

Swan Portaforge

OWNERS HANDBOOK



SAFETY INFORMATION

IMPORTANT

**PLEASE READ THESE INSTRUCTIONS CAREFULLY
BEFORE OPERATING THIS EQUIPMENT:**

- THIS EQUIPMENT IS FOR USE BY INFORMED PERSONS ONLY
- THIS EQUIPMENT IS ONLY FOR USE IN WELL VENTILATED SPACES
- THIS EQUIPMENT MUST NOT BE MOVED WHILST IN USE
- TURN OFF GAS AT THE CONTAINER AFTER USE
- ANY MODIFICATIONS TO THE EQUIPMENT MAY BE DANGEROUS
- THIS EQUIPMENT BECOMES HOT DURING USE AND ALL VULNERABLE PERSONS MUST BE KEPT AT A SAFE DISTANCE
- UNDERSTAND THE INSTRUCTIONS BEFORE USING THE EQUIPMENT
- PLEASE CARRY OUT A RISK ASSESSMENT BEFORE USE

SWAN PORTAFORGE OWNER'S HANDBOOK

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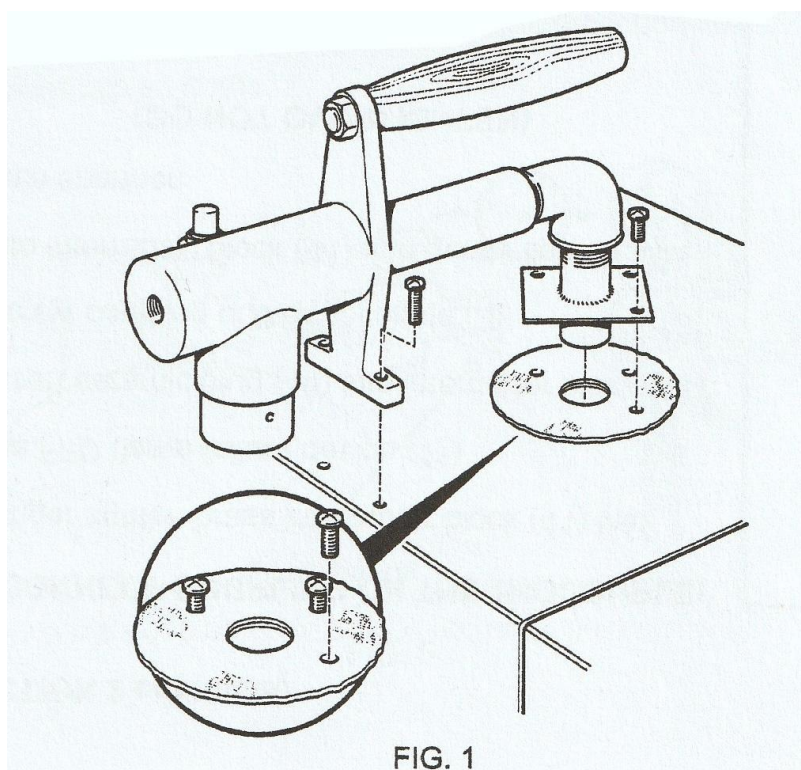
SECTION 1 INSTALLATION REQUIREMENTS FOR YOUR SWAN PORTAFORGE

1. Flexible hose must be positioned to avoid twisting or kinking and possible contact with hot components.
2. The appliance must only be used in well ventilated spaces.
3. The appliance must be positioned away from all combustible materials.
4. The position of the gas container must be such that it avoids the possibility of being exposed to the heat source of the appliance or any extraneous heat source.
5. Precautions need to be taken when changing the gas container, in particular the need for it to be carried out in a well ventilated area and away from all sources of ignition. Always ensure that the gas bottle is turned off before attempting to remove the regulator.
6. Only use the regulator (sievert) and high pressure LPG hose supplied, however, where national conditions apply, the flexible hose and regulator may need to be changed to comply with the conditions in force.

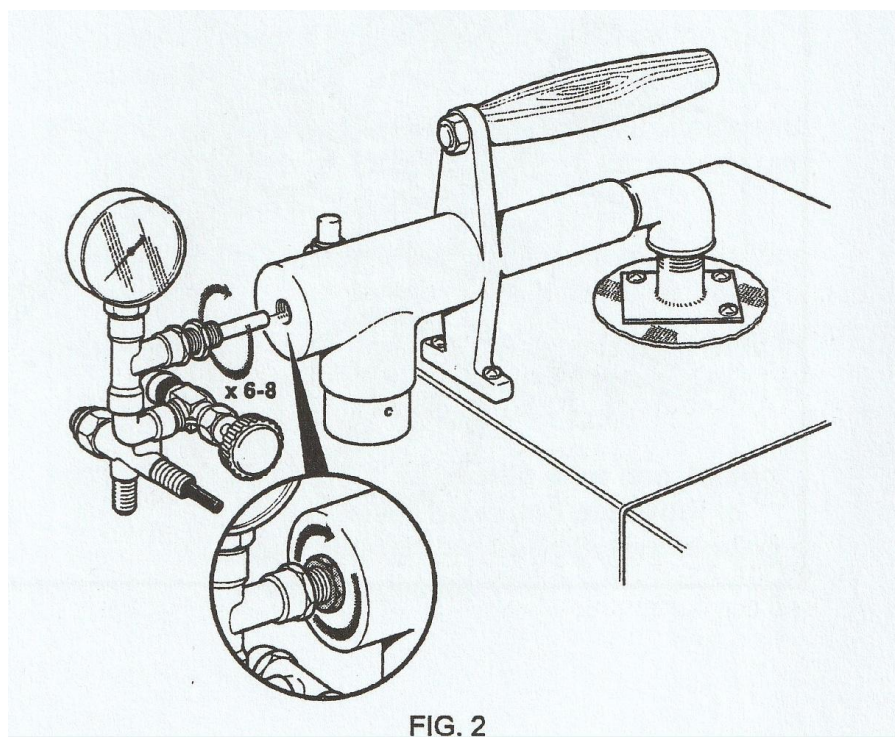
SECTION 2 ASSEMBLY INSTRUCTIONS

1. Secure venturi (28) and burner(s) (33) unit(s) by removing the self-tapping screws (8) from the top of the forge, position gasket(s) (7) and attach the unit to the forge with screws (Figure 1).

Please Note: This unit has been pre-adjusted so that no tightening is required. No leakage will occur from the joints even if they appear loose.



2. Screw gas tap (14) and jet assembly clockwise into venturi (28) between 6 - 8 turns. Secure with front locknut (25) when gas tap (14) is in the required position (Figure 2).

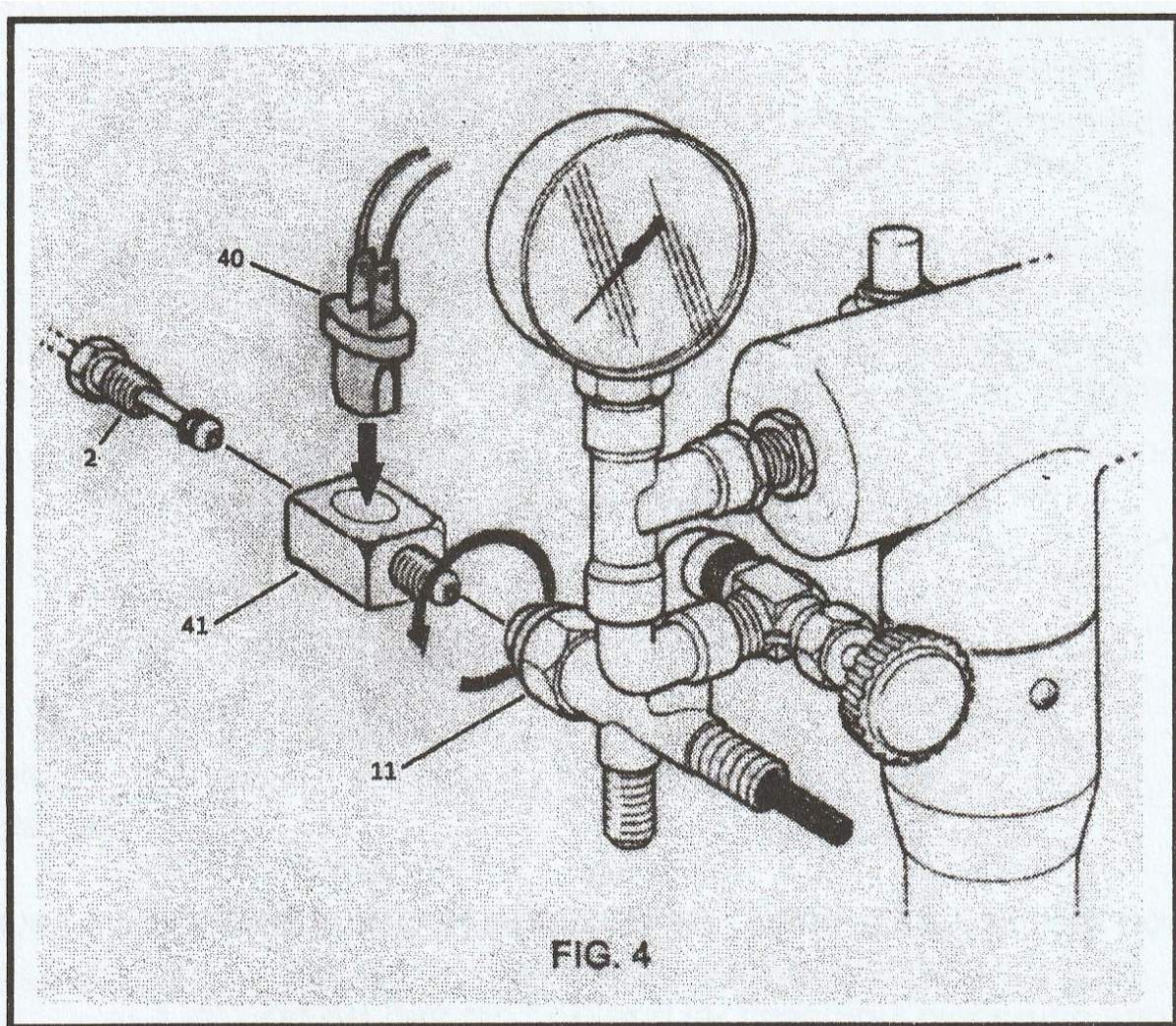


SECTION 2 continued

TO CONNECT COUPLING ON THE THERMOCOUPLE:

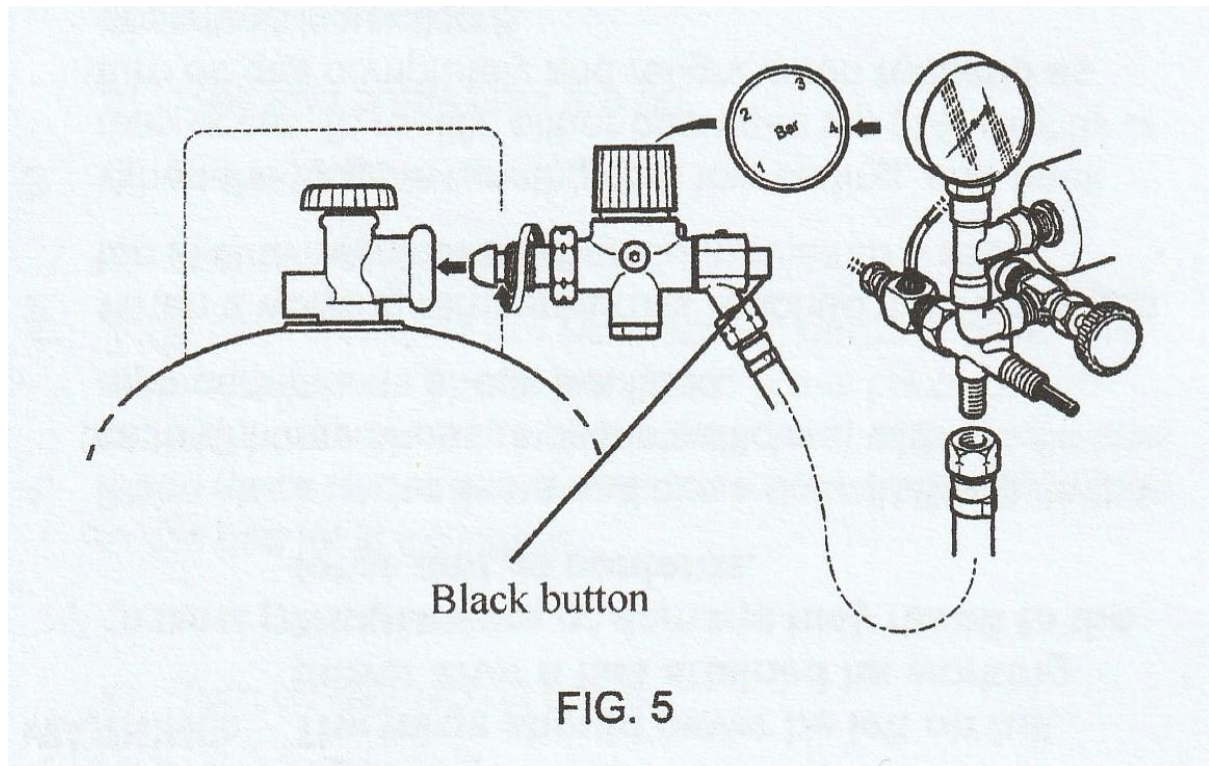
1. Finger tighten brass interrupter block (41) into The FFD flame failure device (11)
2. Insert ceramic plug or spade terminals (40) into Interrupter block (41)
3. Screw coupling of thermocouple (2) into interrupter block (41) and gently tighten With 8mm spanner.

(DO NOT OVERTIGHTEN)



SECTION 2 continued

4. Connect 4 bar flow limiting regulator (4) to a gas bottle. Connect hose swivel nut (9) to FFD (11). Open gas tap on bottle 1 Turn. Activate regulator (4) by pressing the black button (Figure 5).
5. Check hose swivel nut (9) joint and also regulator (4) joint to bottle for leaks with a little leak detection fluid.
6. Close tap on bottle.



SECTION 3 LIGHTING INSTRUCTIONS

TO LIGHT

1. Open tap on gas bottle, Max 1 Turn. Activate Regulator by pressing black button (4)
2. Open Pilot Gate and Door (if fitted). Open forge Gas Tap (14) ½ turn
3. Press and Hold FFD Button (11), press ignition button (12) (a second time if necessary)
4. When lit, close door and keep pressure on FFD button, until the thermocouple (2) voltage generated by heat, holds FFD valve open (+/- 15-30 seconds) Release, then adjust flame size to suit. If flame goes out, repeat step 3

WARNING Ensure flame is stable, quiet and light blue in colour.

DANGER If flame is noisy and lit on the wrong side of burner. Turn off and relight.

SECTION 4 OPERATING INSTRUCTIONS

WARNING: The forge should never be left on full power after it has attained its working temperature, if no new material is being added or damage may result to the forge and its contents.

1. Place stock under flame and close door (if fitted). In the case of horse shoes, a pair is sufficient, with replacements as shoes are fitted.
2. When a working temperature is reached, turn down gas tap (14) to save fuel.
3. When the forge is running on a low setting, pop-back may occur. To rectify, either open gas tap (14) or turn off gas completely and relight when more heat is required.
4. Due to the high insulation factor, this forge retains a working heat for a considerable length of time and consequently can be turned off, saving fuel. Relight when necessary.
5. The four bar pressure gauge has three functions:
 - a) With gas tap (14) open 1 turn, the pressure gauge will indicate pressure from the bottle, so a pressure drop indicates the gas is getting low.
 - b) Gas tap (14) controls flame size & gas flow.
 - c) If normally your forge gauge reads 2 bar at 1/4 turn on gas tap (14), but currently reads 3 or 4 bar at the same setting, this indicates a blocked jet (27) see Section 5, 2a - Fault Finding.

SECTION 5 FAULT FINDING

WARNING: If any of the screw joints on gas tap (14) assembly are disturbed they are to be reassembled with gas jointing compound and then tested for leakage. Jointing compound is not required on the hose swivel nut (9) to FFD (11) joint, they are self sealing.

Ignition Failure

1. Check:

- a) Fuel level in bottle.
- b) Gas and bottle taps are on.
- c) Regulator is activated.
- d) Gas tap (14) on forge is on (minimum 1 turn).

2. If the above checks are satisfactory, partially cover the air intake pipe (13) with hand and press piezo button (12) (this will enrich the gas/air mixture). If the forge now lights (but only when the mixture is enriched) a blockage in the gas jet is indicated.

To clear Blockage:

- a) Turn off gas tap on bottle.
- b) Undo swivel nut (9) and thermocouple (2).
- c) Slacken front locknut (25) and unscrew gas tap (14) assembly anti-clockwise until it is freed.
- d) Undo gas jet (27) and remove foreign particles from jet hole with gas nozzle cleaner.
- e) Re-assemble in reverse order.

3. If after enriching gas mixture, there is still no ignition, pull off spade terminal attached to spark plug (32), hold terminal 4mm from aluminium venturi (28) and press piezo button (12) repeatedly. A blue spark should be observed. If spark is evident, replace lead on spark plug (32)

4. Check spark visually through burner aperture with a mirror to ensure spark gap between end of electrode and wall of burner is approximately 2-3mm. If too close no spark will appear, and if too far away spark will leak elsewhere. If ceramic centre of spark plug (32) is loose, order a new spark plug (32).

5. If after removing spade terminal as described no spark is evident, check for damage to spark lead (31). If damage is evident order new spark lead (31). If spark lead is satisfactory remove spade terminal from piezo (12) whilst piezo is still in situ., press button repeatedly and a blue spark should jump from piezo terminal to housing. If there is no spark order a new piezo (12). To reconnect spade terminal to piezo it is essential to hold down the button. Not doing this will result in the piezo retracting whilst pushing spade terminal into position.

6. Failure to ignite in damp atmospheric conditions may be combated by lighting with a long taper under gas burner. The heat from the Portaforge will dry out the electrics and normal lighting procedure may be followed.

7. Under very windy conditions, ignition and flame stability might suffer, find a more sheltered area to resolve these problems.

8. If the forge gives symptoms of running out of gas i.e. underpowered flame and there is an adequate supply of fuel, a blocked gas jet is indicated. Clear as described previously.

9. If the regulator supplies gas momentarily or not at all, automatic flow limiter may be activated. To de-activate:

- a) Fully close gas tap on forge.
- b) Press button on regulator

When re-lighting ensure that the gas tap on the forge is only open ½ turn as more than this may cause flow limiter to activate. It may also activate during lighting if the hose is unpressurised due to the inrush of gas to fill hose. This can occur if the tap on the gas bottle was closed before the tap on the forge when it was last shut down.

Flame Failure Device (FFD)

10. As the gas supply runs low, ignition may become difficult, enrich gas mixture as described previously. The burner(s) are designed to exhaust the gas supply as much as possible, therefore the heating up time of the forge will increase, so patience or a fresh supply of gas are required.

11. If, after following the lighting procedure, the gas supply is cut off after releasing the FFD (11) button, check:

- a) There is no break in the thermocouple (2) copper tube.
- b) That the thermocouple (2) is not loose into the back of the flame failure device (FFD) (11). If the FFD will still not operate a faulty thermocouple or FFD is indicated. Order new parts as required.
- c) If FFD takes longer than 15-30 seconds to activate or forge cuts out when turned down low, check that the hole from the thermocouple housing (42) into the forge chamber is clear of debris. Remove thermocouple from slot in thermocouple housing and clear with a long narrow implement as required. Re-fit the thermocouple onto the housing and move down slot as far as possible before securing. When securing make sure the tip of the thermocouple is over the centre of the hole.

Stainless Steel Burner

12. If the flame is not stabilising or pop-back occurs, and cannot be remedied by turning the forge up, it is likely that the burner(s) (33) are worn or damaged. To check for this, remove venturi and burner(s) from the top of the forge. Firstly, check that the walls of the part of the burner that sits inside the forge are still parallel with the top of the burner. Then, see if the flame stabiliser in the burner aperture is still in situ., and that it is not twisted/ buckled or worn. If any wear is evident, replace burner(s).

SECTION 6 MAINTENANCE

1. Grease door hinges (if fitted) regularly by removing door and lubricating hinge pins.
2. To avoid heat seepage, it may be necessary to adjust the door latch (35) if fitted. Slacken off the two lower screws on the unit and reposition latch to ensure a perfect seal. Light lubrication of the door latch (35) is advisable.
3. Daily, remove any buildup of scale from the base tiles.
4. If flame is not normal, remove and clean gas jet (27) (see Section 5/2a - Fault Finding)

Caution: Welding flux can seriously damage the lining of the forge and it is strongly recommended that an old piece of base tile or metal be placed over the existing base as protection during fire welding.

SECTION 7 AFTER-SALES SERVICE

1. Replacement linings and parts are readily available from your agent or direct from ourselves. Please quote the number and description when ordering.
2. We also offer a full refurbishment service for all of our models.
 - A loan forge can be provided for the duration of the refurbishment.

SECTION 8 PRODUCT INFORMATION AND SAFETY FEATURES

The Swan Portaforge provides an efficient and economical source of heat.

It has been designed to run on Propane gas and incorporates a number of safety features as follows:

1. Flow Limiting Regulator

The regulator has a flow sensor which cuts off the supply of gas if the flow rate is excessive. This could occur, for example, if the gas hose fractured. It could also occur if the main gas valve is opened too quickly.

Determine the cause of activation before re-activating the valve in accordance with the instructions.

2. Flame Failure Sensor & Thermocouple

A flame failure sensor cuts off the gas supply after a short period, if for any reason the flame goes out. The forge can be re-lit in the normal way.

3. Heated thermocouple generates small electric current to hold open FFD. Weak or no current, worn out or bad connection – **It Will Not Work**

Thermal Sensor Cut Out – If venturi temperature rises above 100°C. Forge will switch off to prevent **Melt Down**, Reason flame on wrong side of burner.

WARNING: These devices have been installed to ensure safe operation and should not be removed or bypassed. In addition, when using the forge ensure that there is sufficient clearance for the exhaust flame.

SECTION 8 continued
Swan Portaforge Propane Flow rates

Jet size 40 Cygnnet single	pressure	cuft/h	cum/h	kg/h	btu/h	kw
	1.0 bar	9.05	0.256	0.464	22.636	6.63
	2.0 bar	12.32	0.349	0.631	30.793	9.03
	3.0 bar	14.75	0.418	0.756	36.867	10.81
	4.0 bar	16.76	0.475	0.859	41.890	14.10
Jet size 45 Std. single	pressure	cuft/h	cum/h	kg/h	btu/h	kw
	1.0 bar	10.12	0.286	0.519	25.308	7.41
	2.0 bar	13.77	0.390	0.705	34.428	10.09
	3.0 bar	16.49	0.467	0.845	41.219	12.08
	4.0 bar	18.73	0.531	0.960	46.835	14.64
Jet size 50 Euro single Euro twin Std. twin Cygnnet twin	pressure	cuft/h	cum/h	kg/h	btu/h	kw
	1.0 bar	11.19	0.317	0.574	27.981	8.20
	2.0 bar	15.23	0.431	0.780	38.064	11.16
	3.0 bar	18.23	0.516	0.934	45.572	13.36
	4.0 bar	20.71	0.587	1.062	51.781	15.18
Jet size 60 Competitor Single door	pressure	cuft/h	cum/h	kg/h	btu/h	kw
	1.0 bar	13.31	0.377	0.682	33.272	9.75
	2.0 bar	18.10	0.513	0.928	45.262	13.27
	3.0 bar	21.68	0.614	1.111	54.190	15.88
	4.0 bar	24.63	0.698	1.262	61.574	18.05

Swan Portaforge Propane Flow rates

Jet size 65 Competitor Twin door	pressure	cuft/h	cum/h	kg/h	btu/h	kw
	1.0 bar	14.36	0.407	0.736	35.901	10.52
	2.0 bar	19.54	0.553	1.001	48.838	14.31
	3.0 bar	23.39	0.662	1.199	58.472	17.14
	4.0 bar	26.58	0.753	1.362	66.438	19.47
Jet size 100 Mini-mother	pressure	cuft/h	cum/h	kg/h	btu/h	kw
	1.0 bar	21.62	0.612	1.108	54.055	15.48
	2.0 bar	29.41	0.833	1.508	73.535	21.55
	3.0 bar	35.22	0.997	1.805	88.040	25.80
	4.0 bar	40.01	1.133	2.051	100.035	29.32
Jet size 130 Mother	pressure	cuft/h	cum/h	kg/h	btu/h	kw
	1.0 bar	27.74	0.786	1.422	69.356	20.33
	2.0 bar	37.74	1.069	1.934	94.350	27.65
	3.0 bar	45.18	1.280	2.316	112.960	33.11
	4.0 bar	51.34	1.454	2.632	128.351	45.80

SECTION 9 GAS EQUIPMENT - SAFETY AND MAINTENANCE

Following discussions with the Health and Safety Executive we have been advised to make all Farriers aware of the following recommendations regarding the location of LPG cylinders in relation to Portable Gas Forges in vehicles:

- Only the minimum of LPG cylinders for satisfactory operation of the forge should be carried on a vehicle. The cylinders should be properly secured in position and should be separated from the passenger's compartment, so that any leakage from the cylinders cannot reach this area.
- Smoking should be prohibited inside the vehicle.
- The compartment where the cylinders are located should be ventilated at low level, direct to the outside.
- The forge should be operated in the open, (i.e. outside the vehicle) or, alternatively, it can be operated at the back of the vehicle, with a rear door (or doors), provided the door(s) is fully open and the forge is located in the position that it is as close to the opening as possible, consistent with safe operation.
- Adequate shields should be provided to ensure that LPG cylinders and the vehicle fuel tank are not heated by the exhaust flame from the forge. Flammable materials in the vehicle should be kept to a minimum, and adequately separated from the forge.
- A suitable dry powder fire extinguisher should be provided in the vehicle, in a readily accessible position.

Regular checks of all safety equipment is highly recommended as follows:

- **Flow Limiting Regulator** - check regulator is set at 4 bars. Follow correct procedure for shutting down forge: Turn off gas tap on forge, then gas valve on bottle. To relight turn on bottle, then forge. If regulator needs re-setting this indicates a gas leak and this should be located immediately using the soapy water method.
- **Flame Failure Device and Flame failure Sensor** -As these two components are in constant use replace when faulty. Check all joints for gas leaks using the leak detection fluid and always test for leaks after reconnection of gas bottle.

Full servicing of the complete unit by the manufacturer or agent is recommended at least every second year.



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