Operations

The Ridewell Height Control Valve (HCV) is a mechanical device that automatically adds to, or exhausts, air from the air suspension when changes in vehicle load are detected. The HCV will respond to dynamic changes, but does so by limiting air consumption for small changes in suspension height.

* The HCV is available in three configurations:
  1. Non-dump (Figure 1).
  2. Pressure dump (normally open). Pilot pressure (75 psi minimum) is required to exhaust the suspension air springs (Figure 2).
  3. Zero-pressure dump (normally closed). Removing pilot pressure exhausts the suspension air springs (Figure 2). If connected to the emergency air source (red line), the HCV will automatically dump when the red line is exhausted.

- HCV ports use push-to-connect (PTC) fittings for ¾" tubing.
- Dual HCV mounting is allowed. The vehicle OEM should be consulted if converting from a single to a dual HCV configuration.
- Various HCV and linkage kits are available. Contact Ridewell or the OEM for selecting the correct kit.

- The Ridewell HCV is interchangeable with most other brands of valves.

Prior To Installation

* Proper setup of the HCV is critical to the performance of the suspension system.
* Incorrect installation or adjustment of the HCV may result in poor performance & premature wear, or failure, of the suspension system. Please read all instructions & contact the OEM or Ridewell if any questions arise regarding proper installation.
* Adequate air supply is required for suspension performance. The OEM should specify air reservoir requirements, as well as plumbing instructions for proper system operation. Figures 4 & 5 show generic single & dual HCV plumbing arrangements.
* Be sure that there are no obstructed air lines supplying the system.
* A pressure protection valve (PPV) must be installed at the reservoir.
* For best performance, the HCV should be installed to allow lever angles between 20 and 45 degrees for full jounce & rebound conditions. Under no circumstances should the linkage system toggle upon itself during suspension movement.

Prior To Installation Continued

* Air lines must be connected to the HCV’s supply, suspension & dump ports. Proper torque of fasteners is also important. See diagrams on this sheet for port callouts and HCV torque specifications.
* The exhaust port (rubber boot end) of the HCV must be installed at, or below, horizontal.
* The HCV has an alignment notch on the driving bearing cap, that when aligned with the centering hole, centers the HCV. This assists in obtaining desired suspension ride height during installation.

Installation & Adjustment Instructions

* Prepare the vehicle for installation by parking on a level surface and chocking the wheels to prevent movement. Failure to follow acceptable safety precautions for supporting the weight and preventing vehicle movement, could result in serious injury.
* The suspension/axle system should be blocked to the desired ride height (center of axle to bottom of frame). Consult the suspension or vehicle OEM for the proper suspension ride height.
* Determine the correct orientation of the lever to the drive cap. The alignment notch on the drive bearing cap must be used to properly locate the drive cap with the lever placed in the cap slot - be sure the lever rotates up to fill ("FILL") and down to exhaust ("EXH") as noted on the HCV body. Assemble the lever to the drive mechanism with the ¼" tapering screw. Torque to 50-55 in-lbs.  
* Prior to installation, be sure the HCV drive system rotates freely in both directions by moving the lever.  
* Install the HCV on the vehicle. Place two (2) t-bolts into the mounting slots and mount the HCV to the vehicle frame or mounting bracket. Torque the ½-20 nuts to 60-80 in-lbs.  
* Assemble the vertical linkage to the HCV and lower mounting bracket as shown in Figure 3. The vertical link is adjustable at the lower end - any excess length should be cut off. See suspension configurations for typical linkage installations and their components. Torque ¼" and ⅜" fasteners to 60-80 and 90-120 in-lbs, respectively.

Maintenance

* Routinely inspect for proper mounting height and re-adjust if necessary.  
* Inspect for air leaks.  
* Inspect for loose connections and re-torque fasteners as necessary.  
* Inspect for chafed air lines.