

MB MITTLER BROS. **MACHINE & TOOL**

Accu-Lign Operating Manual

Caution: Read and understand these instructions before using this tool.

Set Up

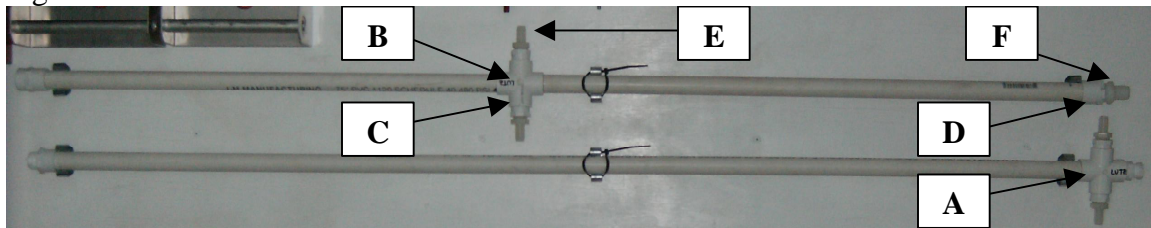
1. Remove Accu-lign from packaging.
2. Unlock all 8 wheel brakes

Water Level Manifold Construction

To minimize shipping costs and complexity, fabrication of a simple water level manifold is left to the customer. Instructions follow:

1. At your local home center purchase the following:
 1. 10' of 1" OD PVC plastic pipe
 2. 1 PVC 1" Tee (*Figure 1 Letter A*)
 3. 1 PVC 1" Cross (*Figure 1 Letter B*)
 4. 4 adapters – Tee or Cross to 1/2" NPTF (*Figure 1 Letter C*)
 5. 1 adapter- 1" PVC to 3/4" NPTF (*Figure 1 Letter D*)
 6. 4 barb fittings- 1/2" NPTF to 3/8" ID tubing (*Figure 1 Letter E*)
 7. 1 barb fitting- 3/4" NPTF to 3/4" ID tubing (*Figure 1 Letter F*)
 8. 16' of clear 5/8" OD, 3/8" ID vinyl tubing, to be cut into 4 equal pieces
 9. 4' of clear 1"OD, 3/4" ID vinyl tubing to mate with gas can reservoir snout and barb fitting
 10. 1 gallon plastic fuel can with pour snout and vent feature or similar reservoir with at least 50 in² water surface area exposed to atmosphere
 11. 1 small can PVC cement
2. Cut the 1" OD PVC tubing to the length of the wheelbase of the cars you will be aligning. Assemble and glue the tee, cross, adapters, barb fittings as shown in the photo. Consider adding additional fittings mid length to ease trailer storage. (as shown)

Figure 1



Operation/Use

1. Locate a fairly level (roughly 2" max variation) asphalt or concrete alignment surface.
2. Attach PVC/clear vinyl tubing manifold leveling hardware centered below the planned location of the vehicle. Pull the 4 wheel vinyl tubes out toward the wheel locations. Place the reservoir port at the front of the vehicle
3. Place vehicle in this location over the manifold.
4. Ensure that the vehicle cannot be accidentally started when the Accu-lign plates are installed.
5. Ensure that all 8 wheel brakes are loose. (*Figure 2 Letter A*)
6. Raise one side of vehicle enough for tires to clear the ground by roughly 6".
7. Place jack stands under the vehicle for safety.
8. Remove wheels and tires.
9. Place smooth surface electronic wheel scales or roll plates under wheel locations centering as needed. Use smooth surface scales or utilize smooth surface shim plates to allow the 8 roller bearing wheels to move freely.
10. Bolt on Accu-lign plates in place of wheels. Note that it may be necessary to use wheel spacers to move the plates away from the brake caliper. Secure lug nuts.
11. Lower the vehicle onto the scale pads
12. Rotate toe arms parallel to laser etched alignment marks. (*Figure 2 Letter B*)
Snug bolts tight.
13. Repeat steps 6 – 12 on opposite side of vehicle.
14. Tighten 1 wheel brake to prevent vehicle from rolling off scales
15. Lace all 4 clear vinyl leveling tubes fully into the central slots. Secure using tire wraps. (*Figure 2 Letter C*)
16. Add 2 drops of liquid detergent (acts as a wetting agent to minimize bubble formation) to the reservoir. Partially fill and attach the water reservoir so that the water level at the wheel ends is roughly half scale. If necessary, raise the elevation of the gas can reservoir to raise the water level using any stable item. The exact water level does not matter.
17. Check the water level at the bottom of the water meniscus on all 4 corners, noting the lowest water level of all 4. This elevation is the highest elevation wheel position and now becomes the reference elevation for the other 3 levels. Raise and shim each of the 3 low corners, one at a time, using floor tiles or any other suitable shims under each scale or flat contact plate (no scale). Shim until all 4 corners read the same number on the level scale. Remember, the actual number that elevation turns out to be is irrelevant so long as they must all read the same.
18. Once all of the water meniscus's read the same number, all 4 hub centerlines are in exactly the same plane and perfectly level.
19. Note additional special features including;
 - a. Laser engraved level line on inside surface of wheel plates to allow laser leveling.
 - b. Additional toe plate tapped holes to allow measuring toe near the ground plane.
 - c. Slots just above the wheel blocks to allow quick toe checks, similar to traditional toe plates. (Don't forget to adjust toe readings for the shorter wheel diameter distance)
 - d. Carrying handle

- e. Wall hanging hole
- 20. Special notes for multi bolt pattern insert:
 - a. Limited slip circumferential holes are provided in main plate.
 - b. Additional insert plates are available.
- 21. Proceed with your preferred corner weight, alignment process including:
 - a. Erect strings parallel to the vehicle centerline either at hub centerline or at the ground plane. The preferred method is to attach the strings to the chassis by fabricating string holders at the front and rear of the vehicle. These string holders should mount in a location where normal racing contact will not compromise consistent string position.
 - b. Set caster angles by wheel turn or direct measurement.
 - c. Set camber angles.
 - d. Set corner weights or wedge %'s. Note that there is no need to roll the car fore and aft for suspension settling.
 - e. Set wheel toe by measurement to parallel strings

Figure 2

