

FLARE CONVERSION KIT FOR SMALL PURGE UNIT



DESCRIPTION

The kit of parts includes

- 3 off Steel vent stacks with stainless steel unions
- 1 off Steel vent stack with in-line flame arrestor & stainless steel unions
- 1 off burner with spark plug
- 1 off Switched 110V transformer with spark plug and earth leads. This is pre-drilled for mounting inside the SPU purge box.
- 1 off 3m 110v lead.

Maximum operating pressure within the SPU unit is 100mbar. For higher pressures the burner vent stacks will need isolating from the SPU and its PVC assemblies.



This flare conversion unit is designed for the direct venting of low pressure natural gas and LPG.

The burner can operate at pressure up to 2bar and if necessary higher pressure supplies can be regulated to this pressure. The flare burner unit enables the unit to burn off any vented gas, where the vented gas could cause a problem, due to smell etc. The single flare unit has one burner and one ignition unit.

The unit contains a continuously rated high voltage and switched transformer (fed from 110V source via a safety transformer) that provides a continuous spark for ignition of the flame. This is particularly important so that a flame can be maintained as the gas concentrations fall. When the purge is nearing completion a flame will not be maintained and normal gas venting will continue through the stack.

The burner head is mounted approximately 2.5m above the ground level and in most conditions will not cause a hazard to persons nearby. However, use is not recommended in gusting winds.

The top flange bolts on the SPU may need reinforcing with large plate washers!

When flaring, it is vital to ensure that the flame cannot ignite any adjacent materials and that the area does not contain any potentially hazardous flammable products that could ignite or explode. It is recommended that the area be cordoned off to keep people more than 5 metres away from the Flare Unit especially when flaring and that fire extinguishers are accessible.

When flaring, it may be advisable to notify other interested parties e.g. **Fire Brigade, your gas supplier/transporter, your Safety Department etc** of your operations.

A Risk Assessment and Procedure (method statement) must always be completed before commencement of operations.

ASSEMBLY:

The SPU purge Unit door must be fully opened when flaring, to give the box stability. The length of purge hose [1/2" BSP for LPG/high pressure NG and 1" BSP for low pressure NG] should be carefully connected to the inlet valve within the box and to the pipework or vessel to be vented. Additional lengths of hose are available. **The SPU unit must not be used above 100 mbar.**

Be especially careful in wet/damp weather with high voltage power supplies!

Remove the flare burner from inside the case. Check that the 6mm orifice is fitted and not the spare 10mm HP orifice.

Do not over-tighten any connections.

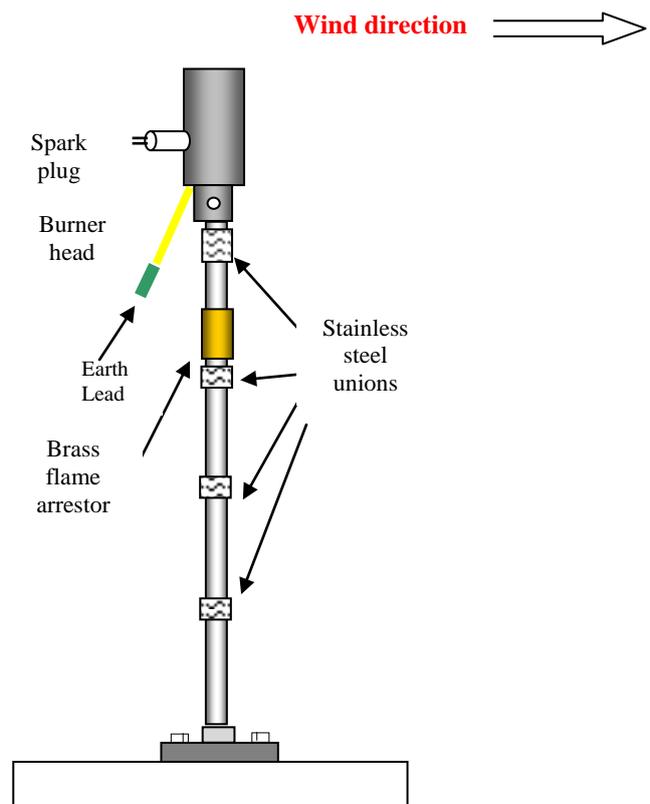
Fit the spark plug to the burner.

Fit the burner to the short stack containing the flame arrestor.

Visually check that the wiring is in good condition and the ignition lead is properly connected into the transformer.

Fit the spark plug lead and the earth lead to the burner.

Now connect the power lead to the 110V supply and check the spark is working correctly.



Fit the remaining two stacks under the burner assembly and onto the PVC flange on top of the box.

Failure to connect the earth lead properly will lead to severe electric shock Hazard.

OPERATION:

Connect the NG or LPG hose to the closed 1" valve within the SPU unit.

Note: Make doubly sure that the Purge Unit is stable, especially in windy conditions. Also ensure the spark plug and cable is upwind, so that any heat from the flame blowing downwards does not damage the wiring. The flare unit and the flame must be continuously attended during the flaring operation.

Ensure the flare burner is in a safe location for flaring and that the supply pressure is controlled for safe operation of the flare assembly. If supplied, the ¼" bsp HP regulators (see information below) **must not be** exposed to pressures above 16 barg. Where practicable, reduce the pressure in stored vessels and pipework through a gas appliance burner at shut down.

Ensure the 110V supply is safely provided and that the ignition and earth leads are connected to the spark plug and burner body. Energise the spark electrical supply from the isolator switch inside the purge box before **slowly** turning on the 1" ball valve supplying gas to the burner head; ensure the flame lights up. The flame size can be controlled from this ball valve.

The flame should immediately light when the gas is allowed to slowly enter the burner. If it does not light, turn off the gas at the flare unit and check that the spark plug is sparking correctly and that the earth connection within the box is secure. The spark gap should be not less than 1 and up to 2 mm. The flame will also easily light with a small portable propane torch.

As the gas concentration from the pipework or the pressure vessel reduces, the flame will die away. The flare gas rate should be set to obtain a good stable flame which does not produce excessive downward radiation of heat.

After the flame has died away, the purge procedure for pipework may be completed as described in to IGEMUP/1.

Pipework must not be left with open ends.

Finally, allow the burner head to cool, disassemble the ½" BSP stacks and burner assemblies, replace the ½" bsp pipes, the burner and flame arrestor unit into the case

GENERAL

When opening pipework and vessels it is essential to purge to air and to an end state of less than 40% LFL or more than 20.5% oxygen. An optional airflow mover (purge fan unit) is available for gas to air purges. For 'hot work' a lower end point of say 5% LEL may be more appropriate.

And lastly, expose the disconnected Purge Hose to the open air for several minutes or blow through with air to vent out the gas and then carefully wind the Purge Hose into the box. If it is extremely cold, the hoses may be too stiff to safely get back inside the SPU without damage to the box or meter.