

TANDEM MOUNT BALANCE BAR ASSEMBLY

SPECIFICATIONS • INSTRUCTIONS

Part Numbers

340-16920 • 340-16928 (w/eyelet)

FEATURES

- ▶ Easily converts tandem master cylinder vehicles to a street performance balance bar setup with separate front and rear master cylinders
- ▶ Designed with oval mounting holes for 3.22" to 3.40" on center studs for a wide variety of vehicle fitments
- ▶ Dual circuits allow better front-to-rear brake balance by utilizing differing master cylinder bore sizes
- ▶ Easily adjust brake bias with included knob, or use an optional remote cable adjuster (P/N: 340-4990)
- ▶ Strong, lightweight forged billet aluminum construction
- ▶ Mounts dual master cylinders with 2.25" on center vertical bolt holes from Wilwood and others



p/n 340-16920



p/n 340-16928, includes pushrod eyelet

Installation Notes and Precautions

*Installation of this component should **ONLY** be performed by persons experienced in the installation and proper operation of disc brake systems. Before assembly begins, familiarize yourself with the following procedure to ensure a trouble-free installation.*

- Wilwood's tandem mount balance bar assembly must be mounted using the two .42" slotted mounting holes as shown in

Figure 1. It is intended to be mounted in the location of the stock OEM master cylinder through the firewall. Ensure there is enough space so balance bar adjustments can be made and master cylinders are accessible.

- This tandem mount balance bar assembly may not work in all applications and it is the installer's responsibility to determine suitability and assure full push rod travel.

WARNING

IT IS THE RESPONSIBILITY OF THE PERSON INSTALLING ANY BRAKE COMPONENT OR KIT TO DETERMINE THE SUITABILITY OF THE COMPONENT OR KIT FOR THAT PARTICULAR APPLICATION. IF YOU ARE NOT SURE HOW TO SAFELY USE THIS BRAKE COMPONENT OR KIT, YOU SHOULD NOT INSTALL OR USE IT. DO NOT ASSUME ANYTHING. IMPROPERLY INSTALLED OR MAINTAINED BRAKES ARE DANGEROUS. IF YOU ARE NOT SURE, GET HELP OR RETURN THE PRODUCT. YOU MAY OBTAIN ADDITIONAL INFORMATION AND TECHNICAL SUPPORT BY CALLING WILWOOD AT (805) 388-1188, OR VISIT OUR WEB SITE AT WWW.WILWOOD.COM. USE OF WILWOOD TECHNICAL SUPPORT DOES NOT GUARANTEE PROPER INSTALLATION. YOU, OR THE PERSON WHO DOES THE INSTALLATION MUST KNOW HOW TO PROPERLY USE THIS PRODUCT. IT IS NOT POSSIBLE OVER THE PHONE TO UNDERSTAND OR FORESEE ALL THE ISSUES THAT MIGHT ARISE IN YOUR INSTALLATION.

RACING EQUIPMENT AND BRAKES MUST BE MAINTAINED AND SHOULD BE CHECKED REGULARLY FOR FATIGUE, DAMAGE, AND WEAR.

Dimensions

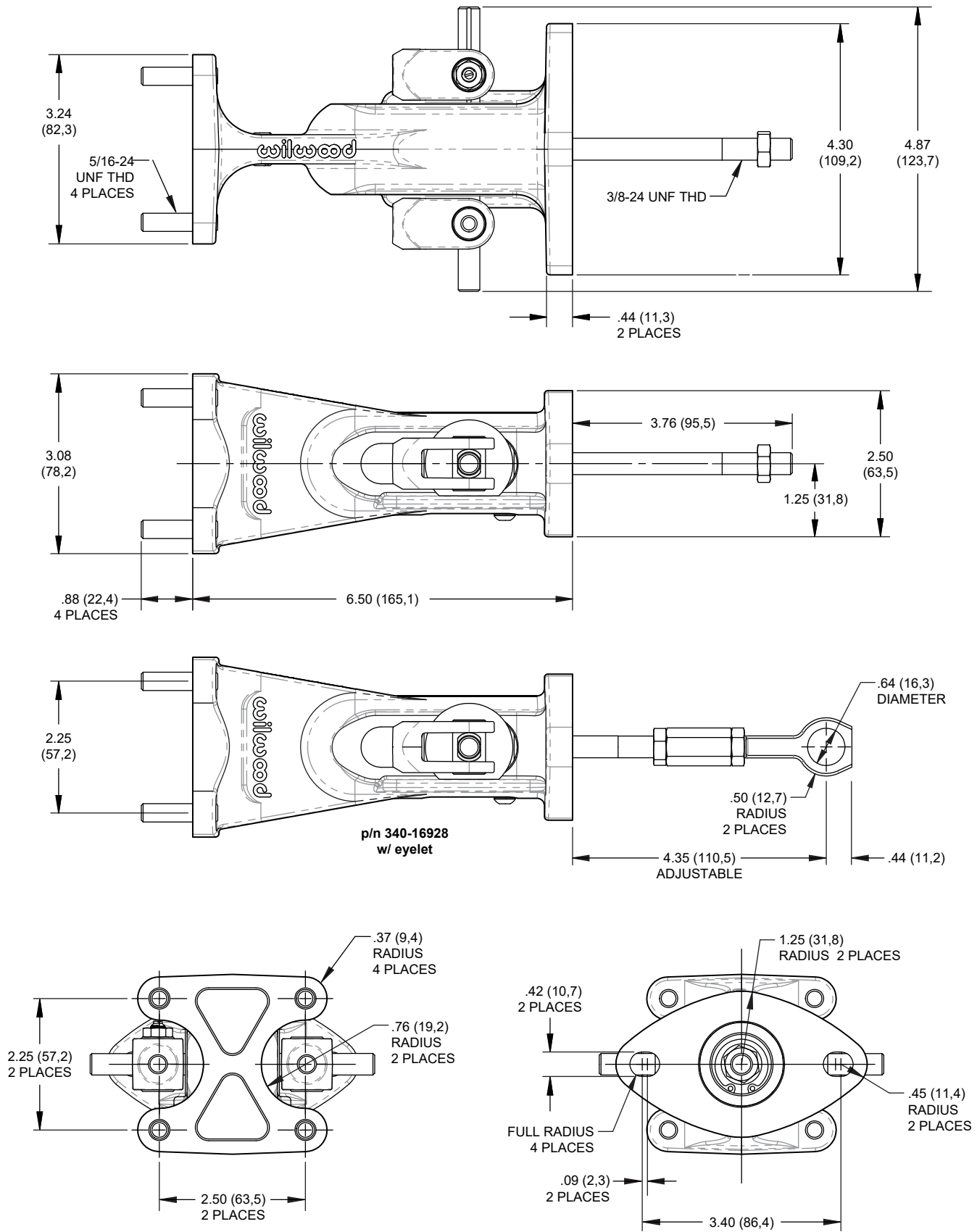


Figure 1. Tandem Mount Balance Bar Assembly, mounting dimensions, p/ns 340-16920 & 340-16928

Instructions

Brake pedals should be free to return when no pressure is being applied, allowing the master cylinder pushrod to return to its undepressed position. In some cases, the master cylinder spring (internal) may not be strong enough to fully return the pushrod; in this case an additional pedal return spring can be used. There are two important items for consideration:

1. The brake pedal should have an adjustable return stop on it when a strong pedal return spring is used. This prevents the master cylinder from excessively banging the snap ring stop inside the master cylinder bore (visible under the rubber boot). Adjust the stop so the pedal stops returning at the point when the master cylinder piston retracts against the snap ring.
2. The master cylinder piston must fully retract. If the master cylinder piston is not allowed to fully retract when the brake pedal is not applied, the primary inside seal will not return past the small pressure relief hole (visible within the master cylinder reservoir on some master cylinders). This can cause excessive residual line pressure and contribute to brake drag and an overheating condition.

BALANCE BAR ADJUSTMENT

The balance bar is an adjustable lever (usually a threaded rod), that pivots on a spherical bearing and uses two separate master cylinders for the front and rear brakes. When the balance bar is centered, it pushes equally on both master cylinders creating equal pressure, given that the master cylinders are the same size bore. When adjusted as far as possible toward one master cylinder it will push approximately twice as hard on that cylinder as the other, Figure 2.

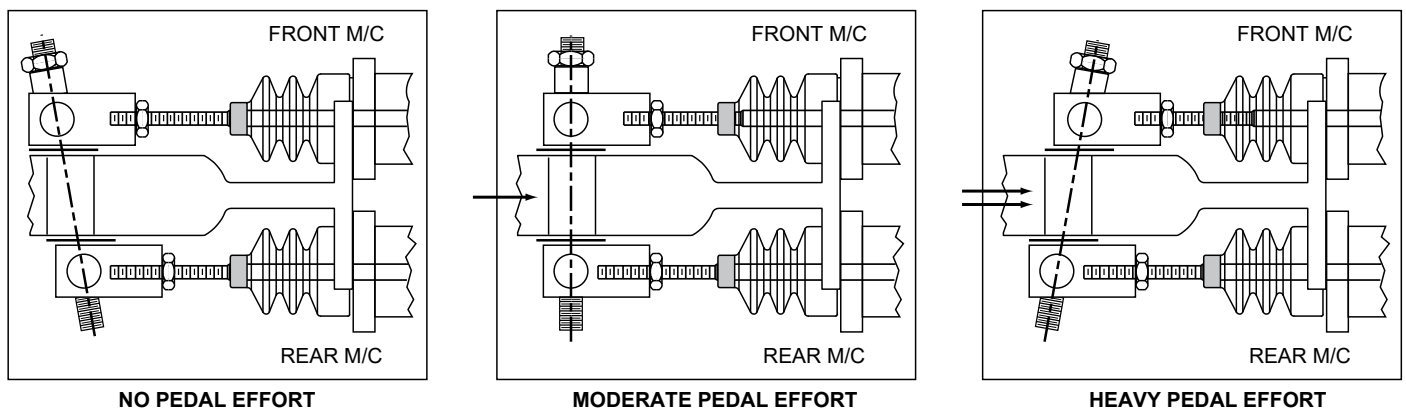
Thread the master cylinder pushrods through their respective clevises to obtain the desired position. Threading one pushrod into its respective clevis means threading the other one out the same amount. Sometimes this will lead to a “cocked” balance bar when the pedal is in the relaxed position, see Figure 2, “no pedal effort”. This is perfectly acceptable as long as each master cylinder pushrod is completely free of pressure when the pedal is relaxed.

NOTES:

To obtain maximum performance from your brake system you should utilize Wilwoods quick check gauge, **p/n 260-0966**. This gauge allows for quick brake line pressure checks from 0 - 1,500 psi for assisting brake bias set-up.

An optional remote cable adjuster, **p/n 340-4990**, is a popular way of adjusting brake bias from within the cockpit to accommodate changes in track conditions and vehicle handling.

It is important that the operation of the balance bar functions without interference by over adjustment. This can occur when a clevis jams against the side of the balance bar housing or the lever (bolt) hits the housing bore during any point of pedal travel.



NOTE: THE PUSHROD ADJUSTMENT DEPICTED IN THIS FIGURE IS REPRESENTATIVE OF A TYPICAL ASPHALT APPLICATION. THAT IS, LARGE CALIPER PISTONS IN FRONT, SMALL CALIPER PISTONS IN THE REAR.

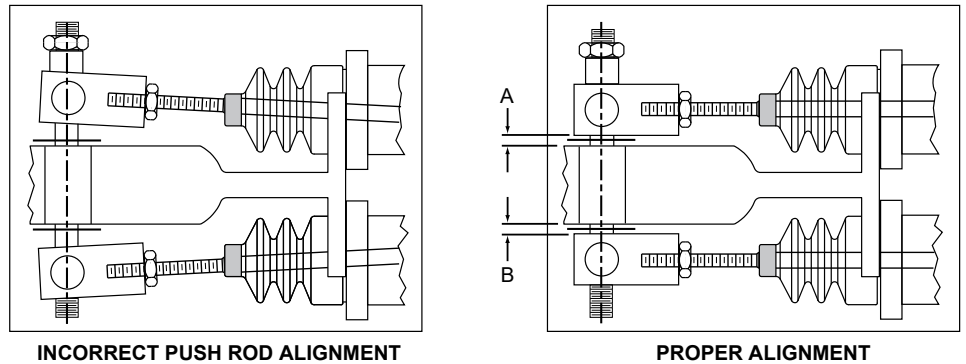
Figure 2. Balance bar lever adjustment

Instructions (Continued)

Lever movement should be unimpeded throughout pedal travel. In the neutral position, clevises should have between .20" - .25" total clearance between the side of the tandem mount balance bar housing. The large washers between the housing and clevis should remain loose. Make sure that the master cylinder pushrods remain true in relationship to the cylinder during entire pedal travel; pushrods should not be pushing master cylinder pistons at an angle. See Figure 3. **NOTE:** In its non-depressed position, the pedal and balance bar should allow the pushrod of the master cylinders to fully return. This can be checked by feeling pushrods for very *slight* movement, not loose movement. Master cylinder pistons should be against the retaining snap ring (under boot).

Brake balancing can also be affected by changes made in the following:

1. Master cylinder size
2. Caliper piston size
3. Use of a proportioning valve



NOTE: DIMENSION A + B ADDED TOGETHER MUST BE IN THE .20" - .25" RANGE

Figure 3. Example of pushrod alignment

A full understanding of the entire brake system is important to maximize brake system performance. Use of a balance bar assembly can enhance a brake system with the proper installation and adjustment.

Should you have further questions, consult your authorized Wilwood dealer, or Wilwood Engineering.

Bleeding the Brake System

- Fill and bleed the new system with Wilwood Hi-Temp[°] 570 grade fluid or higher. For severe braking or sustained high heat operation, use Wilwood EXP 600 Plus Racing Brake Fluid. Used fluid must be completely flushed from the system to prevent contamination. **NOTE:** *Silicone DOT 5 brake fluid is **NOT** recommended for racing or performance driving.*
- To properly bleed the brake system, begin with the caliper farthest from the master cylinder. Bleed the outboard bleed screw first, then the inboard. Repeat the procedure until all calipers in the system are bled, ending with the caliper closest to the master cylinder. **NOTE:** *When using a new master cylinder, it is important to bench bleed the master cylinder first.*
- Test the brake pedal. It should be firm, not spongy and stop at least 1 inch from the floor under heavy load.

If the brake pedal is spongy, bleed the system again.

If the brake pedal is initially firm, but then sinks to the floor, check the system for fluid leaks. Correct the leaks (if applicable) and then bleed the system again.

If the brake pedal goes to the floor and continued bleeding of the system does not correct the problem, a master cylinder with increased capacity (larger bore diameter) may be required. Wilwood offers various lightweight master cylinders with large fluid displacement capacities.

- If after following the instructions, you still have difficulty bleeding your disc brakes, consult your local chassis builder, or retailer where the kit was purchased for further assistance. Additional information is also available on our web site at www.wilwood.com, or e-mail technical assistance: info@wilwood.com.

WARNING

THIS COMPONENT IS DESIGNED FOR USE IN CUSTOM BRAKE SYSTEMS ON PERFORMANCE, RACING, AND OTHER SPECIAL PURPOSE BUILT OFF-ROAD VEHICLES. IT IS NOT INTENDED AS A DIRECT REPLACEMENT FOR ANY OEM APPLICATION.

Additional Information and Recommendations

WARNING • DO NOT DRIVE ON UNTESTED BRAKES BRAKES MUST BE TESTED AFTER INSTALLATION OR MAINTENANCE MINIMUM TEST PROCEDURE

- Make sure pedal is firm: Hold firm pressure on pedal for several minutes, it should remain in position without sinking. If pedal sinks toward floor, check system for fluid leaks. DO NOT drive vehicle if pedal does not stay firm or can be pushed to the floor with normal pressure.
- At very low speed (2-5 mph) apply brakes hard several times while turning steering from full left to full right, repeat several times. Remove the wheels and check that components are not touching, rubbing, or leaking.
- Carefully examine all brake components, brake lines, and fittings for leaks and interference.
- Make sure there is no interference with wheels or suspension components.
- Drive vehicle at low speed (15-20 mph) making moderate and hard stops. Brakes should feel normal and positive. Again check for leaks and interference.
- Always test vehicle in a safe place where there is no danger to (or from) other people or vehicles.
- Always wear seat belts and make use of all safety equipment.

Components and Accessories

<u>Part No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Description</u>
340-4990	Remote brake bias cable adjuster	290-6209	Wilwood EXP 600 Plus Super Hi-Temp Fluid
260-6765	High volume master cylinder	260-13706	2 PSI Residual Pressure Valve
260-14784	Compact remote master cylinder	260-15365	4 PSI Residual Pressure Valve
290-0632	Wilwood Hi-Temp 570 DOT 3 Fluid	260-13707	10 PSI Residual Pressure Valve