



## UPR Manual Brake Conversion Installation Instructions

The UPR Manual Brake Kit is a great starting point for your custom brake system. Custom brake lines and other components like proportioning valves and fittings etc. will be necessary.

**Important: New Master Cylinders MUST be bench bled before installation.**

### Key Points:

- **Brake Line Connections:** You will need to connect new brake lines to the master cylinder.
- **Master Cylinder Outlet Ports:** The Strange Engineering master cylinder has two outlet ports with 1/2-20 inverted flare threads. Both ports provide the same pressure, but the port closest to the pushrod provides more fluid volume. Connect this port to the calipers that require more fluid (typically, larger calipers). For drag cars, the larger calipers are usually at the rear; for street cars, they're typically at the front.
- **Brake Line Fittings:** Tube sleeves and tube nuts for 3/16" hard line are provided. Make sure to use proper flaring tools to create 37° single flares.
- **Drum Brakes:** If you have drum brakes, install a 10 lb. residual valve near the master cylinder on the drum brake line.

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### Installation Steps:

1. **Remove the Factory Master Cylinder/Brake Booster:**  
After removal, install the UPR master cylinder adapter plate to the firewall using the provided hardware.
2. **Install the Master Cylinder:**  
Attach the master cylinder to the adapter plate and connect the brake lines as recommended above.
3. **Install the Brake Pedal Pushrod:**  
Insert the pushrod into the master cylinder. Before connecting the pushrod to the brake pedal, you may want to adjust the mounting location of the pushrod on the brake pedal. Moving the pushrod mounting location will change the pedal ratio, which can give you more or less leverage depending on your preference.
  - **Recommended Pedal Ratios for Strange Engineering Master Cylinders:**
    - 5.5:1 (for a 1.032" bore)
    - 6.5:1 (for a 1.125" bore)

Try to match the pedal ratio as closely as possible to the recommended values.

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### How to Determine Pedal Ratio:

1. **Measure the Lengths:**
  - Measure the distance from the pivot point (where the pedal attaches to the body) to the center of the brake pedal pad (A).
  - Measure the distance from the pivot point to the master cylinder pushrod connection (B).

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2. **Calculate the Pedal Ratio:**

- Divide the length of **A** by the length of **B**. This gives you the pedal ratio.



3. **Adjust the Pedal for Desired Ratio:**

- If the ratio is too low, you may need to move the pushrod mounting point. In most conversions from power to manual brakes, this means moving the mounting point higher on the pedal and welding a new stud, or drill a hole and install a Grade 8 bolt to secure the pushrod.
- **Note:** If the pushrod angle becomes too steep, you may need to adjust the pushrod mounting point to prevent binding. For example, if the highest achievable ratio is 6:1 before the pushrod binds or contacts something in the pedal box, it's better to use the 6:1 ratio rather than forcing the pushrod into a severe angle in an attempt to achieve a higher ratio.

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