2

PN.425611 KIT, MOTOR DRIVE 132/50 Hz.

ITEM	QTY. REQD.	PART NO.	ORG. NO.	DESCRIPTION
1	1	426038	NO	SHEAVE, VP 7.30 OD 6.3-7.3 PD.2 GR.30mm B
2	1	426045	CD-07486	PLATE, MOTOR SUPPORT 132
3	1	426047	CD-C5844	PLATE, MOTOR BACKING 132
4	2	425805	NO	V-BELT, BX-48 COG "TORQUE-FLEX"
5	1	OPTION	REF.	MOTOR
6	4	941043	NO	HHCS, 3/8-16 x 1.50
7	5	410288	NO	HHCS, 1/2-13 x 1.25
8	2	425587	CD-A3183	HHCS, 1/2-13 x 8.00 FULLY THREADED
9	4	88264	NO	NUT, JAM 1/2-13
10	4	88548	NO	WASHER, SPRING-LOC 3/8
11	5	88372	NO	WASHER, SPRING-LOC 1/2
12	2	47526	NO	WASHER, NYLON 1/2

REVISIONS			
LTR.	MOD	ECO #	REMARKS
B		421	SEE SHEET 1
C		430	SEE SHEET 1

SEE SHEET 1 FOR OVERVIEWS

ITEM	QTY. REQD.	PART NO.	ORG. NO.
MATERIAL			
WEIGHT:			

DESCRIPTION

CARTER DAY

KIT, MOTOR DRIVE

CO-07342

UNLESS SPECIFIED: DECIMAL .XXX ±.010", .XX ±.020"; FRACTIONS ±1/32"; ANGULAR ±1/2°

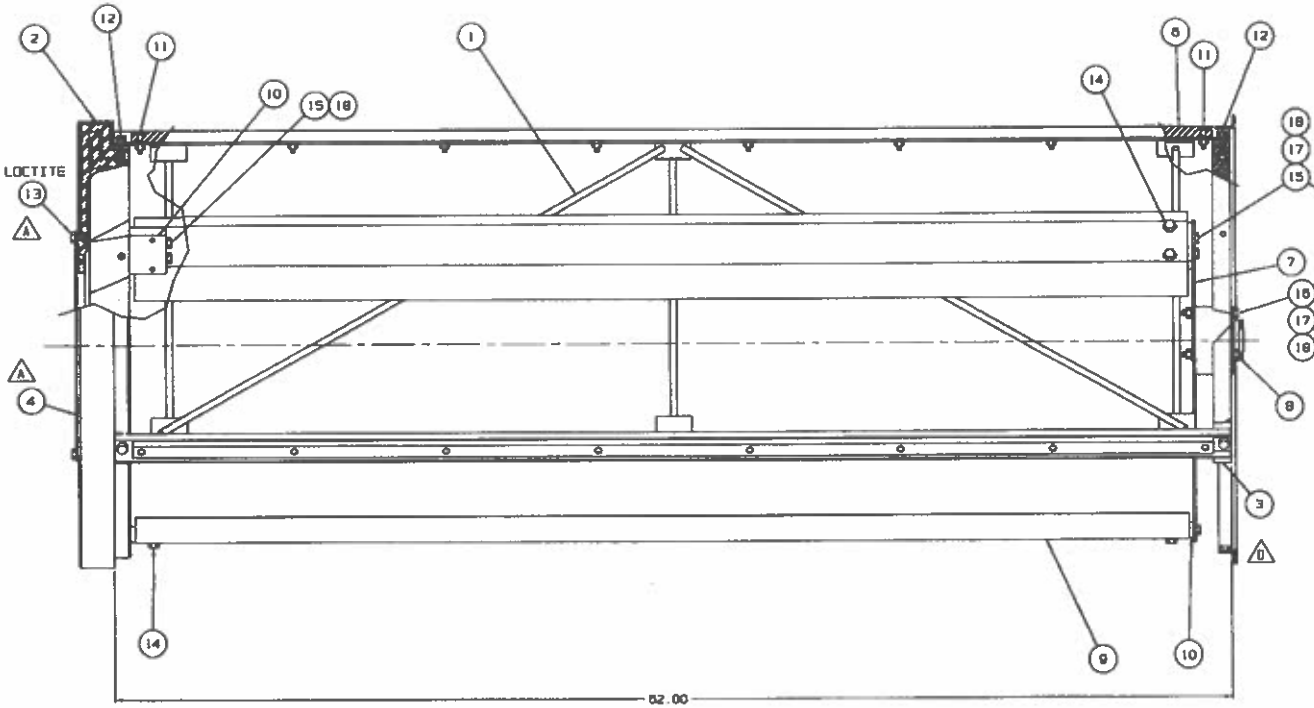
FIRST USED ON: 24" MODULAR PRECISION SIZER

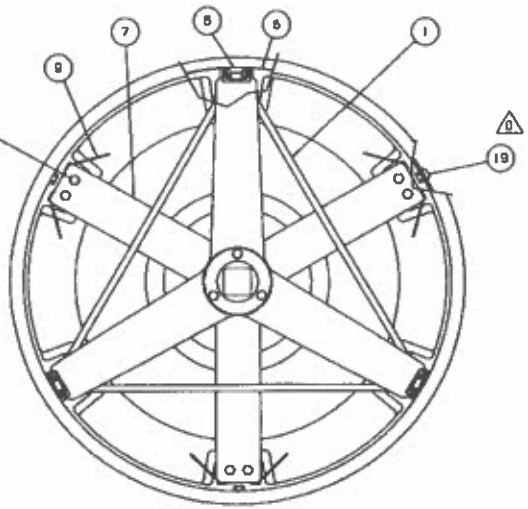
DRAWN BY: KJB | DATE: 5/26/97

CHECKED BY: | DATE:

APPROVED BY: | SHEET 2 OF 2

NEXT ASS'Y: SEE TAB





REVISIONS					
LTR.	ECN	ECR #	BY	DATE	REMARKS
A		845	MJA	1/28/98	CHG ITEM 2 & 3 - WAS: 424042/CD-88888 & 424043/CD-88887. ADD NEW ITEMS 4 & 14. CHG P/L & UPDATE BALLOONS.
B		819	MJA	1/10/97	PICT. CHANGE ITEM 6 TO NEW DESIGN. DELETE ITEM 11 - WAS: P/N 421770/CD-A3083/SPACER, CYL. ASSY.
C		222	MJB	4/17/97	ADDED ITEM #19
D		348	MJB	7/10/97	ITEM #19 WAS QUAN. 12 - UPDATED TO SHOW DISCHARGE RING

	ITEM	QTY. REQ'D.	PART NO.	DWG. NO.	DESCRIPTION
D	19	6	422335	NO	BHSOC. 5/16-18 x .75
	18	15	88473	NO	WASHER, SPG-LOC 5/16
	17	9	88251	NO	NUT, 5/16-18
	16	3	81013	NO	HHCS, 5/16-18 x 3.00
	15	12	81012	NO	HHCS, 5/16-18 x 2.75
A	14	4	88192	NO	HHCS, 5/16-18 x 1.00
	13	10	88188	NO	HHCS, 5/16-18 x .63
	12	6	88201	NO	SHCS, 3/8-16 x .75
B	11	24	88782	NO	SHCS, 1/4-20 x 1.25
	10	6	424383	CD-88283	BLOCK, 24" BLADE BOLTING
	9	3	424387	CD-C9058	BLADE, 24" LIFTING
	8	1	420901	CD-C5108	SOCKET, CYLINDER COUPLING
	7	1	424388	CD-07072	SPIDER, 24" BLADE
	6	3	424389	CD-C5058	CLAMP-BAR, 24" SIZER SCREEN
	5	3	REF.	REF.	ASSEMBLY, 24" CYLINDER MODEL
	4	1	424738	CD-88325	PLATE, RECEIVING HEAD SEAL
A	3	1	424738	CD-07180	HEAD, 24" CYLINDER DISCHARGE, URETHANE
	2	1	424737	CD-07158	HEAD, 24" CYLINDER RECEIVING, URETHANE
	1	1	424387	CD-07071	CAGE, 24" CYLINDER

MATERIAL	
WEIGHT:	35 lbs.
FINISH SHOP STD	
24" HOG SIZER	

CARTER DAY

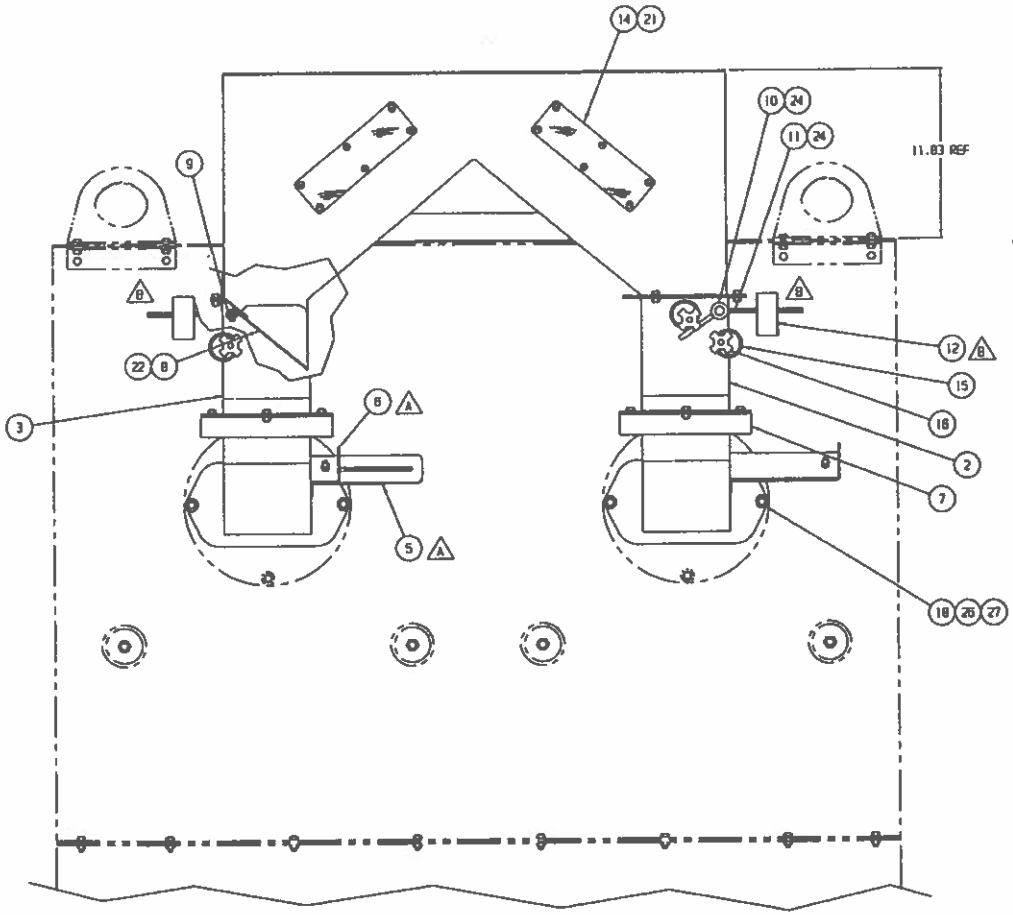
ASSEMBLY, 24" CYLINDER
(w/ BLADES STD.)

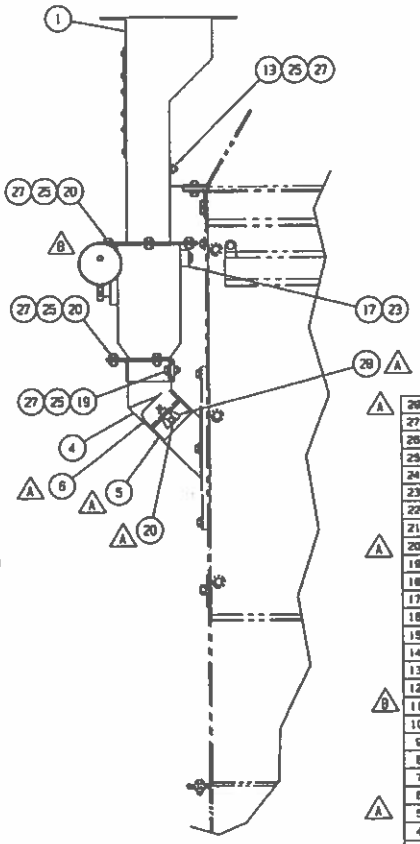
DRAWN BY MJB	DATE 12-14-98
CHECKED BY	SCALE 3/16
APPROVED BY	SHEET 1 OF 1

CD-07081

PART NO.
424412

REVISIONS					
LTR	ECO #	BY	DATE	REMARKS
A		187	VJA	3/18/97	DIG QTY - WAS: 18, ADD FLOW CONTROLS ITEMS 5,8 & 28.
B		247	VJA	5/3/97	DIG ITEMS 11 & 12 - WAS: P/N 421834 & 423887 PREV. DIG.





ITEM	QTY. REQD.	PART NO.	SUB. NO.	DESCRIPTION
28	2	14037	HC-24402	THUMBSCREW, 5/16-18 X .88
27	28	88473	NO	WASHER, SPRING-LOC 5/16
26	4	88380	NO	WASHER, FLAT 5/16
25	20	265203	NO	NUT, HEX 5/16-18
24	8	88306	NO	SETSCREW, 5/16-18 x 3/8
23	4	88310	NO	SET SCREW, 3/8-16 x 3/8
22	4	88402	NO	RHMS, #10-24 x 3/8
21	12	88410	NO	RHMS, 1/4-20 x 1/2
20	20	88189	NO	HHCS, 5/16-18 x 5/8
19	4	88191	NO	HHCS, 5/16-18 x 7/8
18	4	88183	NO	HHCS, 5/16-18 x 1 1/4
17	2	31118	NO	SET COLLAR (.83 B.)
16	4	45003	NO	KNOB
15	4	18231	HC-25844	CAM, FEED CONTROL
14	2	36452	CO-81832	WINDOW, LEXAN
13	1	424312	CO-86258	ANGLE, HOPPER SUPPORT
12	2	425844	CO-A3184	COUNTERWEIGHT
11	2	425846	CO-86439	ASS'Y, COUNTERWEIGHT SHAFT
10	2	60885	HC-25826	ASS'Y, FEED CONTROL LEVER
9	2	424311	CO-86257	SHAFT, 224 FEED VALVE
8	2	424308	CO-C5638	VALVE, 224 FEED HOPPER
7	2	424309	CO-86255	FLANGE, 224 SPOUT CLAMPING
6	2	425405	CO-86417	SLIDE, 224 FLOW CONTROL
5	2	425404	CO-86416	BRACKET, 224 FLOW CONTROL SLIDE
4	2	424306	CO-C5637	SPOUT, 224 FEED INLET
3	1	424305	CO-C3636	VALVE BODY, 224 FEEDER LH
2	1	424304	CO-C5635	VALVE BODY, 224 FEEDER RH
1	1	424307	CO-07058	HOPPER, 224 GRAVITY FEEDER

MATERIAL

FINISH

FIRST USED ON
24" MODULAR PRECISION SLIDE
THE DAY SEALER MACHINE

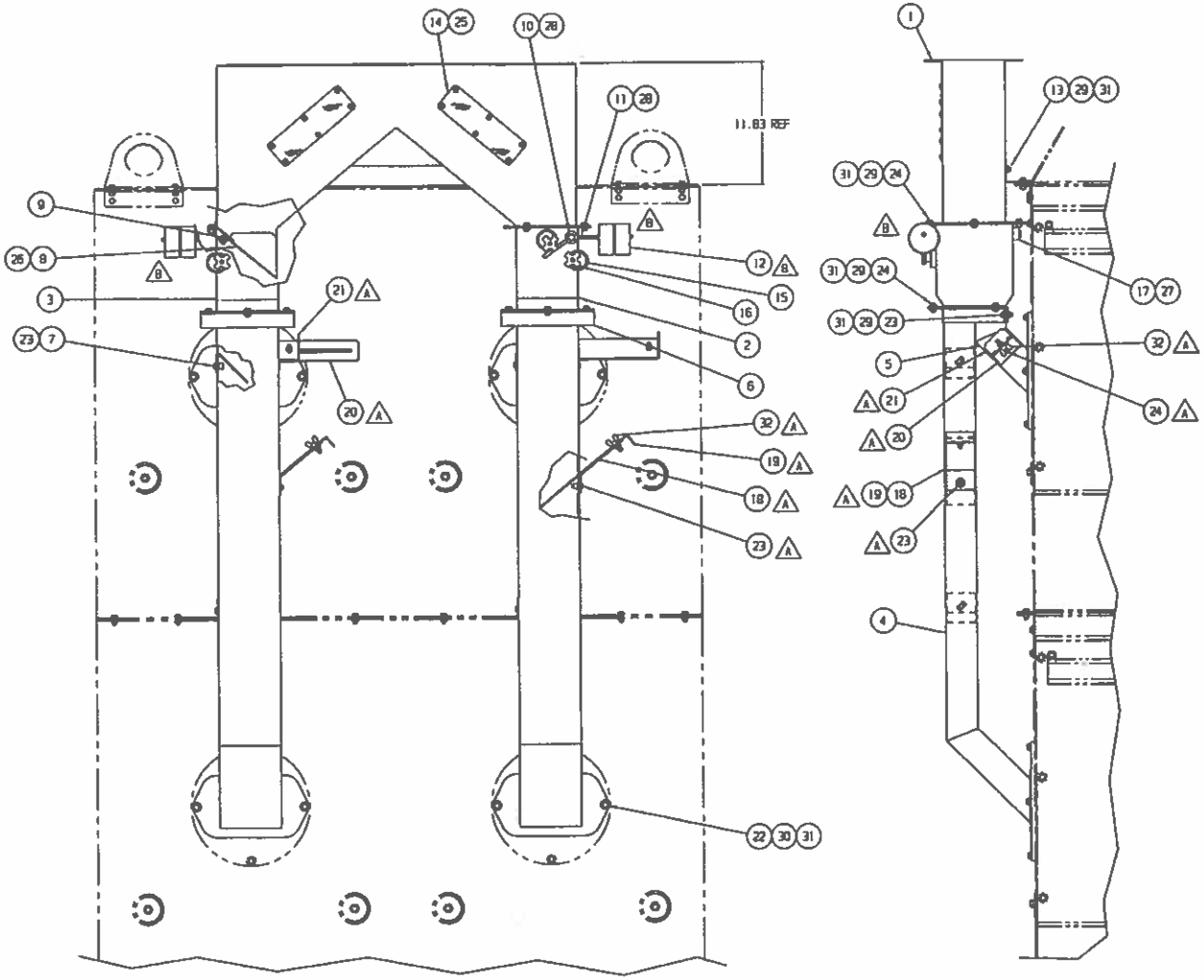
CARTER DAY

ASSEMBLY, 224 GRAVITY FEEDER

DRAWN BY V.J.A. DATE 11-1-96
CHECKED BY DATE
APPROVED BY DATE SHT 1 OF 1

CO-07149

PART NO.
424715



REVISIONS					
LTR	ECO	ECO #	BY	DATE	REMARKS
A		167	VJA	3/19/97	DIG QTY-WAS: 8 &12. ADD FLOW CTL'S (ITEMS 18 THRU 21 & 32
B		247	VJA	5/3/97	DIG ITEMS 11 & 12 - WAS: P/N 421634 & 423887. PICT. DIG.

A	32	4	14037	HC-24402	THUMBSCREW, 5/16-18 X .88
	31	28	88473	NO	WASHER, SPRING-LOC 5/16
	30	8	88380	NO	WASHER, FLAT 5/16
	29	14	265203	NO	NUT, HEX 5/16-18
	28	8	88308	NO	SETSCREW, 5/16-18 x 3/8
	27	4	88310	NO	SET SCREW, 3/8-16 x 3/8
	26	4	88402	NO	RHMS, #10-24 x 3/8
	25	12	88410	NO	RHMS, 1/4-20 x 1/2
A	24	14	88189	NO	HHCS, 5/16-18 x 5/8
	23	12	88191	NO	HHCS, 5/16-18 x 7/8
	22	8	88193	NO	HHCS, 5/16-18 x 1 1/4
A	21	2	425409	CO-88417	SLIDE, 224 FLOW CONTROL
	20	2	425404	CO-88418	BRACKET, 224 FLOW CONTROL SLIDE
	19	2	425407	CO-88419	SLIDE, 24" FLOW CONTROL
A	18	2	425408	CO-88418	BRACKET, 24" FLOW CONTROL SLIDE
	17	2	31116	NO	SET COLLAR (.63 ID)
	16	4	45903	NO	KNOB
	15	4	19231	HC-23644	CAM, FEED CONTROL
	14	2	38452	CO-81832	WINDOW, LEXAN
	13	1	424312	CO-88258	ANGLE, HOPPER SUPPORT
	12	4	425644	CO-A3184	COUNTERWEIGHT
B	11	2	425646	CO-88439	ASS'Y, COUNTERWEIGHT SHAFT
	10	2	60985	HC-23628	ASS'Y, FEED CONTROL LEVER
	9	2	424726	CO-88257	SHAFT, 424 FEED VALVE
	8	2	424725	CO-C5639	VALVE, 424 FEED HOPPER
A	7	4	424724	CO-88322	INSERT, SPOUT LETDOWN
	6	2	424723	CO-88323	FLANGE, 424 SPOUT CLAMPING
	5	2	424305	CO-C3637	SPOUT, 224 FEED INLET
	4	2	424722	CO-07154	SPOUT, 424 FEED INLET
	3	1	424721	CO-C5703	VALVE BODY, 424 FEEDER LH
	2	1	424720	CO-C5702	VALVE BODY, 424 FEEDER RH
	1	1	424718	CO-07153	HOPPER, 424 GRAVITY FEEDER
ITEM	QTY. REQ.	PART NO.	DWG. NO.	DESCRIPTION	

MATERIAL: SEE PARTS LIST

WEIGHT:

FIRST USED ON: 24" MODULAR PRECISION SIZER

CARTER DAY

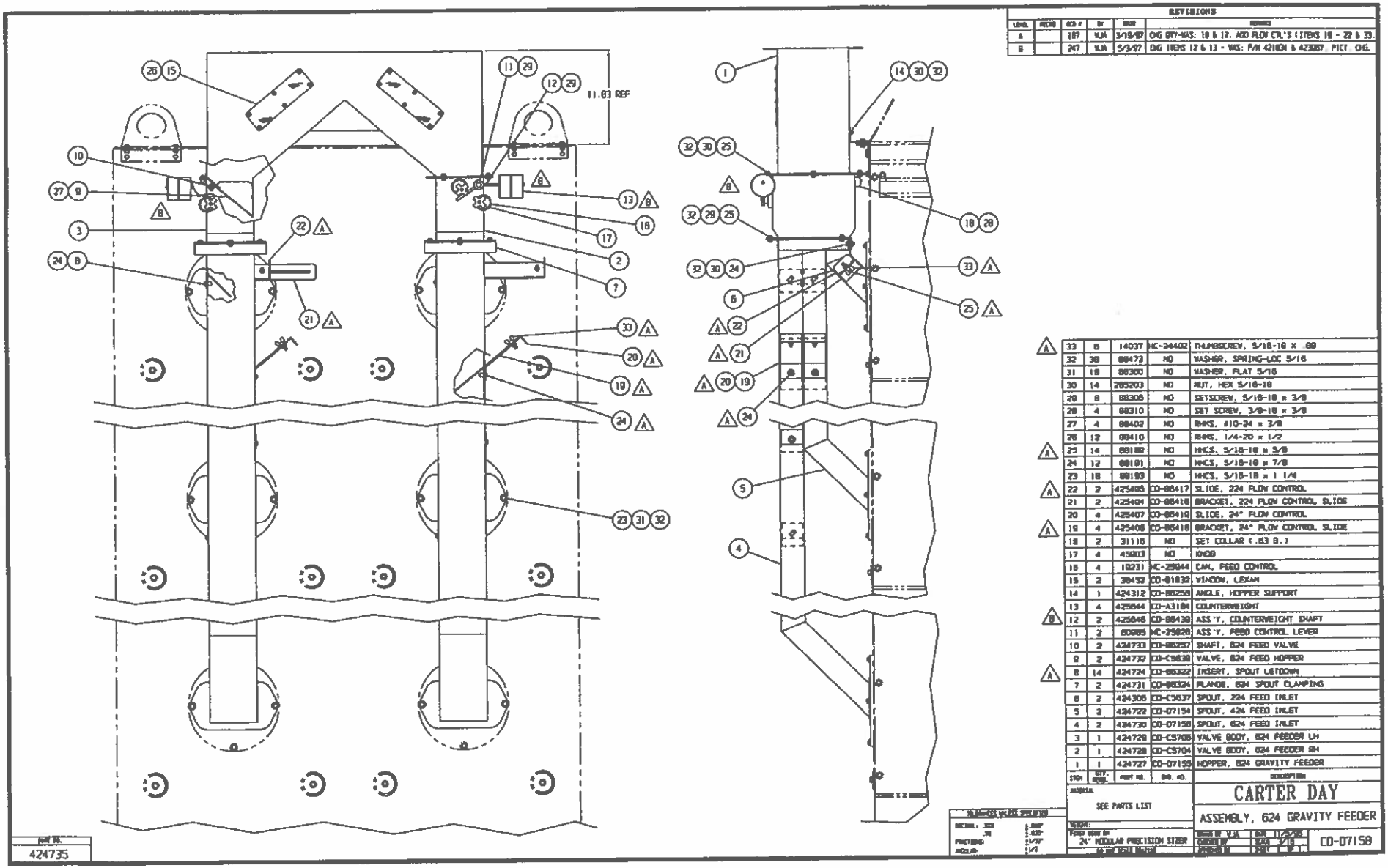
ASSEMBLY, 424 GRAVITY FEEDER

DRAWN BY: VJA DATE: 11/25/96

CHECKED BY: SCALE: 3/16

CO-07157

PART NO. 424734



REVISIONS					
LTR.	ZONE	ECO #	BY	DATE	REMARKS
A		187	MJA	3/19/97	CHG QTY-WAS: 10 & 12. ADD FLOW CTL'S (ITEMS 19 - 22 & 33.
B		247	MJA	5/3/97	CHG ITEMS 12 & 13 - WAS: P/N 421804 & 423887. PICT. CHG.

	ITEM	QTY. PER ASSY.	PART NO.	DWG. NO.	DESCRIPTION
A	33	6	14037	MC-24403	THUMBSCREW, 5/16-18 x .88
	32	38	88473	NO	WASHER, SPRING-LOC 5/16
	31	18	88300	NO	WASHER, FLAT 5/16
	30	14	285203	NO	NUT, HEX 5/16-18
	29	8	88308	NO	SETSCREW, 5/16-18 x 3/8
	28	4	88310	NO	SET SCREW, 3/8-16 x 3/8
	27	4	88402	NO	RHMS, #10-24 x 3/8
	26	12	88410	NO	RHMS, 1/4-20 x 1/2
A	25	14	88188	NO	HHCS, 5/16-18 x 3/8
	24	12	88191	NO	HHCS, 5/16-18 x 7/8
	23	18	88193	NO	HHCS, 5/16-18 x 1 1/4
A	22	2	425405	CD-88417	SLIDE, 224 FLOW CONTROL
	21	2	425404	CD-88418	BRACKET, 224 FLOW CONTROL SLIDE
	20	4	425407	CD-88419	SLIDE, 24" FLOW CONTROL
A	19	4	425406	CD-88418	BRACKET, 24" FLOW CONTROL SLIDE
	18	2	31118	NO	SET COLLAR (.63 B.)
	17	4	45803	NO	KNOB
	16	4	18231	MC-25944	CAM, FEED CONTROL
	15	2	28452	CD-81832	WINDOW, LEXAN
	14	1	424312	CD-88258	ANGLE, HOPPER SUPPORT
	13	4	425844	CD-A3184	COUNTERWEIGHT
B	12	2	425848	CD-88439	ASS'Y, COUNTERWEIGHT SHAFT
	11	2	60885	MC-25928	ASS'Y, FEED CONTROL LEVER
	10	2	424733	CD-88257	SHAFT, 624 FEED VALVE
	9	2	424732	CD-C5638	VALVE, 624 FEED HOPPER
A	8	14	424724	CD-88322	INSERT, SPOUT LETDOWN
	7	2	424731	CD-88324	FLANGE, 624 SPOUT CLAMPING
	6	2	424305	CD-C5637	SPOUT, 224 FEED INLET
	5	2	424722	CD-07154	SPOUT, 424 FEED INLET
	4	2	424730	CD-07158	SPOUT, 624 FEED INLET
	3	1	424720	CD-C5705	VALVE BODY, 624 FEEDER LH
	2	1	424728	CD-C5704	VALVE BODY, 624 FEEDER RH
	1	1	424727	CD-07155	HOPPER, 624 GRAVITY FEEDER

MATERIAL: SEE PARTS LIST

FINISH:

FIRST USED ON: 24" MODULAR PRECISION SIZER

CARTER DAY

ASSEMBLY, 624 GRAVITY FEEDER

DRAWN BY: M.J.A. DATE: 11/24/95

CHECKED BY: SCALE: 1/8

APPROVED BY: SHEET: 1 OF 1

CD-07158

PART NO. 424735

Appendix C

Vendor Data

HUB CITY Worm Gear Speed Reducers

CONGRATULATIONS...Your decision to purchase a Speed Reducer from HUB CITY will provide you with many years of trouble free service if the following lubrication and installation instructions are adhered to.

IMPORTANT SELECTION INFORMATION

Read **ALL** instructions and safety precautions prior to operating unit. Injury to personnel or unit failure may be caused by improper installation, maintenance, or operation.

Check to verify that the application does not exceed the capacities published in the current catalog.

Written authorization from HUB CITY is required to operate or use gear units in man lift or people moving devices.

The system of connected rotating parts must be free from critical speed, torsional, or other type vibration, regardless of how induced. The responsibility for this system analysis lies with the purchaser of the gear unit.

Buyer shall be solely responsible for determining the adequacy of the product for any and all uses to which the buyer shall apply the product. The application by buyer shall not be subject to any implied warranties of merchantability or fitness for a particular purpose.

HUB CITY WORM GEAR SPEED REDUCER MODELS — These instructions apply to all **HUB CITY** Worm Gear Speed Reducer models ending in 1, 2, 3, 4, 5, & 6. Example — Models 381, 386, 522, 523.

LUBRICATION

CAUTION

ALL SPEED REDUCERS ARE SHIPPED DRY. OIL MUST BE ADDED PRIOR TO OPERATION.

Do not operate the unit without making sure it contains the correct amount of oil. Do not overfill or underfill with oil, or injury to personnel, unit, or other equipment may result.

All HUB CITY Worm Gear Speed Reducers are splash lubricated. The unique design of the reducers permits nearly universal mounting by placing a fill, drain and oil level plug at the proper location for most mounting positions. Figures 1-4 show four common mounting positions.

CAUTION

Review the approved mounting positions and lubrication levels identified in Figures 1, 2, 3, and 4 on this sheet. Do not deviate from the mounting positions or lubrication levels shown without contacting the factory.

After selecting the position that the unit will be mounted but **before** operating: Remove Fill and Breather Plug (1, Figures 1-4) and Oil Level Plug (2, Figures 1-4). Clean threads on the removed plugs and the plug holes with degreaser. Fill gear box with a recommended lubricant (see next page) to a level near the center line of the uppermost horizontal shaft or until lubricant starts coming out of oil level plug hole. Install plugs securely in gear case. **Note** — Plug with breather (1, Figures 1-4) must always be installed in the top of gear case, opposite Drain Plug (3, Figures 1-4). HUB CITY Worm Gear Speed Reducers Series 60, 70 and 80 have drain plug at 3A Position.

VARIATION FROM NORMAL CONDITIONS — Input speeds of more than 1800 RPM may require an adjustment in oil level.

Units that run less than 800 RPM input speed with the output shaft in vertical position (see Figure 1) require a zerk fitting or other means to lubricate upper bearing.

When input is in a vertical position consult factory for special lubrication instructions. Input shaft extension or motor flange mounted vertically down, is not recommended.

CHANGING LUBRICANT — After the first 100 hours of operation, drain out initial oil, flush out the gear case with an approved non-flammable, non-toxic solvent and refill. Thereafter, oil should be changed at least every 2500 operating hours or every 6 months — whichever occurs first.

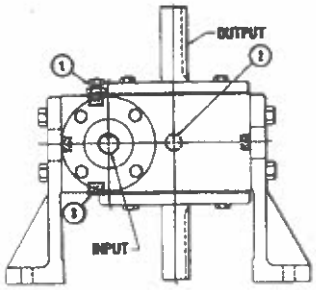


FIGURE 1 — Side Mount

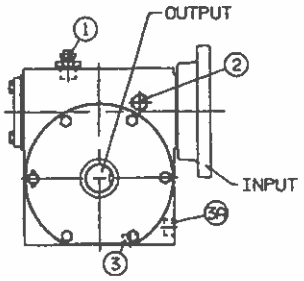


FIGURE 2 — Worm Top

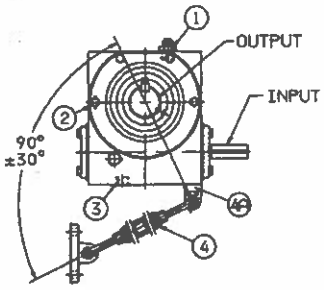


FIGURE 3 — Shaft Mount

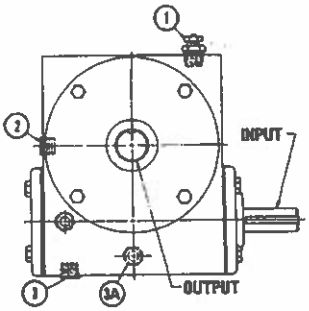


FIGURE 4 — Worm Bottom

CAUTION

Oil should be changed with greater frequency if unit is used in a severe environment such as dusty or humid.

WARNING

Oil, housings, and other components can reach high temperatures during operation, and can cause severe burns. Use extreme care when removing lubrication plugs and vents while servicing the unit.

APPROXIMATE OIL CAPACITIES — HUB CITY CENTURY SERIES WORM GEAR REDUCERS

SERIES	MOUNTING POSITION	SHAFT OUTPUT MODELS PINTS	HOLLOW BORE MODELS PINTS	DROP BEARING MODELS PINTS
130	WORM TOP WORM BOTTOM VERTICAL OUTPUT	.31 .25 .16	NA	NA
180	WORM TOP WORM BOTTOM VERTICAL OUTPUT	.56 .47 .34	.53 .45 .31	NA
210	WORM TOP WORM BOTTOM VERTICAL OUTPUT	1.2 .94 .75	1.1 .88 .69	NA

HUB CITY

A SUBSIDIARY OF REGAL-BELOIT CORPORATION

2914 Industrial Avenue, P. O. Box 1089, Aberdeen, South Dakota 57402-1089, U.S.A. • Phone (605) 225-0360 • FAX 605-225-0567

Form LI-WG-96

Litho in U.S.A.

SERIES	MOUNTING POSITION	SHAFT OUTPUT MODELS PINTS	HOLLOW BORE MODELS PINTS	DROP BEARING MODELS PINTS
260	WORM TOP WORM BOTTOM VERTICAL OUTPUT	2.2 1.8 1.4	1.9 1.6 1.1	NA
320	WORM TOP WORM BOTTOM VERTICAL OUTPUT	3.5 2.5 1.9	2.7 2.4 1.5	5.5 3.3 3.9 VERTICAL DOWN 1.9 VERTICAL UP
380	WORM TOP WORM BOTTOM VERTICAL OUTPUT	4.2 3.2 2.6	3.9 3.0 2.3	6.5 4.2 4.8 VERTICAL DOWN 2.6 VERTICAL UP
450	WORM TOP WORM BOTTOM VERTICAL OUTPUT	7.0 4.8 3.8	5.2 4.0 3.0	9.0 5.7 5.8 VERTICAL DOWN 3.8 VERTICAL UP
520	WORM TOP WORM BOTTOM VERTICAL OUTPUT	10.6 7.5 5.5	7.3 5.1 3.8	14.5 9.3 9.4 VERTICAL DOWN 5.5 VERTICAL UP
60	WORM TOP WORM BOTTOM VERTICAL OUTPUT	22.8 16.2 13.2	22.8 16.2 13.2	32.6 20.0 13.2 VERTICAL UP 23.1 VERTICAL DOWN
70	WORM TOP WORM BOTTOM VERTICAL OUTPUT	35.0 25.0 21.0	NA	50.0 33.0 21.0 VERTICAL UP 35.0 VERTICAL DOWN
80	WORM TOP WORM BOTTOM VERTICAL OUTPUT	55.0 35.0 31.0	NA	73.0 42.0 31.0 VERTICAL UP 49.0 VERTICAL DOWN

APPROVED LUBRICANTS FOR HUB CITY REDUCERS

HUB CITY GEAR LUBRICANT	GL-460	SYNTHETIC
AMBIENT TEMPERATURE °F °C	40 to 100 4 to 38	-10 to 125 -23 to 52
OPERATING TEMPERATURE °F °C	To 225 To 107	To 225 To 107
AGMA NUMBER	7 COMP.	7
ISO-ASTM VISCOSITY GRADE	460	460

HUB CITY WORM GEAR LUBE GL-460

HUB CITY GL-460 is a premium quality, heavy bodied lubricant formulated and recommended for enclosed worm gear drives. It is suitable for splash lubrication of worm gearing at moderate to high speeds and temperatures. Lubricants of this type and meeting the above specifications may be substituted where HUB CITY LUBRICANTS are recommended. Lubricant selected must be compatible with bronze gear materials and nitrile rubber seals. For ambient temperature above 100°F (38°C) or operating temperature above 225°F (107°C) consult the factory.

HUB CITY ALL TEMPERATURE SYNTHETIC LUBRICANT

HUB CITY SYNTHETIC LUBRICANT is a premium gear box lubricant which is recommended for worm gear drives in most applications, especially those subject to low start up temperatures and/or high operating temperatures. This lubricant is a synthesized hydrocarbon based material which provides longer lubrication intervals because of its increased resistance to thermal and oxidative degradation. This decreases maintenance costs. Further economy is realized because of the increased efficiency of units lubricated with HUB CITY SYNTHETIC LUBRICANTS. This lubricant can be operated at temperatures considerably above 225°F (107°C). However, the factory should always be contacted prior to operating at high temperatures as damage may occur to seals or other components. Lubricant manufacturer and HUB CITY should be contacted when substituting a premium lubricant where HUB CITY SYNTHETIC is recommended.

CAUTION

Do not mix nonsynthetic and synthetic oil in the unit.

CAUTION

If unit is used in the food or drug industry (including animal food) consult the petroleum supplier or HUB CITY for recommendations of lubricants which meet the specifications of FDA, USDA and/or other authoritative bodies having jurisdiction. Standard lubricants are not suitable for these applications or these industries.

INSTALLATION

WARNING
SHIELD ALL ROTATING PARTS

For safety, purchaser or user must provide protective guards over all shaft extensions and any moving apparatus mounted on the unit. The user is responsible for checking and complying with all applicable safety codes in his area and providing suitable shields.

WARNING

Wear protective clothing and eye shields when installing or maintaining unit and machine.

WARNING

A unit cannot be used as an integral part of a machine superstructure which would impose additional loads on the unit other than those imposed by the torque being transmitted, or by any shaft mounted power transmitting device such as sprockets, pulleys, or couplings.

WARNING

Units **ARE NOT** to be considered fail safe or self locking devices. If these features are required, a properly sized, independent holding device must be utilized.

WARNING

Any brakes that are used in conjunction with a unit must be sized or positioned in such a way so as to not subject the unit to loads beyond the capacities published in the current catalog.

WARNING

Make certain that all tools and other items are clear from rotating parts before starting machine. Stand clear, and start machine slowly to be sure all components are secure and operating properly.

HUB CITY
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2914 Industrial Avenue, P. O. Box 1089, Aberdeen, South Dakota 57402-1089, U.S.A. • Phone (605) 225-0360 • FAX 605-225-0567
Form LI-WG-96
Litho in U.S.A.

⚠ WARNING

Make certain that the power supply is disconnected before attempting to service or install the unit, or remove or install any components. Lock out the power supply, and tag it to prevent unexpected application of power.

OPERATING POSITIONS — Normal Speed Reducer positions are shown in Figures 1-4. For special applications, mounting position may be inclined. However, if position varies more than 15°, it may be necessary to make some adaptions to maintain a sufficient oil level. Contact your local distributor or HUB CITY for recommendations. Input rotation of Speed Reducers can be either clockwise or counterclockwise.

⚠ WARNING

For safe operation and to continue the unit warranty, when installing, reinstalling, or replacing a factory installed fastener for servicing purpose, or to accommodate the mounting of guards, shields or other light load imposing devices, or for mounting the unit, it becomes the responsibility of the purchaser or user to properly determine the quality, grade of fastener, thread engagement, load carrying capacity, tightening torque, and the means of torque retention.

COUPLINGS — Flexible couplings to input and output shafts are recommended because they minimize bearing and gear wear caused by slight misalignment. Follow coupling manufacturer's recommendations for installation and shielding.

SHEAVES AND SPROCKETS — When mounting sheaves or sprockets, the center of the load should be located as close to the reducer as possible. Excessive overhung loading could result in early failures of bearing or shaft. Refer to the general catalog or contact your local distributor for overhung load ratings. Follow manufacturer's recommendations for installation and shielding.

CAUTION

The exterior threaded holes on this drive are for mounting the drive or drive accessories (couplings, sprockets, etc.). They are not to be used for lifting the drive or any driver/driven equipment.

CAUTION

Inspect shafts and components for paint, burrs, or other imperfections before installing components. Do not use excessive force or pounding to install components onto unit shafts, as this may cause damage to shafts, bearings, or gears.

SHAFT MOUNT UNITS — The Torque Arm Pad Ref. 4A (Figure 3) can be attached to any of the four available mounting surface locations of the unit.

Install and position Torque Arm Ref. 4 at 90° ± 30° to the plane (a line drawn) between the center of the output hollow bore and the bolt that attaches the Torque Arm 4 to the Torque Arm Pad 4A of the unit, Ref. (Figure 3). The Torque Arm should be positioned to be in tension, NOT compression, based on output rotation of the gear drive.

CAUTION

Excessive setscrew torque may cause damage to the output sleeves in hollow bore units. Please refer to the following table for recommended tightening torque.

SIZE	RECOMMENDED TORQUE
1/4 NC	87 LB. - IN.
5/16 NC	165 LB. - IN.
3/8 NC	290 LB. - IN.

"Shaft Mount Reducers equipped with QD bushings utilize a bushing on both sides to provide shaft support. However the keyways on QD bushings are not timed to the mounting holes, therefore it is not possible to install keys in both bushings. One key is sufficient to carry the transmitted torque."

CAUTION

When installing Q/D Bushing Kits, follow the Q/D Bushing manufacturer recommendations for bolt tightening torque and installation methods. Failure to do so could result in damage to the bushings and unit.

CAUTION

Test run unit to verify operation. If the unit being tested is a prototype, that unit must be of current production configuration.

RUN-IN PERIOD — A new unit will not operate at maximum efficiency during the run-in period. Increased current draw or heat rise may be seen during this time.

PREVENTATIVE MAINTENANCE — Keep shafts and vent plug clean to prevent foreign particles from entering seals or gear case. Inspect periodically for oil leaks.

CAUTION

Mounting bolts, coupling fasteners, and other power transmitting devices should be routinely checked to ensure that all parts of the unit are firmly anchored to provide proper operation (loose fasteners can cause alignment problems and excessive wear). Check end play in shafts. Noticeable movement might indicate service or parts replacement is necessary.

CAUTION

If the unit cannot be located in a clear and dry area with access to an adequate cooling air supply, then precautions must be taken to avoid ingestion of contaminants such as water, and to avoid a reduction of cooling ability due to exterior contaminants.

HUB CITY has Sales Offices and a network of Industrial Power Transmission Distributors that can serve your needs world wide. Check the Yellow Pages for one near you or contact the factory sales office.

IMPORTANT INFORMATION

In the event of the resale of this Worm Gear Speed Reducer (unit), in whatever form, resellers/buyers will include the following language in a conspicuous place and in a conspicuous manner in a written agreement covering such sale:

The manufacturer makes no warranty or representations, express or implied, by operation of law or otherwise, as to the merchantability or fitness for a particular purpose of the goods sold hereunder. Buyer acknowledges that it alone has determined that the goods purchased hereunder will suitably meet the requirements of their intended use. In no event will manufacturer be liable for consequential, incidental, or other damages.

Resellers/buyers agree to include this entire document, including the warnings and cautions listed herein, in a conspicuous place and in a conspicuous manner to instruct users on the safe usage of the product.

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HUB CITY

ELECTRIC MOTOR AND HYDRAULIC MOTOR AND PUMP INSTALLATION INSTRUCTIONS

For "C" Flange and Hydraulic Flange Units

1. Be sure all of the paint and masking have been removed from the face and pilot of the flange. Check the bore (input or output) to be sure it contains an adequate amount of anti-sieze compound, which is normally installed at the factory. This compound will inhibit fretting corrosion between the motor or pump shaft and the unit bore.
2. Install the key (if round bore) to the maximum depth of the keyway provided in the bore.
3. Align keyways or splines of motor or pump and bore of unit and install motor or pump into frame.
4. **CAUTION:** HUB CITY "C" flange reducers and Hydraulic Flange Reducers are designed to accept motors with shafts that do not exceed the maximum specified by the N.E.M.A. or SAE standards. If the motor or pump shaft bottoms out before the motor or pump flange seats against the reducer flange face, the motor or pump shaft length must be adjusted to N.E.M.A. or SAE standards.
5. Secure the motor or pump to the unit. Capscrews and lockwashers are provided with "C" flange units.
6. Tightening torques for mounting bolts are provided in the chart below.

CAPSCREW TIGHTENING TORQUE

Grade 5 Capscrews (dry, without lubricant)

Capscrew Size	Tightening Torque (Ft. - Lbs.)
1/4 NC	6.25
5/16 NC	13
3/8 NC	23
1/2 NC	65
5/8 NC	115
3/4 NC	200

A Parts List and Print for your Drive is available upon request. To obtain the proper Parts List and Print, you must accurately furnish the Assembly Number, Model Number, Ratio, Style and Shipping Code as shown on the metal tag attached to the Gear Drive. For assistance, phone or write your Industrial Power Transmission Distributor, or the Factory Sales Office.

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