ALFA-LAVAL
CELLECO HEDEMORA

CELLECO FILTER ASSEMBLY

FILTER VAT ASSEMBLY

INSTALLATION OF ROTOR INTO VAT

INSTALLATION OF SEGMENT RODS ONTO ROTOR

INSTALLATION OF SCREW TROUGH INTO FILTER

ASSEMBLY OF FILTER HOOD

CELLECO FILTER VAT ASSEMBLY

MATERIALS REQUIRED:

1) Tack welding machine - stick - TIG or MIG with rods or wire.

2) Stainless wedges - approx. 2" thick x 6 to 8" long. (8 required)

3) 8 Stainless dog plates approx. 4" x 4".

4) 2 Long chain chain-falls.

5) 1 pc. 2" x 2" x 4 ' x 1/4" thick stainless angle.

6) 2 or 3 large throat "C" clamps (around 8")

7) 8 - 4" square lifting lugs with 1 1/2" holes.

8) 6" or 8" "I" beam or "H" beam 22 feet long to back up bottom plate and use for jig to install segment rods. Beam should not be damaged.

9) 30 foot long 3/8" tygon clear plastic tubing with valve at each end for water level - shims for leveling.

10) "Port-a-Band" or similar electric hacksaw with blades for cutting stainless steel.

11) One 6" or 8" "I" beam or "H" beam of medium weight at least 3 feet longer than the vat length. This will be used to support and back up the bottom plates when they are installed and later as an alignment jig to install the segment holding rods on the rotor. If care is used in handling, they should not be damaged by this use.

CELLECO FILTER VAT ASSEMBLY
continued

ASSEMBLY PROCEDURE

1) Supply four (4) 1" dia. leveling bolts. Make large washers to bridge 8" dia. baseplate holes (4 required). Set leveling bolts into foundation through 8" baseplate holes. Install shims to achieve proper leveling before securing baseplate. Tighten leveling bolts.

2) Secure 2 sidewalls to baseplates.

CELLECO FILTER VAT ASSEMBLY
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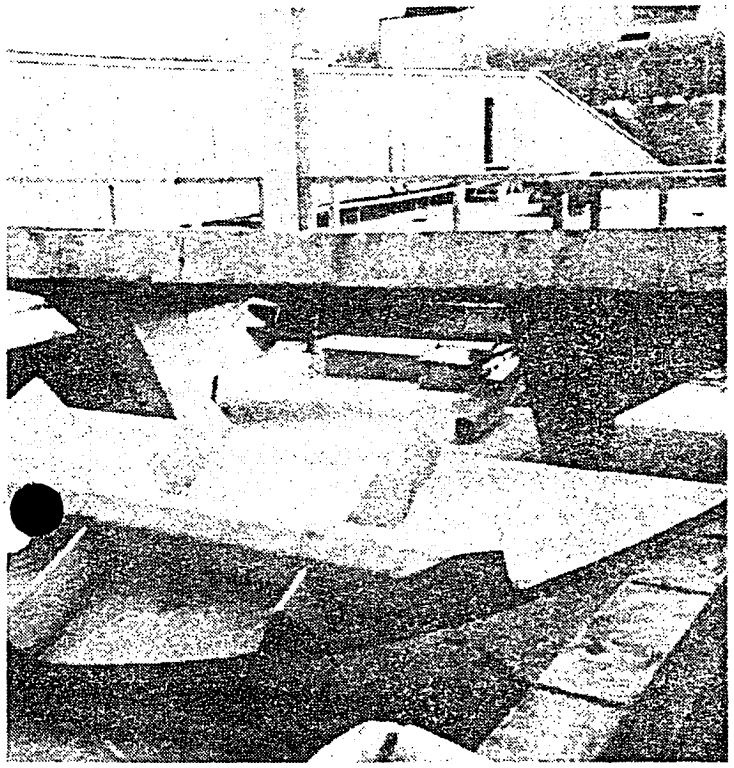

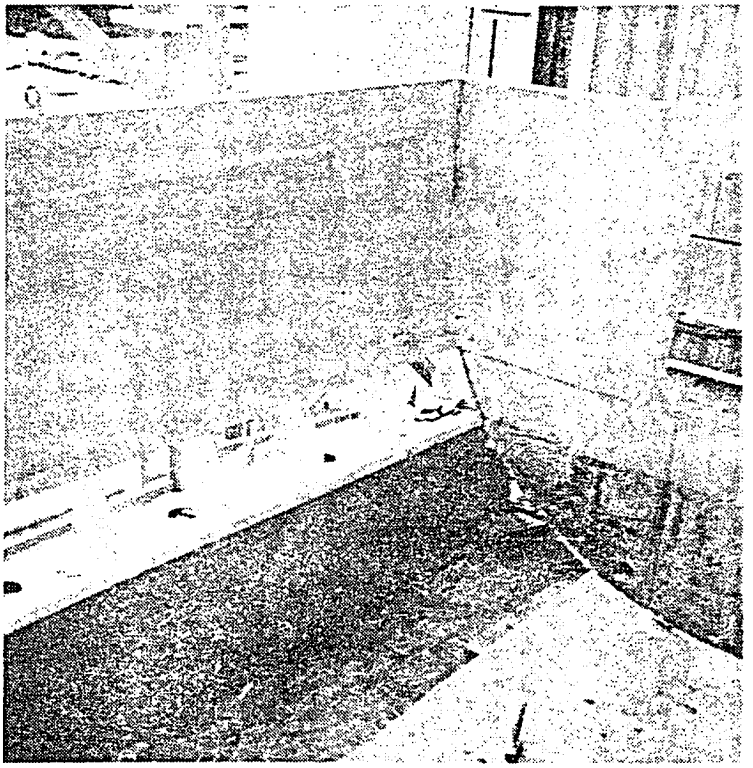

3) Stand up 2 end gables - line up and tack 2 corners opposite inlet box side. Keep tacks small enough to allow corners to hing for final squaring.

4) Square up 4 corners on diagonal and level four corners using transit. Trying to level closer than 1/16th of an inch would only waste time, as the vat can vary more than this without causing any problems.

CELLECO FILTER VAT ASSEMBLY
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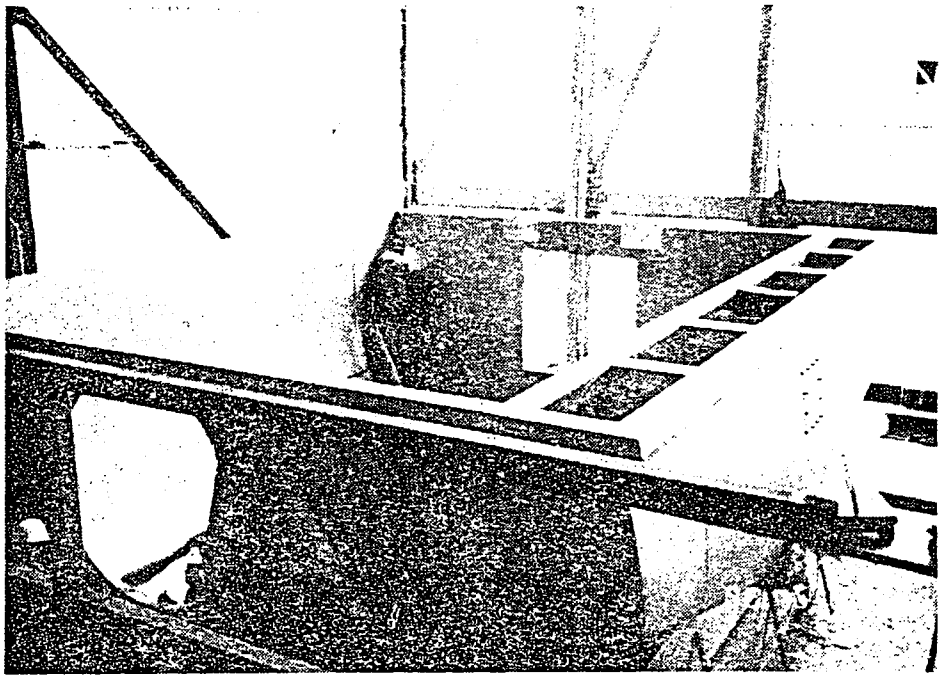
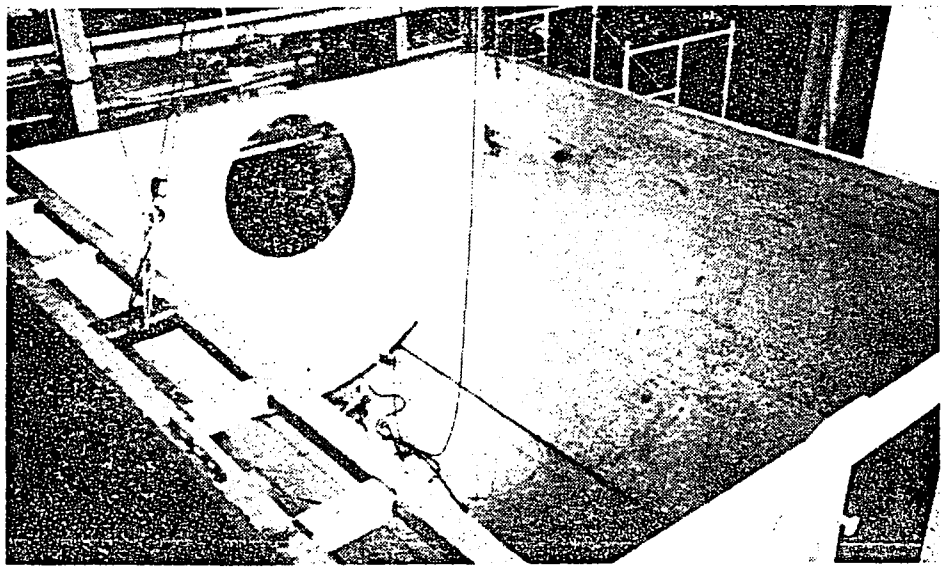


5) Once the vat is square and level, start fitting the side plate to the end gables starting at the top corners of the sides opposite the inlet vat, and working downward, taking the slack to the bottom.

6) Start fitting inlet side wall to end gables starting the fit-up even with the base plate and working down - leave the top section floating.



CELLECO FILTER VAT ASSEMBLY
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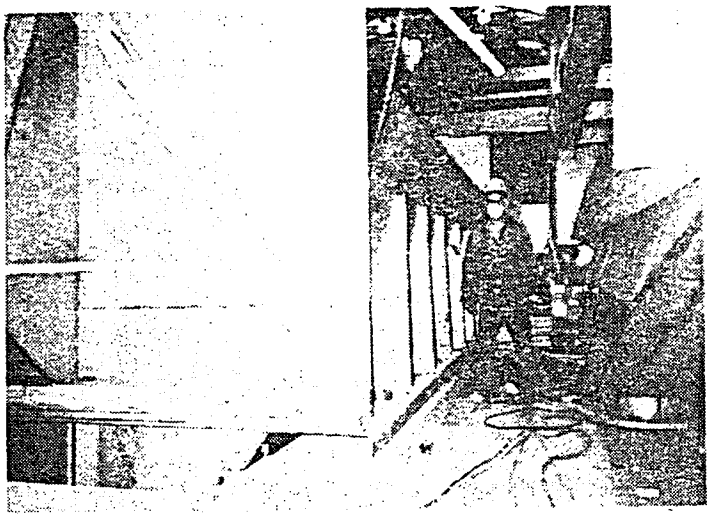
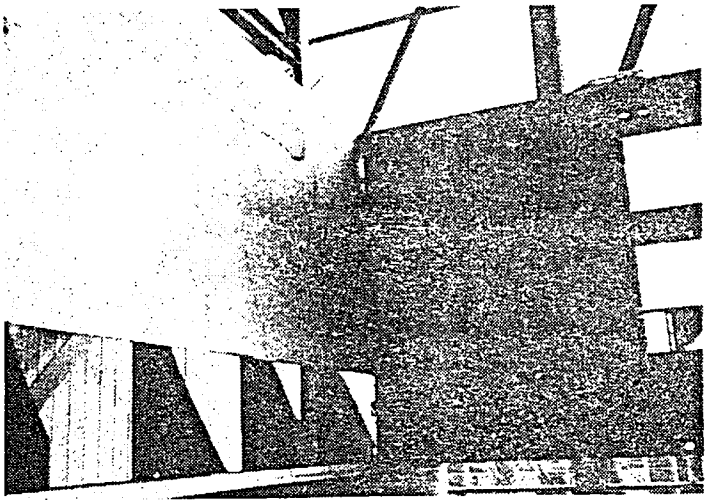
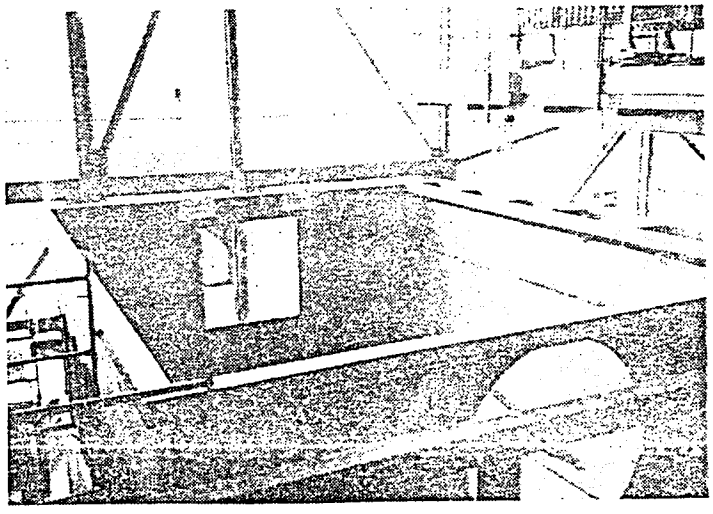






CELLECO FILTER VAT ASSEMBLY
continued

7) Attach lower (bottom) parts of both end gables to upper parts. Tack weld in place.

8) Install alignment beam under side plates to support joint when bottom plate is installed in vat. Pull up underneath vat bottom using a come-a-long on each end.

9) Attach lifting eyes and slings to each end of inlet box. A small piece of flat bar tacked to the top of the end channels of the inlet box will help in the alignment. Align one end of the inlet box channel and tack on the top side only, then line up the other end - recheck squareness and adjust if required. Fit up and tack weld inlet side wall to end gable working from baseplate upward. Fit up and tack weld the inlet box to side walls and sidewall plate to inside of inlet box.

10) Install bottom parts of both end gables. Tack in place.

11) Install bottom plate, using "I" beam or "H" beam to support seam and keep seam level. Center bottom plate between two side-bottom plates. Mark reference point on each side of bottom plate to center from dimension on vat drawing. Tack bottom seam across both sides.

12) Install inlet box supports under inlet box.

13) Fit inlet plate to inlet box and tack in place. Use plate dog to pull flat to inlet box.

14) Weld all seams. All inside seams are solid seal weld. All outside seams should be stitch welded 1" and skipping 2". All end gable seams should be welded solid.

INSTALLATION OF ROTOR INTO VAT

MATERIALS REQUIRED

1) 2 long chain come-a-longs to hold trunion bearings.

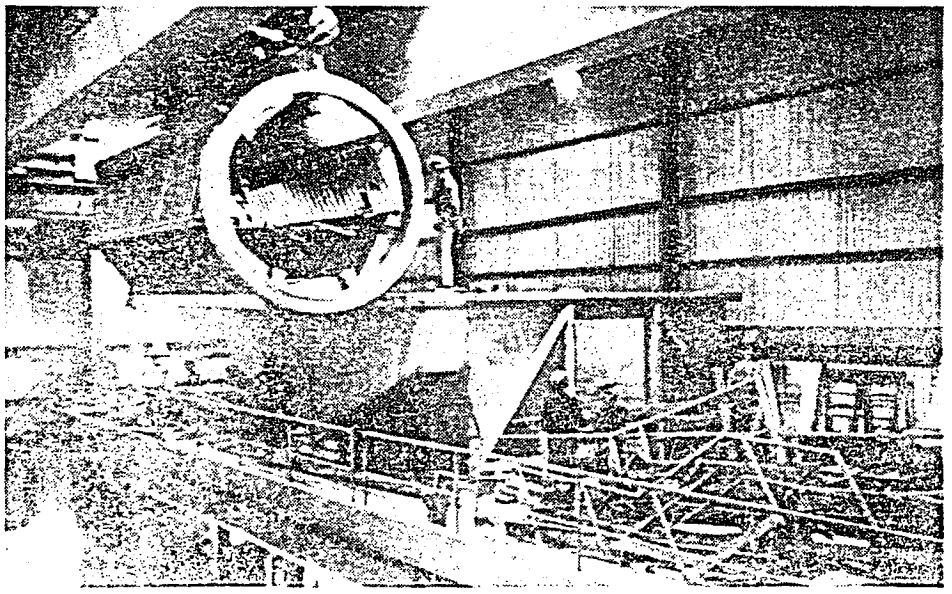
2) Rigging and lifting devices to set and hold rotor. After rotor is set into vat, crane or other lifting device will still be required to support drive end of rotor until shaft, pillow-block bearing, and support beam are installed.

ASSEMBLY PROCEDURE

1) Using overhead crane, place rotor shaft, pillow block bearing, and support beam on centerline of filter if the overhead crane will be used to install them. Once the rotor is set into the vat, the overhead crane cannot be moved off of the filter center-line until these items are installed.

2) Install "eyebolt" into each slide bearing and suspend from ring side of rotor using two come-a-longs.

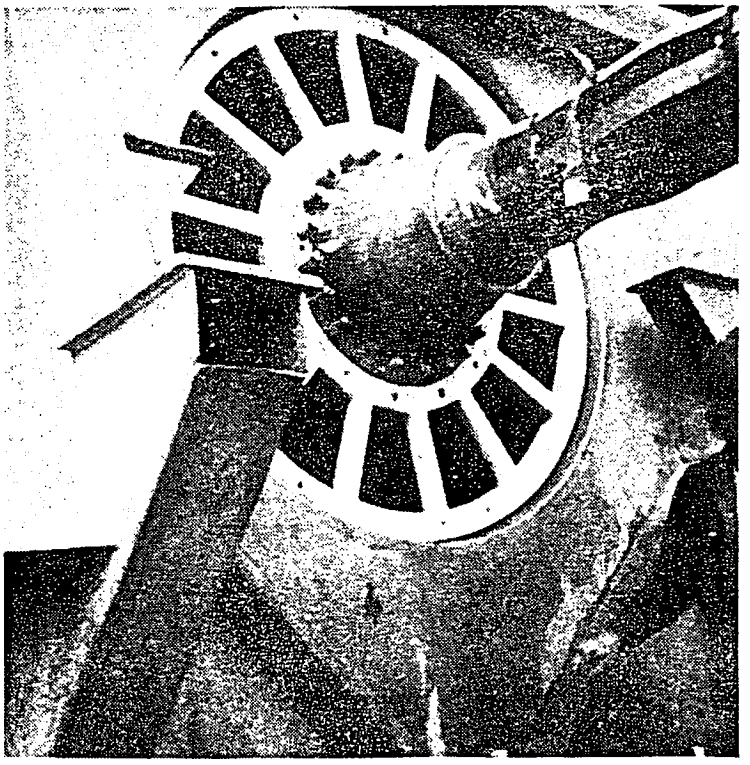
3) Rig to lift rotor slings or cables. If more than one hoist is available on overhead crane, a hoist should be left free on the drive end side of the filter to lift and install the rotor shaft, pillow block bearing, and support beam.



INSTALLATION OF ROTOR INTO VAT

4) Set rotor into vat. When the rotor is lowered halfway into the vat, attach the two slide bearings to the vat wall. After securing the slide bearings to the vat wall, continue to lower the rotor down to put the weight of the rotor ring onto the slide bearings. Line up the valve ports in the center of the round hole at the drive end of the filter.

5) Install the plastic wear disc onto the rotor at the drive end. Use Lock-tite and Lock-tite "T" primer on all bolts holding the wear disc in place. Install all back 3/8" bolts first and then 1/2" bolts on the front. Check for the match-marks on the wear disc and the rotor before installing the bolts.



INSTALLATION OF ROTOR INTO VAT
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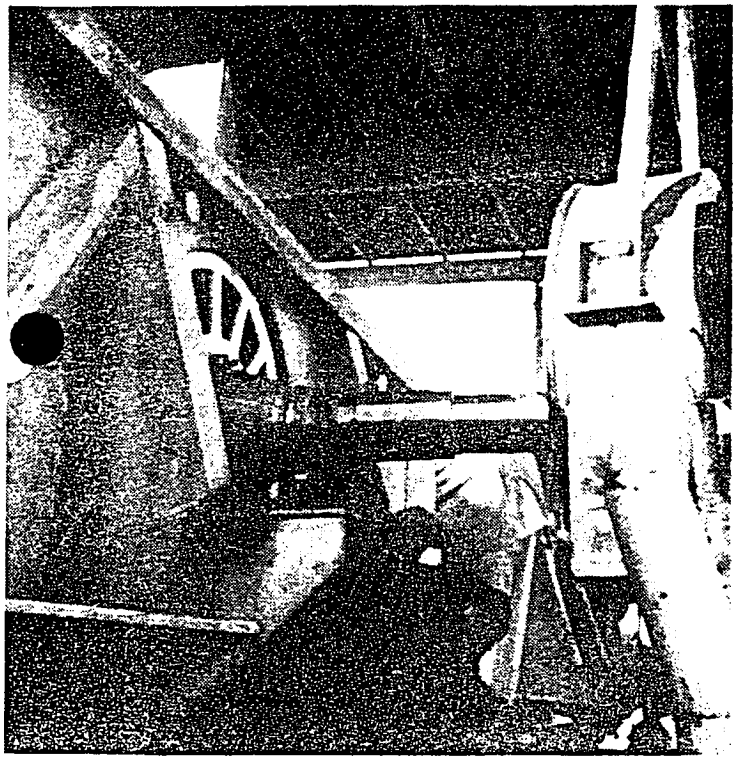
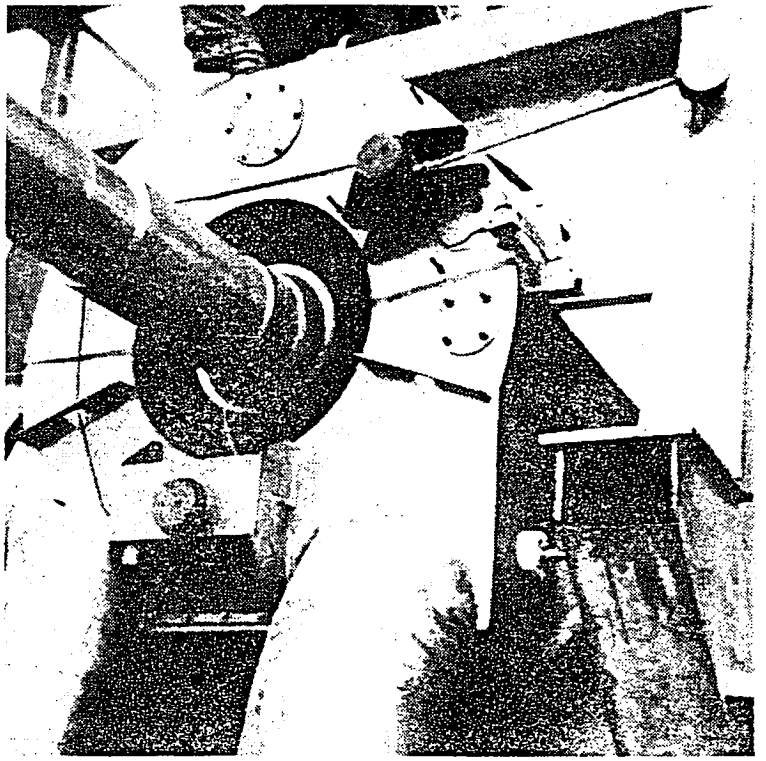
6) Install rotor shaft onto rotor. Again check match-marks on rotor and shaft. Check helicoils for cleanliness. Install dowel pins and bolts into rotor shaft/flange. Before installing dowel pins and bolts, use "Never-Seize" on dowel and bolt surfaces.





7) Install suction box onto end cables.

8) Install pillow block bearings and adapter sleeve on shaft. Leave adapter sleeve loose. Check shaft surfaces for cleanliness and check dimensional fit of shaft surface with adapter sleeve. Insure adapter sleeve lock nut is positioned on inside of bearing toward rotor.

INSTALLATION OF ROTOR INTO VAT
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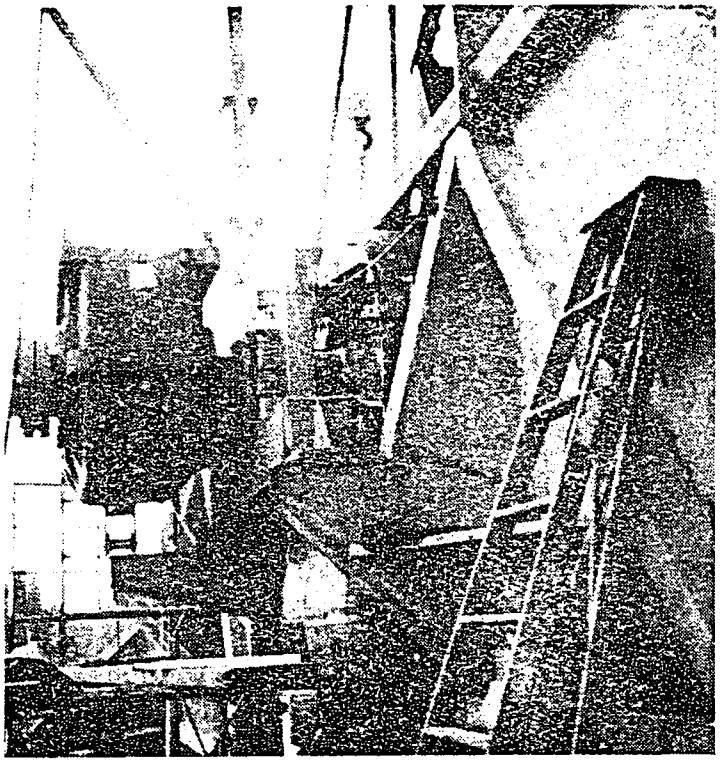


9) Install support beam under pillow block. Locate rotor for seal ring on rotor to be centered on vat wall seal ring, with 1/8" clearance between the two rings at the closest point.

10) Lock bearing down, taking top radial clearance down to .002" clearance.

11) Dowel pin support beam and pillow block assembly.

INSTALLATION OF SEGMENT RODS ON ROTOR

MATERIALS REQUIRED

1) One "I" or "H" beam that was used to assemble vat bottom plate.

2) Welding machine (TIG or MIG preferred)

ASSEMBLY PROCEDURE

1) Lay beam across vat at inlet box side of filter.

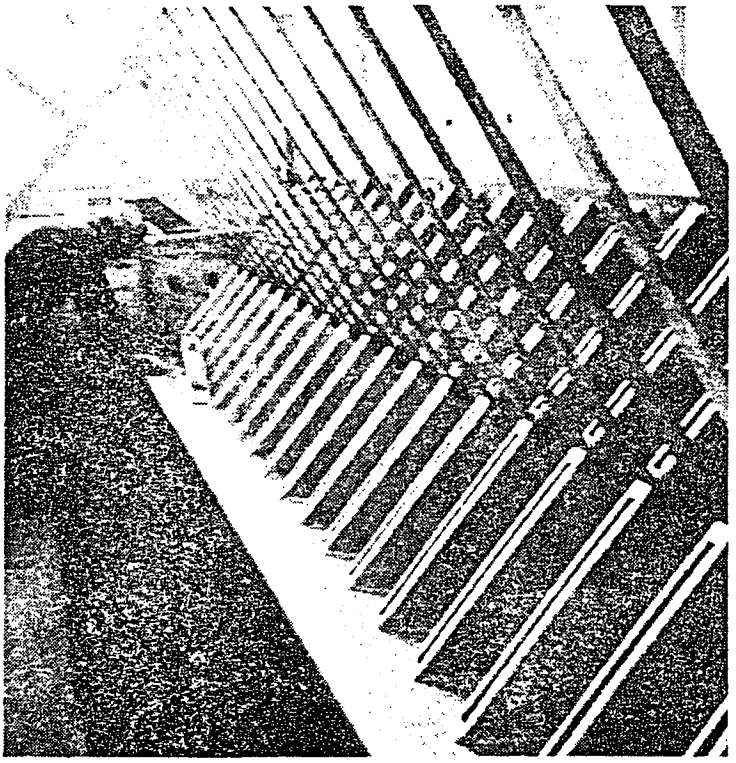
2) Establish distance beam should be away from rotor using an angle fixture and to establish the proper segment rod angle and the proper distance the guide beam should be located from the rotor.

3) Once the beam is located the proper distance from the rotor tack the beam in place to be sure it will not move.

4) Working from the drive end vat wall, transfer the centerlines of all of the segment channels onto the beam. Be sure to always measure from the vat wall to each centerpoint to be sure you do not accumulate error across the filter.

5) Attach all of the segment holding rods by using the two different angle fixtures to establish the proper angles and touch off to the beam to establish the proper length and to keep the rods running true. Alternate the tracking from one side to the other when fitting to keep the heat from pulling them to one side or the other.

INSTALLATION OF SEGMENT RODS ON ROTOR
continued



6) After all rods have been fitted, final welding can be done on the top side of the rotor so that all welding is done in a downhand position.

7) After all welding is complete, rotate finished rotor and check rod alignment. Straighten if required. IT IS VERY IMPORTANT THAT THE TIPS OF ALL RODS ON EACH DISC RUN VERY TRUE.

INSTALLATION OF SCREW TROUGH INTO FILTER

MATERIAL REQUIRED

1) Lifting slings for lifting screw trough assembly.

2) Welding machine.

ASSEMBLY PROCEDURE

1) The screw trough arrives fully assembled except for the support bearing that supports the end of the screw trough on the main rotor shaft. This must be assembled on the mounting plate and the lubricating water line attached. The front side plate sealing gaskets must also be installed.

2) The support bearing mounting plate comes tack welded in place. Once the screw trough is installed in the filter and the top and bottom clearances are checked, the mounting plate should be finish welded with the screw trough in place.

ASSEMBLY OF FILTER HOOD

MATERIALS REQUIRED

1) Pipe wrenches

2) Lock-tite thread-loc

3) 1/2 inch drill motor and bit for 5/8 inch holes to drill 24 holes in hood for shower pipe clamping blocks.

ASSEMBLY PROCEDURE

If possible, hood should be put together completely on the floor and then lifted in one assembly onto the filter prior to putting the segments in, but after the segment rods are installed.

1) Stand up both hood end gables. Install top pieces. Install door frame channels.

2) Install all showers and clamp blocks on ends of showers.

3) Install all shower pipe hardware except nozzles. Nozzles should not be installed until showers are flushed out with water.

4) Install oscillating drive on cleaning shower.

5) Install handles on fiberglass doors and install doors on filter.