

# **Instruction Manual**

# **930**

## **SCREEN MACHINE**

**STYLE - CFLF2**

**MANUAL NUMBER - 513**

### **CARTER DAY**

**Carter Day International, Inc.**  
**500 73<sup>rd</sup> Avenue N.E., Minneapolis, MN 55432**  
**Phone: (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.

ORDER NO.	<input type="text"/>
SERIAL NO.	<input type="text"/>
STYLE NO.	<input type="text"/>
MANUFACTURED IN U.S.A. BY <b>Carter-Day Company</b> 500 73rd Ave., N.E., Minneapolis, MN 55432	

# 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 (104 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.

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## PRE - INSTALLATION CHECK

Be certain to check equipment as soon as it arrives. A quick visual inspection will generally show any damage which may have occurred during transit from the factory. Once this inspection is complete, ensure that all shipping blocks and packing materials 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 - now would also be a good time to check voltages.

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

All machinery leaves the factory suitably protected from the elements. These protective measures have been designed to accommodate a normal ship and installation schedule. If the equipment will be subjected to weather for more than 30 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.

## INSTALLATION

All machinery requires a solid mounting base to ensure proper operation. It is equally important that the machine is set level and / or plumb so that all moving parts are in correct alignment. This is particularly true of the Carter Screen Machine. Although the machine is well balanced, its reciprocating motion does impart some vibration through its mounting pedestals to the support structure, whether it be a concrete / wood floor or some other mounting arrangement.

Once the screen machine has been properly mounted - the feed mechanism can be installed. This may be a feed hopper or a scalperator depending on the system requirements.

An even flow of material to the machine is absolutely necessary for proper operation. DO NOT ATTEMPT TO SPOUT DIRECTLY TO THE INLET OF THE SCREEN MACHINE.

Ensure that the discharge of the feed mechanism is correctly aligned with the inlet of the machine proper and that the felt wear strips on the inlet box are properly aligned. This will ensure dust-free operation.

If unit was shipped without motors - these can now be installed. Always ensure that belts and / or chains are in proper alignment and tension. Arrows indicate proper rotation of various parts and wiring should be done to suit. If no rotational arrow can be found - call the factory or your representative for information.

The screen machine can rotate in either direction, however a clockwise rotation has been found to be optimum. This is as viewed from the top facing the drive end of the machine.

TEST RUN

Before connecting feed and discharge spouting - all motors should be turned on and the equipment should be run dry for a minimum of 10 - 15 minutes. Once the machinery is processing material noise levels will be much greater and minor mechanical problems may go unnoticed.

Specifically, check the following:

- All motors should be rotating in proper direction.
- Motors running amps should be checked against name plate.
- Belts should be tight and in alignment.
- RPM of main drive shaft on screen machine should be about 220.
- Any loose material such as extra screens must be removed from sieve box.

All bearings are filled with grease at the factory. See maintenance section for further lubrication instruction and schedules.

\*\*\* ANY GUARDS REMOVED TO INSTALL MOTORS/DRIVES ETC. MUST BE IN PLACE AT ALL TIMES WHEN EQUIPMENT IS OPERATION.



## OPERATION

### SCREEN SELECTION

A sample of grain to be cleaned should be tested with hand held screens to ensure the proper opening size screen is being used, before the machine is set up for grain separation. The proper size screens are then placed in the shoe of the machine. Perforated (plate type) sieves are generally used for the top deck with the lower decks being wire mesh type screens. The opening size and arrangement of the perforated sieves and wire mesh screens will vary in accordance with the required grain separation.

Due to the operating characteristics of the machine minimum thickness of perforated sieves should be 22 gauge. Minimum wire diameter of wire mesh type should be .020.

### SCREEN INSTALLATION

The screens are placed in the shoe and anchored in place with the adjustable rod or clips provided at the discharge end of the shoe.

The first set of screens are placed in the shoe and anchored. On top of these screens a spacer frame is set in place, on top of which a fines pan is set. This sequence (screens, spacer frame and fines pan) is continued until all parts are in place.

NOTE: This pattern will vary according to flow. See enclosed print to determine exactly how your particular machine is set up.

After all screens, spacer frames and fines pans have been put in place, the wooden hold down frame is installed. The large section goes on the feed end of the machine, the smaller section to the discharge end of the machine. Care should be taken to make sure this hold down frame is properly fastened in place after the sieve box sections have been tensioned by the rods or clips at the shoe discharge end.

Normally each cavity of the sieve frame has three rubber balls to keep the sieves clean and open. If the sieves are easily kept clean, it is possible to use fewer rubber balls. If the bouncing action is too severe, material may be kept in suspension so a separation cannot take place.

### OPERATOR'S NOTE

The speed of the sieve box will affect the separation by moving the material down the sieves at different rates and also creating more or less action of the rubber balls in the sieve frames.

If the Screen Machine is equipped with a digital tachometer, this allows the operator to monitor the speed while making the frequency adjustment to achieve the greatest efficiency of cleaning.

A digital tachometer is available from the factory and is recommended as a means of fine-tuning the machine's operation.

OPERATION (CON'T)

PROCESSING

The speed of the sieve box can be adjusted through a range of 190 to 240 RPM. This is accomplished by first loosening the friction band behind the hand knob on the side of the machine. (On some models the knob is out the back of the machine). By turning the knob either clockwise or counterclockwise, the speed of the sieve box will be changed. An arrow on the machine indicates which way to turn to either speed up or slow down the machine. After the optimum speed is obtained, be sure to retighten the friction band to prevent the speed from changing.

As this time, it would be a good idea to record in a log book, the type of grain being run, the screen sizes and the rpm at which the machine is set. This will save time in the future when similar grains are run, as the variables can be set without experimenting.

NOTE: "A" FLOW ONLY

The capacity of the screen machine is determined by the bottom deck sieves. The centre deck discharge should be sampled to ensure that it is not loaded with a greater volume than the bottom deck

FACTORY TESTING SERVICE

In the event of a problem on a particular separation, contact the factory and submit a 5 lb. sample of the material. A laboratory test will be run to duplicate the operation of the machine. An analysis of results and a recommendation will then be made.

## MAINTENANCE/LUBRICATION

### BEARINGS

Countershaft bearings are of the sealed variety and cannot be greased.

Main drive shaft bearings should be greased every 500 hours of operation. Use good quality 220 SUS viscosity grease.

The following or their equivalents are recommended:

CHEVRON SRI - 2

SHELL ALANIA #2

ESSO - UNITOL

### DRAG LINK/SUPPORT ROD

Check rubber bushings for signs of collapse or wear . If these parts are worn or loose, excessive vibration will result. This vibration could seriously damage the machine.

### GENERAL

Throughout the machine - extensive use is made of felt to provide a gasket surface between decks and between sieve boxes. Repeated screen changes will eventually deteriorate this material and its sealing capability will be reduced; causing some leakage of product into fines. Due care taken when removing or installing sieve boxes, spacer frames and pans will extend the life of the felt considerably.

TO ORDER PARTS

The appendix of this manual includes an indented parts list. This list, together with various drawings also included, makes it possible to identify the various 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 MODEL, STYLE and SERIAL NUMBER should also be quoted. This information is usually found on the front sheet. If for some reason the manual 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 following information would also be helpful when inquiring about a particular machine:

- A) JOB NUMBER
- B) APPROXIMATE SHIPPING DATE
- C) APPROXIMATE RUNNING TIME

SPARE PARTS LIST FOR 930 SCREEN MACHINE

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1	VBLTA69	A68 V-Belt
1	VBLTA38	A38 V-Belt
1	W11983	Bearing FYA203S
1	W11984	Bearing SKF6310
1	W11985	Clip Seal 2-5/16
2	W11986	Pillow Block SYA103C
1	W13487	Clip Seal 19380 CR
1	18778	Bearing SKF 2308
387	W12428	Screen Balls

# CEA·CARTER·DAY COMPANY

MINNEAPOLIS, MINN.

FEED HOPPER FOR 930 SCREEN MACHINE P.N. 49270

FEED HOPPERS BUILT BEFORE 11-11-83 USED DIFFERENT END PLATES,  
P.N. 43109 (L.H.) AND P.N. 43136 (R.H.)

## MACHINE PARTS LIST

CARTER-DAY COMPANY  
MINNEAPOLIS, MINN.

STYLE NO.

MACHINE  
UNITFEED HOPPER FOR 930 SCREEN MACHINE  
P.N. 49270SHEET NO. 1  
TOTAL SHEETS 2  
DATE 11-16-83

## ★ IN SUB ASSEMBLY

★	ITEM NO.	PART NO.	QUAN. EACH MACH.	NAME OF PART	PATT. NO.	DRG. NO.
	1			SECTION 1		
	2	16611	2	HOUSING, NO. 205LL FAFNIR BEARING	HC-2829	HC-25315
	3	40395	2	HUB, BALANCE LEVER	S-62	CD-A1898
	4					
	5					
	6					
	7					
	8					
	9					
	10			SECTION 2		
	11	43145	1	SHAFT, FEED VALVE		SC-3020
	12					
	13					
	14					
	15					
	16					
	17					
	18			SECTION 3		
	19	60724	2	STOP, FEED VALVE		SC-2213
	20	43138	2	STRIP, CLAMP		CD-A2291
	21	43137	1	STRIP, SEAL		CD-A2290
	22	43139	2	STRIP, SEAL, FELT		CD-A2292
	23	43143	1	STRIP, SEAL, FELT		CD-A2293
	24	43140	2	STUD, FEED CONTROL		SC-2078
	25	16497	2	WEIGHT, BALANCE LEVER		HC-25292
	26	35539	2	WINDOW, PLEXIGLAS		CD-A1272
	27					
	28					
	29					
	30					
	31					
	32					
	33			SECTION 4		
	34	43180	1	DOOR, HOPPER TOP		CD-B3098
	35	43179	1	HOPPER, TOP		CD-C2617
	36	43141	1	PLATE, BACK, FEED		CD-B3087
	37	43144	1	PLATE, DEFLECTOR		CD-B3086
	38	43459	1	PLATE, END L.H.		CD-C2649
	39	43460	1	PLATE, END R.H.		CD-C2650
	40	W12223	1	PLATE, FRONT		CD-C2616
	41	W12231	1	PLATE, REAR UPPER		CD-B3097
	42	43142	1	VALVE, FEED		CD-B3088
	43					
	44					
	45					
	46					

# MACHINE PARTS LIST

CARTER-DAY COMPANY  
MINNEAPOLIS, MINN.

STYLE NO.

MACHINE  
UNIT

FEED HOPPER FOR 930 SCREEN MACHINE  
P.N. 49270

SHEET NO. 2  
TOTAL SHEETS 2  
DATE 11-16-83

★ IN SUB ASSEMBLY

★	ITEM NO.	PART NO.	QUAN. EACH MACH.	NAME OF PART	PATT. NO.	DRG. NO.
	1			SECTION 5		
	2					
	3					
	4					
	5					
	6					
	7					
	8			SECTION 6		
	9	16682	2	BEARING, BALL #88505 BCA		
	10					
	11					
	12					
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	16			SECTION 7		
	17					
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	23			SECTION 8		
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	30			SECTION 9		
	31			SECTION THRU SHEET METAL		CD-C2609
	32					
	33			WEIGHT:		
	34			NET:		
	35			SHIPPING:		
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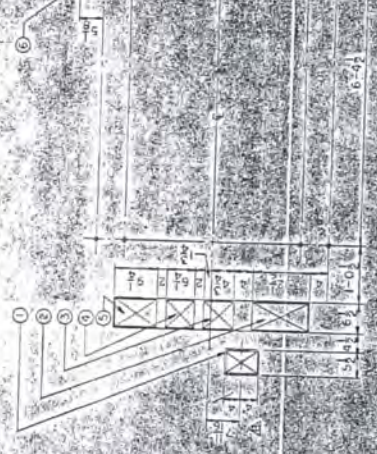
**SCALPER DATA**

AIR: 2100-2700 CU. FT. PER MIN.  
 DRIVE: 34 HP GEARBOXES 750/2001  
**MACHINE PROPER DATA**  
 DRIVE: 1 HP 1800 RPM MOTOR  
 CAPACITY: 500-550 BUSHELS PER HOUR  
 \* DEPENDING ON ADJUSTMENT

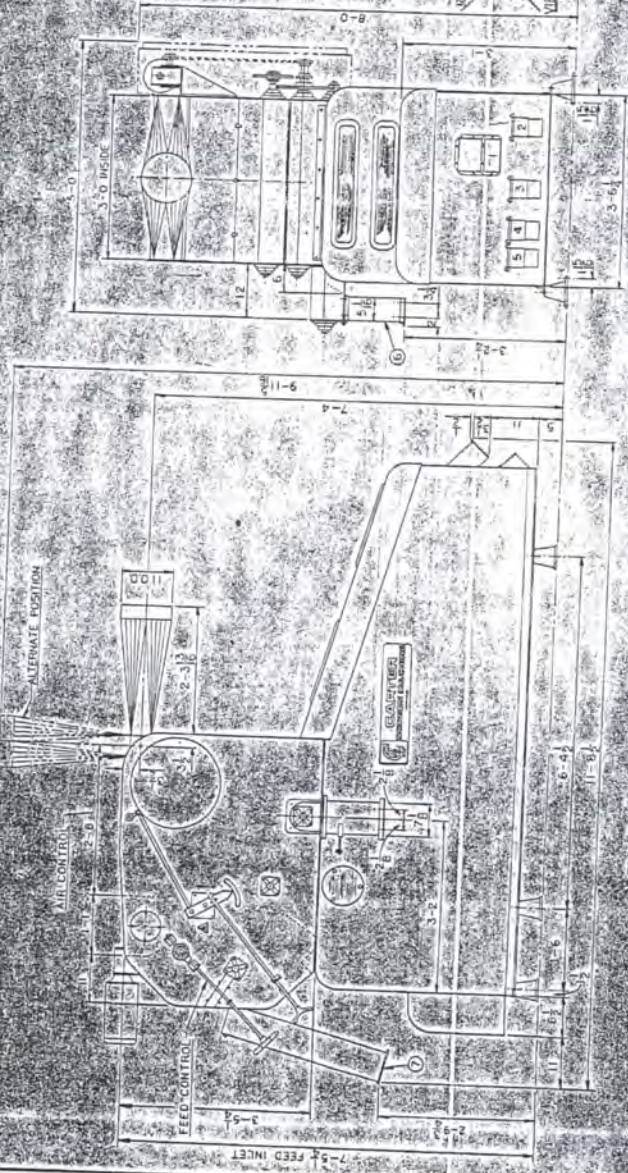
WHEN CLEANING		DEPENDENT ON SCREEN SELECTIONS	
1. OVERS OF TOP SCREEN	BARLEY	WHEAT	RAPE
2. OVERS OF 2ND SCREEN	WHEAT HEADS	CLEAN WHEAT	WHEAT HEADS
3. OVERS OF 3RD SCREEN	CLEAN BARLEY	CLEAN WHEAT	CLEAN RAPE
4. OVERS OF 4TH SCREEN	CLEAN WHEAT	CRACKS, WEED SEEDS	CLEAN RAPE
5. OVERS OF 5TH SCREEN	CRACKS, SEEDS	CRACKS, WEED SEEDS	SMALL SEEDS, SAND
6. OVERS OF 6TH SCREEN	CRACKS, SEEDS	CRACKS, WEED SEEDS	SMALL SEEDS, SAND
7. SCALPERS	DUST, CHAFF, SMALL SEEDS	DUST, CHAFF, SMALL SEEDS	DUST, SMALL SEEDS
	STICKS, STRAW	STICKS, STRAW	STICKS, STRAW

**NOTE**

DIMENSIONS SHOWN ARE APPROXIMATE SIZE AND LOCATION OF OPENINGS REQUIRED IN FLOOR



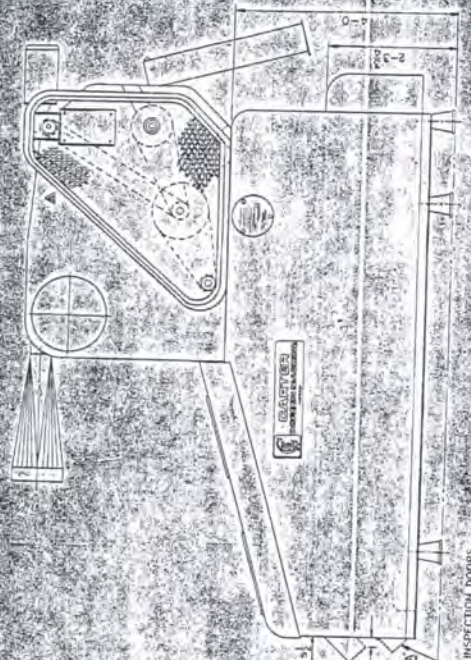
**FLOOR PLAN**



**RIGHT SIDE VIEW**



**ELEVATION**



**LEFT SIDE VIEW**

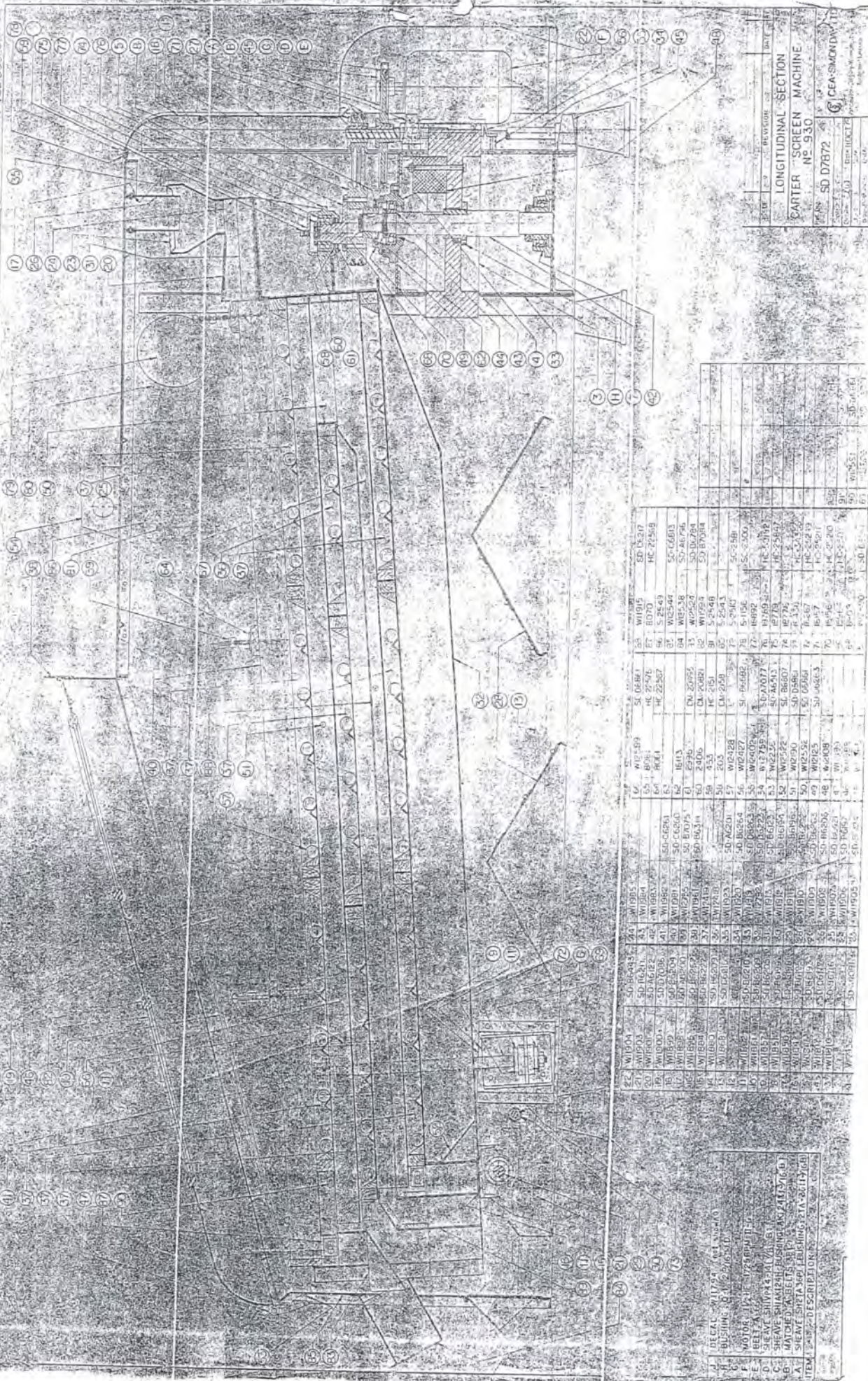
**DATA INSTALLATION**

MAX. WINDS: 100 MPH  
 MAX. TEMPERATURE: 120°F  
 MAX. HUMIDITY: 100%  
 MAX. ALTITUDE: 10,000 FT.

DATE: \_\_\_\_\_  
 BY: \_\_\_\_\_

**CEAS-SMOKY DAY LTD**  
 1000 W. 10th St., Fargo, ND 58103  
 Phone: (701) 725-1111

SD-D6628



LONGITUDINAL SECTION  
 CARTER No. 930  
 SD D7872  
 GEARS: SD D7872  
 DRAWN BY: [Signature]  
 CHECKED BY: [Signature]  
 DATE: [Date]

ITEM NO.	DESCRIPTION	QTY	UNIT	REVISION	DATE
1	Motor	1	EA		
2	Shaft	1	SH		
3	Roller	1	EA		
4	Roller	1	EA		
5	Roller	1	EA		
6	Roller	1	EA		
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DECLASSIFIED BY: [Signature]  
 AUTHORITY: [Signature]  
 DATE: [Date]

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