

COLUMBIA MACHINE VIBRATOR SHAFTS SPLIT OIL LUBE

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 "Returned 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.

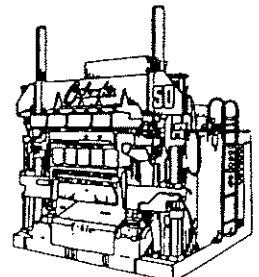
If such defect occurs during the warranty period, the foresaid purchaser should immediately contact Columbia Machine, Inc., or its authorized dealer. Columbia will furnish or arrange for repair or replacement of the defective parts within the terms of this warranty. The defective part should be returned 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 judgment, 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: Warranty Control Dept.
107 Grand Boulevard
Vancouver, WA 98661

SPLIT OIL LUBE VIBRATOR SHAFTS (All Models)

Field repair of the vibrator shaft is not recommended. The following defines removal and installation procedures. (See Drawing 382.640.6)

Vibrator shafts are of the split design allowing a half shaft to be replaced separately. Belt replacement also can be done by removing the center shaft section and couplings.

REPAIR

Cleanliness is of utmost importance when removing or replacing vibrator shafts. Vibrator bearings are highly precision components and require extreme caution to keep clean and free from grit.

Bearing cap and base surfaces must be kept clean and free of any nicks or burrs as this will effect bearing bore tolerances in housing. Care must be taken when reinstalling center shaft and couplings so be careful that no dirt or paint gets between mating surfaces of shafts and coupling halves.

REMOVAL & REPLACEMENT OF OIL SHAFTS (See Drawing 382.640.6)

HALF SHAFTS

1. Thoroughly clean area.
2. Remove vibrator shaft cover.
3. Remove one (1) or both shaft couplings, depending on whether one half shaft is to be removed or if both half shafts are to be removed.
4. Remove bolts that retain shaker shafts to eccentric housings.
5. Place small screw jack (3") between parallel bars and top of main box (see Drawing 382.660.13) and lift mold support and shaker shaft up approximately 1/4" or until top of shaker shaft touches feed drawer track bar.
6. Remove oil lines from bearing caps. Wrap or tape ends of hoses to keep clean.
7. Remove springs from boot and slide boot up off vibrator base.

8. Remove vibrator bearing caps being sure to support vibrator shaft as it may fall from the base.
9. Remove shaft and end seal plate as a unit.

TO RE-ASSEMBLE

1. Thoroughly clean bearing base and caps.



NOTE

When cleaning bearing cap, it is recommended that plugs be removed from oil galley and thoroughly cleaned. Inspect injector plugs to make sure they are not plugged.

2. Before installing new vibrator shaft, loosen the shaker shaft clamp plates from the shaker shafts. Do this by using a suitable spacer, pipe, etc., that will fit over the end of the shaker shaft and tap with hammer. Loosening the clamp plates will prevent misalignment and binding upon reassembly. (See Figure 1.)
3. Inspect bearing seat areas for pitting, corrosion or a bearing that may have spun in the housing. If these areas are damaged, a new base is required.
4. If base is good, install new half shaft into base

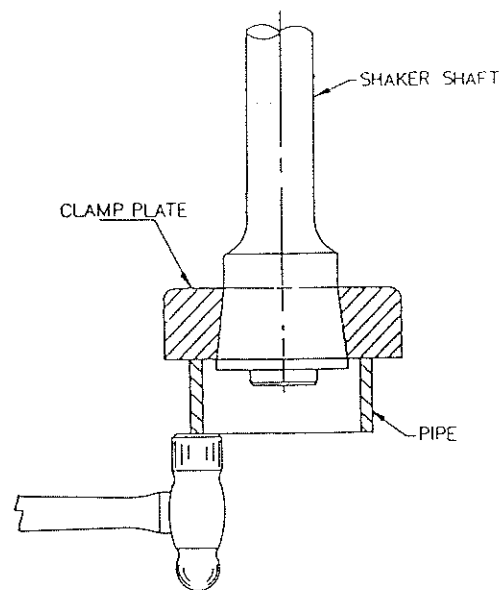


Figure 1



NOTE

Be careful that end roller bearing does not slide off shaft.

5. Slide counterweight onto shaft.
6. Slide new boot on top portion of eccentric housing.
7. With eccentric housing pointing up, slide shaft into base with end seal plates and locator rings in their proper grooves
8. Turn inside seal plate with notched portion facing out toward bearing cap.

**NOTE**

Surface of base and cap must be clean and dry.

9. Coat surface of cap with a very thin coating of silicone gasket material to prevent any leakage of oil. Torque bolts evenly to 180 ft. lbs.
10. Replace inside seal plate lock bar to inside of bearing cap.
11. Position counterweight and install key to shaft keeping 3/16" gap between seal plate and counterweight.
12. Replace coupling. Be sure parts are clean with no dirt or paint under coupling halves.
13. Keep coupling halves together as they were removed. Tighten all bolts evenly.
14. Reconnect shaker shafts to eccentric housing. Torque all bolts evenly to 90 ft. lbs.
15. Install boot on eccentric housing and base as follows:

- Push boot down on housing as far as it will go, then take lower edge of boot and curl upward turning boot inside out. Place boot in upper groove and starting at back, roll boot back over, directing it into bottom groove. Grasp edges of boot and rotate back and forth slightly to seat boot in grooves.
- Next, install clamp springs which will require making a wire loop from light wire and a suitable handle as shown below. Slip spring around boot and hook wire loop in each end of the spring and strength until hooks can be hooked together. Wire loops may have to be cut to remove from springs. Check to be sure springs are properly in their grooves.

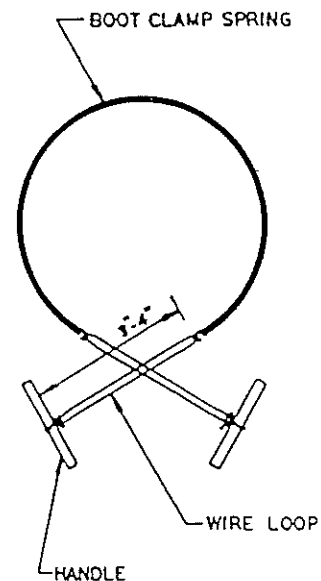


Figure 2

16. Connect oil hoses back on cap.
17. Grease inner main bearing shaft seal one pump from hand grease gun each fitting daily.

COLUMBIA MACHINE, INC. BLOCK DIVISION SERVICE ALERT BULLETIN

SUBJECT: Columbia Block Machine Maintenance Tips

DATE: 3-15-89

ORIGINATOR: Gordon Eigsti

MAINTENANCE TIPS ON REMOVAL AND ADJUSTMENT OF MOLD SHAKER SHAFTS (See Drawing on Page 6)

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 re-tightened to make sure the alignment has not been affected.

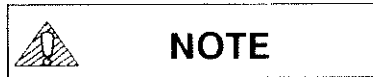


NOTE

Number in parenthesis () refer to bubbles on attached sketch (see page 6).

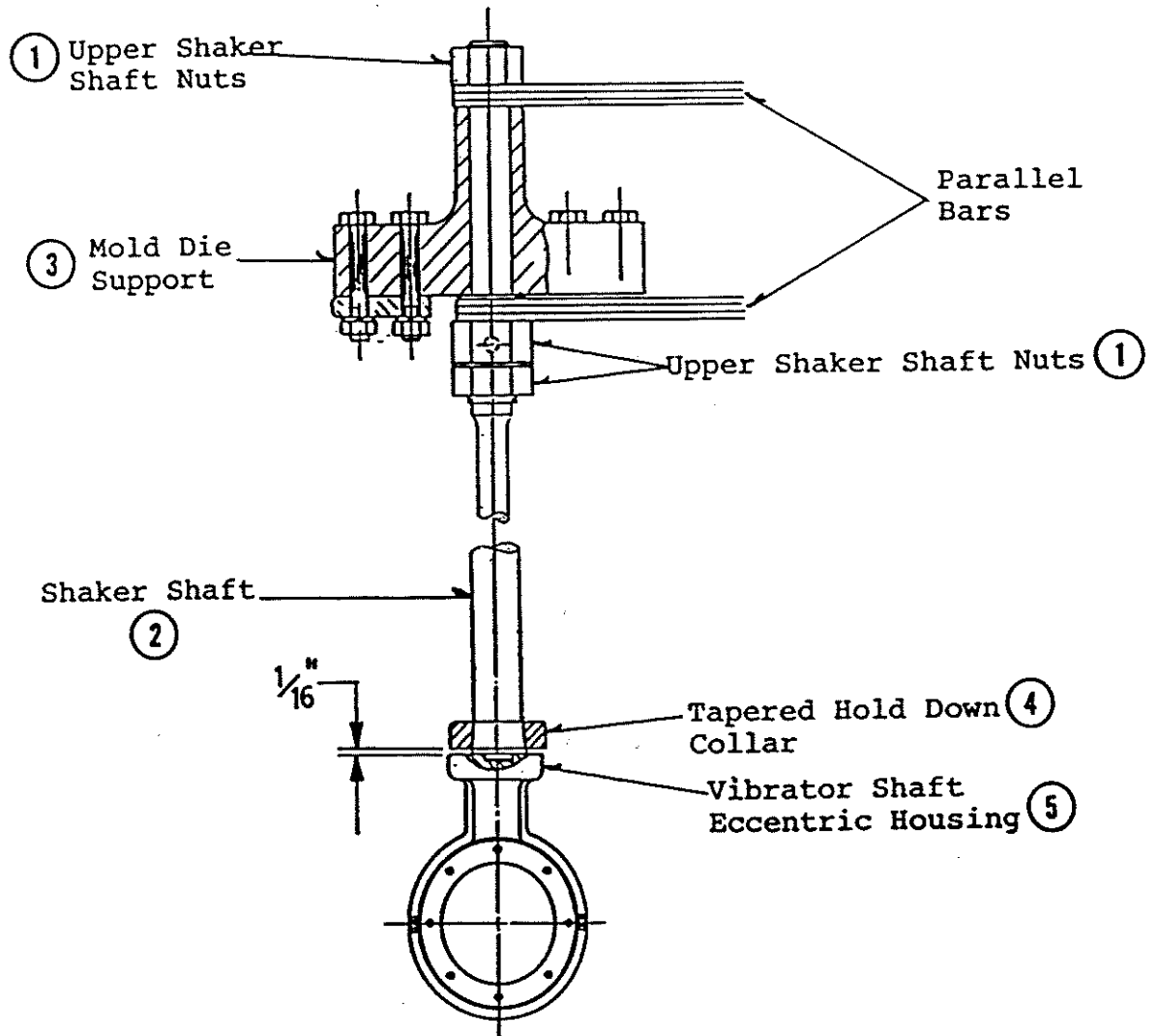
- b) When installing the shaker shaft tapered hold down collar (4) to vibrator shaft eccentric housing (5) make sure the base of the shaker shaft sits down flat and tight against the top of eccentric housing flange (5) and there is at least 1/16" clearance between shaker shaft hold down collar (4) and 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.

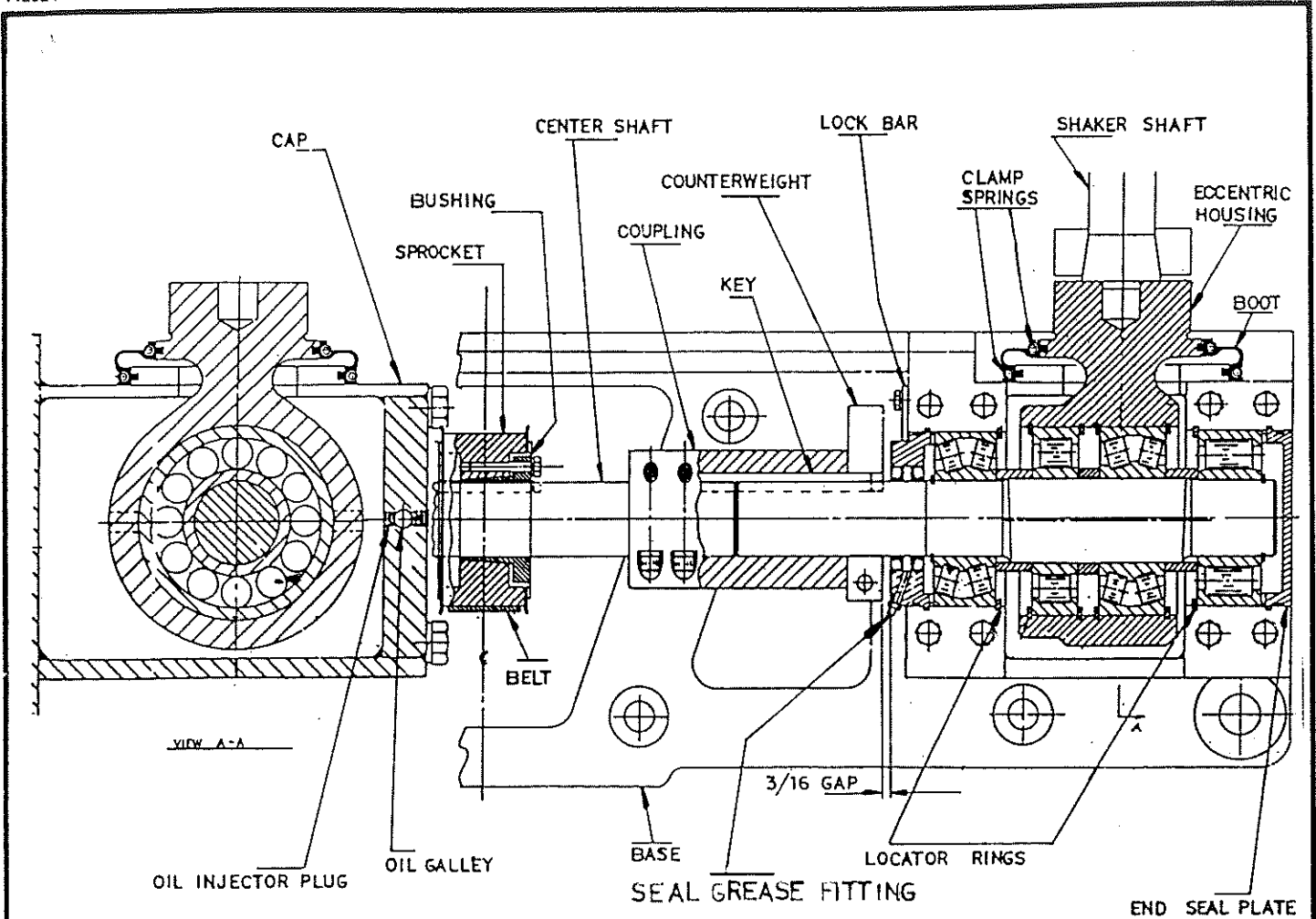
- c) Make sure that the mold mounting surface of the die support (3) and mold mounting bracket mounting surfaces are smooth and perpendicular to center line of shaker shafts (2). If the above two surfaces are worn causing the shaker shafts (2) to be out of line or in a bind, it will cause premature failure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



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)





OIL INJECTED VIBRATOR SHAFT

UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS AND SHARP CORNERS
DO NOT SCALE THIS DRAWING

TOLERANCE FOR MACHINE DIMENSIONS
UNLESS OTHERWISE SPECIFIED

ANGULAR ±1/2	DECIMAL ±010	FRACTIONAL ±1/32			
A	REV ADD GREASE FITTING NOTE	8-11-92	RS.		
Rev	Change/DCN	Date	By	M/F	

Columbia MACHINE, INC.
VANCOUVER WASHINGTON

INSTALLATION - PRESSURE LUBE
VIBRATOR SHAFT ASSEMBLY

Drawn By ROBERT SCHMITT

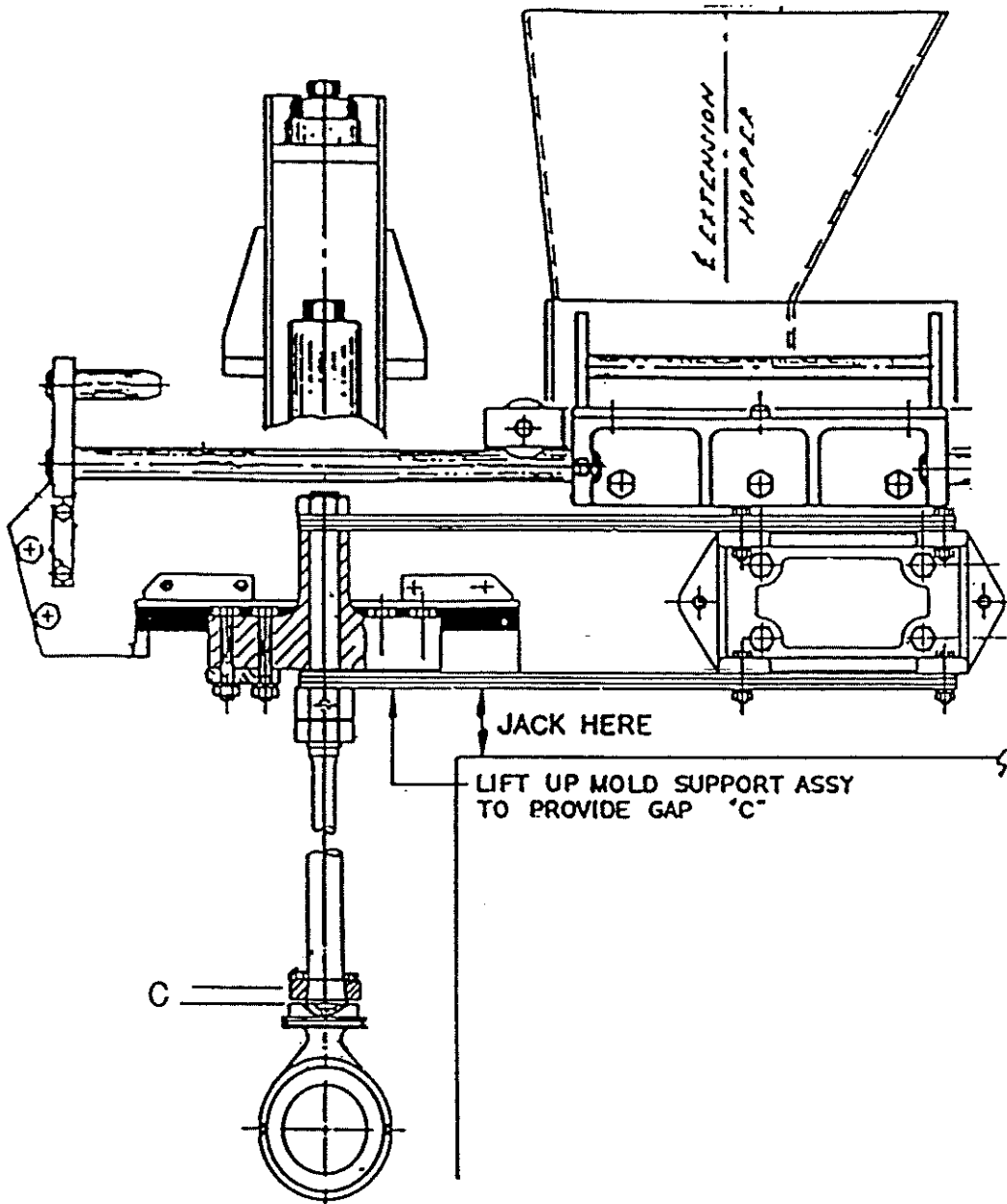
Date 3-7-90

Approved By

Scale

A- 382.640.6

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UNLESS OTHERWISE SPECIFIED
REMOVE ALL BURRS AND SHARP CORNERS
DO NOT SCALE THIS DRAWING

TOLERANCE FOR MACHINE DIMENSIONS
UNLESS OTHERWISE SPECIFIED

ANGULAR ±1/2	DECIMAL ±010	FRACTIONAL ±1/32			
Rev	Change/DCN	Date	By	M/F	

Columbia MACHINE, INC.
VANCOUVER WASHINGTON

MAINT. REF. DRAWING
VIB. SHAFT

Drawn By R S Date 4-17-91

Approved By Scale

A-382.660.13

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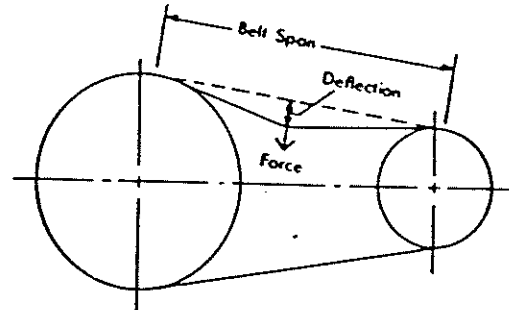
HTD DRIVE INSTALLATION

The HTD belt drive will perform successfully when proper installation procedures are followed.

BELT INSTALLATION

Do not pry or otherwise force the belt onto the sprockets, as this can result in permanent damage to the belt. Either remove the sprocket's outside flange or reduce the center distance between the pulleys so that the belt can be easily installed.

HTD belts are not to be tensioned as you would a V-Belt or any other belt that depends on friction to transmit the load. They should be installed with a snug fit, neither too taut nor too loose.



An alternate method can be used to properly tension the belt on an HTD drive. After the drive has been installed and tension applied, the deflection force can be measured to verify the proper tension. Stop the drive and measure the belt span (see sketch). Using a spring scale, apply a perpendicular force to the exact center of the belt width and near the center of the belt span. Measure the force required to deflect the belt 1/64 inch for every inch of span length. For example, the deflection for a 32-inch span would be 1/64 inch multiplied by 32, or 1/2 inch.

The HTD Belt Deflection Force table lists the range of forces normally sufficient for drive installation. Actual installation tension required depends on peak loads, system rigidity, number of teeth in mesh, etc. For drives with shock loading or other unusual conditions, the force may have to be increased for proper operation of the drive.

Note: For belts wider than 2 inches, it is suggested that a rigid strip of keystone or something similar be placed across the belt between the point of force and the belt to prevent belt distortion.

HTD BELT DEFLECTION FORCE

Pitch	Width	Force lbs.
5mm	15mm	1 to 2
	25mm	1½ to 3
8mm	20mm	2 to 4
	30mm	3 to 6
	50mm	6 to 11
	85mm	10 to 19
* 14mm	40mm	5 to 11
	55mm	8 to 16
	85mm	13 to 26
	115mm	19 to 37
	170mm	29 to 58
20mm	115mm	28 to 56
	170mm	43 to 86
	230mm	60 to 120
	290mm	76 to 150
	340mm	90 to 180

SPROCKET ALIGNMENT

HTD sprocket alignment and parallelism of the shafts is very important. Proper alignment helps to equalize the load across the entire belt width, thereby reducing wear and extending belt life.

PLACE A STRAIGHTEDGE against the outside edge of the sprockets and move sprockets until the straightedge touches the two outside and two inside edges of the sprockets. The straightedge should cross the sprockets as near the shafts as possible. A string can be used if a straightedge is not available. Remember the string should contact at four points as explained above.

After aligning the sprockets, check the rigidity of the supporting framework. Shafts should be well supported to prevent distortion and a resulting change in the center distance under load. Do not use spring-loaded or weighted idlers. Idler sprockets or pulleys must be locked into position after adjusting belt tension.

Please note: At least one sprocket must have a flange.

Columbia MACHINE, INC.
VANCOUVER WASHINGTON

BELT TENSION SPEC

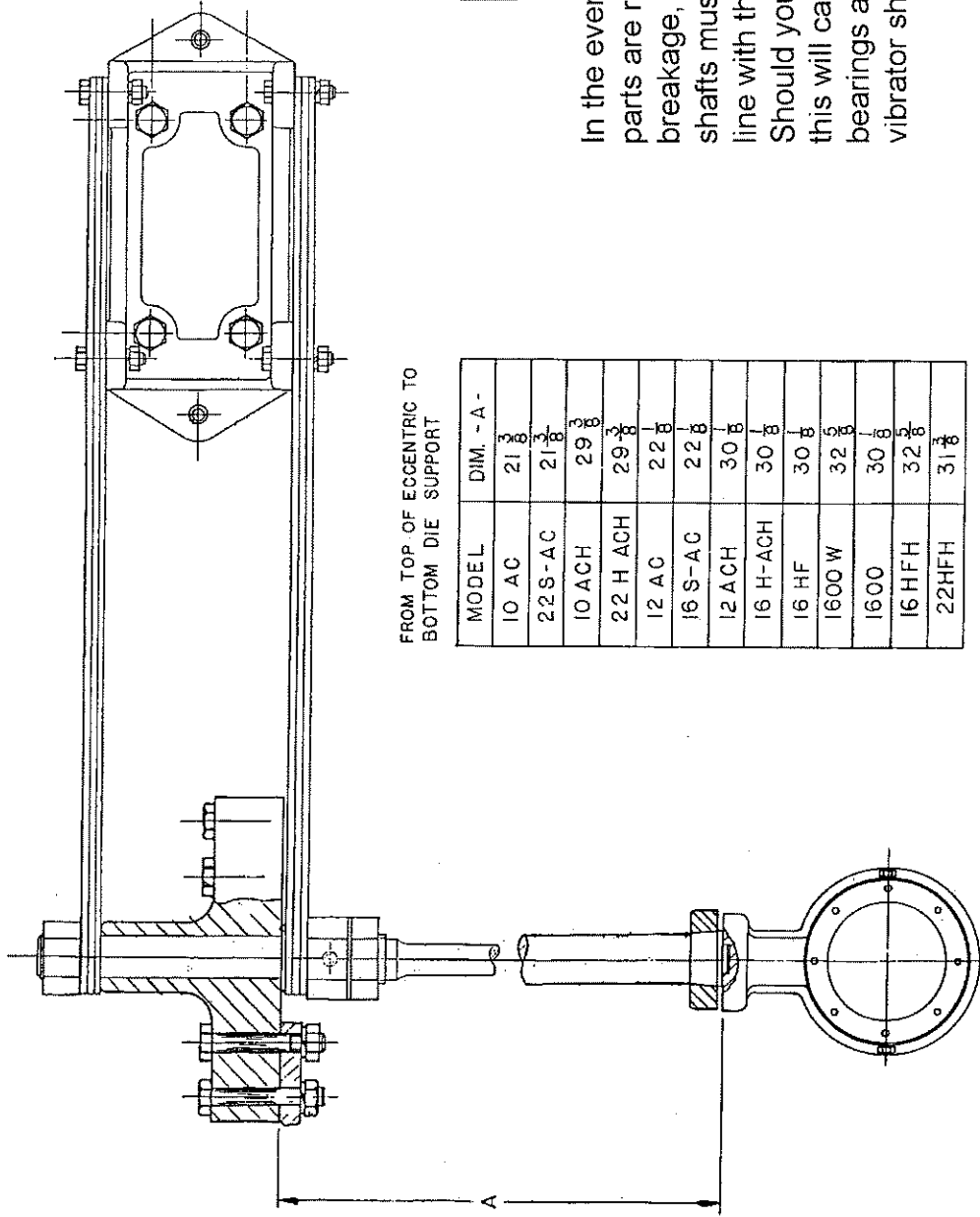
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Approved By Scale

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Rev	Change/DCN	Date	By	M/F



FROM TOP OF ECCENTRIC TO
BOTTOM DIE SUPPORT

MODEL	DIM. - A -
10 AC	$21\frac{3}{8}$
22S-AC	$21\frac{7}{8}$
10 ACH	$29\frac{3}{8}$
22 H ACH	$29\frac{7}{8}$
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	$32\frac{1}{8}$
1600	$30\frac{1}{8}$
16 HFH	$32\frac{1}{8}$
22HFH	$31\frac{1}{8}$

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