

ASSEMBLY INSTRUCTIONS
FOR
**DYNALITE BIG BRAKE FRONT HUB KIT FOR WILWOOD
PROSPINDLE WITH 12.19" DIAMETER VENTED ROTOR**

PART NUMBER GROUP

140-9918

**DISC BRAKES SHOULD ONLY BE INSTALLED BY SOMEONE
EXPERIENCED AND COMPETENT IN THE INSTALLATION
AND MAINTENANCE OF DISC BRAKES**

READ ALL WARNINGS

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.



WARNING

DO NOT OPERATE ANY VEHICLE ON UNTESTED BRAKES!
SEE MINIMUM TEST PROCEDURE WITHIN

ALWAYS UTILIZE SAFETY RESTRAINT SYSTEMS AND ALL OTHER AVAILABLE SAFETY EQUIPMENT WHILE OPERATING THE VEHICLE.

IMPORTANT • READ THE DISCLAIMER OF WARRANTY INCLUDED IN THE KIT.

NOTE: Some cleaners may stain or remove the finish on brake system components. Test the cleaner on a hidden portion of the component before general use.

Important Notice - Read This First

Before any tear-down or disassembly begins, review the following information:

- Review the wheel clearance diagram (figure 2, page 3) to verify there is adequate clearance with the wheels you will be using with the installation.
- Front brake kits do not include flex lines. OEM brake lines will not adapt to Wilwood calipers. Check the assembly instructions, or associated components section for brake line recommendations before assembly. In addition, Wilwood offers an extensive listing of brake lines and fittings on our web site: www.wilwood.com.
- Due to OEM production differences and other variations from vehicle to vehicle, the fastener hardware and other components in this kit may not be suitable for a specific application or vehicle.
- It is the responsibility of the purchaser and installer of this kit to verify suitability / fitment of all components and ensure all fasteners and hardware achieve complete and proper engagement. Improper or inadequate engagement can lead to component failure.

Exploded Assembly Diagram and Parts List

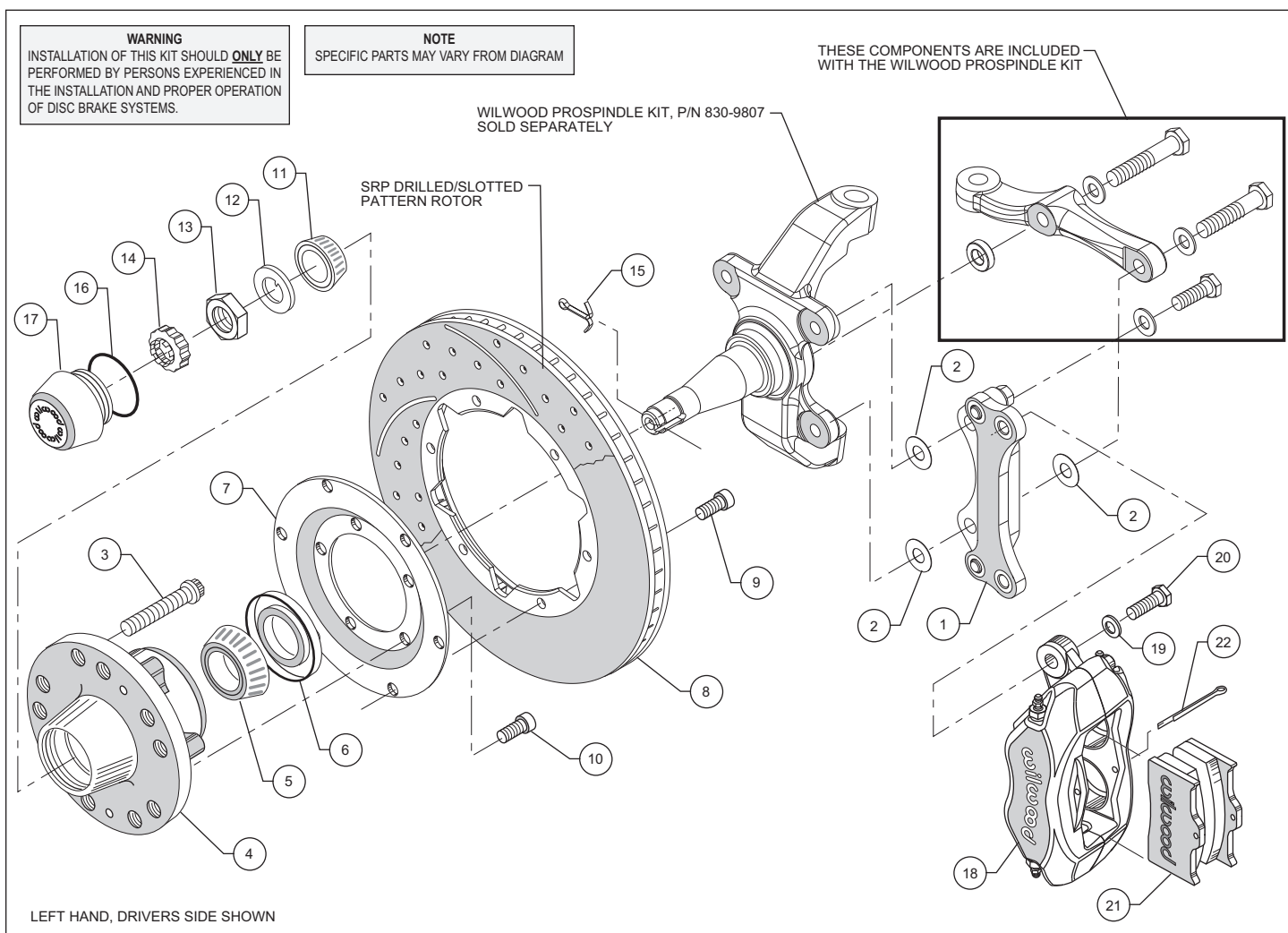


Figure 1. Typical Installation Configuration

Parts List

ITEM NO.	PART NO.	DESCRIPTION	QTY
1	250-10088	Bracket Assembly, Caliper Mounting (250-10045 and 250-10046)	2
2	240-3902	Washer, Shim, .441 I.D. x 1.000 O.D. x .016 Thick	16
3	230-2187	Stud, 1/2-20 x 1.75 Long, SHCS	10
4	270-10044	Hub Assembly	2
5	370-0884	Cone, Inner Bearing	2
6	380-0885	Seal, Grease	2
7	300-3099	Adapter, Rotor	2
8	160-5843	Rotor, .81" Thick x 12.19" Dia, 8 x 7.00" Bolt Circle	2
8A	160-7103/04	Rotor, SRP Drilled and Slotted	2
9	230-2043	Bolt, 5/16-18 x .75 Long, Hex Head	16
10	230-3784*	Bolt, 3/8-16 x 1.00 Long, Torx Head	10
11	370-0882	Cone, Outer Bearing	2
12	240-2444	Washer, 7/8" Spindle	2
13	230-9548	Nut, Spindle	2
14	300-9549	Retainer, Nut	2
15	180-9541	Pin, Cotter	2
16	211-1674	O-ring	2
17	270-2158	Cap, Dust	2
18	120-6816	Caliper, Forged Dynalite	2
18A	120-6796-P	Caliper, Forged Dynalite, Polished	2
19	240-2510	Washer, .391 I.D. x .625 O.D. x .057 Thick	4
20	230-10025	Bolt, 3/8-24 x 1.25 Long, Hex Head	4
21	150-8850K	Pad, BP-10, Axle Set	1
22	180-0055S	Pin, Cotter	2

NOTES: P/N 230-3829 Bolt Kit, adapter plate to hub, includes part number 230-3784

P/N 230-3484 Bolt Kit, rotor to adapter plate, includes part number 230-2043

P/N 230-10141 Bolt Kit, caliper to bracket, includes part numbers 230-10025, 240-2510 and 240-3902

P/N 250-10088 Bracket Kit, bracket to spindle/caliper to bracket, includes part numbers 230-10024, 240-2510, 250-10045 & 250-10046

P/N 370-10090 Locknut Kit, includes part numbers 180-9541, 230-9548, 240-2444 and 300-9549

*A Torx driver is required for Part Number 230-3784

Item 8A is an optional item and is included in the "-D" Kits, Add "-D" to end of part number when ordering

Item 19A is an optional item and is included in the "-P" Kits, Add "-P" to end of part number when ordering

General Information and Disassembly Instructions

Installation of this kit should **ONLY** be performed by persons experienced in the installation and proper operation of disc brake systems. Before assembling the Wilwood front disc brake kit, double check the following items to ensure a trouble free installation.

- Make sure this is the correct kit to match the Wilwood ProSpindle which was purchased separately.
- Verify the hub stud pattern in this kit (5 x 4.50 or 5 x 4.75) matches the stud pattern of the vehicle's wheels.
- Inspect the package contents against the parts list to ensure that all components and hardware are included.
- Verify your wheel clearance using Figure 2.

Assembly Instructions (numbers in parenthesis refer to the part list/diagram on the preceding pages): **CAUTION:** All mounting bolts must fully engage insert nuts. Be sure to check that all bolts are either flush or protruding through flanged side of insert nut after shimming. Rear hole refers to the part of the spindle that would be facing the back of the vehicle, front is facing the front of the vehicle.

- The caliper mounting bracket assembly (1) in conjunction with the Wilwood ProSpindle (P/N 830-9807, includes three mounting bolts, three washers, and a spacer, kit sold separately) should be installed first with clean, dry threads on the mounting bolts. Install the bracket on the inboard side of the spindle

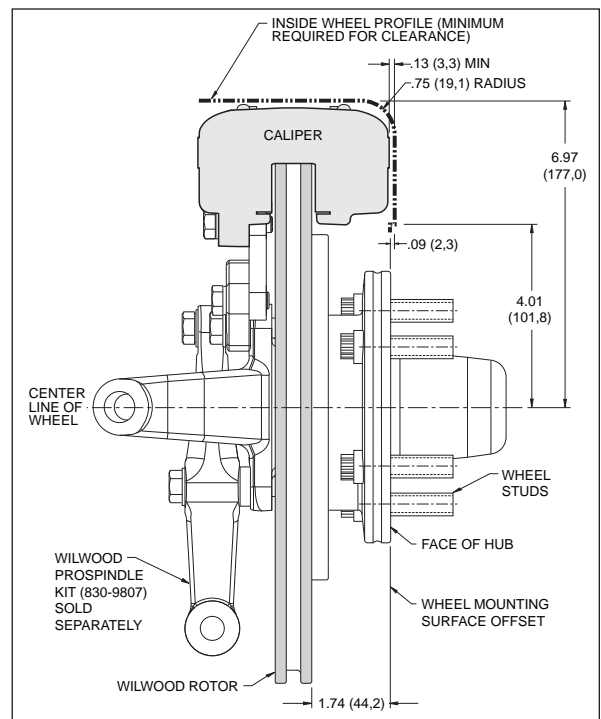


Figure 2. Wheel Clearance Diagram

Assembly Instructions (Continued)

by sliding the 1.25" long bolt from the ProSpindle kit through a flat washer, also from the ProSpindle kit, through the top hole of the caliper mounting bracket (1) and into the upper rear spindle mounting ear hole, do not tighten at this time. Use two thin shims (2) between the bracket and spindle during initial trial fitting. Slide the 2.00" long bolt from the ProSpindle kit through a flat washer, through the rear (thinner end) hole on the steering arm, through two shim washers (2), through bottom hole of mounting bracket (1), through another two shim washers (2), and finally into the lower rear spindle mounting hole. The bracket (1) is positioned between the steering arm and the spindle for the bottom bolt installation. The bracket and shim washers for the lower rear mounting must be a thickness of .550 ± .010". Again, do not tighten. Finish installing the steering arm assembly by sliding the 2.25" long bolt through flat washer, then through the front (thicker end) hole of the steering arm. Place the .25" thick spacer between the steering arm and the backside of the spindle. Snug all three bolts. The bracket must tighten squarely against the inboard side of the caliper mounting bosses on the spindle body. Inspect for interference from casting irregularities, machining ridges, burrs, etc. **NOTE:** Be sure the heads of the caliper bracket (1) insert nuts are facing outward toward the wheel.

- Install wheel studs (3) into the hub (4). Torque to 77 ft-lb. **NOTE:** There are two lug patterns of five holes each in the hub (5 x 4.50 and 5 x 4.75). Make sure of the correct hole pattern for the wheel application before installing the studs into the hub.

- Attach rotor adapter plate (7) to rotor (8) using bolts (9) as per the configuration pictured in figure 1. Torque bolts (9) to 180 **in-lb**. Safety wire bolts (9) using standard 0.032 inch diameter stainless steel safety wire as shown in Figure 3. Please refer to Wilwood's data sheet DS-386 (available at www.wilwood.com/pdf/ds386.pdf) for complete safety wire installation instructions. **NOTE:** The large inside diameter side of the rotor (8) faces toward the rotor adapter plate (7) with the dished side of the rotor adapter plate (7) facing away from the rotor (8).

- Mount the adapter/rotor assembly (7 and 8) to the hub (4) using bolts (10). Torque bolts (10) to 22 ft-lb. Safety wire bolts (10).

- Pack the large inner bearing cone (5) with high temperature disc brake bearing grease (available from your local auto parts store) and install into the backside of the hub (4).

- Install the grease seal (6) by pressing into the backside of the hub (4).

- Pack the small outer bearing cone (11) with high temperature disc brake bearing grease and install into front of hub (4). Slide the hub assembly (4, 5, 6 and 8) with outer bearing cone (11) onto the spindle. Secure using spindle washer (12), adjusting nut (13) and nut retainer (14). secure to spindle using cotter pin (15). Adjust bearing using a 12" wrench to tighten the adjusting nut while turning the rotor. When the rotor binds slightly, all the bearing parts are seated properly. Back of the nut 1/6 to 1/4 of a turn or enough to allow 0.001 to 0.007 end play. Lock the nut with a new cotter pin. **WARNING:** Failure to back off the adjusting nut may cause the bearing to run hot and be damaged, which could cause the wheel to lock or come off during operation, creating a risk of serious bodily harm.

- Install the o-ring (16) and the dust cap (17) onto the hub (4). Friction created by the o-ring (16) on the dust cap (17) keeps it from unscrewing on its own.

- NOTE:** Please reference the caution statement at the beginning of the assembly instructions. With the bleed screws pointing up, mount the caliper (18) onto the caliper bracket (1) using washers (19), and bolts (20). Finger tighten. View the rotor (8) through the top opening of the caliper (18). The rotor (8) should be aligned in the center of the caliper (18). If not, adjust the caliper mounting bracket (1) by using 0.016 inch thick shims (2) placed between the caliper mounting bracket (1) and the spindle, or between the spindle and the steering arm, whichever is applicable to gain the proper caliper/rotor alignment. Both the top and bottom of bracket must have the same thickness of shims between bracket and spindle. Finger tighten and recheck alignment. If everything is properly aligned, Apply red *Loctite*® 271 to the ProSpindle bolt threads and torque to 47 ft-lb. Then apply red *Loctite*® 271 to caliper mounting bolt threads (20) and torque to 30 ft-lb. Safety wire caliper bolts (20).

- Install the disc brake pads (21) and secure using cotter pin (22).

- Repeat this entire procedure for the other wheel.

- NOTE:** OEM rubber brake hoses generally cannot be adapted to Wilwood calipers. The caliper inlet fitting is a 1/8-27 NPT. The preferred method is to use steel adapter fittings at the caliper, either straight, 45 or 90 degree and enough steel braided line to allow for full suspension travel and turning radius, lock to lock. **Carefully route lines to prevent contact with moving suspension, brake or wheel components.** Wilwood hose kits are designed for use in many different vehicle applications and it is the installer's responsibility to properly route and ensure adequate clearance and retention for brake hose components.

- Specified brake hose kits may not work with all Years, Makes and Models of vehicle that this brake kit is applicable to, due to possible OEM manufacturing changes during a production vehicle's life. It is the installer's responsibility to ensure that all fittings and hoses are the correct size and length, to ensure proper sealing and that they will not be subject to crimping, strain and abrasion from vibration or interference with suspension components, brake rotor or wheel.

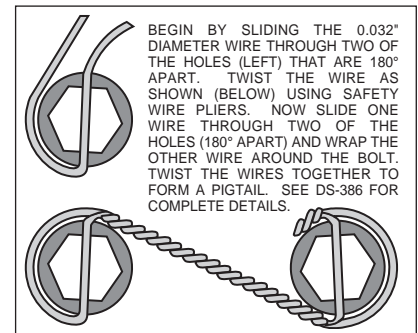


Figure 3. Safety Wire Diagram

Assembly Instructions (Continued)

- In absence of specific instructions for brake line routing, the installer must use his best professional judgment on correct routing and retention of lines to ensure safe operation. Test vehicle brake system per the 'minimum test' procedure stated within this document before driving. After road testing, inspect for leaks and interference. Initially after install and testing, perform frequent checks of the vehicle brake system and lines before driving, to confirm that there is no undue wear or interference not apparent from the initial test. Afterwards, perform periodic inspections for function, leaks and wear in a interval relative to the usage of vehicle.
- Bleed the brake system. Reference the general information and recommendations below for proper bleeding instructions.

Balancing the Brake Bias on 4 Wheel Disc Vehicles

•OE Style or Single Mount Race Pedal with Tandem Outlet Master Cylinder:

Front to rear caliper piston sizes, rotor diameters, and pad compounds must be initially configured to provide the correct range of vehicle bias when using a single bore / tandem outlet master cylinder. If excessive rear brake bias is experienced, an inline adjustable proportioning valve can be used to decrease the rear line pressure to help bring the vehicle into balance. If excessive front brake bias is experienced, first consideration should be given to increasing the rear brake bias to bring the vehicle into overall balance.

•Race Pedal with Dual Master Cylinders and Balance Bar:

Master cylinders must be sized to match the calipers and allow the pedal balance bar to operate near the center of its travel. If it is not possible to fine tune the bias within the adjustable range of the balance bar, then consideration must be given to changing a master cylinder bore size or some other aspect of the brake system to bring the car into balance. Larger bore master cylinders will generate less pressure while decreasing pedal travel. Smaller bores master cylinders will generate higher line pressures with an increase in pedal travel.

Additional Information and Recommendations

- Fill and bleed the new system with Wilwood Hi-Temp^o 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.
- 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.
- If the master cylinder is mounted lower than the disc brake calipers, some fluid flowback to the master cylinder reservoir may occur, creating a vacuum effect that retracts the caliper pistons into the housing. This will cause the pedal to go to the floor on the first stroke until it has "pumped up" and moved all the pistons out against the pad again. A Wilwood in-line two pound residual pressure valve, installed near the master cylinder will stop the fluid flowback and keep the pedal firm and responsive.
- 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) will be required. Wilwood offers various lightweight master cylinders with large fluid displacement capacities.
- **NOTE:** With the installation of after market disc brakes, the wheel track may change depending on the application. Check your wheel offset before final assembly.
- On some models of disc brake spindles there are "ears" where the OEM calipers were mounted and these "ears" interfere with the assembly of the Wilwood disc brake kit. If it becomes necessary to remove these "ears", remove as little as possible being careful not to cut away any of the mounting holes that may be required to bolt on the caliper mounting bracket.
- If after following the instructions, you still have difficulty in assembling or bleeding your Wilwood disc brakes, consult your local chassis builder, or retailer where the kit was purchased for further assistance.

Brake Testing and Pad Bedding

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.

PAD BEDDING PROCEDURE:

• Pump brakes at low speed to assure proper operation. On the race track, or other safe location, make a series of hard stops until some brake fade is experienced. Allow brakes to cool while driving at moderate speed to avoid use of the brakes. This process will properly burnish the brake pads, offering maximum performance.

Associated Components

<u>PART NO.</u>	<u>DESCRIPTION</u>
260-1874	Wilwood Residual Pressure Valve (2 lb for disc brakes)
260-1876	Wilwood Residual Pressure Valve (10 lb for drum brakes)
260-8419	Wilwood Proportioning Valve
290-0632	Wilwood Racing Brake Fluid (Hi-Temp° 570) (12 oz)
290-6209	Wilwood Racing Brake Fluid (EXP 600 Plus) (16.9 oz)
340-1285	Wilwood Floor Mount Brake Pedal (with balance bar)
340-1287	Wilwood Swing Mount Brake Pedal (with balance bar)
260-6764	Wilwood 3/4 inch High Volume Aluminum Master Cylinder
260-6765	Wilwood 7/8 inch High Volume Aluminum Master Cylinder
260-6766	Wilwood 1 inch High Volume Aluminum Master Cylinder
260-4893	1-1/16 inch Tandem Master Cylinder (aluminum housing)
250-2406	Mounting Bracket Kit (tandem master cylinder)
260-8555	Wilwood 1 inch Aluminum Tandem Chamber Master Cylinder
260-8556	Wilwood 1-1/8 inch Aluminum Tandem Chamber Master Cylinder
350-2038	1971 - 1973 Pinto Rack and Pinion (new, not rebuilt)
270-2016	Quick Release Steering Hub (3/4 inch shaft)
270-2017	Quick Release Steering Hub (5/8 inch shaft)
220-7056	Flexline Kit, Universal, 14 Inch, Domestic
220-7699	Flexline Kit, Universal, 16 Inch, Domestic
220-8307	Flexline Kit, Universal, 18 Inch, Domestic