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Operator's Manual
Part #1090004
 05-Apr-05

Galaxy™ 300 Series

BLAST LIGHT



◀ 1030050 Galaxy 300 Series
 Blast Light - 120 Volt AC

⚠ DANGER

Before using this equipment, read, understand and follow all instructions in the Operator's Manual. If the User or Assistants cannot read or understand the Warnings and Instructions, the Employer of the User and Assistants must provide adequate and necessary training to ensure proper Operation and Compliance with all Safety Procedures pertaining to this equipment. If Manuals have been lost, contact your Distributor or call (563) 324-2519 for replacements. Failure to avoid the above Danger will result in death or serious injury.

For more information call:

800-BLAST-IT

Phone: (800) 252-7848
 Fax: (563) 324-6258
 e-mail: sales@marcouisa.com
 www.marcouisa.com

NOTICE

► When it comes to abrasive & air mixtures, more is not necessarily better. Optimum blasting efficiency takes place when a lean abrasive & air mixture is used. To correctly set the metering valve, begin with the valve fully closed and slowly increase the amount of abrasive entering the airstream. As you increase the abrasive flow, watch for a "blue flame" (Figure 1) at the exit of the nozzle. Faster cutting, reduced abrasive consumption and lower clean up costs, are benefits of the "blue flame".

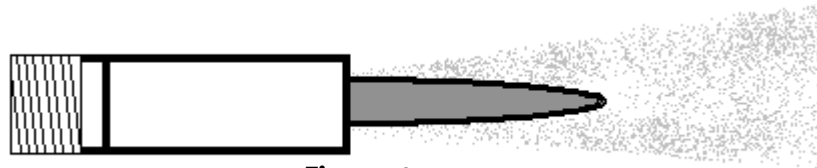


Figure 1

NOTICE

See Abrasive Consumption Chart for consumption rates and required air flow (cubic feet per minute). Your system must meet these minimum requirements to ensure proper function and performance.

Abrasive Consumption Chart*

Nozzle Orifice	Pressure at the Nozzle (psi)								Air (in cfm), Abrasive & Compressor Requirements
	50	60	70	80	90	100	125	140	
No. 2 (1/8")	11	13	15	17	18	20	25	28	Air (cfm)
	67	77	88	101	112	123	152	170	Abrasive (lbs/hr)
	2.5	3	3.5	4	4.5	5	5.5	6.2	Compressor Horsepower
No. 3 (3/16")	26	30	33	38	41	45	55	62	Air (cfm)
	150	171	196	216	238	264	319	357	Abrasive (lbs/hr)
	6	7	8	9	10	10	12	13	Compressor Horsepower
No. 4 (1/4")	47	54	61	68	74	81	98	110	Air (cfm)
	268	312	354	408	448	494	608	681	Abrasive (lbs/hr)
	11	12	14	16	17	18	22	25	Compressor Horsepower
No. 5 (5/16")	77	89	101	113	126	137	168	188	Air (cfm)
	468	534	604	672	740	812	982	1100	Abrasive (lbs/hr)
	18	20	23	26	28	31	37	41	Compressor Horsepower
No. 6 (3/8")	108	126	143	161	173	196	237	265	Air (cfm)
	668	764	864	960	1052	1152	1393	1560	Abrasive (lbs/hr)
	24	28	32	36	39	44	52	58	Compressor Horsepower
No. 7 (7/16")	147	170	194	217	240	254	314	352	Air (cfm)
	896	1032	1176	1312	1448	1584	1931	2163	Abrasive (lbs/hr)
	33	38	44	49	54	57	69	77	Compressor Horsepower
No. 8 (1/2")	195	224	252	280	309	338	409	458	Air (cfm)
	1160	1336	1512	1680	1856	2024	2459	2754	Abrasive (lbs/hr)
	44	50	56	63	69	75	90	101	Compressor Horsepower
No. 10 (5/8")	308	356	404	452	504	548	663	742	Air (cfm)
	1875	2140	2422	2690	2973	3250	3932	4405	Abrasive (lbs/hr)
	68.5	79.5	90	100.5	112	122	146	165	Compressor Horsepower
No. 12 (3/4")	432	504	572	644	692	784	948	1062	Air (cfm)
	2672	3056	3456	3840	4208	4608	5570	6238	Abrasive (lbs/hr)
	96	112	127	143	154	174.5	209	236	Compressor Horsepower

*Abrasive consumption is based on abrasive with a bulk density of 100 lbs per cubic foot.

NOTICE

The optimal blasting air pressure of 100 psi should be maintained at the nozzle. For each pound per square inch of air pressure below 100 psi, blasting efficiency is reduced 1.5%. A 10 psi reduction in air pressure will cause a 15% loss of productivity. Use a Needle Pressure Gauge to test air pressure in your air hose and blast hose.

⚠ PELIGRO

Antes de usar este equipo, lea, entienda y siga todas las instrucciones que se encuentran en el Manual del Operador. Si el usuario o sus ayudantes no pueden leer ni entienden las instrucciones y advertencias, el empleador del usuario y de sus ayudantes debe proporcionar la capacitación adecuada y necesaria para asegurar la operación y el cumplimiento apropiado con todos los procedimientos de seguridad relacionados con este equipo. Si los manuales se han extraviado, comuníquese con su distribuidor o llame al (563) 324-2519 para reemplazarlos. La falta de cumplimiento con las medidas anteriores relacionadas para evitar peligro resultará en muerte o lesión grave.

⚠ DANGER

Avant la mise en service de l'appareil, lire, comprendre et suivre toutes les instructions dans le Manuel de l'Utilisateur. Si l'Utilisateur ou des Assistants ne peuvent pas lire ou comprendre les Avertissements et les Instructions, l'Employeur de l'Utilisateur et des Assistants doit fournir la formation nécessaire et adéquate pour garantir le bon Fonctionnement et la Conformité avec toutes les Procédures de Sécurité concernant cet appareil. Si des Manuels ont été perdus, contactez votre Distributeur ou appelez au (563) 324-2519 pour obtenir des copies de remplacement. L'inobservation des instructions concernant le Danger signalé ci-dessus entraînera la mort ou des blessures graves.

Definition of Terms

⚠ DANGER

This is an example of a danger. This indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.

⚠ CAUTION

This is an example of a caution. This indicates a potentially hazardous situation which, if not complied with, may result in minor or moderate injury. It can also be used to alert against unsafe practices.

⚠ WARNING

This is an example of a warning. This indicates a potentially hazardous situation which, if not complied with, could result in death or serious injury.

NOTICE

This is an example of a notice. This indicates policy or practice directly related to safety of personnel or protection of property.

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⚠ DANGER

Failure to avoid ANY DANGER listed below will result in death or serious injury.

- ▶ Breathing dust from silica sand may cause silicosis, a fatal lung disease. Breathing dust during blasting operations may also cause asbestosis, lead poisoning and/or other serious or fatal diseases. A NIOSH-approved, well-maintained, supplied-air abrasive blasting respirator must be used by anyone blasting, anyone handling or anyone using the abrasive and anyone in the area of the dust. Harmful dust containing toxic material from abrasive or surface being blasted (*asbestos, lead paint, heavy metal paint and other toxins*) can remain suspended in the air for long periods of time after blasting has ceased.
- ▶ Contact NIOSH and OSHA offices to determine the proper respirator for your specific application. The air supplied to the respirator must be at least Grade D quality as described in Compressed Gas Association Commodity Specification G-7.1 and as specified by OSHA Regulation 1910.134. Ensure air filter and respirator system hoses are not connected to non-air sources or in-plant lines that may contain nitrogen, oxygen, acetylene or other non-breathable gases. Before removing respirator, use an air monitoring instrument to determine if the atmosphere is safe to breathe.
- ▶ You must comply with all OSHA, local, City, State, Province, Country and jurisdiction regulations, ordinances and standards, related to your particular work area and environment. Keep unprotected individuals out of the work area.
- ▶ Blast operators must receive thorough training on the use of abrasive resistant attire which includes: supplied-air respirator, blastsuit, safety shoes, gloves, ear protection and eye protection. Protect the operator and bystanders by complying with NIOSH and OSHA Safety Standards.
- ▶ You must consult the Original Equipment Manufacturer for operator's manuals, information, training, instructions and warnings, for the proper and intended use of all equipment.
- ▶ Inspect all equipment before and after each use. Failure to use Original Equipment Manufacturer repair parts and failure to immediately replace worn or damaged components will void warranties and cause malfunctions.
- ▶ Always depressurize the entire blasting system, disconnect all electrical power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted.
- ▶ OSHA requires blast-cleaning nozzles be equipped with an operating valve, which shall be designed to be held open only by continuous hand pressure and shall close immediately upon release of hand pressure (*i.e., a "dead man" control*). The valve shall not be modified in any manner that would allow it to remain open without the application of hand pressure by the operator. OSHA 29CFR 1910.244(b)
- ▶ Point the blast nozzle only at the surface being blasted. Never point the blast nozzle or abrasive blast stream at yourself or others.
- ▶ Unless otherwise specified, maximum working pressure of blast machines and related components must not exceed 125 psi. Exceeding maximum working pressure of 125 psi will cause the blast machine and components to burst.
- ▶ Never weld, grind or drill on the blast machine (*or any pressure vessel*) without a National Board 'R' Stamp. Doing so will void ASME certification as well as manufacturer's warranty. Welding, grinding or drilling on the blast machine (*or any pressure vessel*) can weaken the vessel, causing it to burst.
- ▶ This equipment is not intended for use in any area that might be considered a hazardous location, as described in the National Electric Code NFPA 70, Article 500. Use of this equipment in a hazardous location will cause an explosion or electrocution.

⚠ DANGER

Failure to avoid ANY DANGER listed below will result in death or serious injury.

- ▶ Marco control switches should only be used with Marco remote control systems. Using a Marco control switch on other manufacturer's remote control system may cause malfunctions.
- ▶ Do not cut, obstruct, restrict or pinch pneumatic control lines. Doing so will prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed media and compressed air.
- ▶ Frozen moisture will cause restrictions and obstructions in pneumatic control lines. Any restriction or obstruction in the pneumatic control lines will prevent the proper activation and deactivation of the remote control system, resulting in the release of high speed media and compressed air.
- ▶ This product is not for use in wet environments. Always use a Ground Fault Interrupter Circuit (GFI) for all electrical power source connections. Use of this product in wet environments will create a shock or electrocution hazard.

⚠ WARNING

Failure to comply with ANY WARNING listed below could result in death or serious injury.

- ▶ Never hang objects from the blast machine handle. Doing so may cause the blast machine to become unstable and tip over.
- ▶ Never attempt to move a blast machine containing abrasive. Never attempt to manually move blast machines greater than 6.0 cubic foot capacity. Always use at least two capable people to manually move a blast machine on flat, smooth surfaces. A mechanical lifting device must be used if blast machine is moved in any other manner.
- ▶ Always be certain to have secure footing when blasting. There is a recoil hazard when blasting starts that may cause user to fall and misdirect the abrasive stream at operator or bystander.

NOTICE

- ▶ Always use abrasive that is dry and properly screened. This will reduce the potential for obstructions to enter the remote control system, metering valve and blast nozzle.
- ▶ Moisture build-up occurs when air is compressed. Any moisture within the blast system will cause abrasives to clump, clogging metering valves, hoses and nozzles. Install an appropriately sized moisture separator at the inlet of the blast machine. Leave the moisture separator petcock slightly open to allow for constant release of water. If insufficient volume of air exists and petcock is unable to be left open (*at all times*) petcock should be opened frequently to release water.

Galaxy™ 300 Series Blast Light

Description

Rugged and dependable is what you get with the Galaxy™ 300 Series Blast Light. The Galaxy 300 Series Blast Light attaches to the blast hose providing illumination to the work surface when working in dimly lit areas. A 20-watt halogen bulb is powered by 12-volt DC or 120-volt AC sources allowing for versatility in work environments. The body of the blast light is made of abrasive resistant urethane for lasting durability. The bulb is protected by a thick replaceable lens.

⚠ DANGER

This equipment is not intended for use in any area that might be considered a hazardous location, as described in the National Electric Code NFPA 70, Article 500. Use of this equipment in a hazardous location will cause an explosion or electrocution. Failure to avoid the above danger will result in death or serious injury.

⚠ DANGER

This product is not for use in wet environments. Always use a Ground Fault Interrupter Circuit (GFC) for all electrical power source connections. Use of this product in wet environments will create a shock or electrocution hazard. Failure to avoid the above danger will result in death or serious injury.

⚠ CAUTION

Galaxy 300™ and 307 lights are designed only for use with a 12-volt DC battery or Galaxy 300™ Blast Light Converter. Use of any other power supply will overheat light system, causing damage and will void manufacturer's warranty. Failure to comply with the above caution may result in minor or moderate injury.

Features:

- Lightweight Urethane Body with 6 feet of 14/2 SO power cord
- 20-watt Halogen Bulb provides bright light to the work surface
- Multiple power source capabilities to match your work environment
- 120-volt AC power pack features:
 - integrated mounting brackets
 - 2-amp fuse protecting the transformer
 - removable cover with sealing gasket to keep dust out

Operational Requirements

The following may cause safety hazards or reduced performance:

- Operating light with ANY power supply other than a 12-volt DC battery or Galaxy™ 300 Light Converter
- Use of anything except stanchion to secure light to blast hose
- Improper disassembly and/or incorrect reassembly.
- Failure to replace cracked lens, frosted lens or clean coating overspray from lens.

Operating Instructions

Before using:

- Inspect all wiring (5) to ensure connections are secure and wires are not damaged.
- Inspect Light Body (1) to ensure there is no damage. Replace damaged components.
- Ensure Lens (2) is not cracked, frosted or covered with coating overspray.
- Ensure Stanchion (4) and Screw Clamps (3) are tight and secured to blast hose.
- Ensure Light Body (1) is secure in Stanchion (4).

During use:

- Continually check lens for coating deposits, frosting, or cracks.
- Monitor temperature of light body. If light becomes abnormally hot, discontinue use and determine cause immediately.

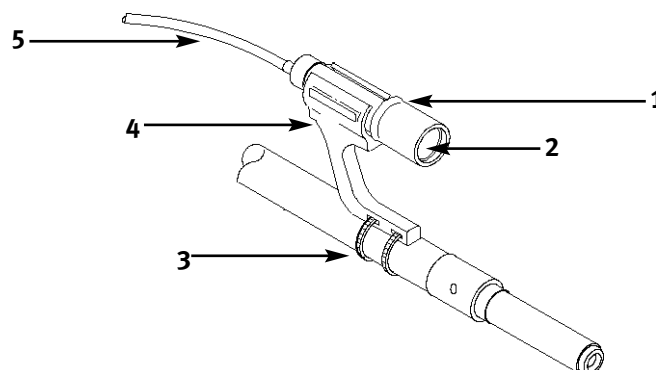


Figure 2

Galaxy™ 300 Series Blast Light

NOTICE

Pulling and dragging blast hose may cause control line and electrical cord connections to separate. Connect the control line and electrical cord to the blast hose every 4 to 6 feet and on each side of the control line connections. Provide adequate slack at each connection.

⚠ DANGER

Always depressurize the entire blasting system, disconnect all electrical power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to avoid the above danger will result in death or serious injury.

⚠ CAUTION

Component parts may become hot. Necessary protective clothing must be worn during handling or maintenance of this equipment. Failure to comply with the above caution may result in minor or moderate injury.

NOTICE

Do not touch bulb with bare hands or fingers. Natural oils from skin transferred to the bulb will reduce bulb performance. If bulb does come in contact with skin, clean bulb with isopropyl alcohol and allow to dry thoroughly before use.

Installation

- 1) Mount stanchion (1) to hose with hose clamps (4).
- 2) Place Light (2) into Stanchion (1).
- 3) Secure electric cord (3) to blast hose allowing slack for movement at each cord connection.
- 4) Connect electrical supply cord (3) to a 12-volt battery or Galaxy™ 300 Light Converter ONLY.

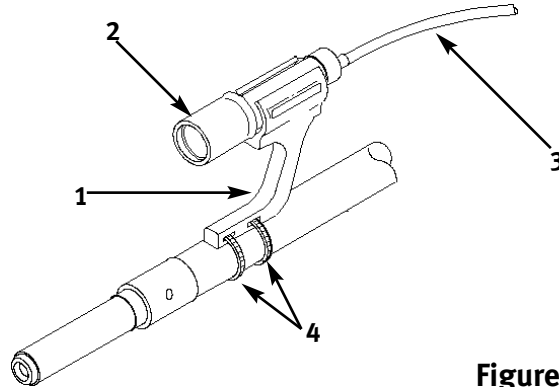


Figure 3

Troubleshooting

If the Galaxy 300 Series Blast Light does not function properly, check the following:

SYMPTOM (Cause)

ACTION

Light will not illuminate

(Bulb burned out, no power to light.)

Inspect Bulb. Replace bulb.

Ensure all cord connections are secure.

Ensure 12-volt DC battery source is connected or converter is plugged into 120-volt AC power outlet.

Inspect Fuse in Converter. Replace Fuse if damaged.

Excessive heat

(Incorrect Bulb, excessive voltage, damaged fuse in converter)

Inspect Bulb. Replace with correct bulb.

Ensure power source is a 12-volt DC battery.

For 120-volt AC applications, ensure the converter is for use with Galaxy 300 Series Light.

Inspect Fuse in Converter. Replace if damaged.

Inspect power cord for damage and replace.

Short Bulb life

(Contaminated Bulb, incorrect Bulb, excessive voltage.)

Replace with clean Bulb.

Inspect Bulb. Replace with correct Bulb.

Ensure power source is a 12-volt DC battery.

For 120-volt AC applications, ensure the Converter is for use with Galaxy 300 Series Light.

Inspect power cord for damage and replace.

Galaxy 300 Series Blast Light

⚠ DANGER

Always depressurize the entire blasting system, disconnect all electrical power sources and lockout/tagout all components before any maintenance or troubleshooting is attempted. Failure to avoid the above danger will result in death or serious injury.

Maintenance

Maintenance of the Galaxy 300 Series Blast Light is limited to daily cleaning and the immediate replacement of worn or malfunctioning parts.

Galaxy™ 300 Series Blast Light

Disassembly :

- 1) Disconnect light from electrical power and allow to cool.
- 2) Remove Collar (1) by holding Light Body (8) and turn Collar (1) counterclockwise.
- 3) Guide Collar (1) clear from body and Spring (4). Carefully retain Reflector (3) and Lens (2) within Collar (1).
- 4) Remove Reflector (3) and Lens (2) from Collar (1).
- 5) Remove Spring (4) by holding Light Body (8) and gently pulling and rotating Spring (4) clockwise.
- 6) Remove Bulb (5) by holding Light Body (8) and gently pulling Bulb (5) from Socket (7).
- 7) To remove Socket (7), remove Strain Relief (9) and grommet by turning counter-clockwise.
- 8) Remove two Screws (6) from Socket (7). Grasp Socket (7) and pull from Light Body (8) until Power Cord (10) is exposed.
- 9) Cut wires to remove Socket (7).

Assembly:

- 1) Connect wires of Socket (7) to Power Cord (10). Ensure wire connections are sealed to prevent exposed wires from touching. Pull Power Cord (10) to seat Socket (7) in place.
- 2) Thread Strain Relief Grommet and Strain Relief (9) on Light Body (8).
- 3) Secure Socket by installing two Screws (6).
- 4) Install Bulb (5) in Socket (7).
- 5) Install Spring (4) around Bulb (5) with narrow end facing Light Body (8). Gently rotate Spring (4) clockwise to seat in Light Body (8).
- 6) Install new Lens (2) and Reflector (3) in Collar (1).
- 4) Turn Collar (1) clockwise to install on to Light Body (8).

NOTICE

Use a 14 gauge power cord for lengths up to 100 feet. To reduce electrical resistance, use larger gauge power cords for distances greater than 100 feet.

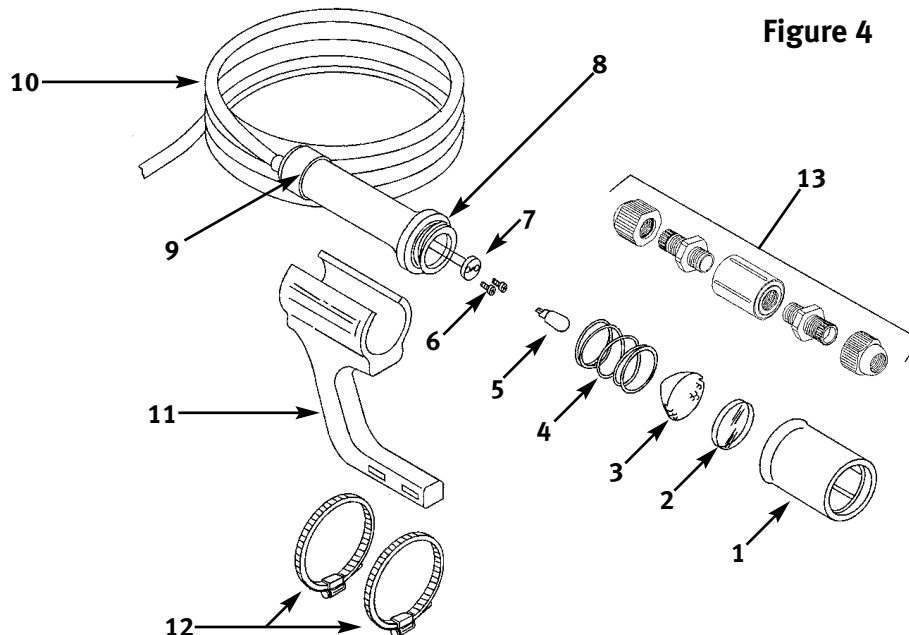
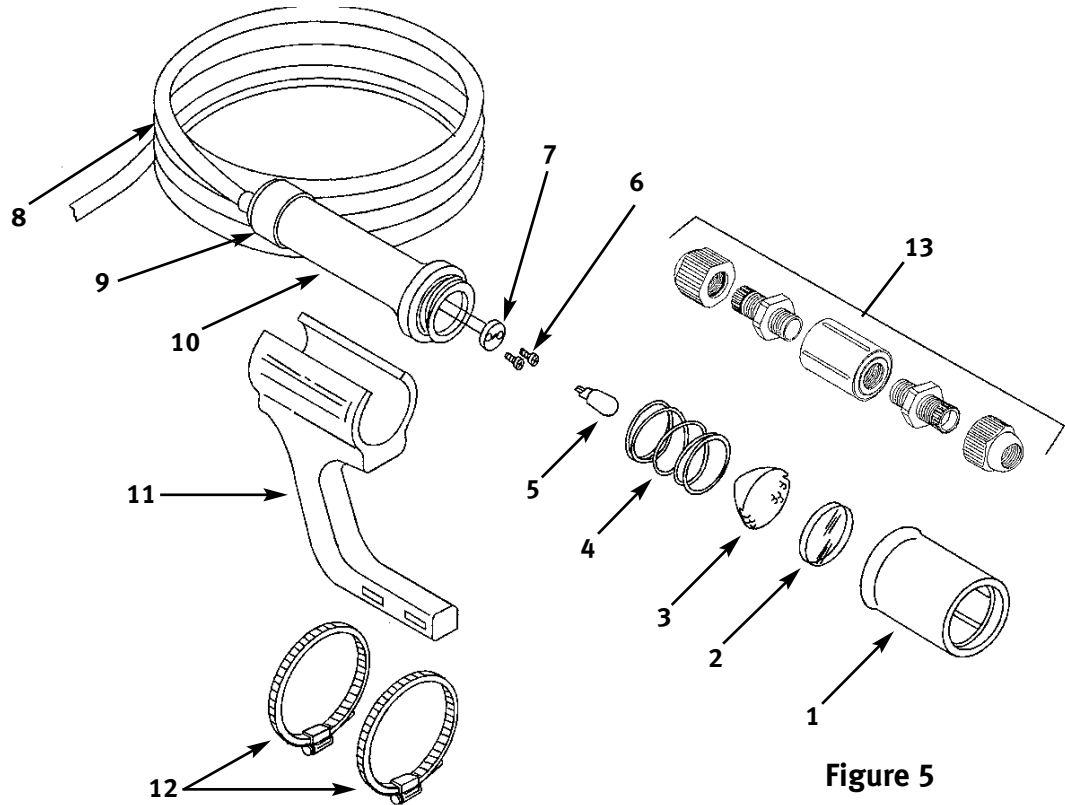


Figure 4

Galaxy™ 300 Series Blast Light Schematic



Item #	Part #	Description
-	1030050	Galaxy 300 Series Blast Light with 120-volt AC Converter, (1) Light Assembly, (1) Stanchion, (2) Hose Clamps, (2) 3-part Cord Connectors and (1) Wall Plug
-	1030060	Galaxy 300 Series Blast Light with 75 feet of 14/2 SO Power Cord, Battery Clamps, and (1) Stanchion
-	1030000	Galaxy 300 Series Blast Light Assembly with 6 feet of power cord
1	1030002	Galaxy 300 Series Light Collar
2	1030017	Galaxy 300 & 301 Series Light Lens (Package of 12)
3	1030012	Galaxy 300 & 301 Series Light Reflector
4	1030016	Galaxy 300 & 301 Series Light Spring
5	1030001	Galaxy 300 Series Light Bulb (Package of 10)
6	1030015	Galaxy 300 Series Light Screw (2 required)
7	1030014	Galaxy 300 Series Light Socket
8	1030013	14 Gauge, 2-Wire SO Power Cord
9	1030025	Strain Relief
10	1030003	Galaxy 300 Series Light Body (Does not include internal components)
11	1030011	Galaxy 300 & 301 Series Light Stanchion with Hose Clamps
12	1015503	Hose Clamps (2 required)
13	1015560	3-Part Cord Connector
-	1030718	Battery Clamp Set (use with 12-volt DC power source)
-	1091046	Galaxy 300 Light Hazard Identification Tag
-	1090004	Galaxy 300 Series Blast Light Operator's Manual

Galaxy™ 300 Series Converter Schematic

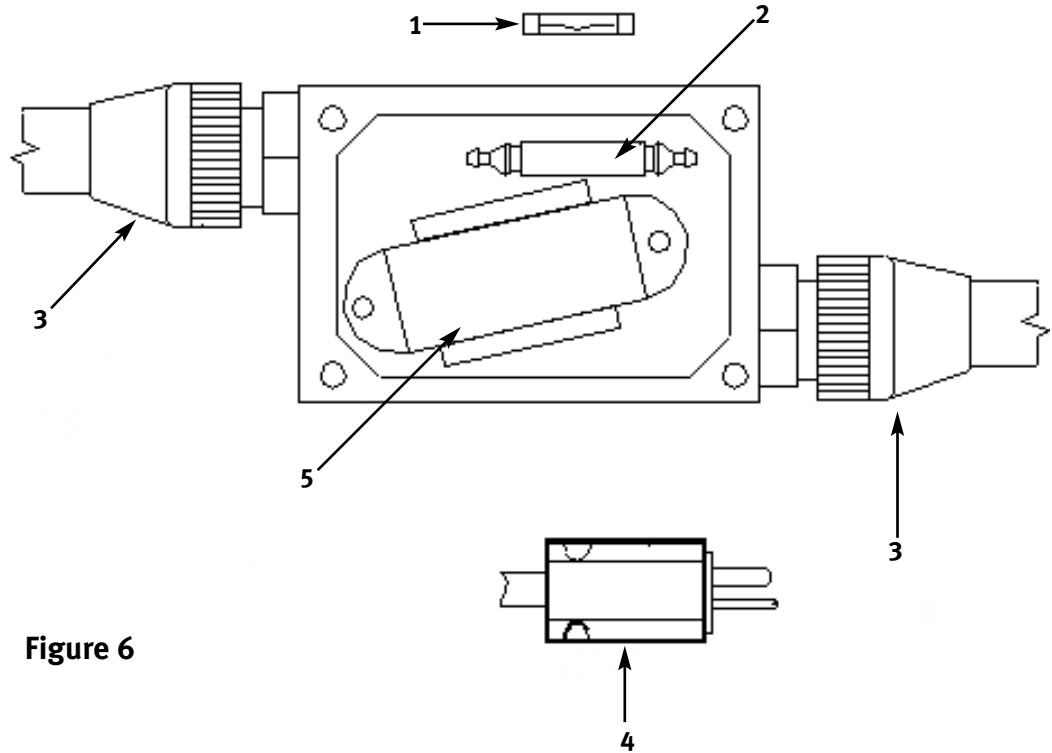


Figure 6

Item #	Part #	Description
Fig. 6	1030020	Galaxy 300 & 307 Series Blast Light Converter - 120-volt AC
1	1030024	2 Amp Fuse
2	1030023	Inline Fuse Holder
3	1030025	Strain Relief (2 required)
4	1030026	3-prong 120-volt AC Plug - Male
5	1030022	Galaxy 300 & 307 Series Transformer
-	1091047	Galaxy Light Converter Hazard Identification Label

ADDITIONAL TECHNICAL DATA

The associations listed below offer information, materials and videos pertaining to abrasive blasting and safe operating practices.

- **American Society for Testing and Materials (ASTM)**
 100 Barr Harbor Drive
 West Conshohocken, PA 19428-2959
 Phone: (610) 832-9585
 FAX: (610) 832-9555
www.astm.org
- **Occupational Safety & Health Administration (OSHA)**
 United States
 Department of Labor
 200 Constitution Avenue
 Washington, DC 20210
 Phone: (800) 321-OSHA
 (800) 321-6742
www.osha.gov
- **The National Board of Boiler & Pressure Vessel Inspectors**
 1055 Crupper Avenue
 Columbus, Ohio 43229
 Phone: (614) 888-8320
 FAX: (614) 888-0750
www.nationalboard.org
- **National Association of Corrosion Engineers (NACE)**
 1440 South Creek Drive
 Houston, TX 77084-4906
 Phone: (281) 228-6200
 FAX: (281) 228-6300
www.nace.org
- **The Society for Protective Coatings (SSPC)**
 40-24th Street, 6th Floor
 Pittsburgh, PA 15222-4656
 Phone: (412) 281-2331
 FAX: (412) 281-9992
www.sspc.org

WARRANTY

Seller warrants to the original purchaser that the Product covered by this Warranty will remain free from defects in workmanship or material under normal commercial use and service for a period of one year from the date of shipment to the original Purchaser. This Warranty shall not apply to defects arising, in whole or in part, from any accident, negligence, alteration, misuse or abuse of the Product, operation not in accordance with applicable instructions or manuals or under conditions more severe than, or otherwise exceeding, those set forth in the written specifications for the Product, nor shall this Warranty extend to repairs or alterations of the Product by persons other than Seller or Seller's authorized representatives, or to maintenance parts.

DISCLAIMER OF WARRANTY

The foregoing Warranty is exclusive and is in lieu of all other Warranties of quality, whether oral or written and whether express or implied. All Warranties of merchantability or fitness for a particular purpose are hereby excluded and are inapplicable to the Product. Seller makes no warranties or representations concerning respirators, or equipment made by other manufacturers.

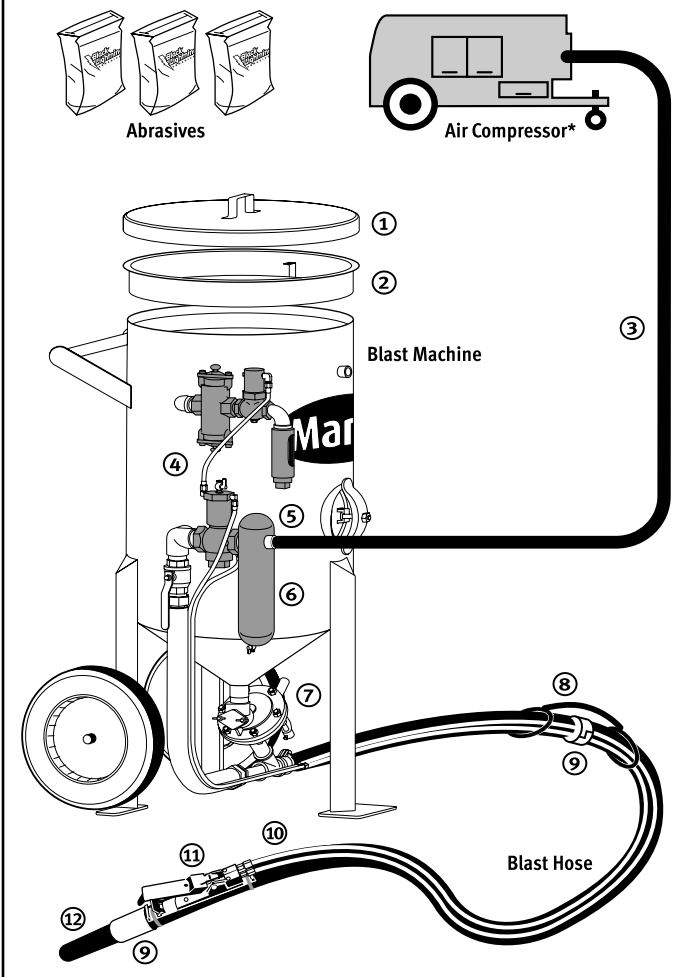
EXCLUSIVE REMEDIES FOR WARRANTY CLAIMS

THE SOLE AND EXCLUSIVE REMEDIES OF PURCHASER FOR UNDER THE FOREGOING WARRANTY COVERING THIS PRODUCT SHALL BE REPAIR OR REPLACEMENT, FREE OF CHARGE, F.O.B. POINT OF MANUFACTURE, OF ANY DEFECTIVE PART OR PARTS OF THE PRODUCT THAT WERE MANUFACTURED BY SELLER, AND WHICH ARE RETURNED TO SELLER AT SELLER'S PRINCIPAL PLACE OF BUSINESS, POSTAGE PREPAID. THIS SOLE AND EXCLUSIVE REMEDY IS CONDITIONED UPON PURCHASER'S PROMPT WRITTEN NOTICE TO SELLER AT SELLER'S PLACE OF BUSINESS THAT A DEFECT HAS BEEN DISCOVERED, TOGETHER WITH A REASONABLY DETAILED DESCRIPTION OF THE DEFECT IN THE PRODUCT, WITHIN THIRTY (30) DAYS AFTER DISCOVERY OF THE DEFECT, OTHERWISE SUCH CLAIMS SHALL BE DEEMED WAIVED. NO ALLOWANCE WILL BE GRANTED FOR ANY REPAIRS OR ALTERATIONS MADE BY PURCHASER OR OTHERS WITHOUT SELLERS PRIOR WRITTEN CONSENT. IF SUCH NOTICE IS TIMELY GIVEN, SELLER WILL HAVE THE OPTION TO EITHER MODIFY THE PRODUCT OR COMPONENT PART THEREOF TO CORRECT THE DEFECT, REPLACE THE PRODUCT OR PART WITH COMPLYING PRODUCTS OR PARTS, OR REFUND THE AMOUNT PAID FOR THE DEFECTIVE PRODUCT, ANY ONE OF WHICH WILL CONSTITUTE THE SOLE LIABILITY OF SELLER AND FULL SETTLEMENT OF ALL CLAIMS. PURCHASER SHALL AFFORD SELLER PROMPT AND REASONABLE OPPORTUNITY TO INSPECT THE PRODUCT FOR WHICH CLAIM IS MADE. THE SOLE PURPOSE OF THE FOREGOING STIPULATED EXCLUSIVE REMEDY SHALL BE TO REPAIR OR REPLACE DEFECTIVE PRODUCTS OR COMPONENTS THEREOF, OR TO REFUND PURCHASER THE PURCHASE PRICE THEREOF. THIS STIPULATED EXCLUSIVE REMEDY SHALL NOT BE DEEMED TO HAVE FAILED OF ITS ESSENTIAL PURPOSE SO LONG AS SELLER IS WILLING AND ABLE TO REPAIR OR REPLACE THE DEFECTIVE PARTS OR REFUND THE PURCHASE PRICE IN ACCORDANCE WITH THE TERMS HEREOF.

LIMITATION OF REMEDIES

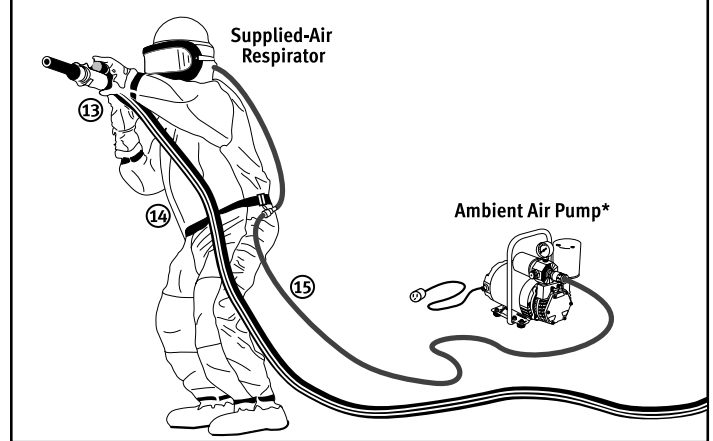
The foregoing stipulated exclusive remedies are in lieu of all other remedies for breach of Contract, Warranty and/or Tort. Seller shall not be liable for the Purchaser's expenses for downtime or for making up downtime, damages for which the Purchaser may be liable to other persons and/or entities, damages to property, and injury to or death of any persons and/or any claims for incidental or consequential damages, including but not limited to loss of profits, regardless of whether Seller has been informed of the possibility of such damages. Seller neither assumes nor authorizes any person to assume for it any other liability in connection with the sale or use of any Products covered by the foregoing Warranty and Disclaimers, and there are no oral agreements relating to remedies which are collateral to or which affect this limitation.

Marco Blast Machine – Hose Configuration



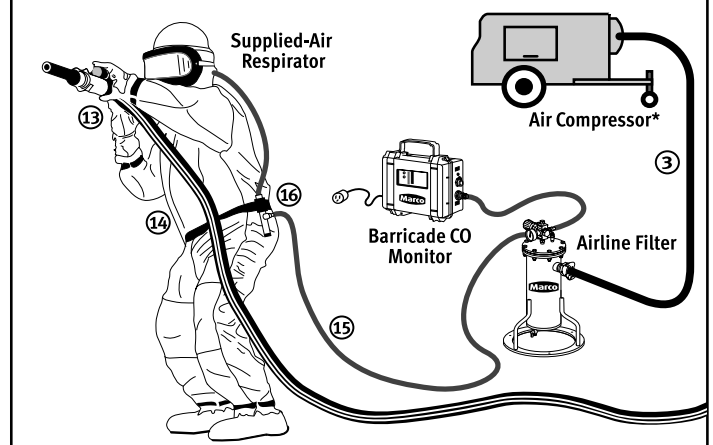
* Grade D quality air in an atmosphere free of contaminants

Ambient Air Pump Configuration



* Grade D quality air in an atmosphere free of contaminants

Air Compressor Breathing Air Configuration



* Grade D quality air in an atmosphere free of contaminants

DAILY PRE-OPERATION CHECKLIST

Additional Components

- ① blast machine lid
- ② blast machine screen
- ③ air hose
- ④ remote control system
- ⑤ air hose couplings & gaskets
- ⑥ moisture separator
- ⑦ metering valve
- ⑧ safety cable
- ⑨ blast hose couplings & gaskets
- ⑩ remote control line
- ⑪ remote control handle
- ⑫ blasting nozzle
- ⑬ blasting gloves
- ⑭ abrasive resistant blastsuit
- ⑮ breathing line
- ⑯ climate control device

ABRASIVES:

- Review the Abrasive MSDS (*Material Safety Data Sheet*) to ensure the material is free of toxic or harmful substances such as lead, silica, cyanide or arsenic. Use properly sized abrasive to ensure required surface finish.

BLAST MACHINE:

- Inspect the Blast Machine for internal and external wear, abrasions and leaks.
- Ground the Blast Machine to dissipate static electricity created by the Abrasive moving through the Blast Hose.
- Install a Moisture Separator at the Inlet Port of the Blast Machine. Removing moisture from the Air Supply will allow Abrasive to flow smoothly from the Blast Machine to the work surface.

AIR SUPPLY: Blast Machine

- Use an Air Compressor that will provide sufficient CFM (*Cubic Feet Per Minute*) volume of air to the Blast Nozzle and all other pneumatic tools, with an additional 50% to allow for Nozzle wear.

AIR SUPPLY: Respirator

- Inspect Respirator Assemblies for worn components and replace as needed.
- You MUST consult the Operator's Manual supplied with your Respirator for ALL applicable Warnings and Hazards.

BLAST NOZZLES:

- Replace Blast Nozzles if liner or jacket is cracked, damaged or an orifice size 1/16" larger than the original size.
– *Determine Nozzle wear by inserting a drill bit 1/16" larger than original size of the Nozzle orifice. If the drill bit passes, replacement is needed.*
- Long Venturi Nozzles are most effective when the distance from Nozzle to work surface is 24-36".

AIR & BLAST HOSE:

- Inspect all Hoses for internal and external wear, abrasions and leaks.
- Lay out Air Hose and Blast Hose as straight as possible to remove restrictions which cause reduced performance and premature wear.
- Blast Hose I.D. should be 3-4 times the size of Nozzle orifice.
- Blast Hose and Air Hose Couplings are to mate securely using Gaskets and Nozzle Washers to provide a positive seal without leaks. Inspect and replace any worn or damaged component before use.
- Install Safety Clips and Safety Cables at each connection.

PROTECTIVE CLOTHING:

- Wear appropriate Protective Clothing and Equipment (*supplied-air respirator, blastsuit, safety shoes, leather gloves, ear protection and eye protection*) appropriate for the work environment.



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