

Overview

Pressure relief devices are a critical safety component in built-in aviation oxygen systems. If the oxygen system pressure exceeds design limits due to equipment malfunction, thermal expansion, regulator failure, overfilling, or other abnormal conditions, significant damage can occur. Pressure relief devices are designed to automatically vent excess pressure before it reaches a level that could compromise the integrity of the tank or rupture other system components. Pressure Relief devices generally fall into two categories: High Pressure and Low Pressure.

High Pressure Relief Device (HPRD)

The HPRD is a small device that is usually directly connected to the regulator/valve that is installed in a high-pressure cylinder. It has a temperature compensated bursting metal alloy membrane so that it can vent over pressures caused by cylinder over filling and or over heating. If the regulator/valve is remotely mounted to the cylinder, it must use a pick-off manifold mounted to the cylinder that can properly accommodate the HPRD. The HPRD is a one-time use device and must be replaced if it is removed or an over-pressure event occurs.

The HPRDs offered by Mountain High are characterized by system Service Pressure and Device Type. Axially Venting (Type CG-4 & CG-5) HPRDs contain a melting type fuse and are generally used in ambulatory (portable) systems where the cylinder may be subject to fire or extreme temperatures while in transport or storage. MH Cylinder/Valve units provided as part of a portable oxygen system incorporate a Type CG-4 device.

Radially Venting (Type CG-1) HPRDs contain an alloy burst disk that responds to pressure and not a melting type fuse as seen in CG-4 HPRDs. Type CG-1 HPRDs are generally used in "built-in" (custom) systems. MH equipment primarily intended for use in custom installations incorporate a Type CG-1 device.

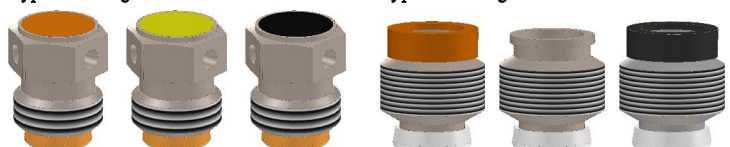
The HPRD hardware can be of the over board venting type that provides a JIC-3 or -4 porting to allow tubing to connect into an Overboard Discharge Indicator mounted on the outside of the aircraft fuselage, which mitigates the possible fire hazard associated with venting high pressure oxygen into the aircraft cabin.

See "High Pressure Relief Device Characteristics" for Service and Burst pressures

Color Code represents pressure rating

Type CG-1 High Pressure Relief Devices:

Type CG-4 High Pressure Relief Devices:



00VEN-0011-00 00VEN-0015-00 00VEN-0009-00
Membrane burst Alloy Type HPRDs (CG-1) For Built-In Systems

00VEN-0010-00 00VEN-0012-00 00VEN-0014-00
Melting Fuse Alloy Type HPRDs (CG-4) For Portable Cylinders

High Pressure Relief Device Characteristics

	MH Part #	Color Code	Service Pressure	Burst Pressure Range	Tank Compatibility
Radial	00VEN-0009-00	Black	3,000 PSI	4,500-5000 PSI	CFF-480
	00VEN-0011-00	Orange	1,800 PSI	2,700-3000 PSI	KF
	00VEN-0015-00	Yellow	2015 PSI	3,025-3,360 PSI	AL, CFFC
Axial	00VEN-0010-00	Orange	1,800 PSI	2,700-3000 PSI	KF
	00VEN-0012-00	(none)	2,015 PSI	3,025-3,360 PSI	AL, CFFC
	00VEN-0014-00	Black	3,000 PSI	4,500-5000 PSI	CFFC-480

HPRD GENERAL SPECIFICATIONS:

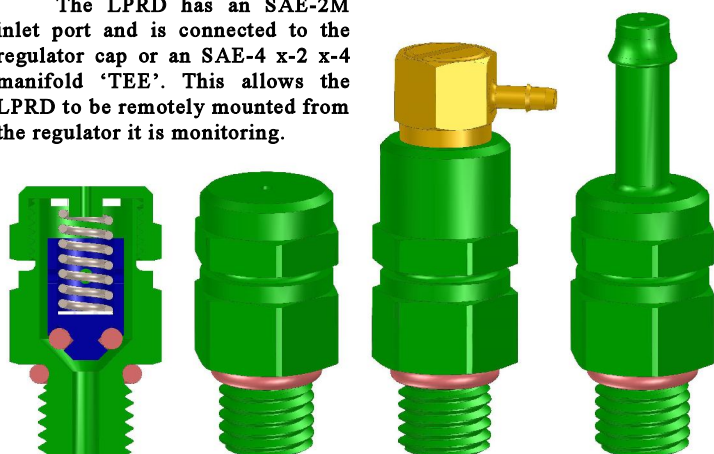
Primary Material: CDA-360 Brass, Nickel Plated
Weight: 3-5.5 g
Inlet: 3/8-24 UNF-2A with Copper Crush Seal
Outlet: 3 Radial Vents (CG-1), 1 Axial Vent (CG-4/5)
Vent Pressure: See Table
CG-4 Temp Activation: 165°F [74°C]
Clean: For Oxygen Service

Low Pressure Relief Device (LPRD)

The LPRD is a small item that helps to protect down stream devices connected to the regulator, as well as protecting the regulator itself. It does so by lightly venting any over pressures above what the regulator is designed to output. In typical applications a LPRD will start venting with pressures about three times over the operating pressure of the regulator. In some applications it could 4 or 5 times over pressure and others as low as 2x. The LPRD will automatically seal shut once over pressures have subsided and therefore does not need to be replaced after an over-pressure situation has occurred.

The initial venting volume is controlled to a low 4 l/min. and as high as 20 l/min. on abrupt regulator failures. Usually there is no need for LPRD over board venting, unless the system with the LPRD is held in a small airtight area. In most system installations a pressure sensor is mounted to the manifold that feeds the stations in an effort to observe pressure excursions before a service regulator over pressure event may ensue.

The LPRD has an SAE-2M inlet port and is connected to the regulator cap or an SAE-4 x-2 x-4 manifold 'TEE'. This allows the LPRD to be remotely mounted from the regulator it is monitoring.



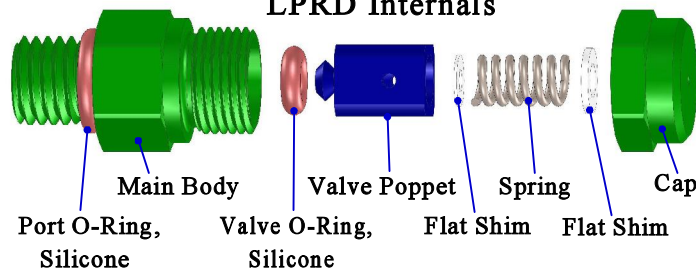
Internal Section
APR02-0100-00

Typical LPRD
APR02-0100-00

Remote Venting
Swivel Barb LPRD
(Future Version)

Remote Venting
Tube Barb LPRD
(Future Version)

LPRD Internals



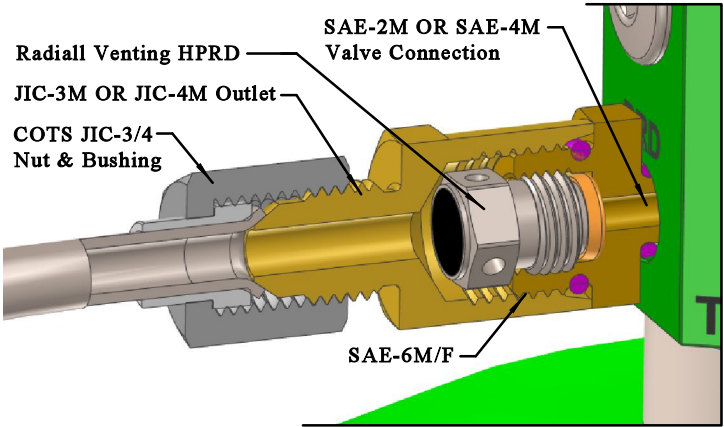
LPRD GENERAL SPECIFICATIONS:

Primary Material: 6061-T6 Anodized Aluminum
Weight: 4 g
Inlet: SAE-2M
Outlet: Ø0.040 Vent Hole
Vent Pressure: 45-120psi adjustable
Temp Range: -50°F to +130°F [-45°C to +55°C]
Clean: For Oxygen Service

REVISION HISTORY			
REV	ECO NO. YYYY-MM-DD	NAME	NOTES
-	2026-020 2026-06-30	KQM	INITIAL RELEASE

Overboard Discharge Indicator (ODI)

The typical Overboard Discharge Indicator is connected by tubing to an HPRD mounted on the valve or regulator that is mounted to the cylinder. The ODI has an overboard discharge indicator that is usually a small green or yellow frangible disc mounted in a circular housing that is mounted on the outside fuselage skin. This disk is designed to blow out indicating a potential over pressure event to ground crews has occurred, allowing them to easily identify which cylinder lost its contents. Although rare, the frangible disc can be pulled out by other means.



Fuselage Connection Hardware End

