



COLUMBIA MACHINE VIBRATOR SHAFTS USING GREASE LUBRICANT

**IMPORTANT: READ THE FOLLOWING
INFORMATION BEFORE
STORING PARTS OR
STARTING INSTALLATION.**

Please check the enclosed goods for damage or error in shipment.

If the contents are damaged, file a claim with the freight company immediately.

If there is a discrepancy in the goods received, contact Columbia Machine immediately. To save time and effort, contact the depot that shipped the goods. It would hasten a solution if you had the packing slip, invoice or sales order number available when you called.

In the event goods have to be returned to Columbia, it is mandatory you get a "Return Goods Authorization" (RGA) issued by any of our Parts Depots.

Vibrator shafts and control units out of warranty will be eligible for a core refund if returned to one of our Parts Depots. Goods sent in for core refund must also be accompanied by an RGA.

Full warranty conditions may be found on the next page.

Please fill in warrant information on the attached sheet and return to Columbia Machine to protect your warranty.



WARRANTY

Columbia Machine, Inc., warrants that each new product of their manufacture is free from defect in material and workmanship under normal use and service for a period of ninety (90) days from date of delivery.

If such defect occurs during the warranty period, the aforesaid purchaser should immediately contact Columbia Machine, Inc., or its authorized dealer. Columbia will furnish or arrange for repair or replacement of the defective parts within the terms of this warranty. The defective part should be returned promptly to Columbia or the authorized dealer (transportation prepaid). Upon examination by them to determine if the part is defective through no neglect on the customer's part, Columbia will repair or replace said part. All freight charges on said parts are to be paid by the customer.

Columbia Machine, Inc., shall not be obligated to furnish labor required or be responsible for labor charges incurred in installing or servicing of their equipment, including the removal or installation of the defective part. Nor shall Columbia be liable for delay on freight, or failure to furnish a replacement part resulting from government restriction, priority or other allocation, or otherwise.

The following are not warranted by Columbia: pumps, motors, starters, switches, relays, or other equipment purchased by Columbia as an assembly. (The majority of these items are warranted by the company manufacturing said items.)

This warranty shall not apply to Columbia products which have been repaired or altered in any way, so as, in Columbia's judgement, to have affected its stability or reliability, nor which has been subject to misuse, negligence or accident, nor which has had the serial number altered or removed. Neither shall this warranty apply to Columbia products which have been corrected other than in accordance with instructions furnished by Columbia.

This warranty is expressly in lieu of all other warranties expressed or implied, and of all other obligations or liabilities on Columbia parts. Columbia neither assumes or authorizes any representative or person to assume for it any liability in connection with the sale of Columbia products.



VIBRATOR SHAFT WARRANTY INSTRUCTIONS

In order to validate the warranty on this shaft, the following information must be sent in to Columbia Machine, Inc.:

CUSTOMER NAME: _____

ADDRESS: _____

CITY: _____

STATE: _____ ZIP _____

Vibrator Shaft Serial No.: _____

Block Machine Model No.: _____

Vibrator Shaft Model No. (Circle One)

901A	483.3.51	483.1.472
1345	C2184.13	482.800.20
C1016.26	C2845.34	483.16.139
C1016.28	C2185.45	484.2.412
C1201.7	483.16.73	483.1.367

Other: _____

Date Installed: _____

Return warranty information to:

Columbia Machine, Inc.
ATTN: Service Department
107 Grand Boulevard
Vancouver, WA 98661

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VIBRATOR SHAFT REMOVAL AND REPLACEMENT FOR SHAFTS USING GREASE LUBRICANT

MODEL 16HF, 16H, 16S, 12AC, 12ACH BLOCK MACHINES

NOTE: If the following procedure is followed closely, no trouble should be experienced and a new or rebuilt vibrator shaft assembly should give long service. All of this, however, could be nullified should foreign material, dirt, sand, etc., be allowed to enter the bearings during installation. So, before you start to remove the old vibrator shaft, the machine must be thoroughly cleaned. The cleaning should start at the top and work down. The entire area where you are working should also be clean.

Step #1 Remove hood assembly from front of machine.

Step #2 Loosen bolts holding vibrator motor in place. Back off adjusting bolts and slide vibrator motor forward loosening the drive belt.

Step #3 Loosen and remove the four bolts on each shaker shaft where they bolt to the vibrator eccentric housings. This completely uncouples the shaker shafts from the vibrator shaft assembly.

Step #4 Remove cap screws from bearing caps that hold vibrator shaft assembly to machine. Care should be taken to make sure the vibrator shaft assembly does not fall as the last bearing cap is removed.

NOTE: Before bearing cap removal, be sure each cap is marked (top and bottom) so they can mate with lower half properly upon reassembly.

Step #5 With someone holding the vibrator shaft assembly in place, remove the vibrator belt from the motor sheave. Pull the vibrator belt out to the front of the machine but around the vibrator shaft. Remove the vibrator shaft from the machine.

NOTE: This vibrator shaft is quite heavy and care should be exercised in its handling.

If bearing caps are not drilled for grease lubrication, refer to Drawing 483.1.472 and drill caps for grease fittings.

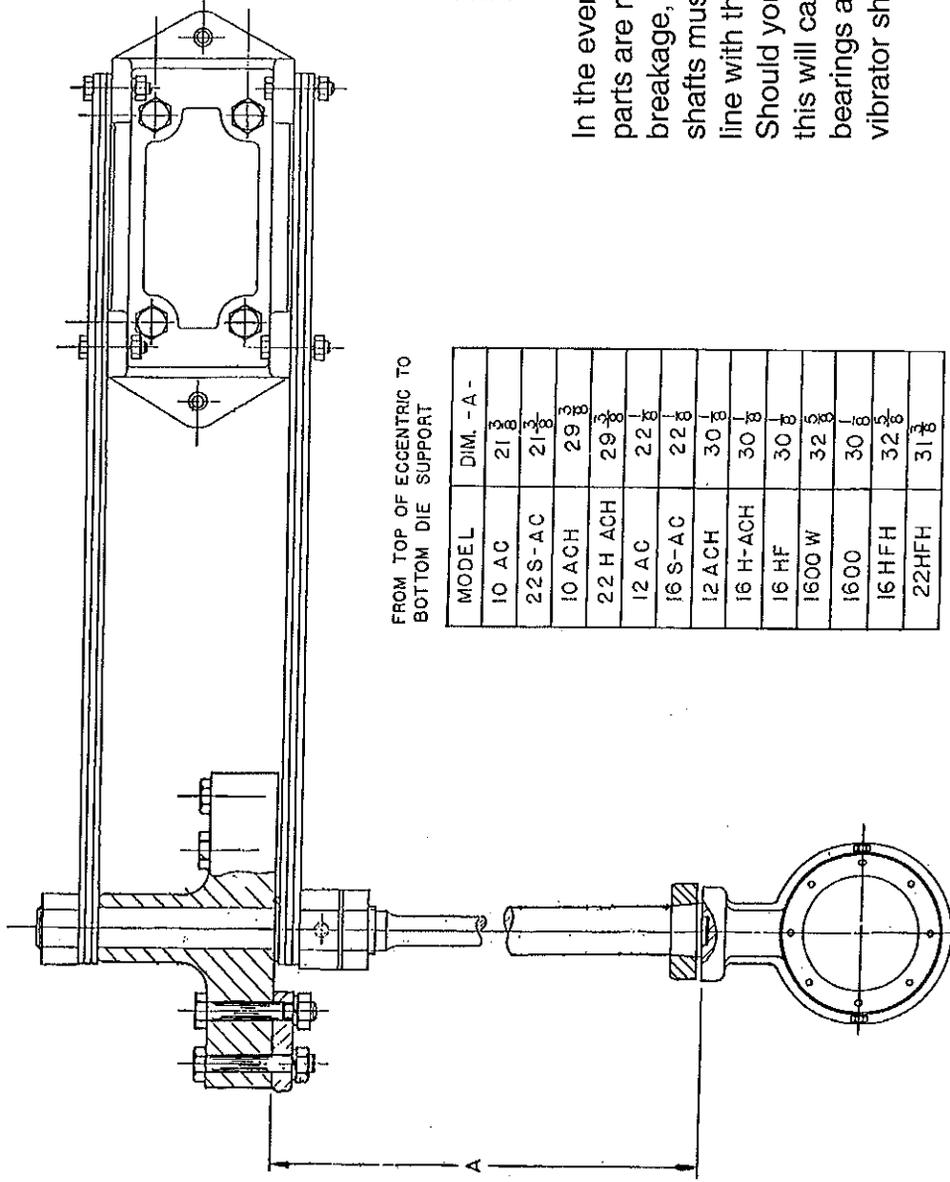
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- Step #6 Inspect vibrator base for wear or signs of bearing outer races turning in base. If signs of wear or bearing outer races turning in base is evident, it will be necessary to replace the vibrator base.
- NOTE: The warranty on a new or rebuilt vibrator shaft assembly will be voided if installed in a worn or defective base.
- Step #7 Clean any dirt and oil from the vibrator base.
- Step #8 Open and prepare new vibrator shaft for installation. It is recommended that a new vibrator belt be used each time a vibrator shaft is installed.
- Step #9 Install or hang a new vibrator belt on the vibrator shaft. Lift the vibrator shaft into place.
- Step #10 Maintaining 1/32" clearance as shown at housing position 4, and holding end places (items B) tight against the bearings, install end bearing caps. Use caution to insure position of bearings and plates are maintained. (Refer to Drawing 484.1.189 found on Page 13.)
- Step #11 Center inside main bearings between stingers (Items D). While holding plates (items C) tight against the bearings, install caps using caution to insure equal clearance is maintained between Items D and C on each side of the bearings.
- Step #12 Align and attach shaker shafts to vibrator bearing housings. Torque bolts to 90 ft.-lbs. lubed.
- Step #13 Remove all bearing caps individually and thoroughly clean inside of bearing cap and exposed outer face of main bearing with Loctite Safety Solvent #755.
- Step #14 Apply a very thin coating of Loctite RC/609 to exposed outer bearing race only.
- Step #15 Reinstall bearing cap and torque bolts as follows:
 1/2" bolts to 90 ft.-lbs.
 5/8" bolts to 180 ft.-lbs.
- Step #16 Place drive belt over motor pulley.
- Step #17 Tighten motor adjusting bolts until belt is tight, using tables for proper belt tension.
- CAUTION: Do not over-tension vibrator drive belts. Belts should operate with just enough tension so as not to slip when starting and stopping.
- Step #18 Place machine in manual mode and start hydraulic pump.

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- Step #19 Operate vibrator for a short time until it begins to heat. Stop vibrator and check by hand to insure the shaft turns freely. If there is a sign of binding, recheck alignment.
- Step #20 Reinstall front cover.
- Step #21 Grease with Columbia recommended vibrator grease only or it will nullify the warranty.
- Grease the four main bearings with four (4) pumps from a hand grease gun every four (4) hours of operation.
- Grease the two eccentric housings with six (6) pumps from a hand grease gun every four (4) hours of operation.
- NOTE: We do not recommend exceeding this recommendation in frequency or volume. Over-greasing can cause excessive heat build up.

The machine is now ready for production. A check of the vibrator shaft temperature should be made at four-hour intervals during the first few days production.



FROM TOP OF ECCENTRIC TO
BOTTOM DIE SUPPORT

MODEL	DIM. - A -
10 AC	21 $\frac{3}{8}$
22S-AC	21 $\frac{3}{8}$
10 ACH	29 $\frac{3}{8}$
22 H ACH	29 $\frac{3}{8}$
12 AC	22 $\frac{1}{8}$
16 S-AC	22 $\frac{1}{8}$
12 ACH	30 $\frac{1}{8}$
16 H-ACH	30 $\frac{1}{8}$
16 HF	30 $\frac{1}{8}$
1600 W	32 $\frac{3}{8}$
1600	30 $\frac{1}{8}$
16 HFH	32 $\frac{3}{8}$
22HFH	31 $\frac{3}{8}$

⚠ WARNING

In the event that the upper vibration parts are replaced because of wear or breakage, the centerline of the shaker shafts must be parallel or straight in line with the vibrator shaft eccentrics. Should you fail to align shaker shaft, this will cause side load on eccentric bearings and **reduce** the life of the vibrator shaft.

HEIGHT DIMENSIONS FOR SHAKER SHAFT
No. 483.1.530
Rev. D



COLUMBIA MACHINE, INC.

BLOCK DIVISION

SERVICE ALERT BULLETIN

SUBJECT:

Columbia Block Machine Maintenance Tips

DATE: 3-15-89

PAGE:

ORIGINATOR: Gordon Eigsti

SUPERSEDES:

DATED:

**MAINTENANCE TIPS ON REMOVAL
AND ADJUSTMENT OF MOLD SHAKER SHAFTS**

The proper installation, adjustment, or removal of shaker shafts have a great effect on the proper operation and longevity of your vibrator shaft.

If the shaker shaft is misaligned it will cause premature failure of the bearings in the eccentric housings of your vibrator shaft. The following are things to remember when performing maintenance on your Columbia Block Machine:

- a) Never tighten or adjust the upper shaker shaft nuts (1) without loosening the tapered hold down collar (4) on the bottom of the shaker shaft (2) because turning the nuts (1) on top will slightly turn the bottom of the shaker shaft (2) which puts the eccentric housing (5) in a bind. The taper of the collar (4) must be broken loose from the taper on the shaker shaft (2) and retightened to make sure the alignment has not been affected.

NOTE: Number in parenthesis () refer to bubbles on drawing found on Page 12 .



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CONT'D - MAINTENANCE TIPS

- b) When installing the shaker shaft tapered hold down collar (4) to vibrator shaft eccentric housing (5) make sure the base of the shaker shaft sits down flat and tight against the top of eccentric housing flange (5) and there is at least 1/16" clearance between shaker shaft hold down collar (4) and eccentric housing mounting surface (5) when the shaker shaft (2) is clamped solidly to the eccentric housing (5). If the hold down collar bolts down tight to the eccentric housing (5) without maintaining the 1/16" gap, the shaker shaft (2) may be loose or become loose from the eccentric housing (5) causing premature failure of the vibrator shaft.

- c) Make sure that the mold mounting surface of the die support (3) and mold mounting bracket mounting surfaces are smooth and perpendicular to center line of shaker shafts (2). If the above two surfaces are worn causing the shaker shafts (2) to be out of line or in a bind, it will cause premature failure of the vibrator bearings.



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NOTE: Never pry a shaker shaft in any direction to get it to line up with die support (3) or vibrator shaft eccentric housing (5). If the shaker shaft (2) has to be pried to get it to line up, there is something out of line and running the machine with misaligned shaker shafts (2) will cause vibrator shaft failure. Check for the following when misalignment occurs:

- a) Bent Shaker Shafts (2)
- b) Worn Die Supports (3)
- c) Worn Mold Mounting Brackets
- d) Incorrect fit between Shaker Shafts
(2) Tapered hold down collar (4)

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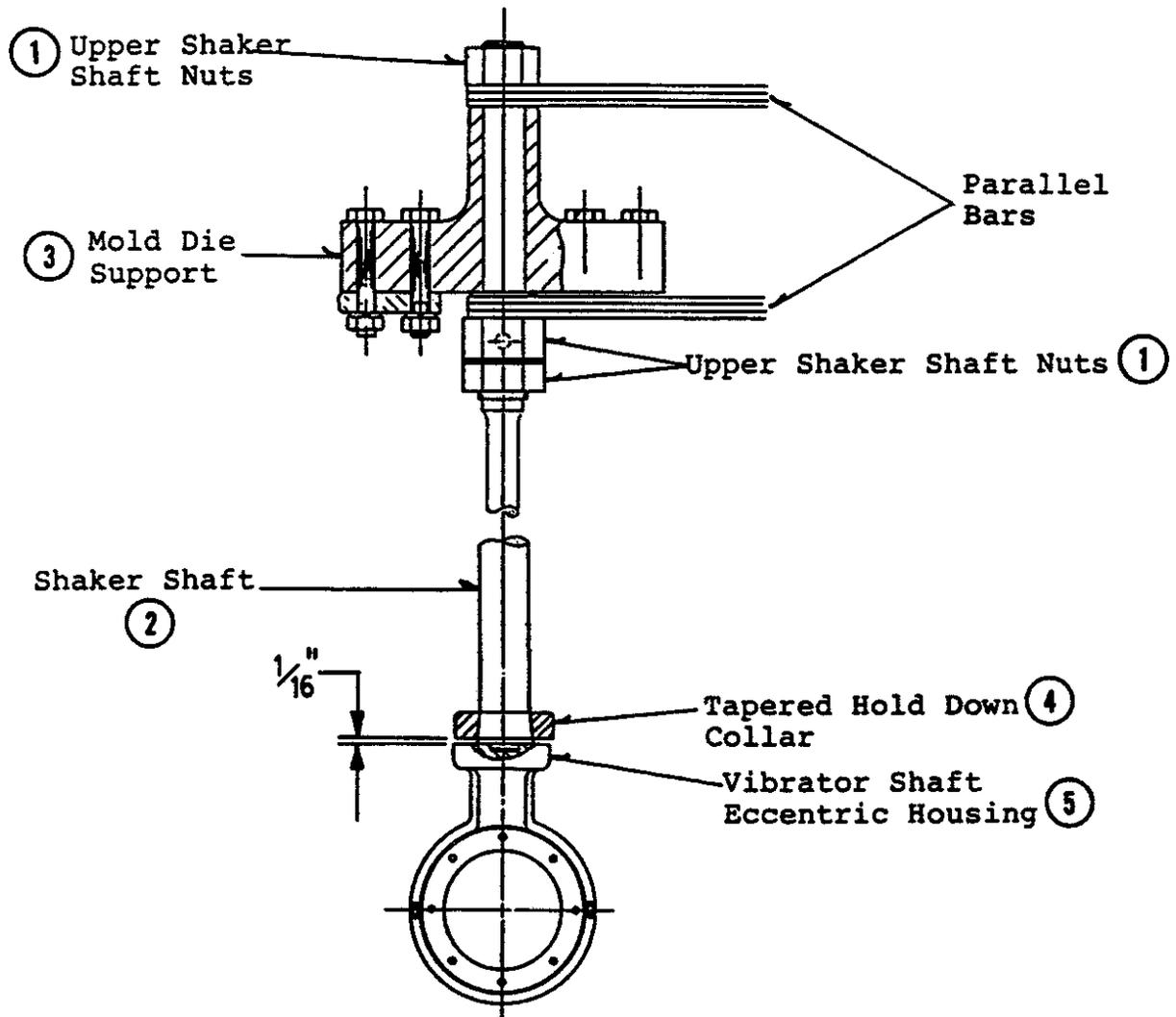
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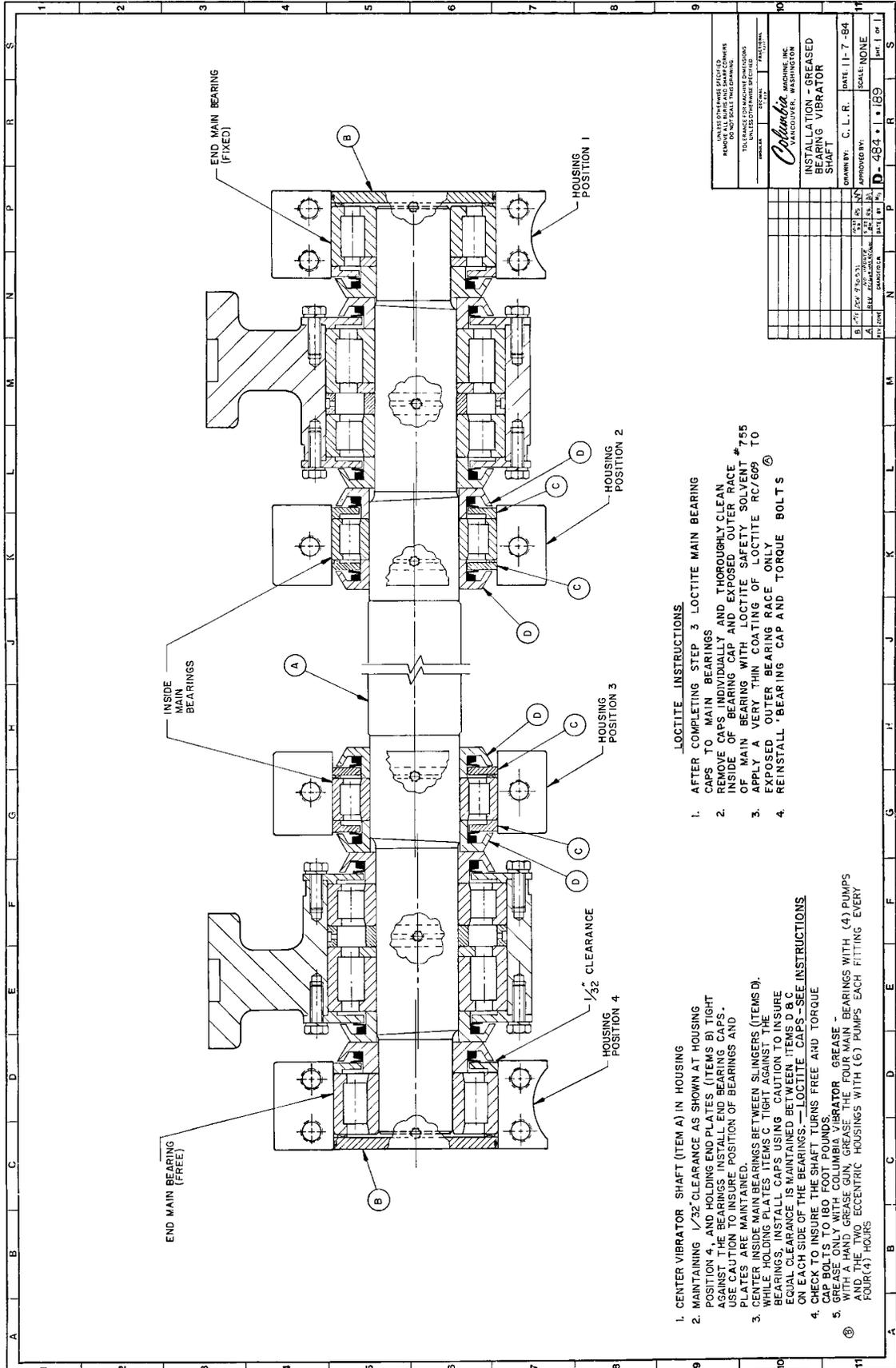
PAGE:

ORIGINATOR: Gordon Eigsti

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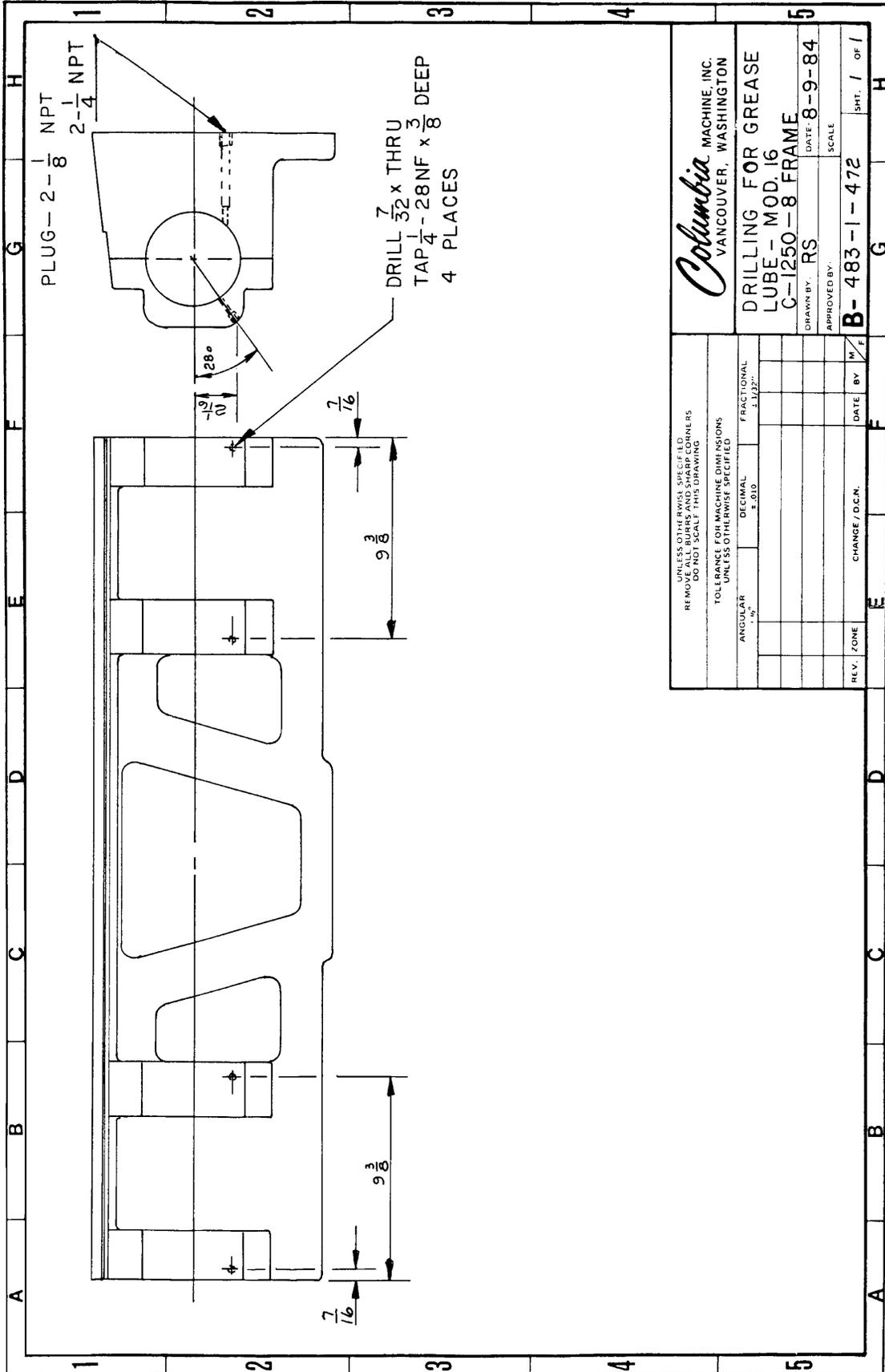




- LOCTITE INSTRUCTIONS**
1. CENTER VIBRATOR SHAFT (ITEM A) IN HOUSING
 2. MAINTAINING $1/32$ " CLEARANCE AS SHOWN AT HOUSING POSITION 4, AND HOLDING END PLATES (ITEMS B) TIGHT AGAINST THE BEARINGS INSTALL END BEARING CAPS. USE CAUTION TO INSURE POSITION OF BEARINGS AND PLATES ARE MAINTAINED.
 3. CENTER INSIDE MAIN BEARINGS BETWEEN SLIPERS (ITEMS D). BEARINGS MUST BE TIGHT AGAINST THE BEARINGS. INSTALL CAPS USING CAUTION TO INSURE EQUAL CLEARANCE IS MAINTAINED BETWEEN ITEMS D & C ON EACH SIDE OF THE BEARINGS. — LOCTITE CAPS — SEE INSTRUCTIONS
 4. CHECK TO INSURE THE SHAFT TURNS FREE AND TORQUE CAP BOLTS TO 180 FOOT POUNDS.
 5. GREASE ONLY WITH COLUMBIA VIBRATOR GREASE — WITH A HAND GREASE GUN. GREASE THE FOUR MAIN BEARINGS WITH (4) PUMPS AND THE ECCENTRIC HOUSINGS WITH (6) PUMPS EACH FITTING EVERY FOUR (4) HOURS

- LOCTITE INSTRUCTIONS**
1. AFTER COMPLETING STEP 3 LOCTITE MAIN BEARING CAPS TO MAIN BEARINGS
 2. REMOVE CAPS INDIVIDUALLY AND THOROUGHLY CLEAN INSIDE OF BEARING CAP AND EXPOSED OUTER RACE # 755 OF MAIN BEARING WITH LOCTITE SAFETY SOLVENT TO APPLY A VERY THIN COATING OF LOCTITE RC7609 TO EXPOSED OUTER BEARING RACE ONLY
 3. REINSTALL BEARING CAP AND TORQUE BOLTS

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<small>DESIGNED BY: _____</small> <small>CHECKED BY: _____</small> <small>DATE: 11-7-84</small>	<small>SCALE: NONE</small> <small>REV. NO. _____</small> <small>REV. DATE _____</small> <small>REV. BY _____</small>
<small>APPROVED BY: C. L. R.</small> <small>DATE: 11-7-84</small>	<small>SCALE: NONE</small> <small>REV. NO. _____</small> <small>REV. DATE _____</small> <small>REV. BY _____</small>
Columbia MACHINE INC. WASHINGTON, WASHINGTON	
INSTALLATION - GREASED BEARING VIBRATOR SHAFT	
D-484 • 189	



UNLESS OTHERWISE SPECIFIED REMOVE ALL BURRS AND SHARP CORNERS DO NOT SCALE THIS DRAWING		FRACTIONAL 1/128"	
TOLERANCE FOR MACHINE DIMENSIONS UNLESS OTHERWISE SPECIFIED			
ANGULAR " "	DECIMAL ± 0.01		
REV. / ZONE	CHANGE / DCN.	DATE	BY
Columbia MACHINE, INC. VANCOUVER, WASHINGTON		DRILLING FOR GREASE LUBE - MOD. 16 C-1250 - 8 FRAME	
DRAWN BY: RS		DATE: 8-9-84	
APPROVED BY:		SCALE:	
B-483-1-472		SHT. 1 OF 1	