

**KNOWLEDGE BASE**Article Type: **Instruction**

Jigs and Alignment Tools for; CPM Series 30, 40, 50 and 60 Machines

Description:

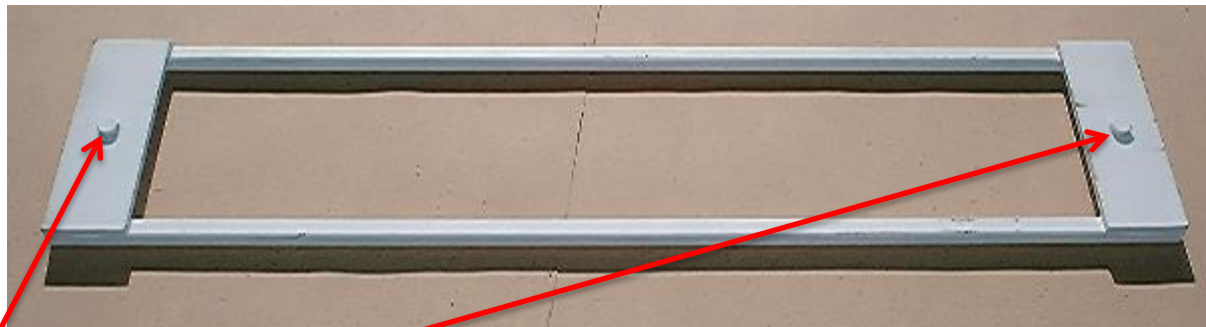
Instructions on; “How to use the Jigs and Alignment Tools”. The CPM series machines come with a full set of jigs and alignment tools. These jigs and tools are used to assist in the alignment of vibrators and die supports. The vibrator set-up jigs are used when a vibrator is being replaced or the alignment of the die supports need to be set or checked. Service Tip #2043, doc. #388.2.14 (rev. 2) 2014.

WARNING

Never work on, clean or service this unit, control panel or any machine or open or remove any protective cover, guard, grate, door, or maintenance panel until the power or energy sources has been turned off, locked out / tagged out, and all moving parts have come to a complete stop and or blocked to prevent movement. Machinery is dangerous - avoid personal injury and or death by following manufacture, Local, and OSHA safety procedures. Contact Columbia Machine for safety decals, guards, horns and beacons.

C.P.M. VIBRATOR FIXTURES, ALIGNMENT TOOLS, AND HOW TO USE THEM

The CPM series machines come with a full set of set-up fixtures and alignment tools. These are used when installing new vibration parts or checking alignment of the springs and die supports, this should be done every six months. The fixture below is used to index the vibrators to the correct distance from each other when vibrators are moved. The shaft alignment tool and motor mounting plates are used to maintain center line from shaft to shaft and end for end. This tool is used on the drive end of the vibrator, the other end of the shaft is aligned by using the shaft and coupling set between the vibrator shafts. After installing the gearbox, sliding one half of the coupler so it covers both shaft ends (the vibrator and gear box shafts). This will help ensure the gearbox is aligned with the vibrator shafts runs true.



Vibrator jig has two buttons, one on each side. these buttons index in the holes on the eccentrics of the vibrators; this spaces them at correct distance from each other.

Model 30	673.190.3
Model 40-50	675.100.67
Model 60	676.100.5



Tools used to keep vibrators true to centerline of machine along with each vibrator.



Motor alignment tool 675.300.105



Motor alignment on VFD



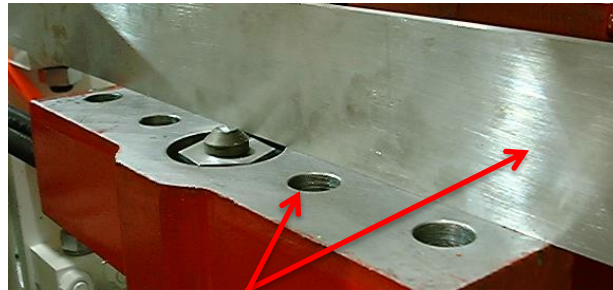
Motor alignment Hydrostatic drive



Vibrator to vibrator alignment shaft with couplings



Alignment shaft and couplings



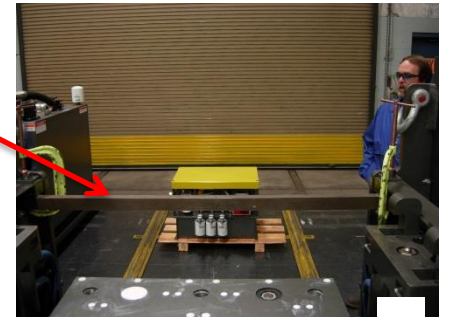
Straight edge and top of die support.
Straight edge for all machines part # 452391



Vibrator distance fixture and alignment shaft



Heavy alignment bar clamped in place to hold parallel bar mounts true to each other and tightened. 1½ X 2 inch or equivalent

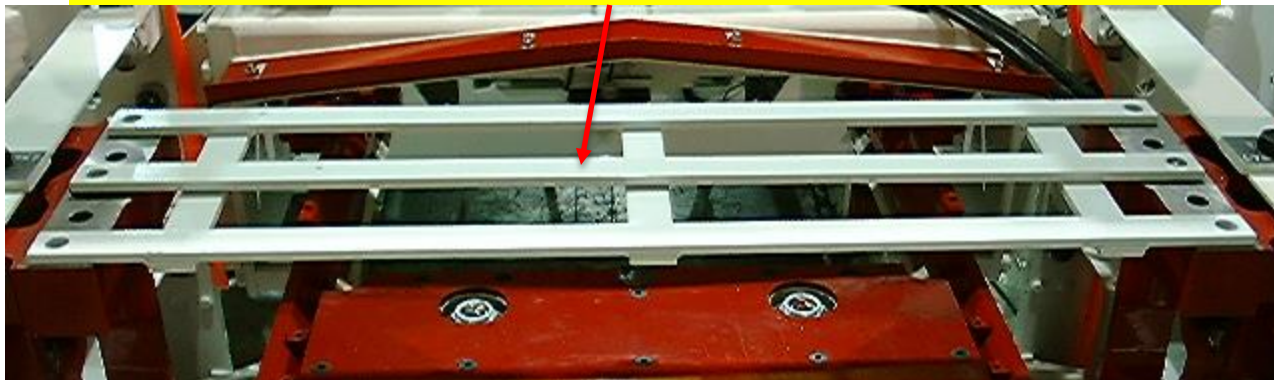


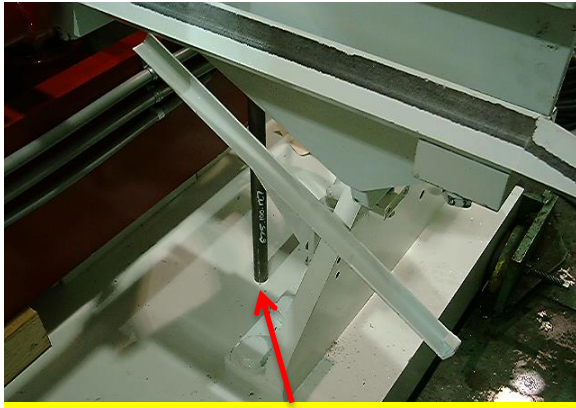
Die support fixture numbers Model 30 673.190.2, Model 40-50 675.100.95,
Model 60 676.100.4



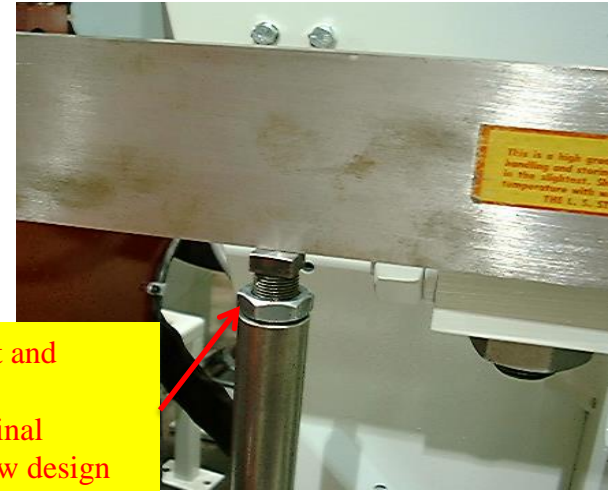
PLACE 1 INCH BOLTS HERE

Die support fixture number Model 30 673.190.5, Model 40-50 675.100.148,
Model 60 676.100.15





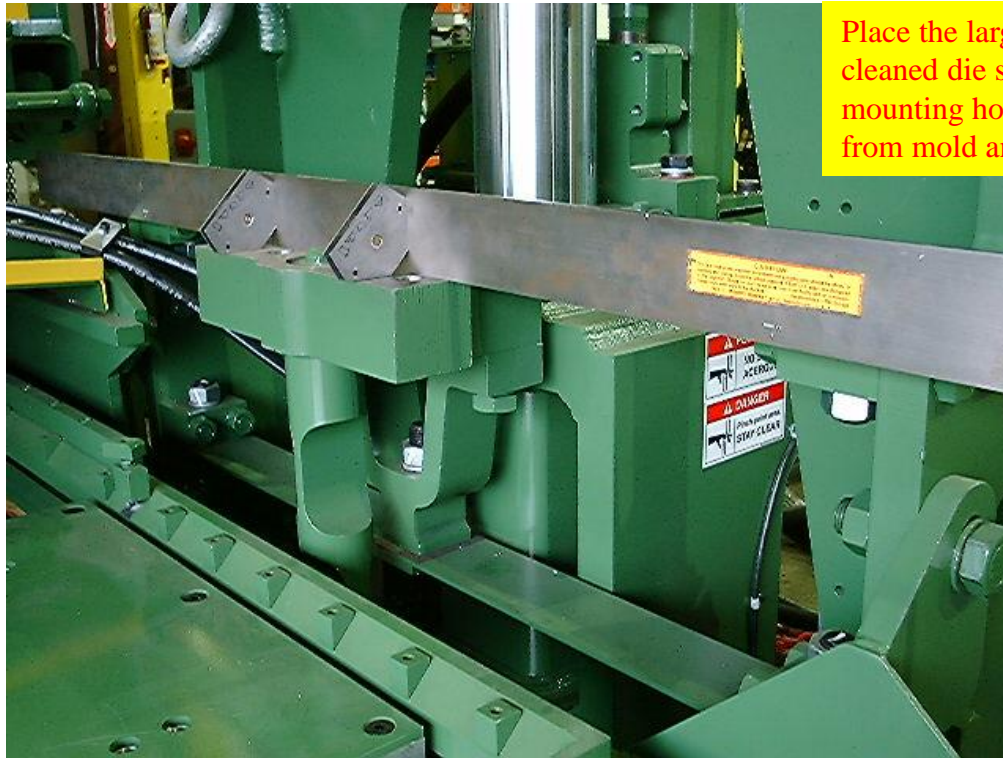
Keep this clean and free from damage, so the feeler bar will sit flat on machined surface of base plate, old way.



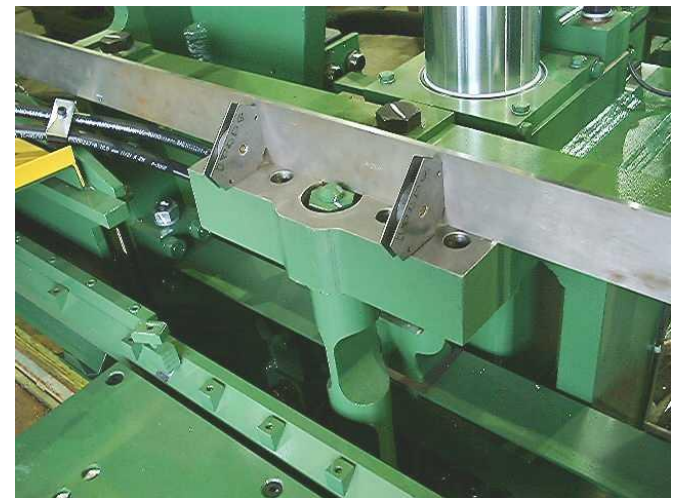
The feeler bar has the jam nut and adjuster screw on the top.
Part # 675.100.127 long original
Part # 675.100.127X short new design

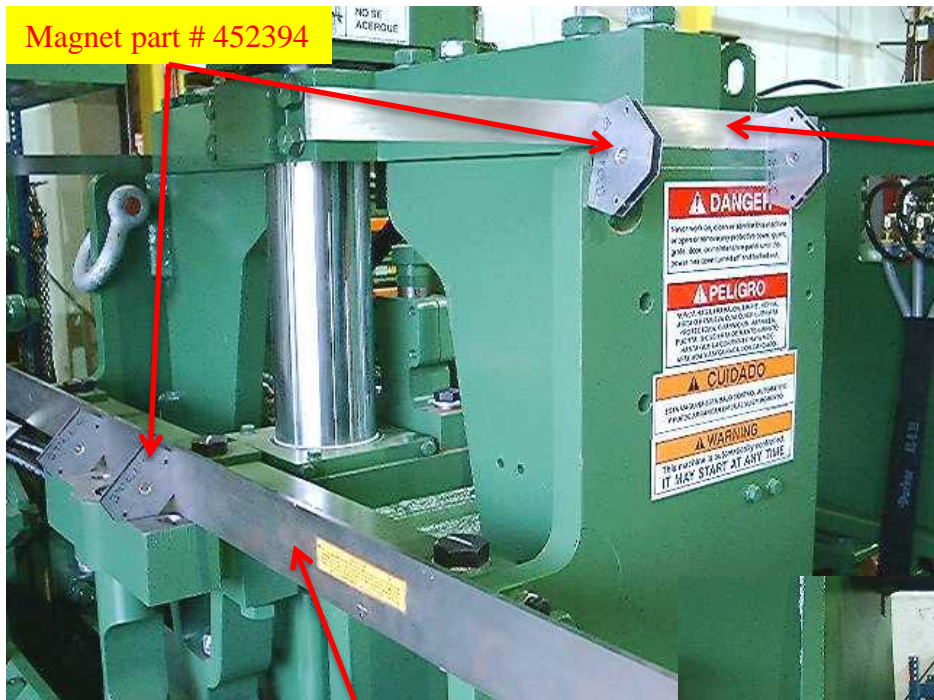
After the vibrators have been positioned and all the 30 MM bolts are torqued to 1120 Ft. Lbs. Before installing parallel bars, check all 8 mounting blocks for level. Re-torqued all bolts to 562 ft. lbs. Re-install the shaker shaft and die supports on both sides. With the two main die supports bolts loose, install the die support alignment fixture (this fixture has two pieces) to insure the die supports stay true. The first fixture will be placed on top of the die supports. Install four 1-inch diameter bolts through the holes of the fixture and die supports holes, these will fit tight, and die support holes may need cleaning out with file. Now place the second piece over the mold alignment pins, this should slide on. The 8 bolts holding the shaker shaft and clamp plate to each eccentric foot can be installed by hand and should turn freely, then finally torque to 110 foot Lbs. to reach this value, use four steps (50-70-90-110 ft. lbs.). With die shaker shaft bolts torqued parallel bar end bolts snug, level the die supports, using the straight edge and feeler bar, check die supports for level. The die support needs to be clean and flat, set the straight edge on the die support in up right position as shown above. After the straight edge is placed on the die support, use the feeler bar to determine if the die supports are level or need adjusting. The best way to use the feeler bar is find a very clean area below the straight edge on a machined surface of the base plate (old machines with completely machined base plate ONLY) and as close to the edge as possible and let the feeler bar stand on its own with the screw end up. On new machines we use the top of the corner post, this process will work on old machines too, this will insure a good measurement (see below for new way). Now use the screw end as a feeler gage, adjusting the screw under the straight edge until it rubs, but not lifting the straight edge. Once level, hand tighten the 4 parallel nut only on the side you are working on. Now move the feeler bar to the other end of the straight edge and repeat the same test. These measurements should be equal front to back for one side. Repeat this procedure on opposite die support.

**USING THE NEW STYLE OF DIE SUPPORT ALIGNMENT TOOLS FOR
YOUR CPM BLOCK MACHINE, CPM 30-40-50-60.
THESE TOOLS AND PROCESS WILL WORK ON NEW AND OLD
MACHINES, EVEN MOLD CLAMP DESIGN.**



Place the large straight edge and magnets on the top of the cleaned die support as shown. The best area is outside the mold mounting holes since this area will be like new with NO wear from mold and will give accurate measurement.





Magnet part # 452394

Mount the small straight edges on the top of the front and back corner post, using the magnets to hold them in place as shown. These areas are machined flat surfaces. Make sure the straight edge is resting flat on this surface to ensure accuracy of measurement to be taken. Part # 4523910 Small straight edge.

Keep top of corner post clean and damage free. When placing small straight edge here, press it tightly to machined surface for accurate measurement.

Large straight edge on top of die support with magnets.



⚠ DANGER
 Never work on, clean or service this machine or open or remove any protective cover, guard, grates, door, or maintenance panel until the power has been turned off and locked out.

⚠ PELIGRO
 NUNCA HAGA TRABAJOS, LIMPIE, REVISE, ABRA O REMUEVA CUALQUIER CUBIERTA PROTECTORA, GUARNICION, PARRILLA, PUERTA, O CUBIERTA DE MANTENIMIENTO HASTA QUE LA CORRIENTE HAYA SIDO APAGADA Y ASEGURADA CON CANDADO.

⚠ CUIDADO
 ESTA MAQUINA ESTA BAJO CONTROL AUTOMATICO Y PUEDE ARRANCAR EN CUALQUIER MOMENTO.

⚠ WARNING

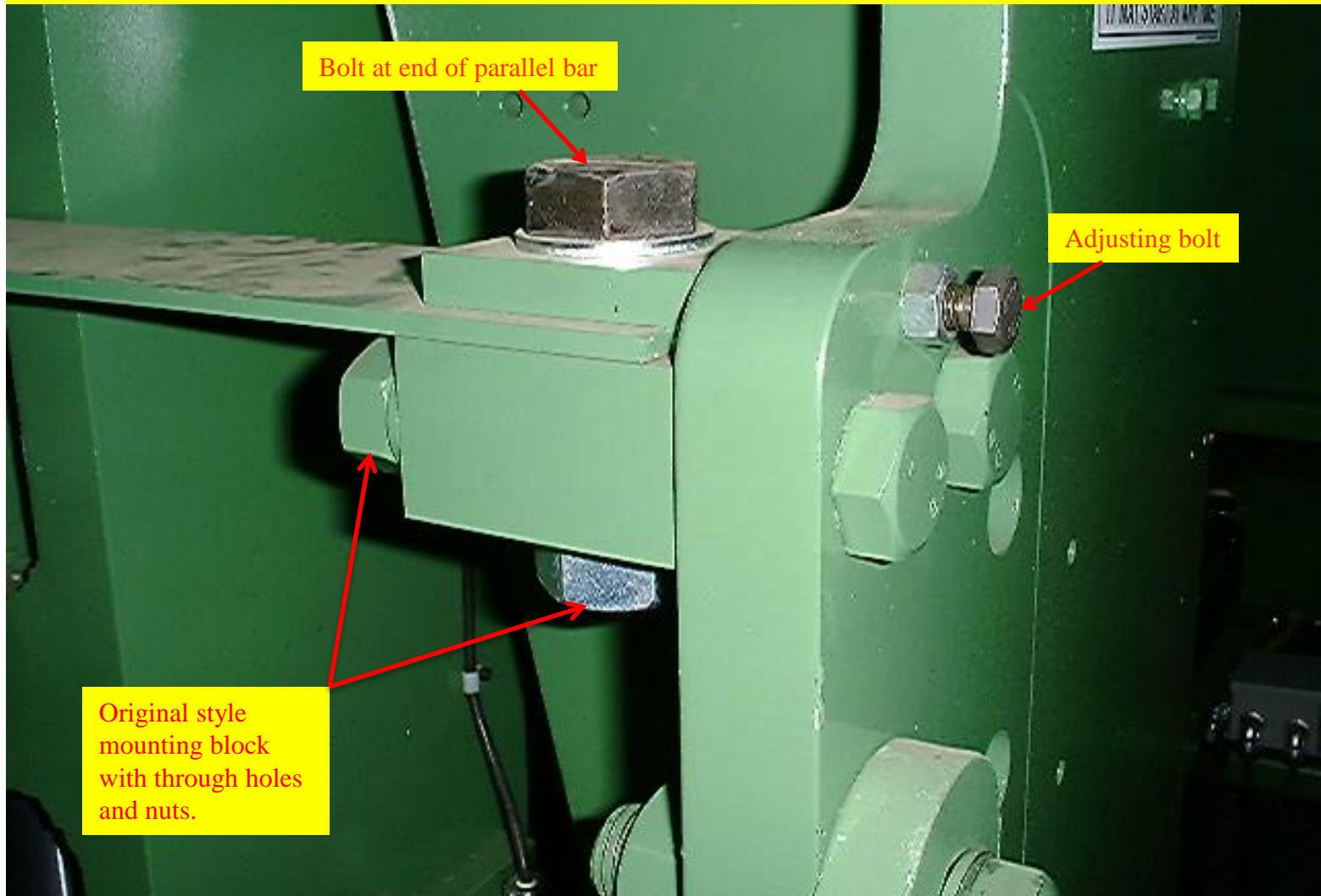


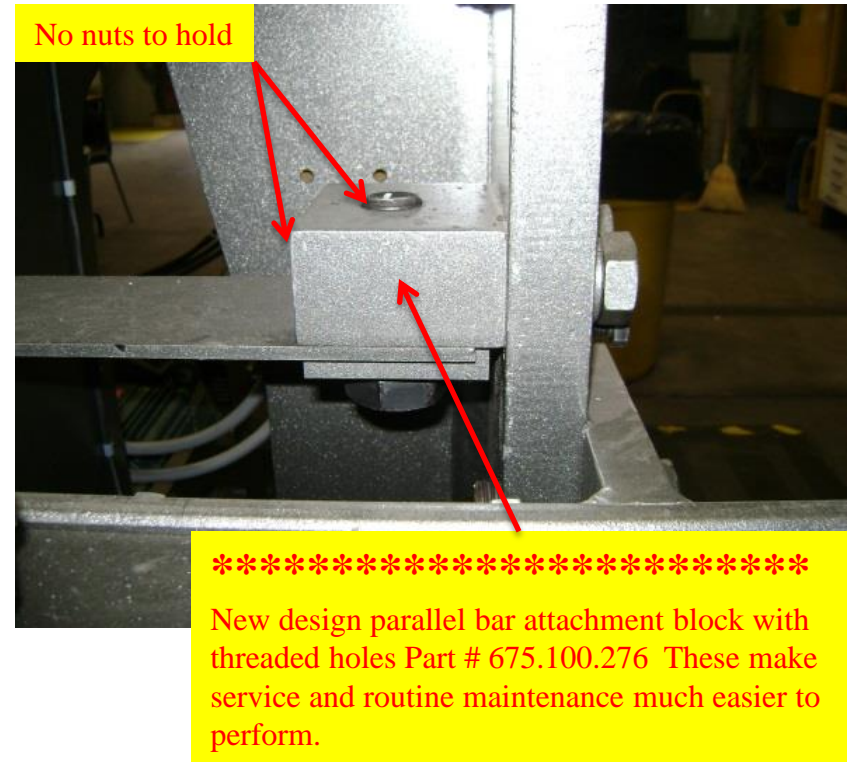
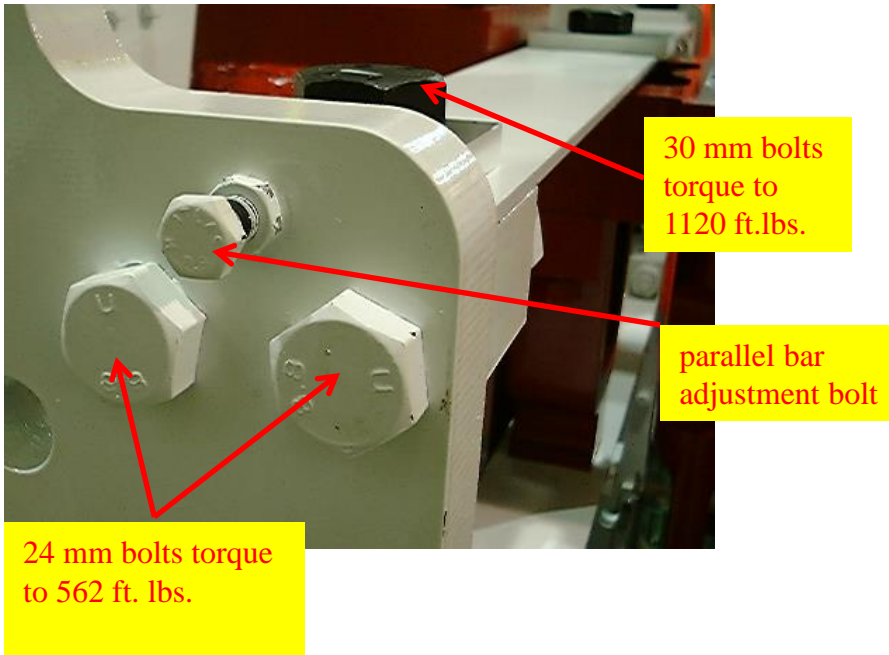
Using the feeler rod measure the front and the rear area between the straight edges. The measurement must be the same, this will ensure that the die support is level. Repeat this on the other side.

When measuring, the feeler rod should be placed on the large straight edge top surface so it will stand on its own. This will ensure a good measurement without leaning. The rod shown has a pointed bottom and should be machined flat so it will stand up. Use adjusting bolt on end for measurement. New short feeler rod Part # 675.100.127X



During the alignment process if you determine that the die support is NOT level you will need to loosen only the two bolts holding the top parallel bar at each end. Loosen these two bolt just enough so the parallel bar will slide, leaving them somewhat snug to prevent over sliding. Using the adjusting bolt on the front and rear of parallel bar, adjust the die support till it is level, checking it with the feeler bar. Once you determine levelness tighten the large bolts with air impact. Recheck the die support for levelness, then torque bolts to 1120 Ft. Lbs..





Because the die supports can come out of adjustment they should be checked every six (6) months for alignment. Checking your die supports on a regular basis will help reduce unnecessary damage and downtime. Preventive maintenance will keep your C.P.M and all other equipment running at peak performance. If you have any questions regarding this on any other Columbia Machine, Inc. equipment please call the service department at (360) 694-1501 or (800) 628-4065

388.2.14 (rev. 2) 2014