

SETTING THE BARREL VALVE

LEAKAGE SETTING BARREL VALVE:

Leakage testing is performed to determine the indexing of the spool. What works great for one given engine combination may not work at all for another because variables such as fuel pressure, throttle size, idle speed, and ignition timing all affect the barrel valve spool positioning. There is NO setting that is right or wrong, only what works best for a given application. The idle setting or spool indexing, will affect the part throttle fuel delivery.

DIFFERENT STYLES OF LEAKAGE METERS:

- 1) **Direct Percent Readout Style** - displays the percent of leakage on the gauge.
- 2) **Pressure Differential Style** - usually has two pressure gauges, pressure in and pressure out. The leakage is a function of the difference between the gauge readings.

Example: 100-PSI in and 70-PSI out, results in a leakage of 30-PSI,
30-PSI represents 30% of 100-PSI.

OR

80-PSI in and 70-PSI out, results in a leakage of 10-PSI,
10-PSI represents 12.5% of the 80-PSI inlet pressure.

NOTE: REMEMBER YOU WANT A PERCENTAGE!

To calculate this: $\frac{\text{Inlet PSI} - \text{Outlet PSI}}{\text{Inlet PSI}} = \% \text{ Leakdown}$

INDEXING AND ROTATION:

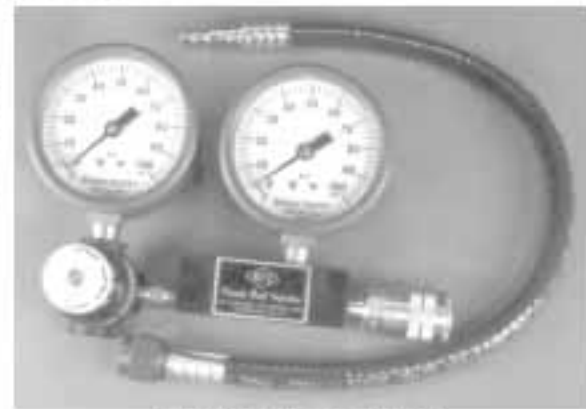
Kinsler barrel valves are available in clockwise (Right Hand) and counterclockwise (Left hand) rotation assemblies. The spool is located in the center of the block. Most barrel valves have the inlet fitting port and passageway to the distribution cavity or outlet fitting, machined offset to one side of the spool bore. This allows fuel to flow straight across the barrel valve spool at wide open throttle. Correct spool rotation, when rotating the throttle from idle position to wide open is achieved when the spool surface, near the inlet, rotates towards the wide side of the block, see Fig. 5.0 and Fig. 6.0.

The port exiting the barrel valve to the secondary bypass valve is located opposite spool shaft.

A properly fitted spool will have approximately 0.0005" clearance to the barrel valve block bore. A spool with an improper fit, or a barrel valve bore with scores, will allow fuel to seep around the spool. This seepage can cause the barrel valve spool to require adjustment to compensate for the increased flow of fuel. When the seepage becomes excessive, the spool indexing will be compromised causing improper secondary port closing and inadequate fuel delivery near wide open throttle.

When a spool has a secondary bypass port, at an idle the port in the spool should be exposed to the inlet port of the barrel valve block, fully or partially, see Fig. 5.0 and Fig. 6.0.

Note: Crower barrel valves have the spool bore machined offset from the center of the block instead of inlet port being offset machined.



#5980-LEAKAGE TESTER

LEAKAGE METER:

Differential type meter includes 6AN connector hose to attach to barrel valve inlet fittings.

5980 Dual gauge leakdown metering;
0-100 PSI / 0-100 PSI gauges with
6AN female swivel hose assembly



Fig. 5.0
CLOCKWISE
(RIGHT HAND)



Fig. 6.0
COUNTERCLOCKWISE
(LEFT HAND)

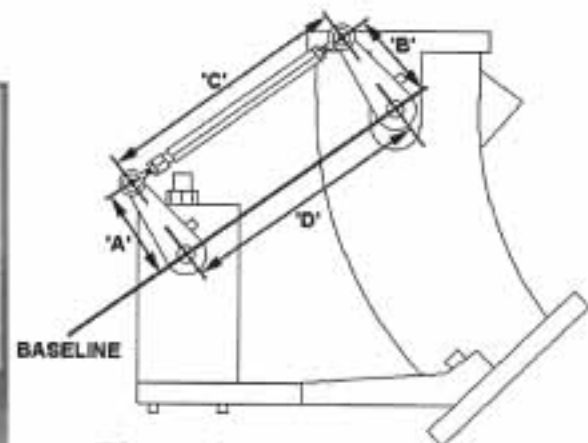


Fig. 7.0

BARREL VALVE LINKAGE GEOMETRY:

Linkage geometry affects the relationship of the partial throttle fuel rate to throttle plate opening. The geometry MUST be set correctly before the spool is indexed.

The c-c of arms 'A' and 'B' must be equal. The barrel valve hex link has the same center-to-center

(c-c) distance as the barrel valve spool shaft to the throttle shaft ('C' = 'D'). As the arms rotate, they will remain parallel to each other, and the barrel valve hex link will remain parallel to the baseline, see Fig. 7.0. Adjusting the linkage geometry in this manner will cause the barrel valve spool to rotate exactly the same as the throttle shaft.

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