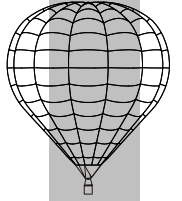


**Supplement 14 - VAPOUR PILOT VALVE OPTION FOR MK 21 BURNERS****Section 1****1.0 Introduction**

This supplement defines the maintenance and inspection requirements for the range of Ultramagic MK 21 burners when fitted with the optional Vapour Pilot Valve.

Sections 1 to 5 detail the maintenance procedures and the parts used. Section 6 details the annual / 100 hour inspection and test requirements.

The burner when fitted with the Vapour Pilot Valve Assembly uses many common components to the standard MK21 burner already detailed in the Maintenance Manual. Only those areas, which are different to those already detailed in the Maintenance Manual, are described in this supplement. All other limitations, instructions and safety information contained in the Maintenance Manual remain applicable.

The Airworthiness Limitations section is FAA approved and specifies maintenance required under §§43.16 and 91.403 of the Federal Aviation Regulations unless an alternative program has been FAA approved.

For US operations, only the items listed in 14 CFR Part 43, Appendix A may be accomplished as Preventative Maintenance items.

For U.S. operations, maintenance must be performed in accordance with the requirements of 14 CFR Part 43.3 Persons authorized to Perform Maintenance, Preventative Maintenance, Rebuilding, and Alterations.

**For US operations please refer to Unit Conversion Table (Supplement 10), whenever necessary.**

**1.1 Applicability**

The information contained in this supplement applies to the Ultramagic range of MK 21 burners, when fitted with the Vapour Pilot Valve Assembly, as defined by the following drawing numbers:

<i>Double Burner:</i>	2022/0000
<i>Triple Burner:</i>	2023/0000
<i>Quad Burner:</i>	2024/0000
<i>Vapour Pilot Valve Assembly:</i>	2022/2800

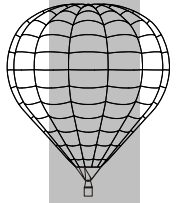
**1.2 Replacement Parts and Procedures**

See Maintenance Manual.

**1.3 Approved Maintenance and Inspection Personnel**

See Maintenance Manual.

**1.4 Welding and Welders**



See Maintenance Manual.

### 1.5 Maintenance Records

See Maintenance Manual.

### 1.6 Technical Support

See Maintenance Manual.

### 1.7 Safety

The following safety instructions are additional to those already contained in the Maintenance Manual:

- Before initiating any maintenance work on the burner, ensure that the burner is fully vented of fuel and that it is disconnected from any fuel supply.

## Section 2

### 2.0 Airworthiness Limitations

#### 2.1 Approval Statement

This supplement provides the maintenance information for the MK21 burner when fitted with the Vapour Pilot Valve Assembly, as required by EASA CS 31 HB.82 and FAR 31 section 31.82.

#### 2.2 Mandatory Replacement Time

See Maintenance Manual.

#### 2.3 Inspection Interval

See Maintenance Manual.

Additional inspection requirements for the Vapour Pilot Valve Assembly are defined in Section 6 of this Supplement.

## Section 3

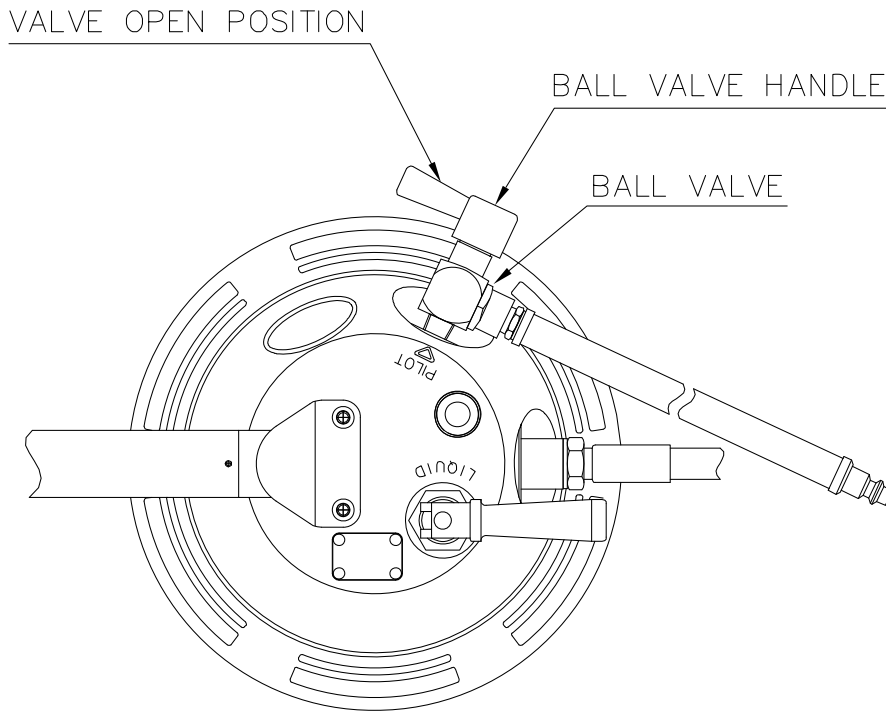
### 3.0 Technical Description

The Vapour Pilot Valve Assembly is an optional fit to the Mk 21 range of burners. When fitted, the valve completely replaces the standard Pilot Regulator Valve fitted in the side of the burner valve block. The valve controls the supply of vapour fuel, taken directly from the fuel cylinder, to the pilot light.

The valve consists of a machined body and a ball valve. The body is provided with "O" seals and these from the seal to the valve block in the same way as the standard Pilot Regulator Valve. The body is secured to the valve block using the same four fixings as used to secure the standard Pilot Regulator Valve. A fuel hose is

connected to the ball valve at one end and to the cylinder vapour regulator at the other. The flow of fuel is enabled or disabled by operating the ball valve.

The Vapour Pilot Valve may be seen in Figure 1.



VIEW ON UNDERSIDE OF BURNER

Figure 1  
Vapour Pilot Valve

## Section 4

### 4.0 Preventative Maintenance

#### 4.1 General

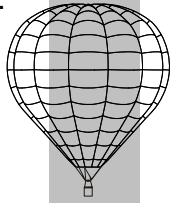
All preventative maintenance is as described for the MK 21 Burner in the Maintenance Manual with the following additions:

Check the strength of the pilot light flame. A weak or short flame is indicative of a partial blockage of the pilot light jet or of a blockage of the fuel outlet hole in the valve body. Check the pilot light jet as detailed in the Ultramagic Maintenance Manual. If this fails to improve the pilot light flame, remove the valve from the burner as described in Section 5.2 Clean inside the valve body and remove any solids or oily residue as described in Section 5.2.

## Section 5

### 5.0 Repair and Maintenance

#### 5.1 General



This section describes the procedures necessary to enable the removal, repair cleaning and replacement of the components used in the Vapour Pilot Valve Assembly.

Maintenance other than that detailed in Section 4, (Preventative Maintenance) and Section 6, (Annual / 100 Hour Inspection) should not be carried out unless it is clear that there is a fault or there is a noticeable deterioration in the performance of any part of the equipment functions.

Unless otherwise stated, maintenance specified in this section may only be carried out by Ultramagic or by a maintenance organisation approved by the airworthiness authority in the country of registration.

### 5.2 Vapour Pilot Valve Assembly

When fitted, the Vapour Pilot Valve Assembly is mounted in the side of the burner valve block and directly replaces the standard Pilot Regulator Valve. The Vapour Pilot Valve Assembly may be seen in Figure 2.

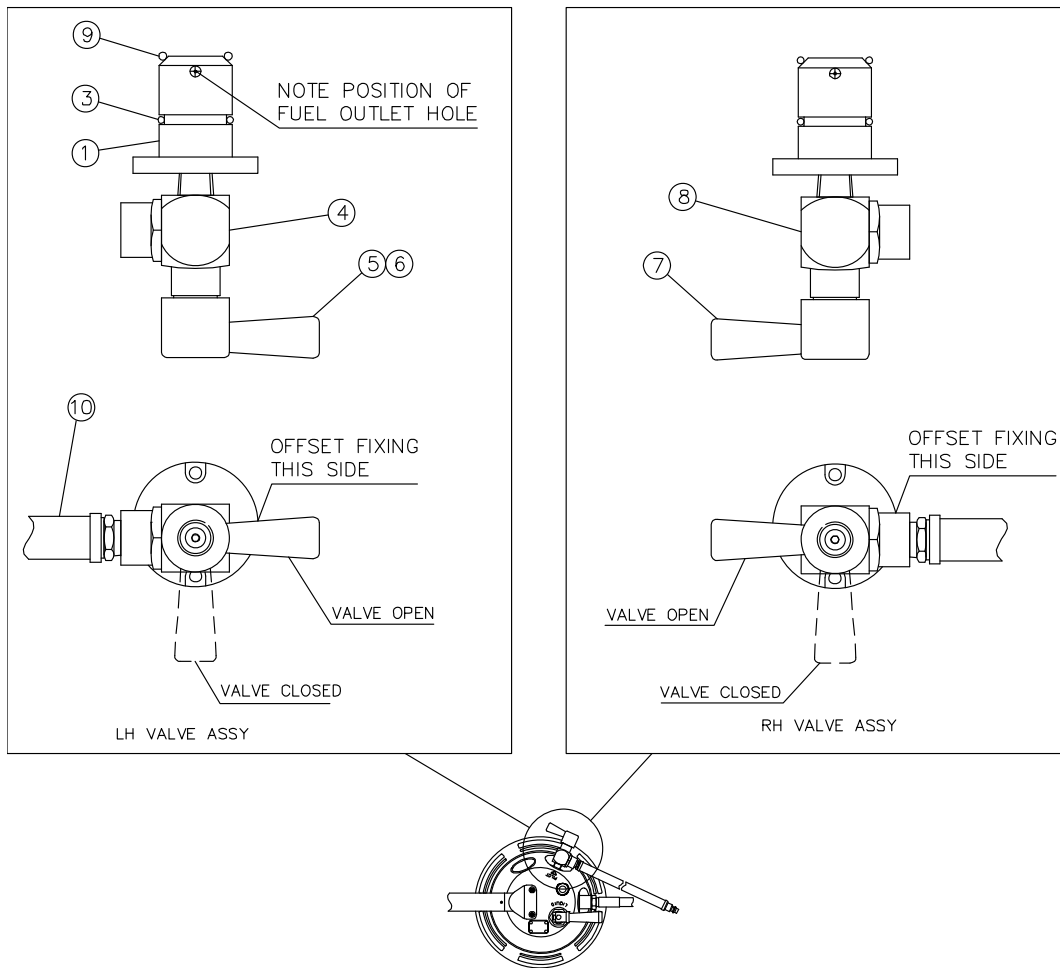
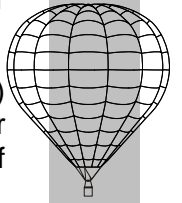
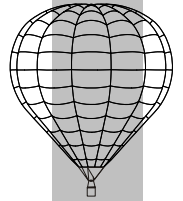


Figure 2  
Vapour Pilot Valve Assembly

ITEM	DESCRIPTION	DRG / PART NUMBER
1	VALVE BODY	2022-2810
2	-- RESERVED --	-- RESERVED --



3	22 ID X 2.5 THICK HIGH NITRILE "O" SEAL	MA-FE-0605
4	LEFT HAND BALL VALVE	CR-02-0285
5	LEFT HAND HANDLE ASSEMBLY	2025-0601
6	M4 X 20 ST STL HEX DRIVE, COUNTER SINK SCREW	CR-03-00300
7	RIGHT HAND HANDLE ASSEMBLY	2025-0701
8	RIGHT HAND BALL VALVE	CR-02-0275
9	21 ID X 3 THICK HIGH NITRILE "O" SEAL	MA-FE-0602
10	VAPOUR HOSE	HF-17

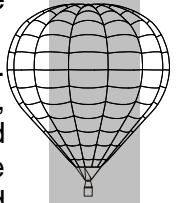


To remove and strip down the Vapour Pilot Valve Assembly, refer to Figure 2 and proceed as follows:

- Before commencing work, ensure that the burner is completely vented of fuel and that it is not connected to any fuel supply.
- Using a 14mm open-ended spanner, undo and remove the hose from the ball valve item 4 or 8.
- Using a 25mm open-ended spanner, undo and remove the ball valve (item 4 or 8) from the valve body (item 1).
- Using a 3mm Allen key, undo and remove the four fixings securing the valve body to the burner valve block.
- Withdraw the valve body from the valve block.
- Withdraw the "O" seal (item 9) from inside the valve block bore.
- Clean any solid particles or residue from inside the valve body using a soft cloth.
- Remove any oily deposits from inside the valve body using a soft cloth. A methanol solvent may be used to help remove the oil if necessary.
- Remove the "O" seal (item 3) from the valve body. Check the condition of the seal and replace if any defects are detected. Check the condition of the groove in the valve body where the seal is fitted. If any significant scratches are detected, then the valve body must be replaced. Scratches are considered significant if they are such that they can be felt with a fingernail.
- Check the condition of the "O" seal (item 9) and replace if any defects are detected.
- Check the condition of the bore in the burner valve block. The bore should be smooth and free from defects such as scratches. If any significant scratches are detected, contact Ultramagic for further advice.
- Replacement is generally the reverse procedure to disassembly. Prior to fitting the "O" seals, apply a thin smear of Molycote 111 silicon grease to the seal, the groove in the valve body and to the inside of the bore.
- Note the position of the fuel outlet hole and make sure it is positioned uppermost.
- Prior to replacing the four fixings securing the valve body to the burner valve block, apply Loctite 222 to the screw threads. Fit the valve body inside the valve block before fitting the ball valve.
- Prior to replacing the ball valve in the valve body, remove the PTFE tape from the ball valve thread and replace with new PTFE tape, using a minimum of three turns over all the thread.
- Prior to replacing the hose, remove all PTFE tape from the hose end fitting and replace with new PTFE tape, using a minimum of three turns over all of the thread. Ensure that the valve is correctly orientated so that the handle may be rotated to turn the valve on or off.
- Upon completion of re-assembly, connect the burner to a 6.8 bar (100 psi) compressed air supply. Using leak-detecting fluid, check that there are no leaks from the joint between the valve body and the valve block. If any leaks are detected, the valve body must be removed and the problem rectified before further burner use.
- With the compressed air supply still connected, make sure that there is no air coming out of the pilot light when the ball valve is in the "Off" position. If any air is

detected, then it is likely that there is a problem with the “O” seal (item 9). The problem must be resolved before further burner use.

- Connect the vapour hose to a 2 bar compressed air supply. Open the ball valve. Using leak-detecting fluid, check the joint between the hose and the ball valve, and the joint between the ball valve and the valve body. Close the ball valve and re-check all joints. If any leaks are detected, the problem must be resolved before further burner use. Check that the flow of air to the pilot light is stopped immediately after the ball valve has been closed.



## Section 6

### 6.0 Annual / 100 Hour Inspection Requirements

#### 6.1 General

The burner must be subjected to an inspection by an inspector approved by the national airworthiness authority in the state of registration. The inspection must be carried out every 12 months or 100 hours use, whichever is the sooner.

The inspection requirements detailed below are additional to those already specified in the Maintenance Manual.

#### 6.2 Inspection Requirements

Carry out all functional tests as specified in the Maintenance Manual. In addition, check the following:

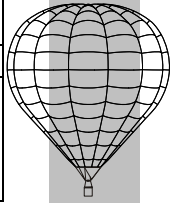
- Check the condition of the vapour hose. If the hose shows signs of significant wear, is kinked or has been damaged, then the hose must be replaced.
- Check the condition of the male fitting on the end of the vapour hose. If the fitting shows signs of significant damage, then the hose must be replaced.
- Pressure test the joints between the vapour hose and the ball valve, the ball valve and valve body and the valve body and burner valve block.
- Check the valve function. Ensure that the valve correctly enables and disables the flow of fuel to the pilot light and that the pilot light response is immediate.

## Section 7

### 7.0 Troubleshooting

Symptom	Possible Cause	Corrective Action
Pilot light fails to ignite.	Cylinder valve closed.	Open cylinder valve
	Ball valve closed.	Open ball valve.
	Hose not correctly connected to cylinder vapour regulator connector.	Make sure hose fully connected.
	Vapour regulator on cylinder setting too low.	Adjust vapour regulator setting.
	Fuel outlet hole in valve body blocked.	Clean fuel outlet hole
	Pilot light jet blocked.	Clean pilot light jet (see Maintenance Manual).
	Piezo igniter failure.	Adjust tag or replace the

		igniter (see Maintenance Manual).
Pilot light fails to extinguish.	Ball valve not fully closed.	Fully close ball valve.
	Failure of seal between valve body and burner valve block.	Replace seal. Check for contamination between seal and valve block bore.



## APPENDIX I

### Vapour Pilot Valve

Annual / 100 Hour Burner Inspection Checklist

Requirement	Reference	Okay	Comments
Vapour Hose Condition	6.2		
Hose End Fitting Condition	6.2		
Pressure Test	6.2		
Valve Function	6.2		