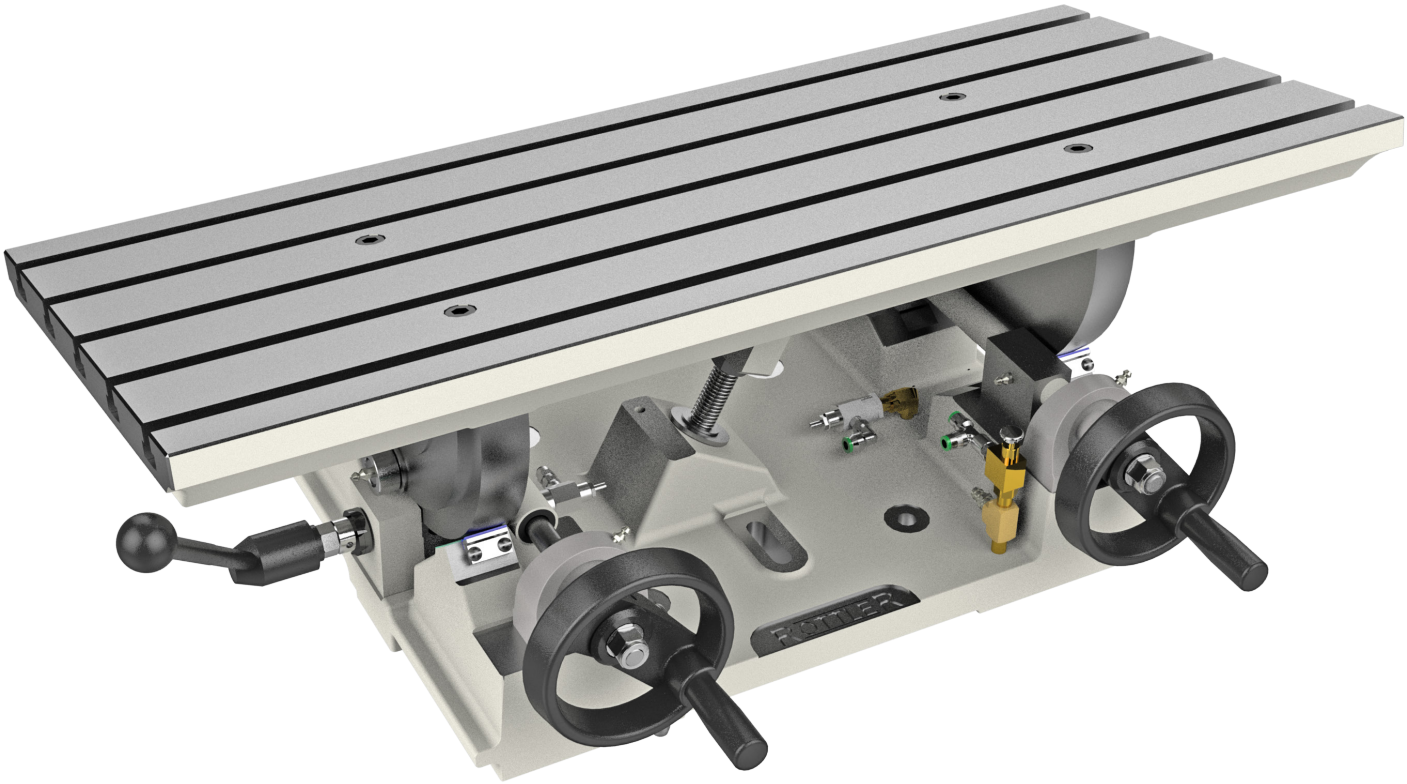
ROTTLER

7209M DUAL AXIS LEVELING TABLE

OPERATION AND MAINTENANCE MANUAL



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18.06.2019

ORDERING PROCEDURE

Contact your regional Rottler sales rep for assistance in ordering optional equipment, replacement parts, or tooling.

If you are unable to contact your regional Rottler sales rep, call the factory at 253-872-7050 and ask to speak to the parts sales specialist.

Have the following information handy to expedite the ordering process:

1. Your name, business name, and contact number
2. Customer number
3. If you don't have a customer number, your billing address
4. Shipping address if different from billing address
5. Machine model and serial number
6. Part number and description of what you want to order
7. Preferred method of shipment
8. You may also contact us via e-mail with the above information. Send e-mail requests to: parts@rottlermfg.com

In some cases you may be requested to send a photo of the part you are ordering if it is a replacement part, or doesn't appear in the database.

If you are unsure which part you need to order, contact our service department and ask to speak to one of our service consultants. They will assist you in determining which part you require.

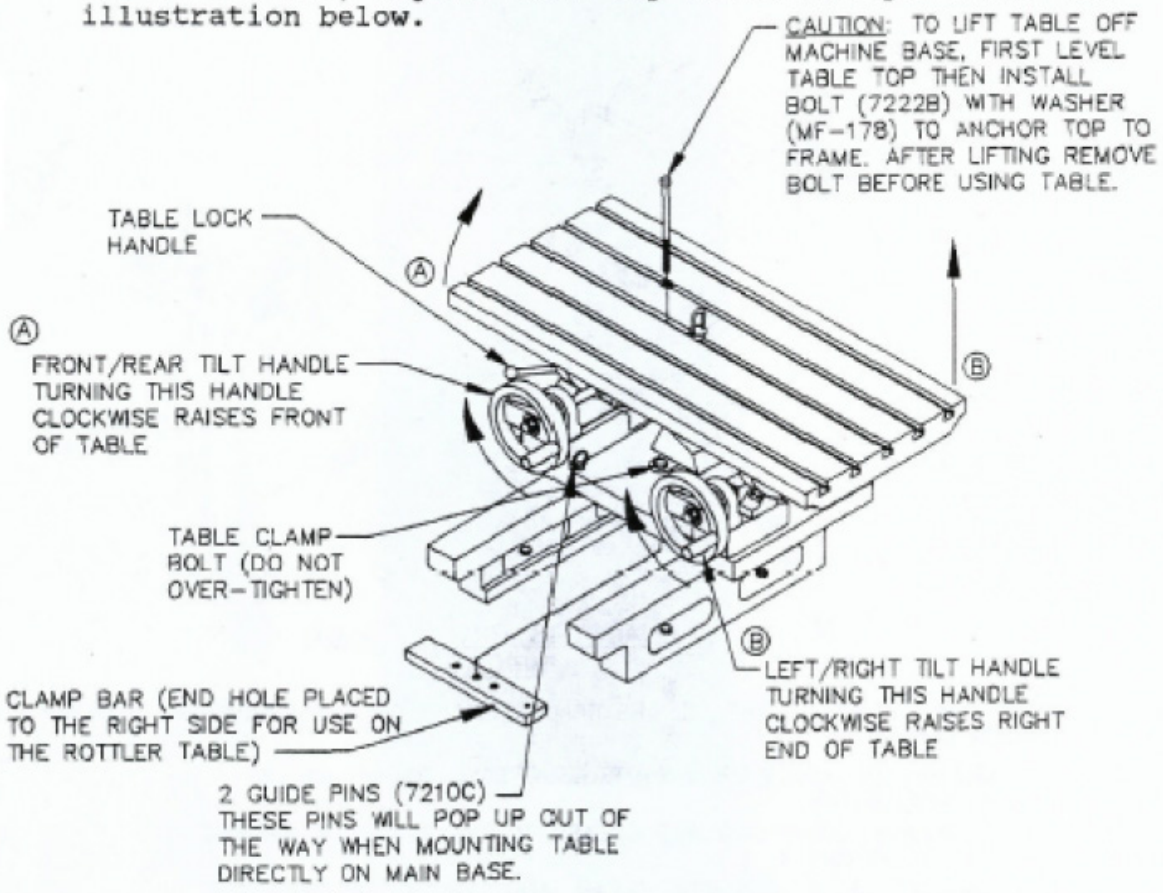
THERE IS A MINIMUM ORDER OF $25.00

TYPICAL TABLE SET-UP

> NOTE: *Head fixturing requires the table to be mounted on 7219 Riser set. Inline block fixturing requires the table to be mounted directly on main base.*

1. Loosen table clamp bolt on base of table. Slide table forward or backward on risers to position table approximately centered in path of cutter. Tighten hex bolt to approximately 5 ft/lbs. to lock table in place. Do not over-tighten bolt.

2. Loosen table lock handle on left side of table. Using the two handwheels, adjust table top to desired position. See illustration below.



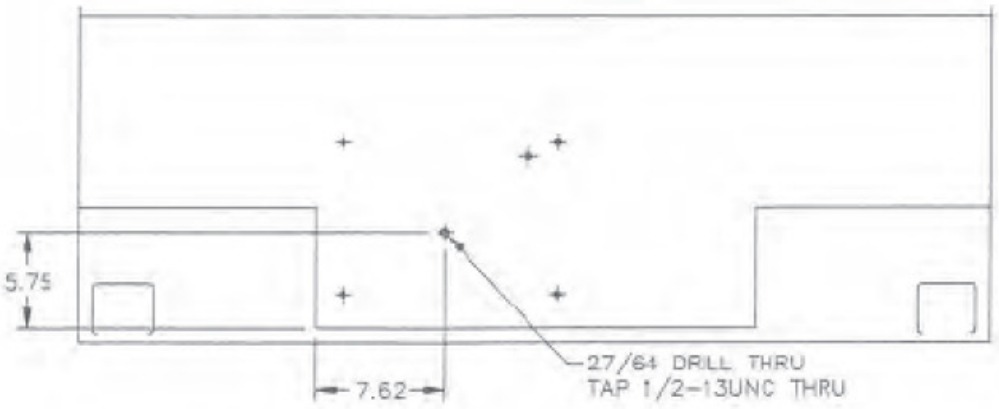
3. After adjusting table, tighten table lock handle.

INSTRUCTIONS FOR SMALL INLINE BLOCK FIXTURING USING DUAL AXIS TABLE

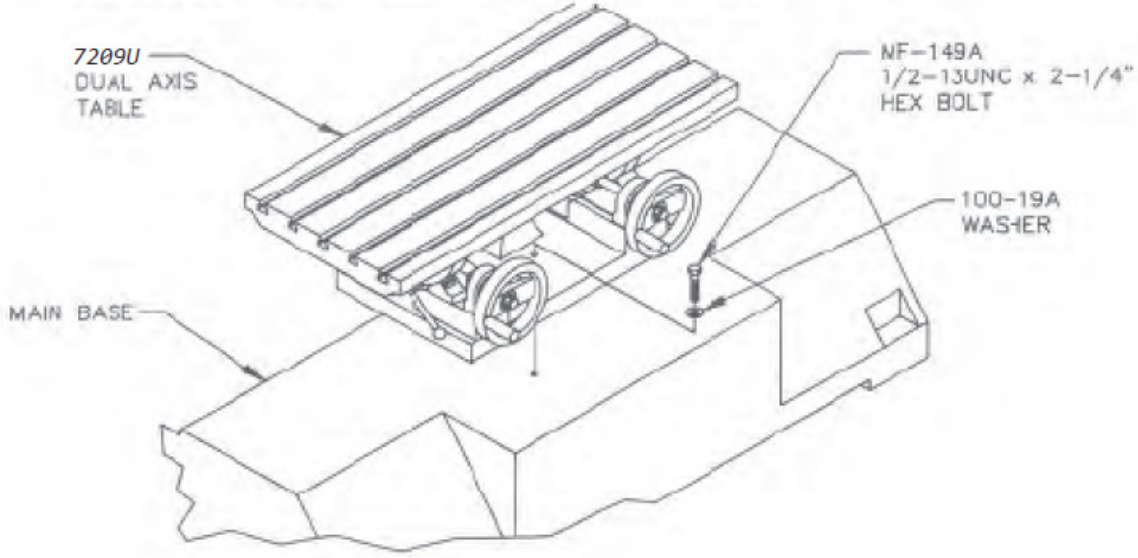
The 7209U Dual Axis Table has the capability of holding small (less than 13-1/2" from pan rails to head surface) inline cylinder blocks for resurfacing. This requires the use of parts from 7119? Universal Head Fixture package.

MOUNTING TABLE TO MAIN BASE: (Early style main base only)

1. Check main base for required mounting hole shown below. Earlier main bases may require this hole to be added.



2. Mount table on main base using (1) MF-149A 1/2-13UNC x 2-1/4" hex bolt and (1) 100-19A washer. Guide pins installed from the top will pop up out of the way when the fixture is mounted on the main base. Remember to push them back down for mounting on parallels.

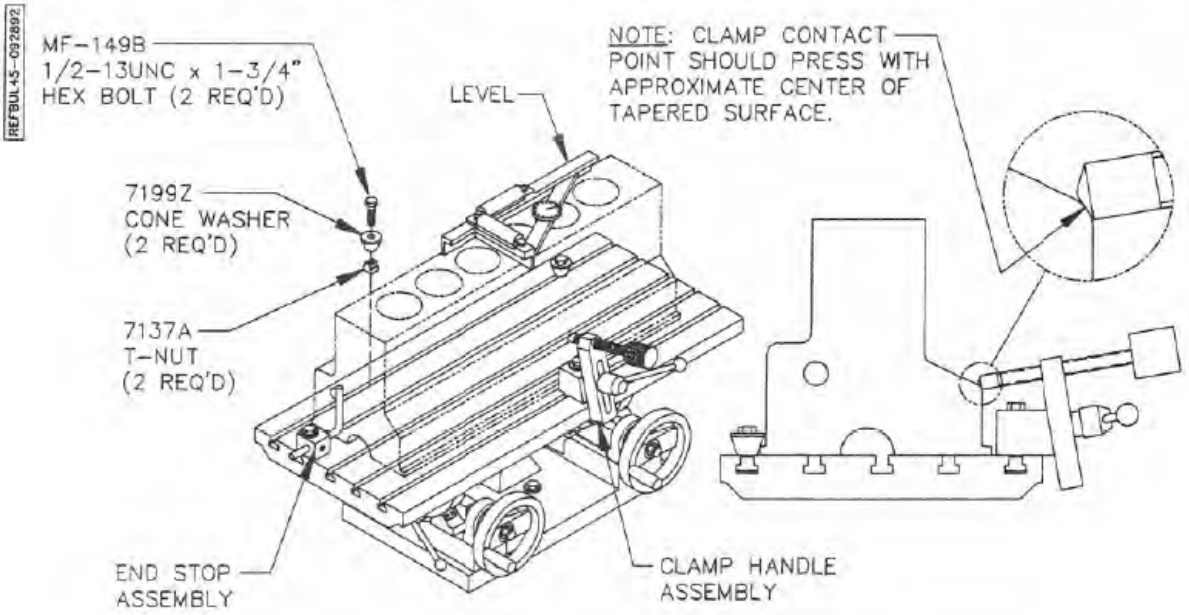


MOUNTING BLOCK TO TABLE:
There are two methods of mounting blocks to the fixture table. Blocks with main caps removed or with raised main bearings can be mounted directly on table surface. Blocks with main bearing caps installed which are lower than pan rail surface must be mounted using support blocks from the universal fixture.

Blocks with main caps removed or raised main bearings:

1. Remove any burrs from pan rails of block.

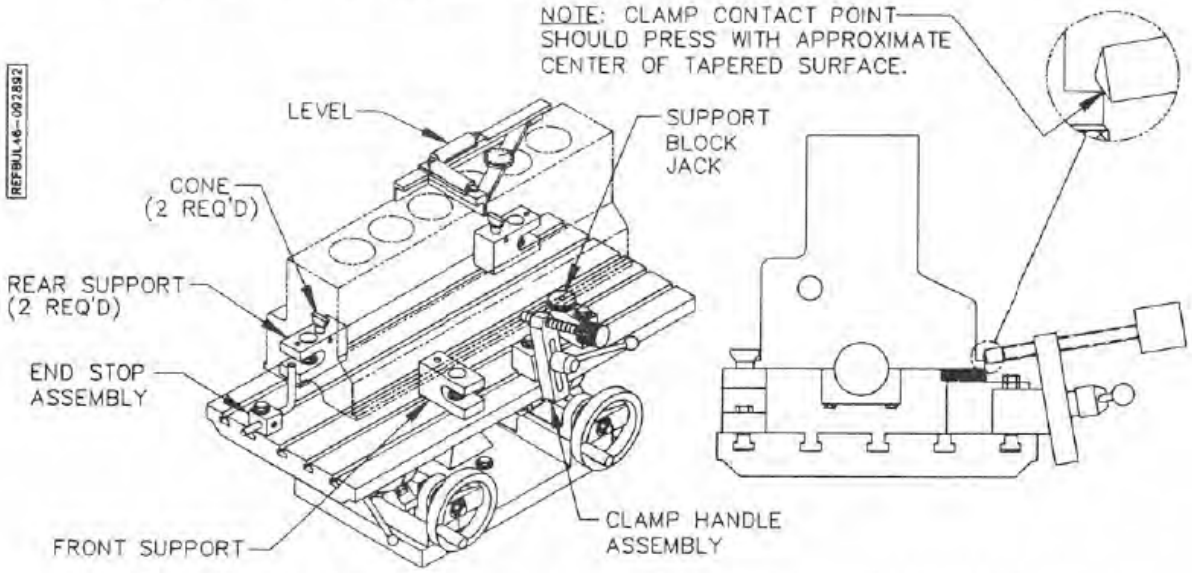
2. Locate cone washers on table to approximately center block in path of cutterhead and 'hook' the edge of the pan rail in the rear. Clamp the block using clamp handle assembly with either 502-3-10N clamp nose for iron blocks or 502-3-10M clamp nose for aluminum blocks. We suggest you install the stop rod assembly on the left hand end of the block. This is an added safety precaution.



3. Check that all bolts and holddowns are tight. Loosen table clamp and level head surface of block in both directions. Lock table clamp and recheck block for level.

Blocks with main caps installed:

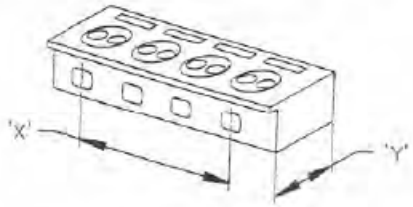
1. Remove any burrs from pan rails of block.
2. Position rear supports and front supports to hold block approximately centered in path of cutterhead. Generally, place the front supports closer together than the rear supports.
3. Place the block on the supports. Reposition the supports if necessary to clear main caps, etc. Elevate the cones to 'hook' the pan rail in the rear. Tighten set screws to lock cones in place. Tighten the hex bolts on the supports. Adjust the support block jack to eliminate any rocking. Lightly apply the clamp handle assembly.



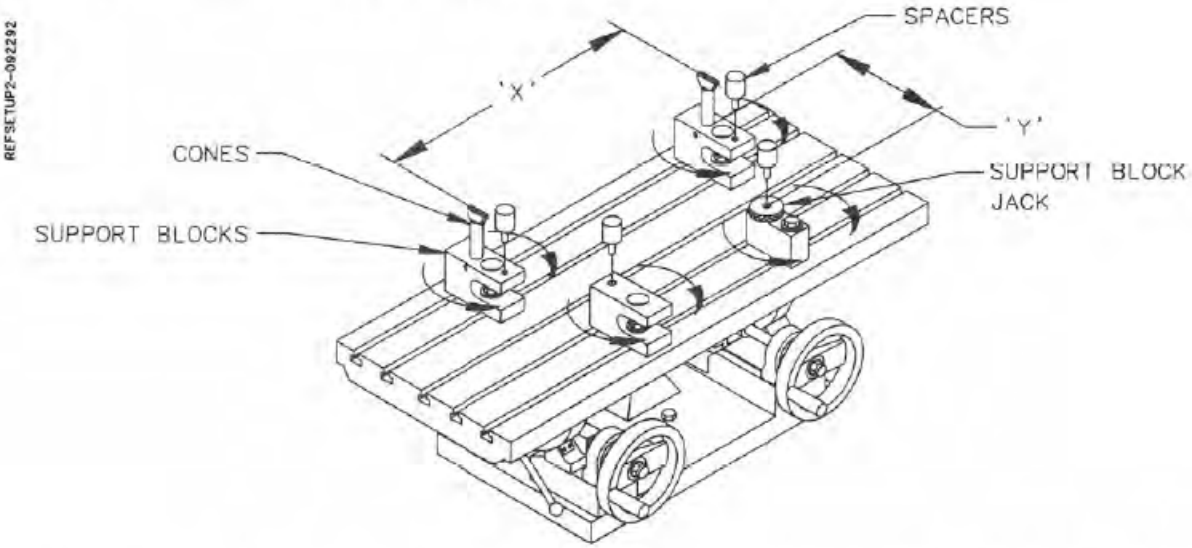
4. Loosen table clamp and level head surface of block in both directions. Lock table clamp. With the level still on the block tighten clamp handle assembly with appropriate clamp nose on the lower portion of a port or indent near the middle of the block. Tighten the clamp 1/8 to 1/4 turn after contacting the block. Do not overtighten. Watch the level as you tighten to check for movement or warping. If the block moves or warps, repositioning the front supports inward will generally solve the problem. Check to see that the block cannot be moved in the fixture. We suggest that you install the stop rod assembly on the left hand end of the block. This is an added safety precaution.

7119P UNIVERSAL FIXTURE TOOLING PACKAGE
TYPICAL HEAD SET-UP PROCEDURE

1. Find the desired ports or bosses in the head to position cones (long or short) on rear support blocks. Measure the distance between the centerlines of these ports (bosses) within 1/16" (1mm - 5mm). Measure the distance from rear support points to front support points on the head.



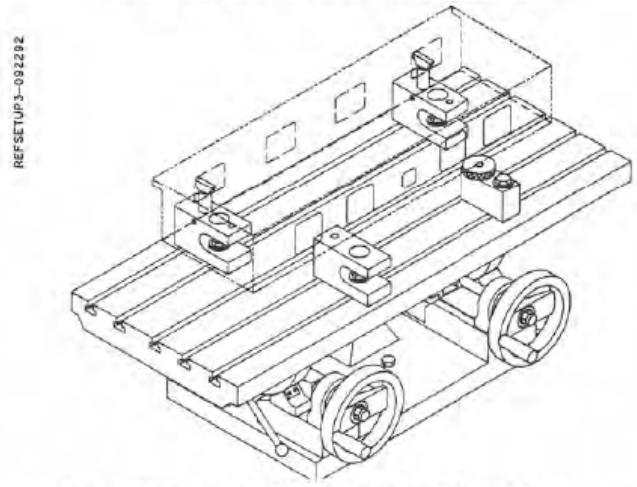
2. Position rear support blocks and front support blocks to hold the head approximately centered on the table top and spaced apart per dimensions measured in step "1" above. Generally, place the front blocks closer together than the rear blocks. If necessary, use either 2 or 4 spacers to raise the head for clearing studs or to angle the head so the cutterhead clears the head clamp handle assembly.

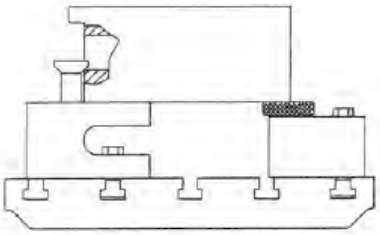


3. Place the head on the support blocks. Elevate the cones to 'hook' the two ports (bosses) on the head and tighten their set screws. Adjust the position of the front support blocks if

necessary. Tighten the hex bolts on the support blocks. Push the head back firmly into the cones. Adjust the support block jack to eliminate any rocking of the head. Do not tighten the head clamp handle assembly yet.

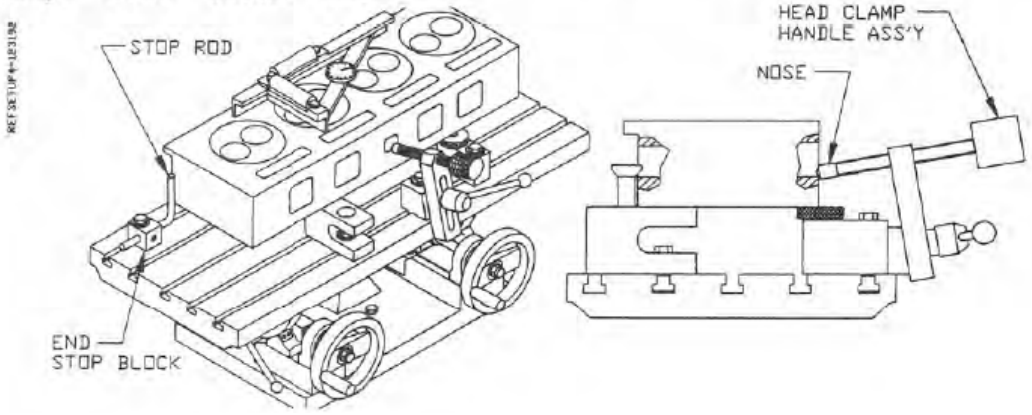
4. Unlock the table. Using the two handwheels, level the head surface to be cut. Lock the table in this position.



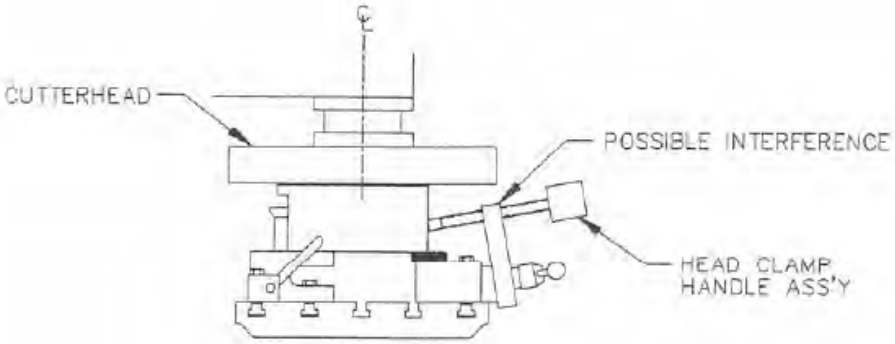


5. The head clamp handle assembly uses a choice of either a bronze nose for aluminum heads or a steel nose for cast iron heads. With the level still on the head surface, tighten the head clamp handle assembly with appropriate clamp nose on lower edge of a port or indent near the middle of the head. Tighten the clamp 1/8 to 1/4 turn after contacting the head. Do not overtighten. Watch the level as you tighten to check for movement or warping. Some heads are very sensitive to support block placement and the front support blocks may have to be moved slightly inward to prevent this warping. Check to see that the head cannot be moved in the fixture.

6. Slide the end stop block up against the left end of the head towards the rear. If possible, rotate the stop rod to contact a machined area on the end of the head. This will aid in loading a run of similar heads.



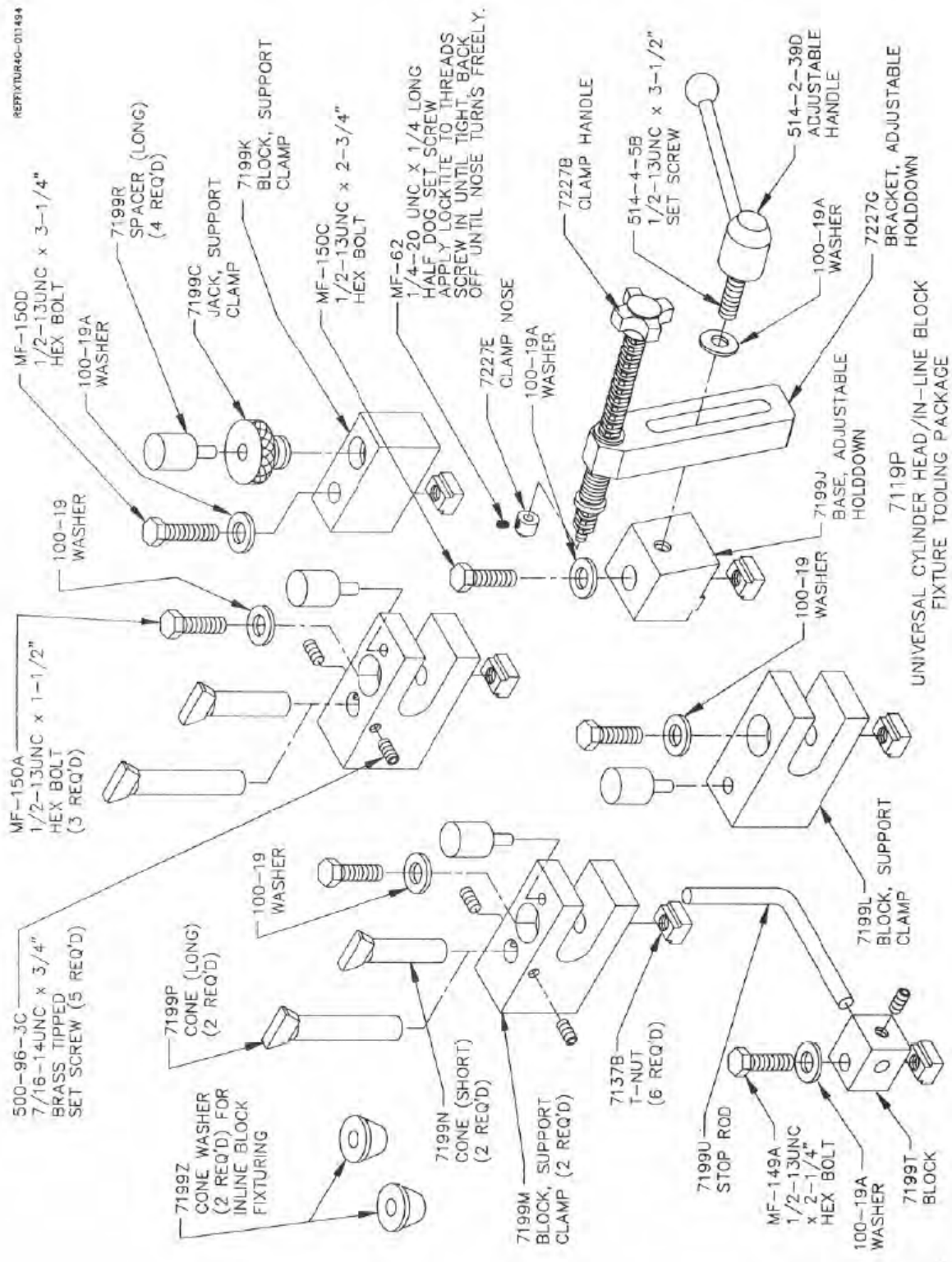
7. Visually check for clearance between the cutterhead and head fixture tooling pieces, especially the head clamp handle assembly. The head should be approximately centered in the path of the cutterhead.

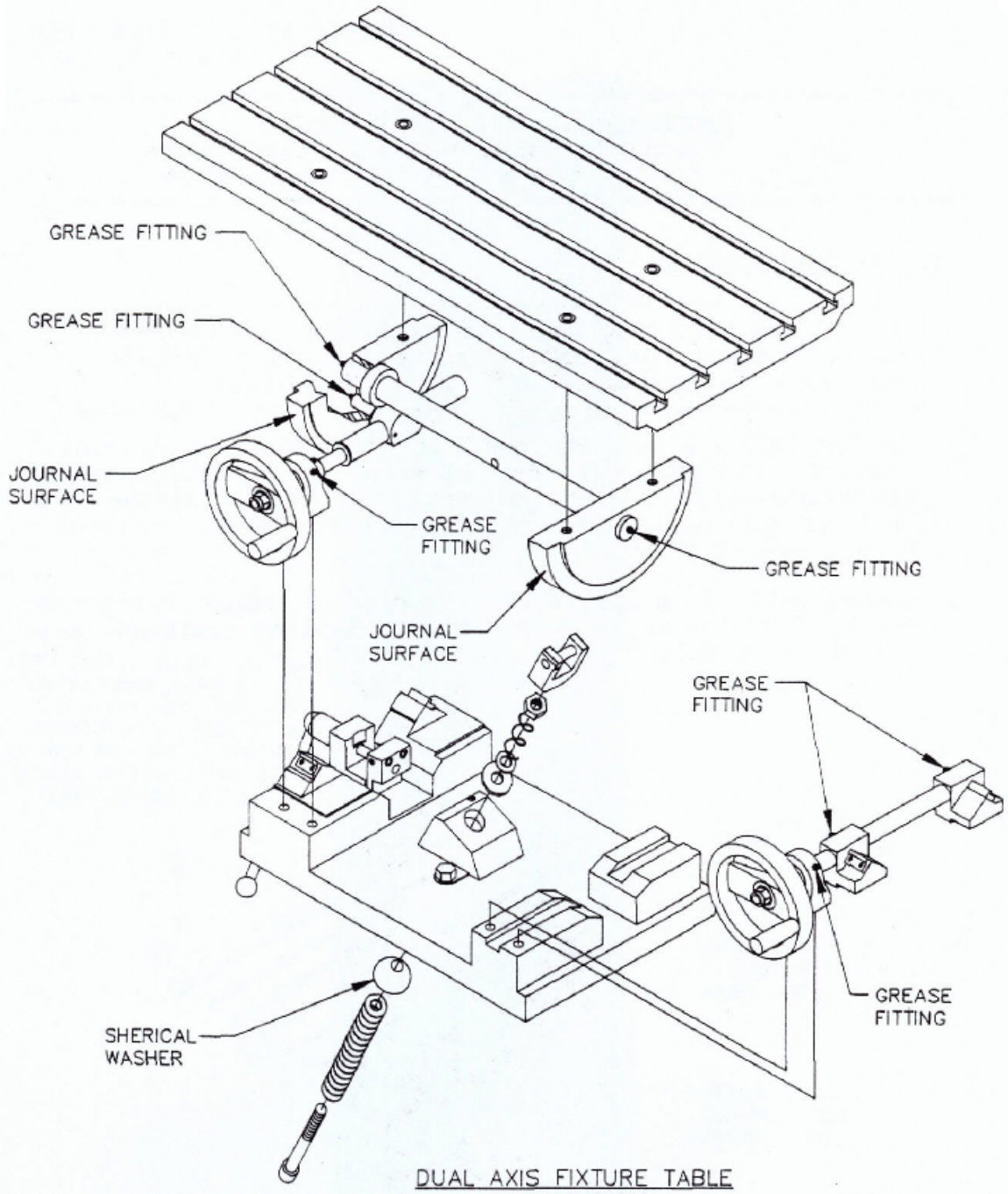


SUGGESTED HEAD SET-UPS FOR 7119P UNIVERSAL FIXTURE TOOLING

The following illustrations show suggested head fixture set-ups for various cylinder heads. Since castings can vary, small adjustments may be necessary to account for differences.

When using this fixture, be sure to have all support blocks tight before beginning a cut. The head clamp handle assembly should be tight enough to not allow the head to move, but not so tight that it will warp the head. Also check to see that the set screws are tight and the adjustable handle on the head clamp handle assembly is tight. The dual axis fixture table must also be locked. Failure to have all pieces secured can lead to a crash condition which could be dangerous to the operator and possibly damage the machine.


REFFIXTUR4G-011494
MF-150D 1/2-13UNC x 3-1/4" HEX BOLT
100-19A WASHER
7199R SPACER (LONG) (4 REQ'D)
7199C JACK, SUPPORT CLAMP
7199K BLOCK, SUPPORT CLAMP
MF-150C 1/2-13UNC x 2-3/4" HEX BOLT
MF-62 1/4-20 UNC x 1/4 LONG HALF DOG SET SCREW APPLY LOCKTITE TO THREADS SCREW IN UNTIL TIGHT, BACK OFF UNTIL NOSE TURNS FREELY.
7227E CLAMP NOSE
100-19A WASHER
7227B CLAMP HANDLE
514-4-5B 1/2-13UNC x 3-1/2" SET SCREW
514-2-39D ADJUSTABLE HANDLE
100-19A WASHER
7227G BRACKET, ADJUSTABLE HOLDDOWN
7119P UNIVERSAL CYLINDER HEAD/IN-LINE BLOCK FIXTURE TOOLING PACKAGE
100-19 WASHER
7199J BASE, ADJUSTABLE HOLDDOWN
MF-150A 1/2-13UNC x 1-1/2" HEX BOLT (3 REQ'D)
500-96-3C 7/16-14UNC x 3/4" BRASS TIPPED SET SCREW (5 REQ'D)
100-19 WASHER
7199P CONE (LONG) (2 REQ'D)
7199Z CONE WASHER (2 REQ'D) FOR INLINE BLOCK FIXTURING
7199N CONE (SHORT) (2 REQ'D)
7199M BLOCK, SUPPORT CLAMP (2 REQ'D)
7137B T-NUT (6 REQ'D)
7199U STOP ROD
MF-149A 1/2-13UNC x 2-1/4" HEX BOLT
100-19A WASHER
7199T BLOCK
7199L BLOCK, SUPPORT CLAMP



DUAL AXIS FIXTURE TABLE LUBRICATION

USE F2 MULTIPURPOSE GREASE, CHEVRON DUROLITH, OR ANY EQUIVALENT LITHIUM BARIUM GREASE.

200 HOURS: ADD 2 OR 3 SHOTS OF GREASE TO THE GREASE FITTINGS SHOWN.

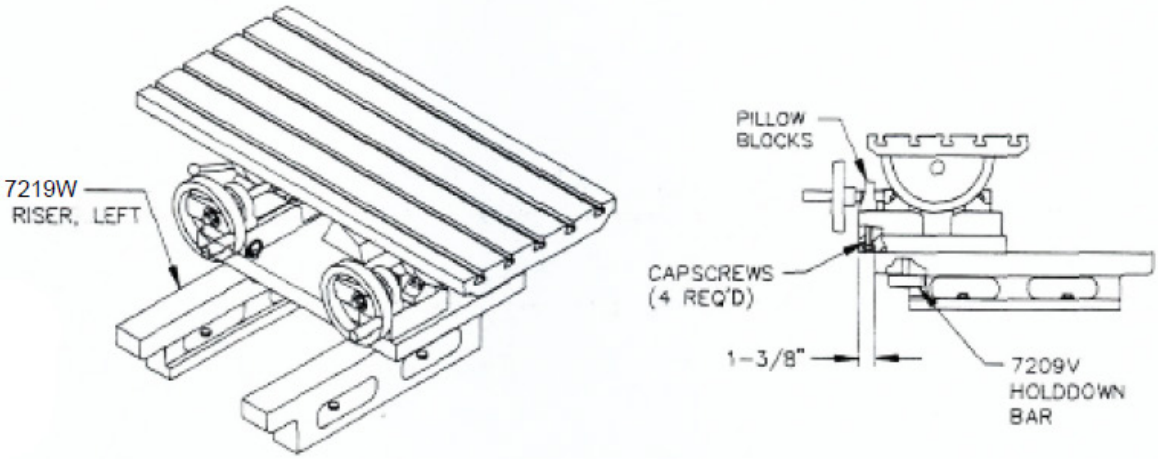
40 HOURS: CLEAN AND ADD GREASE TO THE BEARING SURFACES OF THE JOURNALS.

1000 HOURS: DISASSEMBLE, CLEAN, AND GREASE THE SPHERICAL WASHER.

7119U DUAL AXIS FIXTURE TABLE
ADJUSTMENT PROCEDURE

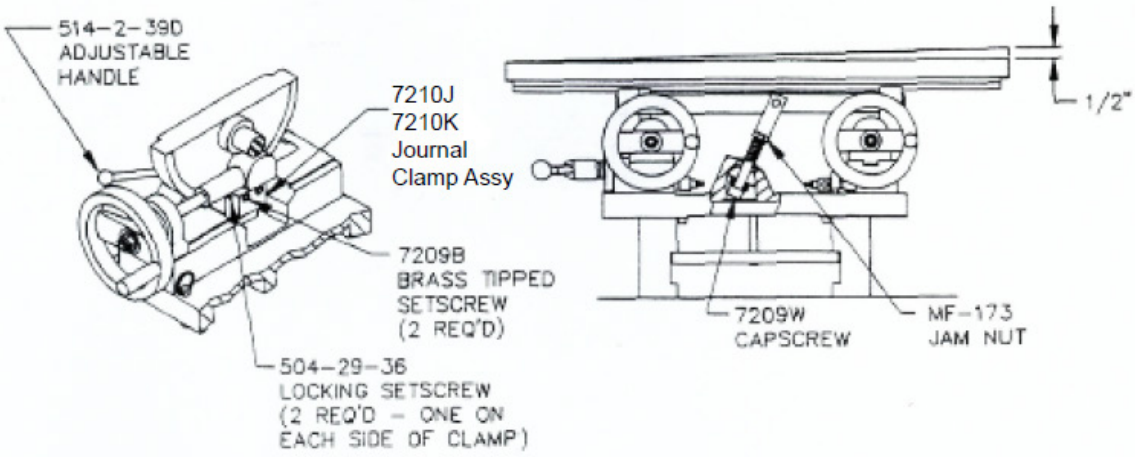
NOTE: *This fixture table is set at the factory and should not require further adjustments. Adjustment is required after any disassembly.*

1. CAREFULLY float fixture out just far enough (approximately 1-3/8") to expose the (4) capscrews that secure the pillow blocks. Secure the fixture holddown bar (7209V) in this position.

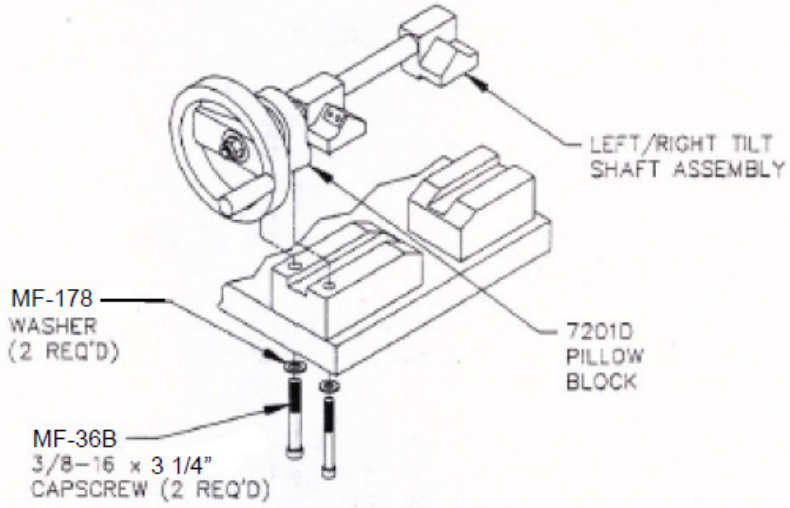


2. Level table in both directions. Loosen jam nut (MF-173) and capscrew (7209W) on table clamp. Loosen adjustable handle (514-2-39D) on left side of table. Loosen (2) locking setscrews (504-29-36) on sides of journal clamp. Loosen (2) brass tipped setscrews (7209B).

3. Using a hoist, raise right end of table top approximately 1/2".

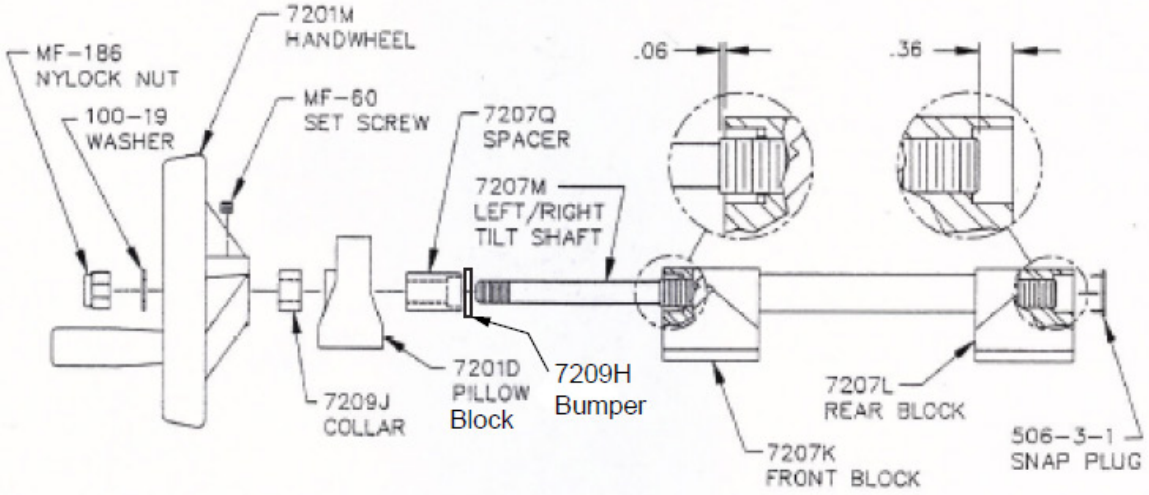


4. Remove (2) capscrews on right hand pillow block (7201D). Remove tilt shaft assembly from fixture.



5. Remove nylock nut (MF-186) and washer (100-19) from shaft (7207M). Loosen set screw (MF-60) and remove handwheel (7201M). Slide spacer (7207Q) and bumper (7209H) off tilt shaft. Remove snap plug (506-3-1) from rear block (7207L).

6. Adjust assembly by threading blocks in or out to set them to dimensions shown below.



7. Reassemble left/right tilt shaft assembly.

8. Place tilt shaft assembly back into frame.

9. Lower table top into position. Reinstall (2) capscrews on right hand pillow block. Do not tighten these screws yet.

10. Loosen bolts on left hand pillow block (7201D).

11. Loosen (2) bolts (MF-45 1/2-13 X 2) holding journal clamp (7201J) to frame (7209T).

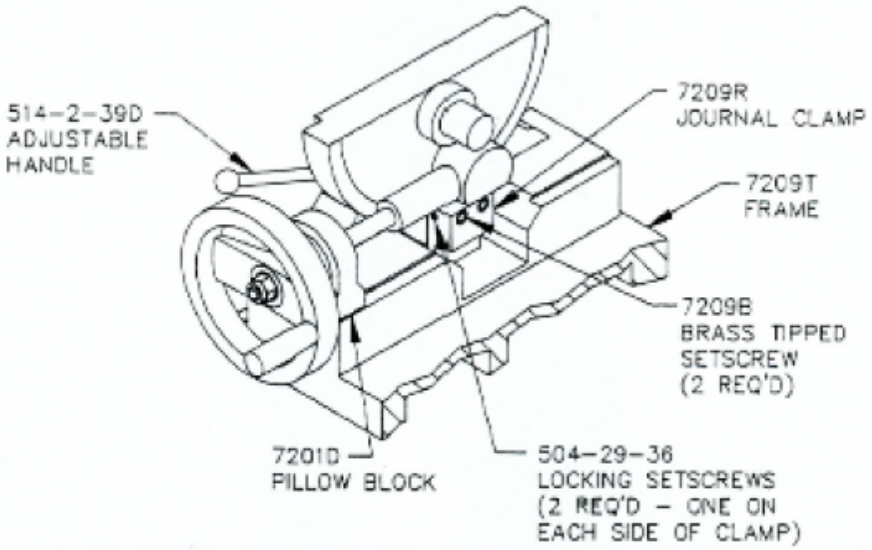
12. Adjustable handle (514-2-39D) on left side of table and (2) locking setscrews (504-29-36) on sides of journal clamp should still be loose.

13. Tighten both brass tip set screw (7209B) until they touch the left journal (7207H). Tighten clamp block assembly (7210J). Now back off both brass tip set screws 1/8 turn. Lock in place with both side set screws (504-29-36).

14. Adjust handle (514-2-39D) so it is at full lock when handle knob is at front. Turn left handwheel (7201M) check that brake is working. Re-adjust brass tip set screws if needed.

15. Re-adjust wipers (7198Y) to match left journal (7207H) and right journal (7201M)

16. Tighten mounting bolts on journal clamp and both pillow blocks.



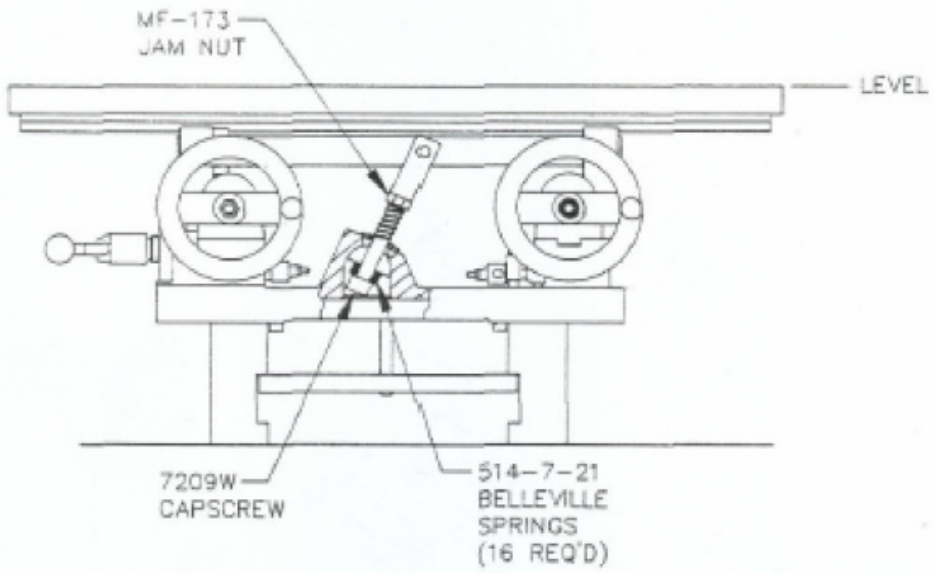
16. Level table in both directions.

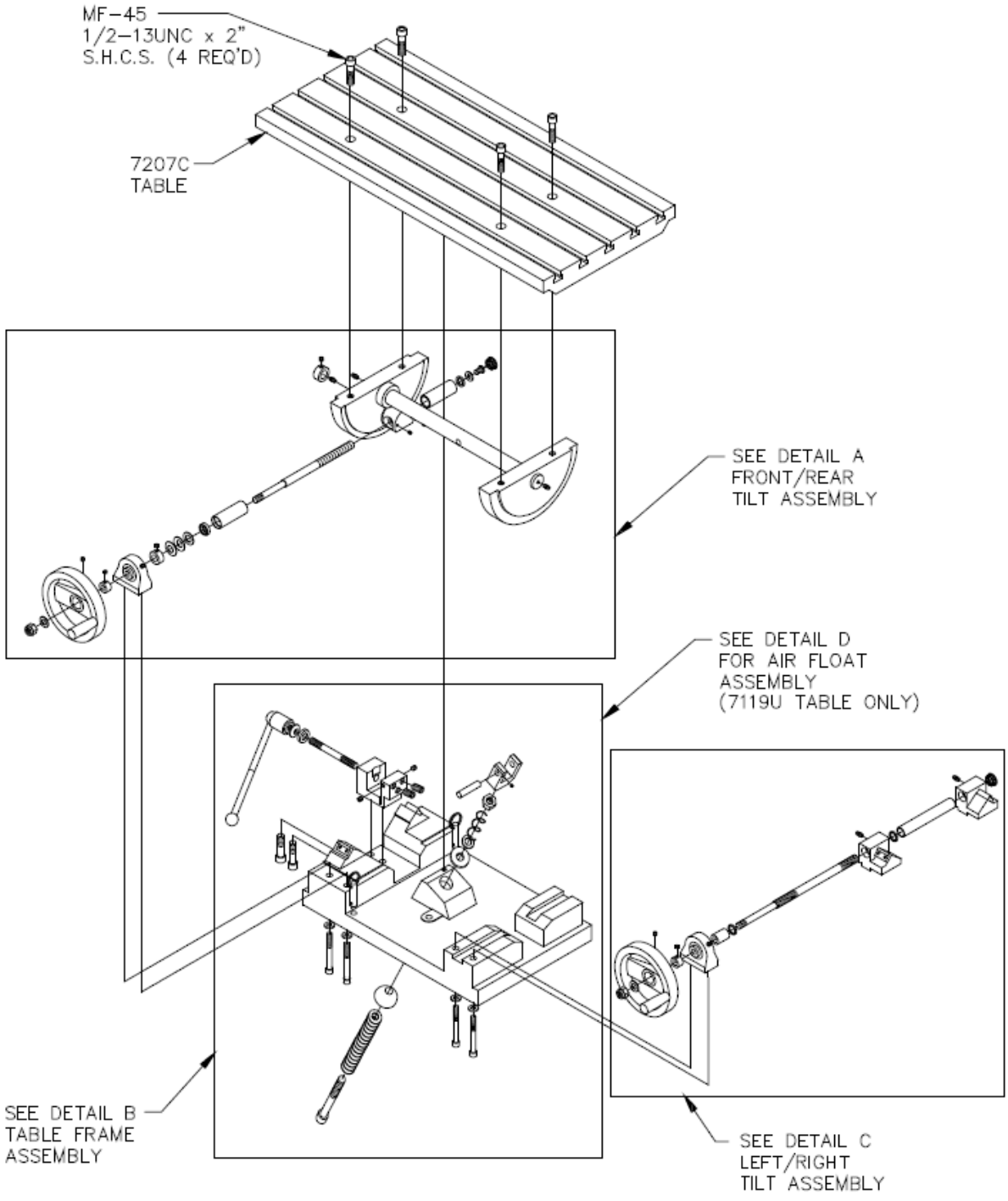
17. Adjustable handle (514-2-39D) on left side of table should still be loose.

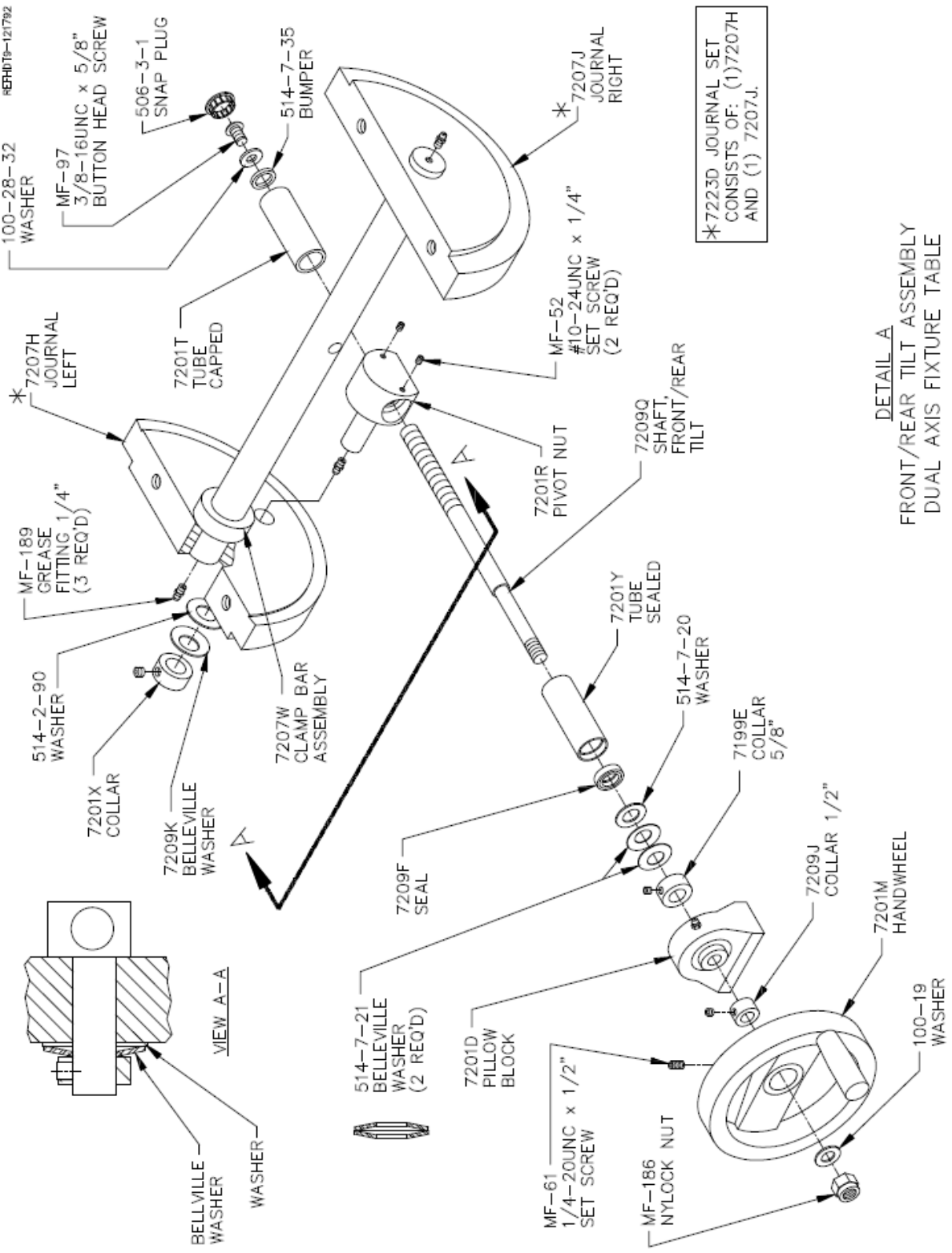
18. Tighten capscrew (7209W) on table clamp to flatten its belleville springs (514-7-21) then back off 3 turns from tight. Tighten jam nut on table clamp.

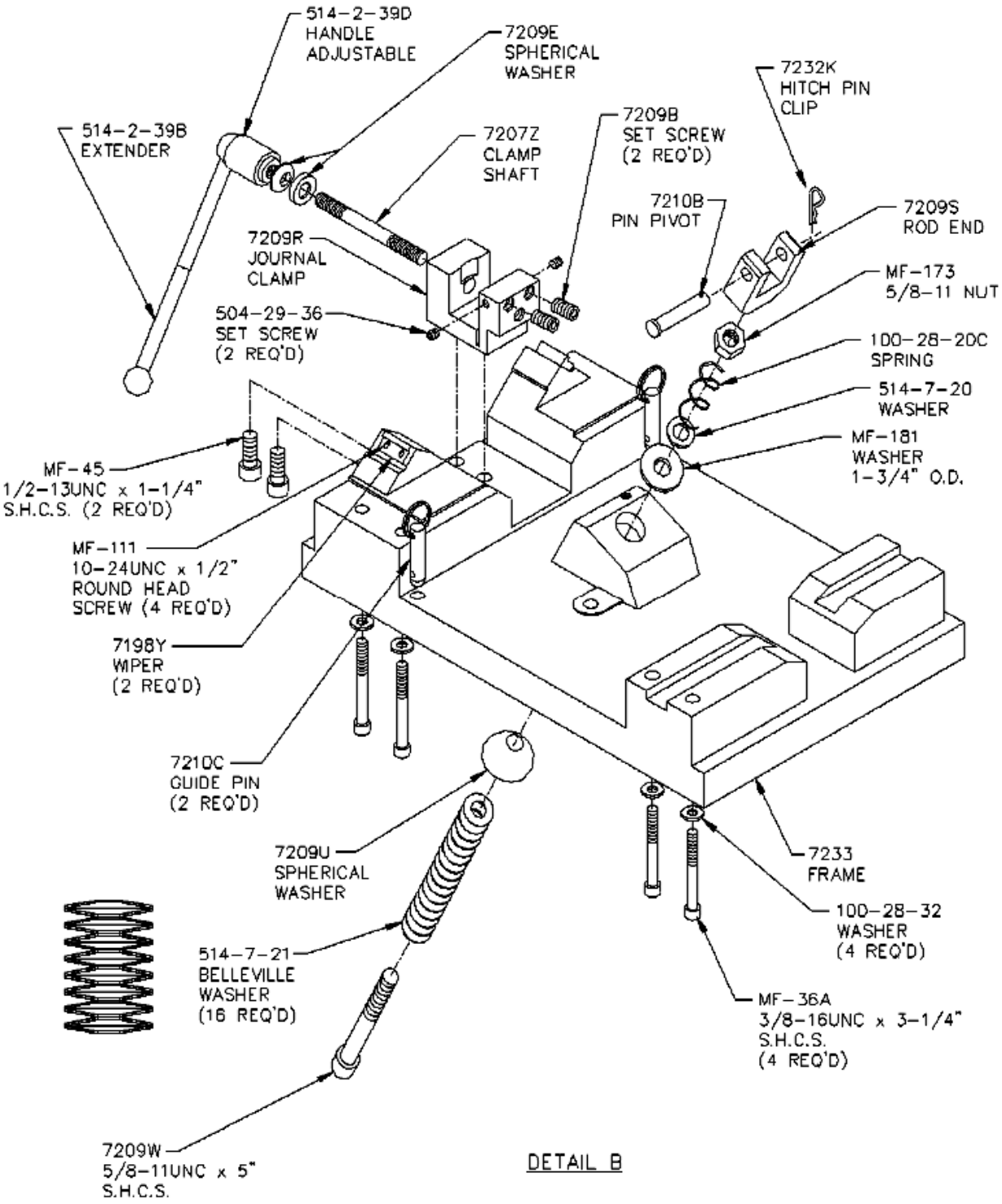
19. Table should now travel both .250" min. up and .250" min. down from level in left/right tilt.

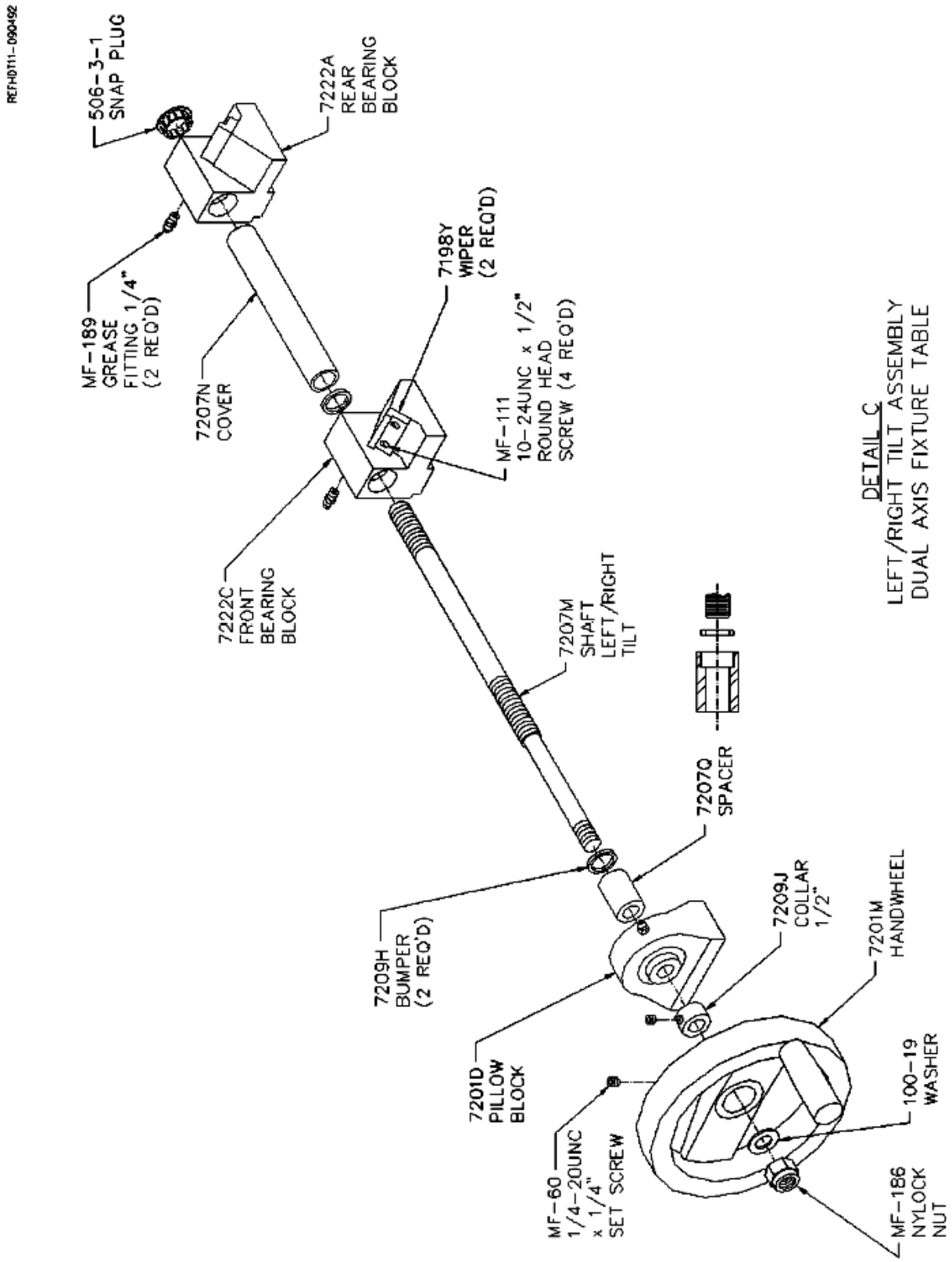
20. Check with shim stock to make sure that journals sit properly on frame at all four contact points.

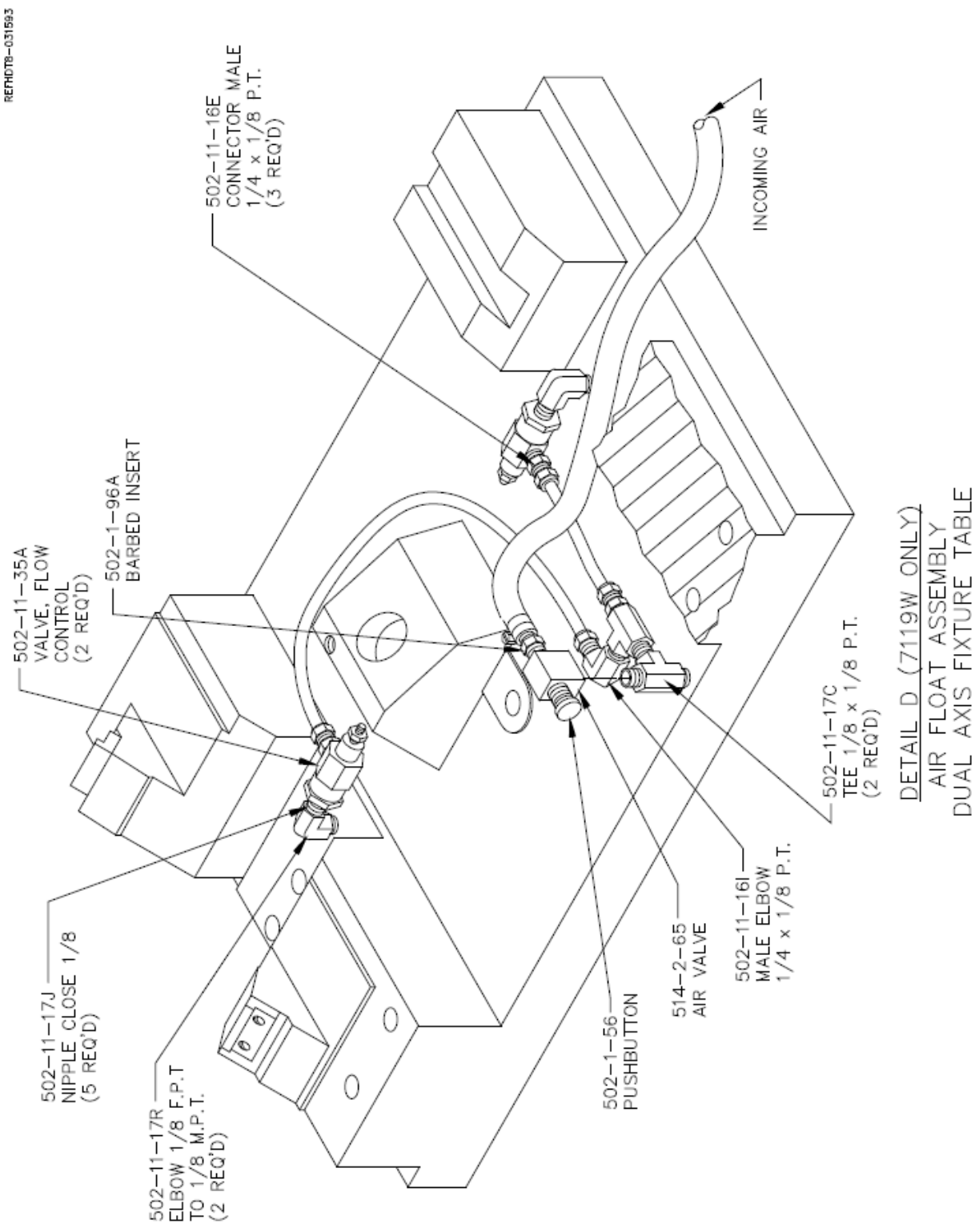



MF-45
1/2-13UNC x 2"
S.H.C.S. (4 REQ'D)
7207C
TABLE
SEE DETAIL A
FRONT/REAR
TILT ASSEMBLY
SEE DETAIL D
FOR AIR FLOAT
ASSEMBLY
(7119U TABLE ONLY)
SEE DETAIL B
TABLE FRAME
ASSEMBLY
SEE DETAIL C
LEFT/RIGHT
TILT ASSEMBLY


REF-HDT9-121792
100-28-32 WASHER
MF-97 3/8-16UNC x 5/8" BUTTON HEAD SCREW
506-3-1 SNAP PLUG
514-7-35 BUMPER
7207J JOURNAL RIGHT
7207H JOURNAL LEFT
7201T TUBE CAPPED
MF-52 #10-24UNC x 1/4" SET SCREW (2 REQ'D)
7223D JOURNAL SET CONSISTS OF: (1)7207H AND (1) 7207J.
MF-189 GREASE FITTING 1/4" (3 REQ'D)
7201R PIVOT NUT
7209Q SHAFT, FRONT/REAR TILT
514-2-90 WASHER
7207W CLAMP BAR ASSEMBLY
7201Y TUBE SEALED
7201X COLLAR
7209K BELLEVILLE WASHER
514-7-20 WASHER
7199E COLLAR 5/8"
7209F SEAL
7209J COLLAR 1/2"
7201M HANDWHEEL
514-7-21 BELLEVILLE WASHER (2 REQ'D)
7201D PILLOW BLOCK
100-19 WASHER
MF-61 1/4-20UNC x 1/2" SET SCREW
MF-186 NYLOCK NUT
BELLVILLE WASHER
WASHER
VIEW A-A
DETAIL A
FRONT/REAR TILT ASSEMBLY
DUAL AXIS FIXTURE TABLE


514-2-39D
HANDLE
ADJUSTABLE
7209E
SPHERICAL
WASHER
7232K
HITCH PIN
CLIP
514-2-39B
EXTENDER
7207Z
CLAMP
SHAFT
7209B
SET SCREW
(2 REQ'D)
7210B
PIN PIVOT
7209S
ROD END
7209R
JOURNAL
CLAMP
MF-173
5/8-11 NUT
504-29-36
SET SCREW
(2 REQ'D)
100-28-20C
SPRING
514-7-20
WASHER
MF-181
WASHER
1-3/4" O.D.
MF-45
1/2-13UNC x 1-1/4"
S.H.C.S. (2 REQ'D)
MF-111
10-24UNC x 1/2"
ROUND HEAD
SCREW (4 REQ'D)
7198Y
WIPER
(2 REQ'D)
7210C
GUIDE PIN
(2 REQ'D)
7209U
SPHERICAL
WASHER
7233
FRAME
100-28-32
WASHER
(4 REQ'D)
514-7-21
BELLEVILLE
WASHER
(16 REQ'D)
MF-36A
3/8-16UNC x 3-1/4"
S.H.C.S.
(4 REQ'D)
7209W
5/8-11UNC x 5"
S.H.C.S.
DETAIL B


REF-DT11-090492
506-3-1 SNAP PLUG
7222A REAR BEARING BLOCK
MF-189 GREASE FITTING 1/4" (2 REQ'D)
7207N COVER
7198Y WIPER (2 REQ'D)
MF-111 10-24UNC x 1/2" ROUND HEAD SCREW (4 REQ'D)
7222C FRONT BEARING BLOCK
7207M SHAFT LEFT/RIGHT TILT
7207Q SPACER
7209H BUMPER (2 REQ'D)
7209J COLLAR 1/2"
7201M HANDWHEEL
7201D PILLOW BLOCK
MF-60 1/4-20UNC x 1/4" SET SCREW
100-19 WASHER
MF-186 NYLOCK NUT
DETAIL C
LEFT/RIGHT TILT ASSEMBLY
DUAL AXIS FIXTURE TABLE


REFMDTB-031593
502-11-16E
CONNECTOR MALE
1/4 x 1/8 P.T.
(3 REQ'D)
INCOMING AIR
502-11-35A
VALVE, FLOW
CONTROL
(2 REQ'D)
502-1-96A
BARBED INSERT
502-11-17C
TEE 1/8 x 1/8 P.T.
(2 REQ'D)
502-11-17J
NIPPLE CLOSE 1/8
(5 REQ'D)
502-11-17R
ELBOW 1/8 F.P.T
TO 1/8 M.P.T.
(2 REQ'D)
502-1-56
PUSHBUTTON
514-2-65
AIR VALVE
502-11-16I
MALE ELBOW
1/4 x 1/8 P.T.
DETAIL D (7119W ONLY)
AIR FLOAT ASSEMBLY
DUAL AXIS FIXTURE TABLE