

# Magnum Cv™ Hydraulic Cam

## Hydraulic Cam Programming and Breakaway Instructions

The hydraulic breakaway cam has been designed to further increase the versatility of the Magnum Cv Series control valve. The complex water treatment systems that are required today to treat an ever-worsening water supply and stricter clean water standards typically include external devices that need to be integrated into the total water treatment process. Ideally, the water treatment system and the external devices are operated through the same controller. Typically they are not. Toward the goal of a single controller, the Magnum Cv Series can provide a hydraulic signal during the service and/or regeneration or backwash cycle.

### Hydraulic Breakaway Cam (Red) Design

The hydraulic breakaway cam has been divided into 36 equal sections with each section representing 10° of cam rotation and 40 seconds of motor running time. Each section is consecutively numbered 1 through 36 to aid in customized cam operating design. Each cam section, as well as the outside ring of the cam that the valve stem rides on, is molded of a high strength plastic. Although a single cam section is strong enough to operate the valve stem, it is recommended that a minimum of three continuous cam sections always be incorporated into the cam timing design for the operation of the valve stem. Likewise, it is recommended that a minimum of three cam sections be removed to insure the proper valve stem operation. The breakaway hydraulic cam can be used as a substitute for the standard Magnum Cv Series cam lobe.

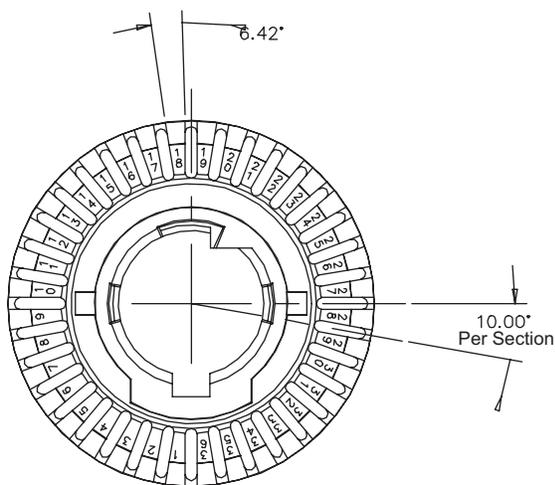


Figure 1

### Hydraulic Breakaway Cam (Red) Application

Typical external hydraulic devices would be diaphragm valves.

Based on the system requirements and the diaphragm valve used, determine the program timing, i.e., when the diaphragm valve needs to operate, either open or closed.

Utilizing the timing chart on the back, determine if the valve stem should be up (relaxed) or contacted by the cam (actuated).

- Record the timing program utilizing the Programming table on page 2. REMEMBER the minimum requirement of three consecutive cam sections either remain or are removed.
- Remove the cam sections using diagonal cutters. Cut the outside ring first, then cut the scoreline on the bottom of each section near the center ring. Helpful Hint: When starting to remove sections, start two or three sections **before** the section required. Then remove one section at a time until the required section is reached. This procedure eliminates the potential of damage to usable sections. Tabs can be broken off using a needle-nose pliers. Ensure that the tabs are completely removed. No "nubs" should be remaining.
- After completing the programming of the breakaway cam, install the breakaway cam in the number 6 position on the camshaft assembly. Refer to the Magnum Cv Series Installation and Service Manual for instructions on the removal and replacement of the camshaft assembly. The cam lobes can only be installed on the camshaft in one rotation location and one direction.

### EXAMPLE:

Leaving sections 36 through 13 in a clockwise direction will provide an electrical signal during the Slow Rinse cycle.

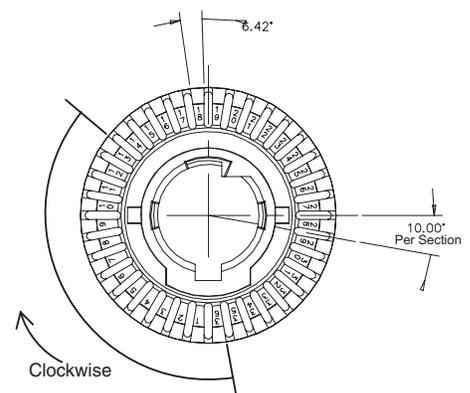


Figure 2

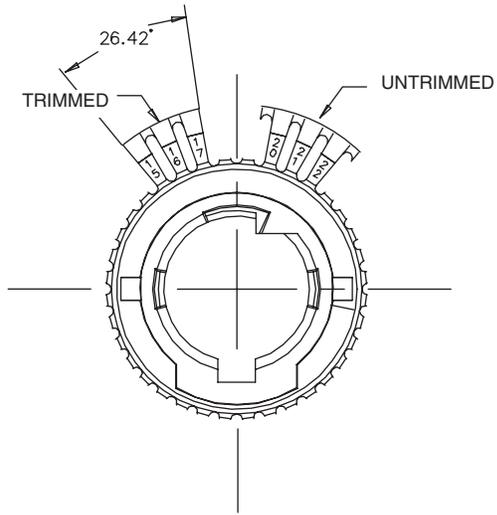


Figure 3

<b>Cycle</b>	<b>Section Numbers</b>
Service	32, 33, 34
Backwash	01, 02, 03, 04, 06
Brine	08, 09, 10
Slow Rinse	12 to 23
Fast Rinse	25, 26, 27
Refill	29, 30, 31