USER MANUAL

GlasCraft
DISPENSING EXCELLENCE

Indy

Low Emission Internal-Mix System

GlasCraft
DISPENSING EXCELLENCE

5845 WEST 82ND STREET
INDIANAPOLIS, INDIANA
46278 U.S.A.
Phone (317) 875-5592
Fax (317) 875-5456
Email gcisales@glascraft.com
Web www.glascraft.com

CE CERTIFIED

GlasCraft DISPENSING EXCELLENCE
An ISO 9001 Approved Company

CONTENTS

Introduction

Parts & Illustrations

Safety

Installation
CART, MAST & BOOM

Material Pump
Catalyst Slave Pump

Air Manifold

Chopper Assembly

Operation

Maintenance

Option

Limited Warranty Policy

Notes

If You Have An Equipment Problem

For Your Reference

INTRODUCTION

About This Manual

Before operating, maintaining or servicing any **Glas-Craft** system, read and understand all of the technical and safety literature provided with **Glas-Craft** products. If you do not have the manuals and safety literature for your **Glas-Craft** system, contact your **Glas-Craft** distributor or **Glas-Craft, Inc.**

In this **Glas-Craft** technical and safety publication, the following advisories will be provided where appropriate:

NOTE
Is information about the procedure in progress.

CAUTION
Is imperative information about equipment protection.

WARNING
Is imperative information about personnel safety.

The information in this document is intended only to indicate the components and their normal working relationship typical use. Each assembly should be directed by a **Glas-Craft** distributor or made from the **Glas-Craft** assembly instructions provided.

This manual provides information for the assembly, operation, maintenance and service of this **Glas-Craft** product as used in a typical configuration. While it lists standard specifications and procedures, some deviations may be found.

In order to provide our users with the most up-to-date technology possible, we are constantly seeking to improve products. If technological change occurs after a product is on the market, we will implement that technology in future production and, if practical, make it available to current users as a retrofit, up-date or supplement. If you find some discrepancy between your unit and the available documentation, contact your **Glas-Craft** distributor to resolve the difference. **Glas-Craft, Inc.** reserves the right to change or modify this product as it deems necessary.

Careful study and continued use of this manual will provide a better understanding of the equipment and process, resulting in more efficient operation, longer trouble-free service and faster, easier trouble-shooting.

Related Manuals

For detailed component installation, operation and maintenance, refer to the following component manuals:

	COMPONENT	MANUAL NUMBER
LPA Series	**System**	**GC-1060**
3WP	**System**	**GC-1019**
MCG	**System**	**GC-1071**
PFR	**System**	**GC-1086**
LPA Series	**Spray Gun**	**GC-1041**
B-410	**Chopper**	**GC-1021**
SP-85	**Catalyst Slave Pump**	**GC-1025**

Technical Video Tapes

Glas-Craft offers a Technical Video Series detailing Set-Up, Operation, Maintenance and Troubleshooting for each major system component. These videos were produced to aid in component training, operation and service, for any fabricator.

	COMPONENT	VIDEO NUMBER
LPA-II-AAC	**Spray Gun**	**G-128**
LPA-III-AAC	**Spray Gun**	**G-132**
SP-85	**Catalyst Slave Pump**	**G-135**
B-410	**Chopper**	**G-138**
18913-00	**Material Pump**	**G-141**

- **Video numbers shown are in NTSC format, international formats available, contact Glas-Craft.**

Contact your local authorized **Glas-Craft** distributor for more information on these and other manuals and video tapes available from **Glas-Craft**.

PARTS & ILLUSTRATIONS

INDy System

Internal – Mix Non Atomized Chopper System
Cart, Mast and Boom

INCLUDES

23550-00	INDy II INTERNAL-MIX NON-ATOMIZING DISPENSE GUN
23005-J5	DISPENSE NOZZLE
20864-04	MATERIAL PUMP ASSEMBLY, 5:1 RATIO
LPA-160-01	CATALYST SLAVE PUMP ASSEMBLY
B-410	CHOPPER ASSEMBLY
23555-00	AIR MANIFOLD ASSEMBLY
19890-01	MATERIAL PUMP MOUNTING BRACKET
GAM-268-01	MATERIAL PUMP PICK-UP KIT, 1"
21694-25	MATERIAL HOSE ASSEMBLY, 25 FT.
22695-03	MATERIAL WHIP HOSE ASSEMBLY, 3 FT.
17798-25	AIR HOSE ASSEMBLY, 25 FT.
20190-00	CATALYST HOSE ASSEMBLY, 25 FT.
236	SOLVENT HOSE ASSEMBLY, 30 FT.
20794-01	SOLVENT TANK ASSEMBLY
23538-00	GUN SEAL KIT
770	CART ASSEMBLY
754-1	MAST
750-01	BOOM ASSEMBLY
760-01	ROVING GUIDANCE KIT
17440-00	GROUNDING CLAMP ASSEMBLY
	USER MANUALS

OPTIONS

AM-500-02	AIR MOTOR
20864-05	MATERIAL PUMP ASSEMBLY
SSP-160-01	CATALYST SLAVE PUMP
	WET-OUT SYSTEM
	PFR SYSTEM
	WALL MOUNT W/BOOM
LPA2-147-XXXX	SPRAY TIP (Requires Seal, 20333-00 & Retainer, 22274-00)

REPAIR PARTS KITS

23550-00	DISPENSE GUN	23538-00
20864-04	MATERIAL PUMP, 5:1	
AM-325	AIR MOTOR KIT	20840-00
20287-00	FLUID SECTION KIT	21570-00
SP-85	CATALYST SLAVE PUMP	LPA-190-SK
B-410	CHOPPER MOTOR	AM-120
B-410	CHOPPER MAINTENENCE	B-210-71
	NIGHT PLUG KIT	23553-00

INDy System

Internal- Mix Non-Atomized Wet-Out System
Portable Hand Cart Mounted

INCLUDES

23550-00	INDy II INTERNAL-MIX NON-ATOMIZING DISPENSE GUN
23005-J5	DISPENSE NOZZLE
20864-04	MATERIAL PUMP ASSEMBLY, 5:1 RATIO
LPA-160-01	CATALYST SLAVE PUMP ASSEMBLY
23555-00	AIR MANIFOLD ASSEMBLY
19890-01	MATERIAL PUMP MOUNTING BRACKET
GAM-268-01	MATERIAL PUMP PICK-UP KIT, 1"
21694-25	MATERIAL HOSE ASSEMBLY, 25 FT.
22695-03	MATERIAL WHIP HOSE ASSEMBLY, 3 FT.
17798-25	AIR HOSE ASSEMBLY, 25 FT.
20190-00	CATALYST HOSE ASSEMBLY, 25 FT.
236	SOLVENT HOSE ASSEMBLY, 30 FT.
20794-01	SOLVENT TANK ASSEMBLY
23538-00	GUN SEAL KIT
G-404	PORTABLE HAND CART
17440-00	GROUNDING CLAMP ASSEMBLY
	USER MANUALS

OPTIONS

AM-500-02	AIR MOTOR
	CHOPPER SYSTEM
	PFR SYS
	WALL MOUNT W/BOOM
LPA2-XXXX	SPRAY TIP (Requires Seal, 20333-00 & Retainer, 22274-00

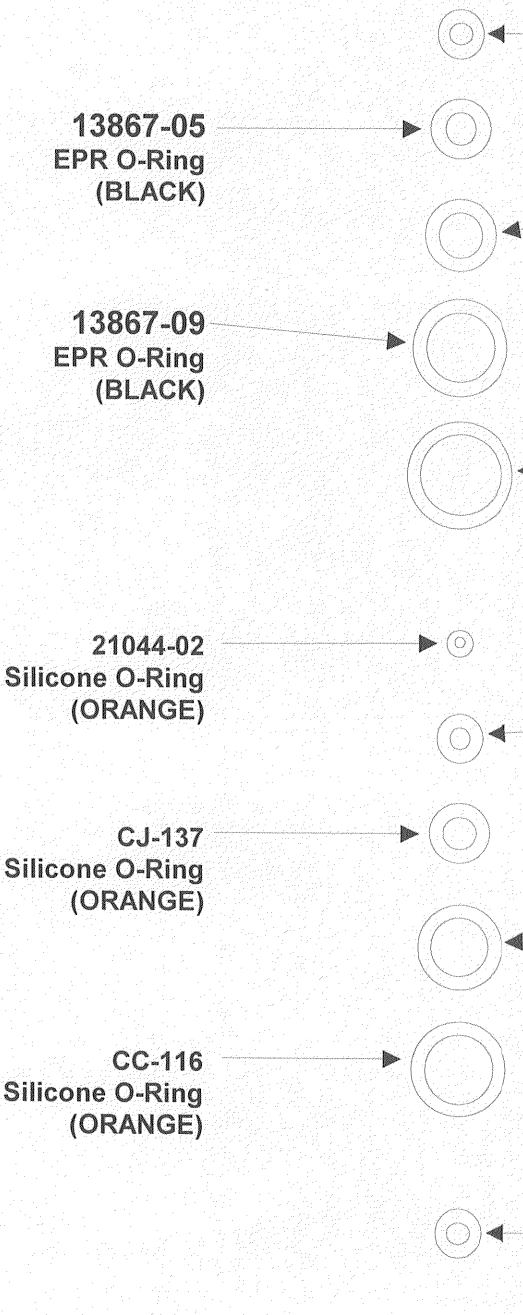
REPAIR PARTS KITS

23550-00	DISPENSE GUN	23538-00
20864-04	MATERIAL PUMP, 5:1	
AM-325	AIR MOTOR KIT	20840-00
20287-00	FLUID SECTION KIT	21570-00
SP-85	CATALYST SLAVE PUMP	LPA-190-SK
B-410	CHOPPER MOTOR	AM-120
B-410	CHOPPER MAINTENENCE	B-210-71

Dispense Tip Reference Chart

Part Number	Orifice	Min. Width (In)	Max. Width (In)	Min. Output (lbs.)	Max. Output (lbs.)
23005- C4	0.040	7	16.5	5.4	10.02
C5	0.050	8.5	15.5	6.36	12.23
C6	0.060	7	17	7.31	11.01
C7	0.070	7	13	8.53	10.58
C8	0.080	10	12.5	10.28	13.03
C9	0.090	7.5	10	11.49	12.36
E4	0.040	6	21	4.01	9.16
E5	0.050	11	21	5.71	10.23
E6	0.060	6.5	18.5	5.48	11.48
E7	0.070	7.5	15	7.96	10.58
E8	0.080	6	15.5	8.61	12.03
E9	0.090	7.5	15	9.61	12.36
G4	0.040	6	24	4.01	9.16
G5	0.050	10.5	32	4.31	10.23
G6	0.060	8.5	24	5.48	11.48
G7	0.070	6.5	25.5	6.43	10.58
G8	0.080	10	22	8.61	12.03
G9	0.090	7	16	8.53	12.36
J4	0.040	7	36.5	4.01	9.16
J5	0.050	7	30.5	4.31	10.23
J6	0.060	10	28	5.48	11.48
J7	0.070	7.5	26	6.43	10.58
J8	0.080	10	24	8.61	12.03
J9	0.090	11	20	8.53	10.58
K4	0.040	9.5	38	4.01	9.16
K5	0.050	12	34	4.31	10.23
K6	0.060	16	34	5.48	11.48
K7	0.070	13	30	6.43	10.58
K8	0.080	8	28	6.21	12.03
K9	0.090	11	25	7.88	12.36
M4	0.040	11	61	4.01	9.16
M5	0.050	13	38	4.31	10.23
M6	0.060	9	38	4.33	11.48
M7	0.070	11	31	6.43	10.58
M8	0.080	9	30	6.21	12.03

O-RING CHART



13867-03
EPR O-Ring
(BLACK)

13867-05
EPR O-Ring
(BLACK)

13867-07
EPR O-Ring
(BLACK)

13867-09
EPR O-Ring
(BLACK)

13867-10
EPR O-Ring
(BLACK)

21044-02
Silicone O-Ring
(ORANGE)

CJ-136
Silicone O-Ring
(ORANGE)

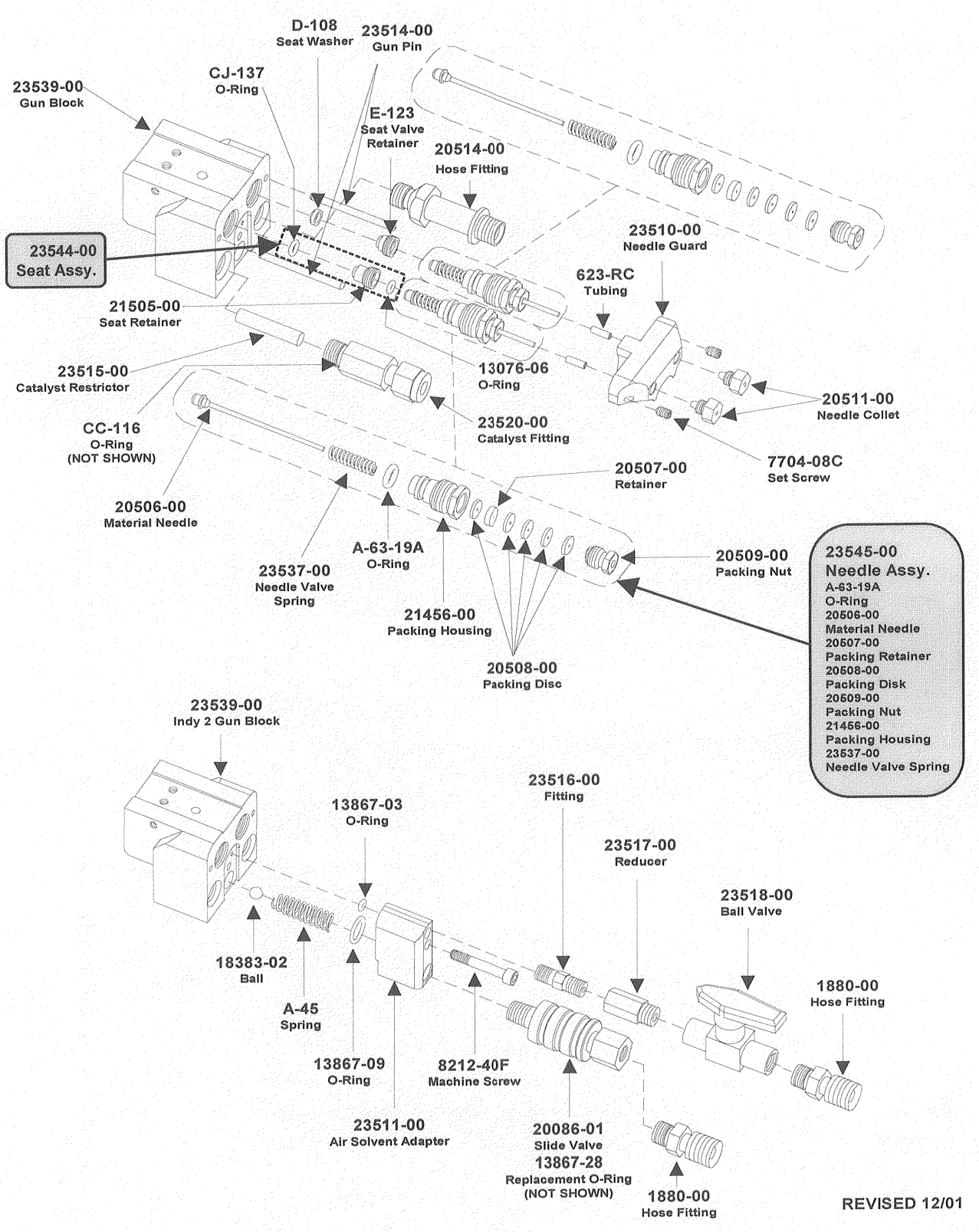
CJ-137
Silicone O-Ring
(ORANGE)

A-63-19A
Silicone O-Ring
(ORANGE)

CC-116
Silicone O-Ring
(ORANGE)

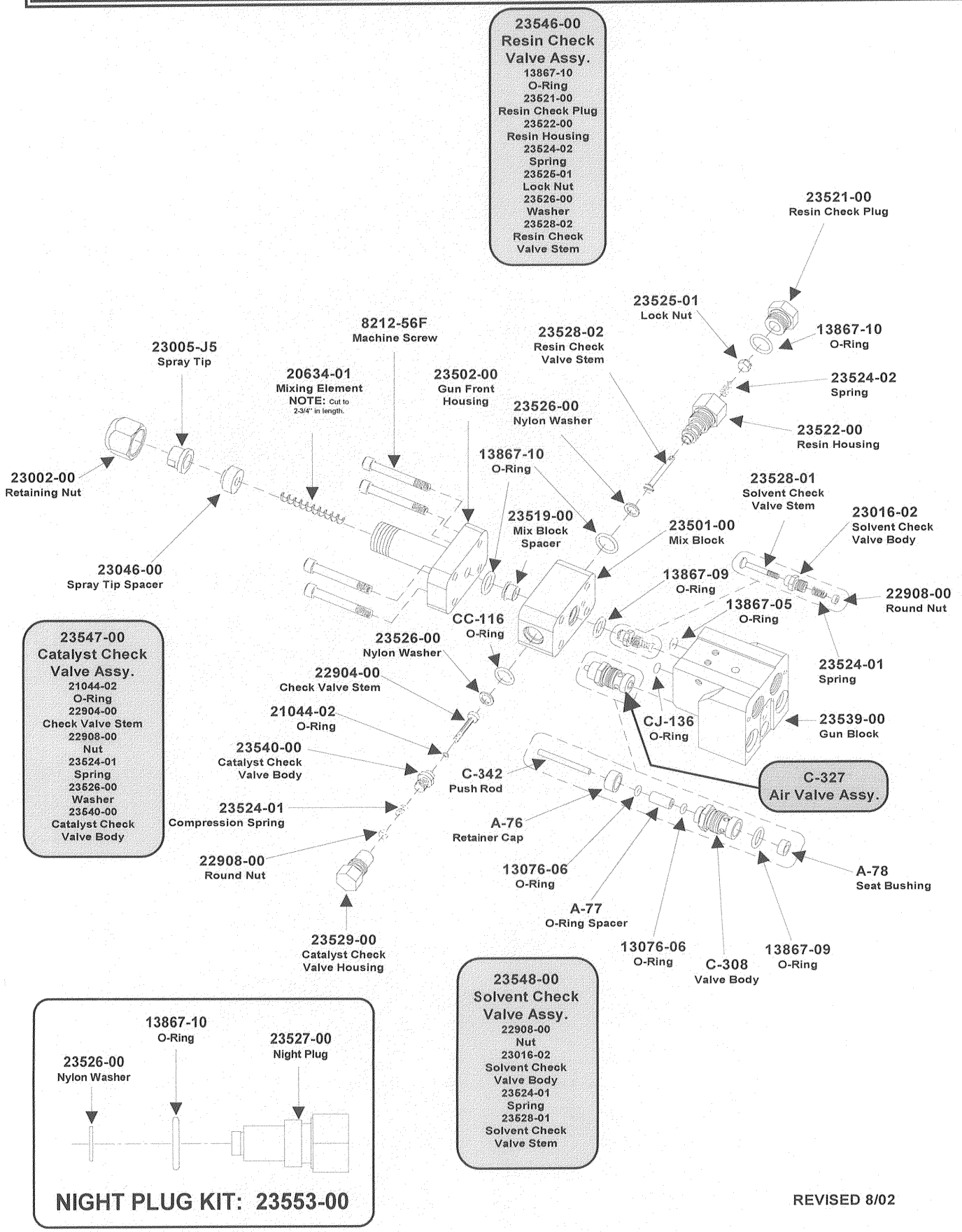
13076-06
Teflon O-Ring
(WHITE)

23550-00 INDY DISPENSE GUN



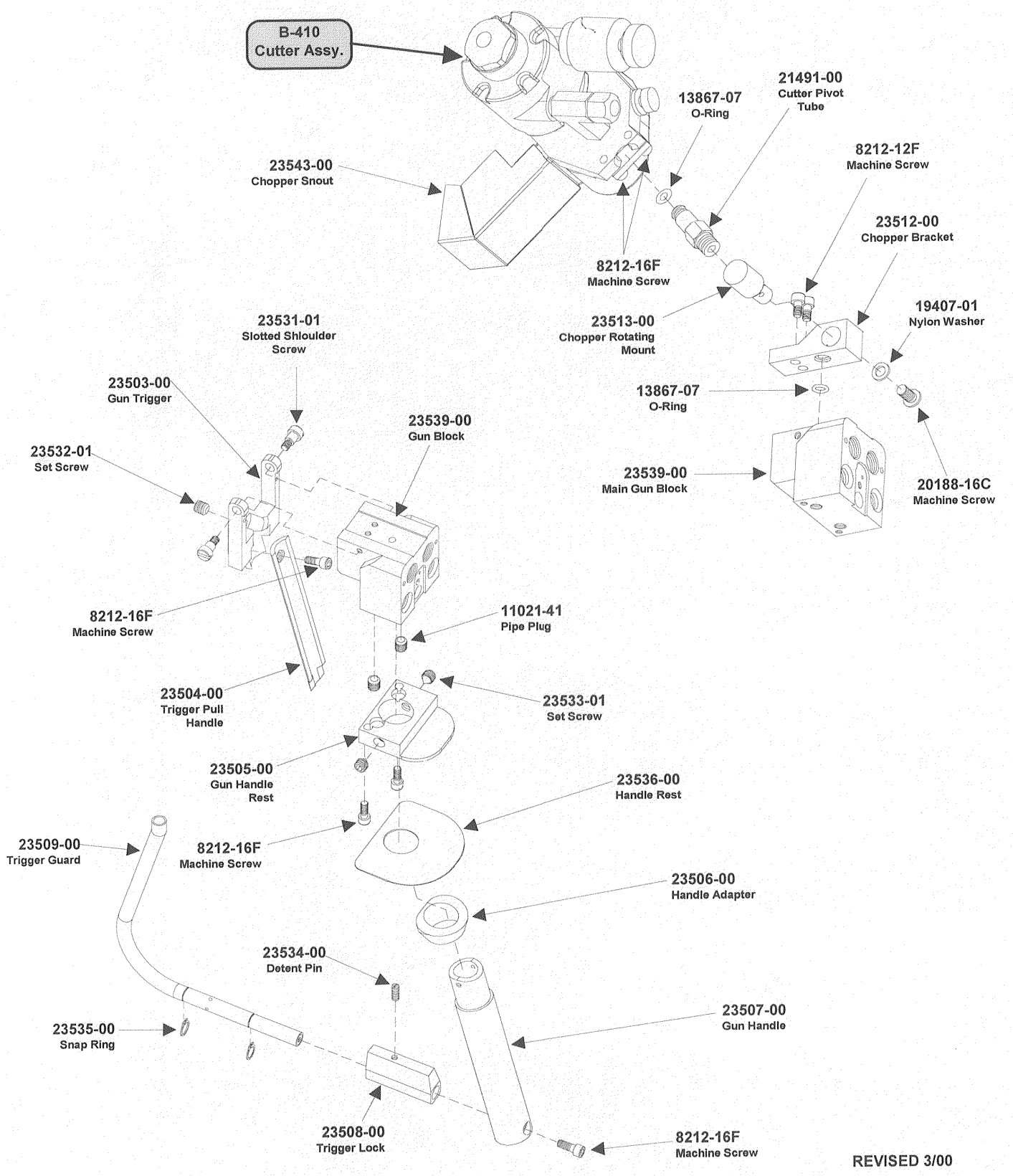
REVISED 12/01

23550-00 INDY DISPENSE GUN



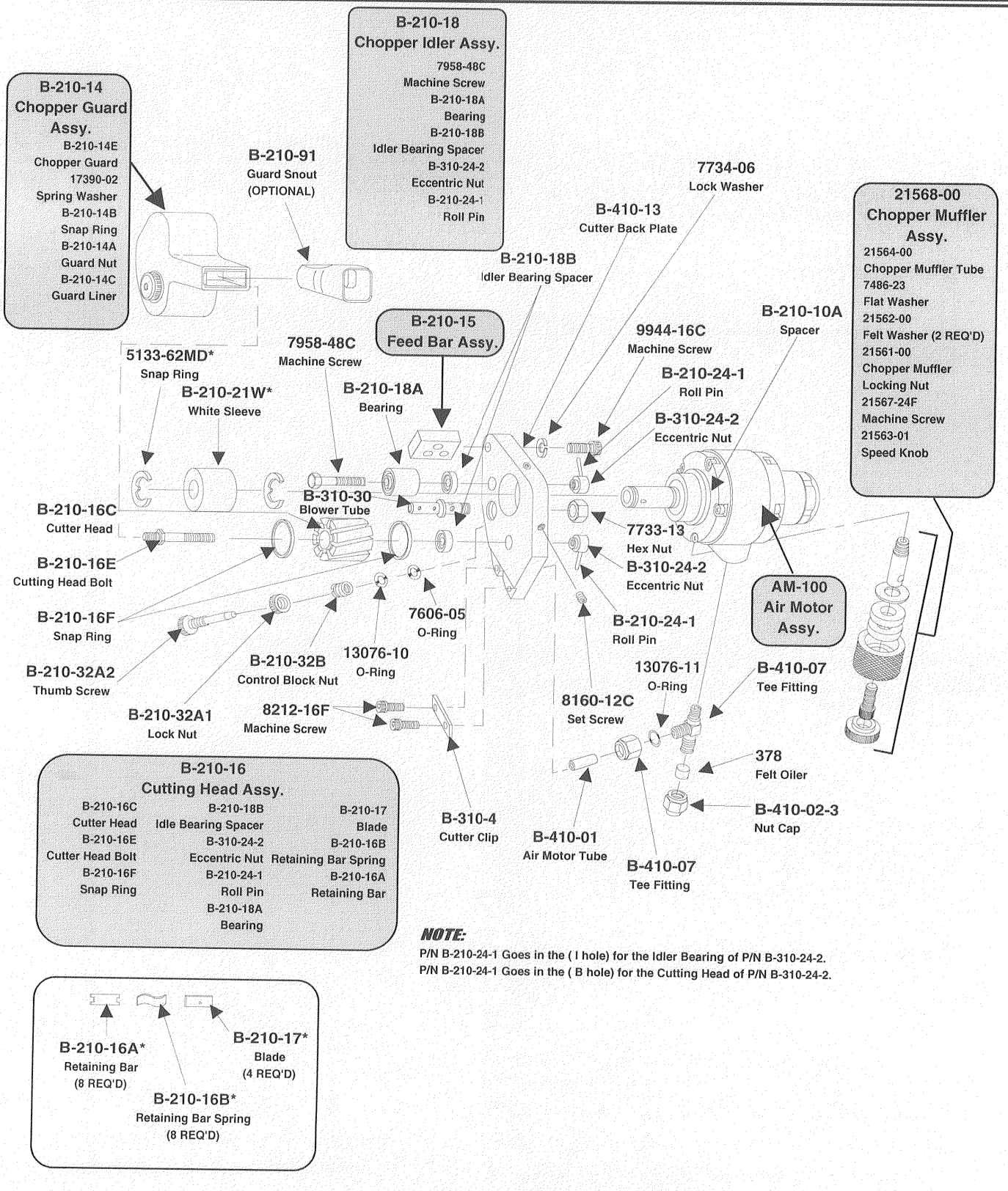
REVISED 8/02

23550-00 INDY DISPENSE GUN



REVISED 3/00

B-410 CHOPPER



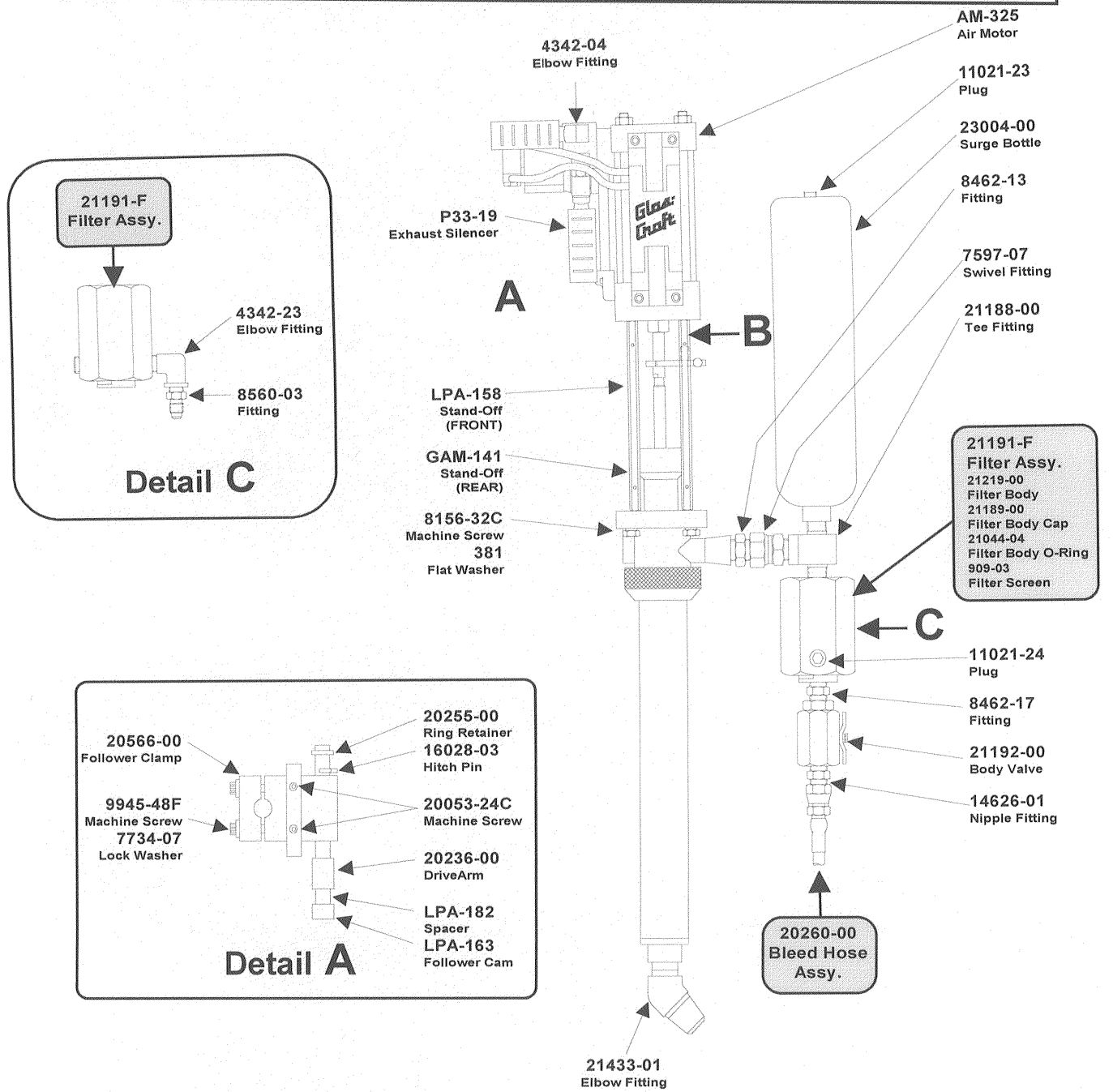
NOTE:

P/N B-210-24-1 Goes in the (I hole) for the Idler Bearing of P/N B-310-24-2.
P/N B-210-24-1 Goes in the (B hole) for the Cutting Head of P/N B-310-24-2.

REPAIR KIT: B-210-71

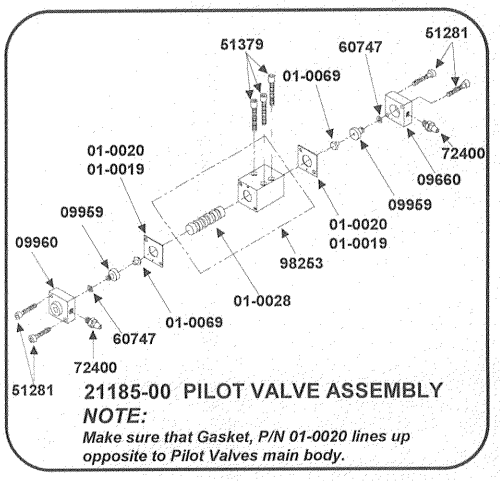
(*) Indicates parts included in the Chopper Repair Kit.

20864-04 MATERIAL PUMP ASSY.



REVISED 8/02

AM-325 AIR MOTOR



21185-00 PILOT VALVE ASSEMBLY

NOTE:

Make sure that Gasket, P/N 01-0020 lines up opposite to Pilot Valves main body.

AM-325 REPAIR KITS

20104-00	STROKE SIGNAL KIT	60126
		60222
		60127
		33581
		60762
		60062
		60007

20841-00	CYLINDER KIT	60409
		60481-4283
		15429
		60192

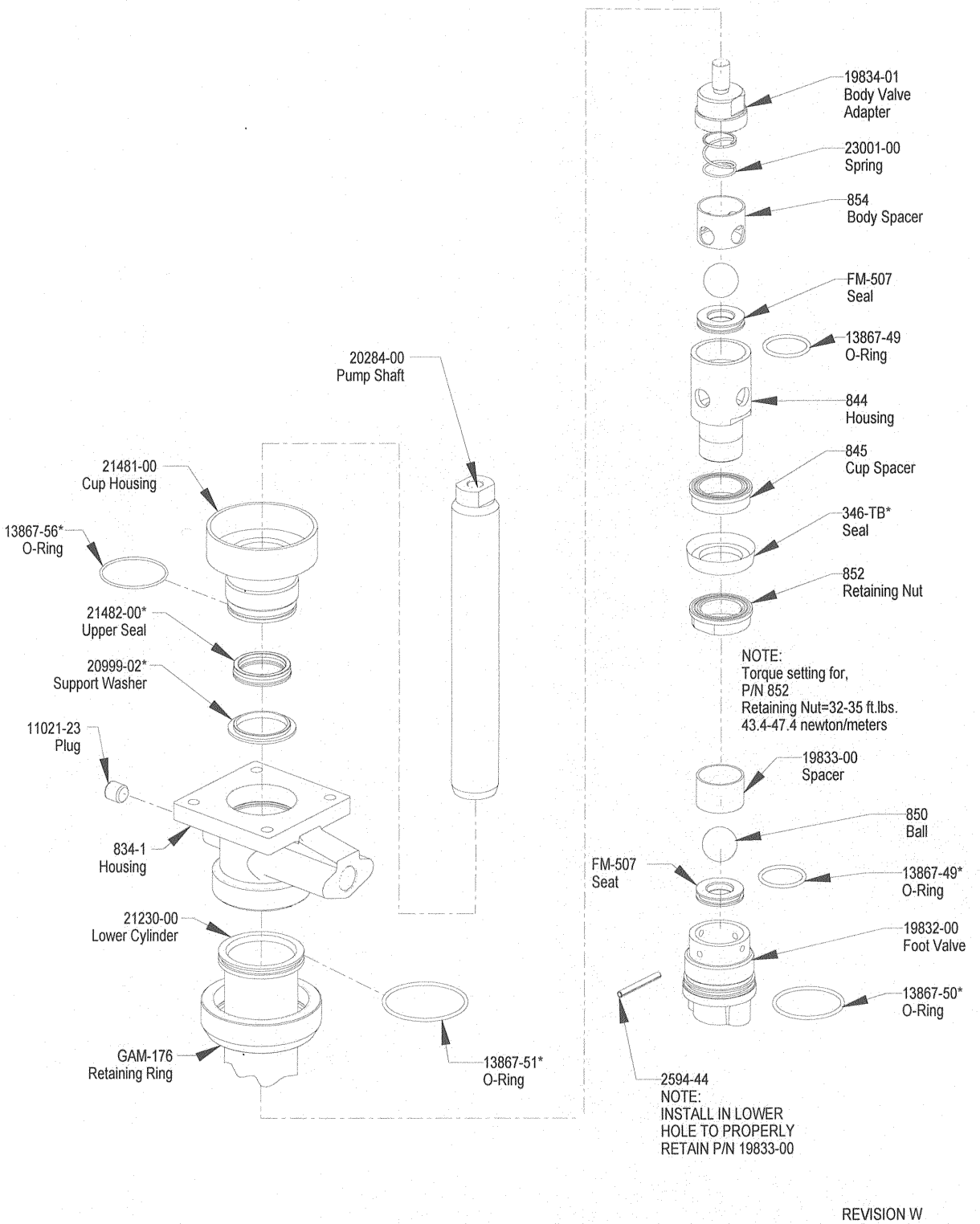
20842-00	MAIN VALVE KIT	09808
		09827 (2)
		60208 (2)
		60127 (2)
		09834
		98209 (2)
		98211

20843-00	AIR VALVE KIT	60311 (2)
		60011 (2)
		09834
		60312 (2)

20107-00	PILOT VALVE KIT	01-0020
		01-0028
		01-0069
		60747

20840-00	COMPLETE KIT	20104-00
		20107-00
		20841-00
		20842-00
		20843-00

20287-00 FLUID SECTION

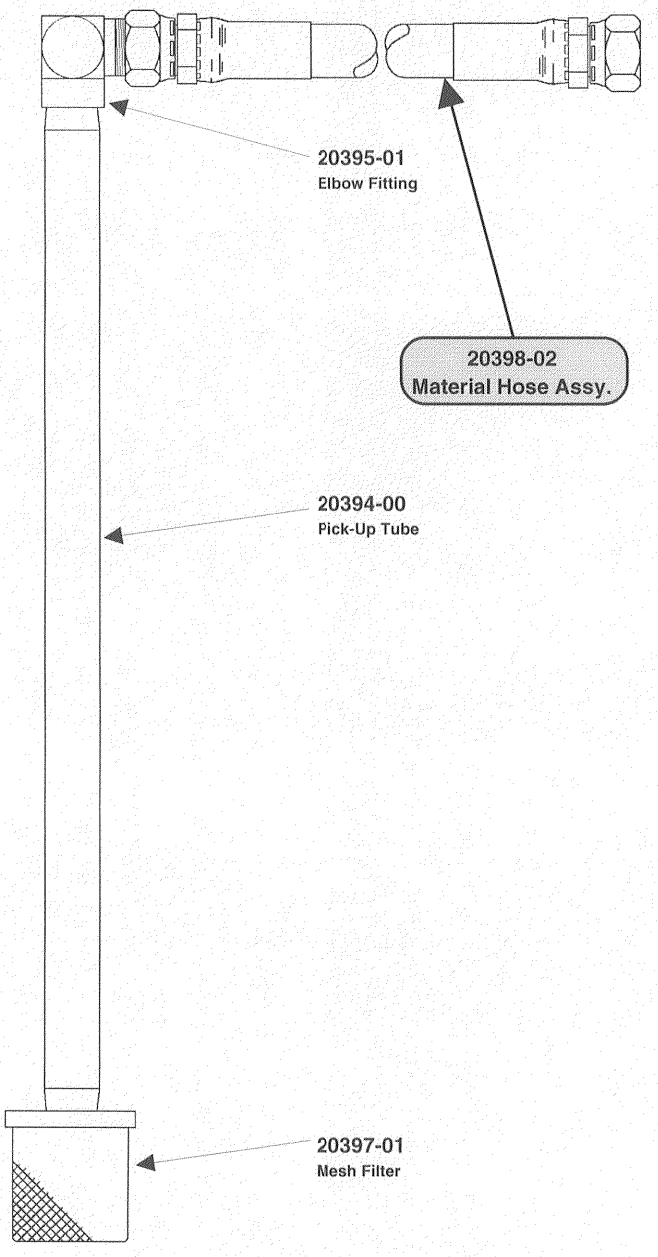


REVISION W

REPAIR KIT: 21570-00

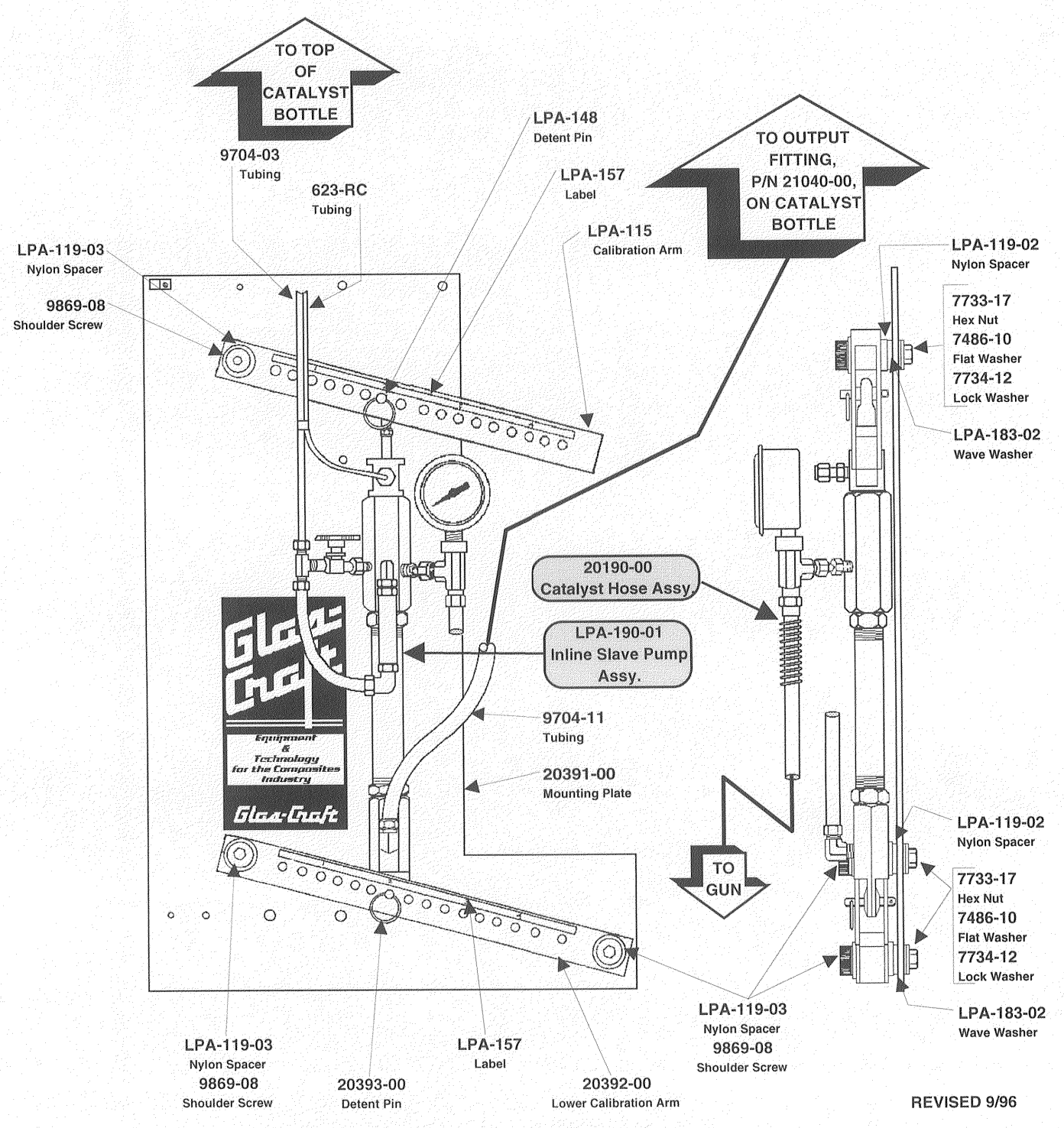
(*) Indicates parts included in Repair Kit. [Included, but not shown: 21044-04 O-Ring, 909 Filter Screen]

GAM-268-01 MATERIAL PUMP PICK-UP KIT



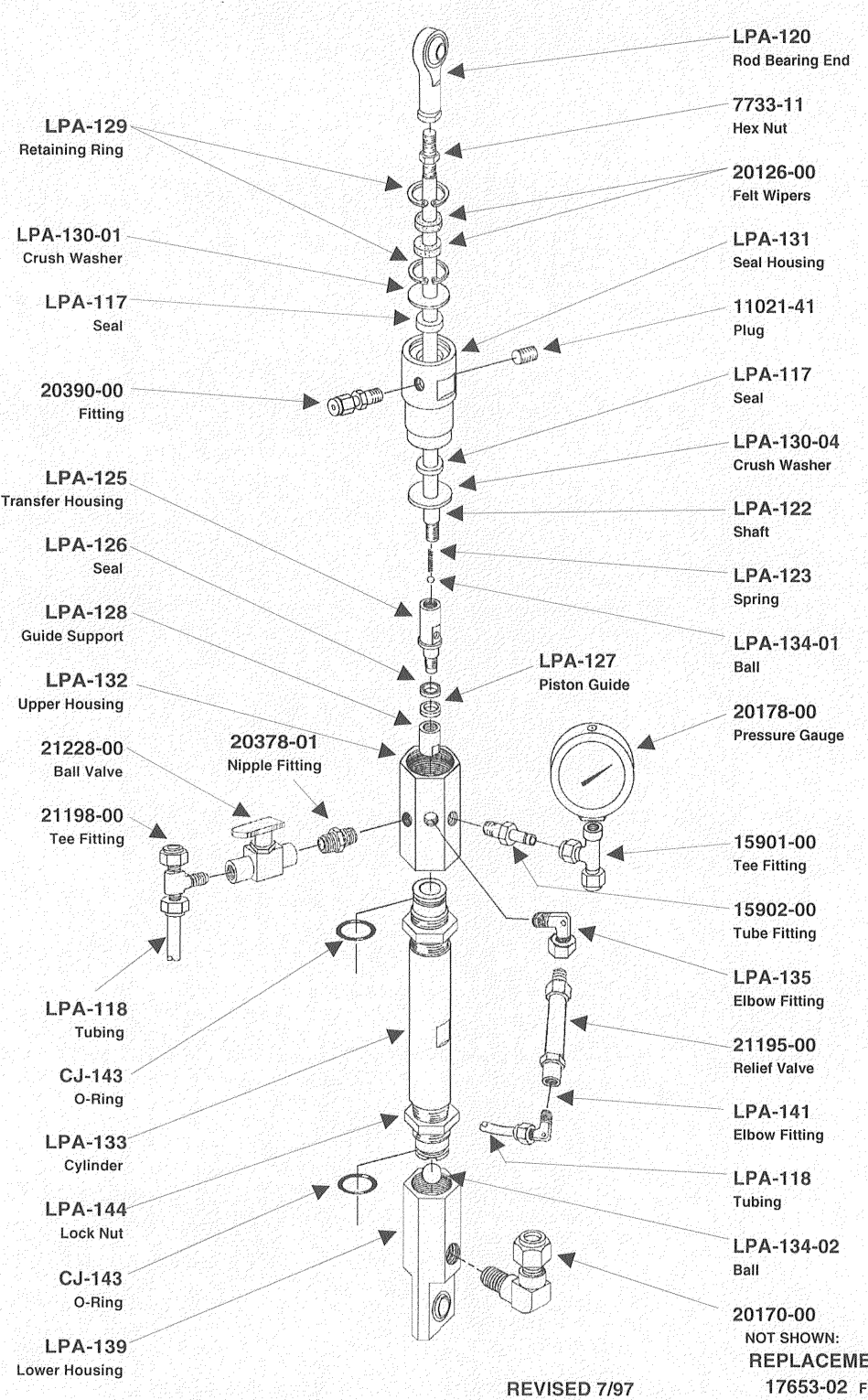
REVISED 5/96

LPA-160-01 CATALYST SLAVE PUMP



REVISED 9/96

LPA-190-01 CATALYST PUMP



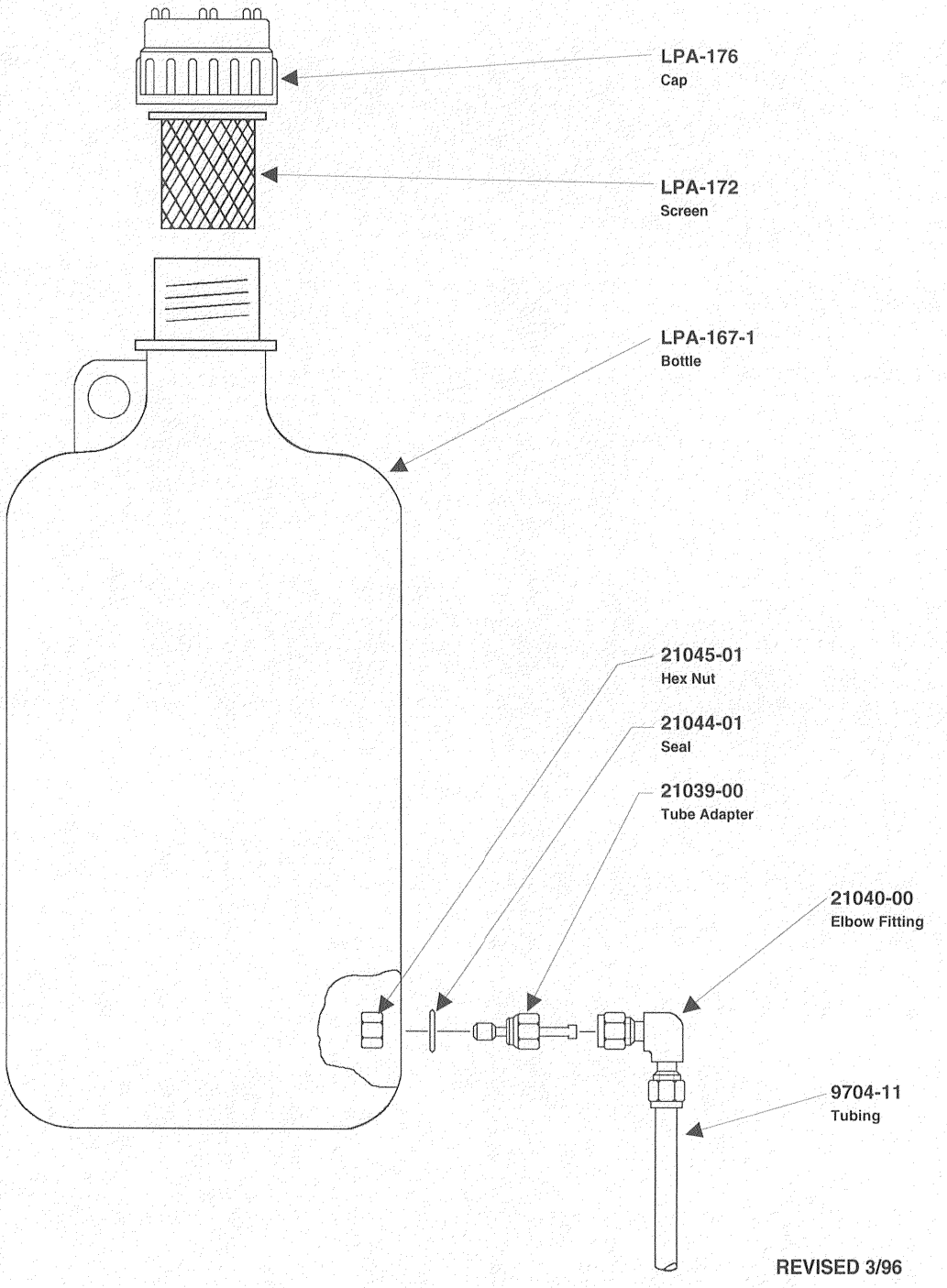
REVISED 7/97

NOT SHOWN:
REPLACEMENT FERRULES
17653-02 Front
17653-27 Rear

NOTE: Do not attempt to remove teflon insert in P/N LPA-131.

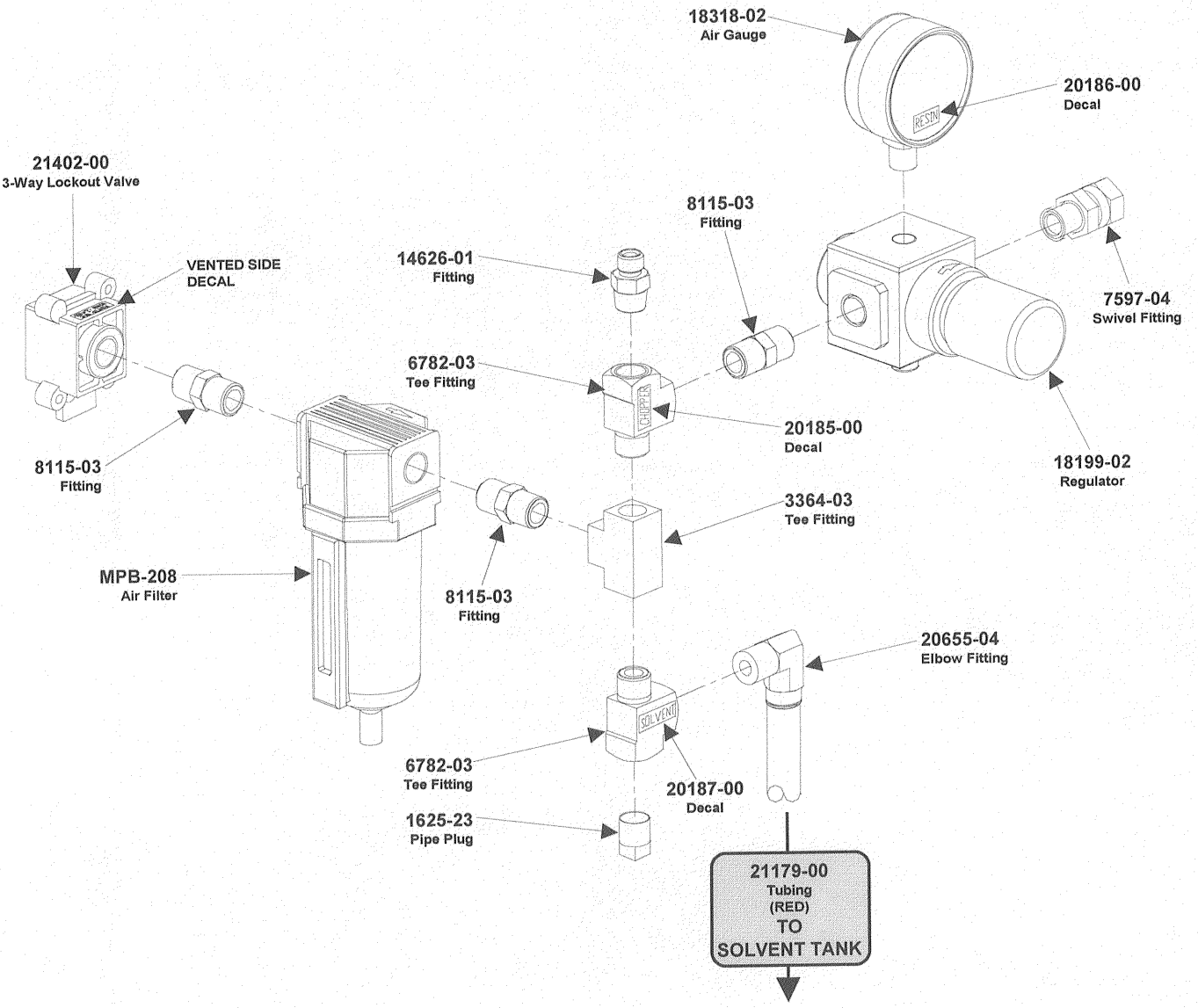
SEAL KIT: LPA-190-SK

LPA-165 CATALYST BOTTLE

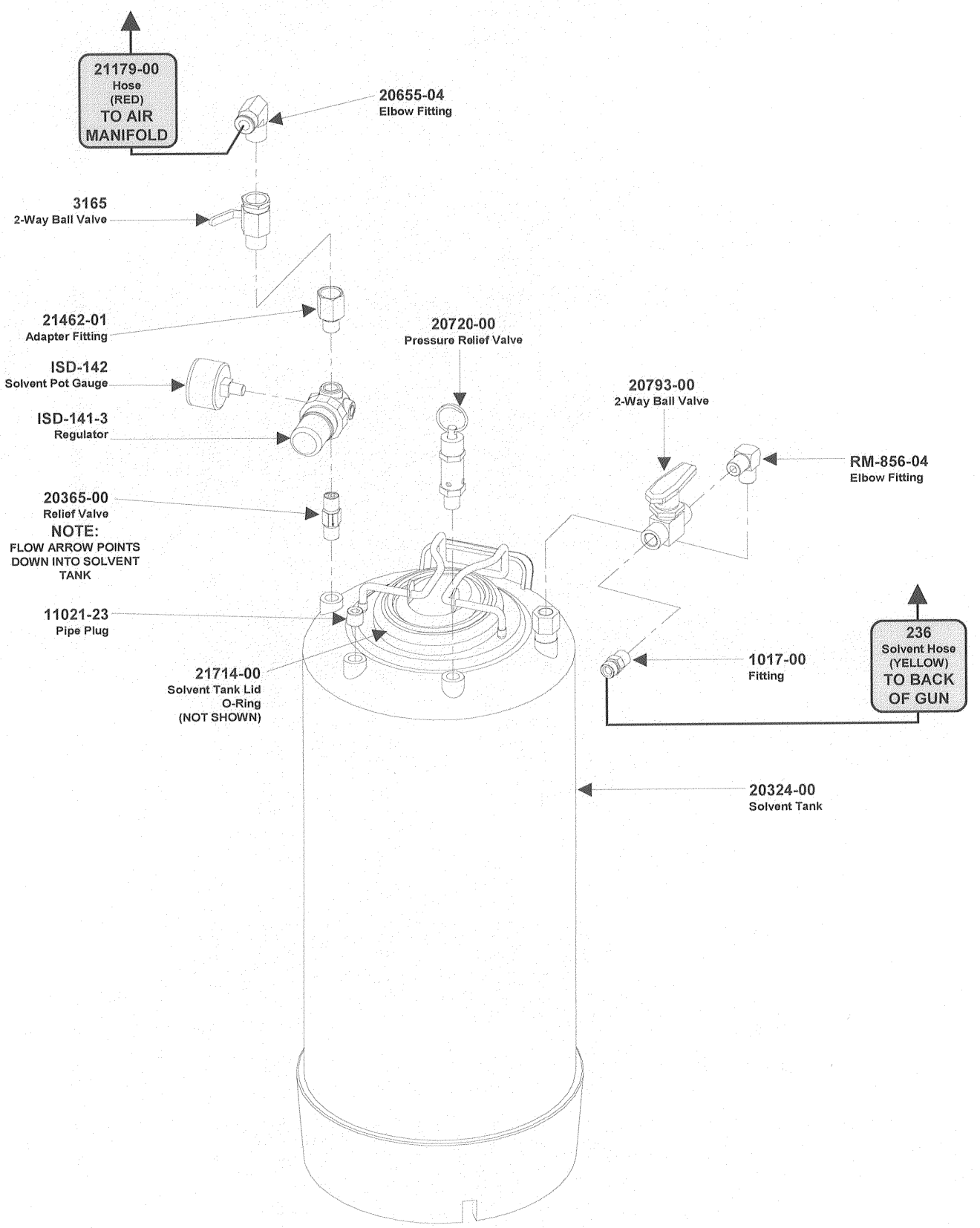


REVISED 3/96

23555-00 AIR MANIFOLD ASSEMBLY

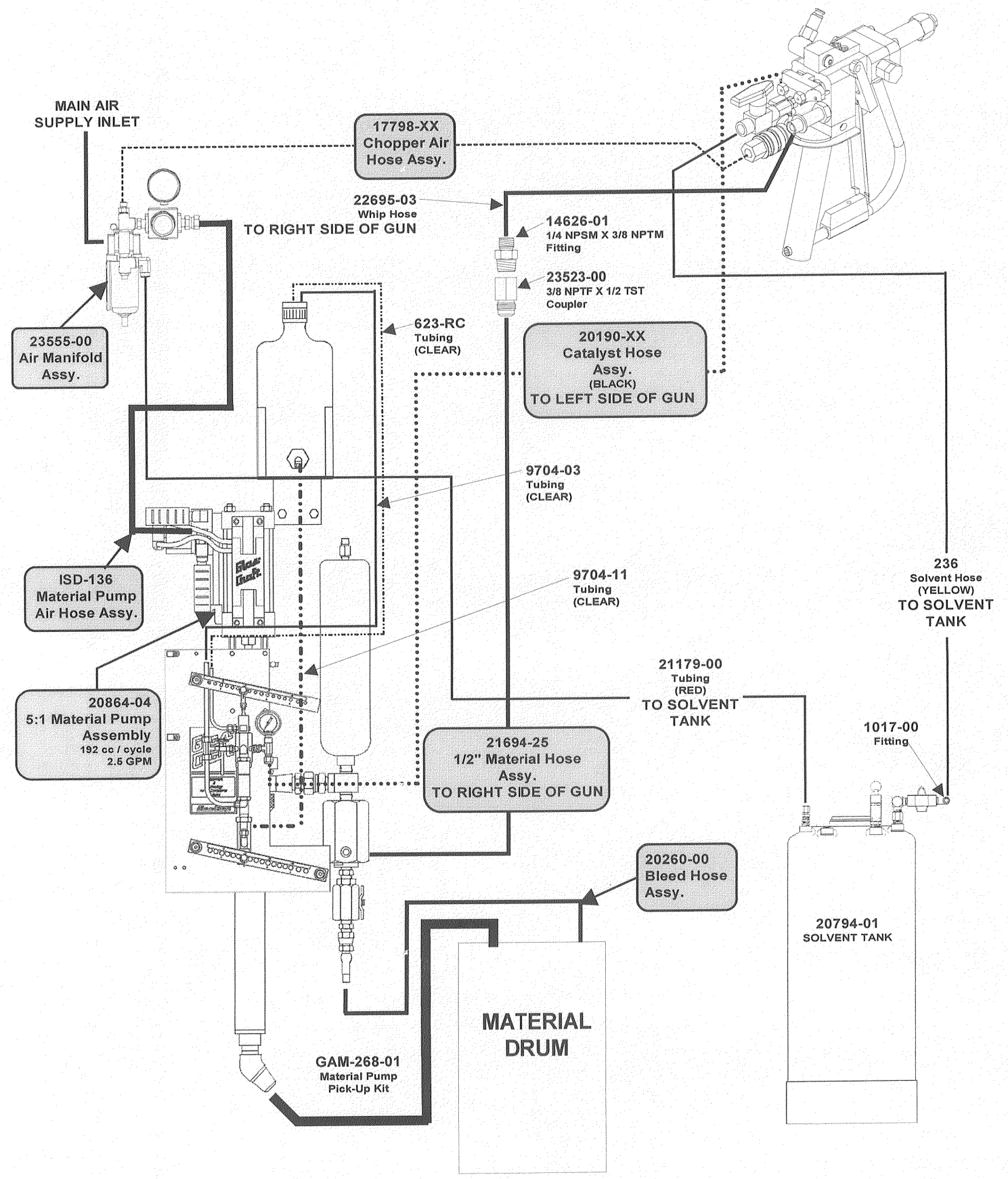


20794-01 SOLVENT TANK ASSEMBLY



REVISED 8/02

TYPICAL SYSTEM HOSE CONNECTION DIAGRAM



SAFETY

Operating Your Polyester System Safely

1.0 Introduction

Any tool, if used improperly, can be dangerous. Safety is ultimately the responsibility of those using the tool. In like manner, safe operation of polyester processes is the responsibility of those who use such processes and those who operate the equipment. This manual outlines procedures to be followed in conducting polyester operations safety.

This system has been specifically designed for use of Polyester Resin, Gel-Coat, and Methyl Ethyl Ketone Peroxides (MEKP) applications. Other formulations or blends considered for use in this equipment is strictly prohibited without the expressed consent by Glas-Craft Inc.

Glas-Craft, Inc. cannot eliminate every danger nor foresee every circumstance that might cause an injury during equipment operation. Some risks, such as the high pressure liquid stream that exits the spray tip, are inherent to the nature of the machine operation and are necessary to the process in order to manufacture the end-product. For this reason, ALL personnel involved in polyester operations should read and understand the Safety Manual. It is very important for the safety of employees involved in the operation that equipment operators, maintenance and supervisory personnel understand the requirements for safe operation.

Each user should examine his own operation, develop his own safety program and be assured that his equipment operators follow correct procedures. Glas-Craft hopes that this manual is helpful to the user and recommends that the precautions in this manual be included in any such program. Glas-Craft recommends this Safety Manual remain on your equipment at all times for your personnel safety.

In addition to the manual, Glas-Craft recommends that the user consult the regulations established under the Occupational Safety & Health Act (OSHA), particularly the following sections:

1910.94 Pertaining to Ventilation.
1910.106 Pertaining to flammable liquids
1910.107 Pertaining to spray finishing operations, particularly Paragraph (m) Organic Peroxides and Dual Component Coatings.

Other standards and recognized authorities to consult are the National Fire Protection Association (NFPA) bulletins as follows:

NFPA No.33 Chapter 14, Organic Peroxides and Dual Component Materials
NFPA No.63 Dust Explosion Prevention
NFPA No.70 National Electrical Code
NFPA No.77 Static Electricity
NFPA No.91 Blower and Exhaust System
NFPA No.654 Plastics Industry Dust Hazards

Type of Fire Extinguishing equipment recommended: Fire Extinguisher – code ABC, rating number 4a60bc. Extinguishing Media – Foam, Carbon Dioxide, Dry Chemical, Water Fog.

Copies of the above bulletins are available, at a nominal charge from:

National Fire Protection Association
470 Atlantic Avenue
Boston, MA 02210

Research Report No.11 of the American Insurance Association deal with "Fire, Explosion and Health Hazards of Organic Peroxides". It is published by...

American Insurance Association
85 John Street
New York, NY 10038

Local codes and authorities also have standards to be followed in the operation of your spraying equipment. Your insurance carrier will be helpful in answering questions that arise in your development of safe procedures.

1.2 Personal Safety Equipment

Glas-Craft recommends the following Personal Safety Equipment for conducting safe operations of the Polyester Systems:

Glas-Craft recommends that the user consult the state and local regulations established for all Safety equipment listed.

2.0 Material Safety

2.1 Hazards Associated with Laminating Operations

The major hazards which should be guarded against in polyester laminating operations are those associated with:

1. The flammability and explosion dangers of the catalyst normally used – Methyl Ethyl Ketone Peroxide (MEKP).
2. The flammability dangers of clean-up solvents sometimes used (Glas-Craft recommends that clean-up solvents be nonflammable), and of resin diluents used, such as styrene.
3. The flammability dangers of catalyst diluents, if used. (Glas-Craft recommends that catalyst not be diluted.
4. The flammability dangers of the uncured liquid resins used.
5. The combustibility dangers of the cured laminate, accumulations of over spray, and laminate sandings.
6. The toxicity dangers of all the chemicals used in laminating operations with respect to ingestion, inhalation and skin and eye hazards.

2.2 Catalyst (Methyl Ethyl Ketone Peroxide)

MEKP is among the more hazardous materials found in commercial channels. The safe handling of the "unstable (reactive)" chemicals presents a definite challenge to the plastics industry. The highly reactive property which makes MEKP valuable to the plastics industry in producing the curing reaction of polyester resins also produces the hazards which require great care and caution in its storage, transportation, handling, processing and disposal.

MEKP is a single chemical. Various polymeric forms may exist which are more or less hazardous with respect to each other. These differences may arise not only from different molecular structures (all are, nevertheless, called "MEKP") and from possible trace impurities left from the manufacture of the chemicals, but may also arise by contamination of MEKP with other materials in its storage or use. Even a small amount of contamination with acetone, for instance, may produce an extremely shock-sensitive and explosive compound.

Contamination with promoters or materials containing promoters, such as laminate sandings, or with any readily oxidizing material, such as brass or iron, will cause exothermic "redox" reactions which can become explosive in nature.

Contamination with promoters or materials containing promoters, such as laminate sandings, or with any readily oxidizing material, such as brass or iron, will cause exothermic "redox" reactions which can become explosive in nature.

Heat applied to MEKP, or heat build-up from contamination reactions can cause it to reach what is called its Self-Accelerating Decomposition Temperature (SADT).

Researchers have reported measuring pressure rates-of-rise well in excess of 100,000 psi per second when certain MEKP's reach their SADT. (For comparison, the highest pressure rate-of-rise listed in NFPA Bulletin NO.68, "Explosion Venting", is 12,000 psi per second for an explosion of 12% acetylene and air. The maximum value listed for a hydrogen explosion is 10,000 psi per second.

Some forms of MEKP, if allowed to reach their SADT, will burst even an open topped container. This suggests that it is not possible to design a relief valve to vent this order of magnitude of pressure rate-of-rise. The user should be aware that any closed container, be it a pressure vessel, surge chamber, or pressure accumulator, could explode under certain conditions. There is no engineering substitute for care by the user in handling organic peroxide catalysts.

If, at any time, the pressure relieve valve on top of the catalyst tank should vent, the area should be evacuated at once and the fire department called. The venting could be the first indication of a heat, and therefore, pressure build-up that could eventually lead to an explosion. Moreover, if a catalyst tank is sufficiently full when the pressure relief valve vents, some catalyst may spray out, which could cause eye injury. For this reason, and many others, anyone whose job puts them in an area where this vented spray might go, should always wear full eye protection even when laminating operations are not taking place.

Safety in handling MEKP depends to a great extent on employee education, proper safety instructions and safe use of the chemicals and equipment. Workers should be thoroughly informed of the hazards that may result form improper handling of MEKP, especially in regards to contamination, heat, friction and impact. They should be thoroughly instructed regarding the proper action to be taken in the storage, use and disposal of MEKP and other hazardous materials used in the laminating operation.

In addition, users should make every effort to:

A. Store MEKP in a cool, dry place in original containers away from direct sunlight and away from other chemicals.
B. Keep MEKP away from heat, sparks and open flames.
C. Prevent contamination of MEKP with other materials, including polyester over spray and sandings, polymerization accelerators and promoters, brass, aluminum and non-stainless steels.
D. Never add MEKP to anything that is hot, since explosive decomposition may result.
E. Avoid contact with skin, eyes and clothing. Protective equipment should be worn at all times. During clean-up of spilled MEKP, personal safety equipment, gloves and eye protection must be worn. Fire fighting equipment should be at hand and ready.
F. Avoid spillage, which can heat up to the point of self-ignition.
G. Repair any leaks discovered in the catalyst system immediately, and clean up the leaked catalyst at once in accordance with the catalyst manufacturer's instructions.
H. Use only original equipment or equivalent parts from Glas-Craft in the catalyst system (i.e.: hoses, fitting, etc.) because a dangerous chemical reaction may result between substituted parts and MEKP.
I. Catalyst accumulated from the purging of hoses or the measurement of fluid output deliveries should never be returned to the supply tank, such catalyst should be diluted with copious quantities of clean water and disposed of in accordance with the catalyst manufacturer's instructions.

The extent to with the user is successful in accomplishing these ends and any additional recommendations by the catalyst manufacturer determines largely the safety that will be present in his operation.

2.3 Clean-Up Solvents and Resin Diluents

WARNING

A hazardous situation may be present in your pressurized fluid system!

Hydrocarbon Solvents can cause an explosion when used with aluminum or galvanized components in a closed (pressurized) fluid system (pump, heaters, filters, valves, spray guns, tanks, etc.).

The explosion could cause serious injury, death and/or substantial property damage.

Cleaning agents, coatings, paints, etc. may contain Halogenated Hydrocarbon Solvents.

Some Glas-Craft spray equipment includes aluminum or galvanized components and will be affected by Halogenated Hydrocarbon Solvents.

A. There are three key elements to the Halogenated Hydrocarbon (HHC) solvent hazard.
   a. The presence of HHC solvents. 1,1,1 – Trichloroethane and Methylene Chloride are the most common of these solvents. However, other HHC solvents are suspect if used; either as part of paint or adhesives formulation, or for clean-up flushing.
   b. Aluminum or Galvanized Parts. Most handling equipment contains these elements. In contact with these metals, HHC solvents could generate a corrosive reaction of a catalytic nature.
   c. Equipment capable of withstanding pressure. When HHC solvent contact aluminum or galvanized parts inside a closed container such as a pump, spray gun, or fluid handling system, the chemical reaction can, over time, result in a build-up of heat and pressure, which can reach explosive proportions.

   When all three elements are present, the result can be an extremely violent explosion. The reaction can be sustained with very little aluminum or galvanized metal; any amount of aluminum is too much.

A. The reaction is unpredictable. Prior use of an HHC solvent without incident (corrosion or explosion) does NOT mean that such use is safe. These solvents can be dangerous alone (as a clean-up or flushing agent) or when used as a component or a coating material. There is no known inhibitor that is effective under all circumstances. Furthermore, the mixing of HHC solvents with other materials or solvents, such as MEKP, alcohol, and toluene, may render the inhibitors ineffective.
B. The use of reclaimed solvents is particularly hazardous. Reclaimers may not add any inhibitors. Also, the possible presence of water in reclaimed solvents could feed the reaction.
C. Anodized or other oxide coatings cannot be relied upon to prevent the explosive reaction. Such coatings can be worn, cracked, scratched, or too thin to prevent contact. There is no known way to make oxide coatings or to employ aluminum alloys, which will safely prevent the chemical reaction under all circumstances.

D. Several solvent suppliers have recently begun promoting HHC solvents for use in coating systems. The increasing use of HHC solvents is increasing the risk. Because of their exemption from many State Implementation Plans as Volatile Organic Compounds (VOC's), their low flammability hazard, and their not being classified as toxic or carcinogenic substances, HHC solvents are very desirable in many respects.

WARNING

Do not use Halogenated Hydrocarbon solvents in pressurized fluid systems having aluminum or galvanized wetted parts.

NOTE

Glas-Craft is aware of NO stabilizers available to prevent Halogenated Hydrocarbon solvents from reaction under all conditions with aluminum components in closed fluid system.

TAKE IMMEDIATE ACTION...
Halogenated Hydrocarbon solvents are dangerous when used with aluminum components in a closed fluid system.

E. Consult your material supplier to determine whether your solvent or coating contains Halogenated Hydrocarbon Solvents.
F. Glas-Craft recommends that you contact your solvent supplier regarding the best non-flammable clean-up solvent with the heat toxicity for your application.
G. If, however, you find it necessary to use flammable solvents, they must be kept in approved, electrically grounded containers.
H. Bulk solvent should be stored in a well-ventilated, separate building, 50 feet away from your main plant.
I. You should allow only enough solvent for one day's use in your laminating area.
J. "NO SMOKING" signs must be posted and observed in all areas of storage or where solvents and other flammable materials are used.
K. Adequate ventilation (as covered in OSHA Section 1910.94 and NFPA No.91) is important wherever solvents are stored or used, to minimize, confine and exhaust the solvent vapors.
L. Solvents should be handled in accordance with OSHA Section 1910.106 and 1910.107.

2.4 Catalyst Diluents

Glas-Craft spray-up and gel-coat systems currently produced are designed so that catalyst diluents are not required. Glas-Craft, therefore, recommends that diluents not be used. This avoids the possible contamination which could lead to an explosion due to the handling and mixing of MEKP and dilettante. In addition, it eliminates any problems from the dilettante being contaminated through rust particles in drums, poor quality control on the part of the diluent supplier, or any other reason. If, however, diluents are absolutely required, contact your catalyst supplier and follow his instructions explicitly. Preferable, the supplier should premix the catalyst to prevent possible "on the job" contamination while mixing.

WARNING

If diluents are not used, it should be remembered that catalyst spillage, gun, hose and packing leaks are potentially more hazardous, since each drop contains a higher concentration of catalyst, and therefore will react quicker with over spray and the leak.

2.5 Cured Laminate, Overspray and Laminate Sandings Accumulation

A. Remove all accumulations of overspray, FRP sandings, etc. from the building as they occur. If this waste is allowed to build up, spillage of catalyst is more likely to start a fire, in addition, the fire would burn hotter and longer.
B. Floor coverings, if used, should be non-combustible.
C. Spilled or leaked catalyst may cause a fire if it comes in contact with an FRP product, oversprayed chop or resin, FRP sandings or any other material with MEKP.
To prevent this spillage and leakage, you should:
1. Maintain your Glas-Craft System. Check the gun several times daily for catalyst and resin packing or valve leaks. REPAIR ALL LEAKS IMMEDIATELY.
2. Never leave the gun hanging over, or lying inside the mold. A catalyst leak in this situation would certainly damage the part, possibly the mold, and may cause a fire.
3. Use only the Glas-Craft Pour Spout, P/N PS-10, (provided with your system) to fill the catalyst injector or catalyst bottle. NEVER use a funnel, as the chance of spillage and contamination is much greater. After using the Pour Spout, flush thoroughly with water and store in a clean and sealed polyethylene bag.
4. Inspect resin and catalyst hoses daily for wear or stress at the entry and exits of the boom sections and at the hose and fittings. Replace if wear or weakness is evident or suspected.
5. Arrange the hoses and fiberglass roving guides so that the fiberglass strands DO NOT rub against any of the hoses at any point. If allowed to rub, the hose be cut through, causing a hazardous leakage of material which could increase the danger of fire. Also, the material may spew onto personnel in the area.

2.7 Toxicity of Chemicals

A. Glas-Craft recommends that you consult OSHA Sections 1910.94, 1910.106, 1910.107 and NFPA No.33, Chapter 14, and NFPA No.91.
B. Contact your chemical supplier(s) and determine the toxicity of the various chemicals used as well as the best methods to prevent injury, irritation and danger to personnel.
C. Also determine the best methods of first aid treatment for each chemical used in your plant.

2.8 Treatment of Chemical Injuries

Great care should be used in handling the chemicals (resins, catalyst and solvents) used in polyester systems. Such chemicals should be treated as if they hurt your skin and eyes and as if they are poison to your body. For this reason, Glas-Craft recommends the use of protective clothing and eye wear in using polyester systems.

However, users should be prepared in the event of such an injury. Precautions include:

1. Know precisely what chemicals you are using and obtain information from your chemical supplier on what to do in the event the chemical gets onto your skin or into the eyes, or is swallowed.
2. Keep this information together and easily available so that it may be used by those administering first aid or treating the injured person.
3. Be sure the information from your chemical supplier includes instructions on how to treat any toxic effects the chemicals have.

WARNING

Contact your doctor immediately in the event of any injury and give him the information you have collected. If your information includes first aid instructions, administer first aid immediately while you are contacting your doctor.

Fast treatment of the outer skin and eyes that contact such chemicals generally includes immediate and thorough washing of the exposed skin and immediate and continuous flushing of the eyes with lots of clean water for at least 15 minutes or more. These general instructions of first aid treatment, however, may be incorrect for some chemicals; that is why you must know the chemicals and treatment before an accident occurs. Treatment for swallowing a chemical frequently depends upon the nature of the chemical.

NOTE

Refer to your System User Manual for complete and detailed operating instructions and service information.

3.0 Equipment Safety

WARNING

Glas-Craft suggest that personnel safety equipment such as EYE GOGGLES, GLOVES, EAR PROTECTION, and RESPIRATORS be worn when servicing or operating this equipment. Ear protection should be worn when operating a fiberglass chopper to protect against hearing loss since noise levels can be as high as 116 dB (decibels).
This equipment should only be operated or serviced by technically trained personnel!!!

WARNING

Never place fingers, hands, or any body part near or directly in front of the spray gun fluid tip. The force of the liquid as it exits the spray tip can cause serious injury by shooting liquid through the skin. NEVER LOOK DIRECTLY INTO THE GUN SPRAY TIP OR POINT TH EGUN AT OR NEAR ANOTHER PERSON. (TREAT THE GUN AS IF IT WERE A LOADED PISTOL.)

3.1 Emergency Stop Procedures

The following steps should be followed in order to stop the machinery in an emergency situation:

1. The yellow air valve located where the air enters the machine should be pushed to the "OFF" (closed) position. To do this simply push on the lever protruding out the side of the valve. This will also cause all the system air to bleed out of the system in a matter of a few seconds thus making the system incapable of operating.

NOTE

Step 2 is a precautionary step and should be followed whenever the emergency stop valve is activated to the stop mode. Failure to do so will damage regulators and components on reactivating to the ON position.

2. Turn all system regulators to OFF (counter-clockwise) position.

NOTE

Verify that the Catalyst Pressure Relief Line and the Resin Return Line are secured relieving catalyst and resin fluid pressure.

3. Catalyst pressure in the Slave Pump can be eliminated by rotating the yellow valve handle on the Slave Pump 90 degrees to the "ON" position.

NOTE

The "ON" position the valve handle is parallel (in line) with the valve body.

The "OFF" position the valve handle is perpendicular (across) the valve body.

4. Resin pressure can be eliminated by rotating the yellow handled valve on the bottom of the fluid filter 90 degrees. Place a container under the bottom of the valve to catch any resin that is ejected out the valve.

3.2 General Safety Procedures

The following general safety precautions should be followed when servicing or operating this equipment to ensure operator safety:

1. When filling catalyst container protective eye equipment must be worn to protect against injuries.
2. Always maintain adequate material levels to prevent loss of prime during system operation.
3. At the first sign of a leak, stop operations, activate emergency stop valve, back off air regulators and open all bleed valves to remove all pressure from the gun, hoses, pump, catalyst system, and any other liquid containers.
4. Solvent Pot Pressure Relief:
   a. Turn Solvent Pressure Regulator counter clockwise until regulator handle stops.
   b. Open Petcock valve to bleed Solvent Tank pressure completely.
1. Catalyst Injector Pressure Relief:
   Refer to Catalyst Injector User Manual for proper pressure relief.
2. Never operate a Fiberglass System with fixed Pinch Point guards removed from system.
3. Do not operate Fiberglass Chopper Guns without protective covers in place.
4. Correct packing or valve seat leaks immediately.
5. Never immerse the gun in any liquid.
6. Periodically check operation of catalyst alarms to make sure they are operating properly.
7. Frequently check condition of hoses. Replace worn hoses and other parts before they fail.
8. Catalyst fluid nozzles and seals MUST be in good condition at all times to prevent internal and external leaks. Inspect periodically and replace as needed, or at intervals of three to four months. Use catalyst nozzle seal only once to prevent possible leakage of catalyst into air passages of gun.
9. Make absolutely certain that all pressure has been relieved from the gun before disassembly; the hoses before loosening any fittings; from the material or catalyst pump before disassembly; from the catalyst injector before disassembly or filling.

If you have any doubt that fluid pressure is relieved, call your Glas-Craft distributor or Glas-Craft, Inc. before proceeding with any disassembly.

10. Use only genuine Glas-Craft replacement parts when repairing your system. Substitutes may not be the proper material or may not fit the system and may cause dangerous operating conditions and the failure of other components.

3.3 Grounding

Grounding an object means providing an adequate path for the flow of the electrical charge from the object to the ground. An adequate path is one that permits charge to flow from the object fast enough that it will not accumulate to the extent that a spark can be formed. It is not possible to define exactly what will be an adequate path under all conditions since it depends on many variables.

In any event, the grounding means should have the lowest possible electrical resistance. Grounding straps should be installed on all loose conductive objects in the spraying area. This includes material containers and equipment. Glas-Craft recommends grounding straps be made of AWG No.18 stranded wire as a minimum and the larger wire be used where possible. NFPA Bulletin No77 states that the electrical resistance of such a leakage path may be as low as 1 meg ohm (10 ohms) but that resistance as high as 10,000 meg ohms will produce an adequate leakage path in some cases.

Whenever flammable or combustible liquids are transferred from one container to another, or from one container to the equipment, both containers or container and equipment shall be effectively bonded and grounded to dissipate static electricity.

For further information, see....

National Fire Protection Association (NFPA) 77, titled "Recommended Practice on Static Electrical". Refer especially to section 7-7 titled "Spray Application of Flammable and Combustible Materials". Check with local codes and authorities for other specific standards that might apply to your application.

NEVER USE HARD MATERIALS SUCH AS WIRE, PINS, ETC., TO CLEAR A PLUGGED GUN. HARD MATERIALS CAN CAUSE PERMANENT DAMAGE. DAB WITH A BRISTLE BRUSH, BLOW BACKWARDS WITH AIR UNTIL CLEAR WHILE WEARING A PROTECTIVE EYE SHIELD. REPEAT AS MANY TIMES AS NECESSARY.

DO NOT PERFORM ANY MAINTENANCE OR REPAIRS UNTIL YOU HAVE FOLLOWED THE PRECAUTIONS STATED ABOVE. IF YOU, AS AN EQUIPMENT OPERATOR OR SUPERVISOR, DO NOT FEEL THAT YOU HAVE BEEN ADEQUATELY TRAINED OR INSTRUCTED AND THAT YOU LACK THE TECHNICAL KNOWLEDGE TO OPERATE OR PERFORM MAINTENANCE ON A PIECE OF GLAS-CRAFT EQUIPMENT, PLEASE CALL GLAS-CRAFT, INC. BEFORE OPERATING OR PERFORMING MAINTENANCE ON THE EQUIPMENT.

IF YOU HAVE ANY QUESTIONS REGARDING THE ABOVE PRECAUTIONS OR ANY SERVICE OR OPERATION PRECEDURES, CALL YOUR GLAS-CRAFT DISTRIBUTOR OR GLAS-CRAFT, INC.

NOTICE

All statements, information and data given herein are believed to be accurate and reliable but are presented without guaranty, warranty or responsibility of any kind express or implied. The user should not assume that all safety measures are indicated or that other measures are not required.

Glas-Craft, Inc.

5845 WEST 82nd STREET
INDIANAPOLIS, INDIANA 46278 USA
Phone (317) 875-5592
Fax (317) 875-5456
E-Mail gciad@glascraft.com

REVISED NOVEMBER 2000

INSTALLATION

CART, MAST & BOOM

A. Cart Assembly, P/N 770

1. Open the shipping container containing the Cart and Cart Hardware Kit. make certain that all the parts listed below are present.

QTY.		PART NUMBER	DESCRIPTION
1		769	CART BASE
2		730	REAR CART TIRE
2	*	7486-25	FLAT WASHER, 3/4 I.D.
2	*	5363-03	COTTER PIN
2		720	FRONT CASTER
8	*	7486-07	FLAT WASHER, 5/16 I.D.
8	*	7729-07	LOCK NUT, 5/16-18
8	*	8156-32C	HEX BOLT, 5/16-18 X 1
1		740	CART HANDLE
2	*	20888-00	HANDLE GRIP
1	*	7486-09	FLAT WASHER, 7/16 I.D.
1	*	7733-43	HEX NUT, 7/16-14
1	*	20787-224C	HEX BOLT, 7/16-14 X 7

* Contained in P/N 772 Cart Hardware Kit

2. Also contained in the box is the Mast Mounting Hardware Kit, P/N 780. This Kit mounts the Mast to the Cart (see Section B).

NOTE

Refer to Figure 1 illustration during assemble steps A-3, A-4 and A-5.

3. Remove protective tape for rear axles. Install one Wheel, P/N 730, onto axle. Assemble Flat Washer, P/N 7486-25, on axle and insert Cotter Pin, P/N 5363-03, through axle hole. Spread Cotter Pin legs to secure Wheel on to Axle. Assemble second Wheel in same manner.

4. Assemble Front Casters, P/N 720, (see Fig. 1, view A) to Cart Base, P/N 769, by attaching Caster with Hex Bolts, P/N 8156-32C; Flat Washers, P/N 7486-07; and Self-Locking Hex Nuts, P/N 7729-07. Make sure that all bolts and nuts are securely tightened.

5. Position Cart Handle, P/N 740, between the two flanges located on the front of the Cart Base. Secure Cart Handle to Car Base by sliding Hex Bolt, P/N 20787-224C through Flange and Handle. Place Flat Washer, P/N 7486-09, and Hex Nut, P/N 7733-43, on Hex Bolt and tighten securely. Push Handle Grips, P/N 20888-00, onto each side of Cart Handle.

B. Mast Assembly

1. Remove Mast, P/N 754-1, from Boom container and Mast Mounting Hardware Kit, P/N 780, from Cart container. Make certain that all of the parts listed below are present.

QTY.		PART NUMBER	DESCRIPTION
1		754-1	MAST SUPPORT
1	*	756	MAST CLAMP
1	*	19850-01	CARRIAGE BOLT
6	*	8156-32C	HEX BOLT, 5/16-18 X 1
6	*	7486-07	FLAT WASHER, 5/16 I.D.
6	*	7486-22	FLAT WASHER, 3/8 I.D.
6	*	7734-07	LOCK WASHER, 5/16 I.D.
7	*	7733-14	HEX NUT, 5/16-18

* Contained in P/N 780 Mast Mounting Hardware Kit.

NOTE

Refer to Figure 2 illustration during assemble steps B-2, B-3 and B-4.

2. Position Mast, P/N 754-1, on Cart Assembly, P/N 770, so that holes in Mast Support Flanges align with holes in Cart Base.

3. Using Hex Bolts, P/N 8156-32C; Flat Washers, P/N 7486-07 and P/N 7486-22; Lock washer, P/N 7734-07; and Hex Nuts, P/N 7733-14, assemble Mast to Cart Base. Tighten Hex Bolts and Hex Nuts securely.

4. Place Mast Clamp, P/N 756, over the Mast and secure with Carriage Bolt, P/N 19850-01, and Hex Nut, P/N 7733-14. Mast Clamp should be positioned approximately 18 inches from the top of the Mast. The height of the Mast Clamp may be adjusted to allow for Boom height position. Tighten Carriage Bolt and Hex Nut securely.

WARNING

*The Mast Clamp should not be placed too near the top of the Mast. The boom **must** slide over the Mast at least half the length of the Boom Socket. Failure to place Boom Socket over Mast properly could result in personnel injury and/or damage to equipment.*

CAUTION

Before proceeding, make certain that all Hex Nuts are securely tightened to Hex Bolts.

C. Boom & Arm Assembly, P/N 750-01

1. Make sure Pivot Plate, P/N 22489-00 is properly aligned with thru hole in Arm Pivot Bolt, P/N 22499-00.

2. Turn Pivot Plate, P/N 22489-00 and Insert P/N, 22552-00 Machine Screw through both holes in Pivot Plate. Drop two P/N, 7733-42 Nuts over Bolt on both sides. These Nuts are spacers. Drop Lock Washer P/N, 7734-12 over Bolt on each side and screw Nut P/N,7733-18 down tight on both sides. Slide two P/N,22488-00 Hose Pivot Plates over bolts and screw remaining P/N, 7733-18 Nuts on top of Bolts until Hoses are installed . See Detail B.

3. Attach P/N, 753-01 Arm to Boom, P/N 751-01 as shown using parts from Boom Hardware Kit, P/N 766-01. Install P/N, 7486-10 washers on outside of Arm Pivot Plate as shown in View A.

4. Attach P/N, 488-00 Chains to arm using parts shown. Make Sure that P/N, 7729-04 Self Locking Nut is fully engaged so that the Nut will not back off P/N, 7957-128C Bolt when assembled.

5. Hook P/N, 444 Springs into Pivot Plate P/N, 22489-00 as shown and let them hang. Lift P/N, 753-01 Arm and hook chain link at end into Spring Eye as shown on both sides of arm. The Arm is now installed and should be fully suspended from the Boom.

6. Tighten Mounting Bolt Snug. P/N, 22497-00 Hose Guide Roller Does not have to turn freely.

7. Apply Bearing Grease liberally to both sides of P/N, 22479-00 Machinery Shim. Slide Pivot Bolt, P/N 22499-00 thru Shim and thru Bearing at end of Boom.

8. Apply Bearing Grease to both sides of Bearing Shims and Lube both sides of Needle Bearings, filling all cavities between rollers with grease before assembly.

9. Apply Red Loctite to lower exposed to part of the Pivot Bolt and Screw on the lower nut. Screw nut down snug until you can rotate the Pivot Bolt smoothly with no vertical play.

10. Align P/N, 22489-00 Spring Plate so it is perpendicular to the Mast Arm but parallel with the thru hole in the head of the Pivot Bolt P/N, 22499-00. See Orientation View.

11. Use Blue Loctite and tighten the top nut down against P/N, 22489-00 Spring Plate. Do not loosen the bottom nut. Check the tightness of the Pivot Bolt by turning it as described in #10.

12. P/N, 22498-00 Arm Extension is to be used ***only*** with Floor and Wall Mount Boom Assemblies. Secure extension with P/N, 7957-128C Bolt used to hold Chains to Arm. Run bolt through holes in extension. Reinstall Chain, and secure with fender washer and Self Locking Nut.

13. Turn individual Roving Guides to increase or decrease braking action on fiberglass roving.

14. Trim P/N, 22544-00 Vinyl Protective Cap to proper length during installation.

CAUTION

Before proceeding, make certain that all Hex Nuts are securely tightened to Hex Bolts.

NOTE

The Boom may tilt up or down at this point, but final Chain adjustments should not be made until all of the Hoses have been fed through the Boom and the Gun (and Chopper, if required) is attached to the Hoses. The desired Boom height may then be adjusted.

D. Final Adjustments

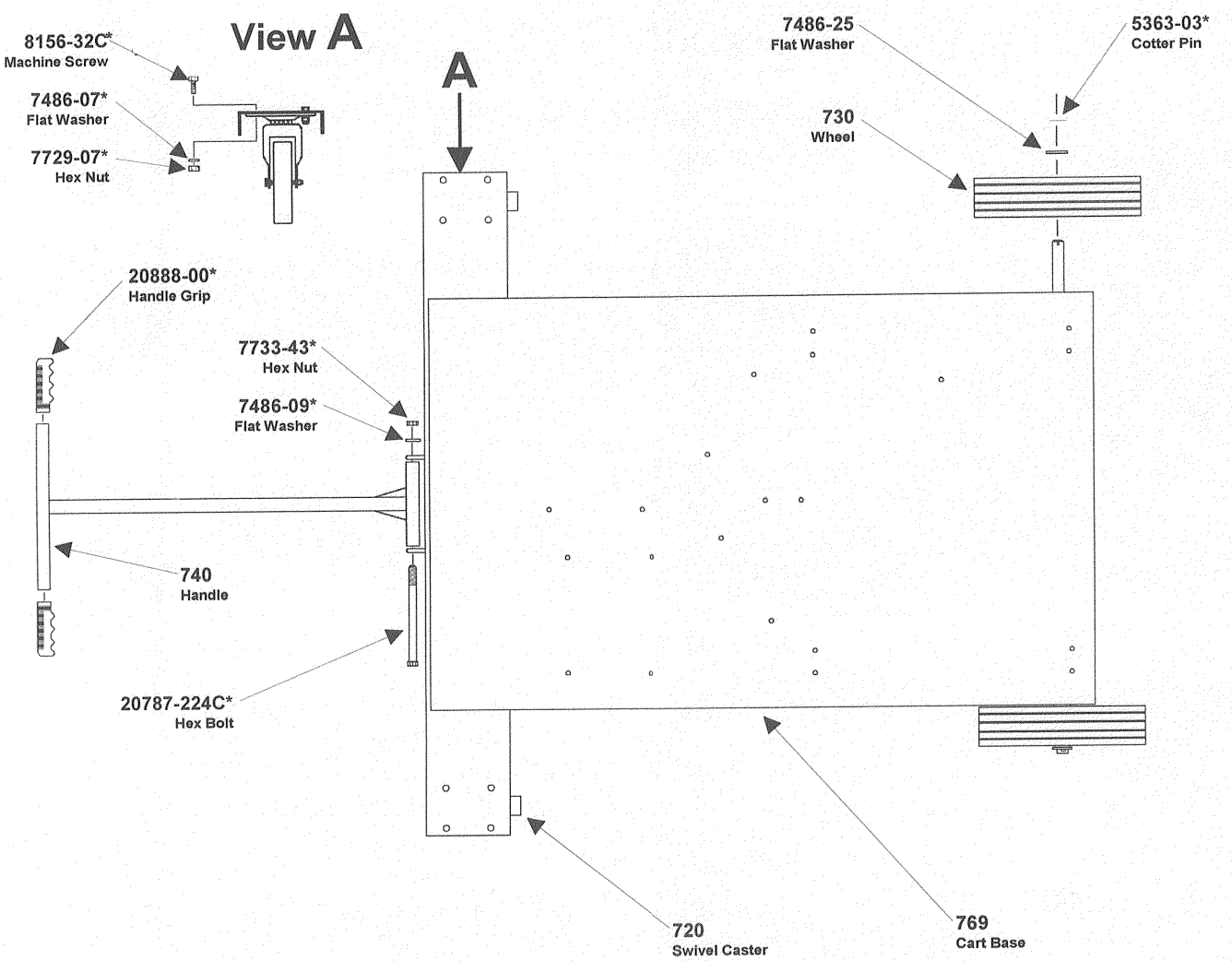
At this point, your Cart, Mast and Boom is completely assembled and ready for final adjustments and use.

1. After the hoses have been run and the Boom and the Gun (and Chopper, if required) has been attached, the weight may cause the Boom to hang too low. The gun should never touch the floor when the unit is free standing. If the Gun touches the floor, adjust the Boom height by adjusting the Boom Spring Chain, P/N 488 to achieve desired height. Additionally, the height of the Boom will be affected by and can be adjusted by the length of Hose extending from the end of the Boom. This length will depend on each operator's requirements.

CAUTION

*Care should be taken to adjust the Boom so that the Gun **does not** touch the floor. Damage to the Spray Tip, Catalyst Tip, Air Passages, etc. may occur. For operator safety and equipment performance, make certain that proper height adjustment is made before operation.*

770 CART



CART HARDWARE KIT: 772
(*) Indicates parts included in kit.

Fig. 1

MAST ASSEMBLY

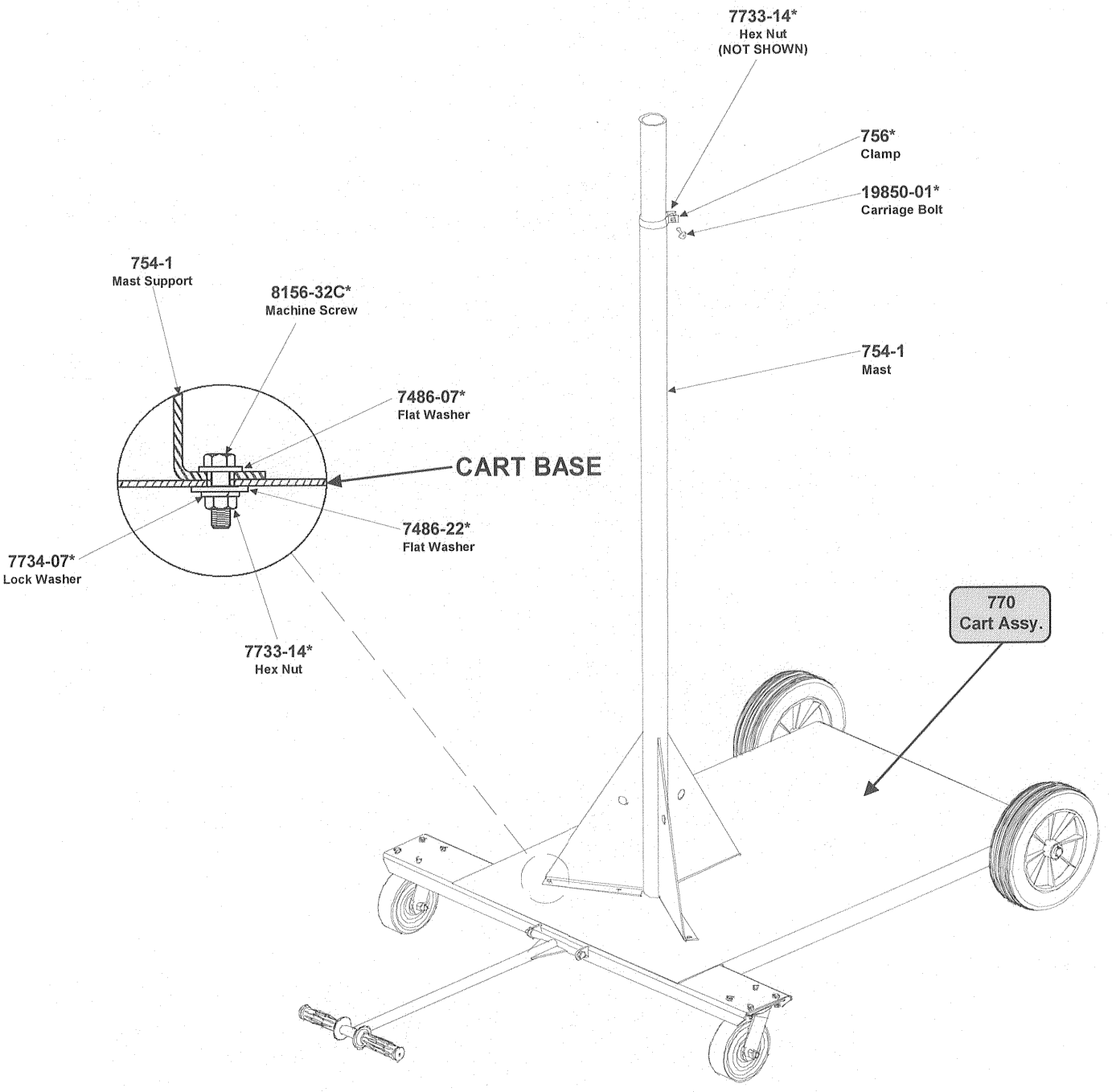


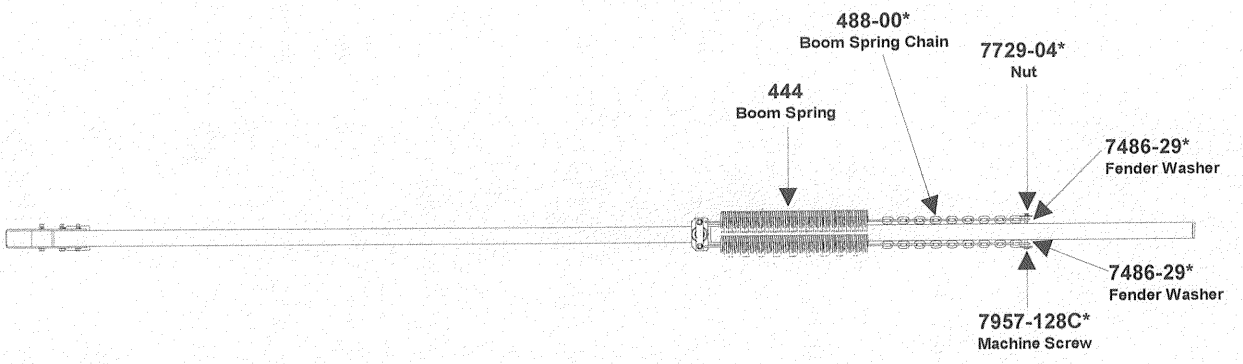
Fig. 2

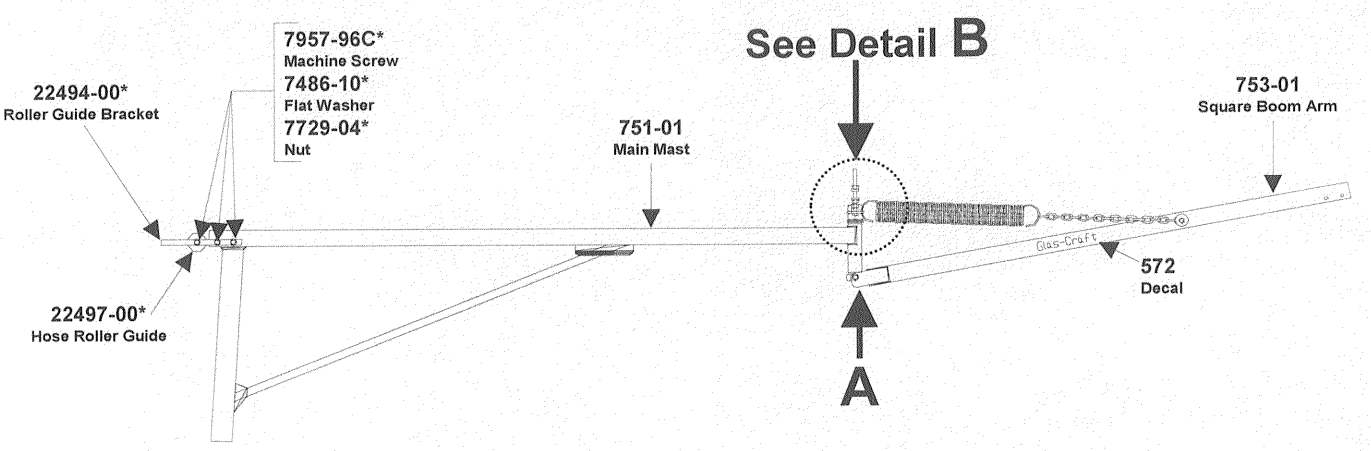
HARDWARE KIT: 780

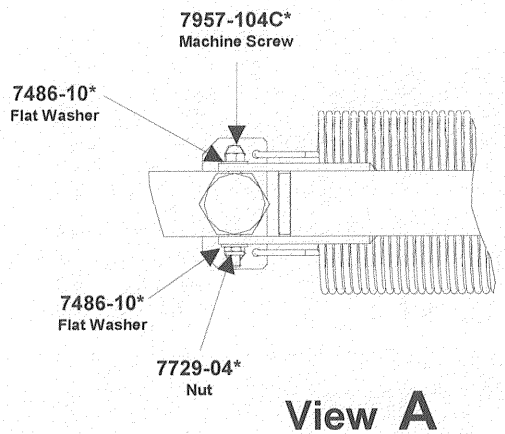
(*) Indicates parts included in kit.

REVISED 4/03

750-01 SQUARE BOOM ASSEMBLY



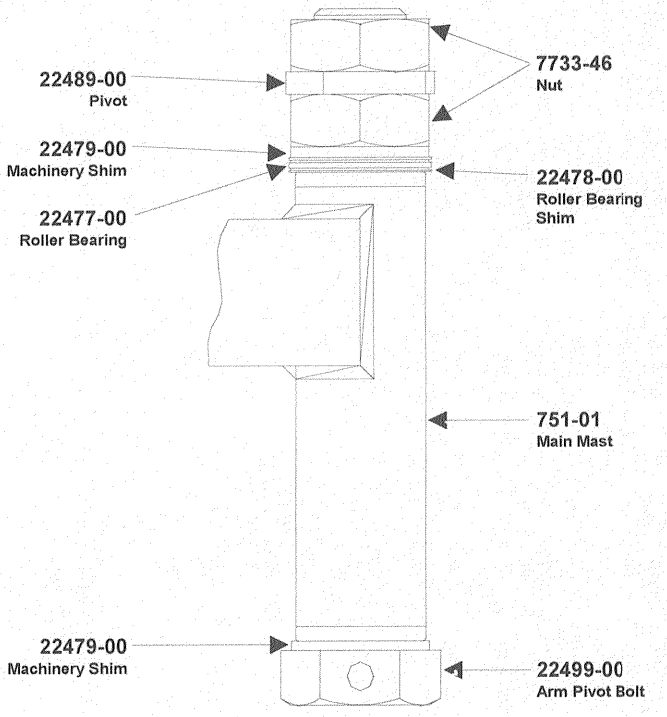




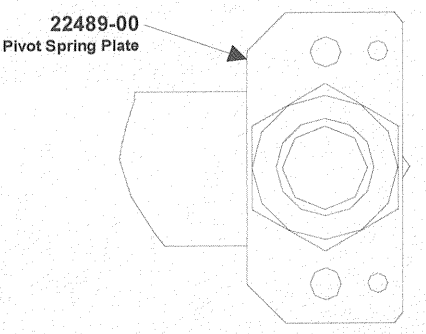
SQUARE BOOM HARDWARE KIT: 766-01

(*) Indicates parts included in Kit.

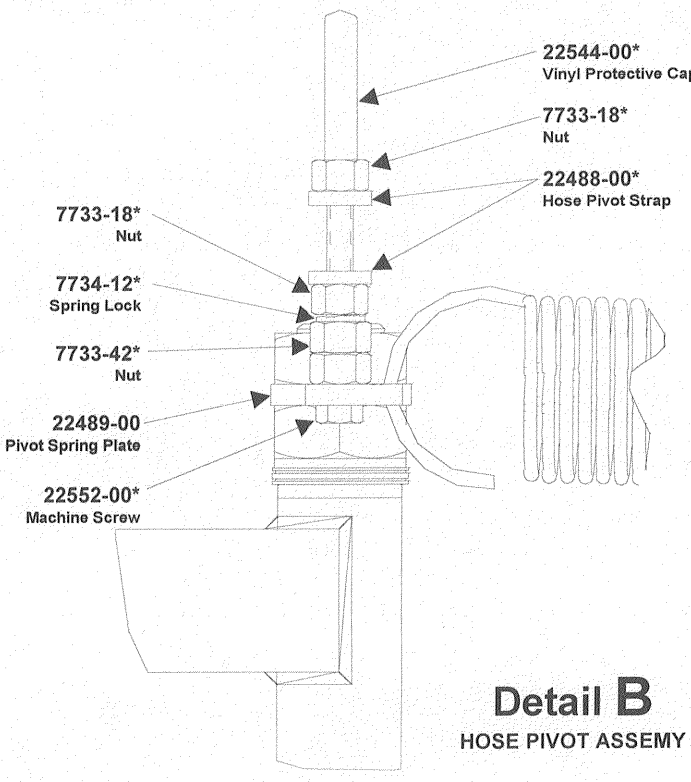
750-01 SQUARE BOOM ASSEMBLY



Detail B
PIVOT BOLT ASSEMBLY



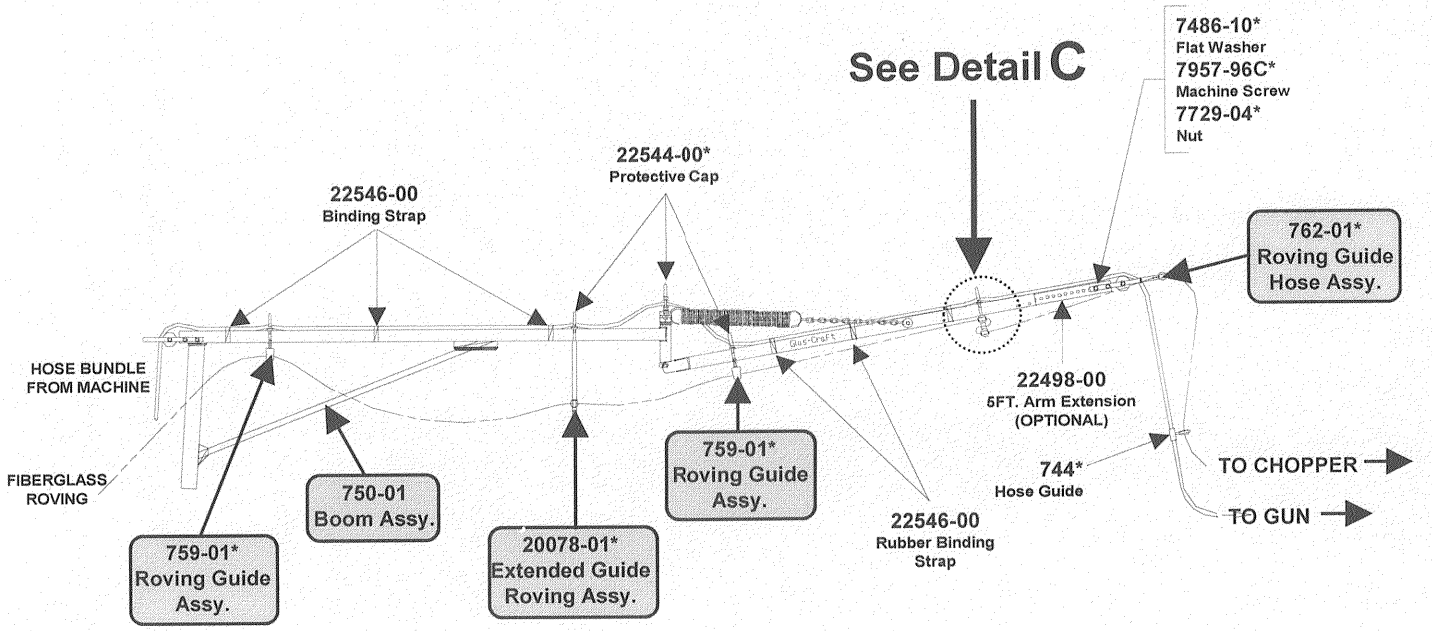
SPRING PIVOT PLATE ORIENTATION

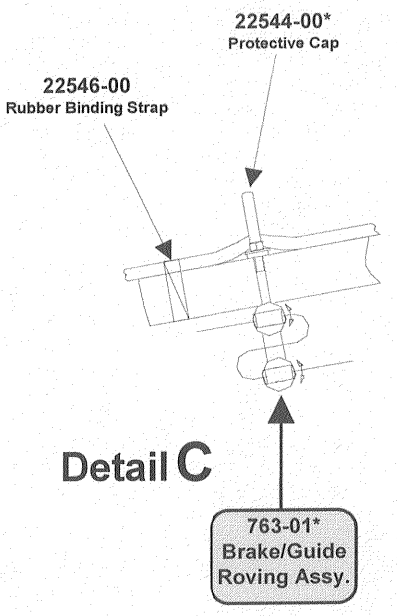


Detail B
HOSE PIVOT ASSEMY

SQUARE BOOM HARDWARE KIT: 766-01
(*) Indicates parts included in Kit.

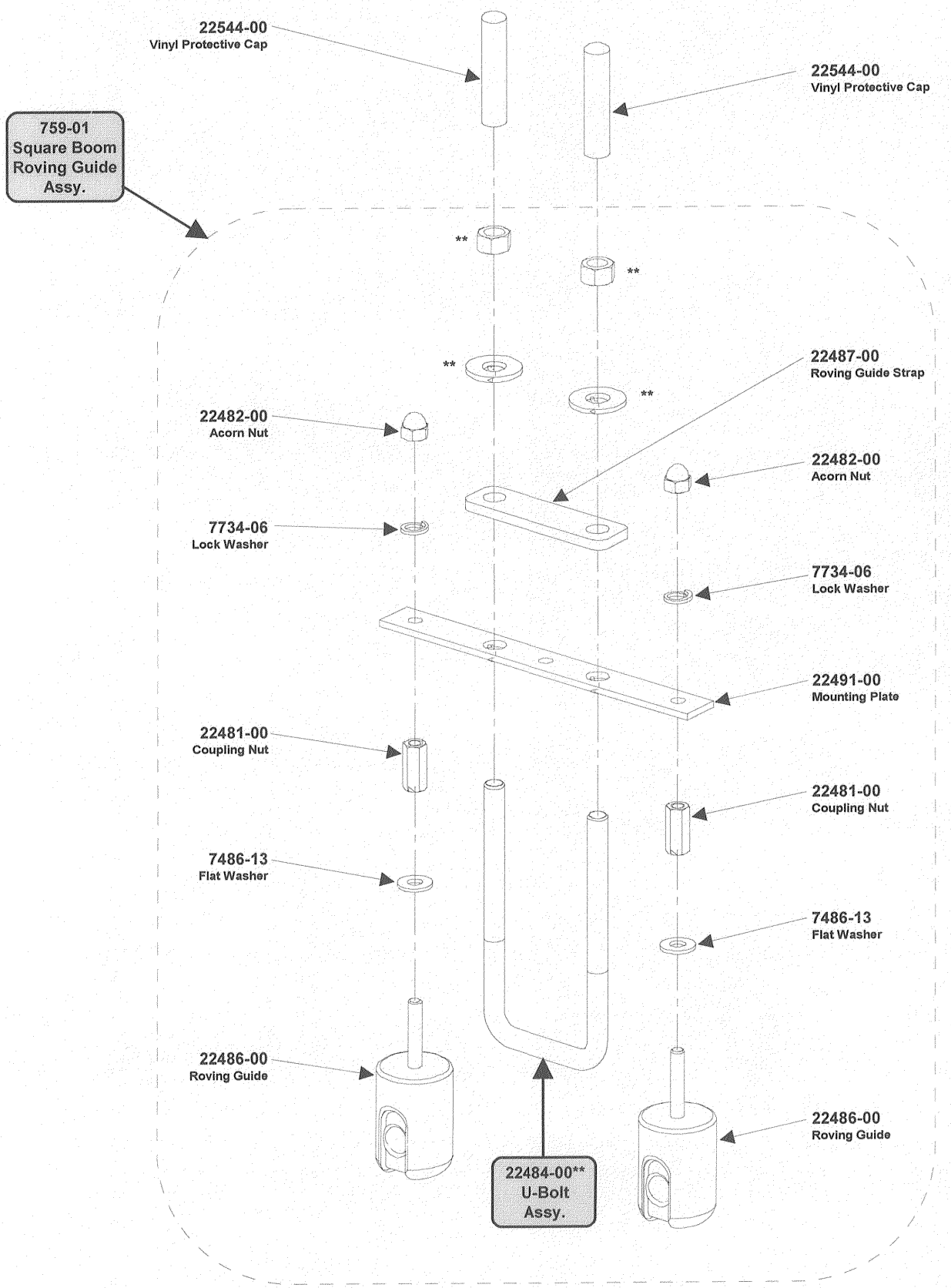
750-01 SQUARE BOOM ASSEMBLY



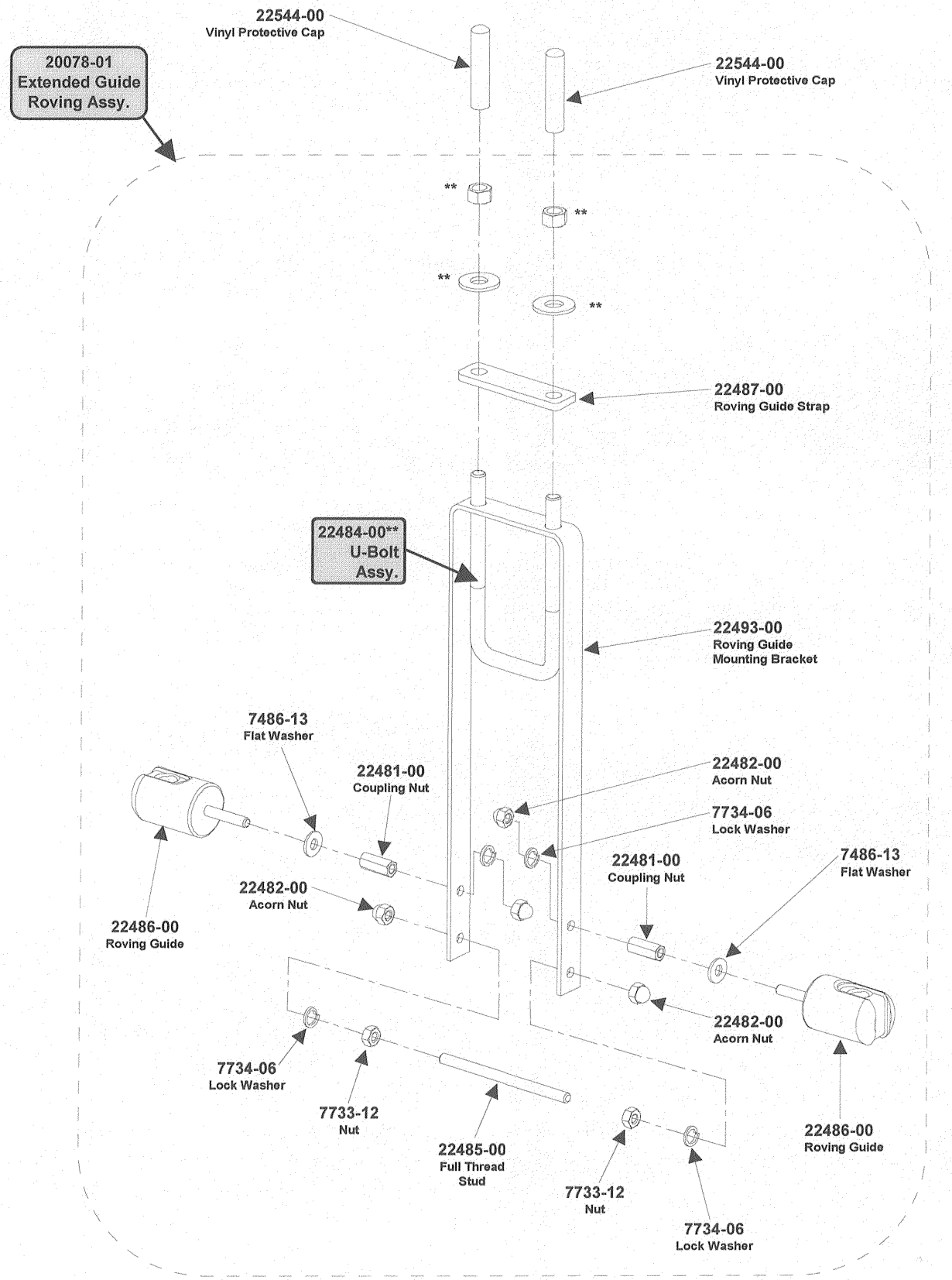


ROVING GUIDE KIT: 760-01
(*) Indicates parts included in Kit.

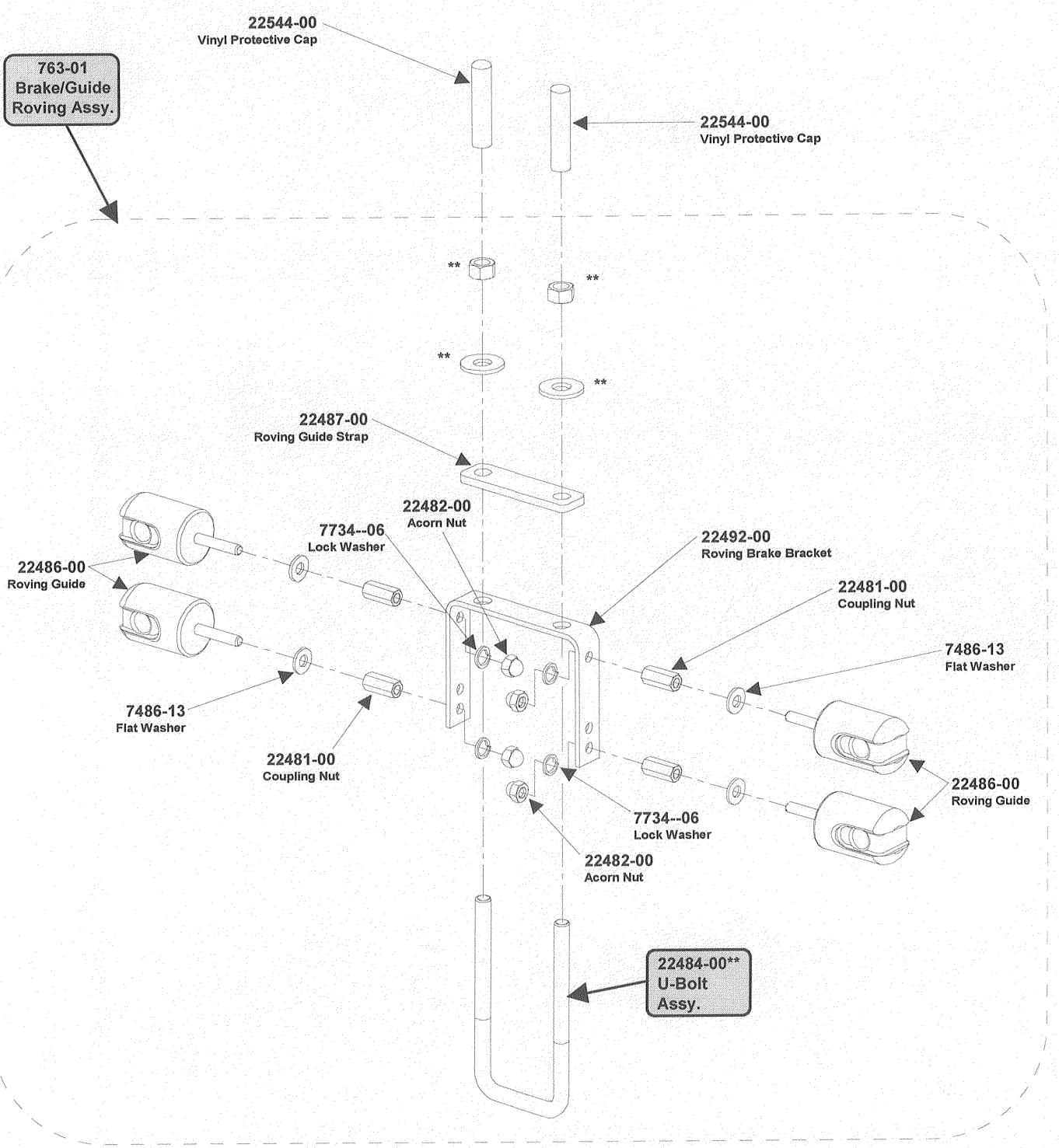
760-01 SQUARE BOOM ROVING GUIDE KIT



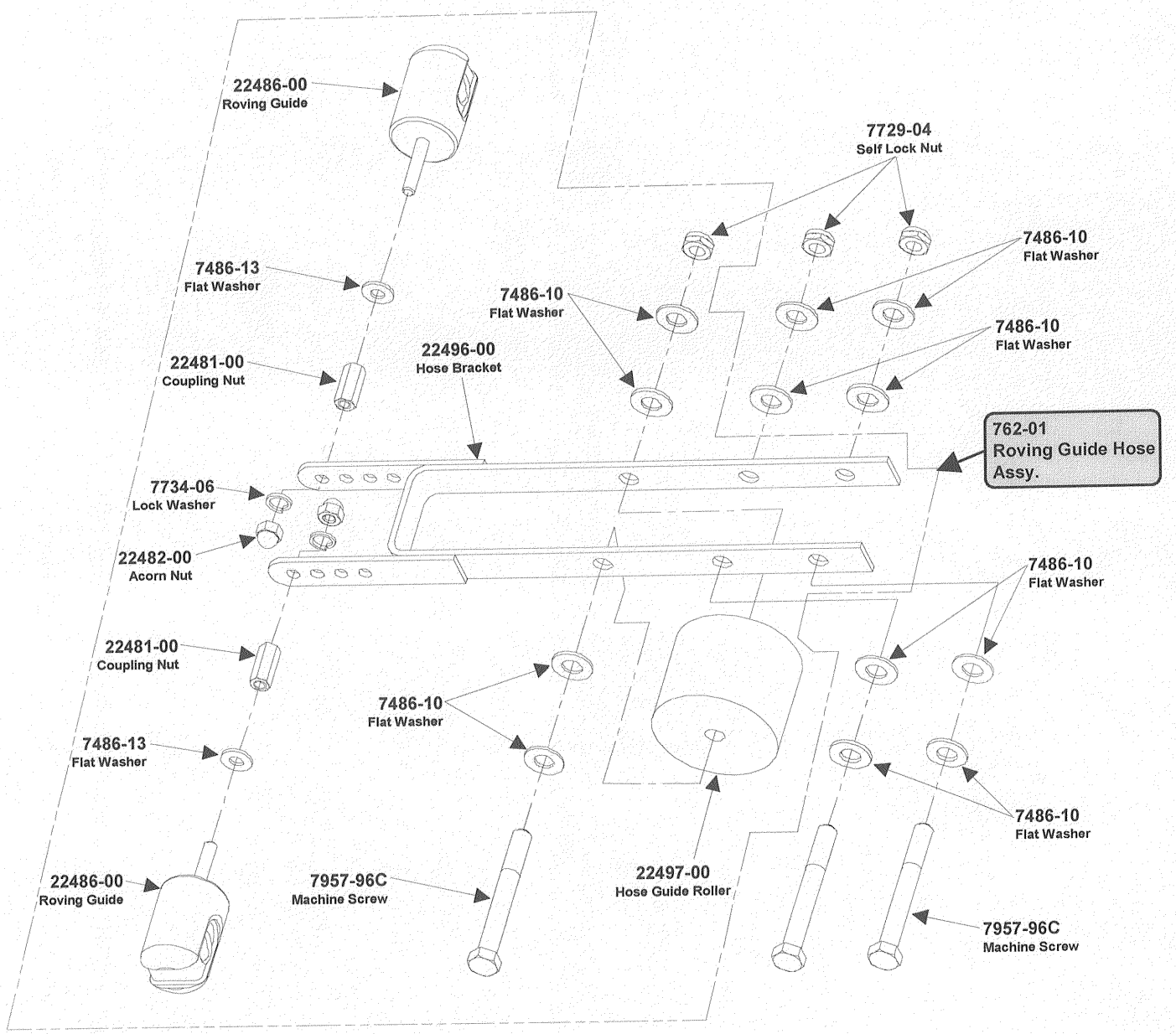
760-01 SQUARE BOOM ROVING GUIDE KIT



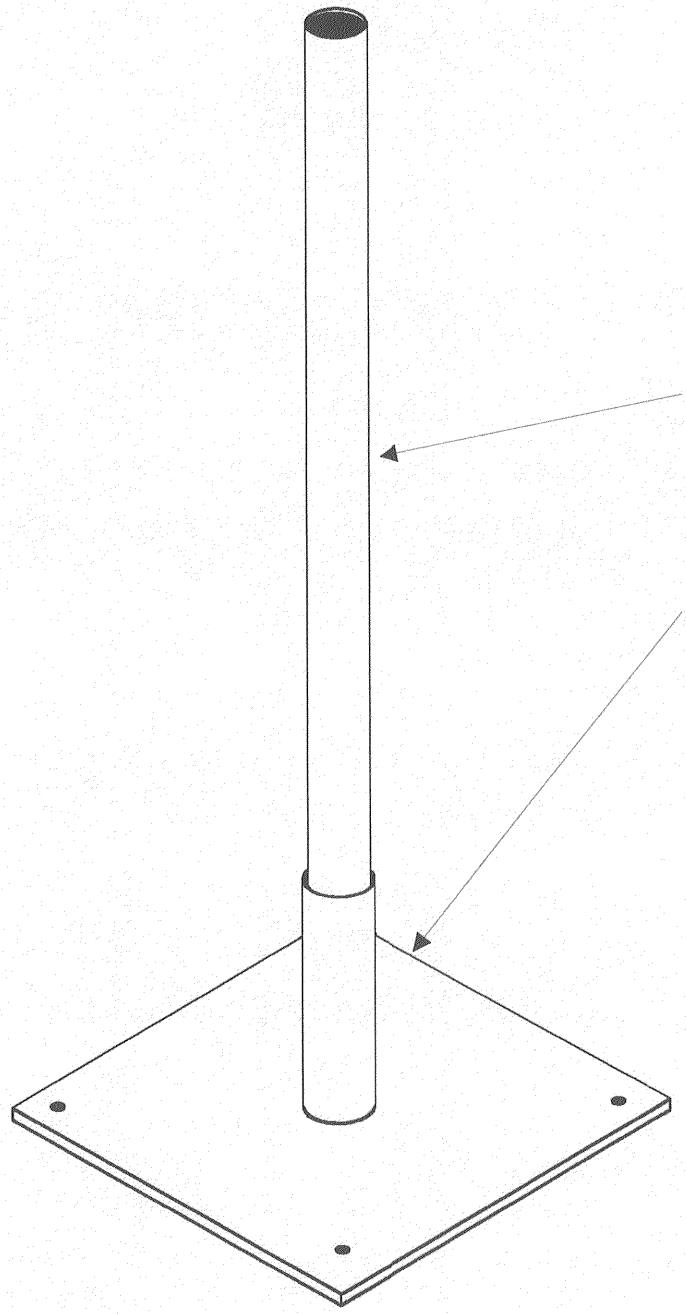
760-01 SQUARE BOOM ROVING GUIDE KIT



760-01 SQUARE BOOM ROVING GUIDE KIT

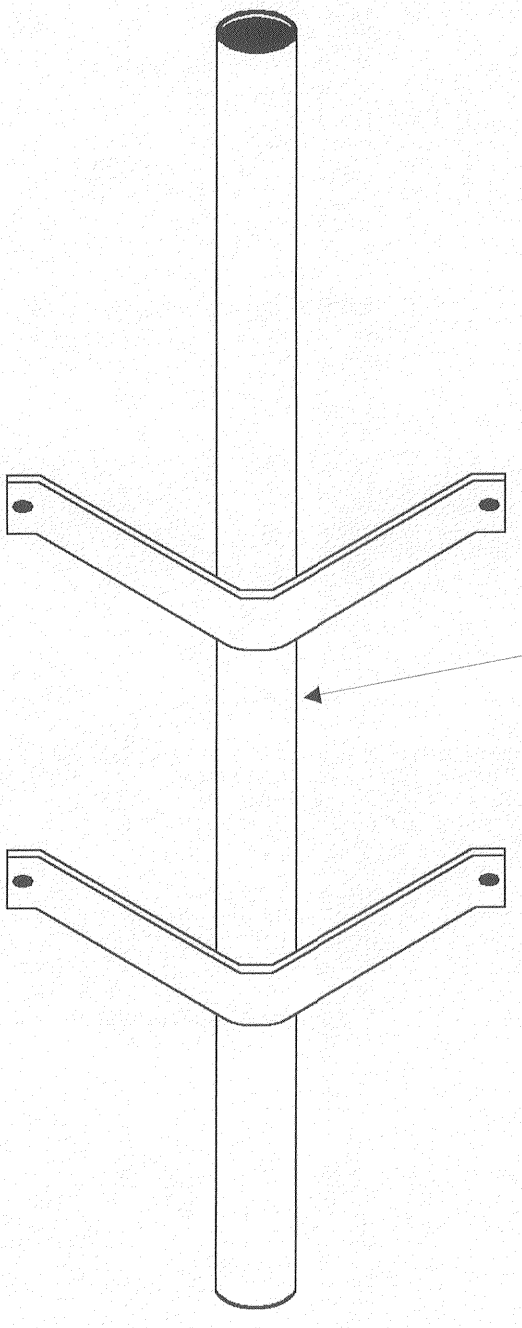


FLOOR MOUNT



REVISED 6/96

WALL MOUNT



768
Wall Mount Mast

REVISED 6/96

MATERIAL PUMP, 5:1 P/N 20864-04
CATALYST SLAVE PUMP, MODEL SP-85
AIR MANIFOLD, P/N 23555-00

A. PUMP MOUNTING

1. Assemble Block, P/N 19889-01 securely to back side of Material Pump Air Motor.

2. Assemble Pump Mounting Bracket, P/N 19890-01 to Mast. Remove Bolts, P/N 8155-144C from Block, P/N 19889-01 (see Fig. 7), place around Mast and re-install Bolts, P/N 8155-144C. Assemble at an approximate height of 37 inches (see Fig. 8) above base of mast.

3. Tighten Bolts, P/N 8155-144C securely.

Fig. 7

B. Catalyst Bottle Bracket Mounting

1. Mount Bracket, P/N LPA-169 to Mast using U-Bolts, P/N CP-126. Place U-Bolts around Mast, assemble Bracket onto U-bolts and fasten with Flat Washers, P/N 7486-07, Lock Washers, P/N 7734-07 and Nuts provided with U-Bolts. (see Fig. 9)

2. Assemble at an approximate height of 41 inches (see Fig. 8) above base end of mast.

3. Tighten U-Bolt Nuts securely.

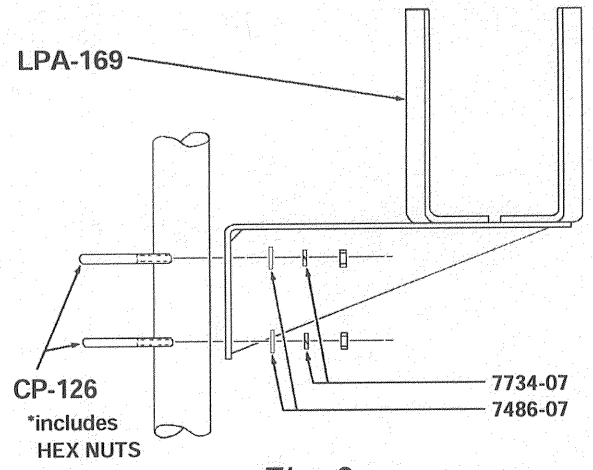


Fig. 9

C. Air Manifold Mounting

1. Mount Air Manifold assembly, P/N 23555-00 to Air Motor. Tighten Swivel Fitting, P/N 7597-04 onto Elbow Fitting from the Air Motor.

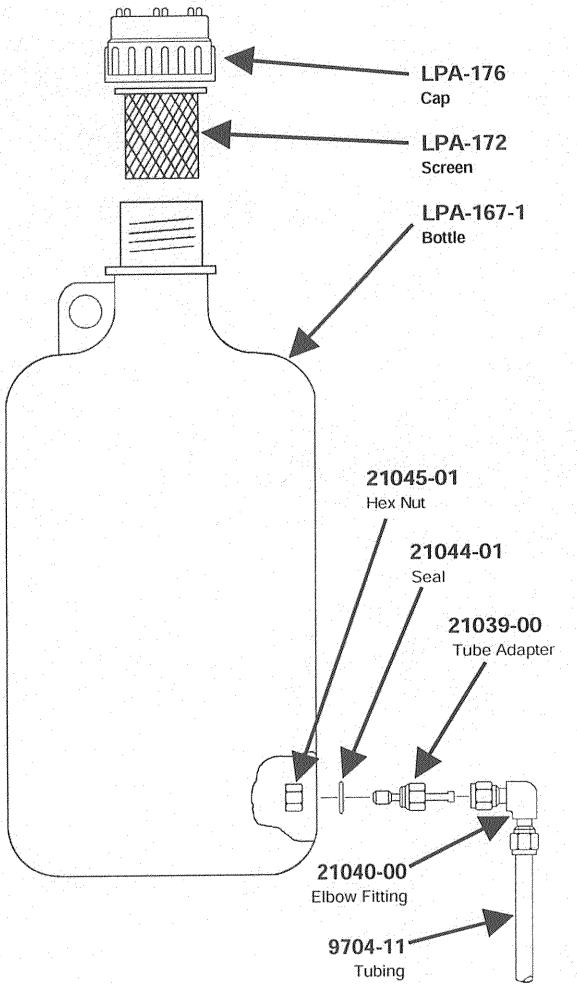
2. Attach Red Solvent Line, P/N 21179-00 from Air Manifold to Solvent Tank.

3. Connect Chopper Line, P/N 17798-XX from Air Manifold to back of Gun.

D. Catalyst Bottle Connections

1. Remove Cap, P/N LPA-176 and make certain Filter Screen, P/N LPA-172 is in place beneath Cap. (see Fig. 11)

2. Attach Tubing, P/N 9704-11 to the Catalyst Bottle Outlet Fitting, P/N 21040-00.



E. Slave Pump Connections

NOTE

Use two proper sized wrenches when tightening fittings. Turn one against the other to prevent fittings from loosening or stripping while tightening compression nuts.

1. Pump intake connection from Catalyst Supply Bottle.

Loosen nut of Fitting, P/N 20170-00 on Pump Lower Block. Insert Tubing, P/N 9704-11 into the nut until it stops. Tighten nut snugly and gently tug on tubing to insure Tubing will not pull out of Fitting.

2. Tubing connection to Cap.

Insert Tubing, P/N 9704-03 and P/N 623-RC, into top of Catalyst Supply Bottle Cap. Tubing may be shortened if required, be careful not to kink tubing.

CHOPPER ASSEMBLY
P/N B-410

Installation Instructions for installing a Model B-410 chopper to a Indy Dispense Gun assembly.

1. The B-410 Chopper Assy. Mounts to Cutter Pivot Tube, P/N 21491-00 on Chopper Rotating Mount, P/N 23513-00.

2. P/N, 17798-XX Hose attaches to fitting ,P/N 1880-00 in back of gun.

3. The Slide Valve, P/N 20086-01 controls air to the Gun for the Chopper. Sliding it forward turns the air on, while sliding it back, turns the air off.

4. The Gun Trigger is staged: ¼ pull on the trigger will actuate material only. Full back on the trigger actuates the Chopper and Material.

5. The Stager can be adjusted by adjusting the Set Screw, P/N 23532-01 in the Gun Trigger, P/N 23503-00.

Chopper Air Requirements

100 PSI / 8 CFM

Adjusting Speed & Blower Air

1. The Blower Air is adjusted by the Thumb Screw, P/N B-210-32A2. Only a small amount of air is required to:
   a. Cool Chopper Head.
   b. Assist in Dispersing chop.

Speed Control / Muffler

1. The Muffler Assembly controls the Amount, and Speed of air exhausting the Air Motor.

2. As the Speed Knob, P/N 21563-01 and Machine Screw, P/N 21567-24F is turned out, the Air Motor speed increases.
3. Once it is set, Lock the Knob / Screw down with the Body, P/N 21561-00.

Adjusting Chopper Mount

1. Loosen Screw, P/N 8212-16F to twist the Chopper side to side on the Pivot Tube, P/N 21491-00. Retighten once it is set.

2. Loosen Screw, P/N 20188-16C to pivot the Chopper up & down on the Chopper Bracket, P/N 23512-00. Retighten once it is set.

3. The Snout, P/N 23543-00 is standard with the Indy System. The end of the Snout is adjustable. Optional snouts are available. The B-210-91 and B-210-92.

NOTE
Test spraying should be done on a clean piece of paper or cardboard and disposed of properly.

General Information

The manner in which this equipment is adjusted and used will ultimately determine the quality of the finished parts it is used to produce. Glas/resin ratios, cure times and outputs are readily adjustable with the use of the pressure regulators provided. However, the amount of material waste, evenness of application and speed of operation will be regulated by the skill of the operator.

Any change in the resin pressure regulator setting will require simultaneous changes in the roving cutter to maintain identical glass/resin ratios and cure times. At very high outputs, it may become necessary to use multiple strands of roving in order to achieve sufficient glass content.

NOTE
Do not attempt to achieve glass contents in excess of 40%.

The experience of most fiberglass operations indicates that extremely high glass/resin ratios result in laminates that are difficult to roll out and insufficiently "wet-out" for highest strength.

On the other hand, very low glass contents may result in laminates with very low mechanical strengths and a tendency to fracture under stress. When spraying with a Chopper attached, proper Chopper adjustment is essential to achieving an even dispersal of cut roving in the resin fan.

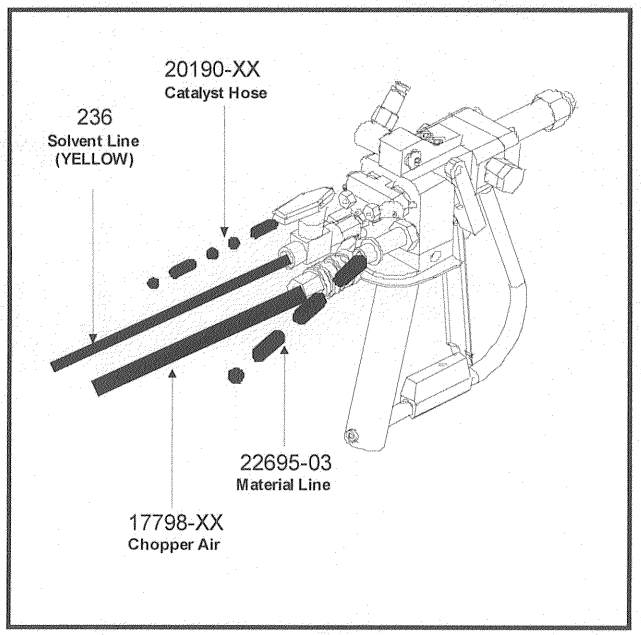
If the Chopper is off-center, roving will collect on the side of the spray pattern with excess resin on the other side. If the chopper height adjustment is too low, roving will miss the resin completely and fall to the floor dry. If adjusted too high, roving will tend to concentrate in the middle of the spray pattern.

Whenever possible, the gun should be held perpendicular to the mold surface. A working distance of 18 to 36 inches will generally give good results.

OPERATION

NOTE

The following assumes that the INDy Gun is properly connected to a functioning system. (see TYPICAL SYSTEM HOSE CONNECTION DIAGRAM)



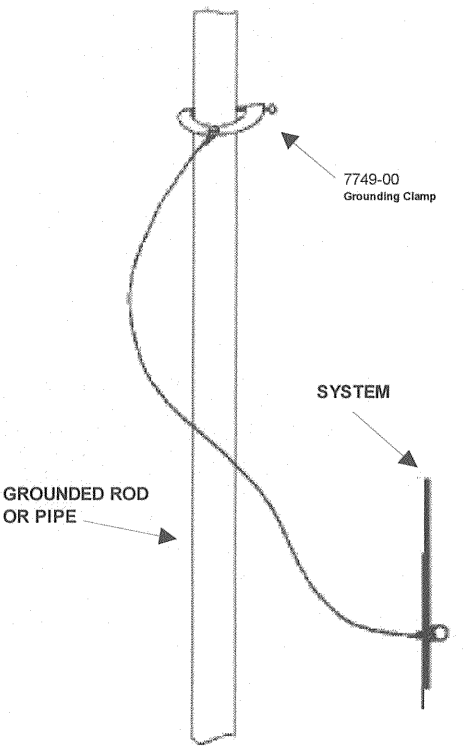
START-UP INSTRUCTIONS

1. Select a clean dry air supply.

2. Attach a 3/8" or larger air hose to the Air Manifold Inlet.

3. Attach Grounding clamp Assembly, P/N 17440-00, to the System. Use a convenient Nut and Bolt to secure Lug, P/N 13193-00, to System. (see Fig. 20)

4. Securely attach Clamp, P/N 7749-00, to permanently grounded rod or pipe. (see Fig.20)



HOW THE GUN WORKS

The INDy Gun is an evolutionary design that reduces operator fatigue through reduced gun weight, enhanced maneuverability.

The INDy Gun is a straight-forward, simple design, having fewer parts and o-rings than any other gun in its class.

The INDy Gun is designed to be a true high volume low pressure gun. The ports in the gun are large to allow for less back psi and easy high flow of material. This is further achieved with large material hoses, and low ratio pump (standard 5:1) by properly setting the material pump psi, matching a spray tip that will deliver desired output and useable spray pattern, not atomizing the material. The gun is very user friendly.

Example: Because of the variables involved, material viscosity, sheer of material ambient temperature, required output, your pressure setting will vary.

CAUTION

Whenever flammable or combustable liquids are transferred from one container to another, both containers shall be effectively bonded and grounded to dissipate static electricity.

For further information, see…
NFPA 77, Recommended Practice on Static Electricity.

CAUTION

Before turning on main air, check all On/Off Ball Valves, making certain all Valves are in the "Off" position and set all regulators in their "Off" position. (Turn knob counter-clockwise for OFF or reduced pressure setting.)

NOTE

Verify that the Catalyst Jug & Solvent Tank have been filled with proper materials for operation.

5. Lightly lubricate all threads and O-Rings with a compatible lubricate before assembly.

6. Place Mixing Element, P/N 20634-01, straight into the Gun Front Housing, P/N 23502-00.

7. Place Retaining Nut, P/N 23002-00 along with Spray Tip, P/N 23005-XX and Spray Tip Spacer, P/N 23003-00 on to Gun Housing.

8. Push Slide Valve, P/N 21402-00 to Open position.

9. Regulate Solvent PSI to 100 PSI. Open Ball Valve, P/N 20793-00 on Solvent Tank. To verify that solvent is at the gun, open Ball Valve, P/N 23518-00. Allow it to momentarily flow, then close the valve.

WARNING

Do not exceed 20 psi pressure on the Material Regulator until steady material flow has been established.

10. Turn the Resin Pump Recirculation Vaive, P/N 21228-00 in the OPEN position. Open Air Valve for the Resin Pump Regulator and turn the Regulator clockwise until the gauge reads 20 PSI or the pump starts slowly cycling. Allow the pump to "load" (or cycle rate slows). This indicates the pump is primed. Close the Recirculation Valve, P/N 21228-00.

11a. Turn the Catalyst Slave Pump Yellow Ball Valve, P/N 21228-00 to the OPEN Position. Hand prime the pump until a steady stream of catalyst flows back to the bottle.

b. Close the Ball Valve. Hand Stroke the pump until it develops 100-200 PSI.

12. Trigger the Gun into a container until all the air is purged from the resin side of the system. It may be necessary to Hand stroke the Catalyst Pump several times while the gun is triggered to positively prime the Catalyst side.

13. Once primed, increase the Resin PSI until a desired spray pattern is achieved.

NOTE

On Systems equipped with Model SP-85 Catalyst Slave Pump:

*Check and make certain that Dispense Gun Material and Catalyst Needles activate at **exactly** the same time.*
Catalyst Needle should never lead Material Needle as a loss of Catalyst system prime could result.

14. After all pressure adjustments have been completed, a final spray test should be made. Spray a test shop sample on a clean piece of paper. This shot should be approximately five feet in length. You can now check for desired gel times and uniformity of curing.

15. Flush Gun thoroughly with Solvent after use.

SHUT-DOWN INSTRUCTIONS

CAUTION

Due to the different O-Ring materials and lubricants used in the INDy Guns...

NEVER SUBMERGE OR SOAK GUN IN ANY TYPE OF SOLVENT!

Submerging or soaking any Gun will immediately void the Gun warranty.

3. Turn catalyst ball valve, P/N 21228-00 to Open / Recirculation posistion to dump psi.

4. Pressure should be maintained on the resin hose.

5. Use a light coating of petroleum jelly on all threads and o-rings during re-assembly.

6. Remove Resin Check valve Assembly from right side of gun, flush gun briefly, install night plug, P/N 23527-00.

ROUTINE CARE

WARNING

*Before attempting to perform any maintenance on this Spray Gun - **Relieve All Fluid and Air Pressures!***

To relieve fluid and air pressures:

1. Push down Yellow slide valve, P/N 21402-00 to bleed off air to system.

2. Open P/N 21228-00 on catalyst pump to recirculation position.

3. Open P/N 21192-00 on bottom of material pump.

4. Verify the Trigger Lock Out is in the Locked position.

It is recommended that the following service be performed on a daily basis.

1. The Gun is built at the factory with, P/N 21222-00 Lubricate. This is a water soluble lubricate, not affected by most solvents. When maintaining the Gun, it is recommended that this is used as outlined on "Lubricate Page". Clean the Gun using a brush and a appropriate clean solvent.

2. Inspect Gun Valve Needle shafts, making certain they are clean and free of over-spray or foreign material. Clean and lubricate as required.

3. Inspect the Gun Packings, Needles and Seats for catalyst or material leakage. If leakage does occur,

correct at once! If material leaks (or drips) out of the nose of the gun, this indicates that there is a bad needle/seat condition. If material leaks out of the back of the needle stem,this indicates loose or worn packings and may be repacked by tightening the packing nuts, P/N 20509-00 1/8 turn each until leak stops. Test trigger to verify spring can return needle to seat.

4. Maintain a reasonable stock level of "wear" items such as Packings, Seals and O-Rings

5. If Spray Gun is leak tested, be sure to dry gun thoroughly.

6. **Never** leave Spray Gun immersed in any liquid.

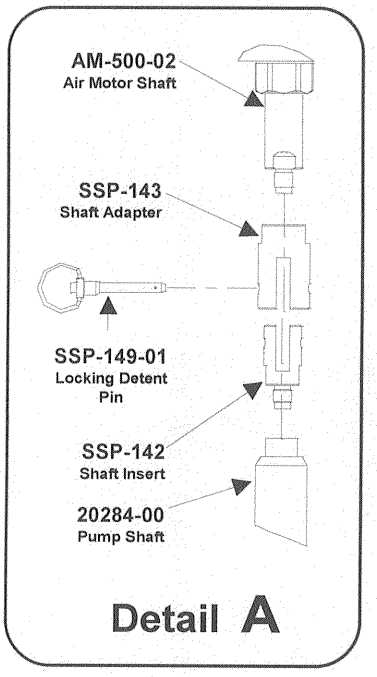
MAINTENANCE

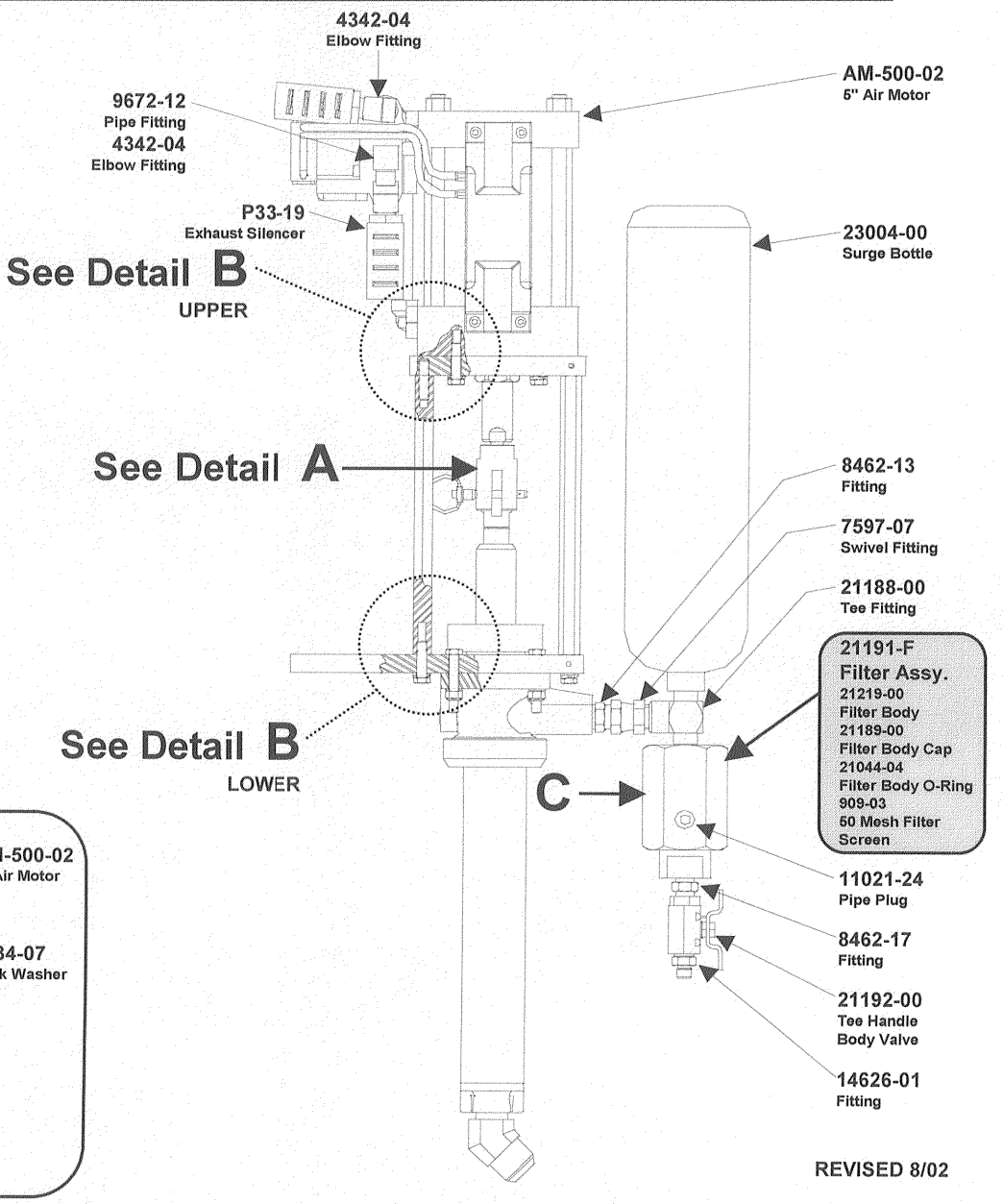
NOTE

Refer to specific user manuals for detailed component maintenance instructions.

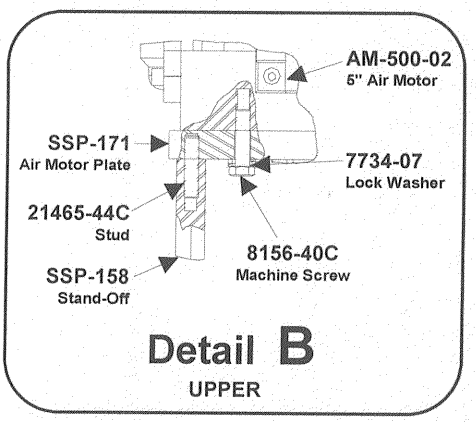
OPTION

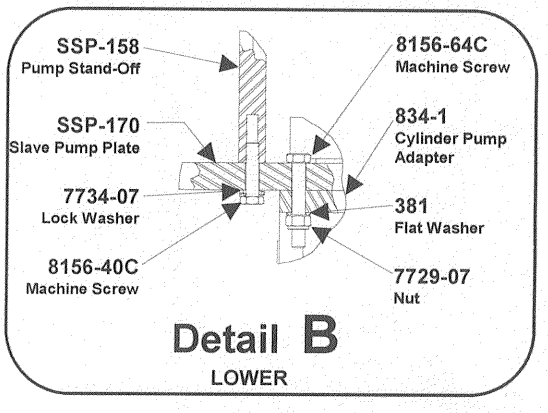
20864-05 MATERIAL PUMP ASSY.

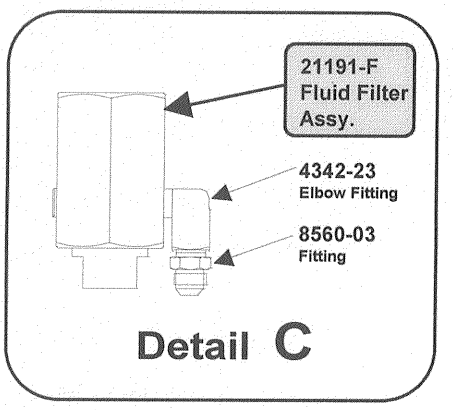




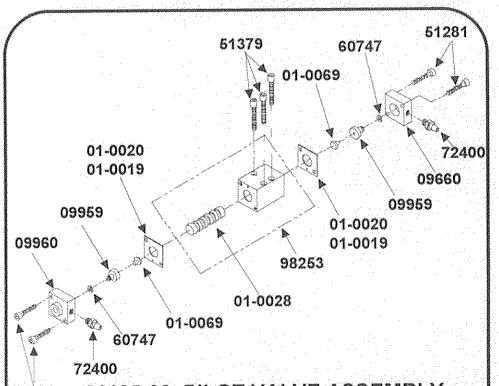
REVISED 8/02







OPTION AM-500-02 AIR MOTOR



21185-00 PILOT VALVE ASSEMBLY

NOTE:

Make sure that Gasket, P/N 01-0020 lines up opposite to Pilot Valves main body.

REVISED 8/02

AM-500-02 REPAIR KITS

20102-00	PISTON SEAL KIT	60327
		60628
		60325

20103-00	ROD SEAL KIT	60254
		60490-4283
		60412

20104-00	STROKE SIGNAL KIT	33581
		60007
		60062
		60126
		60127
		60905

		60222
		60762
		A-00723-13

20105-00	GASKET KIT	60311 (2)
		09834
		01-0068
		60011 (2)

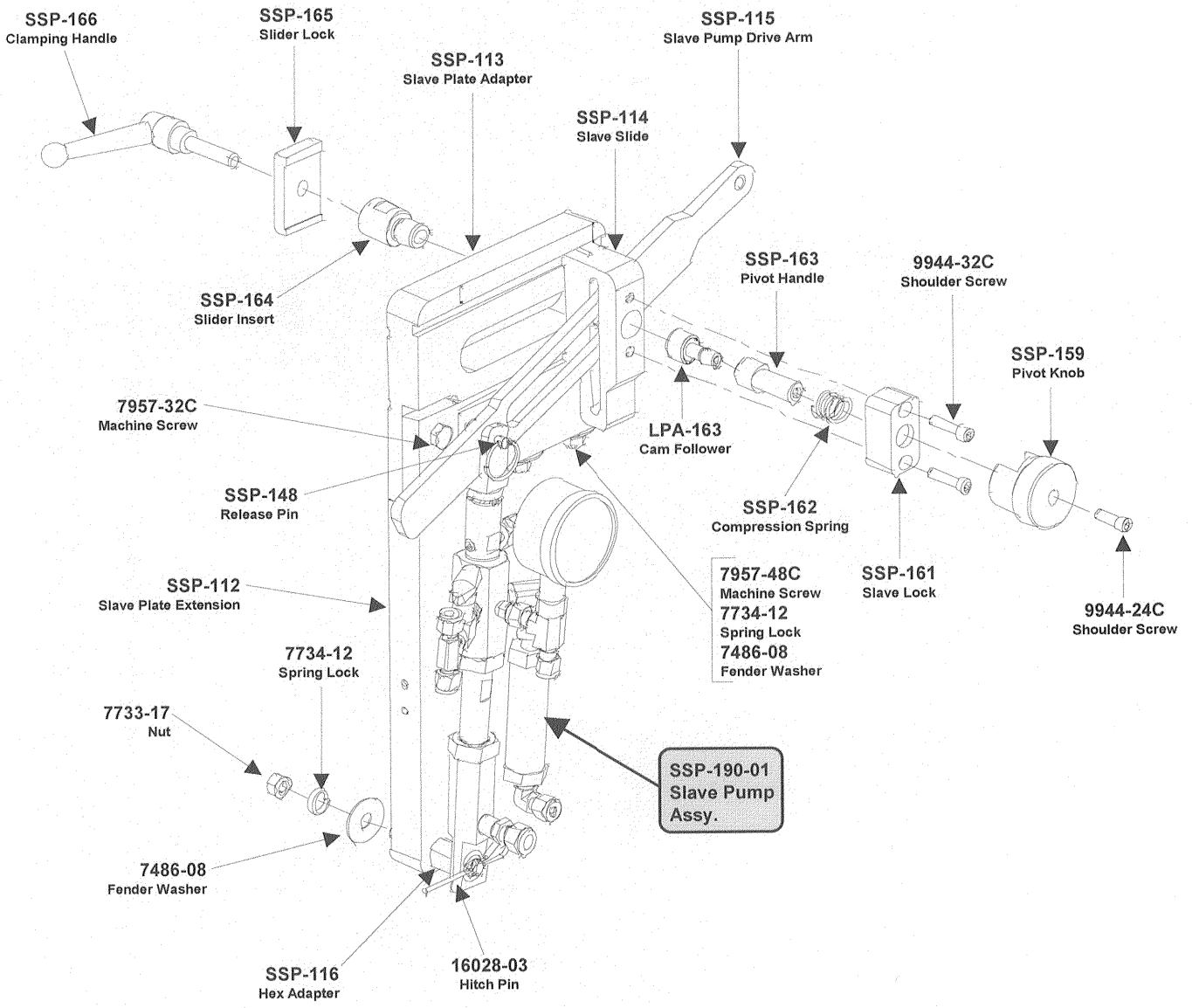
20106-00	MAIN VALVE KIT	09808
		09827
		60007 (2)
		60208 (2)

20107-00	PILOT VALVE KIT	01-0020
		01-0028
		01-0069
		60747

20101-00	COMPLETE KIT	20102-00
		20103-00
		20104-00
		20105-00
		20106-00
		20107-00

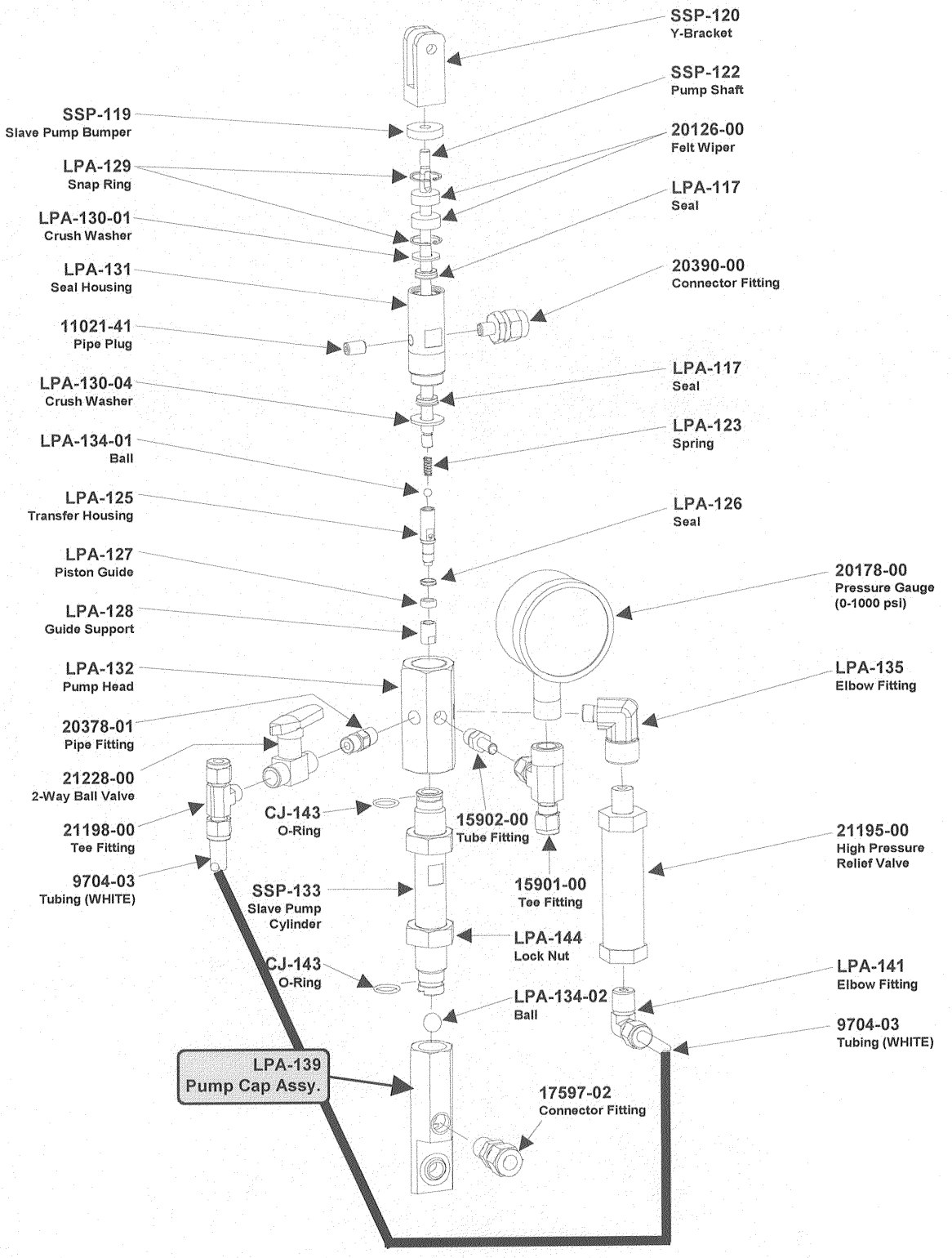
OPTION

SSP-160-01 CATALYST SLAVE PUMP



OPTION

SSP-190-01 CATALYST PUMP



REPAIR KIT: LPA-190-SK

LIMITED WARRANTY POLICY

GLAS-CRAFT, INC. ("Glas-Craft") warrants to the original Purchaser of Glas-Craft manufactured equipment and parts, that all Glas-Craft manufactured equipment and parts will conform to their published written specifications and be free of defects in workmanship and material for a period of one (1) year from the original date of installation. Glas-Craft makes no warranty to anyone other than the original Purchaser.

If any Glas-Craft manufactured part or equipment is found to be defective in workmanship or material within the one-year period from the date of installation, as determined solely by Glas-Craft, Glas-Craft, in its sole discretion, will either repair or replace the defective part or equipment at Glas-Craft's cost, including freight charges both ways, or credit or refund the purchase price for the defective equipment or part.

A warranty claim will be honored only when:

1. Glas-Craft has been informed, in writing, of any such defect in workmanship or material within ten (10) days after discovery by the original Purchaser;

2. An official of Glas-Craft has issued a return authorization number; and

3. The claimed defective equipment or part has been returned to Glas-Craft by the original Purchaser, freight prepaid (with proper return authorization number(s) attached), to: Glas-Craft, Inc., 5845 West 82nd Street, Suite 102, Indianapolis, IN 46278, U.S.A.

This warranty shall not apply to any equipment or parts that have been altered or repaired by anyone other than Glas-Craft or to defects or damage resulting from improper installation, misuse, negligence, accident, or use not specified by Glas-Craft. This warranty shall not apply to any equipment where any parts or components were replaced by any parts or components not manufactured or supplied by Glas-Craft. The decision by Glas-Craft shall be conclusive and binding on Purchaser.

Glas-Craft does not warrant that any equipment or parts sold to Purchaser meet or comply with any local, state, federal, or other jurisdiction's regulations or codes. Glas-Craft does not warrant that any equipment or part sold to Purchaser, when used individually or in concert with any other part, equipment, device, component or process, does not infringe on any patent rights of any third party. Glas-Craft only warrants that it has no specific knowledge of any such infringement.

Glas-Craft makes no warranty as to any parts or equipment manufactured by others. Purchaser shall look solely and only to the manufacturer of such parts or equipment with respect to any warranty claims. Glas-Craft hereby assigns to Purchaser the original manufacturer's warranties to all such equipment and parts, to the full extent permitted.

THE AFORESAID WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED. SPECIFICALLY THERE ARE NO WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, WHICH WARRANTIES ARE SPECIFICALLY DISCLAIMED.

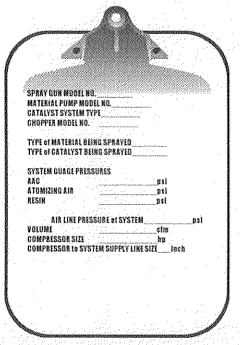
Glas-Craft shall not be liable for any loss or expense resulting from damage or accidents caused by improper use or application of materials manufactured or sold by Glas-Craft or its distributors or agents.

UNDER NO CIRCUMSTANCES SHALL GLAS-CRAFT'S LIABILITY EXCEED THE AMOUNT PURCHASER PAID FOR THE CLAIMED DEFECTIVE EQUIPMENT OR PART. UNDER NO CIRCUMSTANCES SHALL GLAS-CRAFT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OR FOR LOST PROFITS.

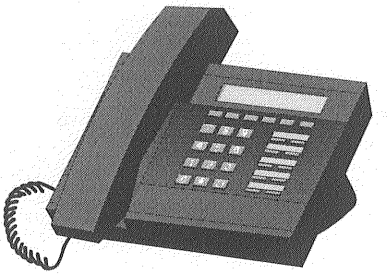
No action arising from or relating to any goods manufactured by or purchased from Glas-Craft may be brought more than one (1) year after the cause of action accrues.

NOTES

IF YOU HAVE AN EQUIPMENT PROBLEM...



If you have a problem that requires Distributor or Glas-Craft Service Department help, gather the following information *BEFORE* you pick-up the telephone.



	Model No.	Serial No.
SPRAY GUN		
MATERIAL PUMP		
CATALYST DELIVERY SYSTEM		
CHOPPER		
TYPE of MATERIAL BEING SPRAYED		
TYPE of CATALYST BEING SPRAYED		
CATALYST PERCENTAGE		%
SYSTEM GAUGE PRESSURES		
AAC		PSI
ATOMIZING AIR		PSI
MATERIAL PUMP		PSI
MAIN AIR LINE PRESSURE at SYSTEM		PSI
MAIN AIR LINE VOLUME		CFM
COMPRESSOR SIZE		HP
COMPRESSOR to SYSTEM SUPPLY LINE SIZE		INCHES

Have a general equipment or operation question?
You can contact the Glas-Craft Service Department via E-Mail at gciservice@glascraft.com

FOR YOUR REFERENCE

DATE PURCHASED _____
DISTRIBUTOR _____

_____

_____

CONTACT _____
PHONE _____

Manufacturers of ...

Fiberglass Fabrication Systems with High Transfer Efficiency and Low Emissions,
Systems for Low or High Production,
and Systems to Improve Quality and Profitability

LPA Series

"Low Pressure, AIR ASSIST CONTAINMENT, Airless External-Mix"
Gel-Coat, Wet-Out, & Chopper Systems and Equipment

INDy Series

"Internal-Mix Non-Atomized Dispense Systems"
... featuring INDy Nozzle
Wet-Out, Chopper & Pressure-Fed Roller
Systems and Equipment

APD

ADHESIVE DISPENSING SYSTEM

Spartan

RESIN TRANSFER MOLDING SYSTEM

Micro II, Maxi II, Super Maxi, Mini III, MX, MX II, MH & MH II

...featuring the patented *Probler* *Spray/Pour Gun*

SPRAY, POUR & INJECT
FIXED & VARIABLE RATIO SYSTEMS and EQUIPMENT FOR POLYURETHANE FOAMS, COATINGS and POLYUREAS

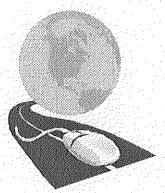
For more information concerning any of these Glas-Craft products, contact your local authorized Glas-Craft distributor, or

Glas-Craft
DISPENSING EXCELLENCE

5845 WEST 82nd STREET, SUITE 102 INDIANAPOLIS. INDIANA 46278 U.S.A.
PHONE (317) 875-5592 FAX (317) 875-5456
E-Mail **gcisales@glascraft.com** Web Site **www.glascraft.com**

Quality and Performance…
GENUINE GLAS-CRAFT

Glas Craft
DISPENSING EXCELLENCE



5845 WEST 82nd STREET
INDIANAPOLIS, INDIANA 46278 U.S.A.

Phone (317) 875-5592
Fax (317) 875-5456
E-Mail gcisales@glascraft.com

www.glascraft.com

GC-1317

REVISED APRIL 2003