INSTALLATION INSTRUCTIONS

98-1219

800-Series Foot-Mount Pedal Assembly

INTRODUCTION

Please read these instructions before installing the pedal assembly. Installation instructions for other products from Tilton Engineering are available at www.tiltonracing.com.

PRE-ASSEMBLY

Install the master cylinder mounting bracket (72-880) onto the pedal frame and secure with the four 5/16-24 serrated flange nuts provided. Tighten to 19 ft-lbs. Do not use thread locking compound.

Note: *If you are using an optional throttle linkage kit, please install it to pedal frame prior to mounting pedal assembly to the chassis.*

PEDAL ASSEMBLY MOUNTING

It is very important that the pedal assembly be mounted to a strong and rigid structure. Flex in the supporting structure reduces control as much as a flexible pedal or air in the lines. The mounting must be strong enough to withstand the loads of a driver's legs in a panic situation.

Trial fit the pedal assembly in place. Make sure there is enough clearance with the firewall to allow at least 1" of pushrod stroke for all master cylinders. Be sure to use high quality fine thread fasteners for the four 5/16" or 8mm mounts on the floor, along with quality washers. Proper mounting requires fasteners to be used in all four holes.

BALANCE BAR

The balance bar in this assembly is not meant to be serviced or removed by the customer. It contains needle bearings to reduce friction and provide a long life. Avoid harsh cleaning agents that may remove the grease from the bearings. If the bar becomes hard to adjust or resists pivoting freely, the brake pedal and balance bar should be returned to Tilton for servicing or replacement.

REMOTE BIAS ADJUSTER ROUTING

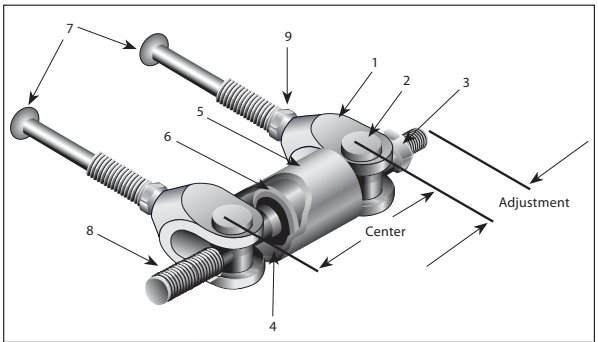
This pedal assembly must be used with a remote cable adjuster to prevent the balance bar from rotating on its own. The cable is usually attached to the throttle side of the balance bar, as shown in Diagram 1. The inner cable should be inserted into the end of the balance bar and secured with the provided set screw. Route the remote bias adjuster cable in a manner that will not interfere with the throttle pedal or linkage. Be sure to check that a partial brake system failure cannot result in the cable moving the throttle pedal. Secure the cable to the chassis, in a manner that limits the number (and degrees) of bends in the cable and allows the adjuster to operate smoothly.

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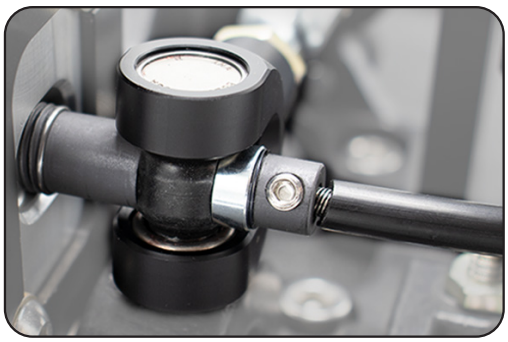
Scan to watch a video on Tilton Balance bars: How to Set-up and Adjust Balance Bars or visit www.tiltonracing.com/technical/technical-videos/



Balance Bar



1. Clevis	4. Retaining Ring Clips	7. Pushrod
2. Barrel Nuts	5. Pivot Sleeve	8. Adjusting Shaft
3. Jam-nuts	6. Spherical Bearing	9. Jam-nuts (Pushrod)



Bias Adjuster attached

Diagram 1

THROTTLE LINKAGE (IF PEDAL ASSEMBLY IS EQUIPPED WITH A THROTTLE PEDAL)

For mid and rear engine vehicles, an extension for attaching a throttle cable to the pedal is available as an option (P/N 72-183), as shown in Diagram 2. Modify the end to accept your particular cable or linkage. There are three extension mounting positions on the throttle pedal to provide a wide range of motion ratios. In general, keep the extension as short as possible while maintaining proper clearance for the foot and leg. A longer extension places a larger twisting load on the pedal and does not allow the movement to be as free.

For a throttle connection system in the front of the pedal, please see Tilton's optional throttle linkage systems (see Diagram 3): Mechanical Linkage - P/N 72-791 | Drive-By-Wire System - P/N 72-792.



Diagram 2

ANTI-LOCK BRAKING SYSTEMS (ABS)

If your car is equipped with ABS, only Tilton 79 series master cylinder should be used on both braking circuits. Tilton 78 series master cylinders are **NOT ABS compatible.**

BRAKE MASTER CYLINDER MOUNTING

The brake pedal can be used with either Tilton 78 series (non-ABS applications only) or 79 series master cylinder. Thread a jam nut onto the pushrod and thread the push-rod into the balance bar clevis. Slip the spherical bearing on the tail of the master cylinder onto the cross shaft and secure with the provided all metal locknut (Kaynut). Repeat for the second master cylinder.

CLUTCH MASTER CYLINDER MOUNTING

The clutch pedal can be used with Tilton 74, 75 or 76 series master cylinders. Secure the master cylinders to the pedal frame with the provided serrated flange nuts. Master cylinder pushrods may be too long for some applications and may have to be shortened to obtain correct pedal position (see Pedal Positioning & Adjustments). If you need to shorten the pushrod, chamfer the end of the threads after cutting for easy adjustment (threading) of pushrod length.

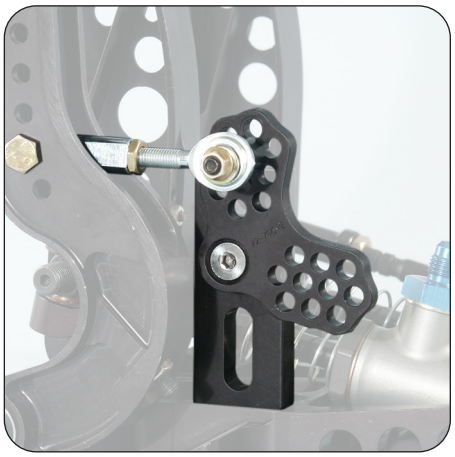


Diagram 3

PEDAL POSITIONING & ADJUSTMENTS

Foots pads can be adjusted vertically (pedal ratio) and horizontally. See Diagram 4 for further detail. The position of the brake and clutch pedals is set by adjusting the length of the master cylinder pushrods. The position of the throttle pedal is set by adjusting the stop screws (if applicable). Ensure the pushrods engage at least ½" (12mm) into the clevises. In short, set pedal position so that the driver is comfortable and safe.

Brake Pedal - With the system properly bled and the pedal depressed, the pedal should be vertical or leaning slightly towards the driver. The driver should not be stretching their toes to reach this pedal position, and their knees should be slightly bent. Keep in mind, as the race progresses, any problems with pad knock back or fade will only increase the distance the pedal must travel. Tighten the pushrod jam nuts after the pedal positioning is set.

Throttle Pedal - A good starting point for the throttle pedal position is to have it even with the brake pedal in the depressed (full braking) position. This allows a driver who is completing their braking maneuver with the right foot, to make a quick change back to the throttle. Some drivers prefer the throttle to be slightly closer to them. Set the throttle stops accordingly and tighten the jam nuts. With the throttle linkage attached, adjust the throttle stop so that the engine throttle fully opens without straining the cable or linkage. The positive stop must stop pedal movement, not the linkage, which could bend or break.

Clutch Pedal - The position of the clutch pedal is mostly a matter of driver preference. Adjust the pedal position accordingly and tighten the pushrod jam nuts. Most racing clutch and release bearings require the use of a positive stop on the clutch pedal. Setting this stop properly will prevent damage to the clutch and allow the clutch to release cleanly. The clutch stop setting is usually 1/4" – 3/8" (6.4mm – 9.5mm) past the point of clean clutch disengagement, measured at the foot pad.

FOOT PAD POSITION				
RATIO	LOW	MED-LOW	MED-HIGH	HIGH
	5.29	5.44	5.61	5.75

Diagram 4

PLUMBING AND SYSTEM BLEEDING

If the brake master cylinders are designed to move with the stroke of the pedal and the adjustment of the balance bar. Both the supply and pressure lines must be flexible. Use only hoses designed for brake systems with a PTFE core and a braided outer housing (commonly braided stainless steel).

The brake system is gravity fed. Mounting the reservoirs above the caliper level is important to maintaining a firm pedal and is more reliable than using a residual pressure valve. Locate your reservoirs accordingly. Detailed bleeding instructions are as follows.

Required Equipment:

- Bleeder kit
- Proper wrenches
- An adequate supply of DOT 3 or 4 brake fluid

PRIMING MASTER CYLINDER

1. Fill the master cylinder reservoir with brake fluid.
2. Slightly loosen the fitting at the master cylinder.
3. Gently depress and release the brake pedal until fluid emerges.
4. Tighten the fitting.

BRAKE BLEEDING (BOTH MASTER CYLINDERS MUST BE BLED SIMULTANEOUSLY)

1. Fill a clear bottle with enough brake fluid to keep the hose ends submerged.
2. Attach the other end of the plastic bleeder hose to the caliper bleed-screw.
3. Be sure the hoses stay submerged throughout the procedure to prevent sucking air on the return stroke of the pedal.
4. Depress the brake pedal with slow and gentle foot pressure.
5. Open the caliper bleed-screw.
6. Allow the pedal to drop to the fully depressed position.
7. Close the caliper bleed-screw.
8. Allow the pedal to return to the relaxed position.
9. Wait several seconds and then repeat steps 4 through 8 until air has been removed from the system.

CLUTCH BLEEDING

1. Fill the master cylinder reservoir with DOT 3 or DOT 4 brake fluid.
2. Apply approximately 3 lbs of force on the clutch pedal. You want enough force to hold the bearing out against the clutch diaphragm spring, but not enough to actually move the spring.
3. Open the bleed screw that is attached to the bleed line on the hydraulic release bearing.
4. Completely stroke the pedal.
5. Close the bleed screw.
6. Let the pedal return to its relaxed position and wait a few seconds.
7. Repeat Steps 2 through 6 while keeping an eye on the fluid level until all air is removed from the system.

Note: *You do not want to stroke the clutch during the bleeding process. All you are trying to do at this point is get all of the air out of the system.* **Do not stroke the clutch until the pedal stop is set!**

SCAN ME

Scan to watch a video on Tilton Pedal Assemblies: How to Install Master Cylinders or visit www.tiltonracing.com/technical/technical-videos/