

**OPERATING AND MAINTENANCE**  
**INSTRUCTIONS**  
**FOR BURWELL BLAST MACHINE**



**(FOR 1642 & 2449 MODELS)**

AUSTRALIA'S LEADING MANUFACTURER AND DISTRIBUTOR OF SURFACE PREPARATION EQUIPMENT  
PAINT APPLICATION EQUIPMENT AND ABRASIVES, EXCLUSIVE AUSTRALIAN DISTRIBUTOR FOR  
CLEMCO INDUSTRIES AND AQUAMISER WATER JETTING EQUIPMENT

BURWELL TECHNOLOGIES PTY LTD A.B.N. 86 001 262 013  
**100% AUSTRALIAN OWNED**

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## **1.0: INTRODUCTION**

Abrasive blasting is the process of using compressed air or water to direct a high velocity stream of an abrasive material to clean an object or surface, abrade, etch or profile the condition of the surface for the application of paint or other type of coating. It is used across a wide range of industries for many different purposes, including the removal of rust and mill scale from metal objects.

Other uses include the frosting of glass for decorative purposes, removal of finishes from wood, cleaning plastic parts such as dentures, electronic parts etc. and removal of latence from concrete, cleaning brick and stone buildings, removal of heat treat scales, removal of tool marks from finished parts and a multitude of other uses. Some other applications of abrasive blasting include:

### **Surface Treatment and Preparation**

- Strength surfaces
- Add fatigue resistance.
- Improve corrosion resistance.
- Finishing and removing imperfections
- Expose flaws for inspection.
- Etch for bonding and adhesion

### **Cleaning and Removal**

- Paint and coatings
- Rust and oxidation
- Carbon deposits
- Burrs and flashing
- Excess brazing
- Sealants and adhesives

Burwell Abrasive Blast Equipment is designed and built-in accordance with all Authorities. All pressure vessels are Crown stamped and numbered for registration by customers with the Workcover Authority of NSW.

The equipment is manufactured and marketed to meet with ever demanding requirements of the contractors and users. It is for this reason that Burwell reserves the right to change design specifications without notice. The result of this is that you, the customer has purchased the most sophisticated and updated equipment possible in its field.

## **2.0: SAFETY AND RISK MANAGEMENT**

Due to the dangerous nature of abrasive blasting, it is important to consider the hazards and risks associated with such a process to minimise the potential for harm. Employers must protect workers from hazardous dust levels and toxic metals that may be generated from both the blasting material and the underlying substrate and coatings being blasted. The *Abrasive Blasting Code of Practice (2015)* provides practical guidance for persons conducting a business or undertaking the management of health and safety risks associated with abrasive blasting. Reference should be made to this code which provides guidance on managing the risks of abrasive blasting by following a systematic process that involves:

- Identifying hazards
- Assessing the risks associated with these hazards.
- Implementing & Reviewing control measures

## **2.1: Hazard Identification**

The first step in managing risks associated with abrasive blasting activities is to identify all the hazards that have the potential to cause harm. Potential hazards may be identified in a number of different ways including:

- Conducting a walk-through assessment of the workplace
- Observing the work and talking to workers about how work is carried out.
- Inspecting the plant and equipment that will be used during the abrasive blasting activity.
- Reading product labels, safety data sheets and manufacturer's instruction manuals
- Talking to manufacturers, suppliers, industry associations and health and safety specialists
- Reviewing incident reports

Common hazards include dusts, hazardous chemicals and risks associated with the use of plant and equipment. Examples of abrasive blasting hazards include:

- Airborne contaminants such as dust
- Hazardous chemicals, particulate matter, E.g. small particles of the substrate or blasting medium
- Abrasive blasting plant and equipment.
- Noise

## **2.2: Risk Assessment**

A risk assessment for abrasive blasting activities can be effective in minimising potential harm and will assist in determining the control measures that should be implemented. It will help to:

- identify which workers are at risk of exposure.
- determine what sources and processes are causing that risk.
- identify if and what kind of control measures should be implemented.
- check the effectiveness of existing control measures.

The following questions may help to assess the risk:

- What conditions will the operator be exposed to?
- What are the properties of the blasting medium being used?
- What is the substrate being blasted?
- What are the surface coatings of the items being blasted? E.g., do they contain toxic metals?
- What are the conditions under which abrasive blasting is carried out (E.g., confined spaces)?
- What are the skills, competence, and experience of the operator?

### 3.0: Hazards and Control Measures

#### 3.1: Prohibited and Restricted Chemicals

The WHS Regulations prohibit and restrict the use of some hazardous chemicals as abrasive material in an abrasive blasting process. According to *WHS Regulation 381*: A person conducting a business or undertaking must not use, handle, or store, or direct a worker to use, handle or store the hazardous chemicals (listed below) for abrasive blasting.

Do not use:	Blast material which may be used:
<ul style="list-style-type: none"> <li>• Materials with any radioactive substances where the level of radiation exceeds 1 becquerels per gram, so far as is reasonably practicable</li> <li>• Materials containing more than:               <ul style="list-style-type: none"> <li>○ 0.1% antimony</li> <li>○ 0.1% arsenic</li> <li>○ 0.1% beryllium</li> <li>○ 0.1% cadmium</li> <li>○ 0.5% chromium (except as specified for wet blasting)</li> <li>○ 0.1% cobalt</li> <li>○ 0.1% lead (or which would expose the operator to levels in excess of those set out in Part 7.2 of the Regulations)</li> <li>○ 0.1% nickel</li> <li>○ 0.1% tin</li> </ul> </li> <li>• Materials containing more than 1% free silica (crystalline silicon dioxide) including:               <ul style="list-style-type: none"> <li>○ River sand</li> <li>○ Beach sand or other white sand</li> <li>○ Dust from quartz rock</li> <li>○ Diatomaceous earth (pool filter material)</li> </ul> </li> </ul> <p><b>In dry abrasive blasting:</b></p> <ul style="list-style-type: none"> <li>• Recycled materials which have not been treated to remove respirable dust</li> <li>• Recycled materials for which treatment has not removed toxic materials to below the prescribed concentrations</li> <li>• Any substance likely to harm the upper respiratory tract</li> </ul> <p><b>In wet abrasive blasting:</b></p> <ul style="list-style-type: none"> <li>• any substance that contains chromate, nitrate or nitrite</li> </ul>	<p><b>The following materials will not usually result in exposures greater than national exposure standards. However, you should check the Safety Data Sheet to ensure the composition of substances does not exceed prohibited levels</b></p> <ul style="list-style-type: none"> <li>• ilmenite</li> <li>• aluminium oxide</li> <li>• garnet (low crystalline silica content only)</li> <li>• other rocks and mineral sands which do not contain significant levels of silica</li> <li>• metal shot</li> <li>• steel grit</li> <li>• crushed glass</li> <li>• sodium bicarbonate</li> <li>• plastic beads</li> <li>• glass beads</li> <li>• some metal slags (check content analysis before purchase)</li> <li>• dry ice</li> </ul> <p><b>Note: There are environmental requirements in relation to abrasive blasting mediums. If in doubt, seek advice from your local council.</b></p>

(Reference: *Work Healthy and Safety (Abrasive Blasting) Code of Practice 2015, p.35*)

#### 3.2: Asbestos

A person conducting a business or undertaking must not use, direct or allow a worker to use high pressure water spray or compressed air on asbestos or asbestos containing materials.

### **3.3: Lead**

Lead may be present in surface coatings or the object being blasted. The WHS Regulations contain specific requirements for working with lead in addition to the hazardous chemical's requirements. These include the identification of lead risk work and removing a worker from lead risk work in certain circumstances.

### **3.4: Naturally Occurring Radioactive Material**

The use of abrasives containing any radioactive substance where the level of radiation exceeds 1 becquerels per gram (Bq/g) is prohibited, so far as reasonably practicable. You should actively source material with lower radioactive content levels to minimise the risks from radiation.

### **4.0: Identifying Dust Hazards**

Abrasive blasting can generate large quantities of respirable and inhalable dust from the abrasive blasting medium and the surface of the object being blasted. 'Inhalable' dust means the dust present in the air which a worker can inhale through the nose or mouth during breathing. 'Respirable' dust is that portion of inhalable dust that is small enough to enter the lungs down to the lower bronchioles and alveolar regions. Respirable dusts may be more hazardous than inhalable dusts for some materials, such as crystalline silica which can result in permanent scarring of the lung tissue.

Dust hazards presented by the surface being blasted should also be considered, which could discharge particles of hazardous chemicals. Hazards include any paint or coating on the surface (which, for example, could contain lead) and the composition of the object or structure being blasted (which could contain asbestos or other hazardous chemicals).

### **5.0: Risk and Control Measures**

A combination of control measures may be required to adequately manage hazards and associated risk with abrasive blasting. This can be achieved for example through substitution, isolation or implementing different engineering controls. The control measures put into place to protect health and safety should be regularly reviewed to make sure they are effective and relevant. If not, it must be revised to ensure it is effective in controlling risk. Please additional information please refer to the *Abrasive Blasting Code of Practice (2015)*.

## 5.1: Administrative Controls - Exclusion Zones

Although open air blasting activities are not recommended, there may be occasions where there is no alternative. In these circumstances, exclusion zones (also known as buffer zones) should be used to protect workers and other persons in the vicinity from exposure to hazardous dust.

The size of the exclusion zone should be determined after assessing the risk to all unprotected people. The prevailing conditions at the time of blasting should be considered, for example, the exclusion zone may need to be extended down-wind. An exclusion zone should be established and maintained to exclude workers and other persons who are not wearing Respiratory Protective Equipment (RPE). Warning signs should be located so that they are clearly visible before entering the area. Where an exclusion zone interferes with other activities at a workplace, other workers should only work within the exclusion zone after being provided with RPE.

## 6.0: PERSONAL PROTECTIVE EQUIPMENT (PPE)

Abrasive blasting operators must use suitable protective equipment to protect themselves against high velocity abrasive particles. Equipment is selected to minimise risk to health and safety by ensuring that the equipment is:

- Suitable for the nature of the work and any hazard associated with the work.
- A suitable size and fit and reasonably comfortable for the person wearing it.
- Maintained, repaired or replaced so it continues to minimise the risk.

It is important to provide the worker with information, training and instruction in the proper use and wearing of personal protective equipment, as well as the storage and maintenance of personal protective equipment.

- **ALWAYS ensure appropriate Personal Protective Equipment (PPE) is worn when blasting.**

PPE should include:

- CE-approved air-fed helmet
  - Air for helmet must be supplied by a breathing air compressor or through a helmet air filter
- Abrasive-resistant clothing
- Protective gloves
- Protective footwear
- Hearing protection



### **6.1: Respiratory protection**

Workers engaged in abrasive blasting should be supplied with and wear an airline positive pressure hood or helmet fitted with an inner bib and a high visibility shoulder cape, jacket or protective suit. Respirator helmets must be supplied with breathing air of an adequate quality. An air purifying respirator should also be worn by the pot attendant and any other person within the work area while abrasive blasting is in progress, during maintenance or repair work or during the clean-up of dust.

### **6.2: Helmets and eye protection**

Helmets will provide protection from flying fragments to the eyes, head, and neck. Helmets should not be held or hung up by the air feed hose, dropped or left in areas where they might be exposed to dust and dirt or be subject to distortion. The helmet cape should be frequently inspected, periodic cleaning and immediate replacement if damaged. Protective eye equipment includes safety glasses, goggles, face shields, hoods or helmets with lenses designed to withstand medium to high velocity impact by flying objects.

### **6.3: Protective clothing**

To keep out dust and abrasive grit, protective suits or clothing should be worn and should have leather or elastic straps at the wrist and ankles and overlapping flaps at all suit closures. Protective gloves should be industrial safety gloves or mittens of an appropriate material to reduce penetration of particulate matter. Protective footwear should be made of material which reduces penetration from particulate matter, and where appropriate, should be waterproof.

### **6.4: Maintenance of PPE**

PPE must be maintained, repaired, or replaced to ensure that it continues to be effective. Maintenance of PPE includes:

- Daily cleaning and inspection of PPE by the worker for wear and damage
- Identification and repair or replacement of any worn or defective components of equipment
- Regular periodic inspection, maintenance, and testing of respiratory protective equipment in accordance with the manufacturer's instructions



## **7.0: METHOD OF OPERATION**

The Burwell Abrasive Blast Machine is built in cylindrical form with the abrasive feed point, known as the Abrasive Control Valve, located at the base of the Blast Machine Vessel. This device is designed and engineered for the exact metering of abrasive.

At the top of the machine is the filler (pop-up) Valve (3), which floats on a guide (5). The Valve, when closed, seats on a rubber ring (4) to ensure a leak proof condition. It will be seen that the body of the machine is made of rolled steel with a dished end at the top and a coned end at the base. The compressed air is fed to the machine via the Inlet Valve (1), after which the pipe is branched, one pipe leading to the pop-up valve guide (5) to pressurise the vessel and the other to the main airline leading to the abrasive control valve. The then pressurised machine feeds abrasive through the base of the vessel to the abrasive control valve (2). From there the abrasive is forced out of the "Y" piece and pot coupling (item 28) by means of the main airline previously mentioned, into the attached blast hose and the particles normally exit from the nozzle at approximately 650 Km/Hr.

Burwell Blast Machines are fitted with an inspection hole (6-7) for ease of maintenance. They also have the capabilities of full adjustment of the abrasive flow.

These machines are fitted with immediate shut down "Feathertouch" Dump Valves, which, when the trigger is released, instantaneous depressurisation occurs.

### **7.1: OPERATING INSTRUCTIONS**

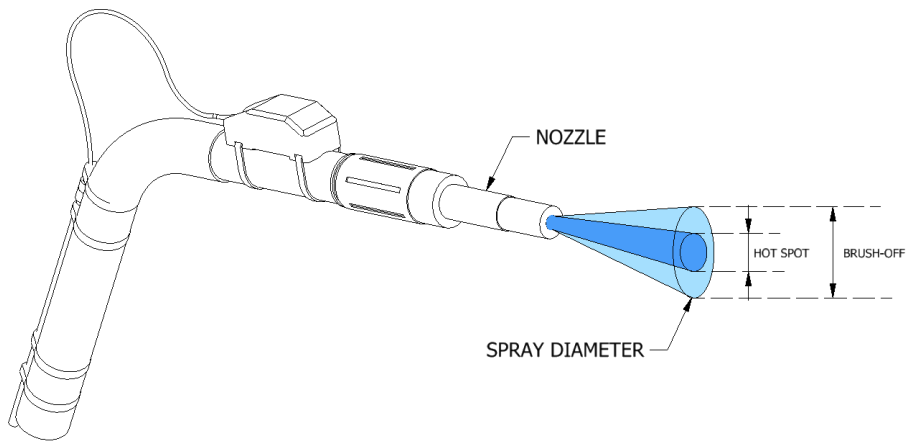
1. Connect Air Supply Hose from Compressor to inlet of Blast Machine and ensure all safety pins and whip checks are installed.
2. Ensure Choke Valve is Open (9).
3. Ensure Pneumatic Deadman (standard) is connected.
4. Ensure Electric Deadman (if fitted) trigger cable is plugged into ECK.
5. Check condition of Nozzle and Coupling Rubbers.
5. Connect Blast Hose to Blast Machine Pot Coupling (2), ensuring all safety pins and whip checks are installed.
7. Screw Nozzle into Nozzle Holder.
8. Ensure Moisture Trap (if fitted) is free of condensates.
9. Start Compressor.
10. Ensure Operator is wearing correct PPE.
11. Check Blast Helmet (visors, cape, air supply).
12. Depress and release trigger whilst pointing nozzle at object to be blasted to check operation of machine.

### **IMPORTANT NOTES**

1. Do not DROP or DRAG Deadman Switch.
2. Do not TAPE or WIRE UP Deadman Trigger.
3. Check Deadman Trigger control lines/cable for Wear or Damage daily.

## TO ADJUST ABRASIVE FLOW

1. More Abrasive - Turn knob on abrasive valve anti-clockwise until you achieve correct amount of grit
2. Less Abrasive - Turn knob on abrasive valve clockwise until you achieve correct amount of grit



### Pressure-Blast Air Requirements (SCFM)

Pressure (PSI)	20	30	40	50	60	80	100	120
1/8" nozzle	6	8	10	13	14	17	20	25
3/16" nozzle	15	18	22	26	30	38	45	55
1/4" nozzle	27	32	41	49	55	68	81	97
5/16" nozzle	42	50	64	76	88	113	137	152
3/8" nozzle	55	73	91	109	126	161	196	220

4 SCFM = 1 horsepower

Compressors should be sized to the next larger nozzle to allow for nozzle wear.

### Pressure-Blast Spray Diameters

Nozzle ID	Distance from Workpiece					
	6"	12"	18"	24"	30"	36"
1/8"	3/4"	1"	1"	1 1/2"	—	1 1/8"
3/16"	1 1/4"	1 3/8"	1 1/2"	2"	1 5/8"	2 1/2"
1/4"	1 1/4"	1 1/2"	1 7/8"	2 1/4"	2 1/8"	2 3/4"
3/8"	1 5/8"	1 3/4"	2"	2 1/4"	2 1/4"	3"

Brush-off
Hot Spot

**8.0: TROUBLESHOOTING**

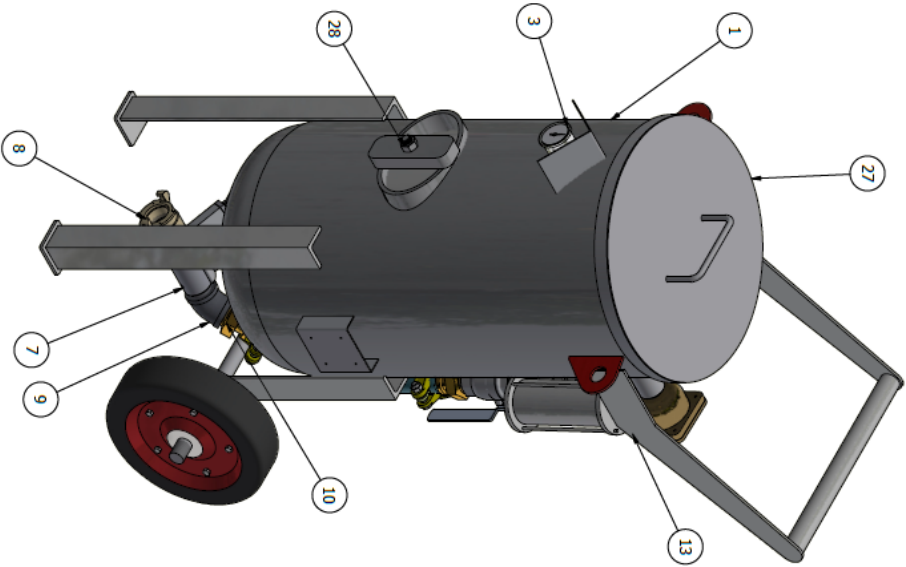
PROBLEM	REMEDY
1. Abrasive will not flow from nozzle	<ul style="list-style-type: none"> <li>a. Unscrew nozzle, check for blockage.</li> <li>b. Dismantle hand hole cover from blast machine, check for large foreign objects blocking outlet hole.</li> <li>c. Ensure abrasive is completely dry.</li> <li>d. Check Abrasive valve for blockages.</li> <li>e. Use Choke valve to choke hose and clear blockage.</li> <li>f. Dismantle abrasive control valve, clean, and reassemble as per drawing attached.</li> </ul>
2. Abrasive flowing intermittently.	<ul style="list-style-type: none"> <li>a. Turn choke valve on and off in fast succession ensuring it is in the on position when you stop.</li> <li>b. Adjust abrasive control valve to desired setting.</li> </ul>
3. Blast Machine leaks through top dish.	<ul style="list-style-type: none"> <li>a. Visually check for wear on pop up valve and pop-up valve seating rubber. If they are worn, replace them through the hand hole.</li> <li>b. Check to ensure that the pop-up valve is central to the top hole. If not, remove hand hole and centre the pop-up valve with a lever.</li> </ul>
4. Dump Valve leaking during operation	<ul style="list-style-type: none"> <li>a. Dismantle and check for wear. If worn, replace parts as necessary and reassemble as per attached drawing.</li> </ul>
5. Machine seems to be blasting slowly and all of the above have been checked.	<ul style="list-style-type: none"> <li>a. Dismantle moisture trap (if fitted). Replace filter element if clogged and reassemble.</li> <li>b. Check compressor for output pressure. Auto Inlet Valve may need dismantling, cleaning, lubricating, or servicing.</li> </ul>
6. Machine will not operate.	<ul style="list-style-type: none"> <li>a. Check air supply to the machine.</li> <li>b. Check for leaks in twin line.</li> <li>c. Check dead man control and rubber button bumper for seal.</li> </ul>
7. Machine will not stop	<ul style="list-style-type: none"> <li>a. Check electric cable for continual supply. Power, use ohms meter (electric Deadman).</li> <li>b. Check Manual Override Button on Solenoid (electric).</li> <li>c. Check Exhaust Filter is clean.</li> <li>d. Check Inlet Valve (AAV valve).</li> </ul>

**9.0: 1642 & 2449 Blast Machine Schematic**

No:	PART No:	DESCRIPTION	QTY
	0302-2007	Thompson II Abrasive Valve – 1-1/4" (fitted to constant pressure pots only)	1
	0304-3852	Pop Up Valve	1
	0404-02325	Pop Up Valve Seating Rubber	1
	B48F-15	Pop Up Valve Guide (1642)	1
	0304-5215	Pop Up Valve Guide (2449)	1
	0304-4836	Hand Hold Cover Only	1
	0304-4839	Hand Hold Cover Gasket	1
	0302-6821	Micromiser Abrasive Valve 1-1/4"	1
	0304-1476	Pressure Gauge, 1/4" Rear Entry	1
	0304-8635	Valve, Ball, 1 1/4" BSP, F and F	1
	0601-0075	Choke Valve Hose 1-1/4"	1
	0601-2146	Hose Tail, 1 1/4" BSP x 1" (P3)	2
	0304-4810	Wheel 2801 Dia Rubber (1642 Only)	2
	0304-0164	Lid for 1642 Blast Machine	1
	0304-0166	Screen for 1642 Blast Machine	1
	0304-2244	Lid for 2449 Blast Machine (V2.0)	1
	0304-2246	Screen for 2449 Blast Machine (V2.0)	1

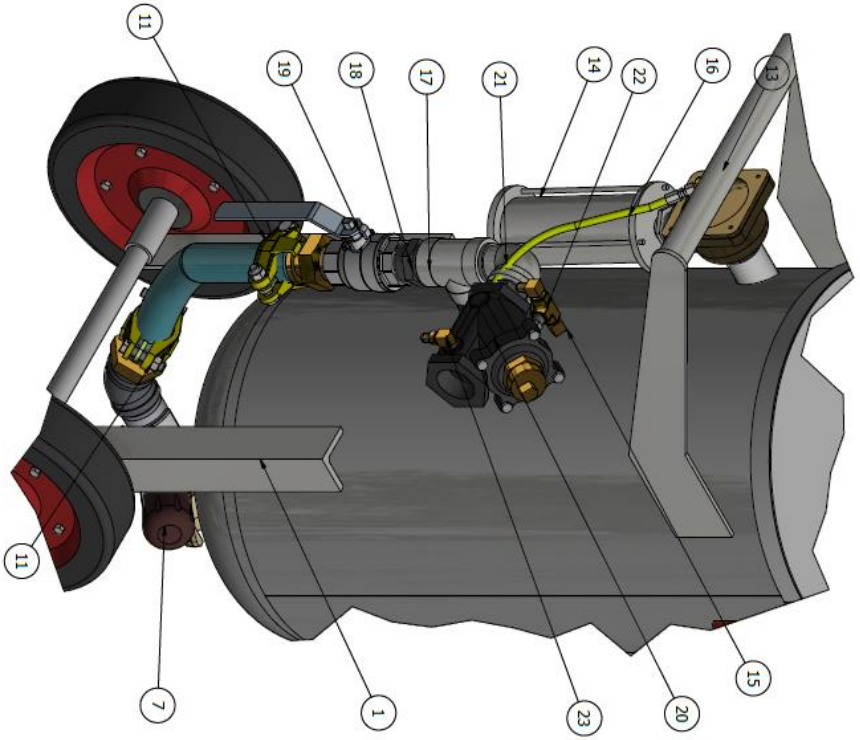
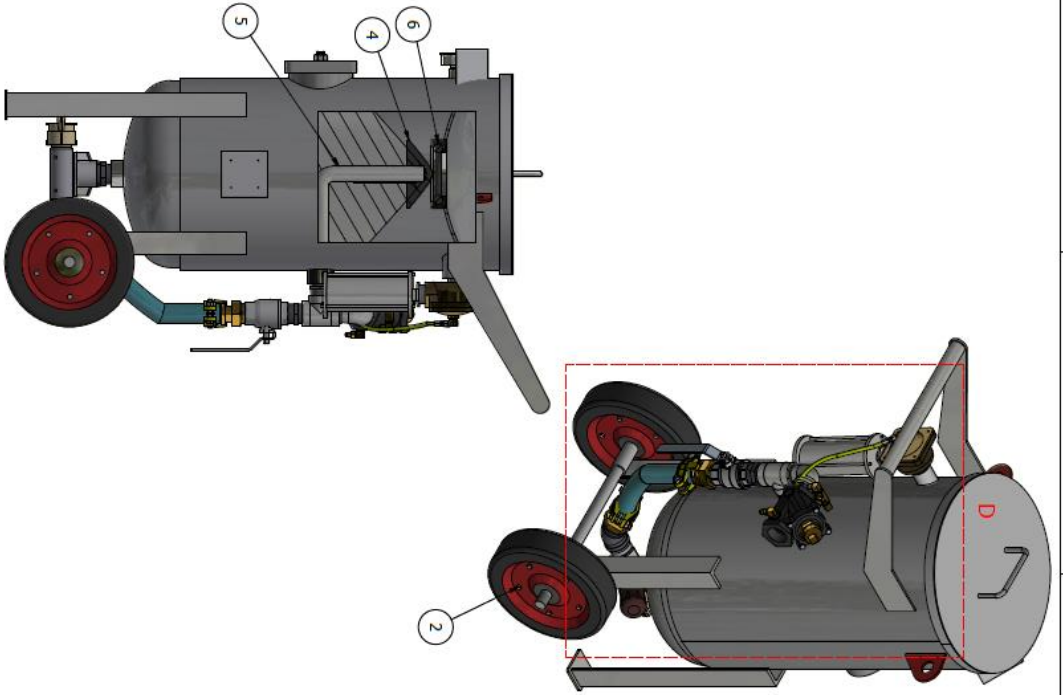


REVISION HISTORY			
REV	BY	DATE	DESCRIPTION
B	MC	19/12/2022	PART NUMBERS UPDATED



ASSEMBLY - PARTS LIST ( BOM QTY FOR 1 OFF UNIT )				
ITEM	ITEM QTY	PART NUMBER	DESCRIPTION	DRAWING NUMBER
1	1	1642 BLAST POT WM-02	BLAST POT WM-02	Bp1642-0002
2	2	0304-4810	WHEEL POT, LGE 280 X 67 MM (NO BEARING)	BPN: 0304-4810
3	1	0304-1476	GAUGE, PRESSURE - 1/4" R/E	BPN: 0304-1476
4	1	0302-8352	POP UP VALVE COMPLETE	BVCACA-0001
5	1	B48F-15	POP UP VALVE GUIDE 1 1/4"	BPN: B48F-15
6	1	0404-02325	POP UP VALVE SEATING RUBBER	BPN: 0404-02325
7	1	0302-6821	MICROMISER ABRASIVE VALVE 1 1/4" BSP	BPN: 0302-6821
8	1	0304-7772	COUPLING, POT NYLON 7716 EA	BPN: 0304-7772
9	1	5509-0114	ELBOW, GAL 1 1/4" BSP 45 DEG	BPN: 5509-0114
10	2	0601-2146	MALE STEM (HOSE TAIL) 1 1/4"	BPN: 0601-2146
11	2	3016-1140	CLAMP HOSE, 2 BOL T C/W CLAW (SK44)	BPN: 3016-1140
12	2	0305-5811	NIPPLE, B/S 1 1/4" BSP	BPN: 0305-5811
13	1	0405-3371	CLEMCO 1" DIAPHRAGM VALVE (15TLR3371)	BPN: 0405-3371
14	1	0305-1012	DUMP SILENCER	BPN: 0305-1012
15	3	0405-02513	ELBOW 90 DEG 1/4" NPT X 3/16 HOSE	BPN: 0405-02513
16	1	2454	HOSE COUPLED 3/16" ID X 18"	BPN: 2454
17	1	3008-1369	TEE, GAL MAL 1 1/4" BSP FR. F FULL BORE 3000P-SI	BPN: 3008-1369
18	3	0305-8634	NIPPLE, GAL MAL 1 1/4" BSP	BPN: 0305-8634
19	1	0304-8635	VALVE, BALL 1 1/4" BSP FULL BORE	BPN: 0304-8635
20	1	0302-2281	1 1/4 INCH AAV VALVE	BPN: 0302-2281
21	1	0305-8631	ELBOW, GAL MAL 1 1/4" BSP M & F	BPN: 0305-8631
22	1	3008-0761	TEE, BRASS 1/4" x 1/4" BSP M & M	BPN: 3008-0761
23	2	0405-03993	ELBOW, BRASS 1/8" NPT 90 DEG	BPN: 0405-03993
24	1	0405-01945	ADAPTOR 1/8" NPT x 1/16" ORIFICE	BPN: 0405-01945
25	1	3006-1418	NIPPLE, GAL MAL 1/4" x 1/8" BSP RED	BPN: 3006-1418
26	1	0304-0167	16" SCREEN	BVSCR16-0001
27	1	0304-0164	16" LID	BVCALID16-0001
28	1	0304-4836	HAND HOLE COVER - 180x125mm	BPCHH-0001 / 2
29	1	0601-0075	1 1/4" CHOKE HOSE	BPN: 0601-0075

**1642 PARTS BREAKDOWN**

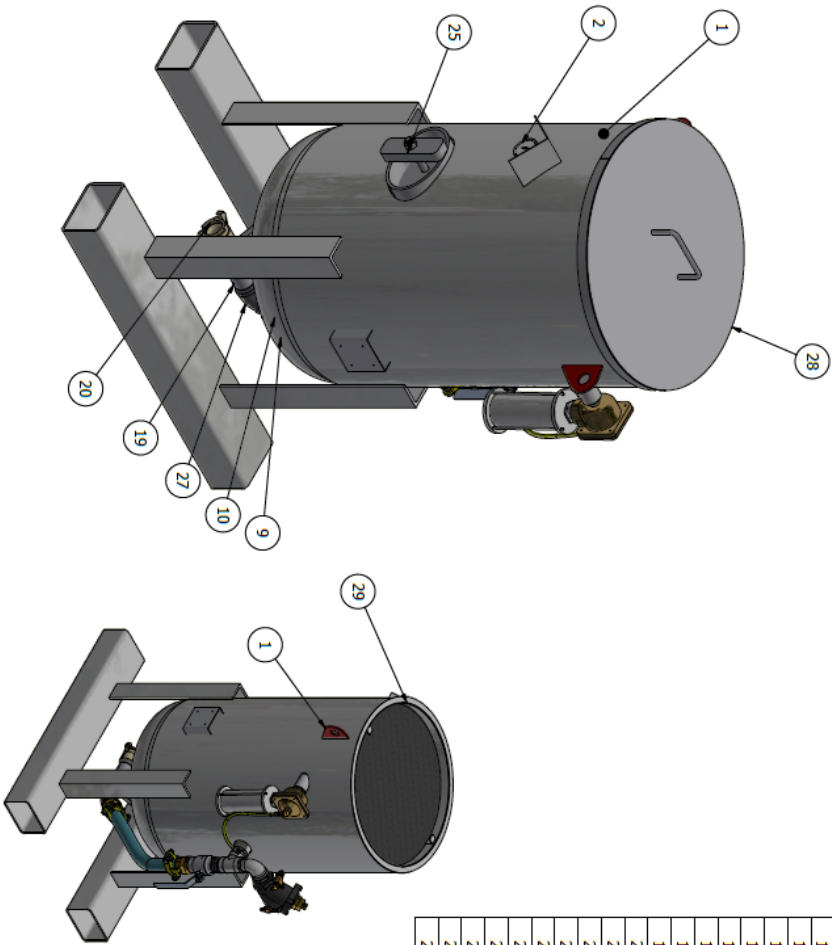


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**1642 PARTS BREAKDOWN**

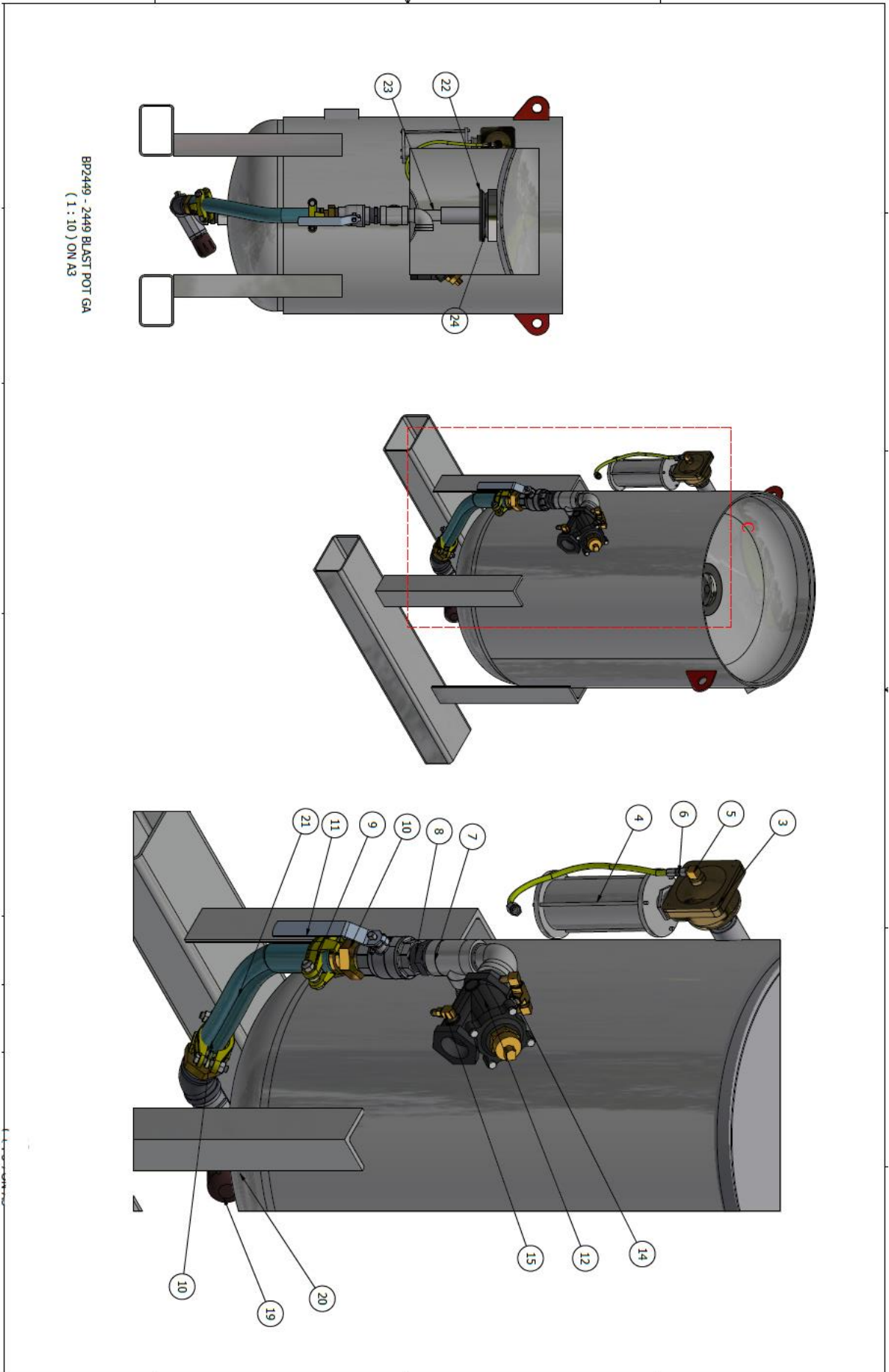


REVISION HISTORY			
REV	BY	DATE	DESCRIPTION
B	MC	19/12/2022	PART NUMBERS UPDATED



ASSEMBLY - PARTS LIST ( BOOM QTY FOR 1 OFF UNIT )				
ITEM	ITEM QTY	PART NUMBER	DESCRIPTION	DRAWING NUMBER
1	1	2449 BLAST POT WM-02	BLAST POT WM-02	BP2449-0002
2	1	0304-1476	GAUGE, PRESSURE - 1/4" R/E	BPN: 0304-1476
3	1	0405-3371	CLEMCO 1" DIAPHRAGM VALVE (15TLR3371)	BPN: 0405-3371
4	1	0305-1012	DUMP SILENCER	BPN: 0305-1012
5	3	0405-02513	ELBOW 90 DEG 1/4" NPT x 3/16 HOSE	BPN: 0405-02513
6	1	2454	HOSE COUPLED 3/16" ID x 18"	BPN: 2454
7	1	3008-1369	TEE, GAL MAL 1 1/4" BSP F& F FULL BORE 3000PSI	BPN: 3008-1369
8	3	0305-8634	NIPPLE, GAL MAL 1 1/4" BSP	BPN: 0305-8634
9	2	3016-1140	CLAMP HOSE, 2 BOLT C/W CLAW (SK44)	BPN: 3016-1140
10	2	0601-2146	MALE STEM (HOSE TAIL) 1 1/4"	BPN: 0601-2146
11	1	0304-8635	VALVE, BALL 1 1/4" BSP FULL BORE	BPN: 0304-8635
12	1	0302-2281	1 1/4 INCH AAV VALVE	BPN: 0302-2281
13	1	0305-8631	ELBOW, GAL MAL 1 1/4" BSP M & F	BPN: 0305-8631
14	1	3008-0761	TEE, BRASS 1/4" x 1/4" BSP M & M	BPN: 3008-0761
15	2	0405-03993	ELBOW, BRASS 1/8" NPT 90 DEG	BPN: 0405-03993
16	1	0405-01945	ADAPTOR 1/8" NPT x 1/16" ORIFICE	BPN: 0405-01945
17	1	0305-5811	NIPPLE, B/S 1 1/4" BSP	BPN: 0305-5811
18	1	3006-1418	NIPPLE, GAL MAL 1/4" x 1/8" BSP RED	BPN: 3006-1418
19	1	0302-6821	MICROMISER ABRASIVE VALVE 1 1/4" BSP	BPN: 0302-6821
20	1	0304-7772	COUPLING, POT NYLON 7716 EA	BPN: 0304-7772
21	1	0601-0075	1 1/4" CHOKE HOSE	BPN: 0601-0075
22	1	0302-8352	POP UP VALVE COMPLETE	BVCACA-0001
23	1	0304-5215	POP UP VALVE GUIDE 1" NB	BPN: 0304-5215
24	1	0404-02325	POP UP VALVE SEATING RUBBER	BPN: 0404-02325
25	1	0304-4836	HAND HOLE COVER - 180x125mm	BPCGHH-0001 / 2
26	1	0304-4837	SEATING RING (LARGE)	BVCPSR-0002
27	1	5509-0114	ELBOW, GAL 1 1/4" BSP 45 DEG	BPN: 5509-0114
28	1	0304-2244	24" LID	BVCALID24-0001
29	1	0304-2246	24" SCREEN WM-01	BVSCR24-0001

**2449 PARTS BREAKDOWN**



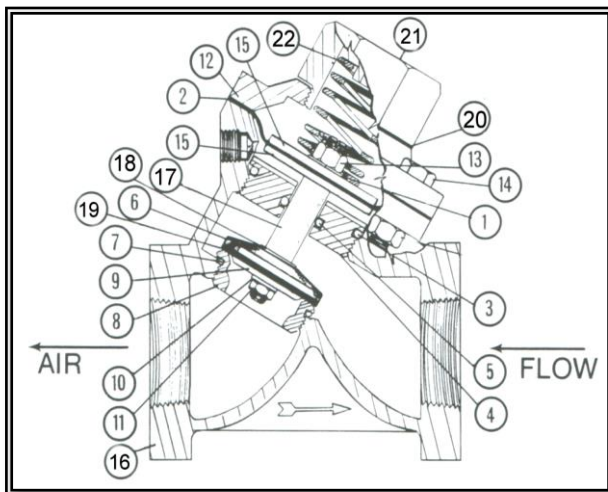
**2449 PARTS BREAKDOWN**



## 9.1: Valve Diagrams and Spares Listing

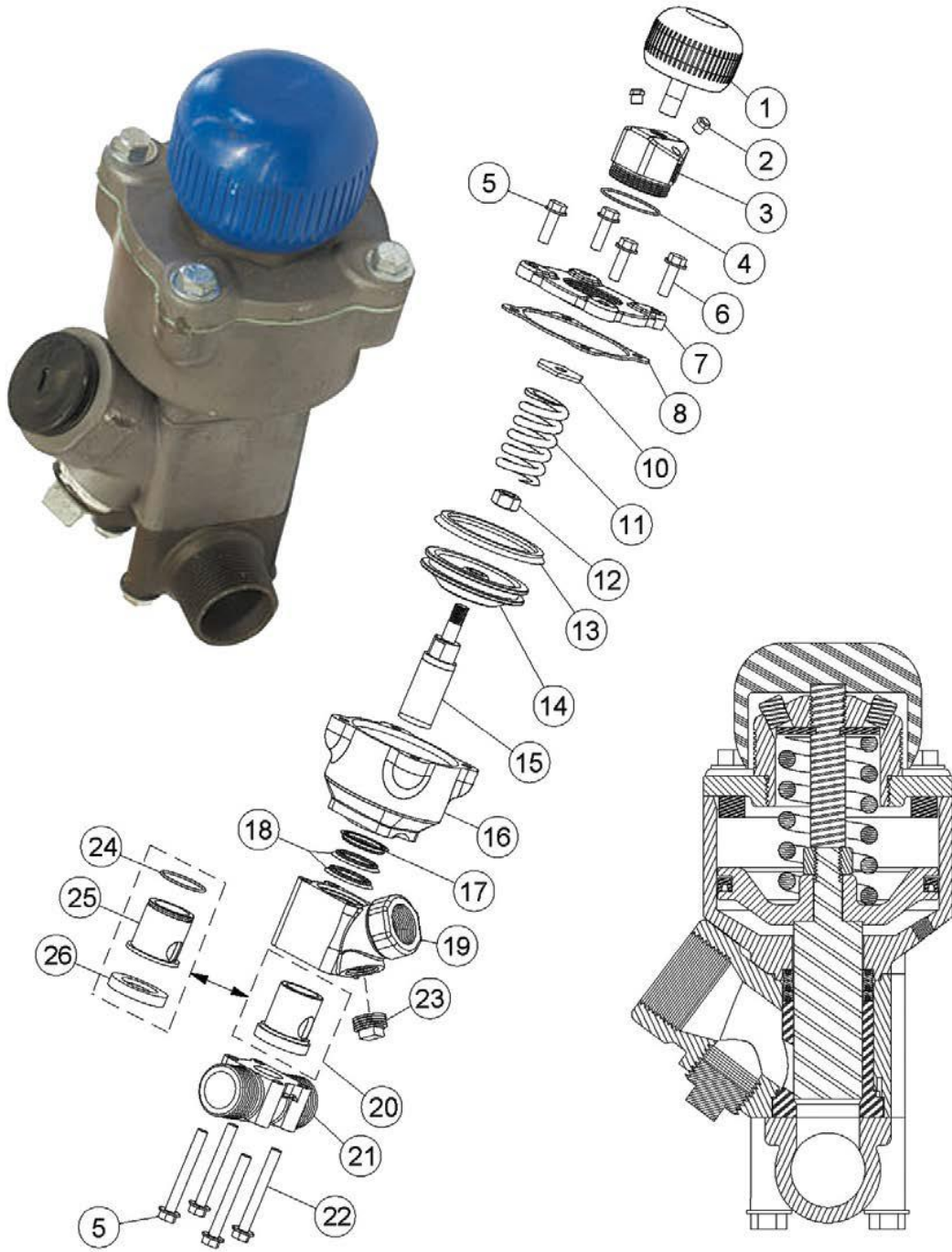
### Air Inlet Valves - AAV 1-1/4" and AAV 1-1/2"

NO.	OLD PART #	NEW PART #	DESCRIPTION
Assy	AAV-1000	0302-2281	Auto Air Valve 1 1/4
Assy	AAV-1500	0302-2282	Auto Air Valve 1 1/2
1	AAV-1	0305-2801	Lock Nut and Washer (4 off)
2	AAV-2	0305-2802	Diaphragm
3	AAV-3	0305-2803	O Ring
4	AAV-4	0305-2804	Retainer Bushing
5	AAV-5	0305-2805	O Ring
6	AAV-6	0305-2806	Disc Retainer
7	AAV-7	0305-2807	O Ring
8	AAV-8	0305-2808	Seat
9	AAV-9	0305-2809	Disc Plate
10	AAV-10	0305-2810	Washer
11	AAV-11	0305-2811	Lock Nut
12	AAV-12	0305-2812	Cap
13	AAV-13	0305-2813	Lock Nut
14	AAV-14		Cap Screw (4 off) <b>NS</b>
15	AAV-15	0305-2815	Diaphragm Plate (2 off)
16	AAV-18		Body. 1-1/4", 1-1/2" <b>NS</b>
17	AAV-19	0305-2819	Shaft
18	AAV-20	0305-2820	Washer
19	AAV-21	0305-2821	Disc
20	AAV-22	0305-2822	O Ring
21	AAV-23	0305-2823	Spring Retainer
22	AAV-24	0305-2824	Spring
		0305-1050	Repair Kit for 1-1/4" and 1-1/2" AAV



**THOMPSON II VALVE**

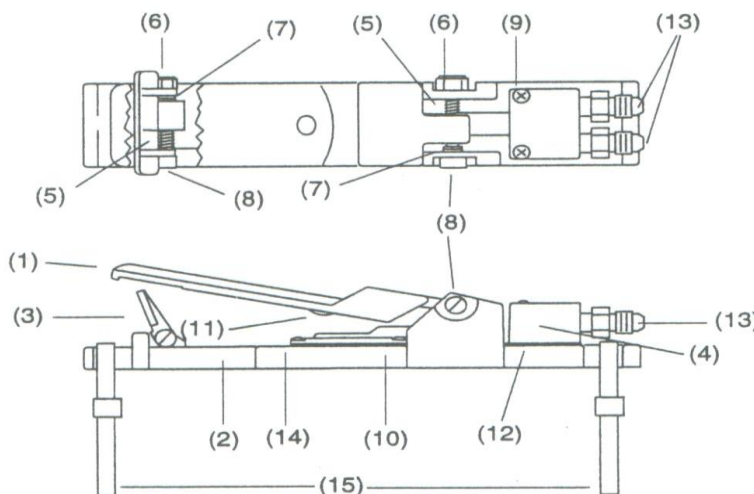
NO	OLD PART NO	NEW PART NO	DESCRIPTION	QTY
	2152-007	0302-2007	Thompson Valve II 1-1/4" c/w Tungsten Carbide Sleeve	
1	2152-000-01		Knob <b>NS</b>	1
2	2152-000-17		Breather Vent <b>NS</b>	1
3	2152-000-12	0305-5212	Spring Retainer	1
4	2152-000-18	0305-5218	O-Ring	1
5	7027-503-02	0302-0302	Washer	1
6	7010-507-07		Hex Bolt, 3/8" UNC 1-1/4" <b>NS</b>	4
7	2152-000-02	215200002	Cap Plate	1
8	2152-000-16	0305-5216	Cap Gasket	1
9	2149-000-19	2149-000-19	Bump Ring	1
10	2152-000-25	0305-5225	Vibration Disc	1
11	2152-000-03	0305-5213	Spring	1
12	2149-000-08		Nut <b>NS</b>	1
13	2149-000-04	0305-4904	Piston Seal	1
14	2152-000-05	0305-5205	Piston	1
15	2152-000-07	0305-5207	Tungsten Carbide Plunger	1
16	2152-000-09	0305-5209	Cylinder	1
17	2149-500-06	0305-4956	Plunger Seal (Molythene)	1
18	2152-000-06	0305-5206	Plunger Seal (Urethane)	1
19	2152-000-14	0305-5214	Body	1
20	2152-100-13	0305-52113	Urethane Sleeve	1
21a	2152-000-15	0305-5215	Base 1-1/4", machined BSP	1
22	7010-507-95	0302-0795	Hex Bolt 3/8 x 4-3/8"	1
23	3014-505		Plug <b>NS</b>	1
24	2152-000-21	0305-5221	O-Ring	1
25	2152-000-13	0305-5213	Tungsten Sleeve	1
26	2152-000-10	0305-5210	Seat	1
27a	2152-000-99	0305-0099	Repair Kit, Tungsten includes Tungsten Carbide Sleeve, O-Rings, Piston Seal, Tungsten Carbide Plunger, Plunger Seals, Seat, Cap Gasket	1
28a	2152-000-98	0305-5298	Seals Kit, Tungsten includes O-Rings, Piston Seal, Plunger Seals, Seat and Cap Gasket	1



## 9.2: Remote Deadman Control Systems

### RLX Pneumatic Remote-Control System

NO.	PART NO.	DESCRIPTION	QTY
-	0402-10565	RLX Pneumatic Control Handle complete	
-	0402-07625	RLX Pneumatic control Handle with ACS switch	
-	0301-20525A	Hose, Twinline Coupled 10mtr Deadman	
-	0401-20525	Hose, Twinline Coupled 20mtr Deadman	
-	0304-2240	Hose, Coupled Twinline 3'	
1	0402-10573	Handle	
2	0402-10568	Body	
3	0402-10564	Lever Lock	
4	0402-10562	Pneumatic Adaptor	
5	0402-05823	Spring, lever, 2 required	
6	0402-05815	Nut, 8-32 lock s/s, 2 required	
7	0402-05434	Spacer washer, s/s, 4 required	
8	0402-05817	Screw, 3/16"x 1 1/4" shoulder, 2 required	
9	0402-05819	Screw, 8-32 x 1" round head, 2 required	
10	0402-05818	Screw, 4-40 x 3/8" fillister head, 2 required	
11	0402-05821	Rubber button bumper	
12	0402-10563	Gasket, pneumatic adaptor	
13	0404-01940	Adaptor 1/8" NPT	
14	0402-05814	Screw 8-32 x 3/8" s/s, round head, 2 required	
15	0402-02195	Tie Nylon	



**RLX Pneumatic Remote Control Handle**

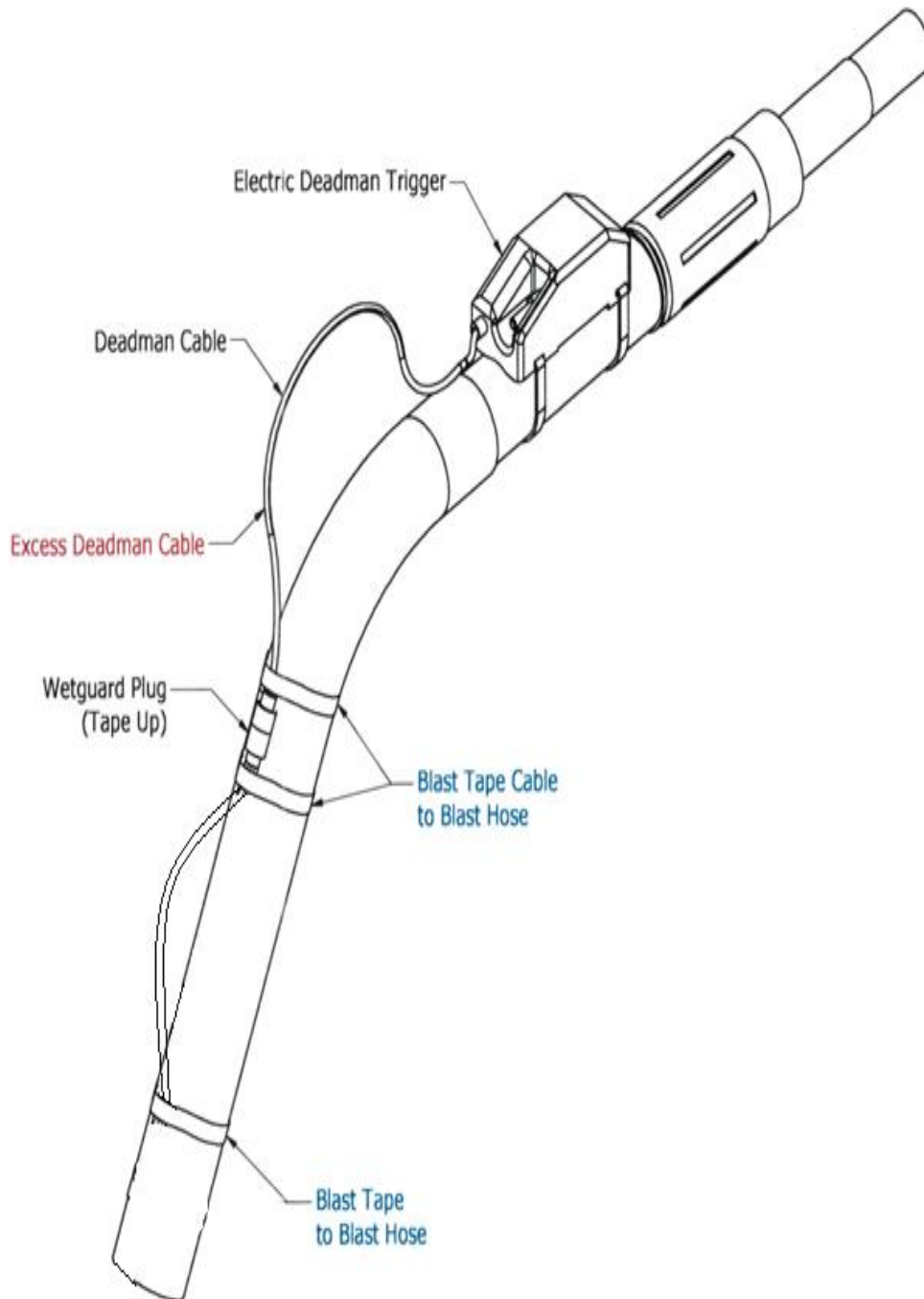
## Burwell Pro Series **Electric (12V)** Deadman System

NO.	OLD PART #	NEW PART #	DESCRIPTION
	ECK-100-12DC	0301-1232	Pro Series Electric Deadman Remote Control Conversion Kit including Trigger, 25 Metre Cable, Solenoid, T Junction, and all parts to Convert Auto Air to Auto Electric to run off Battery Power
	ECK-100-24DC	0301-2432	Pro Series Electric Deadman Remote Control Conversion Kit including Trigger, 25 Metre Cable, Solenoid, T Junction and all parts to Convert Auto Air to Auto Electric to run off Battery Power.
	ECK-100-24AC-T	0301-2422	Pro Series Electric Deadman Remote Control Conversion Kit including Trigger, Transformer (nominate primary power) 25 Metre Cable, Solenoid, T Junction and all parts to Convert Auto Air to Auto Electric to run off standard Electric power.
	BPET-1	0301-7381	Green Enclosed Electric Single Function Deadman Trigger
	69110005	0301-0005	Cord Electric 2 Mt (for BPET-1)
	69110006	0301-0006	Strain Relief (for BPET-1)
	69110002	0301-0002	Toggle Switch (for BPET-1)
	69110003	0301-0003	Toggle Boot (for BPET-1)



**ELECTRIC DEADMANS**

If fitted with electric deadman please follow illustration below.





**INITIAL FILL AND OPERATION:**

1. Connect the air lines from the dead man or ECK to the supply and return fittings.
2. Tape deadman control lines to the blast hose. (see illustration on previous page)

**DEADMAN CABLES**

3. Burwell utilises 2 or 3 core rubber coated cable for added strength and flexibility.
4. Twist lock wet guard plugs are used for connections.
5. We highly recommend leaving slack in the deadman to prevent pulling on the cable. Also tape up all connections with blast tape to prevent abrasive ingress.
6. If Electric connect Control Lines to 12V Battery supply.
7. **Shut off ALL Ball Valves and Ensure Dump/Exhaust Ball Valve is shut.**
8. Open Brass Ball Valves above Abrasive Metering Valves (IF FITTED)
9. Open Ball valve on choke (pusher) line.
10. Open Inlet Ball Valve to pressurize the Blast Vessel (this is main air supply to the Blast Machine).
11. Operator blasts by using deadman trigger.

**TO STOP BLASTING AND DEPRESSURISE THE MACHINE**

1. Let go/ come off the deadmans trigger (blasting will stop)
2. Close Inlet valve to blast pot
3. Open 1" Exhaust/Dump Ball Valve **(SLOWLY)**.
4. Allow vessel to completely depressurize.

**CONTROL SYSTEM**

The Valves used in the remote control system are of a normally closed type. This means the valve must be energized to open (to start blasting).

This energisation takes place whenever a remote control switch is triggered. When the Valve opens the air supply goes to the Thompson II Valve and also opens the Auto Inlet Valve (AAV). This allows the air and abrasive to flow through the Hose.

**9.3: Blast Helmets**

**Bullard GVX Blast Helmet**

PART NO.	DESCRIPTION
0704-2805	Bullard GVX Hemet c/w Flow Valve
0704-2806	Bullard GVX Hemet c/w Cool Tube
0704-2800	28" Bullard GVX Cape
0704-2804	Bullard GVX Breathing Tube
0704-2803	Bullard GVX Tear Off Visor
0704-2801	Bullard GVX Outer Visor
0704-2802	Bullard GVX Inner Visor
0704-6803	Cool Air Tube





**Nova 3 Blast Helmet**

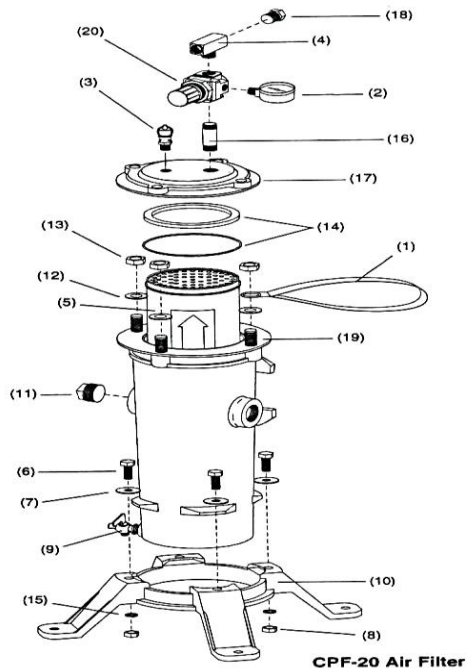
PART NO.	DESCRIPTION	UOM
0703-6323	Complete Nova 3 Helmet with Cool Air Tube, Cape, Breathing Tube	Ea
0703-3900	Adjustable Head Support	Ea
0703-3759	Cape Cover Band	Ea
0703-3755	Leather Cape complete with Inner Bib	Ea
0703-3751	Nylon Cape 38"	Ea
0703-3721	Gasket, Inner Frame	Ea
0703-3416	Head Liner Clips (4 per packet)	Pkt
0703-3735	Head Liner Foam Padding	Ea
0703-3734	Head Liner Kit	Ea
0703-2021	Breathing Hose	Ea
0703-3729	Air Inlet Kit	Ea
0703-3726	Visor Kit (includes Hinge and Latch)	Ea
0703-3516	Neck Pad	Ea
0703-3731	Padding Frames, Side (Left and Right)	Ea
0703-3733	Side Padding Covers (5 pairs per pack)	Pkt
0703-3732	Side Padding, Style A, Size 15	Ea
0703-3722	Visor, Inner Lens	Ea
0703-3724	Visor, Outer Lens	Ea
0703-3725	Visor, Tear Off (50 per packet)	Pkt




## 9.4: Breathing Air Filter


### CPF 20 Breathing Air Filter


NO.	PART NO.	DESCRIPTION
	0702-03580	CPF-20 Air Filter with Regulator
1	0702-03623	Handle (strap)
2	0702-00024	Pressure gauge
3	0702-01909	Pressure relief valve
4	0702-22843	Tee, 3/8" NPT, male branch
5	0702-03547	Filter Cartridge
6	0702-03252	3/8" NC x 1" hex head cap screw <b>NS</b>
7	0702-03310	Washer, 3/8" ID x 1 1/4" OD <b>NS</b>
8	0702-03311	3/8-NC hex nut <b>NS</b>
9	0702-01993	1/4" petcock
10	0702-03557	Base bracket
11	0702-03532	Pipe plug, 1" NPT <b>NS</b>
12	0702-03515	1/2" SAE flat washer <b>NS</b>
13	0702-03511	1/2'NC hex nut
14	0702-08942	Gasket and o-ring kit
15	0702-03318	3/8" dia. Lock washer <b>NS</b>
16	0702-03720	Nipple, 3/8" NPT x 2", brass
17	0702-03584	Air filter cap
18	0702-03536	Plug, 3/8" NPT, brass
19	0702-03545	Stud, filter cap
20	0702-03582	Pressure regulator





## 10.0 - General Consumables


DESCRIPTION	Part #	Image
<b>Auto Inlet Valve</b>		
1 1/4" AAV Valve – Complete	0302-2281	
1 1/4" & 1 1/2" AAV Valve – Repair Kit	0305-1050	


<b>Thompson II – Abrasive Metering Valve</b>		
1 1/4" Thompson II Valve – Complete	0302-2007	
1 1/4" & 1 1/2" Thompson II Valve – Repair Kit	0305-0099	
1 1/4" & 1 1/2" Thompson II Valve – Seal Kit	0305-5298	
1 1/4" Thompson II Valve - Base	0305-5215	


<b>Blasting Equipment</b>		
32mm ID x 55mm OD Blast Hose - Extension p/m	0501-2450	
38mm ID x 60mm OD Blast Hose - 5m, Dump back to room p/m	0501-2464	

<b>Light Wall Blast Hoses - Fitted</b>		
Hose, Blast 32mm x 48mm 10M L/W fitted - Nylon/Steel	0501-2551	

<b>Pot Couplings</b>		
1 1/4" Pot Coupling (Female) – Steel	0304-7772	

<b>Pot Coupling Rubbers</b>		
Pot Coupling Rubbers - Brass	0501-0272	
Pot Coupling Rubbers - Nylon (10 pack)	0502-08853	

<b>Hose Couplings</b>		
Brass Coupling (48mm OD Hose)	0503-7227	
Brass Coupling (55mm OD Hose)	0503-7327	
Nylon Coupling (48mm OD Hose)	0502-08413	
Nylon Coupling (55mm OD Hose)	0502-08414	

<b>Hose Coupling Rubbers</b>		
Coupling Rubber For all Brass Couplings (Each)	0501-0272	
Coupling Rubber For all Nylon Couplings (10 pack)	0502-08853	

<b>CPF Filter</b>		
Filter Cartridge Only	0702-03547	
Gasket and O-Ring Kit	0702-08942	
<b>Blast Hose Safety Accessories</b>		
D Style Safety Clips	0503-1319	
Small Whip Checks (15mm to 60mm OD Hoses)	0503-5012	
Large Whip Checks (45mm to 90mm OD Hoses)	0503-5013	
<b>Nozzles – 2" Coarse Thread Tungsten Carbide (Boride)</b>		
3/8" Bore 50mm Threaded Case	0805-9657	
7/16" Bore 50mm Threaded Case	0805-9757	
<b>Nozzle Holders</b>		
Aluminium Nozzle Holder 1" x 1-7/8" (48mm OD Hose)	0501-6432	
Nylon Nozzle Holder (48mm OD Hose)	0501-04127	
<b>Nozzle Holder Rubbers</b>		
Nozzle Rubbers (10 Pk) – For Aluminium Holders	0502-6702	
Nozzle Rubbers (10 Pk) - For Nylon Holders	0502-91026	
<b>Triggers</b>		
Schmidt Deadman Twin-Line Pneumatic Trigger	1301-3002	
<b>Trigger Extensions</b>		
Ryco Hose Twin-Line Trigger 10m	0301-9429	
Deadman Twin-Line Extension - 1.8m Length	0301-3006	
Deadman Twin-Line Extension - 10m Length	0301-3005	