



## Installation Instructions – Air Storage Module

### *I. General Notes*

**Note:** Do not even think about using any high pressure hose other than that suggested by CAS. No other product is rated for the combination of pressures and temperatures that occur in a compressed air supercharging system.

- Best practice layouts usually feature the High Pressure Cylinder(s) mounted in the trunk or rear of the vehicle with the Mechanical Regulator located nearby.
- Cylinders/Cylinder mounts should be located to make installing and removing Cylinders as easy as possible. In addition to Cylinder ingress/egress the ability to easily connect/disconnect high pressure hose(s) from the cylinders should be considered. These hoses are quite stiff, small misalignments between hose and Cylinder Valves make quick Cylinder changes very difficult.
- It is strongly recommended that when selecting component mounting locations you use a piece of automotive heater hose as a template or “dummy” hose to ensure that your chosen positions allow hose routing with bend radii no tighter than 5-in.
- Locating the Mechanical Regulator near the High Pressure Cylinders at the rear of the vehicle is recommended for several reasons:
  - It places maximum distance between driver and all high pressure components.
  - In the event of a catastrophic vehicle accident, a minimum amount of high pressure hose is exposed, thereby minimizing the potential of a high pressure hose becoming severed or disconnected.
  - A minimum amount of air will be lost or wasted each time the tank valve is closed and the system shut down.
  - Should the Cylinder PRD or the Mechanical Regulator PRV vent, discharged air will not be directed into the passenger compartment.
  - Though not normally requiring service, easy access to the Mechanical Pressure Regulator is desirable should maintenance be required.



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### ***II. Cylinder Mounting***

Once a mounting location has been chosen the method for securing Cylinder(s) needs to be determined. Some non tubbed passenger car based vehicles can use clamshell brackets such as those sold by CAS under P/N BRKT-CYL-800. However, in many vehicles this type of mounting arrangement is not practical. In most purpose built race cars a set of custom brackets that tie into the vehicles frame rails or roll cage will need to be fabricated.

### ***III. Mechanical Regulator Mounting***

The Mechanical Regulator should be secured to the vehicle's roll cage or frame rails in a location that allows easy access, requires the shortest run of high pressure hose possible, while still providing adequate flexibility so that Hose to Cylinder connection(s) can easily be performed.

The PRV port on the side of the Regulator should be positioned so that when operated discharged air is vented away from people and critical components. If necessary the outlet port of the PRV can be routed to a remote discharge using braided AN/JIC -12 hose available from Earl's or Russell.

### ***III. High Pressure Hose Routing and Installation***

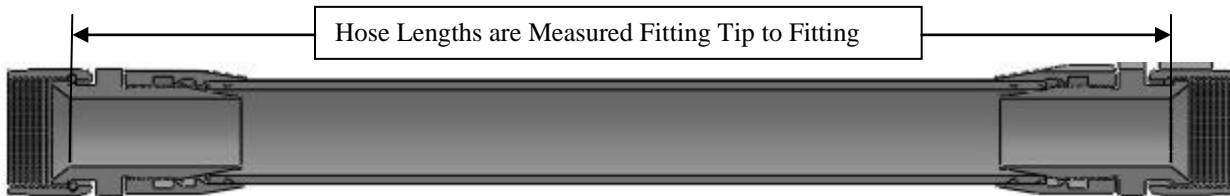
The extreme temperature/high pressure hose used to connect the Cylinder(s) to the Mechanical Regulator is very stiff. The Manufacturer's minimum recommended bend radius is 4-in. However, using this tight of a radius at or near the Hose-Cylinder connection will make it very difficult to easily connect/disconnect cylinders. It is suggested that you use as large a bend radius as possible, preferably at or near 12-in. 90<sup>0</sup> and straight adaptor fittings are available to help facilitate hose fitment. Refer to the High Pressure Hose and Fittings Section of the website for details on available adaptor fittings and hose ordering information.

Correctly estimating high pressure hose length is critical to the success of your installation. Relatively small errors (< 1-in) in hose length can make swapping cylinders very painful. It is strongly recommended that before ordering high pressure hose you carefully create a mock-up using heater hose or something of a similar diameter and stiffness.



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For measurement and ordering purposes note that we use the “Seat to Seat” measurement scheme as typical with military applications.



### III. High Pressure Hose Routing and Installation Cont'd

During first time installation the High Pressure Hose should be test fit to ensure that the O-ring face seal hose end(s) at the cylinder(s) can be easily engaged, threaded and removed. Once fitment has been verified, remove hose and then reassemble with copper washers installed on male AN fittings.

**Note:** The copper washers must be fully seated on the Male AN fittings. If they are not correctly installed they will be irreparably damaged during installation and will need to be replaced.

**Note:** When correctly installed the O-ring face seal fittings require no more than 5 to 10 ft-lb of torque to secure. The High Pressure AN/JIC fittings typically require much higher torque to ensure that the copper washers conform to the Male/Female joint and produce an acceptable seal; this can be accomplished with normal end wrenches. Maximum suggested torque for these fittings is 70-ft.lb.

Once all hoses, adaptors and fittings have been installed and aligned, the AN fittings need to be finish torqued.

### IV. External Leak Checking

Once the complete system (all modules and plumbing) is installed all hoses and fittings need to be checked for leakage. This is accomplished by slowly opening the valve on one of the high pressure Cylinders approximately 1-1/2 turns; this will open the pilot orifice (it will be audible when it opens) and pressurize the entire system up to the Safety Shut-off Valve.

If the system is not to be used right away the Cylinder's valve should be closed and the system depressurized using the Schrader Valve located in the Mechanical Regulator outlet fitting.