

Eurotec Finishing Systems Limited

Unit 4 Lockflight Buildings, Wheatlea Industrial Estate,
Wigan WN3 6XR

Phone: 01942 829 111 Fax: 01942 820 491

<http://www.eurotecfinishing.com> e-mail : enquiries@eurotecfinishing.com

**EUROTEC C85H
FLUID BED UNIT**

INSTRUCTION MANUAL

DOCUMENT:	Fluidbed C85H Unit - Manual
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CAUTION

This equipment can be dangerous unless it is used in accordance with the rules laid down in this manual.

Read this manual completely before installing and operating the equipment.

Ensure all safety instructions and procedures are correctly followed and that all operators are fully trained.

IMPORTANT: *All other manuals relevant to components and equipment of the installation must be followed.*

CONTENTS

- 1. Title**
- 2. Caution**
- 3. Contents**
- 4. Declaration of Conformity**
- 5. C85H Manual Powder Coating Unit, Fluidbed Type**
- 6. Specification, C85H Fluidbed Unit**
 - *General Data*
 - *Electrical Data*
 - *Electrical Controls*
 - *Pneumatic Data*
 - *Weights and Dimensions*
- 7. Assembly Instructions**
- 8. Installation and Operating Instructions**
- 9. Set Up Procedure**
- 10. Do's and Don'ts**
- 11. Changing Colour and End of Shift Cleaning**
- 12. Fault Finding and Defects On Finished Product**
- 13. Total Energy Control**
- 14. Appendix**
 - (i) Assembly Drawings and Parts Lists*
 - (ii) Schematic Diagrams*

EC Declaration Of Conformity

We, Eurotec Finishing Systems Limited declare that the following product,

Description: Manual Fluidised Bed Spray Unit

Model: C85H

Use: Electrostatic Powder Coating Unit

was manufactured by ourselves and conforms with the following standard (s) and /
or other normative document (s):

EC Machinery Directive 89/392/EEC

EC Low Voltage Directive 73/23/EEC

EC Directive of Electromagnetic Compatibility 89/336/EEC

Electrostatic Painting and Finishing Equipment Using Flammable Materials

EN50 050:1986 and EN50 053:Part 2:1989

Signed on behalf of Eurotec Finishing Systems Ltd. by



Mr. D.H. Campbell
Technical Director

Eurotec Finishing Systems Limited

Unit 4 Lockflight Buildings, Wheatlea Industrial Estate, Wigan, WN3 6XR

Tel: 01942 829111 Fax: 01942 820491

V.A.T. Reg. No. 535 0123 87

Company No. 3008563 Registered In England

C85H MANUAL POWDER COATING UNIT FLUID BED TYPE

Part No. 5007020, Single Operator

Part No. 5007021, Double Operator

1. Mobile chassis carries a 50 litre fluidised bed (approx. 25 kg (55 lbs) of powder).
2. Fluid bed incorporates lifting handles and an access flap for ease of filling.
3. Fluidisation of the hopper is achieved using a large porous tile for maximum fluidisation efficiency. The fluidisation may be altered to suit the powder being used and to provide the most effective fluidity relative to powder level.
4. The venturi's are spring clip mounted for quick release allowing the suction tube and the venturi itself to be cleaned if a colour change is required.
5. The C85H can be supplied as a single or double unit and a single unit can be upgraded to a double system at a later date if so required.
6. The construction is of a robust design with a low centre of gravity and is transported on large conductive castors.
7. Power transmission between the control unit and spray gun is by a highly flexible, sealed cable assembly.
8. For improved safety, efficiency of charging, minimum surface disruption and unrivalled re-coatability Eurotec utilise their TOTAL ENERGY CONTROL system which is adjustable from 0 to 50 uA and 0 to 85kV.

SPECIFICATION

General

Fluidised Bed Manual Unit:-	Single Operator Unit	Model No.:- C85H Part No.:- 5007020
Fluidised Bed Manual Unit:-	Double Operator Unit	Model No.:- C85H2 Part No.:- 5007021
Gun Control Unit:-	Controls all electronic & pneumatic functions.	Model No.:- GCU-85H Part No.:- 2020002
Manual Powder Spray Gun:-	Complete with slotted cap, 3 deflectors and 5m hose & cable set.	Model No.:- MG-300 Part No.:- 3016002
Fluidised Bed Capacity:-	25 kg. (55 lb.) Powder Max.	
Fluidised Bed Mounting:-	Lift on, Lift off	
Powder Delivery Rate:-	Variable up to 400 gms. / min.	
Venturi Mounting:-	Three Point Clip-on at top of Suction Tube.	
Operating Temperature:-	0 °C. to 40 °C. (32 °F. to 104 °F.)	
Powder Charging:-	Single Point Corona Discharge Needle.	
Hose and Cable Length to Gun:-	5 metres, (16 ft).	

Electrical Data

Input Voltage:	100-130 / 200-260 Volts, 50 / 60 Hz single phase.
Power Consumption (full load):	35 VA.
Input Current (max.):	400 mA at 115 volts, 200 mA at 230 volts.
Electrostatic output voltage:	10 - 85 kV negative.
Electrostatic output current:	0 - 50 uA.

Electrical Controls

Mains Switch - Front Panel

Rotary 2 position - OFF / ON (A green LED indicates when the switch is on).

Electrostatic Switch - Front Panel

Rotary 3 position - Electrostatics OFF / Monitor uA / Monitor kV, (A yellow LED indicates when the electrostatics are switched on).

Charge Control - Front Panel

Rotary potentiometer - sets the maximum level of charge.

Electrostatic Meter - Front Panel

Dual scale - 0 to 50 uA / 0 to 100 kV.

Mains Voltage Selector Switch - Rear Panel

Slide 2 position - 100 to 130 / 200 to 260 volts.

Auto - Manual Switch - Rear Panel

Slide 2 position:-	<i>Auto position-</i>	Unit triggers automatically when mains switch is turned on.
	<i>Manual position-</i>	Unit is triggered by micro-switch in Hand Gun or other remote triggering device

Mains Input

Via connector on bottom panel.

Mains Output

Socket, non switched, 6A max. May be used to connect additional control units.

Trigger Switch - Remote

Micro-switch in hand gun - connected through plug and socket on bottom of control unit.

Circuit Protection

Miniature circuit breakers:-	<i>Mains output</i>	- 6A
	<i>Mains transformer primary</i>	- 0.6 A at 115 V
		- 0.3 A at 230 V
	<i>Mains transformer scondary</i>	- 2A at 28V
Fuses:-	<i>PCB short circuit protection</i>	- 0.75A Self Resetting, Thermal
		- 2.5A Self Resetting, Thermal

Pneumatic Data

Input air pressure :	7.0 bar, (100 p.s.i.) Max.
Input air conditioning :	Oil free to 0.1 p.p.m. and dry to 1.3 g/cubic Nm.
Air consumption (Nominal) :	15.0 m ³ / hr, (9.0 c.f.m.)
Input Connection :	1/4" BSP. parallel thread c/w nut and olive for connection of 8.0 mm (5/16") o.d. tubing.

Pneumatic Controls

Incoming solenoid valve - Internal

Normally closed - opens upon operation of trigger switch on hand gun. Controls air supply to the 'Powder Delivery' pressure regulator, 'Powder Dilution' pressure regulator and 'forward' air to the gun.

Switched Auxiliary Air Supply Valve

When switched to the "On" position the Switched Auxiliary Air Supply Valve supplies air to the fluidised bed powder hopper, allows the fluidised hopper to be turned off when not in use.

Fluidised bed air valve.

Manual rotary actuator on front panel of control unit enables fluidised powder hopper to be turned off when not in use.

Pressure Regulators and Gauges

These control the air supply pressure to the following:

- 1) *Powder Delivery*- **4 bar (60 psi)** venturi jet; controls delivery of powder from the venturi to the gun.
- 2) *Powder Dilution* - **2 bar (30 psi)** venturi dilution; controls mixture ratio of powder to air from venturi to the gun.
- 3) *Gun, Fluid Bed* - **4 bar (60 psi)** controls the level of fluidisation in the powder hopper.

Auxiliary output.

Maintained unregulated output for connection of e.g. an air clean down gun. Connection 1/4" BSP female parallel thread. Supplied with blanking plug fitted.

Weights and Dimensions

Hand Gun Weight :-	580 gms. (1.28 lbs.) Without Cable & Hoses
Hand Gun Length :-	350mm. (14") From Top of Handle
Unit Packed Weight :-	42 kg. (92 lbs)
Unit Packed Dims. :-	660 mm. (26") x 660 mm. (26") x 930 mm. (37")
Unit Packed Volume :-	0.405 cubic metres. (14.3 cubic feet)

ASSEMBLY INSTRUCTIONS

WARNING: THIS EQUIPMENT MUST BE EARTHED

1. Carefully remove components from packaging, and check contents against packing list.
2. Secure the Gun Control Unit to the vertical column using the 2-off M6 x 12 socket cap head screws and lock washers as shown.
NOTE:- The Gun Control Unit may be fitted to either the right or left hand face of the vertical column as required, and using either the left or right hand module fixing to orientate the control panel as required.
3. Pass the four un-connected airlines through the hole in the front face of the vertical column below the Gun Control Unit and connect them to the air fittings on the bottom of the Gun Control Unit as follows:-
NOTE:- Diagrams at the rear of this manual indicate the relevant connectors and fittings.
 - a) RED airline from the Venturi Jet to the 'POWDER DELIVERY AIR SUPPLY OUTPUT' fitting.
 - b) BLUE airline from the Venturi Dilution Port to the 'POWDER DILUTION AIR SUPPLY OUTPUT' fitting
 - c) CLEAR / WHITE airline from Vibrator to the 'GUN / F. BED or VIBRATOR AIR SUPPLY OUTPUT' fitting.
4. Secure the accessories module to the remaining face of the vertical column using the 2-off M6 x 12 socket cap head screws and lock washers as shown.
NOTE:- In the case of a two gun unit (C85H2), the accessories module is replaced by a second gun control module. The clear airlines from each unit will connect to a tee fitting at the fluid bed to allow independent operation of

each unit. The two modules can be interconnected electrically, but it is recommended that a separate air supply be connected to each module to avoid pressure loss.

5. Position the fluid bed onto the chassis and fit the venturi and suction tube.
6. Connect the two airlines which exit the top of the column as follows:-
 - a) RED airline to POWDER DELIVERY air fitting at the end of the venturi body (The sealing washer of this fitting is red).
 - b) BLUE airline to POWDER DILUTION air fitting at the top of the venturi body (The sealing washer of this fitting is blue).
7. Secure the Gun Hook to the front of the Gun Control Unit using the 2-off M 6 x 12 cap head screws and lock washers as shown. (Alternatively the gun hook may be fitted to the front of the accessories module).
8. Remove the hand gun from the carton. The gun is supplied fitted with a five metre hose and cable set comprising of :-
 - a) 1x supply / trigger cable.
 - b) 1x powder hose.
 - c) 1x 6 mm air line.
9. Connect the round supply / trigger cable connector to the plug on the base of the gun handle, connect the black airline to the airline tail on the base of the gun handle and finally push the powder hose fully onto the spigot on the base of the handle.
10. Check that the Auto/Manual switch on the bottom of the control unit is set to manual.
11. Connect a suitable airline to the main incoming air fitting marked 'SUPPLY'. The connection is 1/4" B.S.P. male parallel.
12. Fit the spray nozzle to the gun by removing the front retaining nut, pushing the nozzle on to the front of the barrel and replacing the retaining nut. Fit either the slotted cap over the front end of the nozzle, or one of the three deflectors supplied.

NOTE:- It is essential that the needle point is projecting from the front of the deflector.
13. Prior to connecting the mains electrical socket into the plug on the rear panel of the control module marked 'IN', ensure that the voltage selection switch is set to the relevant position. i.e.. 100 - 0 Volts 50 - 60 Hz or 200 - 260 Volts 50 - 60 Hz.

NOTE:- The units are always supplied set to 200 - 260 V.
14. **IMPORTANT**
 When fitting a plug to the mains lead, it is essential that it contains an earthing / grounding contact that is connected. Under no circumstances should this equipment be connected to a mains supply which does not include an earthing / grounding wire and contacts. e.g.. 2 -Wire extension leads as used for some domestic equipment **MUST NOT BE USED.**

NOTE:- The colour coding for mains cable assemblies is as follows:-

<u>Pole</u>		<u>U.S.A.</u>	<u>U.K.</u>	<u>Pin Connection</u>
Live	L	Black	Brown	1
Neutral	N	White	Blue	3
Earth / Ground	E	Green	Green/Yellow	E

NOTE:- The terminal connections used on the mains connectors on the rear panel of the unit coincide with the terminal connections used on the cable connectors.

NOTE:- For United Kingdom Installations see below:-

As the colours of the mains lead of this appliance may not correspond with the coloured markings identifying the terminals in your plug, proceed as follows:-

The wire which is coloured GREEN and YELLOW must be connected to the terminal in the plug which is marked with the letter E or by the earth symbol , or coloured green or green and yellow.

The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured black. The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured red.

NOTE:- The method of disconnection from the mains electrical supply is by removal of the plug on the mains lead from its respective supply socket.

NOTE:- If the system is to be permanently connected to mains wiring then the switch used to disconnect the unit from the supply voltage must disconnect all poles and have a contact separation of at least 3 mm.

The unit is now ready for use.

INSTALLATION AND OPERATING INSTRUCTIONS

IMPORTANT

1. This equipment can be dangerous unless it is used in accordance with the rules laid down in this manual.
2. Ensure that the equipment is properly earthed/grounded.
Refer to assembly instructions (14).
3. The electrical supply to the electrostatic generator/control unit must be interlocked with the spray booth extraction system such that spraying cannot be carried out unless the exhaust ventilation system is in operation. The efficiency of the exhaust ventilation system should be checked regularly.
4. All conductive structures within the vicinity of the spray area shall be bonded together with the earth terminal of the high voltage generator to the protective earth of the system electrical supply.
5. The equipment operates by electrostatically charging the powder by means of a high voltage corona discharge at the nozzle of the spray gun. This electrostatic discharge can seriously damage other electronic equipment if it is sited in close proximity and not suitably protected.
6. It is essential that all jigs and workpieces are adequately earthed. The workpiece shall have a resistance to earth of no greater than 1 Mohm. This should be checked regularly. If the earthing is not adequate, this can result in:-
 - a) Poor coating,
 - b) Sparks between the product and jigs, which can constitute an ignition or explosion hazard.
 - c) Radio and TV interference from sparks between the product and jigs.
This interference may also affect computer systems and process controllers.
7. Ensure that the air supply is clean and dry.

NOTE:- Refer to the pneumatic specifications.

SET UP PROCEDURE

1. Ensure that all switches are in the OFF position and that all pressure regulators are closed. (The knobs should be turned fully anti-clockwise).
 2. Place powder in the fluidised bed, but do not overfill as the non-fluidised powder may rise by as much as 100 % in some instances.
 3. Turn the rotary valve on the front panel marked 'SW.Aux. Out.' to the ON position.
 4. Open the left hand pressure regulator marked 'Gun / F.Bed' on the control unit until approximately 5-10 psi. is indicated on the pressure gauge. When air bubbles are evenly distributed over the surface of the powder, turn the pressure down to the minimum level which will maintain a gentle 'simmering' with small evenly distributed bubbles over the surface of the powder.
 5. Turn on the mains electrical switch of the control unit. The green LED above the switch will illuminate.
 6. With the spray gun pointing into an extracted spray booth, operate the trigger of the gun and open the centre air regulator (Dilution Air) to approximately 5-10 psi. A relatively small quantity of powder may be emitted from the nozzle of the gun.
 7. With the trigger still pressed, slowly open the right hand regulator (Powder Air) to give the required powder output. The powder output from the gun will increase progressively as the regulator is opened.
 8. Having set the volume of powder required from the gun, if there is a tendency for
 9. With the current control potentiometer (uA) turned anti clockwise, turn the electrostatic switch to the position marked uA. The green LED adjacent to that position will illuminate.
 10. With the charge control potentiometer turned anti-clockwise, turn the electrostatic switch to the position marked kV. The yellow LED above the charge control potentiometer will illuminate dimly, and the electrostatic meter will indicate approximately 22kV. Slowly turn the charge potentiometer clockwise and the brightness of the yellow LED will increase and the pointer of the electrostatic meter will rise to approximately 85kV when the potentiometer is fully clockwise. With the gun pointing into an extracted spray booth, trigger the unit and slowly move the nozzle of the gun close to an earth point or the product. As the nozzle moves closer than approximately 280mm it will be seen that the kV level indicated on the meter will reduce progressively as the nozzle is moved closer to earth. Repeat this procedure with the electrostatic switch set to the uA position and it will be seen that as the nozzle moves to within approximately 280mm from earth, the current will rise progressively to approximately 50uA. As the nozzle continues to be moved closer, the current then falls progressively. Refer to the graph showing the typical electrostatic discharge characteristics with respect to the distance from earth.
- NOTE:-** The discharge current and voltage will be dependent on the proximity of the spray gun discharge needle to earth. When setting the maximum discharge voltage, the spray gun discharge needle should be placed at least 300 mm. from earth.
11. The small flow regulator on the left hand side of the spray gun is used to control the air flow which passes forward through the nozzle. This air flow must be adjusted to ensure that the electrode and spreader faces are maintained clean. Further adjustment of the air flow allows the operator to alter the size and shape the powder cloud or the velocity of powder from the slotted nozzle.

GENERAL NOTE:- An approved mask should always be worn when spraying.

GENERAL OBSERVATIONS:- It is essential that all substrates and jigs are clean and that there is a good earth / ground to the workpiece to ensure maximum powder attraction.

Powder spraying is best performed by slow motions of the spray gun as opposed to the faster gun movements often associated with liquid paint spraying. Higher powder emissions do not necessarily mean faster coating or better penetration into corners and recesses. In practice it can often cause the opposite effect and produces products with a poor finish.

Similarly, high electrostatic discharge currents or voltages do not necessarily mean faster or more efficient coating. Again, in practice, they can cause the opposite effect and produce products with a poor finish.

RECOATING:- The "Total Energy Control" charging system permits exceptional ease of recoating product which has previously been coated and cured. To take advantage of this ability it is necessary for the operator to use a different technique to that usually employed for recoating.

FOR BEST RESULTS:- Instead of turning down the voltage control to very low levels and pulling the gun away from the product, the charge control may be left at maximum and the gun may be taken close to the product surface, this also helps when penetrating recesses and corners. In some instances it may be necessary to reduce the charge control for better results.

CHANGING COLOUR AND END OF SHIFT CLEANING

In order to prevent contamination of the product from a previous colour, it is essential to remove all traces of the previously sprayed powder from the application equipment. i.e.. Powder container, suction tubes, Venturies, Powder hoses and Spray guns. Also any other surfaces where powder may become dislodged and cause contamination of the product or new powder. If the powder is to be reclaimed, then the spray booth, ductwork and recovery equipment must also be thoroughly cleaned.

IMPORTANT WHENEVER COMPRESSED AIR IS USED FOR CLEANING EQUIPMENT. THIS OPERATION MUST BE CARRIED OUT IN AN EXTRACTED SPRAYBOOTH. AN APPROVED MASK AND EYE PROTECTION SHOULD ALWAYS BE WORN WHEN USING A COMPRESSED AIR BLOW DOWN GUN.

End of Shift

1. Turn the mains switch to the OFF (0) position, discharge the gun by touching the corona needle to a good earth and disconnect the mains supply.
2. Turn the rotary valve marked 'SW. AUX.OUT' on the front panel of the control unit to the OFF (0) position.
NOTE:- This should always be turned off when the spray booth is not running to prevent powder fines from contaminating the atmosphere and surrounding area.
3. Remove the powder hose from the venturi and gun and with one end of the hose pointing into an extracted spraybooth, purge the inside of the hose with clean dry compressed air from both ends if possible.
NOTE:- Always ensure that the open end of the hose is pointing into an extracted spray booth..
4. Remove the nozzle from the spray gun and clean internally and externally with compressed air. Clean the gun in the same way.
5. Refit the nozzle and powder hose to the gun and place the gun in a safe position then refit the powder hose to the venturi.
6. Ensure that mains electrical and pneumatic supplies to the unit are turned OFF.
7. If the unit is to remain idle for long periods then it should be thoroughly cleaned as if for colour changing.

Colour Changing

In order to prevent contamination of the new colour with the previous colour it is essential to remove all traces of the previously sprayed powder from the equipment. Also any surfaces where the powder may become dislodged and cause contamination of the product or new powder must be cleaned. If recovering the powder then the spray booth and reclaim system must also be thoroughly cleaned.

1. Follow shut down procedures 1 to 6 but do not refit powder hose to the venturi.
2. Unclip the venturi from the fluid bed lid and detach the airlines.
3. Using clean dry compressed air blow through the air fittings first.
4. Remove the powder tail fitting complete with the PTFE insert and blow them clean.

ALWAYS CHECK THE CONDITION OF THE PTFE INSERT FOR SIGNS OF EXCESSIVE WEAR AND REPLACE AS NECESSARY.

5. Blow through the induction hole to fully purge the inside of the venturi.
6. Clean the outside of the venturi and refit the hose tail and insert.
7. Lift the suction tube from the venturi base clip and clean internally and externally.
8. Empty the unused powder from the fluid bed and disconnect the clear fluidising airline.
9. Remove the fluid bed from the unit and unclip and remove the band clamp from the base. Detach the base, complete with the fluidising tile, from the bed.
10. Clean the fluid bed parts thoroughly using either
 - a) a vacuum cleaner and tack rags or
 - b) a compressed air blow gun into an extracted spray booth

NOTE:- Care should be taken not to damage or scrape the fluidising tile

11. Re-assemble and refit the clear airline.
12. Remove the vent hose from the lid of the fluid bed and blow clean.
NOTE:- Spare vent hoses can be carried and dedicated to specific colours.
13. Refit the lid and replace the vent hose. Re-insert the powder suction tube, clip the venturi back into place, replace the powder hose and reconnect the airlines i.e. red airline to fitting with the red sealing washer and blue airline to fitting with the blue sealing washer.

DO'S And DON'TS

DO'S

1. Ensure that the equipment is operated by trained personnel only.
2. Ensure that the equipment is serviced regularly by qualified personnel. All repairs and maintenance shall be carried out by qualified personnel only, in accordance with the manufacturers instructions. Repairs must be carried out at the instigation of the operator when faults or defects are detected. Repairs must not be performed in hazardous areas and must not compromise safety standards. (Any repairs or maintenance carried out by unqualified personnel will invalidate any warranty on the equipment).
3. Ensure that the operator is correctly earthed. If overalls are worn, they should be anti-static or non-insulating. If gloves are worn, they should be anti-static or non-insulating. If this is not possible, gloves with the palms removed may be used. Footwear intended for use by operators shall be anti-static or non-insulating and shall comply with the requirements of ISO 2251 / BS 5451 or equivalent. Shoes with leather soles are usually adequate.
4. Ensure that the operator wears suitable respiratory equipment and or protective clothing. All personnel working in a powder-laden atmosphere should wear similar equipment.
5. Ensure that the operator wears suitable eye protection e.g. goggles or a visor (in addition to a respiratory mask) when using a compressed air clean down gun as particles in the airstream can damage eyes.

6. Avoid skin contact with powders where possible as some powders may cause skin irritation.
7. Wash hands and face after work and prior to eating or drinking.
8. Keep floors and equipment within 5 metres of the spray area clean using a suitable industrial vacuum cleaner.
9. Keep light fittings and all other electrical equipment clean.
10. Regularly check the effectiveness of dust/powder collectors and extraction filters and that recycled air is clean.
11. Regularly check the earthing of electrical equipment and manually operated spray guns.
12. Regularly check the earth bonding of all conductive electrical enclosures and all conductive structures such as floors, walls, ceilings, fences, conveyors, powder containers etc. within the vicinity of the spray area. These shall be bonded together with the earth terminal of the high voltage generator to the protective earth system of the electrical supply. Electrostatic grounding should comply with EN 50053.
13. Ensure that all jigs and work pieces are adequately earthed. Each workpiece shall have a resistance to earth of not greater than 1 Mohm. This resistance shall be checked regularly.
14. Ensure that correct cleaning procedures are followed. See " Changing Colour and End of Shift Cleaning Procedures"
15. Ensure that powders are processed in compliance with the powder manufacturers instructions. Special care should be taken with powders containing metallic pigments.
16. Regularly check the compressed air supply to ensure that it is clean and dry.

DON'TS

1. The operator must not wear insulating gloves, clothing or footwear.
2. Do not smoke in areas where powder coating is being carried out or in areas where powder is stored.
3. Do not eat or drink in areas where powder coating is being carried out or in dust-laden atmospheres.
4. Do not spray into areas which are not properly extracted. The direction of airflow should always be from behind the operator. It is recommended that airflow velocities over the face area of a booth opening should be in excess of 0.5 metres/sec.
5. Do not use compressed air for cleaning skin and clothing as it can penetrate the skin causing embolisms. Use a suitable industrial vacuum cleaner for clothing and wash skin with water.
6. Do not point compressed air clean down guns towards body orifices such as mouth, ears etc.
7. Do not enter spray booths when in operation.
8. Do not operate fluidised beds without connecting a suitable vent hose from its lid to an extracted area such as a spray booth.

FAULT FINDING

UNIT WILL NOT OPERATE (No LED's will illuminate)	Check that mains connector is fitted to rear panel of control unit.
	Check that unit is connected to a suitable mains electrical supply and is switched on
	Check that miniature circuit breaker (automatic fuses) on the rear panel of the control unit have not been tripped. If one or more has, then press to reset. If it trips again, switch off unit and refer to an authorised distributor or service agent.

UNIT WILL NOT OPERATE (LEDs will illuminate)	Check the trigger connections at the gun and on the rear panel of the control unit.
	Check that the auto / manual slide switch on the bottom panel of the control unit is set to the manual position.
	Check that the trigger switch in the gun is operating. Depress the trigger and an audible click should be heard if the trigger switch is operating.
	Check that the voltage selector switch is set to the required voltage. The unit is supplied pre-set to 200 - 260 volts. The unit is between 100v and 130v, reset the selector switch on the rear panel to 100 - 130v.
NO POWDER DELIVERY	Check air supply to unit.
	Check that fluid bed is not empty.
	Check that the internal solenoid valve is operating by depressing gun trigger when an audible click should be heard. If it is not, check the trigger connections at the gun and on the rear panel of the control unit.
	Check for kinked or blocked powder hose.
	Check for blockage in suction tube, venturi body and gun.
POWDER DELIVERY INTERMITTENT OR SURGING	Check that there is sufficient powder in the fluid bed.
	Check ratio of dilution air to powder air and adjust if necessary.
	Check for any kinks or partial blockages in the powder hose, venturi suction tube and body, or gun - Blockages in powder paths may be caused by damp powder if the air supply contains more than the permitted level of moisture.
	Check that the venturi body is seating firmly against the sealing disc at the top of the suction tube. Adjust the clip if necessary.
	Check condition of PTFE insert in venturi for signs of wear - replace as necessary.
	Check that the powder is not damp. If it is, it may be difficult to fluidise evenly and lumps may form in the powder causing partial blockages and 'spitting' from the nozzle of the gun. Powder may become damp if left for long periods in an open fluid bed or if the air supply contains more than the permitted level of moisture. Refer to the Pneumatic Data in the specifications.
POWDER DOES NOT ADHERE TO WORKPIECE	Check that electrostatic switch is set to either the uA or kV positions. The yellow LED should be illuminated.
	Check the setting of the discharge current control potentiometer (uA) and that an electrostatic charge is present at the discharge electrode needle of the gun. If no charge (or very poor charge) is present, then check that the high voltage cable is fully inserted into the control unit of the gun.
	If a high discharge current is indicated by the electrostatic meter but no charge is present at the discharge electrode needle of the gun, then remove the high voltage cable from the control unit and gun and check that the ends are not contaminated with any liquid from the inside of the cable, or other contaminants which may cause leakage.
	Check that the workpiece is properly earthed / grounded.

WARNING:- Do NOT set the voltage selector switch to 100 - 130v if a higher supply voltage is being applied as damage may result.

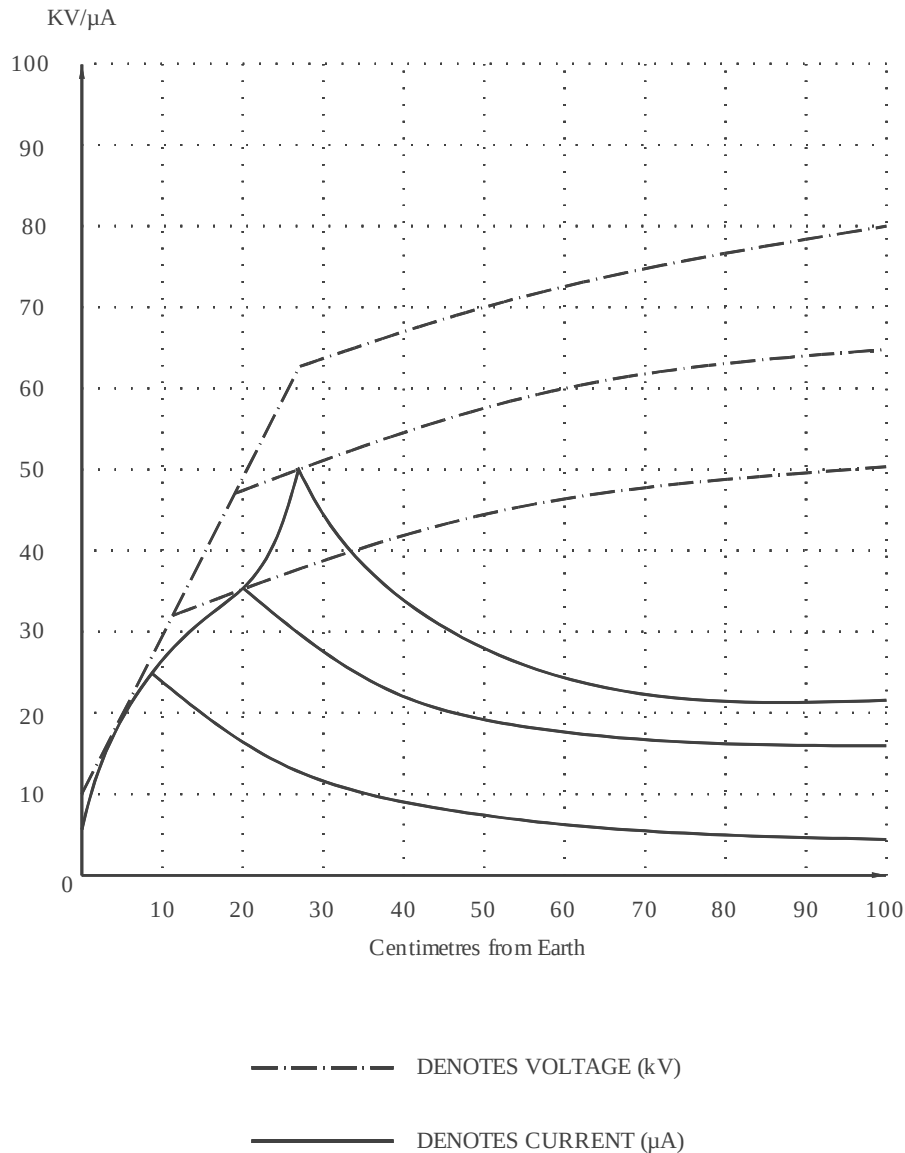
DEFECTS ON FINISHED PRODUCT

CONTAMINATION OF SURFACE WITH SPECKS OF OTHER COLOURS	Application equipment inadequately cleaned after using previous powder.
	Airborne powder of different type within a contaminated spraybooth, or sucked in from dirty surroundings.
	Reclaimed powder contaminated with other powders from within the reclaim system e.g. ductwork, cyclone, booth etc.
	Airborne contamination within the oven.
	Dust or dirt dislodged from jigs or conveyor.
	Dusty environment before or after coating.
LUMPS OR PROTRUSIONS ON SURFACE	Dirty or contaminated powder.
	Dirty or contaminated substrate (workpiece)
	Rusty substrate
	Dusty environment before or after coating.
	Dust or dirt in oven.
	Dust or dirt dislodged from jigs or conveyor.
HEAVY “ORANGE PEEL”	Applied coating is too thick.
	Incorrect cure cycle and / or temperature.
	Inferior quality or powder.
FISH EYES	Contamination of substrate.
	Contamination of powder.
	Contamination of compressed air supply.
CRATERS AND VOIDS	Poor cleaning of substrate e.g.. trapped oils or solvents.
	Wet components e.g.. water trapped in corners or joints.
	Contamination of powder.
	Contamination of substrate.
PIN-HOLING AND BUBBLES	Porous substrate e.g.. expansion or air or solvents from porosity or cavities in castings during curing cycle. Pre-heating of the workpiece may help to overcome this.
	Excessive electrostatic charge applied to the powder. To overcome, reduce the discharge current and / or increase the spraying distance.
	Rusty substrate.
	Contamination of substrate, powder, air supply or from dirty surroundings.
	Excessive moisture in compressed air supply. Refer to pneumatic data in specifications.

NOTE:- Contamination may be caused by airborne vapour such as wet paint, airline or conveyor oil or stripping facilities. Silicones and acrylic paints are the worst offenders and can contaminate the powder and / or substrate.

TOTAL ENERGY CONTROL

The "Total Energy Control" system developed by Eurotec is used to set the discharge energy of the spray guns corona needle up to a maximum of 85kV and 50 μ A. The maximum current generated is limited to 50 μ A (as with existing current control equipment) but now both the current and voltage are reduced as the gun approaches the product. Rather than controlling just the current or the voltage the operator is now able to control the total energy output from the gun.

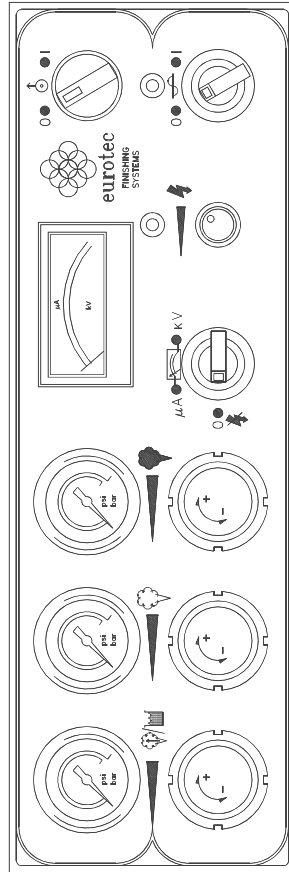


In free air, away from the influence of any earthed objects the maximum discharge current will be 20 μ A when the Discharge potential is set to maximum 85 kV. As the gun is moved within one meter of the product the current starts to rise and, in tandem, the control circuit reduces the voltage. This process continues as the gun is moved closer to the product until a point is reached at which the energy is limited by the setting of the control potentiometer. At this point the Total Energy Control system rapidly reduces the energy output from the gun as it further approaches the product.

The ability to control the output energy of the gun allows the operator to take the gun right in to corners and recesses and still effectively charge powder at very low electrostatic outputs. High film builds are achieved with superior finishes and no surface disruption, whilst very significant improvements are noted in the ability to re-coat previously coated products.

Eurotec GCU-85 Gun Control Unit Front Panel Symbols Explanation

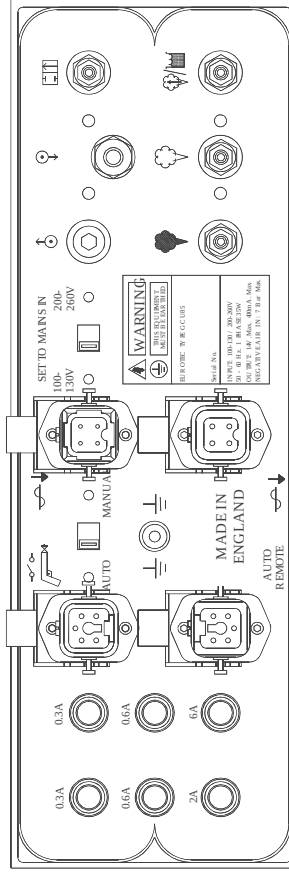
Illustration No. 6000079



- SWITCHED AUXILIARY AIR SUPPLY (FLUIDISED PAD AIR)
- MAINS (ELECTRICAL)
- ELECTROSTATICS
- KILO VOLTS
- SCALE SELECTION
- MICRO AMPS
- ELECTROSTATICS OFF
- POWDER DELIVERY AIR SUPPLY
- POWDER DILUTION AIR SUPPLY
- GUN, FLUID BED OR VIBRATOR AIR SUPPLY

Eurotec GCU-85 Gun Control Unit Rear Panel Symbols Explanation

Illustration No. 6000078

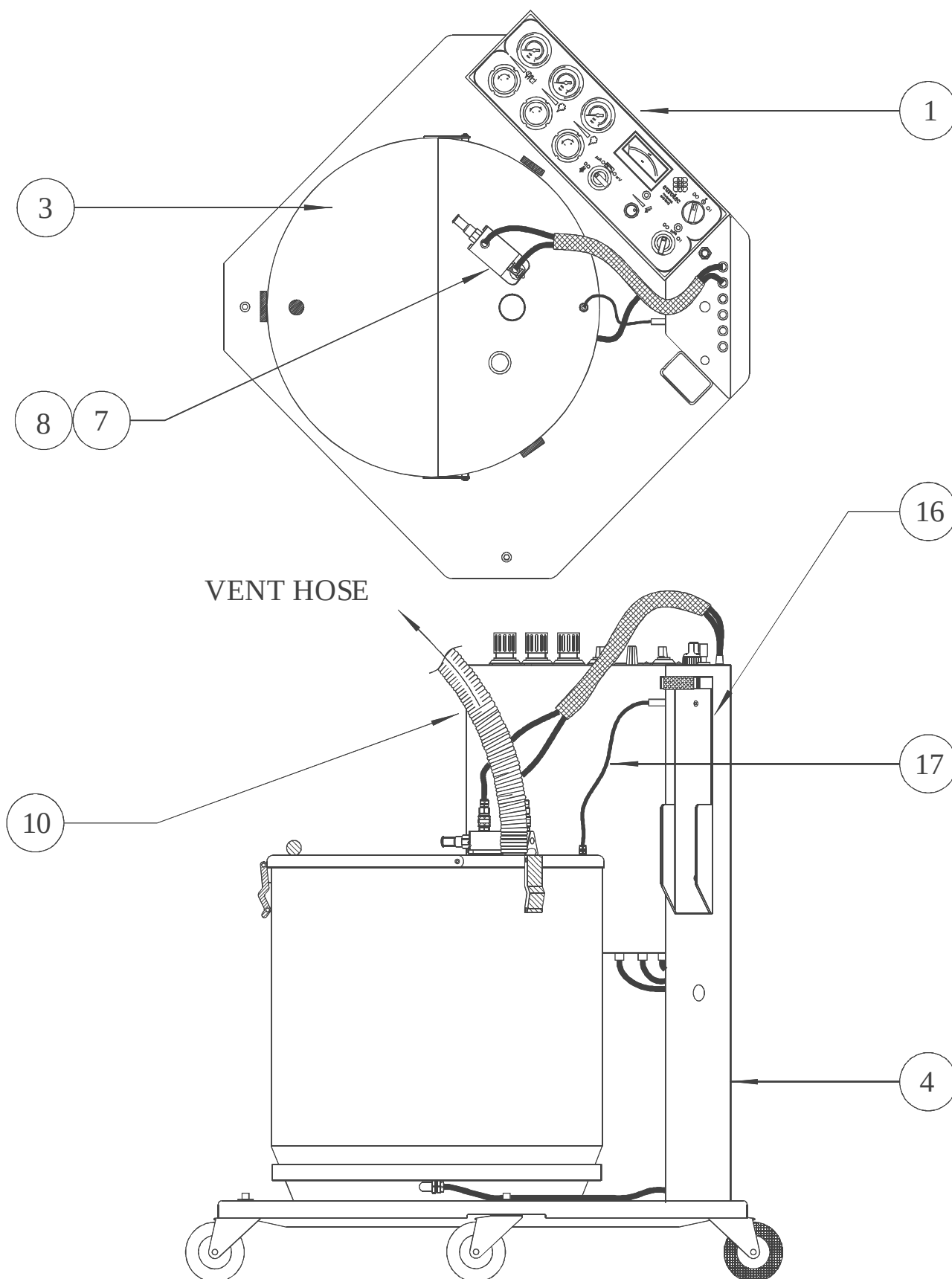


- AUXILIARY AIR SUPPLY OUTLET (ARROW POINTS AWAY FROM CONNECTOR)
- MAINS AIR SUPPLY IN (ARROW POINTS TOWARD CONNECTOR)
- MAINS ELECTRICAL INPUT (ARROW POINTS TOWARD SOCKET)
- MAINS ELECTRICAL OUTPUT (ARROW POINTS AWAY FROM SOCKET)
- SUPPLY VOLTAGE SELECTION
- AUTO MANUAL SELECTION
- EARTH CONNECTION POINT
- GUN SUPPLY AND TRIGGER
- REMOTE GUN TRIGGERING
- SWITCHED AUXILIARY AIR OUTPUT
- POWDER DELIVERY AIR SUPPLY OUTLET
- POWDER DILUTION AIR SUPPLY OUTLET
- GUN, FLUID BED OR VIBRATOR AIR SUPPLY OUTLET

APPENDIX (i)

**ASSEMBLY DRAWINGS
& PARTS LISTS**

C85H Manual Fluidbed Unit **Single Operator General Assembly, Part No. 5007020** Illustration No. 9000106

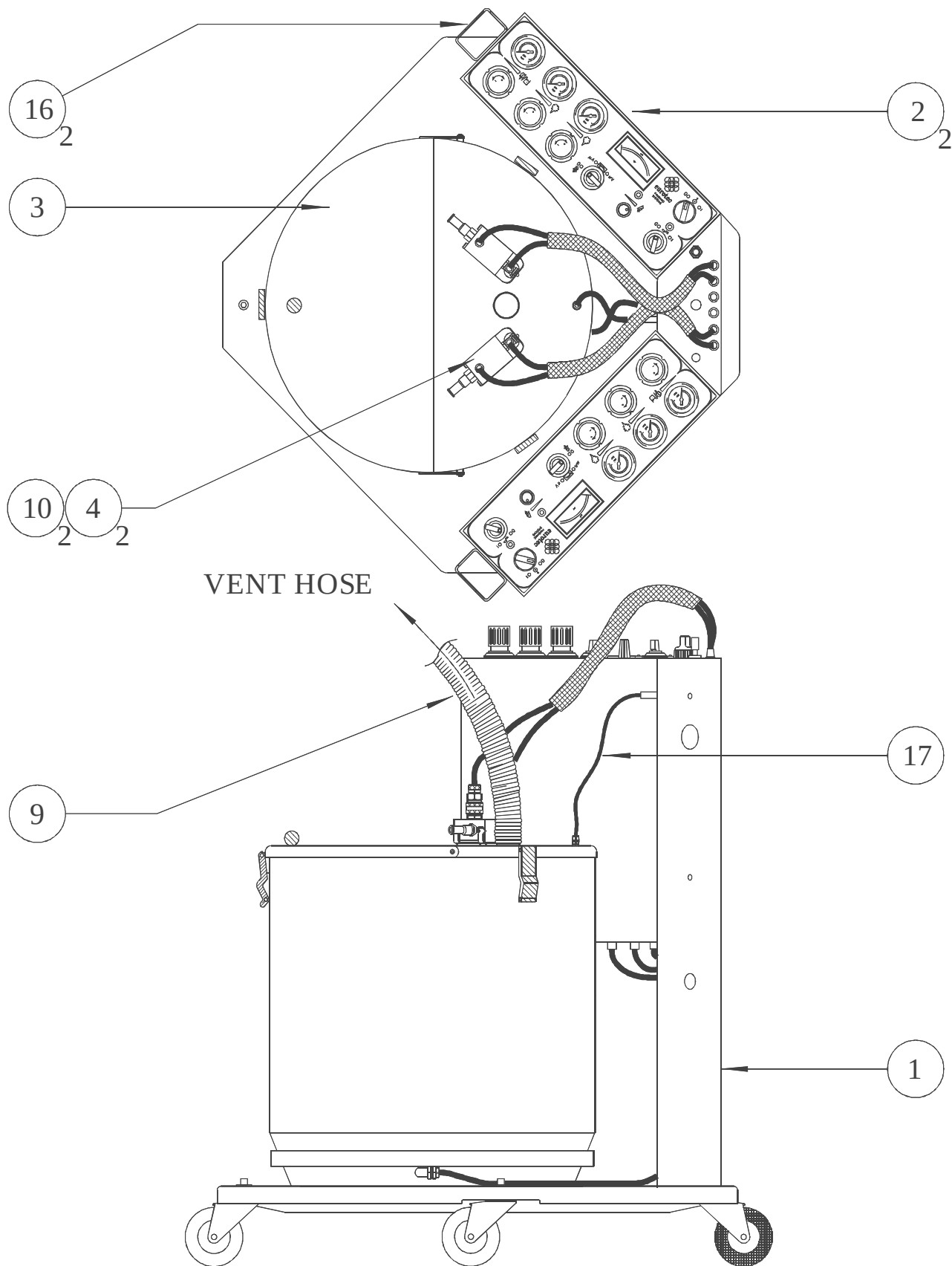


C85H (Single Operator) Manual Fluidbed Unit
PARTS LIST



Item	Part No.	Description	Qty.
1	2020002	GCU 85D Gun Control unit	1
2	3016002	MG300 Manual Powder Gun *	1
3	2056002	Fluid Bed Assembly	1
4	5007010	Chassis Assy	1
5	5007011	Airline Assembly *	1
6	5000038	Mains Lead Assy *	1
7	2090027	V55T/Q Venturi Assy	1
8	2090031	V55T Mounting Kit	1
9	2012005	Accessory Box *	1
10	9000091	Flexihose, 38mm ID	1.5m
11	9000359	Grommet	2
12	9000358	PVC Grommet PV502	1
13	7000000	M3 Allen Key *	1
14	7000001	M4 Allen Key *	1
15	7000002	M5 Allen Key *	1
16	5003063	Gun Hook	1
17	5000048	Earth Braid	1
18	3016047	Hose & Cable Set, 5m *	1

C85H2 Manual Fluidbed Unit **Double Operator General Assembly, Part No. 5007021** Illustration No. 9000107



THIS VIEW SHOWN WITHOUT 2ND VENTURI OR GCU FOR CLARITY.

C85H2 (Double Operator) Manual Fluidbed Unit

PARTS LIST

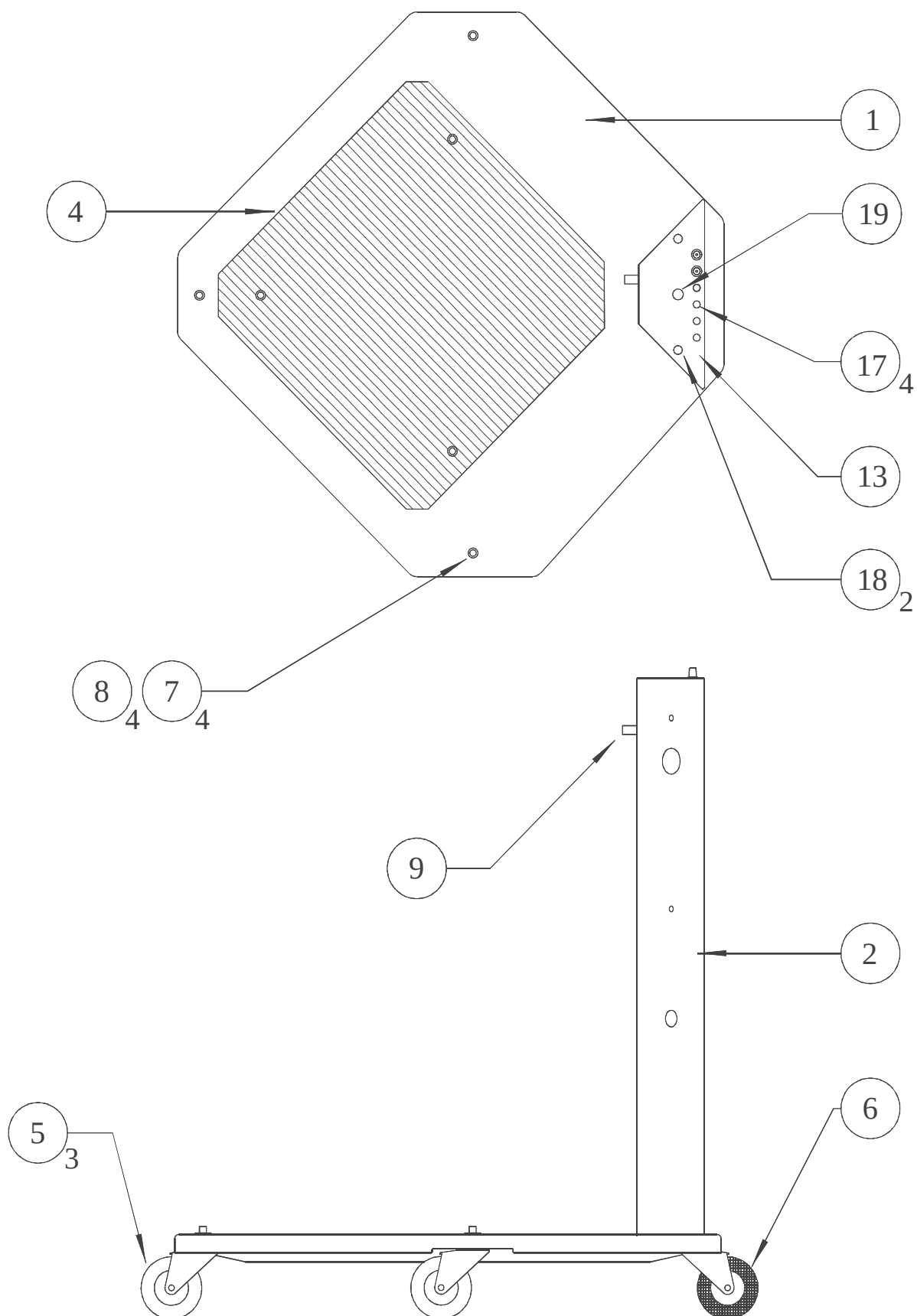
Item	Part No.	Description	Qty.
1	5007010	Chassis Assy	1
2	2020002	Gun Control Unit	2
3	2056002	Fluid Bed Assembly	1
4	2090027	V55T/Q Venturi Assy	2
5	5007011	Airline Assembly *	2
6	5000038	Mains Lead *	1
7	2001040	Mains Interconnection Cable *	1
8	3016002	MG300 General Assy *	2
9	9000091	Flexihose, 38mm ID	1.5m
10	2090031	V55T Mounting Kit	2
11	9000359	Grommets	2
12	9000358	PVC Grommets PV502	1
13	7000000	M3 Allen Keys *	1
14	7000001	M4 Allen Keys *	1
15	7000002	M5 Allen Keys *	1
16	5003063	Gun Hook	2
17	3016047	5mtr Hose & Cable Set *	1
18	3021026	8mtr Hose & Cable Set *	1

- Not shown on this illustration

C85H Chassis Assembly

Part No. 5007010

Illustration No. 9000108



C85H Chassis Assembly
PARTS LIST

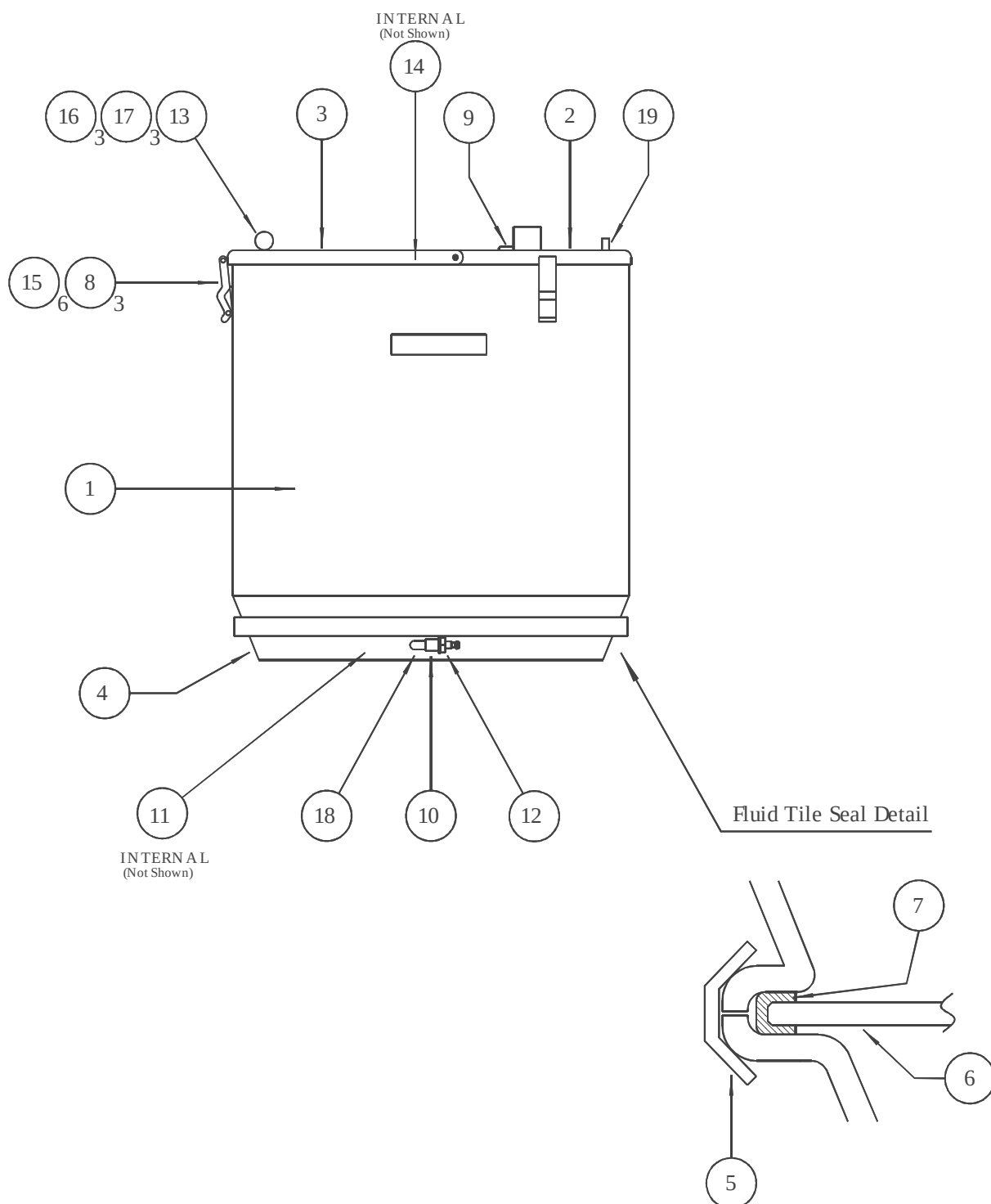


Item	Part No.	Description	Qty.
1	5003060	Chassis Base Plate	1
2	5003068	Column	1
3	5003069	Top Switch Plate	1
4	5003048	Rubber Mat, Self Adhsv	1
5	9000065	Castor, 75mm Dia. Rubber	3
6	9000064	Castor, 75mm Dia. Conductive Rubber	1
7	9000757	Bolt, M10 x 30 Skt, Cap, Blk	4
8	9000808	Nut, M10 Nyloc	4
9	9000113	Earth Terminal	1
10	9000657	Screw M6 x 20 Cap Head	4
11	9000849	Washer M6 Plain	4
12	9000551	Screw, M4 x 8, Skt	2
13	9000708	Screw, M8 x 25, Skt	3
14	9000812	Nut, M8 Nyloc	2
15	9000845	Washer, M8, Plain	3
16	9000114	Connector Plug	1
17	9000358	PVC Grommets, Blind	4
18	9000360	Grommet	2
19	9000359	Grommet	1

Fluidbed 50l General Assembly

Part No. 2056002

Illustration No. 9000165

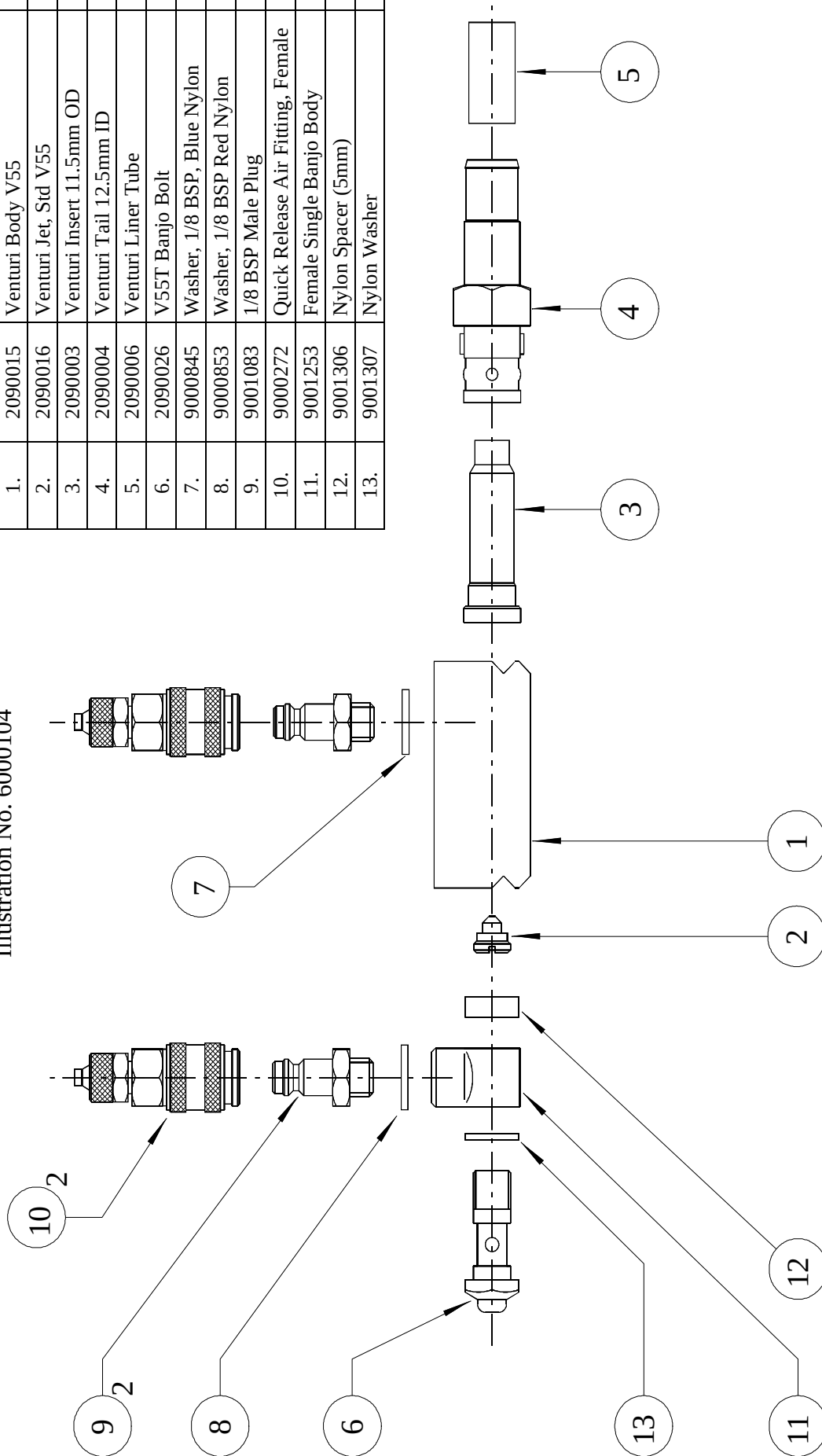


Fluidbed 50l General Assembly
PARTS LIST

Item	Part No.	Description	Qty.
1	2056008	Body, Fluid Bed 50L.F.	1
2	2056009A	Lid, F/B 50 L.F. Venturi Section	1
3	2056009B	Lid, F/B 50 L.F. Access Section	1
4	2056010	Plenum, Fluid Bed 50 L.F.	1
5	2056011	Band Clamp Assy.	1
6	5000006	Tile, Fluidising 50 LTR	1
7	5000033	Seal Fluid Tile 50L	1
8	9000068	Latch, Toggle, Rubber	3
9	9000302	Grommet, Blank, F/B	1
10	9000852	Washer 1/8 BSP, White Nylon	1
11	9001108	Straight, M5FP-1/8BSP MP BNP	1
12	9001083	1/8 BSP Male Plug	1
13	9000347	Ball, Knob, Flat Lid	1
14	9000063	Seal Strip Self Adhesive, 15mmx3mm	1.5m
15	9000552	Screw, M4x6 Pan Head	3
16	9000650	Screw, M6x12 Black	1
17	9000849	Washer, M6 Plain	1
18	9000189	Elbow 1/8 BSP	1
19	9000113	Terminal, Earth, G/Y, Panel MNT.	1

V55T/Q VENTURI Assembly
Part No. 2090027
 Illustration No. 6000104

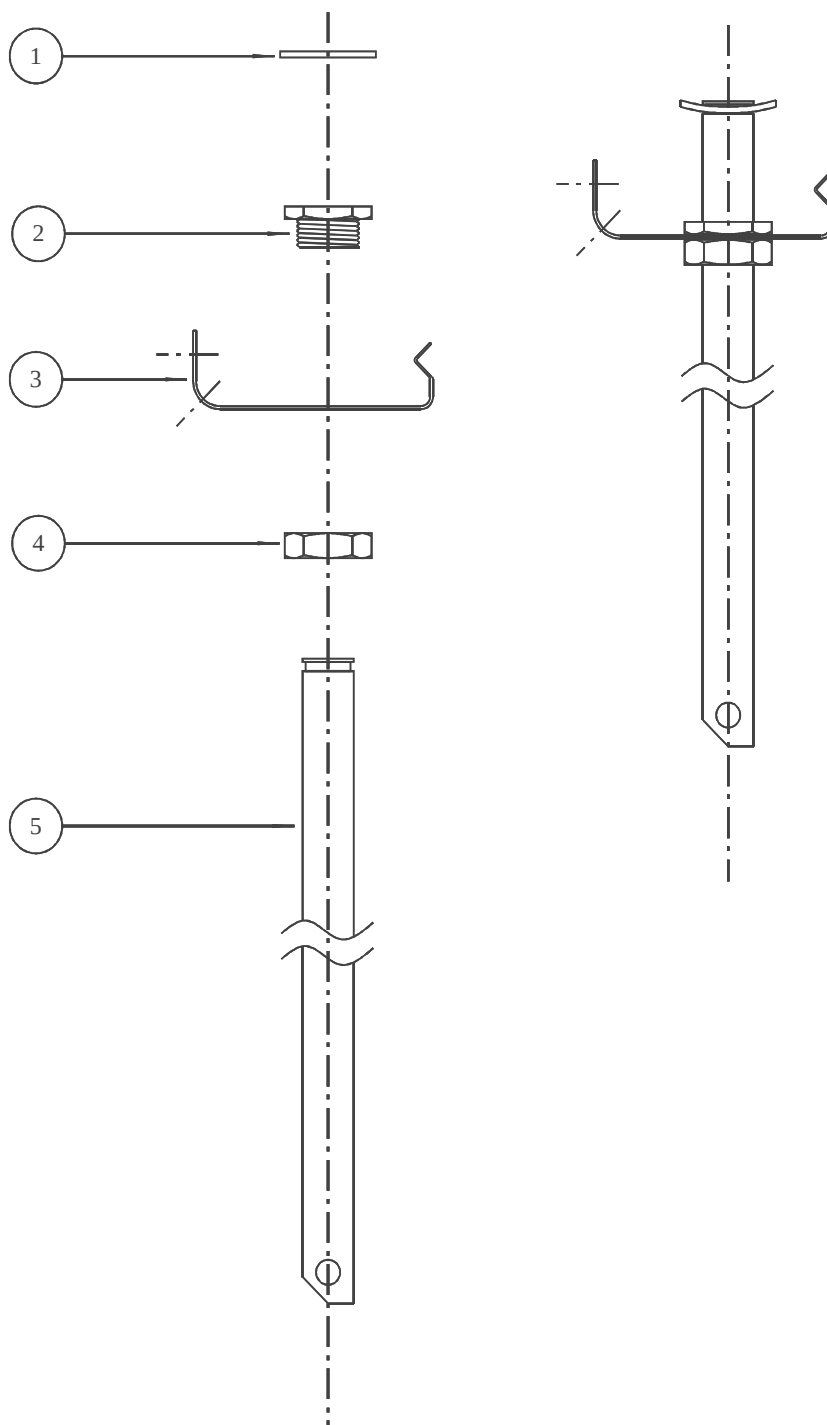
Item	Part No.	Description	Qty
1.	2090015	Venturi Body V55	1
2.	2090016	Venturi Jet, Std V55	1
3.	2090003	Venturi Insert 11.5mm OD	1
4.	2090004	Venturi Tail 12.5mm ID	1
5.	2090006	Venturi Liner Tube	1
6.	2090026	V55T Banjo Bolt	1
7.	9000845	Washer, 1/8 BSP, Blue Nylon	1
8.	9000853	Washer, 1/8 BSP Red Nylon	1
9.	9001083	1/8 BSP Male Plug	2
10.	9000272	Quick Release Air Fitting, Female	2
11.	9001253	Female Single Banjo Body	1
12.	9001306	Nylon Spacer (5mm)	1
13.	9001307	Nylon Washer	1



Venturi Mounting Kit (Manual) Assembly

Part No. 2090031

Illustration No. 6000172

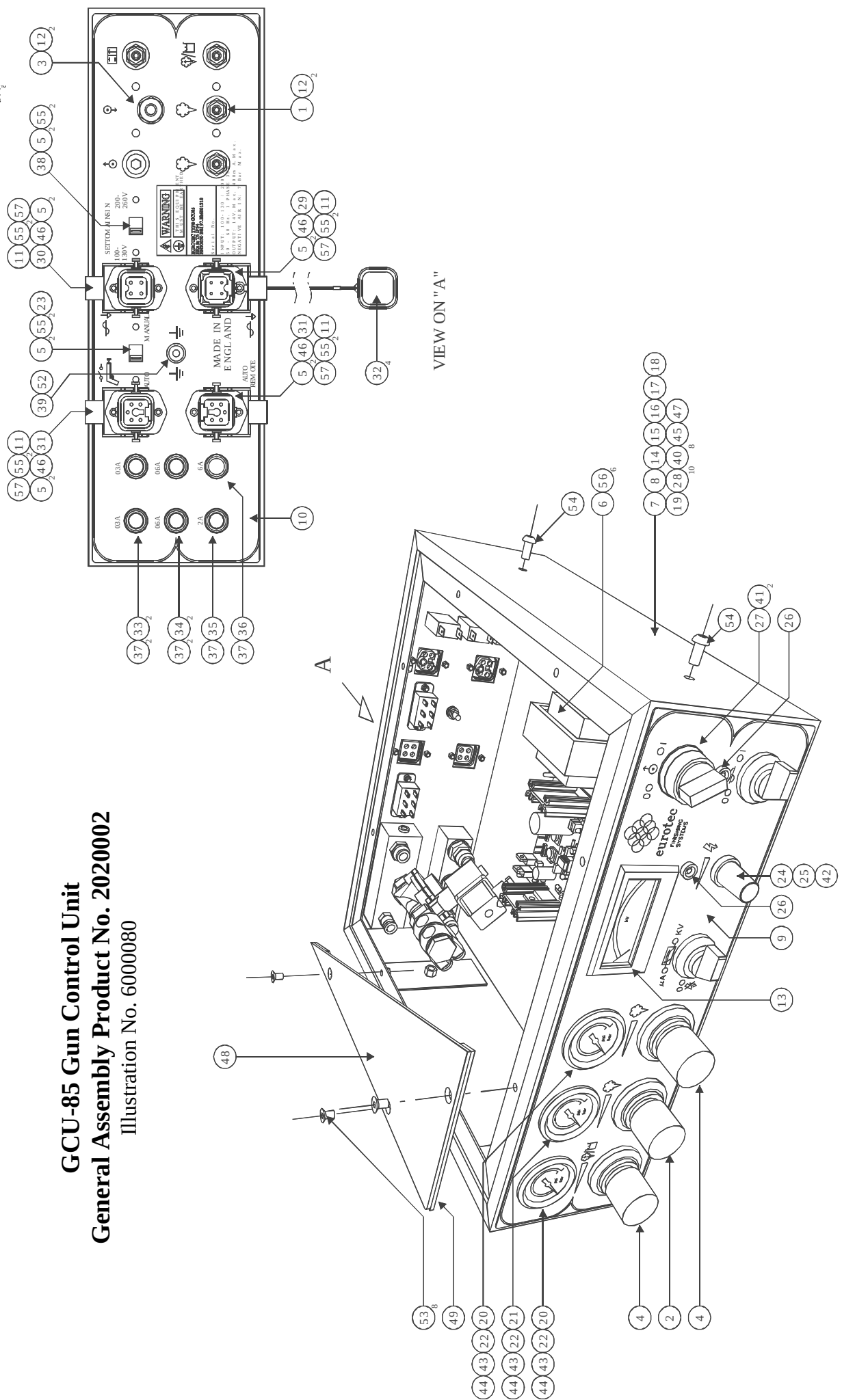


Item	Part No.	Description	Qty
1	5000010	Venturi Seal	1
2	5000026	Venturi Spigot	1
3	2090025	V55T Venturi Mounting Clip, Tri-Point	1
4	5000009	Nut 1/2 BSP	1
5	2090022	Lift Tube, Manual	1

GCU-85 Gun Control Unit

General Assembly Product No. 2020002

 Illustration No. 6000080



GCU-85D Gun Control Unit General Assembly
PARTS LIST

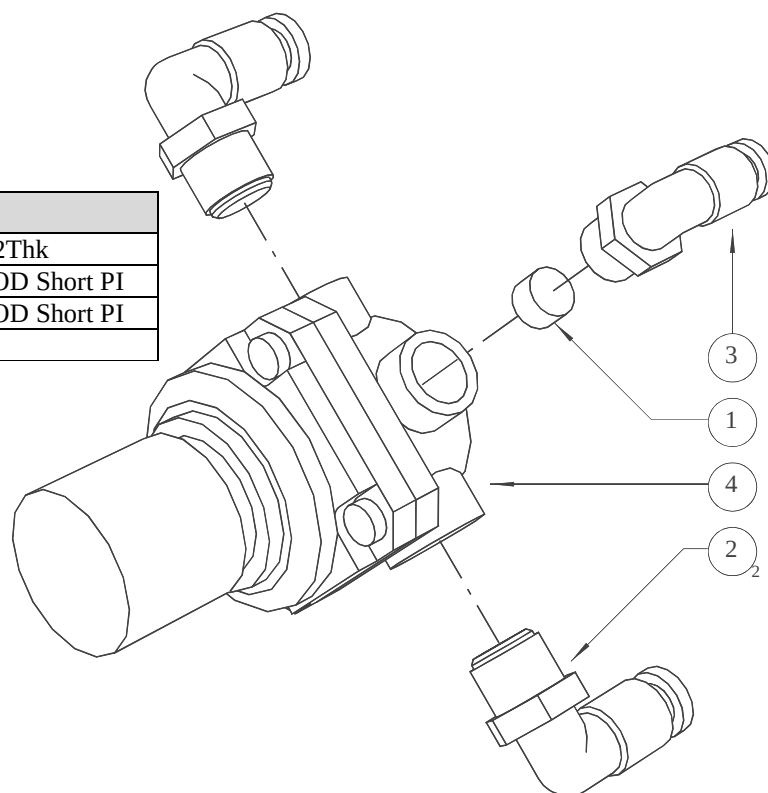
Item	Part No.	Description	Qty.
1	2000007	Manifold Outlet Block Assy.	1
2	2000026	Pressure Regulator Assy, 2 Bar	1
3	2010006	Manifold Inlet Block Assy.	1
4	2010018	Pressure Regulator Assy, 4 Bar	2
5	9000500	Screw,M3x10, Skt, Cap, Black	12
6	2020006	PCB Transformer Chassis Assy.	1
7	2020007	Cableform, Mains	1
8	2020010	Case, GCU	1
9	2020011	Overlay Panel, Front	1
10	2020012	Overlay Panel, Rear	1
11	9000501	Screw,M3x6, S Stl, Pan Head	4
12	9000551	Screw,M4x8, Skt, Btn Head, Black	4
13	2020015	Meter, Electrostatic, 50uA	1
14	2020017	Trigger Lead Assy.	1
15	2020018	Solenoid Lead Assy.	1
16	2020019	Transformer Lead Assy.	1
17	2020020	Switch Lead Assy.	1
18	2020021	Potentiometer Lead Assy.	1
19	2020022	LED Lead Assy.	1
20	2020023	Pressure Gauge, 0-4 Bar	2
21	2020024	Pressure Gauge, 0-2 Bar	1
22	5000040	Disc, Porous Plastic	3
23	9001202	Switch, Slide, 2 Posn	1
24	9000002	Knob, Collet Black	1
25	9000004	Nut Cover, Black	1
26	9001428	LED Housing	2
27	9000007	Valve, Manual, 3-2 1/8 BSP	1
28	9000008	Cable Tie Base, Self Adhesive	17
29	9000011	Connector Plug, Insert 3 Pin + E	1
30	9000012	Connector Socket, Insert 3 Pin + E	1
31	9000013	Connector Socket, Insert 4 Pin + E	2
32	9000014	Connector, Protective Cover	4
33	9000015	Circuit Breaker, 0.3A	2
34	9000016	Circuit Breaker, 0.6A	2
35	9000017	Circuit Breaker, 2A	1
36	9000018	Circuit Breaker, 6A	1
37	9000019	Boot Circuit Breaker Cover	6
38	9000020	Switch, 2 Posn, Voltage Selector	1
39	9000021	Terminal, Earth Post	1
40	9000022	Cable Tie, 2.5 x 100	26

Continued:-

Item	Part No.	Description	Qty.
41	9000041	Tube, Straight, 1/8BSPMT 6mm OD, PI	2
42	9001420	Potentiometer, 10K, Cermet	1
43	9000052	Tube, Straight, 1/8BSPFT 4mm OD, PI	3
44	9000071	O-Ring, BS 009	3
45	9000084	Tubing, 6mm OD x 4mm ID, PU Black	3
46	9000120	Connector Base, Panel Mounting	4
47	9000203	Tubing, 4mm OD x 2.5mm ID, PU Black	0.4
48	2020027	Cover	1
49	9000063	Seal Strip, Foam	12
50			
51			
52	9000862	Washer, M5 Ext. Shakeproof	1
53	9000600	Screw, M5x6, Skt Head, Csnk, Black	8
54	9000650	Screw, M6x12, Skt, Btn Head, Black	2
55	9000800	Nut, M3 Nyloc	12
56	9000801	Nut, M4 Nyloc	6
57	9000832	Washer, M3 Crinkle	4

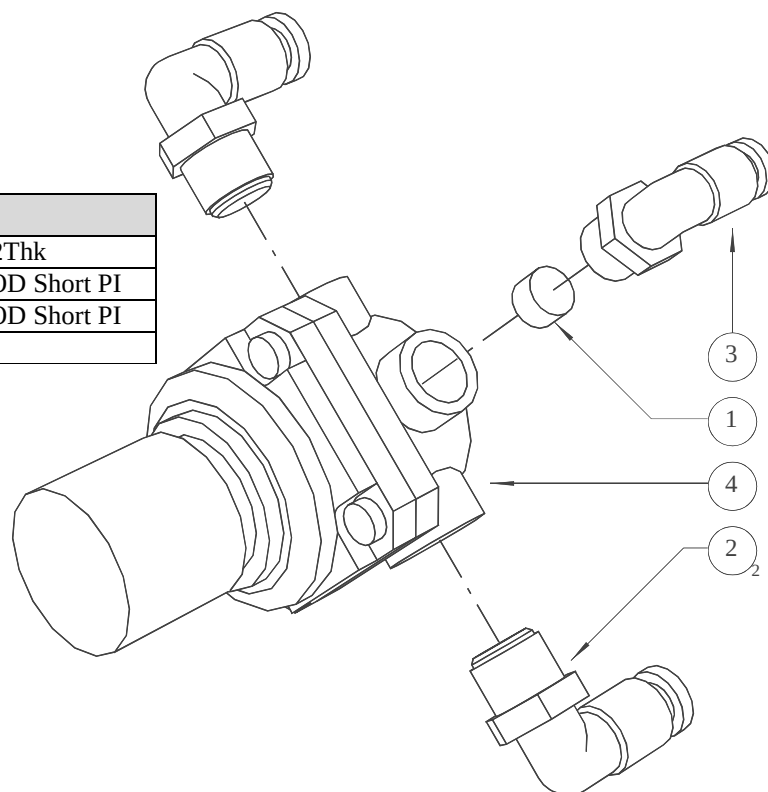
Pressure Regulator Assy 4 Bar
Part No. 2010018
 Illustration No. 6000091

Item	Part No.	Description
1	5000050	Disc Porous Plastic 8 x 3.2Thk
2	9000033	Elbow, 1/4BSPMT 6mm OD Short PI
3	9000062	Elbow, 1/8BSPMT 4mm OD Short PI
4	9000112	Pressure Regulator, 4 Bar

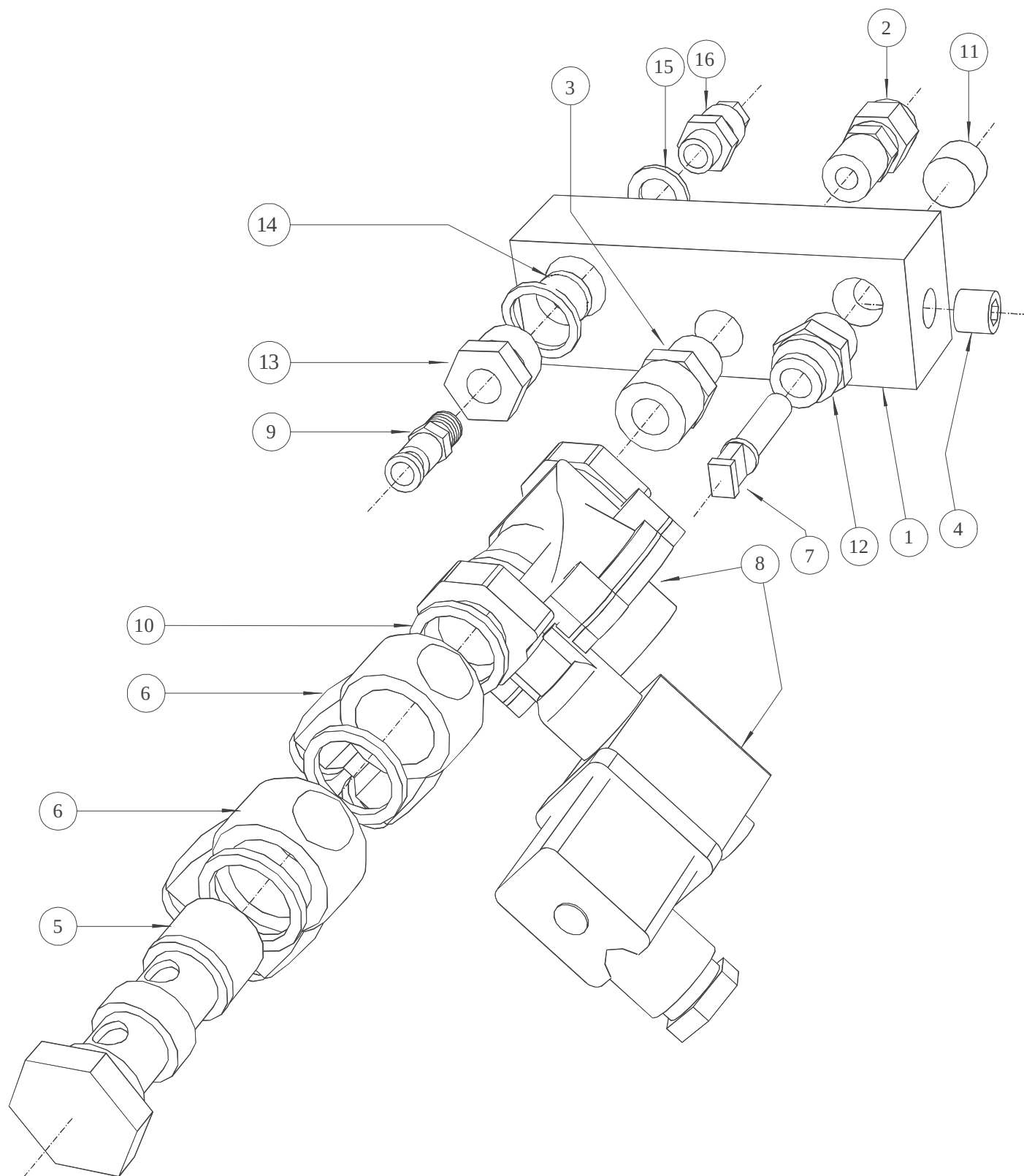


Pressure Regulator Assy 2 Bar
Part No. 2000026
 Illustration No. 6000090

Item	Part No.	Description
1	5000050	Disc Porous Plastic 8 x 3.2Thk
2	9000033	Elbow, 1/4BSPMT 6mm OD Short PI
3	9000062	Elbow, 1/8BSPMT 4mm OD Short PI
4	9000111	Pressure Regulator, 2 Bar



Manifold Inlet Block Assy **GCU-85, Part No. 2010006** Illustration No. 6000088



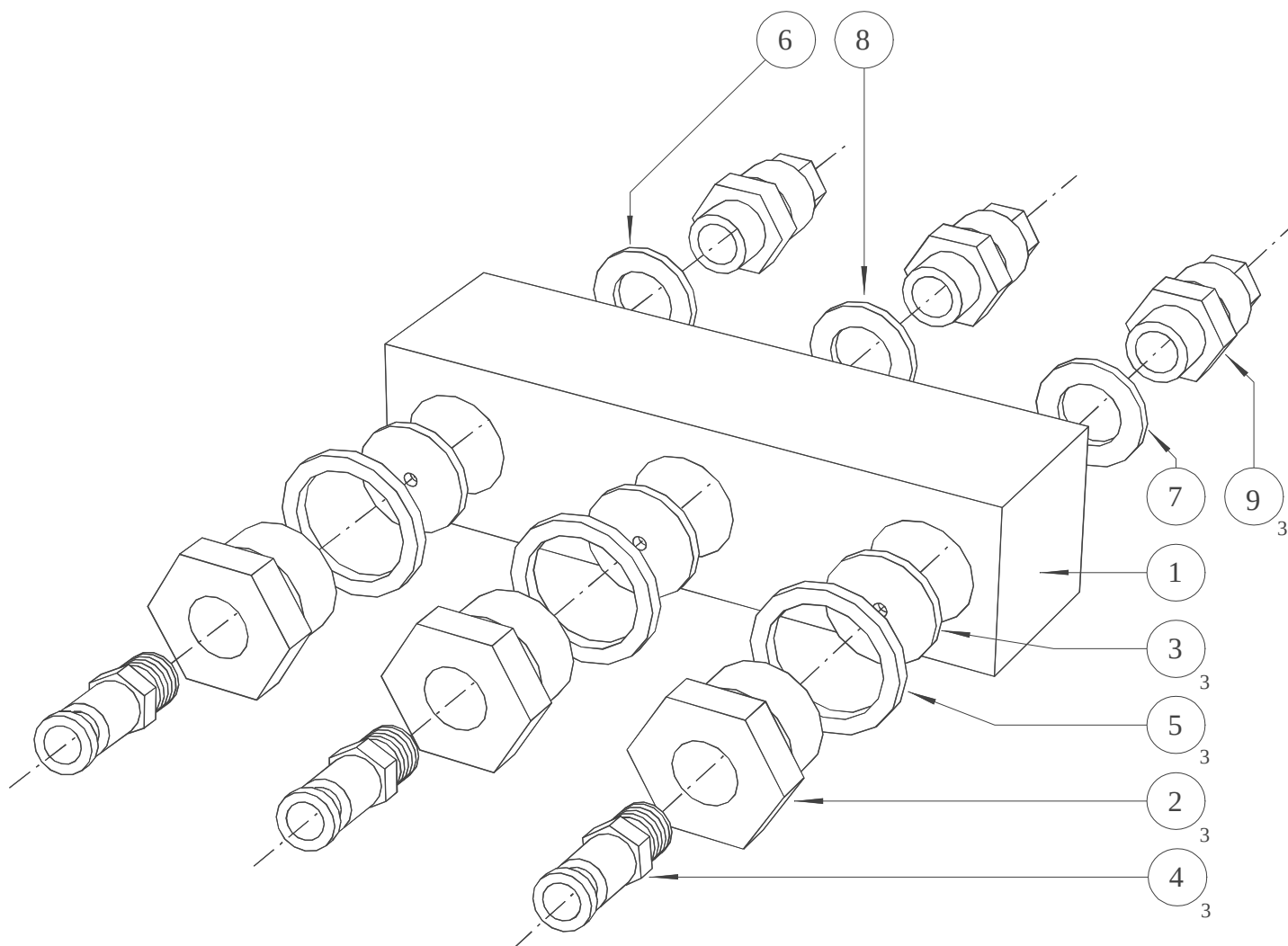
Manifold Inlet Block Assy
PARTS LIST



Item	Part No.	Description
1	2000019	Manifold Inlet Block Detail
2*	9000030	Straight, 1/4BSPMT-8mm OD PI
3	9000032	Straight, 1/4BSPMT 3/8BSPMT
4	9000034	Blank, 1/8BSPMT, Hex. Skt Head
5	9000035	Banjo Bolt, Double 3/8BSP PI
6	9000036	Banjo Body, Double 3/8BSP 2x6mm PI
7	9000037	Blank, 6mm OD PI
8	9000038	Valve, Solenoid, 2-2, 3/8BSP, 24V DC
9	9000041	Straight, 1/8BSPMT 6mm OD Tube PI
10	9000042	Washer, Sealing, 3/8BSP, Nylon
11	9000073	Blank, 1/4BSPMT, Hex. Skt.
12	9000105	Straight, 1/4BSPMT 6mm OD Tube PI
13	2000031	Valve, Non Return
14	2000037	Seal, Non Return Valve
15	9000855	Washer, 1/8BSP Nylon
16	9001405	Straight, 1/8BSPMP-6mm OD Tube Rapid

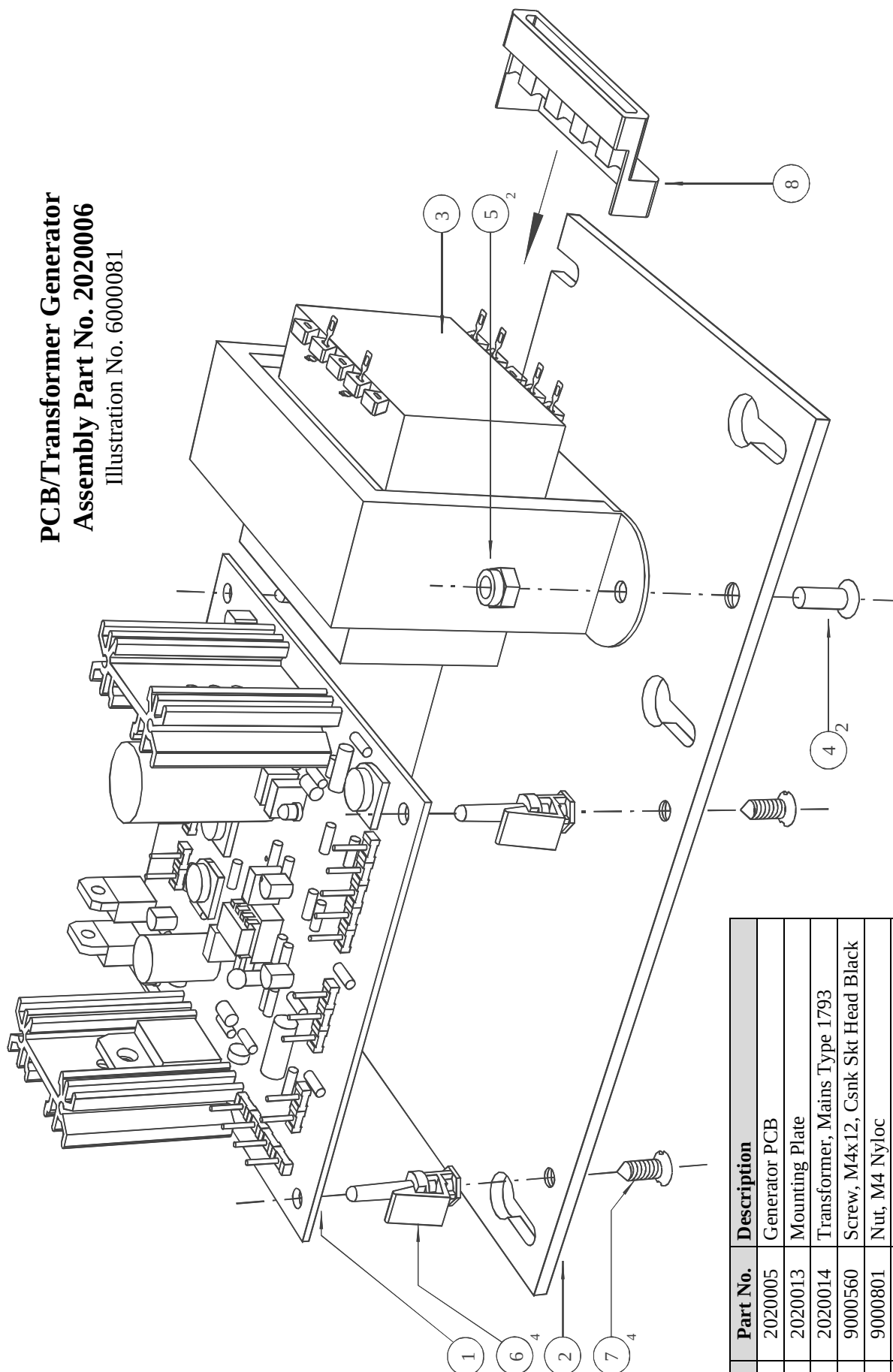
* For Boxfeed & Hopper GCU's This Item = 9000029 Straight, 1/4BSPMT OD CF

Manifold Outlet Block Assy **GCU-85, Part No. 2000007** Illustration No. 6000089

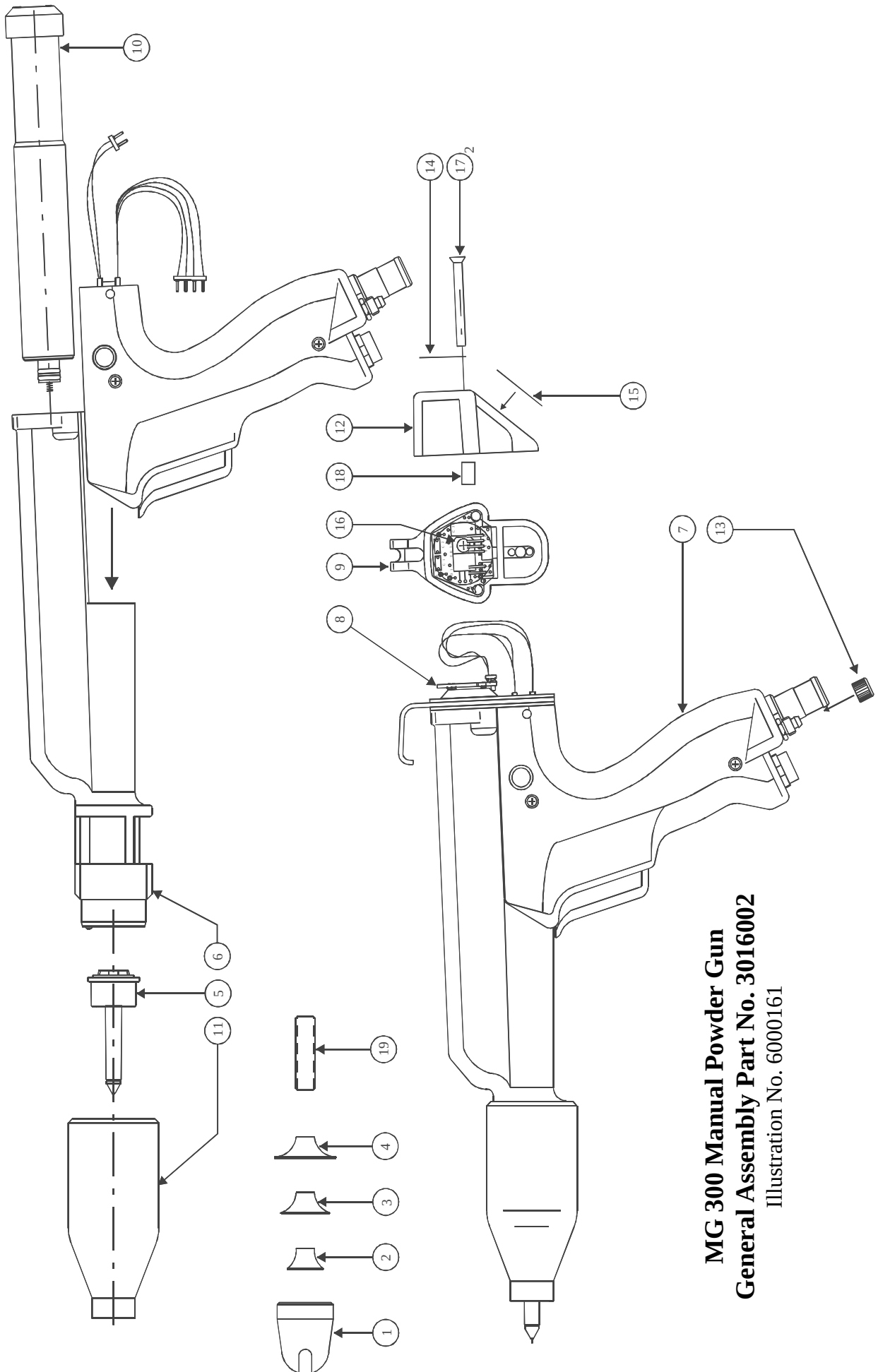


Item	Part No.	Description
1	2000018	Manifold Outlet Block
2	2000031	Valve, Non Return
3	2000037	Seal, Non Return Valve
4	9000041	Straight, 1/8BSPMT 6mm OD Tube PI
5	9000042	Washer, Sealing, 3/8BSP, Nylon
6	9000852	Washer, 1/8BSP Nylon, White
7	9000854	Washer, 1/8BSP Nylon, Red
8	9000855	Washer, 1/8BSP Nylon, Blue
9	9001405	Straight, 1/8BSPMP-6mm OD Tube Rapid

PCB/Transformer Generator
Assembly Part No. 2020006
 Illustration No. 6000081



Item	Part No.	Description
1.	2020005	Generator PCB
2.	2020013	Mounting Plate
3.	2020014	Transformer, Mains Type 1793
4.	9000560	Screw, M4x12, Csnk Skt Head Black
5.	9000801	Nut, M4 Nyloc
6.	9001156	Pillar, PCB Mounting
7.	9000545	Screw No. 8G x 9, 5Lg, Self Tapping
8.	9001492	Cover Terminals

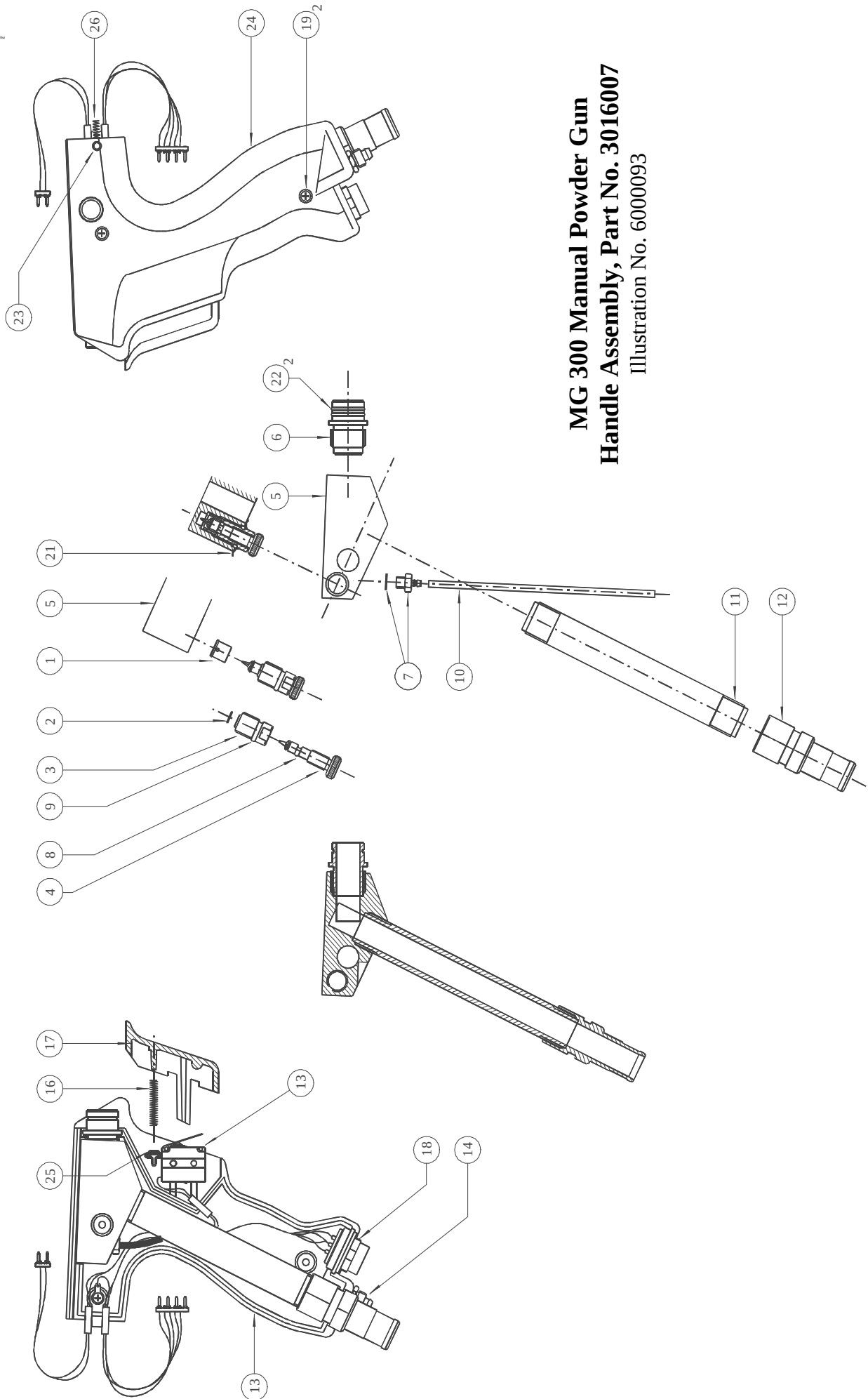


MG 300 Manual Powder Gun
General Assembly Part No. 3016002
 Illustration No. 6000161

MG 300 Manual Gun Assembly
PARTS LIST



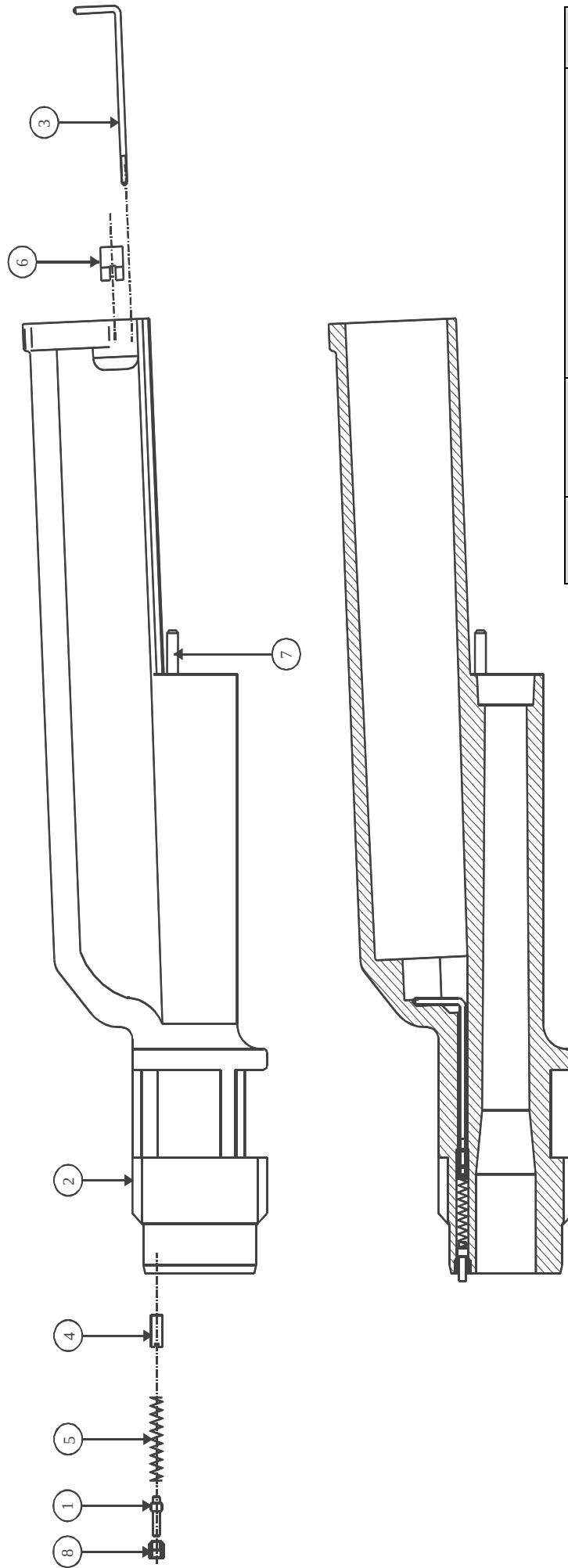
Item	Part No.	Description	Qty.
1	3016187	Slotted Cap Assy	1
2	3015047	Deflector Assy, Small	1
3	3015048	Deflector Assy, Medium	1
4	3015049	Deflector Assy, Large	1
5	3016185	Electrode Assembly	1
6	3016006	Barrel Assembly	1
7	3016007	Handle Assembly	1
8	3016008	Oscillator PCB Assy	1
9	3016010	Gun Hook Assembly	1
10	3016011	HV Multiplier Assembly	1
11	3016186	Nozzle Nut Assembly	1
12	3016027	Rear Cap	1
13	3016034	Air Connector Nut	1
14	3016042	Label, Type	1
15	3016083	Label, Rating	1
16	9000512	Screw, M3 x 8, Pozi Pan Head	1
17	9000571	Screw, M4 x 40, Ctsk skt head Blk	2
18	3016063	Locating Bush PCB	2
19	3016182	Electrode Sleeve	1



MG 300 Manual Powder Gun
Handle Assembly, Part No. 3016007
 Illustration No. 6000093

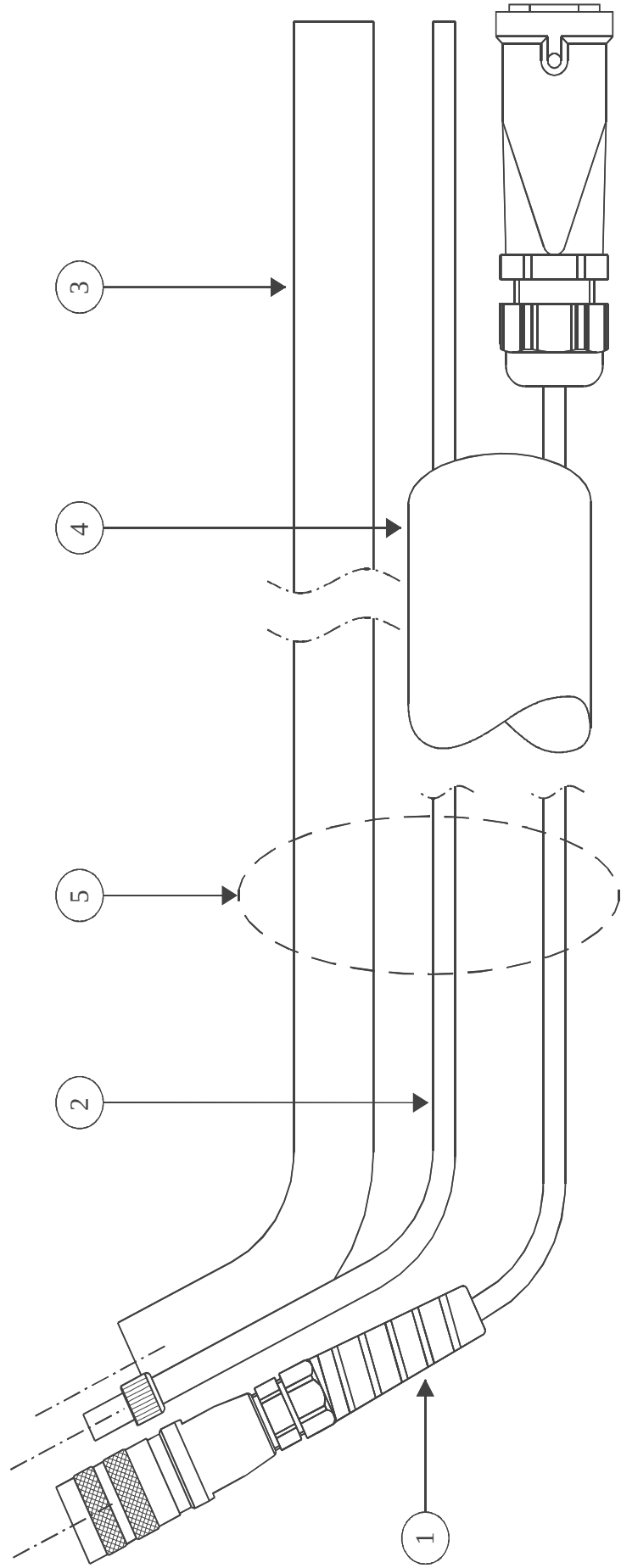
MG 300 GUN Handle Assembly
PARTS LIST

Item	Part No.	Description	Qty.
1	3016032	Air Regulator Orifice	1
2	9001379	Circlip	1
3	3016023	Air Regulator Body	1
4	3016022	Air regulator Needle	1
5	3016029	Powder Elbow	1
6	3016020	Powder Bore Insert	1
7	9001380	Air Fitting	1
8	9001376	O-Ring, 2.2x1.6	1
9	9001328	O-Ring, BS No. 011	1
10	9001378	3mm Airline	0.115
11	3016028	Powder Tube	1
12	3016031	Powder Tail	1
13	3016060	Handle Moulding, Left Hand Side	1
14	3016033	Air Fitting	1
15	3016045	Microswitch Assembly	1
16	9001375	Spring, Compression	1
17	3016018	Trigger Moulding	1
18	3016044	Connector Assembly	1
19	9000513	Screw, M3x20, Slr Csk Hd, Black	2
20	9000510	Screw, M3x6, Pan Head	1
21	3016062	Washer, Conductive, Plastic	1
22	9001377	O-Ring, 13.0x1.0	1
23	9001434	M3 Threaded Brass Insert	5
24	3016026	Handle Moulding, Right Hand Side	1
25	9000318	O-Ring, BS.007	1
26	9000375	Spring Compression	1



Item	Part No.	Description	Qty
1.	3015024	HT Contact Pin	1
2.	3016057	HT Barrel Type 85	1
3.	3016038	HT Contact Rod	1
4.	3016039	HT Contact Nut	1
5.	9001375	Spring, Compression	1
6.	9001435	Insert, Threaded	2
7.	3021022	Air Connection Pin	1
8.	3016013	HT Pin Retaining Screw	1

AG/MG 300 Powder Guns
Barrel Assembly, Part No. 3016006
 Illustration No. 6000094



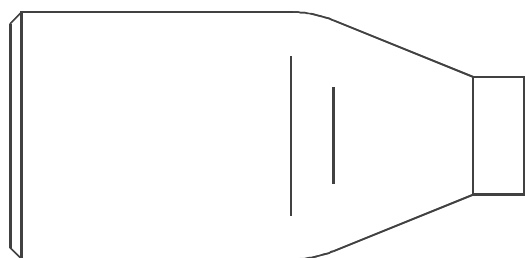
5m Hose & Cable Set General Assembly
Product No. 3016047
 Illustration No. 6000049

Item	Part No.	Description
1.	3016046	Cable Assembly
2.	9000084	Tubing, 6mm OD x 4mm ID, PU, Black
3.	9000081	Powder Hose Black
4.	9001436	Sleeving, Black
5.	9000256	Velcro, Double Sided

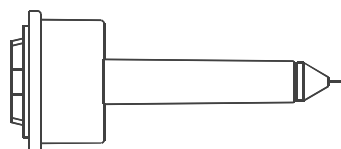
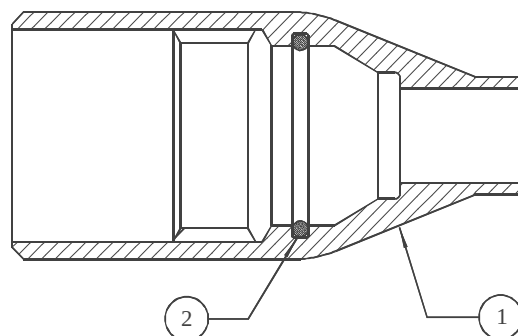
Nozzle Components

Automatic & Manual Powder Guns

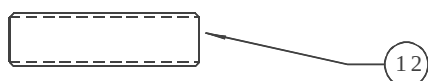
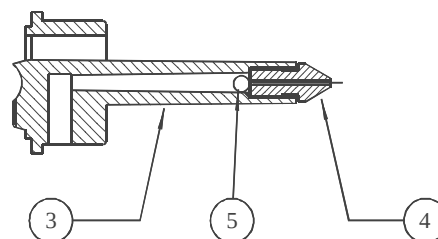
Illustration No. 6000164



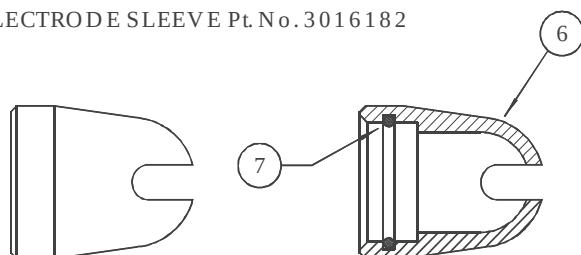
NOZZLE NUT ASSEMBLY Pt.No.3016186



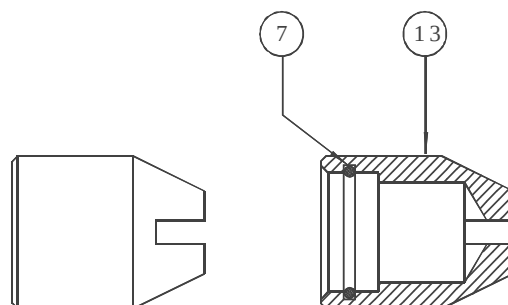
ELECTRODE ASSEMBLY Pt.No.3016185



ELECTRODE SLEEVE Pt.No.3016182



SLOTTED CAP ASSEMBLY (Manual Gun) Pt.No.3016187



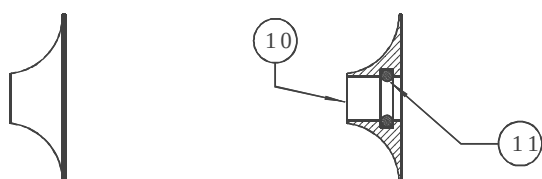
SLOTTED CAP ASSEMBLY (Auto Gun) Pt.No.3021



DEFLECTOR ASSEMBLY, SMALL Pt.No.3015047



DEFLECTOR ASSEMBLY, MEDIUM Pt.No.3015048



DEFLECTOR ASSEMBLY, LARGE Pt.No.3015049

Item	Part No.	Description
1	3016170	Nozzle Nut
2	9001330	O-Ring
3	3016158	Moulded Electrode
4	3016171	Electrode Support
5	3016172	Electrode
6	3016173	Slotted Cap (Manual Gun)
7	9001423	O-Ring
8	3015037	Deflector, Small
9	3015038	Deflector, Medium
10	3015039	Deflector, Large
11	9001422	O-Ring BS No. 11
12	3016182	Electrode Sleeve
13	3021082	Slotted Cap (Auto Gun)

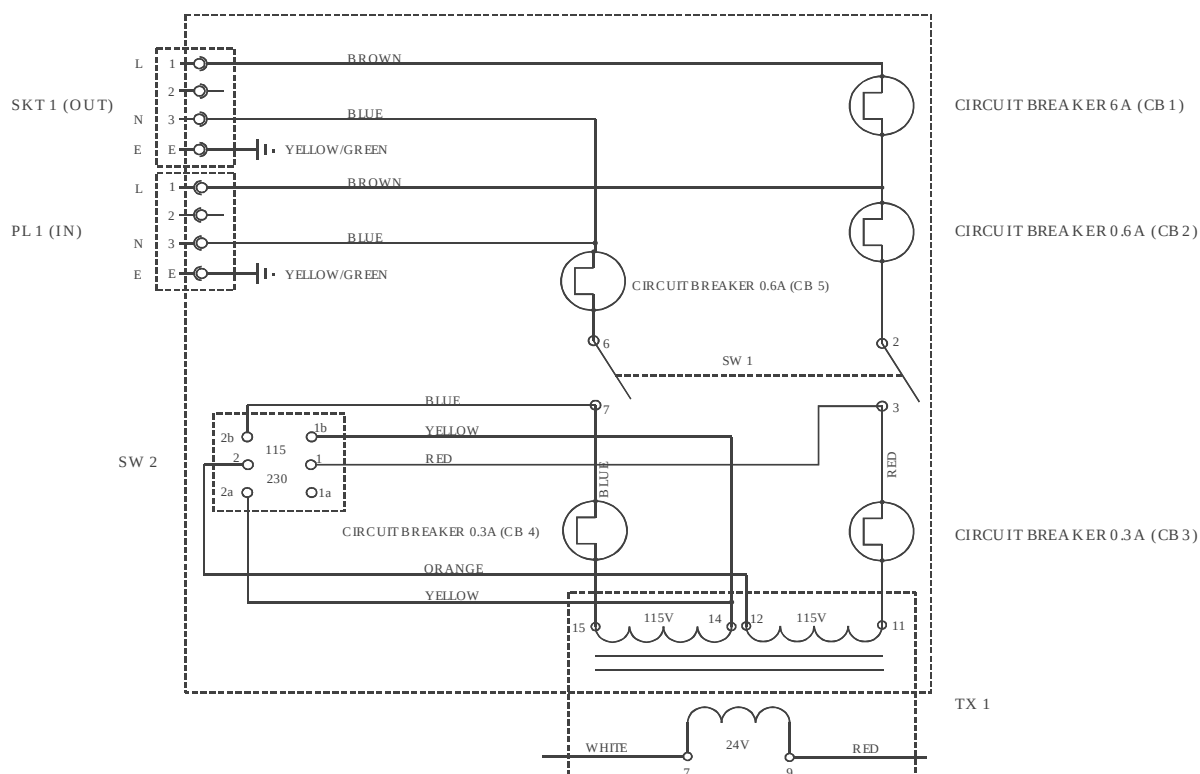
APPENDIX (ii)

SCHEMATIC DIAGRAMS

Gun Control Unit

Mains Voltage Wiring Diagram

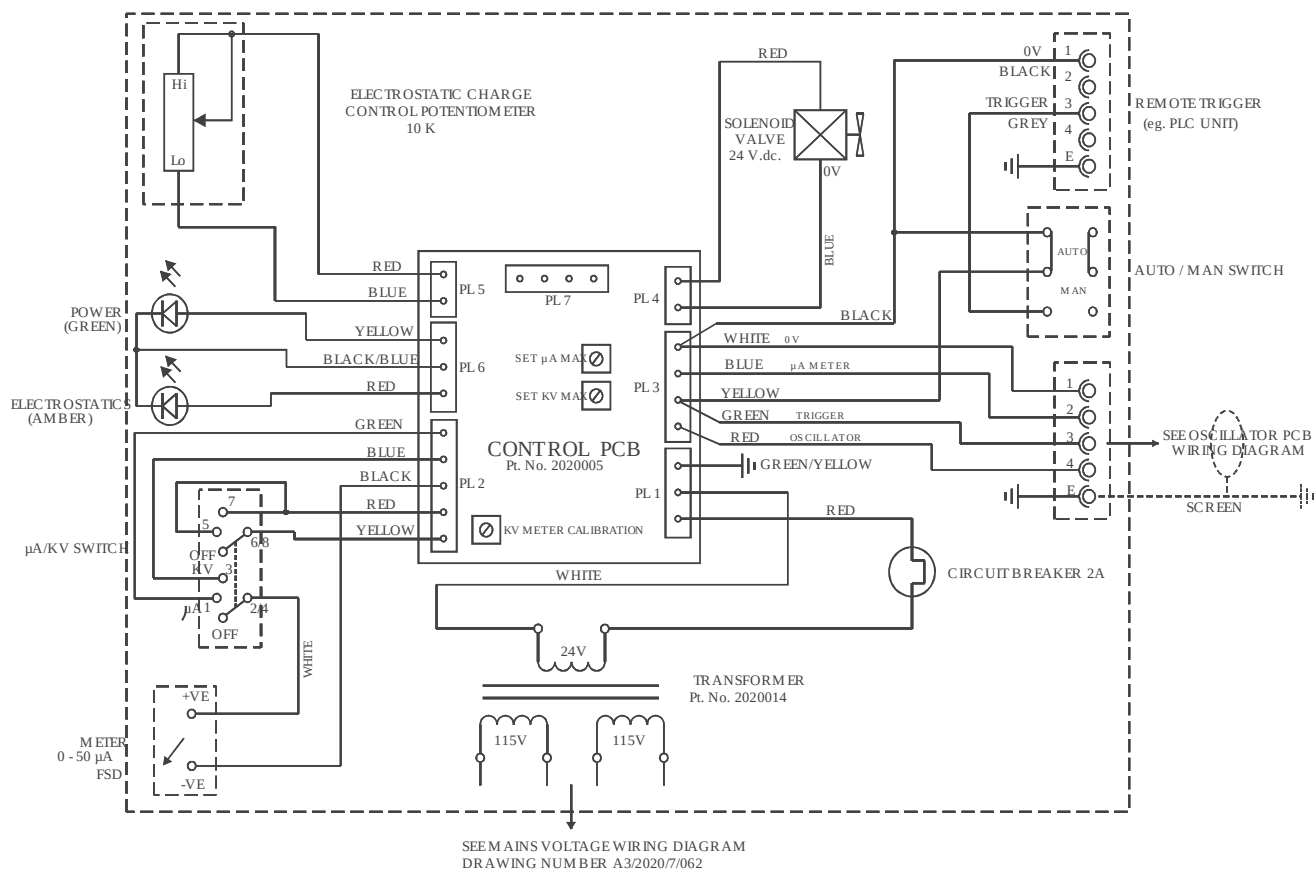
Illustration No. 6000082



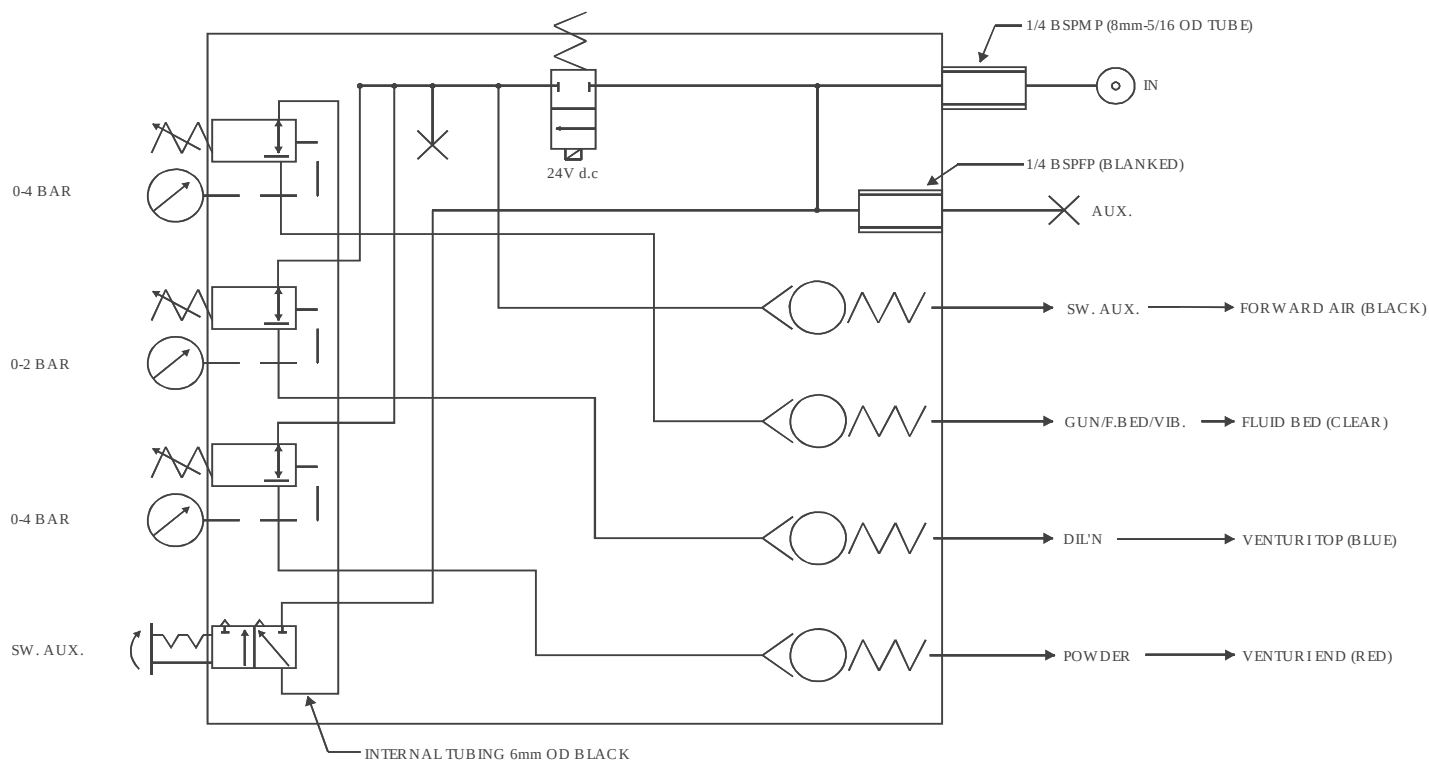
Gun Control Unit

Low Voltage Wiring Diagram

Illustration No. 6000083



Hopper Gun Control Unit Pneumatic Diagram Illustration No. 6000100



Manual Powder Gun Wiring Diagram, Oscillator PCB Illustration No. 6000084

