

## MASTER CYLINDER AND PEDAL / HANDLE MOUNTING

The master cylinder and pedal/handle assembly should be rigidly mounted. Movement or flex of the mounting location can cause inconsistent or spongy brake feel. Regardless of the pedal ratio, the master cylinder pushrod needs to be parallel with the master cylinder while maximum brake pressure is achieved. This will promote even loading and wear on the piston providing the longest life possible.

## PEDAL / HANDLE RATIO

1.032" bore master cylinder: Pedal ratio- 5.5 to 1 / Handle ratio- 11 to 1

1.125" bore master cylinder: Pedal ratio- 6.5 to 1 / Handle ratio- 13 to 1

The 1.032" master cylinder is recommended for systems using single piston or two piston calipers up front, and four piston calipers in the rear. The 1.125" master cylinder is used with four piston calipers in both the front and rear. Brake pressure should always be checked with a brake pressure gauge before use. In disc brake applications used for drag racing only, front brake pressure should be 550 to 650 lbs. and rear brake pressure 1,000 to 1,100 lbs. These pressures should be achieved with a lot of effort since they are at "lock-up" of the tires and the actual normal stopping pressures will be lower.

## CALIPER MOUNTING

The calipers must be rigidly mounted to ensure a firm and consistent pedal feel. This includes brackets that resist deflection and adequate mounting hardware. The bleeder screws should be the highest part of the caliper so that air can escape during bleeding. If this is not possible, the calipers can be rotated for bleeding then reinstalled. The brake calipers and pads need to be square to the rotors to promote even pad wear, consistent pedal feel, and eliminate brake drag. Most Strange 4-piston calipers have staggered piston diameters, therefore, they are directional and the arrow on the caliper must point in the direction of normal rotation of the rotor.

## CALIPER SELECTION

Single piston front calipers are used for spindle mount wheels only. They should be used in vehicles weighing no more than 2,600 lbs. that always deploy a parachute. Vehicles exceeding these limitations will experience poor pad life and will cause the rotors to overheat and warp. Two piston calipers are used in the front on vehicles with five lug wheels weighing up to 2,600 lbs. Four piston calipers are used in the front on vehicles with five lug wheels exceeding 2,600 lbs. and in all rear applications.

## PAD SELECTION

Soft metallic pads are recommended for all front applications. They are also used in rear applications where the vehicle does not exceed 150 mph in the 1/4 mile. The hard metallic pads are used in "rear only" applications exceeding 150 mph. On vehicles requiring rear holding capability on the starting line to load torque converters or turbochargers, the soft metallic pads would be a better choice for the rear calipers since they hold better "cold" than the hard metallic pads.

## PLUMBING

Braided stainless steel Teflon® lined hoses should be used only in flex applications, while 3/16" O.D. steel or stainless steel tubing should be used for the rest of the system. All lines should be firmly secured and isolated from vibration. All connections should be tight and NPT fittings sealed with Teflon® thread sealer. In applications where the master cylinder is mounted below the calipers, a 2 lb. residual pressure valve should be plumbed at the exit port(s) of the master cylinder. This keeps fluid from returning to the lowest point, the master cylinder, and pulling the caliper pistons back in their bores. If using a Strange master with drum brakes in the system, a 10 lb. residual valve must be installed in the line going to the drum brakes regardless of master cylinder location. When calipers or master cylinders are changed in an OEM system, the stock proportioning valve should be removed in favor of an adjustable proportioning valve. In most drag racing applications, it should be plumbed between the master cylinder and the front calipers to limit pressure. For street applications, or a system using disc front / drum rear, the proportioning valve would be plumbed between the master cylinder and the rear brakes. In either application, adjustments should be made to the valve in order to achieve the same braking threshold for front and rear brakes.

## FLUID

It is recommended to use DOT 4, DOT 5.1, or a high performance glycol based brake fluid for the braking temperatures experienced during drag racing. When changing to a different brake fluid, completely flush the system in order to experience the benefits of a higher temperature rated fluid. DOT 5 (Silicone based) brake fluid is not recommended for racing applications for several reasons. It does not mix with other fluids requiring a complete system rebuild, it is slightly compressible giving a soft pedal, and it does not absorb water. Since it will not absorb water, when moisture enters the system it settles to the lowest point which in most cases is the brake calipers. At braking temperatures moisture easily boils causing a loss or lack of pedal.