GAA

GasApps Australia P/L

# Spacecontroller MKIII

# Manual

# Contents

# General Description

The MKIII Spacecontroller is suitable for the dispensing of BOC Gases Envirosols products. These products include Insectigas, Pestigas, Deodourgas, and Bactigas. Other dispensing systems i.e. the Solitaire system c/w solenoid valves can be used to dispense Pestigas, Deodourgas, and Bactigas in certain cases, however the MKIII Spacecontroller is the only BOC Gases approved dispensing equipment for use with Insectigas. Although limited approval is given to the use of solenoid valves for the automatic dispensing of Envirosols other than Insectigas, it is essential that only approved solenoid valves and timers are used.


**Figure 1**

MKIII Spacecontroller Control Box

The Space Controller system remains the only FAIL SAFE system available for automatic dispensing of Envirosols. This system achieves this be preventing direct connection of the spray system to the supply cylinders and completely eliminates the use of solenoid valves. In addition, the system makes use of a digital timer, which has a reserve period of 100 hours. If switched off for longer than l00 hours, the timer loses its program and, if switched on again, will not function until reprogrammed.

This System is mandatory for all automatic spraying of Insectigas. This System is mandatory for Pestigas dispensing if the number of supply cylinders on line exceeds one.

The features included in this system are as follows.

- Simple 7 Day time clock

- Provides a completely flexible system, which can be programmed to spray on daily or weekly basis.
- 12VDC electric control box capable of operating two remote external Actuator/Valve Assembly

**Figure 2**

Actuator/Valve

**Figure 3**

Manifold Assembly

- Independently adjustable pre-warning and dose timers
- An audible alarm will sound for the full duration of the dose cylinder filling period, and will provide a warning that the system is about to spray
- The external strobe lamp(s) will activate for the full duration of the Cycle Time
- Cycle counter
- Manifold capacity of 6 cylinders

# General Specifications

**Control Box (# 737055)**

| | |
|---|---|
| General Dimensions | :310mm wide x 255mm high x 150mm deep |
| Weight | : 3.6 Kg. |
| Power Requirements | : 240VAC x Single Phase c/w Earth. 10AMP |
| Connections | : 3 core flex 0.75mm square x 2m Long c/w 240 VAC Plugtop |
| Protection | : IP56 |
| Main Time Clock | : 7 Day Electronic c/w 100 hr battery backup |
| Pre-Warning Timer | : Electronic, Range 0 – 60 min, (Usually Set @ 30min) |
| Dose Timer | : Electronic, Range 1 – 10 min |
| Counter | : Electronic 7 Digit, 12VDC |
| Strobe Lamp Output | : 12VDC, 1AMP Max |
| Dosing Internal Siren | : Electronic, Two-Tone, 94dB |
| Internal Power Supply | : 12VAC x 4.0AMP |

**Actuator/Valve (# 737040)**

| | |
|---|---|
| General Dimensions | : 230mm wide x 70mm high x 70mm deep |
| Weight | : 1.4 Kg. |
| Power | : 12VDC c/w internal electric brake |
| Power Connection | : 3 core flex 0.75mm square x 2m Long c/w special plugtop |
| Protection | : IP56 |
| Outer Motor Housing | : Machined Aluminium |
| Valve | : 3 Way Low Temperature Brass Ball Valve, ¼" Swagelok |

**Manifold Assembly**

| | |
|---|---|
| Manifold Hex Block | : 6 Port (¼" BSP) Hexagon Brass Block (# 736459) |
| Service Valve | : Brass Needle Valve 1/4" Male NPT (# 737078) |
| Mounting Bracket | : Steel ¼" Painted (# 737049) |
| Filter Element | : 90 micron Stainless Steel Sintered (# 736460) |
| Retaining Spring | : Stainless Steel compression type (# 736461) |

# Installation Instructions

**Important:**
It is essential that all Envirosol installations are carried out by BOC approved installers.

**Mounting the Spacecontroller On Customer Premises**
The Spacecontroller is a weatherproof system, however it is recommended that the system be installed undercover and in a well ventilated security enclosure.
Spacecontrollers installed indoors must be located in a well-ventilated area and the supply cylinders should not be located inside rooms where people work or congregate. Small enclosed areas must be avoided to prevent a build up of an inert atmosphere due to carbon dioxide build up should a leak exist.
All Envirosols supply cylinders and dose cylinders must be located out of direct sunlight and away from other sources of heat to ensure that the temperature of equipment and cylinders does not rise above 45$^{o}$C, otherwise, design pressure of equipment will be exceeded.
The Spacecontroller control box should be mounted in a vertically upright position about shoulder height using the four mounting holes provided in the back of the enclosure. The mounting-hole centres are 220mm wide x 160mm high x 4 mm diameter bolts.
The Manifold Assembly, Actuator/Valve, and Dose Cylinder should me located as close as possible to the supply cylinder(s) and wall mounted as per the Drawing 1.

**Power Supply**
The Spacecontroller system is supplied with a 10 AMP 240V power lead and plug-top. This will need to be plugged into a 220-240VAC 10AMP, 50-60 Hz power-outlet socket. All Actuator/Valve assemblies will need to be plugged into the Control Box using the supplied leads and plugs. These connections are 12VDC.

**Strobe Lamps**
External strobe lamp(s) should also be connected to the Red and Black connection posts on the bottom of the control box. This is a 12VDC output and is capable of supplying 1 AMP. The external strobe lamp(s) will activate for the full duration of the Cycle Time i.e. Pre-warning time (usually ½ hr), Dose fill time (adjustable 1 – 10 min), and Post-warning time (usually 4 hrs) in total approximately 4 ½ hours.

**Pipe Layout and Connection**
¼" aluminium tube (6.35OD x 1.2 Wall) should be used to connect the cylinders and nozzles to the ball valve. It is essential that all pipe-work is connected and supported correctly as per Drawing 1. All pipe-work should be blown out with liquid C02 to remove any loose material prior to final connection so as to avoid the blocking of nozzles and valves. The right hand port of the ball valve is connected to the inlet manifold, which is connected by flexible hoses to the supply cylinders. The centre-common-port is connected to an inverted dose cylinder sized to provide the correct dose of liquid Envirosol for the spray application. The left hand port of the ball valve is then connected to the pipe-work, which supplies the spray nozzle(s). For further details see Pic. 1, (Valve Actuator Assembly Port Configuration)

**Connecting of Aluminium Tube to Compression Fittings**
Attention should be taken when connecting the aluminium tube to all compression fittings. See fig. 1 below. The fitter should ensure that the tube is inserted into the assembly fitting until it bottoms against the shoulder of the fitting.

The nut should then be tightened by hand and with the use of a correct sized spanner tightened clockwise a further 1-1/4 turns. After completion all fittings should be leak tested with soapy water. Care should be taken around electrical components.

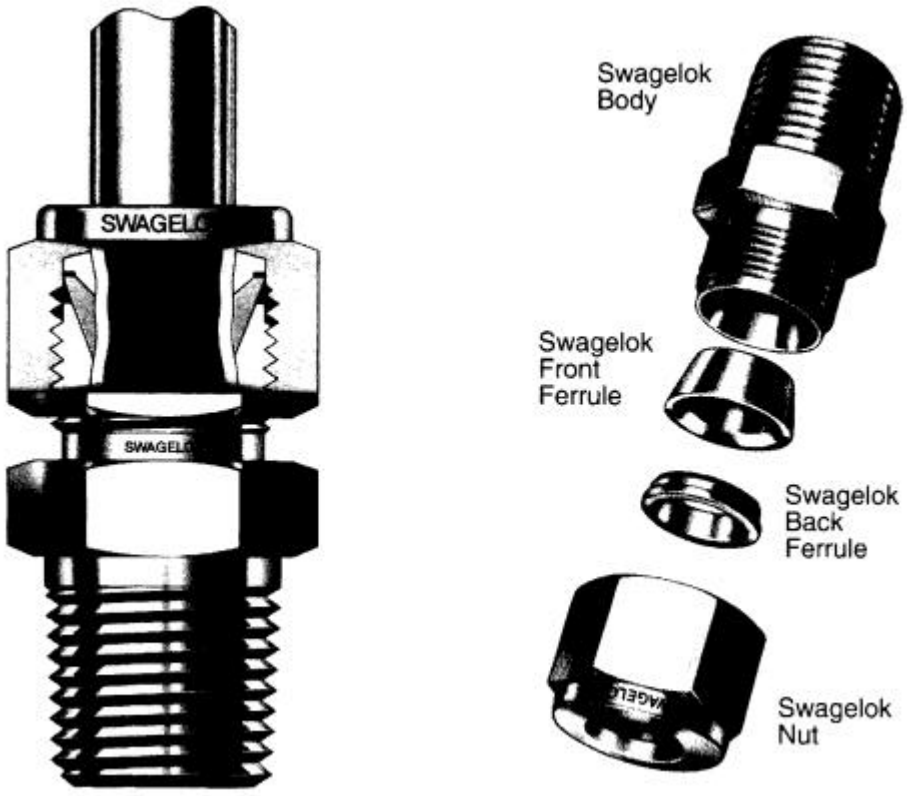



**Figure 3**

**Pipe Threads and Sealing**

Due to the large number of imported valves and fittings using NPT threads, all Spacecontroller threads are NPT, and as far as possible all other pipe threads used for Envirosol systems should be NPT. Locktite 569 or Teflon tape should be used for sealing of all tapered pipe threads.

**Precautions Against Over tightening of Dose Cylinder Neck Fitting**

When fitting adaptors to cylinder necks, a torque wrench must be used to apply the correct torque, which is as follows:

Stainless Steel Cylinders with 1/4" N.P.T. Neck Thread: The minimum and target torque is 47 Nm (35 Ib ft) and maximum allowable torque is 54 Nm (40 Ib ft)

Aluminium Cylinders -Tapered Thread: The minimum and target torque is 115 Nm (85 Ib ft) and maximum allowable torque is 135 Nm (loo Ib ft)

Aluminium Cylinders -Parallel Thread; The minimum and target torque is 85 Nm (63 Ib ft) and maximum allowable torque is loo Nm (74 Ib ft)

Rubber vice jaws should be used to grip the cylinder and avoid surface damage. P.T.F.E. tape should be used as the thread sealing material.

**Hoses**

High pressure S'Steel Braided/Teflon Hoses (# 730006 or # 736588) should be used to connect supply cylinders to the Manifold Assembly.

**Method Of Determining Dose Cylinder Size**

Listed below is a table of dose cylinders used in Spacecontrollers. The method of obtaining the dose is included.

In addition to this table, repeat spraying to provide the required dose can be used. A Spacecontroller can be programmed to spray two or three times in quick succession and the interval between spraying is dependent on dose size.

A 1 kg dose can be repeated 15 minutes after the initial spray but 40 minutes should be the minimum interval between the first and second spray of a 20 kg dose. This period is necessary to allow the temperature of the dose cylinder to return to ambient.

In the table below, the period required to fill the dose cylinders on the Spacecontrollers fitted with C and D cylinders has been extended to about the same period as for the E and G cylinders. This has been done by fitting a restrictor at the manifold of Control Module used with C and D cylinders.

As shown in the table below, varying fill time will vary the dose quantity for cylinders, which take two minutes or more to fill. If reduced doses are required when a C or D cylinder is fitted, a restrictor part no.736648 should be inserted in the Stainless Steel tube, which connects between the ball valve and manifold.

| Size of Dose | Cylinder | Dose Period Kg Minutes |
|---|---|---|
| 0.035 | 75cc Whitey Stainless Steel | 1 |
| 0.070 | 150cc Whitey Stainless Steel | 1 |
| 0.140 | 300cc Whitey Stainless Steel | 1 |
| 0.230 | 500cc Whitey Stainless Steel | 1 |
| 0.300 | Luxfer A Aluminium Cylinder | 1 |
| 0.800 | 1.75kg W.C. Aluminium Cylinder | 1 |
| 1.000 | C Aluminium Cylinder | 1 With Restrictor |
| 1.4 | C Aluminium Cylinder | 3 With Restrictor<br>1 Without Restrictor |
| 1.3 | D Aluminium Cylinder | 1 With Restrictor |
| 2.5 | D Aluminium Cylinder | 2 With Restrictor |
| 3.6 | D Aluminium Cylinder | 3 With Restrictor<br>1 Without Restrictor |
| 4.2 | D Aluminium Cylinder | 4 With Restrictor |
| 4.6 | D Aluminium Cylinder | 5 With Restrictor<br>2 Without Restrictor |

| | | |
|---|---|---|
| 4.0 | E Aluminium Cylinder | 1 With Restrictor |
| 7.0 | E Aluminium Cylinder | 1 With Restrictor |
| 9.2 | E Aluminium Cylinder | 4 With Restrictor |
| 9.9 | E Aluminium Cylinder | 4 With Restrictor |
| 10.0 | E Aluminium Cylinder | 5 With Restrictor |
| 6.0 | G Aluminium Cylinder | 1 With Restrictor |
| 10.0 | G Aluminium Cylinder | 2 With Restrictor |
| 13.5 | G Aluminium Cylinder | 3 With Restrictor |
| 17.5 | G Aluminium Cylinder | 5 With Restrictor |
| 20.0 | G Aluminium Cylinder | 8 With Restrictor |

**Materials**

Brass is satisfactory for fittings and valves installed where atmospheric moisture is excluded from these components. Copper should not be used in fittings, valves and other components in contact with Envirosols due to its incompatibility with Insectigas and Pestigas. Stainless steel grades 316 and 304 are satisfactory for components in contact with all of the Envirosols but the presence of atmospheric moisture, with Insectigas, can cause pitting of the stainless steel.

The following materials absorb D.D.V.P. and swell to 125% of original dimensions when in contact with Insectigas: Viton, Buna N, Nitrile Rubber, EPDM Neoprene. “O” rings of these materials are only satisfactory for use with Insectigas if used in static situations. The above materials are satisfactory for Pestigas or Deodourgas environments.

P.T.F.E. and Kel-F are the only sealing materials, which are satisfactory for all of the Envirosols

# Spacecontroller System

The heart of the Spacecontroller System is a three way ball valve coupled to an electric actuator, (which is controlled by a series of timers within a Control Box) which turns the ball valve through 180° at a time. One port of the ball valve is connected to the inlet manifold, which is connected by flexible hoses to the supply cylinders. The centre-common-port is connected to an inverted dose cylinder sized to provide the correct dose of liquid Envirosol for the spray application. The third port of the ball valve is connected to the pipe-work, which feeds the spray nozzle(s) in the spray system. The electric actuator positions the ball valve so that it is in either one of two positions.

The normal position of the ball valve is such that the dose cylinder is open to the spray nozzle(s). This is referred to as the 'home position'.

When a dose of Envirosol is to be sprayed, the actuator moves the ball valve spindle to the opposite position, which allows Envirosol to decant from the supply cylinders into the inverted dose cylinder. The Dosing time can be varied (adjustable 1 – 10 minutes) via the Dose Timer. On completion of the dose time, the Actuator/Valve is rotated 180° back to the spray (home) position, which releases the Envirosol into the spray delivery line and then through the nozzles.

The charge accepted by the dose cylinder during filling will comprise approximately half the cylinder volume in liquid Envirosol and the upper half will comprise compressed carbon dioxide gas. Smaller charges of liquid can be achieved by reducing the dosing period and or by inserting a restrictor (#736648) into the line between the valve and the manifold.

When the contents are released to the spray system, the liquid will be sprayed first, followed by nearly pure gaseous carbon dioxide, which serves to purge the spray lines and nozzles of separated chemical. The weight of the carbon dioxide gas purge is approximately 15% of the dose and is in addition to the dose.

The electric actuator is controlled by a digital time clock, which is programmed to fill and spray at the times selected. The most important advantage inherent is this system is that it is impossible for discharge of the total contents of the supply cylinders to take place through the spray system. This system can provide doses ranging from a few grams at very frequent intervals to 20 kg at daily or weekly intervals. If more than 20 kg is required, double dosing is available.

# Commissioning Of New Installation

**Nozzle Delivery Leak Testing**

This involves the spray delivery line only, therefore the pipe and left hand fitting on the Actuator/Valve will need to be disconnected, then connected to a Co2 cylinder. Blank plugs should be temporarily fitted in place of the spray nozzles, the system should be pressure tested using CO2. All associated fittings and connections should be checked for leaks with soapy water. This is necessary to eliminate all gas leaks. Following satisfactory testing, depressurise pipe work and replace plugs with spray nozzles. Before removing the plugs insure that there is no pressure trapped within the system. Check that no blockage is present in any of the nozzles, and re-connect the spray delivery line to the correct port on the Actuator/Valve. (Refer to Pic. 1 in drawings)

**Connect And Leak Test Supply Cylinders**

Connect a liquid withdrawal C02 cylinder to the Needle Valve on the bottom of the hex manifold, (using a high pressure hose, #730006 or #736588). Connect up the required number of supply cylinders and plug off the remaining unused ports with brass plugs. Do NOT open any cylinder valves (supply or CO2).

Check that the ball valve is in the spray position before turning on any the CO2 cylinder, this is indicated by the letter 'S' on the valve coupling. All pipe-work must be connected to the Actuator/Valve correctly as per Pic 1. and Drawing 1. included in this manual. Now turn on the CO2 cylinder to pressurise the system up to the supply port of the Actuator/Valve and check for leaks.

**Leak Test Actuator/Valve And Dose Cylinders**

Connect the 'Control Box' to a 240VAC power point, and check that the red neon lamp on the left hand side of Control Box is illuminated. Switch on the Spacecontroller circuit breaker. Adjust the "Pre-Warning Timer" wheel to the first mark (approx 2 minutes) on the indicator dial. Adjust the "Dose Timer" wheel to the first mark (approx 0.4 minutes) on the indicator dial. Ensure that the 12VDC lead from the Actuator/Valve(s) is properly plugged into the control box.

Now program the "Weekly Timer" clock to start a dummy the cycle, leaving about 5 minutes between the "ON" and "OFF" switching.

This will start the pre-warning timer. After 2 minutes the valve will move to the Dose position, and will stay in this position for 0.4 minutes. At this stage the Actuator/Valve to Dose Cylinders line is pressurised and can be leak tested with soapy water. The Actuator/Valve will then move to the spray position and discharge the contents of the dose cylinder. The spray position can also be treated as an OFF or Home position.

The external warning lamp(s) should operate throughout the entire cycle of 5 minutes.

When testing has been completed the Co2 should be turned off. To ensure that liquid Co2 is not trapped in the lines between the cylinder and Actuator/Valve assembly, it may be necessary to run the system through a cycle with the Co2 cylinder off, ensuring that the lines are depressurized.

# Programming and Setting of Timers

**Introduction**
It is important that whoever sets up and programmes the time clock thoroughly understands the programming and time setting. This time clock is a 24-hour clock, a common mistake is to set 2.00pm as 2.00 rather than 14.00 either when setting the time or the programmed events. **Always depress the Res. button before entering any new program**
The best method of ensuring correct programming is to first write out the filling and spraying times on a paper list and then programme the time clock to agree with the written times. The paper list should then be attached to the inside of the door or cover of the Spacecontroller to facilitate periodic checking of the programme.

**Special Features Of Time Clock**
Reserve: The reserve period is 3 years after the time clock has been in service for 70 hours continuously to charge internal battery. This means that the time clock will hold time and memory for up to 3 years after power is turned off but the Space Controller unit will not function.

**Setting Clock Time**
Press the clock button twice (or until the time and day bar ONLY) is displayed. Then Repeatedly press the "Day" button until the appropriate day of the week is indicated on the display. Press the "h" and "m" buttons until the correct hours and minutes are shown. Please note that this is a 24hour clock. For more details on setting up the time clock see the "Grasslin Time Clock Quick-Setup Instruction" attached.

**Programming Switching Times**
The seven-day single channel timer is capable of storing twenty different programme times, i.e. 10 ON switches and 10 OFF switches. These programmes can be set to run on any individual day or any combinations of days within each week. The time clock includes the following front panel buttons Time, Program, Manual, Day, Hour, Min, Clear, +1h, and Reset. The LCD display shows 12 or 24hr Time, Day/Number of the week, Switch status ie. ON or OFF, Automatic, Manual and FIX Modes

**Always clear existing programs before entering any new program**. All previous programmes should be deleted to avoid any confusion between old and new programs. To clear all existing switching commands, press tee "Prog" key as often as necessary until "FRxx" appears. Then press the "Clear" key once. "CL" is displayed. Now press and hold down the "Clear" key. All memory locations are now deleted. The display should show "Fr20" indicating all 20 memory locations are available.

**Always turn OFF all gas cylinders before attempting to set or adjust the weekly time clock.** It's important to insure that the program is running correctly before gas is turned ON.

The **Red Power Lamp** indicates when the unit is plugged into mains 240VAC power. A 6 AMP circuit breaker is also included and can be used as an ON/OFF switch

**Checking of Switching Times**
It is important to check the programmed switching times are entered correctly; this can be done by stepping through the program using the "Prog." button.

**Alteration of Switching Times**
Again, the "Prog." button allows you to step through each of the 20 programs. The details can be modified or deleted at any of the selected programs. The two variables are (1) The entered switching time, (2) Day selection. The Time Clock Button should be depressed to enter the new program and display the current time of the day.

**Pre-Warning Timer**
This timer allows the operator to adjust (0 – 60 minutes) the amount of time that the Flashing lamp operates prior to commencing the dosing stage of the cycle. Once the dosing procedure commences the Audio Alarm will sound and the Actuator/Valve will rotate to the Dose position. The Flashing lamp will continue to operate for the full duration of the 'cycle time', which is governed by the Weekly Timer.

**Dose Timer**
This allows the operator to adjust the Dose Time period between 0-30 Minutes, which is useful when part filling of the Dose Cylinder is required.

**Counter**
An electro-mechanical counter will count each valve cycle. One count, represents one full cycle i.e. valve move to dose fill position and back to spray position. The counter can also be used to check that programmed sprayings have occurred and can assist in planning changeover of supply cylinders and servicing.

**Circuit Failure Safety**
In the case of circuit failure, the integrated circuit failure safety guarantees that the time, automatic switching programming and the display will continue to function. Furthermore, all programming operations can be carried out. The circuit failure safety is, however, fully operational only if the instrument has been operating previously for at least 70 hours on mains voltage.

**Power Failures**
This system includes an internal trip relay complete with Trip Lamp and Reset Button. If the unit encounters a power failure the internal relay will trip and the unit will shut down. During the entire period of a power failure the unit will not function and when power is resumed the Trip Lamp will illuminate. Pressing the Reset Button will reset the system.

**Reset Button**
**Always depress the reset button before entering any new program**. All previous programmes should be deleted to avoid any confusion between old and new programs. Both clock and program settings are erased when the Reset Button is depressed

# Safety & Housekeeping

**Housekeeping**

Your Spacecontroller was thoroughly pressure tested to check operation and ensure leak free joints at the time of assembly. Your BOC serviceman will be on the lookout for indications of faults during his regular visits. However, should faults develop between visits, please advise BOC as soon as possible. If there is the appearance of wet chemical at any joints this should not be allowed to contact the skin. If a leak occurs at any of the tube fittings on the Spacecontroller, shut off cylinder valves to isolate system and call BOC.

For safety reasons, clear access to the Space Controller must always be maintained. The immediate area for a minimum radius of one metre from the Spacecontroller should be kept clear.

The immediate area for a minimum radius of two metres should be kept free from open food container storage.

Open food containers should not be stored directly below the spray nozzles of your spray system.

**Additional Safety Requirements for Insectigas Installation**

1. All entrances to the area should be labelled with a warning label WDT 290. This warns of the existence of the system and states the operating times.
2. A Safety Information Card DB ~56 must be located in a prominent position near the Spacecontroller.
3. Written notification with a copy to the customer must be made to the local fire brigade advising them of the premises, location and time of spraying of the automatic system.
4. Written notification with a copy to the customer must be made to the customers' security company advising of location and time of spraying. Examples of these documents are shown.

NOTE: Warning Label WDT290 and Safety Information Card are available from BOC Gases

**Obligations of the customer are as follows:**

For safety reasons, clear access to the Spacecontroller must always be maintained.

The immediate area for a minimum radius of one metre from the Space Controller should be kept clear, especially of combustible materials.

The immediate radius for a minimum radius of two metres should be kept free from open food container storage.

Open food containers should not be stored directly below the spray nozzles of the spray system.

**Warning Signs**

Warning signs are available for placement at points of entry to areas being sprayed. These are mainly for use when spraying Insectigas but can be supplied for Pestigas situations.

# WARNING

## AN INSTALLED INSECTICIDE SPRAY SYSTEM IN THIS AREA IS SET TO SPRAY AT -

| DAY | MON | TUS | WED | THUR | FRI | SAT | SUN |
|---|---|---|---|---|---|---|---|
| TIME | AM-PM | AM-PM | AM-PM | AM-PM | AM-PM | AM-PM | AM-PM |

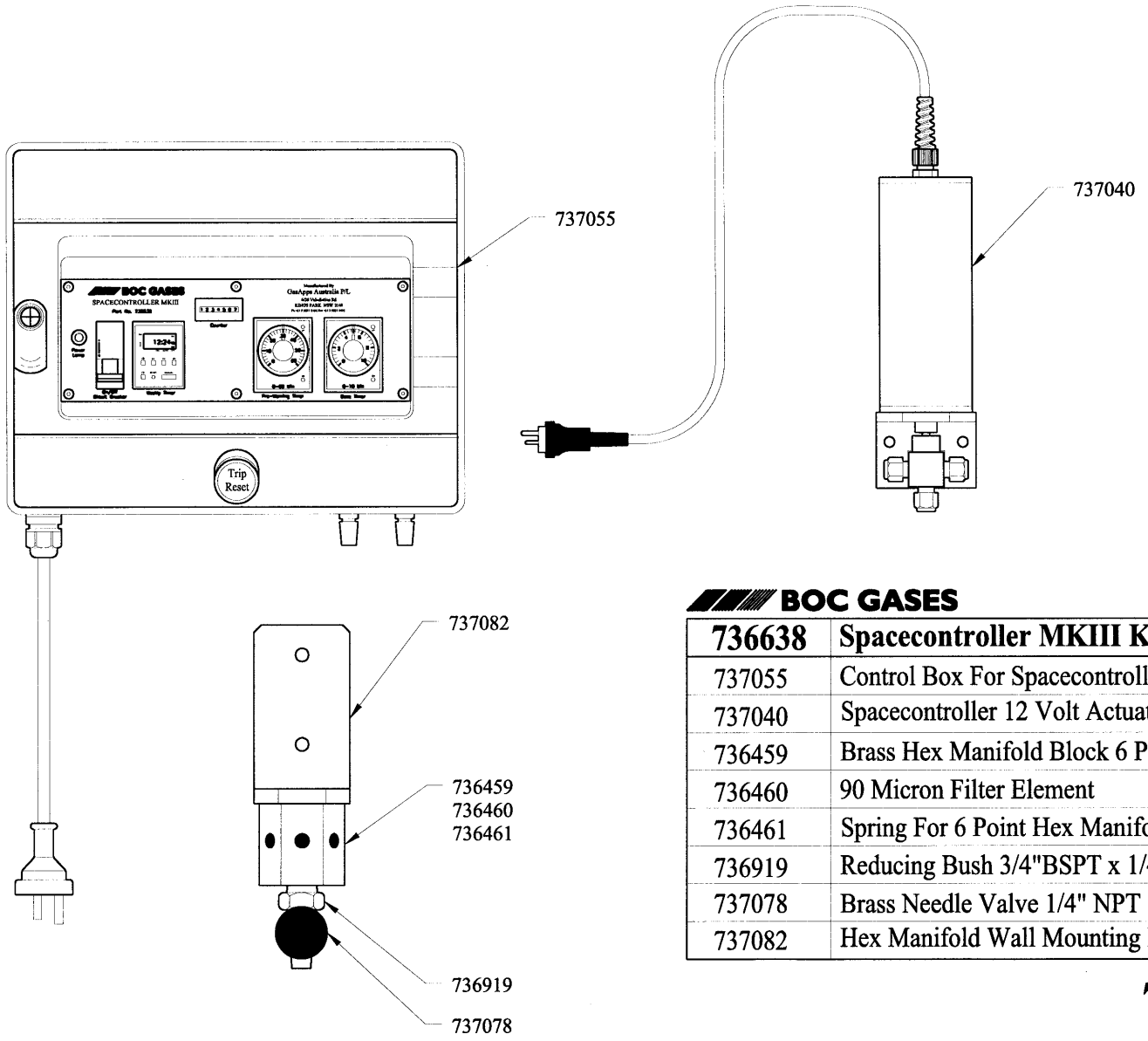
## SHORTLY BEFORE SPRAYING COMMENCES, AN ELECTRONIC SIREN WILL OPERATE AS A WARNING THAT SPRAYING IS TO COMMENCE
## ANY PERSON PRESENT WHEN THIS ALARM OPERATES MUST VACATE THIS BUILDING IMMEDIATELY AND CAN RE-ENTER 4 HOURS LATER.

In Emergency Contact Phone: 131 262

Or Your Nearest BOC Gases Branch

# Accessories

| | |
|---|---|
| 302625 | NUT NIPPLE 5/8BSP LH |
| 730000 | SPIGOT DE 1/4" |
| 730002 | SPIGOT PG/IG 1/4" |
| 730004 | NUT PESTIGAS |
| 730005 | NUT INSECTIGAS |
| 730006 | HOSE 3MX5/32" ID |
| 730008 | STRAP CYL SECURING |
| 730012 | CONNECTOR 1/4" BSP |
| 730020 | NOZZLE 1/8" NPT |
| 730024 | TUBEFIT NOZZLE ADAPT |
| 730025 | NOZZLE FIXED SYSTEM |
| 730026 | NOZZLE BLOCK |
| 730034 | ALUMINIUM TUBE 30M |
| 730036 | ALUMINIUM TUBE 100M |
| 736459 | MANIFOLD BLK 6PT |
| 736588 | HOSE ENV 6.35X6.10 |
| 736638 | SPACE CONTROL MODULE |
| 736648 | RESTRICTOR |
| 736675 | DEOGAS NUT & SPIGOT |
| 736676 | PESTIGAS NUT & SPIGOT |
| 736677 | INSECTIGAS N & SPIG |
| 736700 | FILTER 90 MICRON |
| 736710 | DOSE CYLINDER ADAPTOR C |
| 736711 | DOSE CYLINDER ADAPTOR DE & G |
| 736715 | Dose Cylinder Mounting Bracket C |
| 736716 | Dose Cylinder Mounting Bracket D |
| 736717 | Dose Cylinder Mounting Bracket E |
| 736718 | Dose Cylinder Mounting Bracket G |
| 736719 | Brass Union Tee 1/4" |
| 736720 | Brass Union 1/4" |
| 736721 | Brass Male Connector 1/4" x 1/8" |
| 736722 | Brass Female Connector 1/4" x 1/8" |
| 736723 | Brass Back and Front Ferrule 1/4" |
| 736724 | Valve Nozzle Core |
| 736725 | Nozzle Block Mounting Bracket |

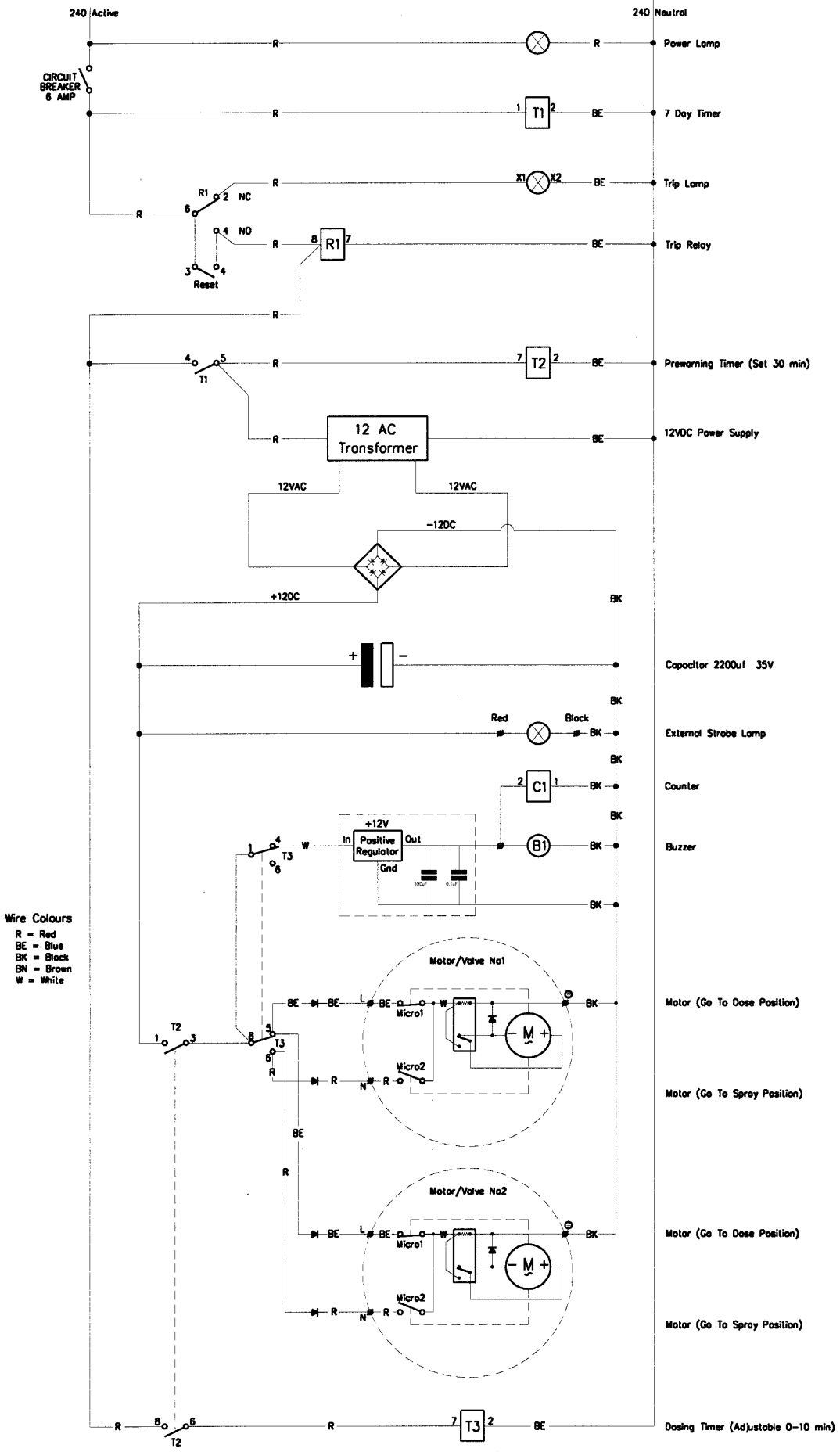



**BOC GASES**

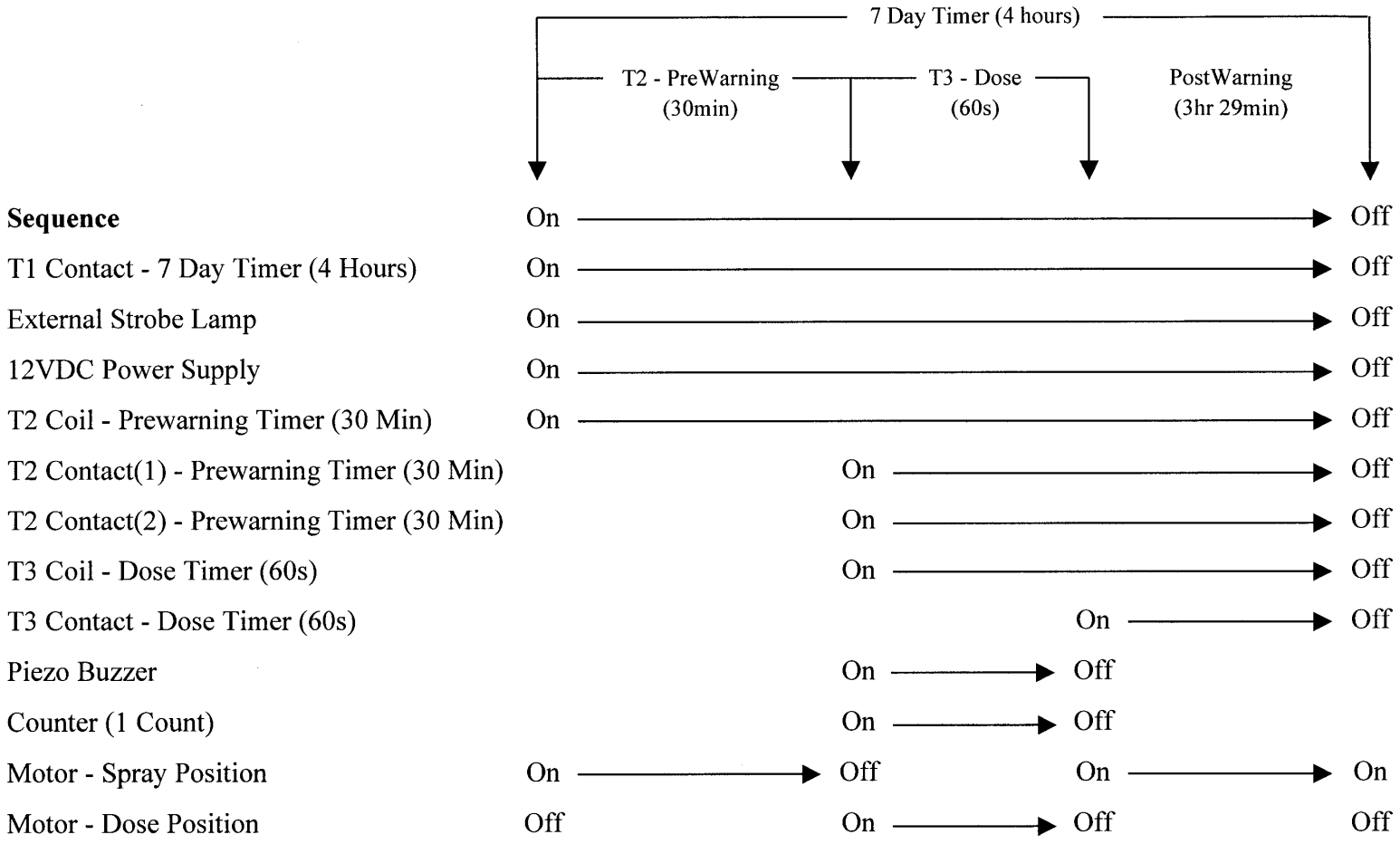
| 736638 | Spacecontroller MKIII Kit |
|---|---|
| 737055 | Control Box For Spacecontroller MKIII |
| 737040 | Spacecontroller 12 Volt Actuator/Valve |
| 736459 | Brass Hex Manifold Block 6 PT |
| 736460 | 90 Micron Filter Element |
| 736461 | Spring For 6 Point Hex Manifold Block |
| 736919 | Reducing Bush 3/4"BSPT x 1/4"NPT |
| 737078 | Brass Needle Valve 1/4" NPT |
| 737082 | Hex Manifold Wall Mounting Bracket |

**736638**

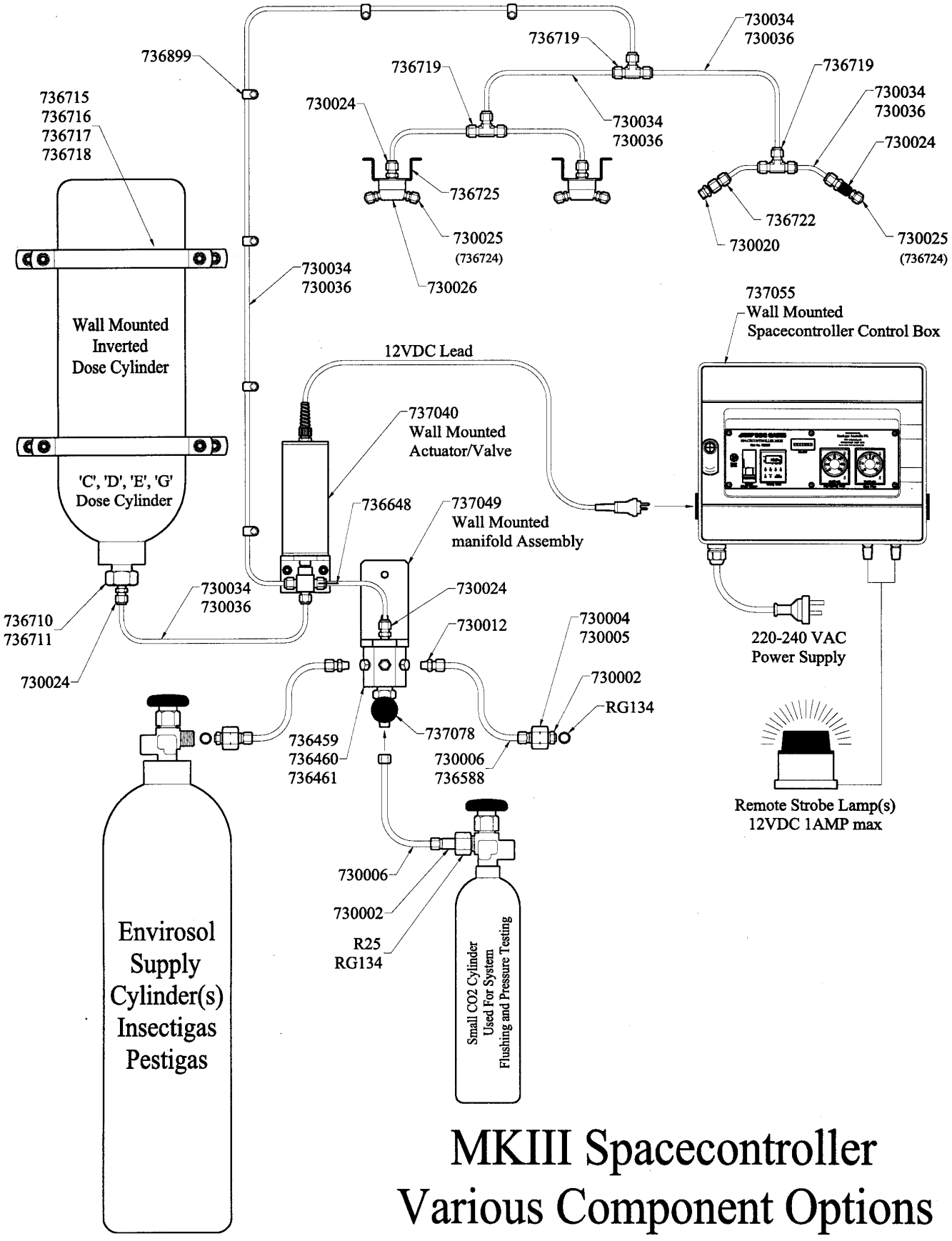
# Spacecontroller MKIII Electrical Layout (Rev A)



# MKIII Spacecontroller Typical Operating Sequence



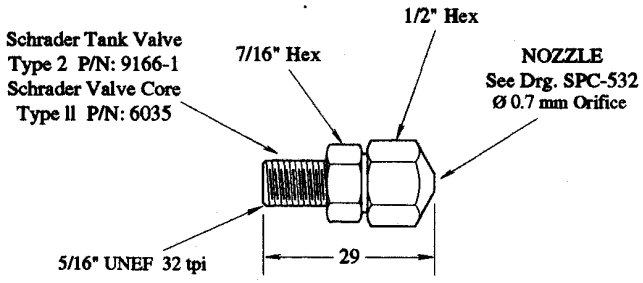

Spacecontroller MKIII Sequence Diagram.xls




# MKIII Spacecontroller
# Various Component Options

# Grasslin Time Clock Quick Setup Program

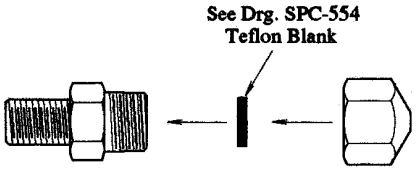
| Command | Display |
|---|---|
| **Reset The Time Clock** | |
| Depress "res" once | 00:00 |
| Repeatly Depress "+hr" until "No" appears | No |
| Depress "◷" once | 00:00 CH1 ◷ |
| **Clear Existing Program Memory** | |
| Depress "Prog" until "FR00" appears | FR00 |
| Depress "Clear" twice | CL Flashing - then - FR20 |
| Depress "◷" once | 00:00 |
| **Set Time & Day** | |
| Depress "◷" once | 00:00 |
| Depress "Day" to select the current day of the week<br>ie 1=Mon, 2=Tue, 3=Wed, 4=Thur 5=Fri, 6=Sat, 7=Sun… | |
| Depress "h" to select the current hour of the day | 15:00 |
| Depress "m" to select the current minute of the hour | 15:45 |
| When fiinished Depress "◷" once to enter the time | 15:45 |
| **Setup 1st Program** | |
| Depress "Prog" | - - : - - |
| Depress "Day" to select the current day of the week<br>ie 1=Mon, 2=Tue, 3=Wed, 4=Thur 5=Fri, 6=Sat, 7=Sun… | |
| Depress "h" to select the current hour of the day | 17:00 |
| Depress "m" to select the current minute of the hour | 17:55 |
| Depress the "hand" button until the "⊙" appears | CH1 ⊙ |
| Depress "◷" once | 17:55 CH1 ⊙ ◷ |
| **Setup 2nd Program** | |
| Depress "Prog" | - - : - - |
| Depress "Day" to select the current day of the week<br>ie 1=Mon, 2=Tue, 3=Wed, 4=Thur 5=Fri, 6=Sat, 7=Sun… | |
| Depress "h" to select the current hour of the day | 18:00 |
| Depress "m" to select the current minute of the hour | 18:00 |
| Depress the "hand" button until the "O" appears | CH1 O |
| Depress "◷" once | 17:55 CH1 ⊙ ◷ |



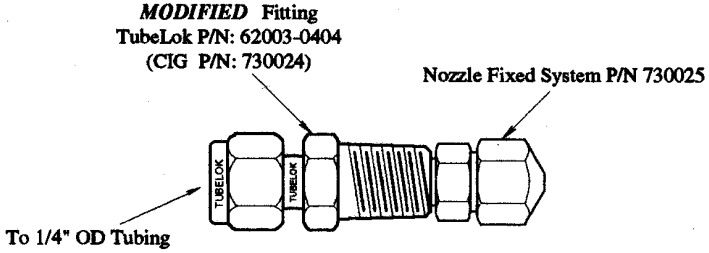

## Nozzle Fixed System

Product Code No: 730025

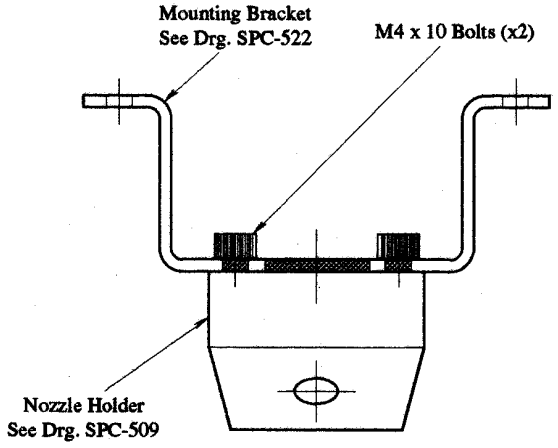
(Nominal 9 g/s)




## Teflon Blank Washer Used With Nozzle Fixed System

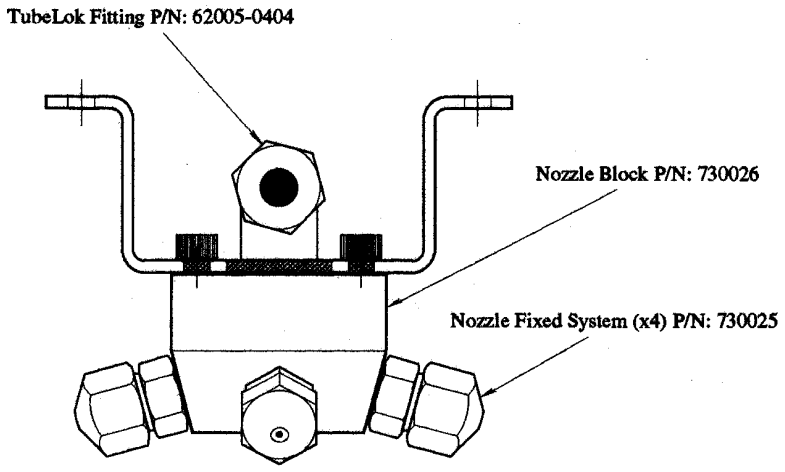



## Nozzle Fixed System Fitted into **TubeLok** Pipe Fitting




## Nozzle Block

Product Code No: 730026




## 4 Point Nozzle Block

Complete With 4 off Nozzles & Fitting

# WARRANTY

GasApps Australia Pty Ltd warrants the design of the MKIII Spacecontroller System for a period of 12 months from the date of invoice. GasApps will not accept any liability whatsoever for any alterations or modifications, made to any part of the equipment supplied, without written and signed authorisation from GasApps Australia Pty Ltd.

This Manual is supplied for the guidance of operators to enable them to understand and operate the equipment in accordance with its design specifications.

The long-term operation of the components and the unit as a whole depends highly on maintenance proceedures and gas quality. This is solely dependent on the operator or buyer.

GasApps Australia Pty Ltd will not accept any liability for equipment failure due to poor quality gas and lack of maintenance.

Installation of electrical and gas connections must be made in accordance with BOC and GasApps specifications.

GasApps Australia Pty Ltd accepts no liability whatsoever for the consequences of any actions by persons other than GAA employees, which are not in accordance with the procedures set out in this Manual