

## Reverse Lock out Solenoids

### Stop Flow or Reverse Flow

The purpose of a Reverse Lock Out Solenoid is to stop the flow of brake fluid pressure to the brakes when backing the vehicle and trailer. Drum brakes generally do not require a solenoid as the drum brakes are generally not very efficient in reverse and they are available in a “**Free Backing**” design. Disc brakes will generate braking power in forward or reverse requiring a manual lock out or electrical activated solenoid.

### Stop Flow Solenoid

The stop flow style reverse lock out solenoid is the most common. It can be installed on most any hydraulic actuator. The stop flow solenoid has two openings for fluid travel. The stop flow solenoid is installed at the master cylinder and the brake line or hose is connected to the rear of the solenoid. The electrical wire from the solenoid is connected to the reverse lights of the tow vehicle. When the tow vehicle is put in reverse, the solenoid is activated and stops the flow of fluid to the brakes, allowing the tow vehicle and trailer to back up. **The advantages to the stop flow style are ease of installation and that it fits most all-hydraulic actuators.** The disadvantage is when backing up a hill, if the tow vehicle stops on an incline and places the tow vehicle in park or out of the reverse position, the solenoid allows pressure to go to the trailer brakes due to the trailer “leaning” into the tow vehicle. If backing up is continued, the solenoid will lock in the pressure to the brakes.

### Reverse Flow Solenoid

The Reverse Flow Solenoid has three openings for brake fluid travel. Actuators must be pre-drilled and tapped to accept the return line from the solenoid. All Tie Down Engineering actuators accept a reverse flow solenoid. Verify that your actuator has the return port before buying **this style of** solenoid. Connecting the reverse flow solenoid is similar to the back flow, however an additional tube is connected to the return port in the master cylinder. The electrical wire is connected to the reverse lights of the tow vehicle. The reverse flow solenoid has a third port that redirects the fluid to the master cylinder that would be going to the trailer brakes. When the reverse lights on the tow vehicle activate the solenoid, the valve inside the solenoid redirects the brake fluid to return to the master cylinder. Advantage to the reverse flow is that the issue with backing up an incline is not an issue as with a stop flow style solenoid. Should the reverse flow solenoid become clogged or malfunction, usually the worst is that no pressure goes to the trailer brakes, where if a stop flow solenoid malfunctions or becomes clogged, it can hold pressure in the brakes causing them to drag.

Amp draw on our solenoid is **0.6 amps** with a 12.0 Volt system. ( $12\text{ V}/21.5\text{ Ohms} = .558\text{ Amps}$ ) -