HOW TO REMOVE A RESIDUAL VALVE FROM A MASTER CYLINDER

[1] Master cylinders used in trailer Hydraulic surge brake couplers are available either fitted with a residual valve [check valve] , or without the residual valve in place. If a trailer braking system uses drum brakes the master cylinder should be equipped with a residual valve. This check valve maintains approximately 10# to 15# of hydraulic pressure [priming pressure] on the hydraulic circuit, from the master cylinder out to the drum brake wheel cylinders . This reduces the time of brake activation, by over coming the pressure created by the drum brake return spring.

[2] If , however the trailer is to be equipped with DISC Brakes the 10# to 15# pressure created by the residual valve will partially activate the disc brakes, during highway travel , causing brake overheating and failure.

[3] If the master cylinder is equipped with a residual valve it will be necessary to remove the residual valve to eliminate it's hydraulic effect on the disc brakes. **WARNING:** Puncturing the residual valve can damage components internal to the master cylinder, and should not be attempted.

[4] To remove the residual valve proceed as follows. As per the drawing below, remove the rubber dust boot exposing the Snap Ring. Compress the snap ring and remove. Be aware that the return spring is under compression and upon removal of the snap ring, the piston may shoot out of the cylinder. You should use some counter acting force to retard this problem. Upon removal of the snap ring, remove the piston , and the return spring . As the return spring is removed you will find the Residual valve inserted into , and thereby affixed to the return spring . Snap the Residual valve out of the return spring , then reassemble the remaining components in the reverse order from disassembly. Note that there is a thick rubber washer in the far end of the master cylinder tube, that probably did not come out when the other components were disassembled. This is the washer that the residual valve previously sealed against. It is important that this washer be left in place in the master cylinder. Because of it’s thickness it will provide proper spacing for the length of the return spring to properly operate with the new disc brake assembly.

[5] Now, upon final assembly you can use the master cylinder with your disc brake system.