

## Manual Brake Master Cylinder Conversion

**KIT #**  
B3359F4 - GM F-body kit

**APPLICATIONS**  
1993-2002 GM F-body

### Important Notes

The Strange Manual Brake Conversion kit is **NOT** intended for use with a stock, unmodified braking system  
 3AN brake lines and fittings are not DOT approved  
 Conversion kit can be used with both manual and automatic pedal boxes  
 Modifications to the Pedal, Firewall, Pedal box and brake lines will have to be made as shown on page 2  
 before assembly. This will enhance pushrod geometry and force verses competitors.

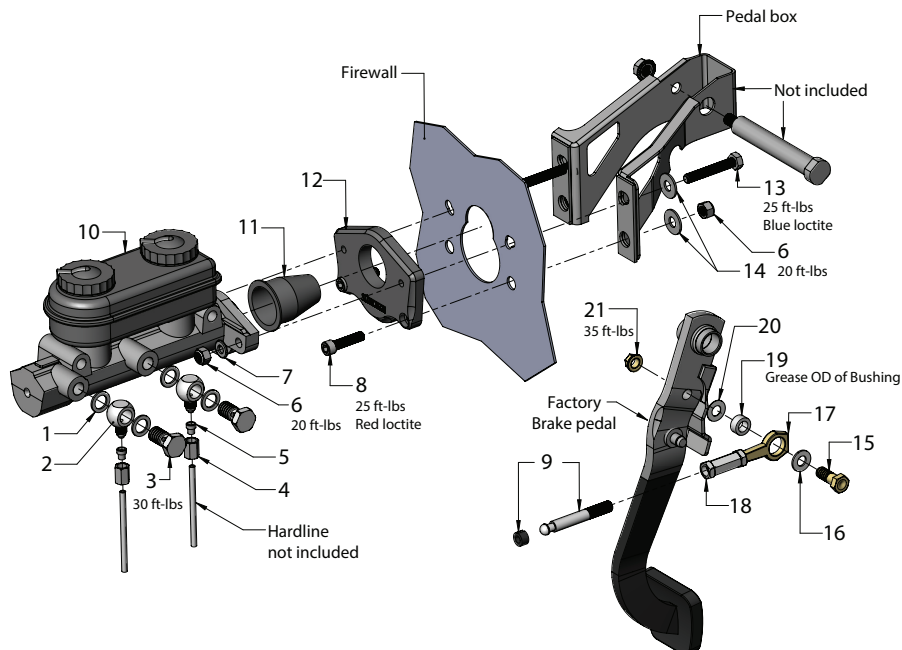
### Features

- Utilizes Strange 1.125" dia. bore master cylinder
- Lighter weight than factory power brakes
- Compact design allows for more space in engine bay
- Utilizes factory brake pedal
- 6:1 pedal ratio
- Works with factory brake light switch

### KIT CONTENTS

ITEM#	PART#	QTY	DESCRIPTION	ITEM#	PART#	QTY	DESCRIPTION
1	B3359JC	1	Washer	11	B3360H	1	Mopar M.C Dust boot
2	B3359JA	2	Banjo fitting - 3AN	12	B3359F4A	1	Master cylinder mount plate
3	B3359JB	2	Banjo Bolt ½-20	13	B3359F4D	2	5/16-18 X 2" Fully threaded HHCS
4	P2318	2	#3AN Coupling nut	14	B3359F4E	4	5/16 ID x 7/8 OD washer
5	P2319	2	#3AN Coupling nut sleeve	15	S3600T	1	3/8-24 X 1" NAS bolt
6	B3360E	4	5/16-18 Nylock nut	16	B1301J	1	Washer - 3/8 ID 1/16 thick flat
7	B3362V	2	5/16 AN washer - 1/16 thick - 18-8 Steel	17	B3359F4C	1	Pushrod eyelet assembly
8	B3359F4F	2	5/16-18 X 1-1/4 SCHS	18	P2335	1	3/8-24 Jam nut
9	B3359F4B	1	2.900" Long M/C pushrod w/ grommet	19	B3359F4G	1	Pushrod eyelet bushing
10	B3359TB	1	1-1/8 Bore Mopar Master cylinder	20	B1301H	1	3/8 ID x 0.025" Thick shim
				21	F1282	1	3/8-24 Jet nut

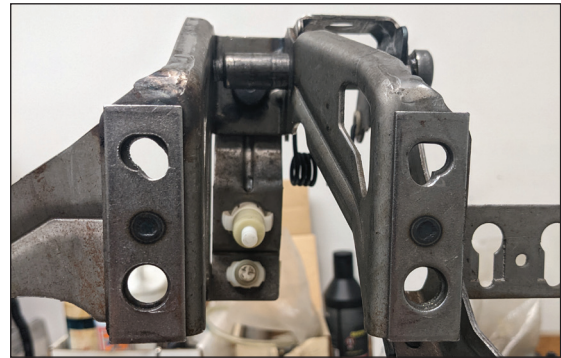
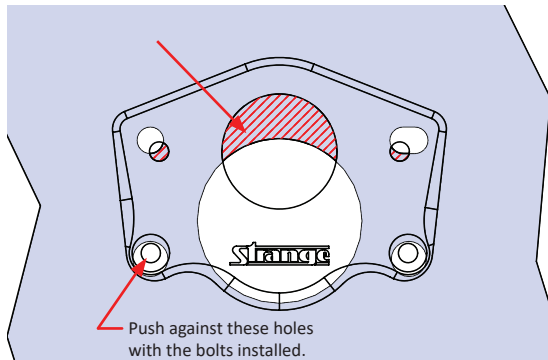
FIGURE # 1: Exploded assembly view



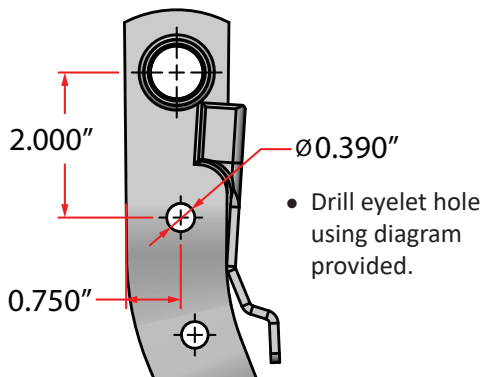
# Modifications

## STEP #1: Firewall & Pedal box modification

1. Install B3359F4F socket head bolts (8) into master cylinder mount plate B3359F4A using red loctite and torque to 25 ft-lbs.
2. Temporarily install the master cylinder mount plate (12) against the firewall. Push and hold assembly in the furthest upward position. (Figure #1)
3. Using the master cylinder mount plate as a template, mark the center hole and bolt hole locations to be modified.
4. Remove master cylinder mount plate and make modifications to the firewall and pedal bracket. The master cylinder bolt holes will need to be opened up to clearance a  $\phi 5/16''$  bolt or to  $\phi 11/32''$



## STEP #2: Brake pedal modification #1



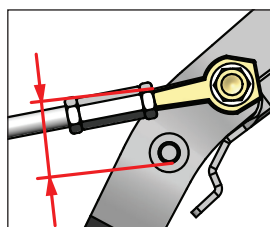
## STEP #3: Pedal box modification



- Notch driver's side of pedal bracket to clear eyelet bolt head at full pedal travel.
- 1/16" Min. Clearance required.

## STEP #4: Brake pedal modification #2 & 3

- Grind edge of pedal for jam nut clearance to allow eyelet to achieve 1.375" dimension shown at the point the jam nut contacts the pedal



**Note:** 1.375" Dimension allows for 5° rotation beyond max required rotation

- Grind the weld/brake light switch bracket to provide 1/16" minimum clearance with the eyelet through entire range of motion.



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# ***Installation Guidelines***

## **Plumbing**

- B3359A master cylinder has a 1.125" diameter bore (Optimal for vehicles with four piston calipers front and rear)
- Both outlet ports are tapped to 1/2"-20 inverted flare
- The supplied banjo fittings (B3359J) will adapt the outlet ports to -3 AN
- Both outlet ports will supply the same pressure
- The outlet port nearest the pushrod supplies the most fluid volume and should be plumbed to the calipers requiring the most volume. Typically a drag race only car will have the largest calipers on the rear, while a street driven car will have the largest calipers on the front. Attach lines accordingly.
- Tube sleeves and tube nuts are supplied for connecting 3/16" hard line
- Use appropriate flaring tooling to make 37 deg. single flare
- When using drum brakes an external 10 lb. residual valve must be installed as close to the master cylinder as possible only on the port that connects to the drum brakes.

## **Setup**

- Before installation it is **IMPERATIVE** that the master cylinder be bench bled. The majority of soft pedals result from not bleeding the master cylinder before it is installed.
- To properly bench bleed remove the two plastic reservoir caps and run lines from the outlet ports into the reservoir.
- Fill the reservoir with DOT 3, DOT 4, or DOT 5.1 brake fluid until the ends of the lines are covered.
- Slowly cycle the pushrod in and out until there are no air bubbles coming from the lines.
- After the master cylinder is installed, the brake system must be bled. Use only DOT 3, DOT 4, or DOT 5.1 brake fluid.
- During the bleeding process the reservoir caps **MUST** be left loose or completely off to let air into the reservoir as the fluid level goes down. If the caps are left off, place a rag over the reservoir as fluid will shoot up from the tank.

## **Installation**

1. After making the modifications install the brake pedal back into the car.
2. Place the mount plate (12) with the installed SHCS (8) onto the firewall and attach using 5/16-18 nuts (6) and washers (14). Temporarily tighten just enough so the mount can be pushed up and remain in the most upward position.
3. Install the HHCS (13) mounting screws with washers (14) from the pedal bracket side with blue loctite and torque to 25 ft-lbs.
4. Go back to the lower mounting bolts (8) from Step 2 and torque the 5/16-18 nuts (6) to 20 ft-lbs.
5. Install the pushrod (9) into the master cylinder (10) by firmly pressing into place until it bottoms out.
6. Slide the boot (11) over the pushrod.
7. Attach the master cylinder (10) to the mount plate using the 5/16-18 nuts (6) and washers (7). Torque to 20 ft-lbs.
8. Thread the eyelet assembly (17) and jam nut (18) onto the pushrod (9). Adjust the length to depress the brake light switch with the master cylinder in the fully retracted position. Tighten both jam nuts on the eyelet and pushrod assembly.
9. Using the 3/8-24 x 1" bolt (15), attach the eyelet to the pedal (refer to figure #1 for bushing (19) and washers (16, 20) assembly order). Lightly grease the od of the bushing. Torque 3/8-24 nut (21) to 35 ft-lbs.
10. Install the appropriate brake lines and bleed the system.

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