



M-10 UNIVERSAL MOUNT KIT INSTRUCTIONS 01/21/2014

TECHLINE (218)744-2107

THOROUGHLY READ AND UNDERSTAND THESE INSTALLATION INSTRUCTIONS BEFORE ATTEMPTING TO INSTALL THE M-10 SUSPENSION. IMPROPER INSTALLATION WILL RESULT IN POOR PERFORMANCE AND POSSIBLE DAMAGE.

DEFINITIONS

RH = MAG Side of the machine when sitting.

LH = PTO Side of the machine when sitting.

T.S.P. = Tunnel Support Plate

RH Drive Axle = Right side of the machine when sitting.

LH Drive Axle = Left side of the machine when sitting.

T.T. = Tunnel Plate

1. Remove stock suspension from sled. Do not remove drive axle or track.

IMPORTANT: BEFORE GOING ON, REFER TO THE BRAND NOTES PAGES FOR YOUR MAKE AND MODEL SLED. IT IS EASIEST TO WORK ON SLED WITH THE REAR UP IN THE AIR AND OFF OF THE FLOOR. TURN OFF FUEL VALVE AND MAKE SURE NO FUEL IS LEAKING FROM SLED.

2. On most sleds you will remove existing front torque arm mount plates on the inside of the tunnel for proper installation. If the plates are larger and held in place with several rivets they can stay in place. You will need to grind flat any rivets, ribs, ridges or turned up edges in the path of the M-10 T.S.P. Leave the thickness of the factory plate when grinding the above.

3. On the Right Hand (RH) side of sled measure the diameter of the drive axle closest to the RH side of tunnel with a caliper. Measurement of diameter will be across Hex flats or machined round shaft. Some will be across bearing lock collar.

4. Use the Tunnel Template (T.T.) Diagram #1 to identify the set of lines that is closest to the RH shaft diameter. Carefully trim the lines that are closest to your measurement. Trimming the T.T. approximately 1/64" (0.5mm) smaller will give a snug fit when placed on drive shaft.

5. If not in position, rotate the Hexagonal points to a vertical position. See Drawing #1. Using care slip the RH drive axle slot of the T.T. over the axle. Note: Slot must slide over flats of hex or over round shaft, not over hex points.

6. **Rotate drive axle and T.T. to a position absolutely parallel with the top of the tunnel. See Drawing #1.** Check to be certain the slot is touching the top of the drive axle. Use the center and rearward measure points on the T.T. Be sure to adjust measurements for height variations due to braces, cut outs, etc. **NOTE:** Accuracy is important in finding parallel location of T.T. This process locates the M-10 suspension. You should record measurements for comparison with the opposite side later in installation. Measurement should be approximately equal.

7. Once you have located the T.T. it is best to secure in place with tape or a set of clamps.

8. Look for these markings on T.T. **RH Front Rivet, RH Rear Rivet, Check Point and RH Front Shaft.** Center punch these points through the T.T. Follow each punch mark by lightly spotting each punch mark with a small (1/16") drill bit. Next, drill only the RH Front Rivet and the RH Rear Rivet using a 3/16" drill bit through the T.T. and the tunnel, carefully remove the T.T. from tunnel. The T.T. will be used on the opposite side of tunnel later. **NOTE: Refer to Brand Notes page for Yamaha Pro-Action sleds.**

DIAGRAM #1

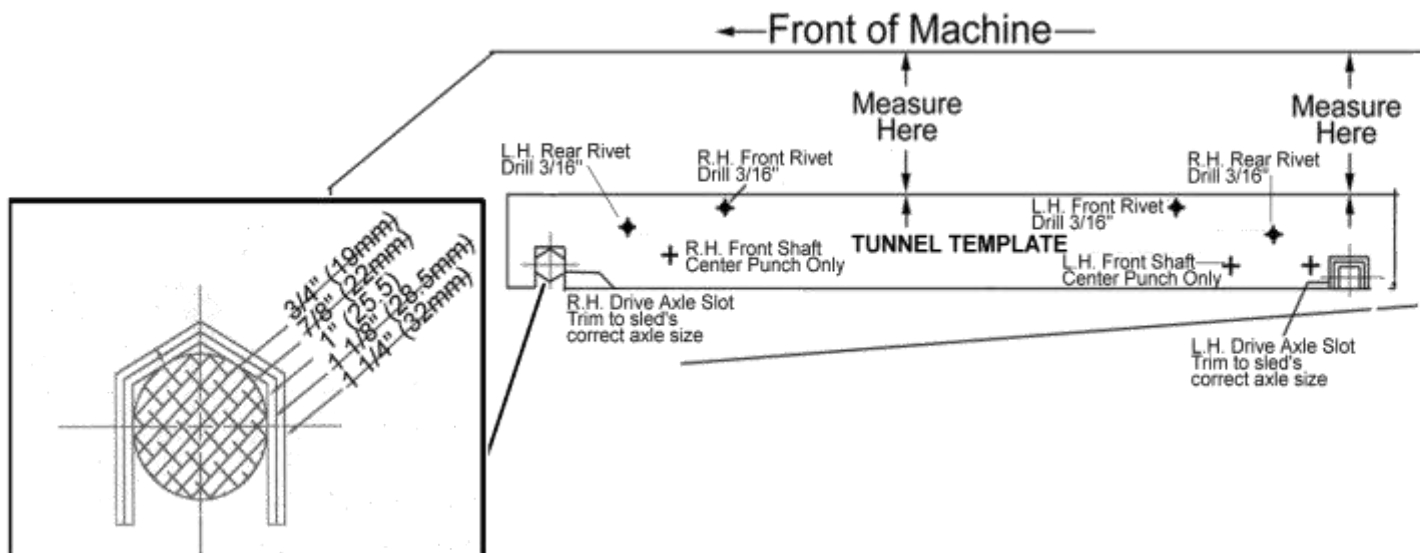
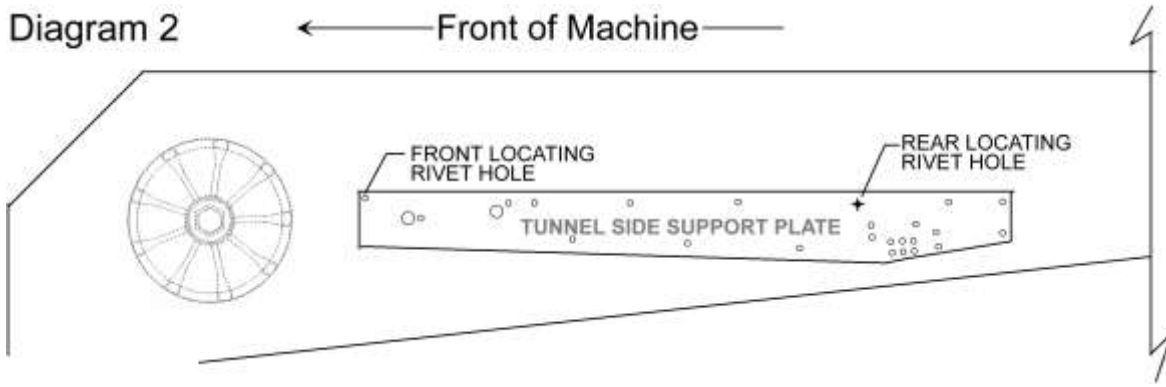


Diagram 2



10. Position the T.S.P. to the inside of the tunnel as shown in Diagram 2.

11. Locate upper front hole in T.S.P. and align with front hole drilled in the tunnel. Temporarily push a rivet to hold in place. **Do not punch rivet with rivet gun.**

12. Locate the upper, third hole from the rear of the T.S.P. and align with rear hole drilled in the tunnel. Temporarily push a rivet to hold in place. **Do not punch rivet with rivet gun.**

13. Using a scribe or marker trace the T.S.P. onto the tunnel. Remove T.S.P. Grind flat any ribs, ridges or rivets to allow the T.S.P. to lay as flat as possible on the tunnel.

NOTE: CHECK BRAND NOTES FOR SPECIFIC INSTRUCTIONS FOR DIFFERENT MODEL SLEDS.

14. Place T.S.P. back on the inside of tunnel using the RH Front and Rear Rivet Holes. Use rivets to temporarily hold in place. **Do not rivet into place yet.**

15. Verify Front Shaft Location at RH Check Point (center punched into tunnel in Step 8). Partially insert (**do not drill yet**) two 3/8" bolts into the standard hole (by dimples) in the RH Torque Arm Bracket and T.S.P., see Diagram 5.

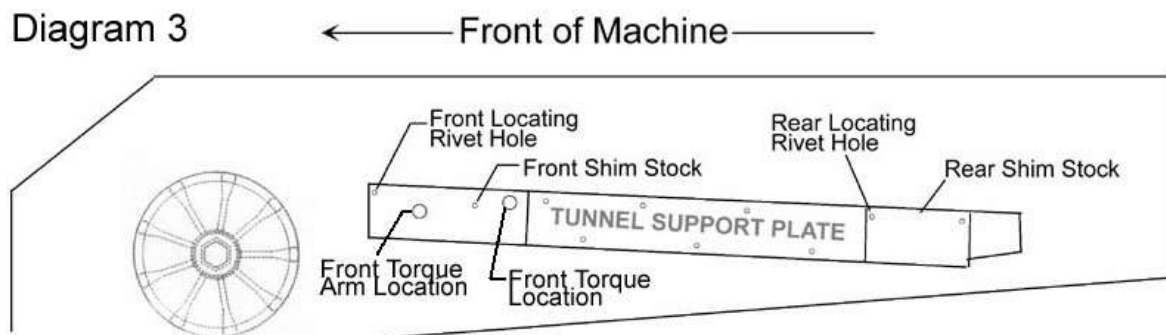
The RH Checkpoint mark must appear in the center of the 7/16" hole in Torque Arm Bracket. If not then re-check previous steps locating T.T.

Next: Fitting the Shim Stock, this will even up tunnel with existing reinforcement bracket. In some cases the front factory support plate will be removed. Small plates with only 2-6 rivets will be removed. The larger the factory plates are the more likely they will not have to be removed. Rear factory support plates remain in tunnel for support. You will only need to grind flat ribs, ridges or turned up edges on factory plate. Leave the thickness of the plate and lay the T.S.P. over the top of factory plate. The shim stock that is provided will not always be used at front and rear of T.S.P. depending on what type of factory plates are in the tunnel. The shim stock provided may be used in other areas where there is not a factory plate.

16. Once shims have been determined and fitted between the tunnel and T.S.P. you can now rivet the T.S.P. in place inside the tunnel. Rivet heads are on the outside of the tunnel.

17. Repeat steps 3 through 16 on the Left Hand (**LH**) side of the tunnel to mount the T.S.P. Use the (**LH**) designated markings on the Tunnel Template for correct locations.

Diagram 3



18. On the RH & LH side of the tunnel locate the two 3/8" holes in the T.S.P. Drill these two holes through the tunnel. These holes are the Front Torque Arm Bracket locating holes.

19. As noted in Brand Spec Sheet (Page 5 & 6) the initial recommended Rear Torque Arm hole is **A**, this hole will fit all chassis. If the chassis is deep enough the **B** hole may be used for more tunnel clearance (deep lug tracks). Riders above 250lbs can use **C** or **D** to increase their adjustable load capacity. **Note:** Lower holes **B** & **D** may require some grinding on the lower edge of the Outside Rear Tunnel Plates for proper fit.

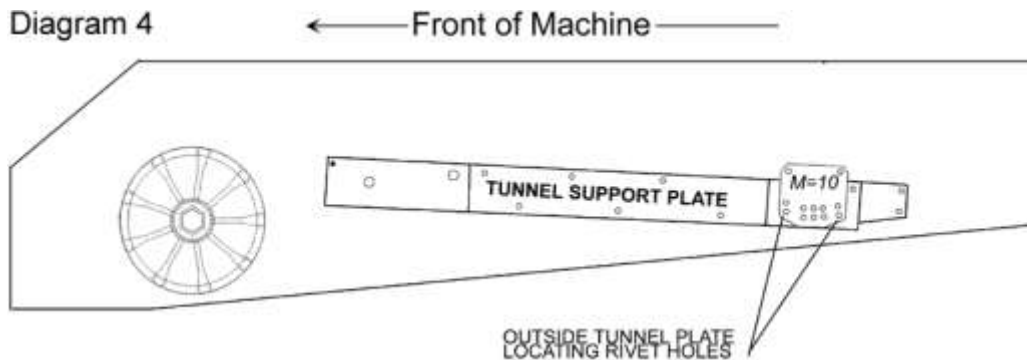
NOTE: If you use C or D. you'll need to trim .160" (4.8mm) off the coupler block as indicated by the gray region on the block pictured below.



20. Once hole is selected, from inside the tunnel, position the Outside Rear Tunnel Plates against T.S.P. and select the matching set of 3/16" holes to drill through tunnel. Be certain rivets reach at least 1/8" through all layers and rivet Outside Tunnel Plates to tunnel.

21. Referring back to the rear hole location chosen in (from the inside of the tunnel), drill hole out to 7/16".

22. Finish drilling the 3/16" rivet holes in T.S.P. through tunnel then complete riveting T.S.P. and shim stock to tunnel. **Be certain rivets reach through all materials by at least 1/8"**.



23. Next, install the M-10 Suspension System into the tunnel.

INSTALLING THE M-10

1. Disconnect both front and rear upper shock mounts from the M-10 suspension system (if not done). This will ease installation.
2. Check the Brand Spec Sheet for different location of Front Torque Arm at the rail. Move if needed and torque to **45ft.lbs.**
3. Slide both front and rear cross shafts through the swing arms. The front shaft is the same size throughout. The rear shaft has machined ends. Grease shafts at this time.
4. Install the two torque arm brackets (Stamped RH, LH) and spacers on the front torque arm. Install the 7/16 X 2 bolts, 7/16" lock washer, so they are concealed (recessed) in the brackets. Note: The torque arm brackets must be parallel to each other. This can be accomplished by swinging the front arm forward to the floor and then tighten the bolts in the torque brackets while holding the brackets flat to the floor. (See Drawing 6.) Use red Loctite #271 on the bolt threads and torque to **70 ft.lbs.**
5. Installing upper idler wheels and spacer on top cross shaft of the rear arm. Make certain snap ring faces the outside of the M-10 suspension.
6. Install M-10 suspension in the tunnel. Fold front and rear arm towards center of suspension. Insert rear of suspension into track then slide front into position.
7. Use holes with DIMPLE mark on Torque Arm Brackets, (See Drawing 5) **unless different in Brand Spec Note Page.** Install 3/8" X 2" bolt and 3/8" washer through rear hole and install washer and nut finger tight. With further adjustment, slide 3/8" X 2" bolt and washer through front top hole and install washer and nut finger tight. Then torque the four bolts to 45ft.lbs.
8. Lift the rear of the suspension into drilled location and thread 7/16" X 2" Allen bolt with lock washer, flat washer. (Use Loctite #271) Then torque this bolt to **70ft.lbs.**
9. Connect front and rear upper shock mounts and torque bolts to 45ft.lbs. Make certain the limiter strap bolt is facing up as supplied.

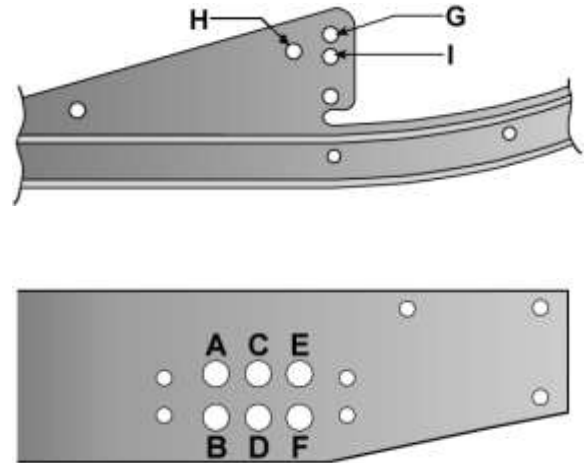


CALIBRATION & MAINTENANCE

1. Now you are ready to make the crucial step of calibration of suspension. This procedure is explained step by step in Initial Set-up Reference Card and is thoroughly covered in the owner's manual. For best results, we recommend that you read and understand the owner's manual, which also covers maintenance for the suspension.
2. When adjusting limiter strap, place a 4-6" block under front suspension. Do not use the fifth hole in limiter strap if the one you have is equipped with five adjustment holes.
3. Align and adjust track tension so there is equal spacing side to side. There should be 3/4" or 19mm gap between rail and track with rear of machine suspended in the air with no weight hanging from the track.
4. Check all fasteners torque to proper spec. Grease all four shafts with low temp grease using the four grease fittings on two torque arms.

BRAND SPEC SHEET

BRAND SPEC SHEET	FRONT TORQUE ARM LOCATION ON RAIL	INITIAL REAR TORQUE ARM LOCATION
POLARIS 90-95	I	A
POLARIS 96-05	I	A
POLARIS LONG TRACK	I	A
ARTIC CAT 87-05	I	A
ARTIC CAT LONG TRACK	I	A
SKIDOO PRS 89-93	I	A
SKIDOO PRS LONG TRACK	I	A
SKIDOO DSA 93-05	I	A
SKIDOO DSA LONG TRACK	I	A
YAMAHA 90-96	I	A
YAMAHA PRO ACTION	I	A
YAMAHA LONG TRACK 90-97	I	B
YAMAHA LONG TRACK 97-05	I	A



ALL BRAND NOTES

POLARIS MODELS:

With the heat exchanger on the running board you will need to temporarily place the T.S.P. on the inside of the tunnel. Line up the RH front and RH rear rivet points then scribe along the bottom side of the tunnel plate on the heat exchanger so the material can be removed so the tunnel plate lays flat.

The best way to remove this material is to use a 4 ½ "grinder, score the line then pry the material up. Then bend back and forth to break off.

After the tunnel plates are installed you will need to install two extra rivets in the heat exchanger, drill two new 3/16" holes close to where existing rivets are in the heat exchanger. After drilling holes, install the rivets. Polaris models will be easier to remove the front torque arm when installing the M-10 suspension system.

POLARIS WITH HEAT EXCHANGER ON THE BOTTOM OF TUNNEL:

You will need to grind ribs on existing tunnel braces.

YAMAHA EXCITER:

You will need to grind the flat middle existing tunnel brace to get the T.S.P. to lie flat on the tunnel.

YAMAHA WITH PRO-ACTION:

Removal of the front tunnel brackets and grinding to the middle and rear tunnel bracket ribs will be required.

When using T.T. point RH and LH Front rivet and RH and LH Rear rivet. Use RHFR2 / LFRR2 and RHRR2 / LHRR2 points instead for Pro Action.

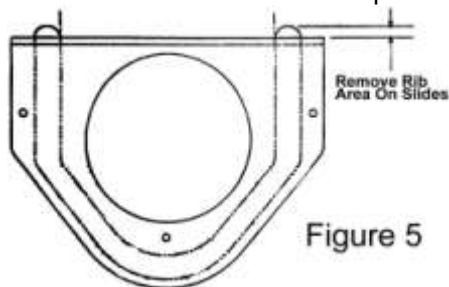
Torque Arm bracket will be using the lower holes on the front. See Diagram 5.

Leave rear factory support plates in tunnel. Grind flat any ribs, ridges or turned up edges. Leave thickness of factory plate for support.

BRAND NOTES CONTINUED

SKI-DOO:

Remove ribs on the middle suspension bracket. See Figure 5.



Remove ribs on rear factory support plate. Leave thickness of factory plate for support.

SKI-DOO ZX PLATFORM:

Not all, but a small number of ZX Ski-Doo have a tunnel variation at the rear mounting location. Upon locating the TSP in the tunnel, if you find that the TSP is too low, and the rear bolt hole is right on the curve of the tunnel and running board, you will need to follow these steps:

- 1.) Follow instructions to step # 9.
- 2.) Locate and drill RH Front rivet (do not drill RH Rear rivet).
- 3.) Place TSP in tunnel using RH Front rivet only.
- 4.) Move rear of TSP upward enough so that your rear hole will clear top of running board. (Correct placement is down low in curve where tunnel and running board meet).
- 5.) Do the same for LH side, except you may take a measurement at the rear RH side and transfer to LH side so both are equal.
- 6.) This will not alter M-10 performance.

136" M-10 FRONT ARM OPTION:

An option for less ski pressure is to position front torque arm in the middle hole in the rails. Take out the long bolt and reinstall arm in the new location. Re-torque nut to 40ft.lbs. The very top hole is not used on 121" and 136" M-10 Suspensions.

ARCTIC CAT ZRT & THUNDERCATS:

Will squat less under acceleration with #125-3010-00 Heavy Rate Spring option.

LONG TRACKS

On long track applications, it is normal for the track to come into contact with the top of the torque arm bracket. This is not a problem and does not affect M-10 performance.

HILL CLIMBER OR STAND-UP RIDER:

Riders who place their feet to the rear of the tunnel should put additional vertical braces at the rear of tunnel to avoid cracking.

141" LONG TRACK-ALL BRANDS AND MODELS

A 141" M-10 will need to move straight back in the tunnel. The front arm moves back 31mm and the rear arm moves back 35mm. This is for optimum track tensioning.

OUTER "FISHBONE" TUNNEL SUPPORTS: Do not use the small rear steel support plate included with M-10 mount kit. Drill the 7/16" hole through the tunnel and the outer factory support. If there is air gap between the tunnel and factory support you will need to drill a clearance hole in the factory outer bracket so the M-10 bolt head and washers are up against the tunnel.

RIVETS: Not every 3/16" rivet hole will be drilled through tunnel. Check tunnel configuration and drill rivet holes accordingly.

REAR TORQUE ARM POSITION IN THE TUNNEL: Position "A" is standard (see chart above). Position "B" can be used if the tunnel taper allows. This will provide more track lug to top of tunnel clearance.