



OPERATIONS MANUAL



TABLE OF CONTENTS

1. WARNINGS.....	Page 2
2. IMPORTANT ISOCYANATE INFORMATION	Page 6
2. SYSTEMS	Page 7
3.. ACCESSORIES	Page 8
4.. RELATED MANUALS	Page 9
5. HMI BUTTON IDENTIFICATION	Page 10
5a. USB PORTS LOCATED NEXT TO HMI	Page 11
5b. YIELD CALCULATOR INSTRUCTIONS	Page 13
6. NITROSYS HVLP STARTUP	Page 14
7. NITROSYS HVLP SHUTDOWN	Page 23
8. COMPONENT IDENTIFICATION	Page 26
9.. AUTO CALIBRATOR EXPLODED DIAGRAM	Page 27
10. AUTO CALIBRATOR LEFT HANDED FLUID BLOCK SCHEMATIC	Page 28
11. AUTO CALIBRATOR RIGHT HANDED FLUID BLOCK SCHEMATIC	Page 30
12. FUSES AND CIRCUIT BREAKER SCHEMATIC.....	Page 32
13. PREHEATER SCHEMATIC	Page 33
14. GUN WHIP HOSE SCHEMATIC	Page 35
15. TROUBLESHOOTING	Page 36
16. NITROSYS GUN MAINTENANCE AT SHUTDOWN	Page 39
17. STARTUP AND SHUTDOWN QUICK REFERENCE CHART.....	Page 40
18. ELECTRICAL SCHEMATIC	Page 42
19. TECHNICAL SPECIFICATIONS	Page 44

WARNINGS

DANGER

SEVERE ELECTRIC SHOCK HAZARD

This equipment is powered by 240 V. Contact with this voltage will cause death or serious injury:

- Turn off and disconnect power at main switch before disconnecting any cables and before servicing equipment.
- This equipment must be grounded. Connect only to grounded power sources.
- All electrical wiring must be done by a qualified electrician and comply with all local codes and regulations.

WARNING

TOXIC FLUIDS AND FUMES

Toxic fluids or fumes can cause serious injury or death if splashed in the eyes or on skin, inhaled or swallowed:

- Read your system manufacturer's Safety Data Sheet (SDS) for handling instructions and to know the specific hazards of the fluids you are using, including the effects of long-term exposure.
- When spraying, servicing equipment, or when in the work area, always keep work area well-ventilated and always wear appropriate personal protective equipment.

See Personal Protective Equipment warnings in this manual.

- Store hazardous fluid in approved containers, and dispose of it according to applicable guidelines.

PERSONAL PROTECTIVE EQUIPMENT

Always wear appropriate personal protective equipment and cover all skin when spraying, servicing equipment, or when in the work area. Protective equipment helps prevent serious injury, including long-term exposure; inhalation of toxic fumes, mists or vapors; allergic reaction; burns; eye injury and hearing loss. This protective equipment includes but is not limited to:

- A properly fitting respirator, which may include a supplied-air respirator, chemically impermeable gloves, protective clothing and foot coverings as recommended by the system manufacturer and local regulatory authority:
- Protective eyewear and hearing protection.

WARNING

SKIN INJECTION HAZARD

High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. Get immediate surgical treatment:

- Do not point a dispensing device at anyone or at any part of the body.
- Do not put your hand over the fluid outlet.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Disconnect air line supply to stick pumps when you stop dispensing and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses and couplings daily. Replace worn or damaged parts immediately.

FIRE AND EXPLOSION HAZARD

Flammable fumes, such as solvent and paint fumes, or finely dispersed mists in the work area can ignite or explode.

Any fluid or solvent flowing through the equipment can cause static sparking. To help prevent fire and explosion:

- Use equipment only in well ventilated areas.
- Eliminate all ignition sources; such as pilot lights, cigarettes, portable electric lamps, and plastic drop cloths (potential static sparking).
- Ground all equipment in the work area. See Grounding instructions.
- Keep the work area free of debris, including solvent, rags and gasoline.
- Do not plug or unplug power cords, or turn power or light switches on or off when flammable fumes are present.
- Use only grounded hoses.
- Hold the gun firmly to the side of a grounded metal pail when releasing fluids into the pail. Do not use pail liners unless they are anti-static or conductive.
- Stop operation immediately if static sparking occurs or you feel a shock. Do not use equipment until you identify and correct the problem.

- Keep a working fire extinguisher in the work area.

THERMAL EXPANSION HAZARD

Fluids subjected to heat in confined spaces, including hoses, can create a rapid rise in pressure due to thermal expansion. Over-pressurization can result in equipment rupture and serious injury:

- Open a valve to relieve the fluid expansion during heating.
- Replace hoses proactively at regular intervals based on your operating conditions.

PRESSURIZED ALUMINUM PARTS HAZARD

Use of fluids that are incompatible with aluminum in pressurized equipment can cause serious chemical reaction and equipment rupture. Failure to follow this warning can result in death, serious injury, or property damage:

- Do not use 1,1,1-trichloroethane, methylene chloride, other halogenated hydrocarbon solvents or fluids containing such solvents. These chemicals react with aluminum and can cause rapid expansion of the chemical possibly leading to an explosion.
- Do not use chlorine bleach.
- Many other fluids may contain chemicals that can react with aluminum. Contact your material supplier for compatibility.

PLASTIC PARTS CLEANING HAZARD

Many solvents can degrade plastic parts and cause them to fail, which could cause serious injury or property damage:

- Use only compatible solvents to clean plastic structural or pressure-containing parts.
- See Technical Specifications in all equipment instruction manuals for materials of construction. Consult the solvent manufacturer for information and recommendations about compatibility.

WARNING

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury:

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.

- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See Technical Specifications in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See Technical Specifications in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request Safety Data Sheets (SDSs) from distributor or retailer.
- Do not leave the work area while equipment Zones are energized or under pressure.
- Turn off all equipment and disconnect air line supply to stick pumps when equipment is not in use .
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces. • Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from the work area.
- Comply with all applicable safety regulations.

MOVING PARTS HAZARD

Moving parts can pinch, cut or amputate fingers and other body parts:

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Equipment can start without warning. Before checking, moving, or servicing equipment, disconnect air line supply to stick pumps and disconnect all power sources.

BURN HAZARD

Equipment surfaces and fluid that is heated can become very hot during operation. To avoid severe burns:

- Do not touch hot fluid or equipment.

Important Isocyanate Information

Spraying or dispensing fluids that contain isocyanates creates potentially harmful mists, vapors, and

atomized particulates:

- Read and understand the fluid manufacturer’s warnings and Safety Data Sheet (SDS) to know specific hazards and precautions related to isocyanates.
- Use of isocyanates involves potentially hazardous procedures. Do not spray with this equipment unless you are trained, qualified, and have read and understood the information in this manual and in the fluid manufacturer’s application instructions and SDS.
- Use of incorrectly maintained or mis-adjusted equipment may result in improperly cured material which could cause off gassing and offensive odors. Equipment must be carefully maintained and adjusted according to instructions in the manual.
- To prevent inhalation of isocyanate mists, vapors and atomized particulates, everyone in the work area must wear appropriate respiratory protection. Always wear a properly fitting respirator, which may include a supplied-air respirator. Ventilate the work area according to instructions in the fluid manufacturer’s SDS.
- Avoid all skin contact with isocyanates. Everyone in the work area must wear chemically impermeable gloves, protective clothing and foot coverings as recommended by the fluid manufacturer and local regulatory authority. Follow all fluid manufacturer recommendations, including those regarding handling of contaminated clothing. After spraying, wash hands and face before eating or drinking.
- Hazard from exposure to isocyanates continues after spraying. Anyone without appropriate personal protective equipment must stay out of the work area during application and after application for the time period specified by the fluid manufacturer. Generally this time period is at least 24 hours.
- Warn others who may enter the work area of hazard from exposure to isocyanates. Follow the recommendations of the fluid manufacturer and local regulatory authority.

Isocyanates are sensitizing agents. While you may not be immediately affected by Isocyanates, the effects are cumulative through your lifetime. Everybody has their own threshold which, once crossed leaves that individual susceptible to strong reactions for the rest of their life. This includes asthma, rapid anaphylaxis, and skin reactions.

Do not spray in an occupied structure unless everyone has the correct PPE.

Posting a placard such as the following outside the work area is recommended:



2. SYSTEMS

HVLP UNITS	STANDARD CABINET	PRO CABINET
PART NUMBER	249799	249800
FLOW METERS		X
INLET SENSORS		X
HED/TELEMATICS		X
PREHEATERS	X	X
HEATED HOSE	X	X
PROPORTIONER	X	X
YIELD CALCULATOR		X
RATIO MONITORING		X

3. ACCESSORIES

Part Number	Description
249862	HVLP Tool & Safety Kit
157377-25	25 Pack Long Cone Nozzles (HG2AP)
157378-25	25 Pack Fan Nozzles (HG2AP)
221542	HG2AP Gun Maintenance Kit:(1) Organizer Case, (2) #29 Drill Bits, (2) Pin Vise, (3) Brass Brushes, (3) 8" Tube Brushes (2) Razor Knives (10) Hose Stingers, (1) 16oz CU-6 Solvent, (1) Cleaning Jar (2) Rolls Tape, (2) HG 2AP Mix Chamber, (1) 3oz Super Lube Tube
234191	25 Pack Long Cone Nozzles (N+ Metal Gun)
236953	25 Pack Short Cone Nozzles + 6 adapters (N+ Metal Gun)
249676	25 Pack Extra Long Cone Nozzles (8.1") (N+Metal Gun)
236327	N+ Metal Gun Maintenance Kit
236217	N+ Metal Gun Spare Parts Kit
236816	N+ Metal Gun Complete Rebuild Kit

4. RELATED MANUALS

- N+ Metal Gun Manual



5. HMI BUTTON IDENTIFICATION



1. Settings:
2. Home – takes you to home from all primary menus.
3. Escape – will clear the home page , same as the back button. This button only works on the home screen.
4. Pressure coming in on inlet sensors
5. Temperature of material in drums (through inlet sensor just inside the cabinet)
6. Temperature set point
7. Actual temperature
8. Up and down/plus and minus – will adjust set points
9. Tool Button – raw data values with operating voltage for 24V sensor
10. Yield Calculator **This feature is only available on Pro Cabinet units with the flowmeters.**
11. Flow Ratio – green bar within purple is 5% plus or minus on ratio, will move while pumps cycle. If the green bar stays in the red or blue areas, it's out of balance more or less than 5% and the machine will shut down. **This feature is only available on Pro Cabinet units with the flowmeters.**
12. Cycle Counter - Is in the lower right corner of the HMI display
13. On/Off control for Preheater and Hose Heat



5a. USB Ports located next to HMI

5a-1. The USB port closest to the HMI Screen, updates the operating system, plug USB in here to transfer data.

1. Turn off HMI prior to inserting Flash Drive
2. Install Flash Drive into USB port
3. Turn Main Power to cabinet and HMI on
4. The download will start automatically (it may take a minute or two to start and will prompt you when it is finished)
5. Follow instructions to complete download
6. Once the download is finished there will be a message that says if script loaded 100%
7. Press "Back" button
8. Press the "Back" button a second time.
9. Press "Exit" button, Screen will go blank for a few seconds, it is now safe to remove the Flash Drive.
6. Remove Flash Drive

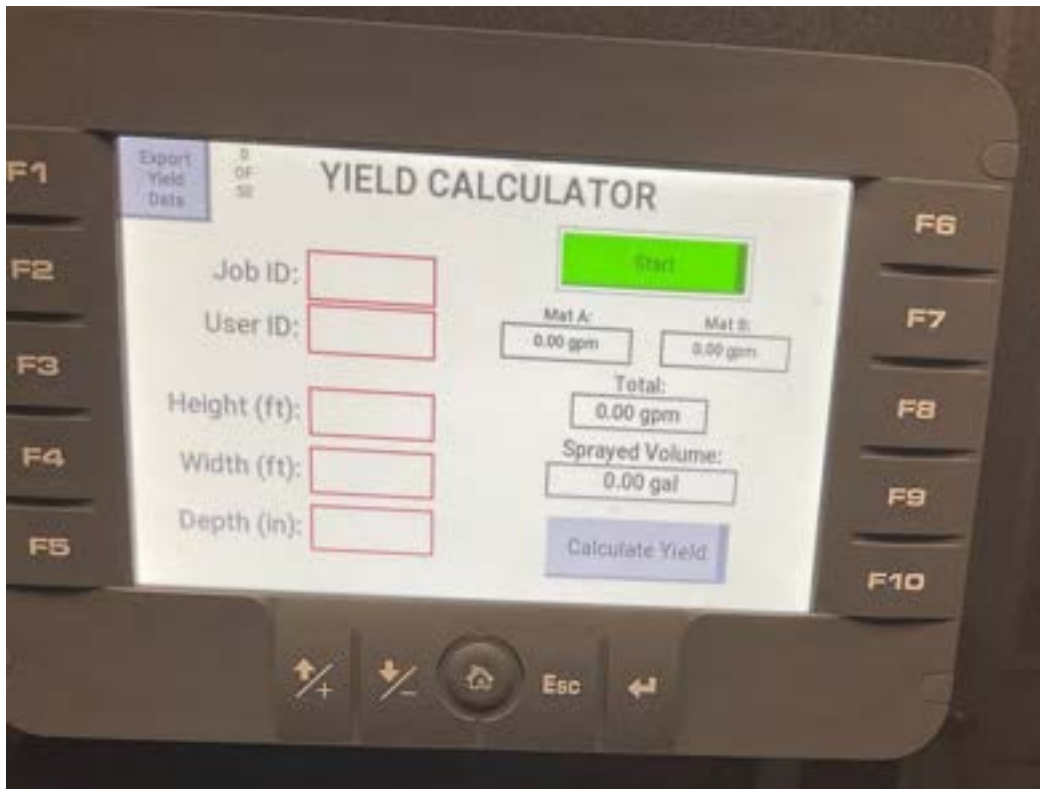
5a-2. The USB port to the left, closest to the edge of the cabinet, is for telematics updates, plug in USB here to obtain updates. (On the Pro Cabinet only)

1. Turn off Main Power prior to inserting Flash Drive
2. Insert Flash Drive into USB port
3. Turn ON Main Power to system and Telematics
4. The download will start automatically (it may take a few seconds to start - the lights on the telematic system will flash red once the download starts)
5. The lights on the telematic unit will flash green when the download is completed. This download may take 15 to 20 minutes.
6. Remove Memory Stick



5b. Yield Calculator Instructions

5b-1. Select Yield Calculator button on the HMI Screen (On the Pro Cabinet only)



5b-2. Enter A unique Job ID

5b-3. Enter User ID assigned that is unique to each operator.

5b-4. Enter Job Height, Width, and Depth.

5b-5. Select Start, then begin spraying.

5b-6 Once you finish spraying the area, select calculate. Yield will show cubic feet per gallon used in the spray area specified. Yield Calculator will hold up to 50 yield calculations. Once 50 is reached, the oldest will be deleted. At 50 you can use your USB drive to plug in and download the last 50 at the specified USB Port (see 5a-1) and select Export Yield Data. This will auto delete the last 50 saved yield calculations.

6. NITROSYS HVLP STARTUP

1.1 TO START YOUR GENERATOR OR CONNECT TO SHORE POWER : **Before starting make sure all breakers in rig are off.**

- 1.1a. Generator: On a cold crank, pull the choke.
- 1.1b. Once the choke is open, go ahead and start the unit. It may take 3-4 seconds for it to start.
- 1.1c. Once it has started, disengage the choke and wait for the unit to run smoothly.
- 1.1d. Now you can turn on your breakers.
- 1.1e. Shore Power: Locate 240V, with minimum 50 amp receptacle and plug in the shore power cable.



Photo is of a Winco generator. Your generator may vary, refer to the Owner's Manual for your particular generator.

1.2 TO START YOUR COMPRESSOR :

1.2a. For a cold start, use your toggle switch to turn to the on position.

1.2b. Turn your choke on and pull start the unit.

1.2c. Once the unit has started, you can turn the choke off.

1.2d. Plug in the air line to the compressor.

1.2e. Open your air valve and adjust air pressures as needed.



These photos are for the Rolair compressor. Your compressor may vary from photograph.
Refer to your Owner's Manual for your particular model

1.3 ON THE RIGHT SIDE OF YOUR NITROSYS CABINET LOCATE YOUR MAIN POWER DISCONNECT AND ESTABLISH POWER



NOTE; IF YOUR SYSTEM WAS SUPPLIED “DRY”, I.E. NO TEST FLUID OR CHEMICAL IN SYSTEM. PUMP CHEMICAL THROUGH HEATER AND HEATED HOSE. NEVER APPLY HEAT TO A “DRY” ZONE, YOU COULD DAMAGE THE HEATING SYSTEM.

1.4 TURN ON YOUR INDIVIDUAL HOSE AND PRIMARY HEAT ZONE

On initial start-up, before turning heat on be sure there is fluid in the system and hose.

See sections 1.5, 1.6, and 1.7

1.4b. Activate zones on HMI by touching the appropriate zone on the screen. **Touch Hose Heat or “A” or “B” side preheater zone**, that area on the screen will turn green. Then select plus or minus in the upper right corner of the display to adjust the set point. Then turn on power to each preheater zone and hose by touching area just below the plus or minus set point.



1.4b. A red dot indicates if the zone is actively heating for each heat zone.
 (See page 19.)

WARNING :

If your system is dry (i.e. no test fluid or chemical in system) you will need to pressurize the cabinet very slowly. To pressurize slowly you will need to minimumally open the inlet valves and let the system pressurize before opening the inlet valves completely.

Once the system has been pressurized, you will not need to repeat this step again.



1.5 ONCE YOU HAVE ADJUSTED YOUR PRIMARY HEATERS AND YOUR HOSE HEAT TO THE DESIRED TEMPERATURE YOU WANT TO BE PROCESSING AT, THE NEXT STEP IS TO INTRODUCE MATERIAL INTO YOUR CABINET BY OPENING THE BALL VALVES.



1.6 ONCE YOU OPEN YOUR BALL VALVES, MAKE SURE THAT YOU HAVE AIR CONNECTED TO THE CABINET



1.7 NEXT YOU WANT TO MAKE SURE THAT YOU HAVE FLUID SUPPLY TO YOUR CABINET.

1.7a. You have air quick disconnects on the A and B side transfer pump regulators, you want to connect them to the transfer pumps and make sure you have air pressure on the regulator gauges, and your fluid ball valves are open.

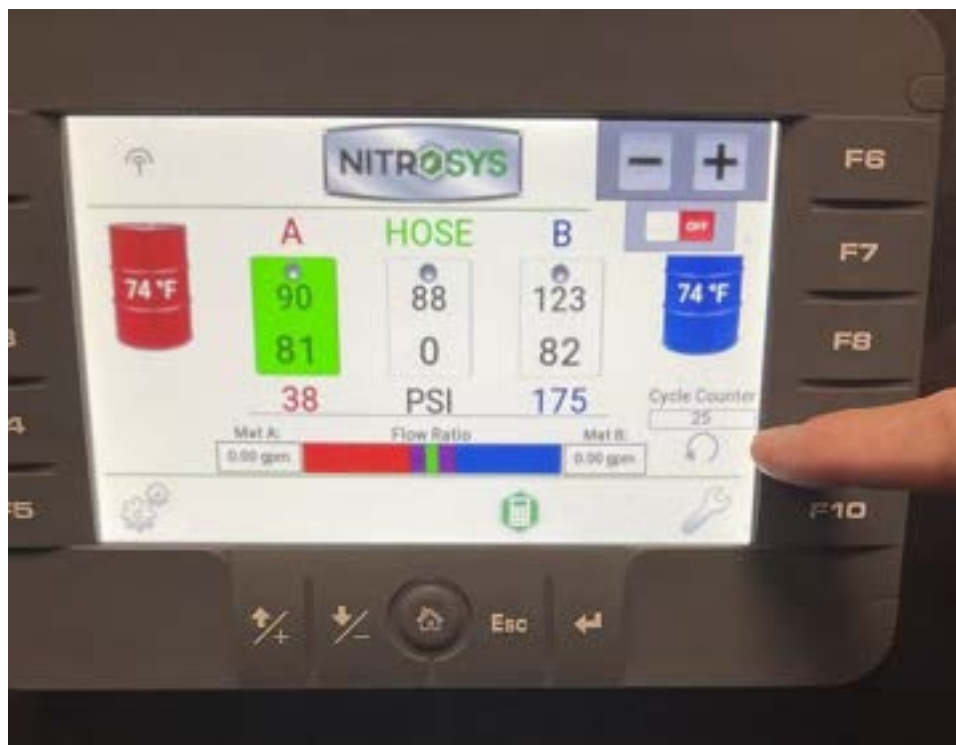


1.8 ONCE YOU ARE WITHIN RANGE OF YOUR SETPOINTS, OPEN UP THE FLUID PRESSURE VALVES TO YOUR GREENFLARE HEATED HOSE SYSTEM.



1.9 ONCE YOU HAVE GOTTEN EVERYTHING UP TO YOUR TARGET TEMPERATURE AND YOU ARE READY TO SPRAY, RESET YOUR CYCLE COUNTER ON THE HMI SCREEN.

1.9a Push the circle arrow under the cycle counter to reset to zero.



1.10 CONNECT SELECTED NOZZLE TO THE GUN YOU ARE USING.



1.11 NOW YOU CAN GET YOUR GUN READY TO SPRAY.

1.11a. Gun should be cleaned and greased at shutdown and ready to go. If not, refer to shutdown gun maintenance

1.11b. If your gun is not connected, use the push to connect the fitting and push into the air valve.

1.11c. Open air valves FIRST.

1.11d Open fluid valves.

AIR VALVE OPEN POSITION

FLUID VALVE OPEN POSITION



7. NITROSYS HVLP SHUTDOWN

1.12 FIRST, YOU WILL NEED TO SHUT DOWN YOUR GUN BY TURNING OFF YOUR AIR AND TWO FLUID VALVES.



1.13 DISCONNECT YOUR TRANSFER PUMPS BY REMOVING YOUR QUICK CONNECTS FROM PUMPS ON YOU'RE A AND B SIDES.



1.14 SHUT OFF BALL VALVES TO YOUR INLET SUPPLY SIDE.



1.15 TURN OFF YOUR MAIN DISCONNECT SWITCH.

2.4a. Turn off breakers, generator and compressor.



2.7 FLUSH OUT YOUR PUMP LUBE SYSTEM.

Note : Flush ports are located on the right side of the cabinet.

2.7a. At the two ports, you need to push down on the collar and remove the plug.

2.7.b. Make sure your flush pot is pressurized at a minimum of 75 PSI.

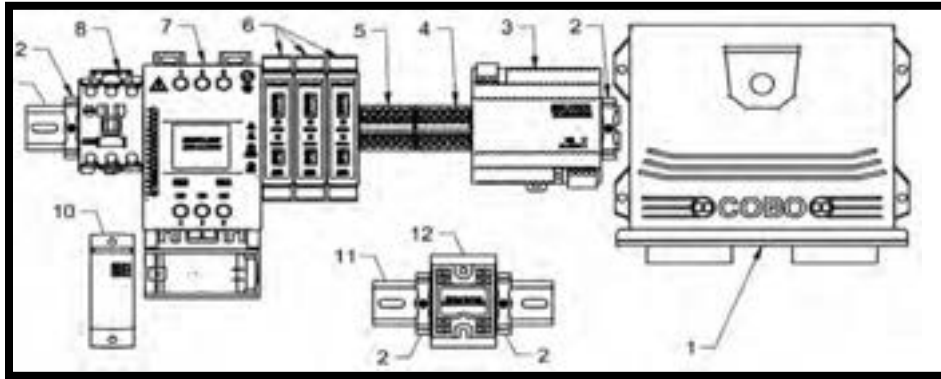
2.7.c Take your Sure Shot Flush Pot (FILLED WITH DOP OR TSL ONLY!!!) and insert into the A and B ports.

2.7.d. Pull trigger for a minimum of five seconds on the “A” side and a minimum of 3 seconds on the “B” side. This will flush out your system.

2.7.e. Put plugs back into ports. (This will keep air from entering the lubrication system)



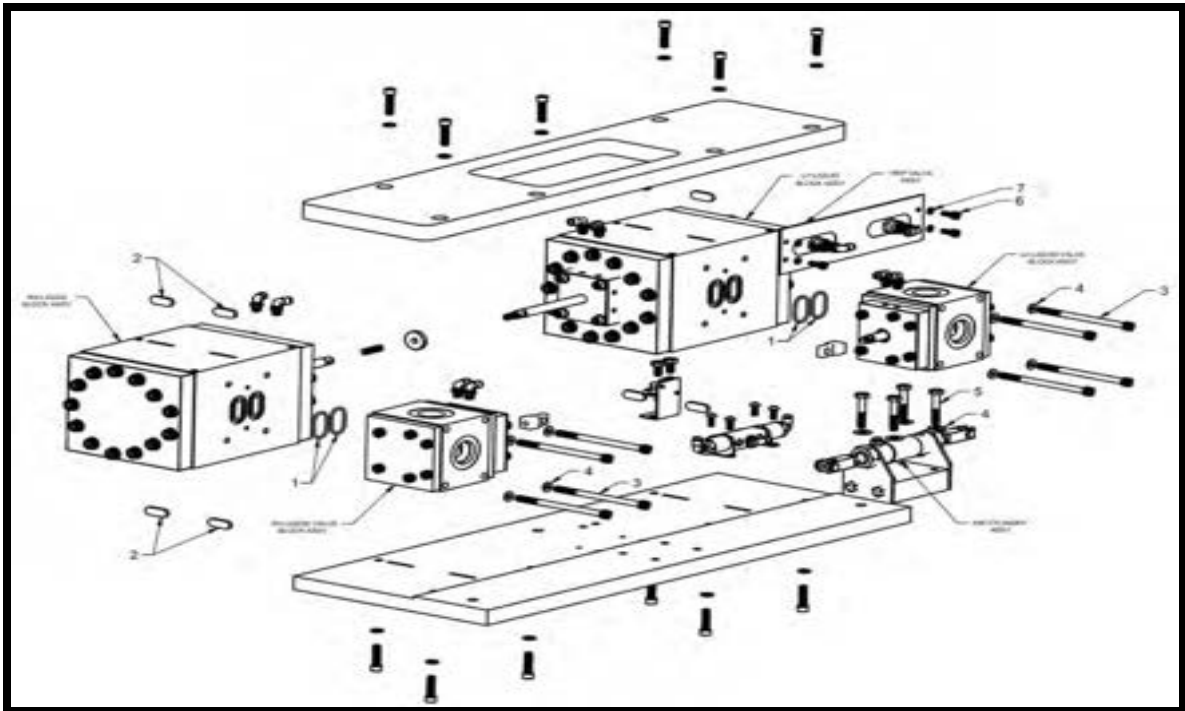
8. COMPONENT IDENTIFICATION



Ref	Part Number	Description	QTY
1	238689	LE70 Controller	1
2	239354	Small DIN Stopper, Clipfix Quick Mounting End Bracket L 48.5 x W 5.5 x H 35mm Gray	4
3	238628	Power Supply Unit, 24V/4.2A (100W)	1
4	239326	12 Terminal White D-Block, DIN Rail Terminal Blocks PTFIX 12X2.5-NS35A WH 2.5M...	1
5	239447	12 Terminal Black D-Block, DIN Rail Terminal Blocks PTFIX 12X2.5-NS35A BK 2.5M...	1
6	238647	Signal Conditioner, Temp Transmitter, Isolated, RTD input, deg F or deg C, 4-20mA output	3
7	238487	Din A Mite, WATLOW SCR CONTROL	1
8	238544	Over Temp AB contactor, 30 AMPS, 10 H.P. @ 230V	1
9	238363	DIN Rail, 17in	1
10	238614	AcuAMP AC current transducer, split cor, 0-10, 0-20, or 0-50A, selectable sensing range	1

11	238363	DIN Rail, 4in	1
12	238439	WATLOW SSR Control;24 TO 240VAC; 50 AMP; Control Voltage 3 TO 32VDC	1

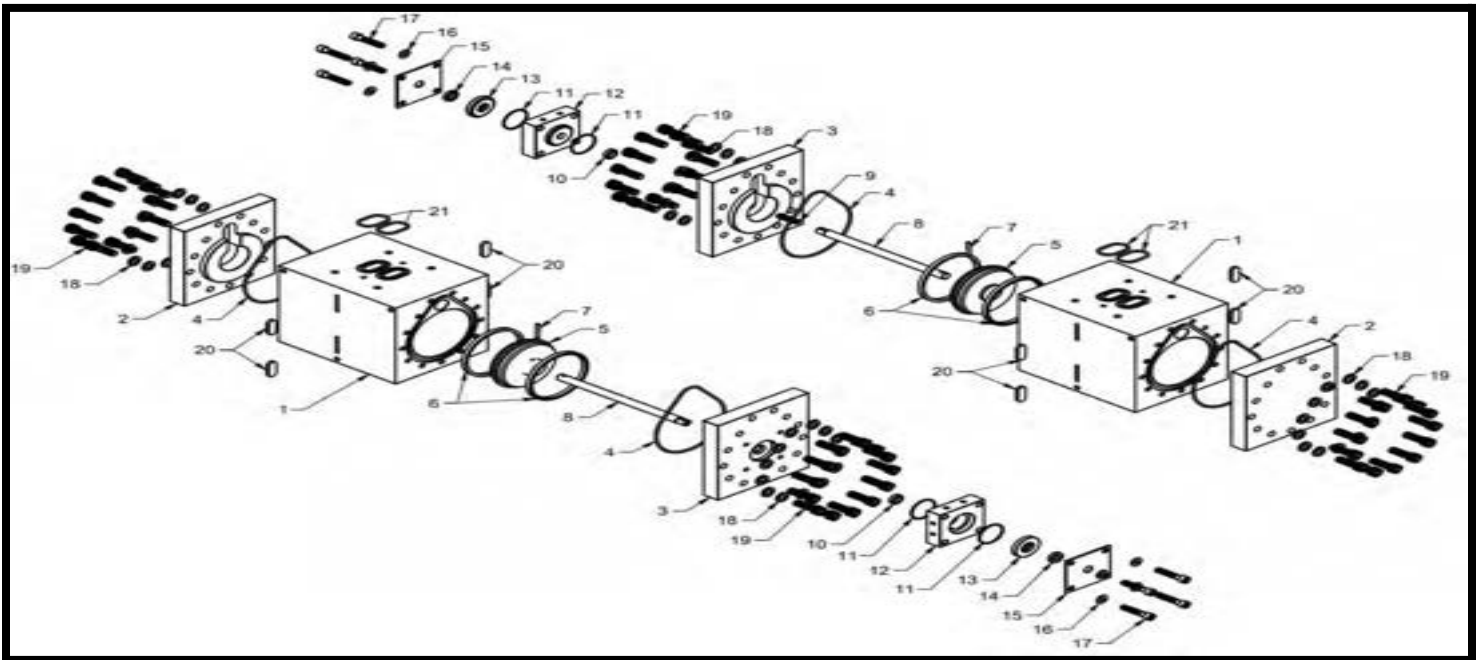
AUTO CALIBRATOR EXPLODED DIAGRAM



ITEM NO.	PART NO.	DESCRIPTION	DEFAULT QTY	MAIN ASSY QTY
1	181227	O-RING	4	4
2		STABILIZING BISCUITS	8	8
3	181341	SHCS 1/4-20 X 4 SST	8	8
4	15148	1/4 LOCK WASHER SST	56	56

5	106462	HH BOLT 1/4-20 X 1-1/2 SST	4	4
6	42364	SBHCS 10-24 X 1/2 SST	8	8
7	81379	#10 LOCK WASHER SST	8	8

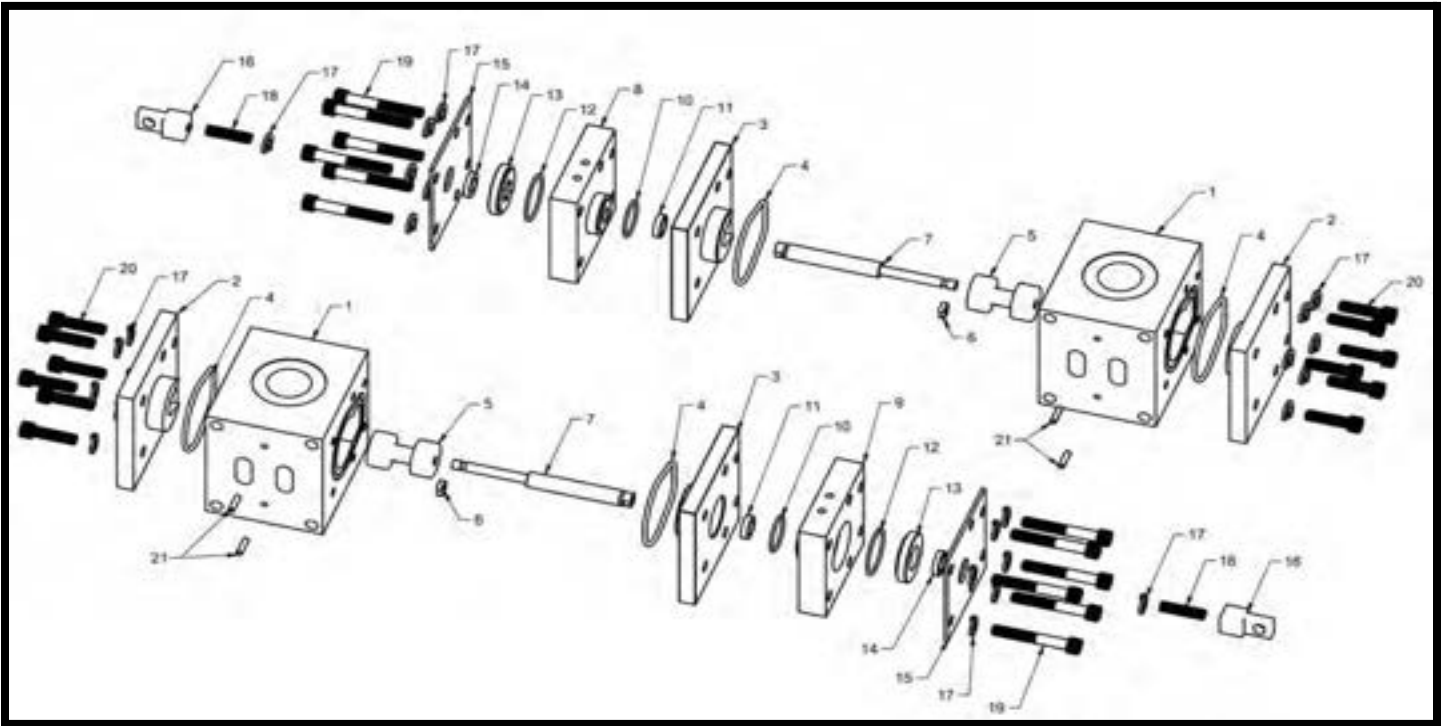
LEFT HAND FLUID PATH EXPLODED DIAGRAM



QTY	PART NUMBER	DESCRIPTION	Quantity	RH Liquid Block Assy	LH Liquid Block Assy
				Quantity	Quantity
1	180952	LIQUID BLOCK BODY	2	1	1
2	181092	LIQUID CONTROL SEAL END CAP	2	1	1
3	181091	LIQUID VALVE BLOCK	2	1	1
4	181226	O-RING	4	2	2

5	181427	PISTON HEAD	2	1	1
6	181040	PISTON SEAL	4	2	2
7	181428	PISTON CONNECTION PIN	2	1	1
8	180776	CONNECTING ROD	2	1	1
9	181342	1/4-20 X 1-1/4" SET SCREW, SST	1	-	1
10	181041	.375 DIAMETER ROD SEAL	4	1	1
11	81140	1-1/8 X 1-1/4X1/16 BUNA O-RING- DASH 024	6	2	2
12	181365	LIQUID BODY ROD BEARING GLAND	2	1	1
13	181292	GLAND SUPPORT BEARING SEAL	4	1	1
14	180893	ROD SEAL	4	1	1
15	181738	LIQUID BODY SEAL RETAINER	2	1	1
16	15148	1/4 LOCK WASHER	56	4	4
17	117599	1/4-20 X 1-1/2 SH CAP SCREW 18-8 SST	8	4	4
18	15154	5/16 LOCK WASHER	52	26	26
19	47711	SH CAP SCREW 5/16 X 1-1/2 - 18-8 SST	52	26	26
20		BISCUIT STIFFENER	8	4	4
21	181227	O-RING	4	2	2

RIGHT HAND FLUID PATH EXPLODED DIAGRAM

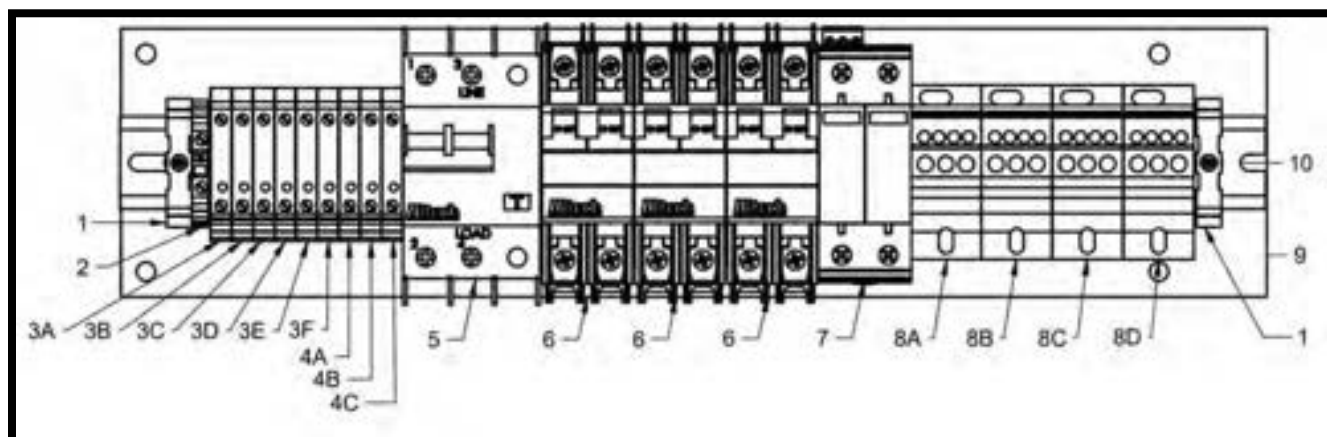


I

ITEM	PART #	DESCRIPTION	QTY	RH VALVE	LH VALVE
1	181051	LIQUID CONTROL VALVE BODY	2	1	1
2	181255	VALVE END CAP	2	1	1
3	181256	VALVE SEAL END CAP	2	1	1
4	181235	O-RING	4	2	2
5	180798	LIQUID CONTROL VALVE SPOOL	2	1	1
6	181221	VALVE SPOOL RETAINER	2	1	1

7	180778	INLINE VALVE SHAFT	2	1	1
8	181291	RH ROD BEARING GLAND	1	1	-
9	181289	LH ROD BEARING GLAND	1	-	1
10	58100	O-RING	2	1	1
11	181041	.375 ROD SEAL	4	1	1
12	81140	O-RING	6	1	1
13	181292	GLAND SUPPORT BEARING SEAL	4	1	1
14	180893	ROD SEAL	4	1	1
15	181739	VALVE OIL SEAL RETAINER	2	1	1
16	181491	MALE CLEVIS	2	1	1
17	15148	1/4 LOCK WASHER	56	13	13
18	14971	1/4-20 X 1 SS SET SCREW	2	1	1
19	181339	1/4-20 X 1-3/4 SHCS	12	6	6
20	81405	1/4-20 X 1 SHCS	18	6	6
21	15231	1/8 X 1/2 ROLL PIN	4	2	2

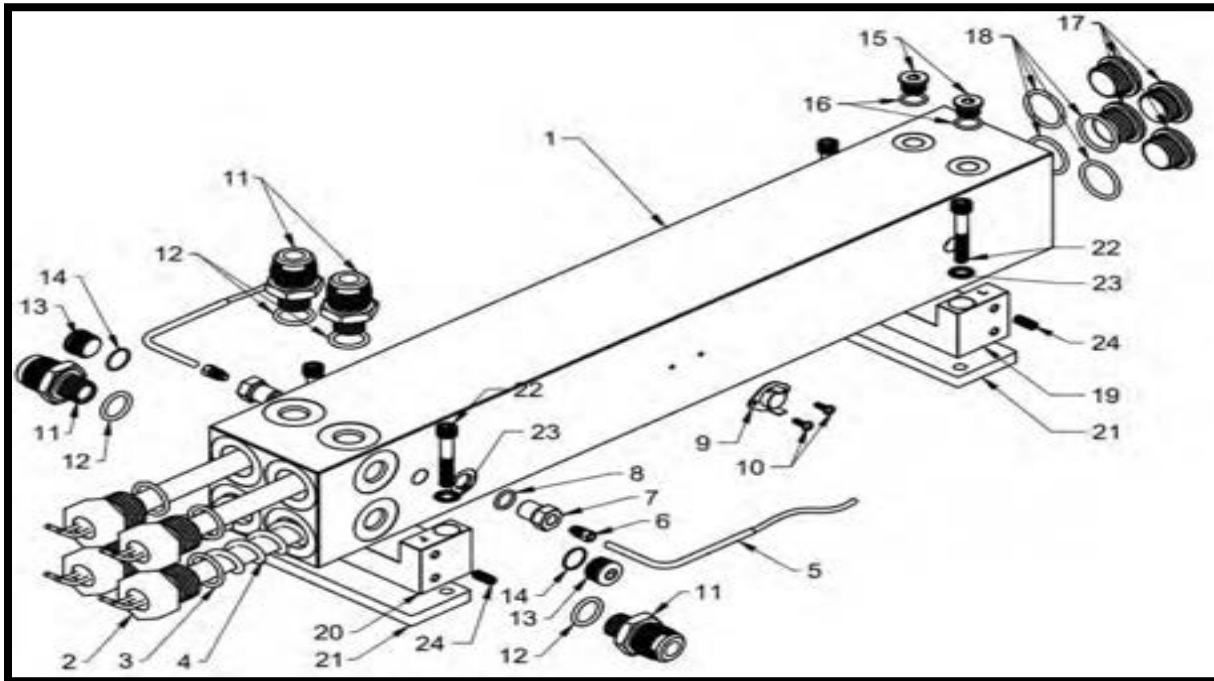
FUSE, CIRCUIT BREAKER AND WIRING SCHEMATIC



NUM	QTY	PART #	DESCRIPTION
1	2	239353	DIN Rail End Clamp
2	1	239352	DIN Rail Ground Clamp
3	6	249904	24Vdc Fuse Holder
4	3	249405	115Vac Fuse Holder
5	1		GFI
6	3		30A Circuit Breaker
7	1		type 1 SPD and IEC type 2 surge protection plug with a varistor and thermal disconnect
8A	1	238298	Distribution Block – Red
8B	1	238288	Distribution Block – Black
8C	1	238525	Distribution Block - White
8D	1	238287	Distribution Block - Green
9	1		DIN Rail Mounting Plate

10	1		Din Rail
----	---	--	----------

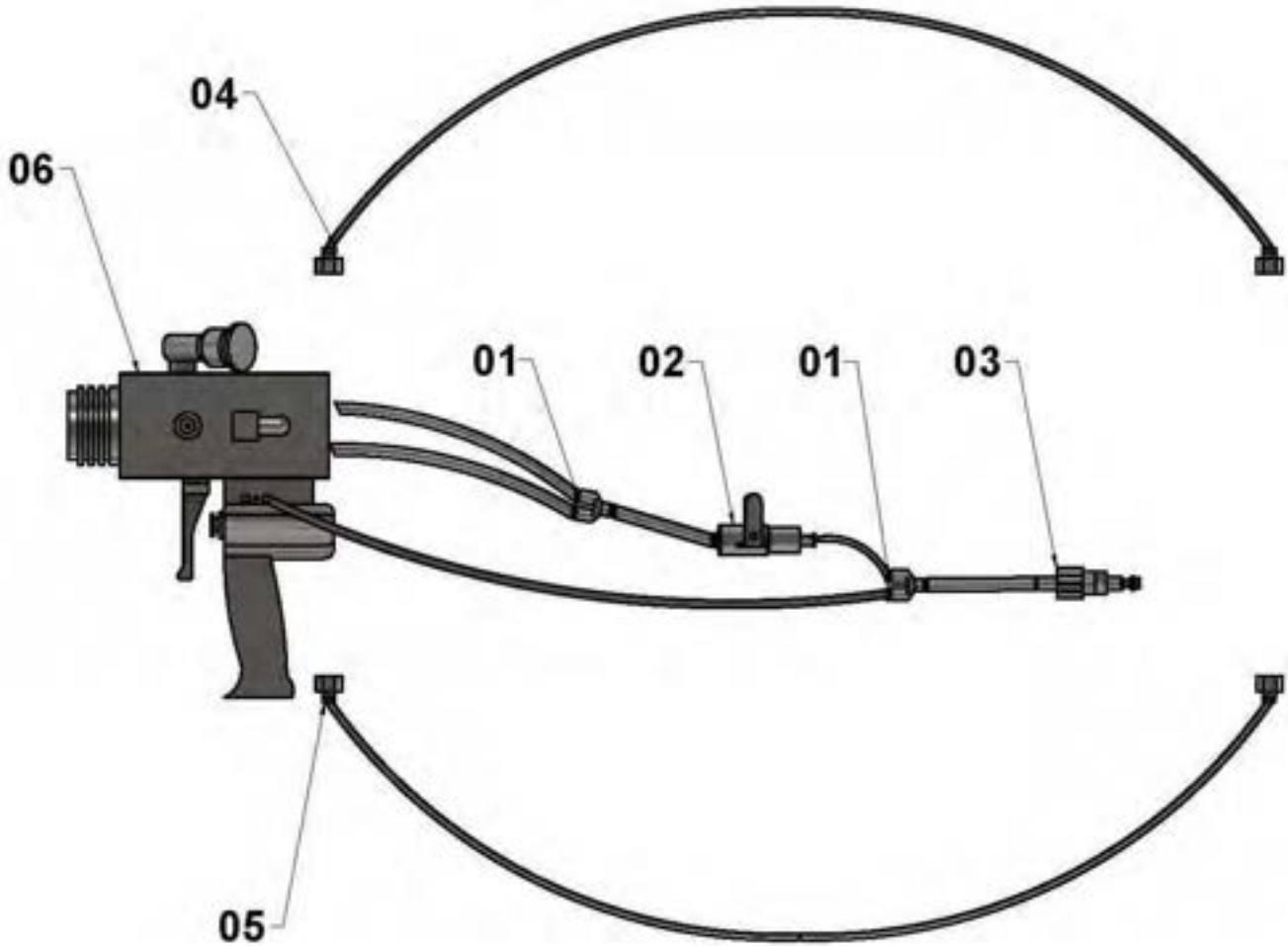
PREHEATER EXPLODED DIAGRAM



ITEM	PART #	DESCRIPTION	QTY	RH VALVE	LH VALVE
1	181051	LIQUID CONTROL VALVE BODY	2	1	1
2	181255	VALVE END CAP	2	1	1
3	181256	VALVE SEAL END CAP	2	1	1
4	181235	O-RING	4	2	2
5	180798	LIQUID CONTROL VALVE SPOOL	2	1	1
6	181221	VALVE SPOOL RETAINER	2	1	1

7	180778	INLINE VALVE SHAFT	2	1	1
8	181291	RH ROD BEARING GLAND	1	1	-
9	181289	LH ROD BEARING GLAND	1	-	1
10	58100	O-RING	2	1	1
11	181041	.375 ROD SEAL	4	1	1
12	81140	O-RING	6	1	1
13	181292	GLAND SUPPORT BEARING SEAL	4	1	1
14	180893	ROD SEAL	4	1	1
15	181739	VALVE OIL SEAL RETAINER	2	1	1
16	181491	MALE CLEVIS	2	1	1
17	15148	1/4 LOCK WASHER	56	13	13
18	14971	1/4-20 X 1 SS SET SCREW	2	1	1
19	181339	1/4-20 X 1-3/4 SHCS	12	6	6
20	81405	1/4-20 X 1 SHCS	18	6	6
21	15231	1/8 X 1/2 ROLL PIN	4	2	2

Hose Whip Exploded Diagram



Parts Identification				
Item	Qty	PN	Description	
1	2	238364	Metal Y 1/4" O.D. Pushlock Union	
2	1	260726	Shut off valve	
3	1	260727	Air Connect	
4	1	248980	A side JIC End Assembly	
5	1	249891	B side JIB End Assembly	
6	1	236336	N+ Metal Gun Bare, No Whip	

15. TROUBLESHOOTING

<u>Problem</u>	<u>Causes</u>	<u>Solution</u>
HMI Terra 7 Screen doesn't turn on	No power	<p>Check incoming Power Check ECU Check Fuse #5 AND #9 if blown a red LED will come on that fuse holder All control power for the Tera 7 and LE70 are 24 Vdc. Next to the Power Supply on lower DIN Rail is a surge suppressor. If you have experienced a power surge this unit will blow out and the module blocks in the suppressor will have to be replaced. Check power at the Red and Black blocks on the top DIN rail, you should have around 220 - 250 Vac.</p>
Fan doesn't come on	No Power	<p>Check wiring to make sure that you have power to the unit Check Fuse #7 Fans and relay next to the exhaust fan operate on 120 Vac. Relay, Fuse #8</p>
No Hose Heat (Terra 7 Display is working)	No power	<p>Check incoming Power Check Breaker Check 3 pin Circular black plug connection left side of cabinet and at each hose sections as well as in the whip The power is on pins A and B, C is the ground. Testing A to B should show around 230 Vac, A or B to C should show around 115 Vac. On the Din-A-Mite controller there are three green LES's that will illuminate if that particular zone is on and requires power. These LEDs will change in brightness depending on how much power is being sent to that zone. These LEDs are just above the bottom contact screws.</p>
No Temperature reading (terra 7 Display is working)	The RTD Temperature wire is not connected or is damaged.	<p>Check the cabinet, each hose section, as well as TCU. Look for bad connections or damaged wires</p>

<p>Auto calibrator is not moving</p>	<p>Y-Strainer clogged</p> <p>Hose or 3 way valve is clogged</p> <p>Auto calibrator is locked up by Isocyanate hardening around shafts</p> <p>No supply chemical</p> <p>Horseshoe clamp on spool valve is broken</p> <p>Shaft is broken or bent</p>	<p>Check and clean Y- strainer as needed</p> <p>Make sure three way shut off valve is not clogged and working</p> <p>Activate air switch with a screwdriver and force the unit to run in the opposite direction</p> <p>Make sure air is hooked up to stick pumps and regulator is working properly, check pressures on inlet sensor displays (Red and Blue drums on display)</p> <p>Transfer Pumps Are not Pumping</p> <p>Check to see if inlet pressure is high on one side and the other side is fluctuating as you switch shuttle valve direction - issue with either broken upper shaft or broken horseshoe clip on spool valve</p> <p>The Autocalibrator has a fixed 90 PSI regulator inside the cabinet, you must provide at least 100 PSI to the cabinet. Ensure that clean, dry air is being used, dirty air will damage the internal regulator or air controls</p>
---	--	---

<p>Hose or preheaters overheating</p>	<p>Signal conditioner or Din-A-Mite unit may be bad. If the Din-A-Mite fails it will fail "on" for that particular zone.</p>	<p>Check to make sure LED lite on Dine-A-Mite is turning on or off</p> <p>Switch wires with good Signal Conditioner to make sure that Signal Conditioner is working properly. Fuse #1</p>
---------------------------------------	--	---

<p>Chemical leaking out of the auto calibrator</p>	<p>outer seal is damaged on that side of Auto Calibrator</p>	<p>Have the unit rebuilt</p>
<p>Lubricant does not flush through the lubrication system</p>	<p>Check Valve plugged up</p> <p>Lubrication lines plugged</p>	<p>Replace Check Valves at outlet of flushing system.</p> <p>Blow compressed air through system (if you use air, Immediately flush that port with approved lubricant. (SEE 2.7)</p> <p>Replace flush lines or have Auto Calibrator rebuilt if plugged inside unit.</p>
<p>Cycle counter not working</p>	<p>Make sure wires are connected correctly</p>	<p>Check wire connections and Fuse #4 Clean,inspect, and replace.</p> <p>Manipulate the microswitch on the Autocalibrator to see if the cycle counter is working. Do this with a screwdriver, Do not put your fingers inside the front brace of A/C..</p> <p>The cycle counter operates on 24 Vdc.</p>
<p>Will not switch to recirculation mode</p>	<p>Ball Valve could be hardened or stripped, Crystalized chemical in ball valves and/or recirculation hoses.</p>	<p>Clean and inspect Ball value</p> <p>Check flow indicator on ball valve</p> <p>Replace Hoses and ball value if necessary.</p> <p>It is good practice to do a few minutes of recirculation each week so the A side hose will not harden internally.</p>
<p>Autocalibrator does not move, but the drum pump(s) still run.</p>	<p>High probability that a piston inside the fluid block (lower blocks) has snapped.</p>	<p>Send Autocalibrator in for service.</p>

16. Nitrosys Gun (plastic and metal) Maintenance

NITROSYS PLUS (PLASTIC GUN) MAINTENANCE AT SHUTDOWN

VIDEO: SCAN THE QR TO WATCH THE MAINTENANCE VIDEO.



N+METAL GUN BREAKDOWN

VIDEO: SCAN THE QR TO WATCH THE BREAKDOWN VIDEO.



START UP AND SHUT DOWN QUICK REFERENCE CHART

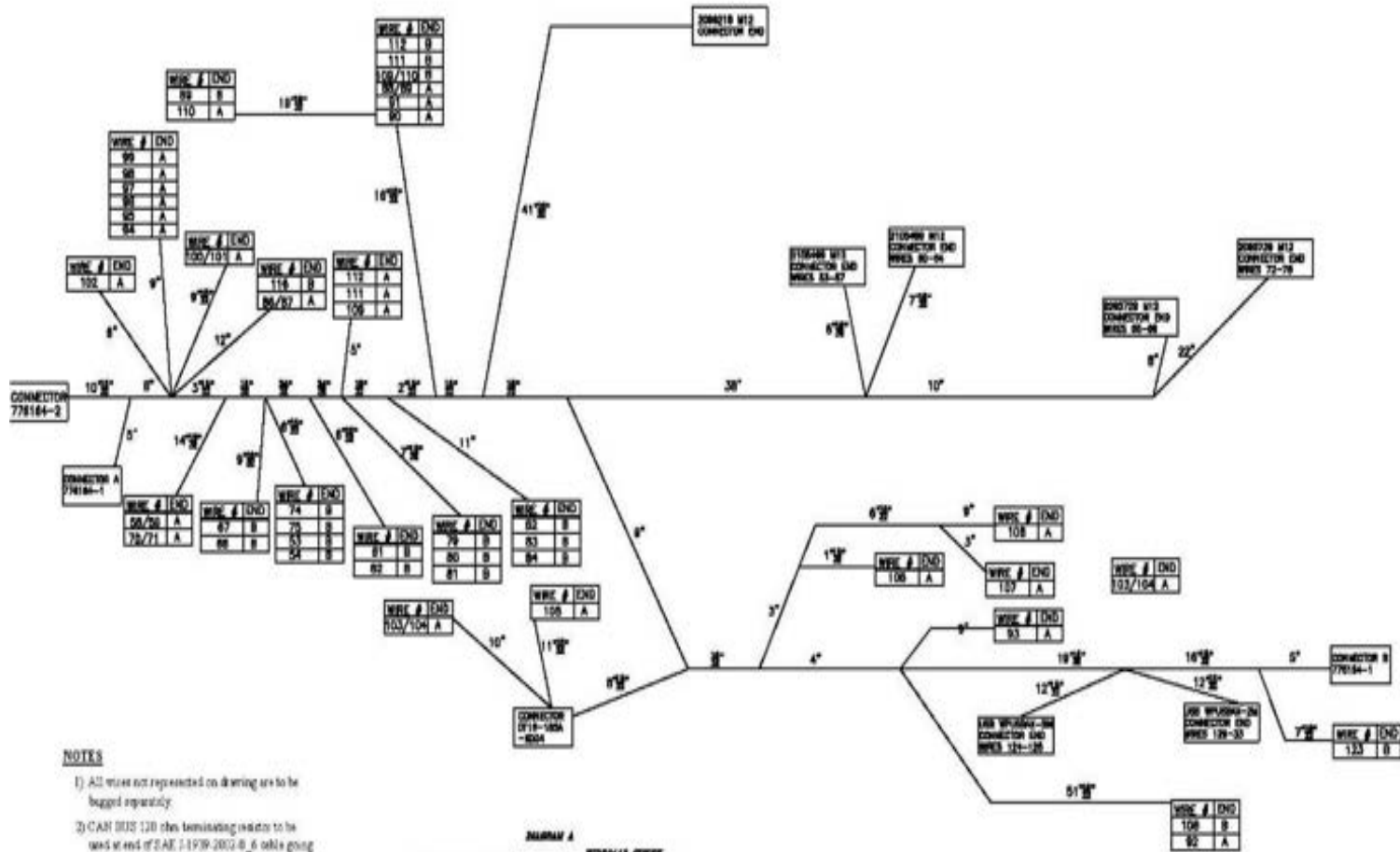
START UP PROCEDURES FOR THE HVLP RIG

- CHECK OIL AND GAS IN GENERATOR AND FILL AS NEEDED
- CHECK OIL AND GAS IN COMPRESSOR AND FILL AS NEEDED
- CLOSE DRAIN PLUGS ON BOTTOM OF AIR RECEIVER TANK(S) ON COMPRESSOR
- MAKE SURE THAT THE CIRCUIT BREAKERS ARE OFF IN THE RIG PRIOR TO STARTING THE GENERATOR (STARTING THE GENERATOR WITH THE CIRCUIT BREAKERS ON COULD CAUSE A POWER SURGE AND DAMAGE THE HVLP UNIT)
- START THE COMPRESSOR (PRESSURE SHOULD BE SET AT A MINIMUM OF 120 PSI)
- MAKE SURE THAT THE DRAINS ON THE MOISTURE TRAP IN THE RIG ARE CLOSED
- MAKE SURE THAT THE AIR DRYER IS TURNED ON
- UNROLL THE HOSE FROM THE HOSE RACK AND MAKE SURE THAT YOU DO NOT KINK THE HOSE (HEATING THE HOSE IN THE STACHED POSITION COULD CAUSE A HOT SPOT WITHIN THE HOSE AND POTENTIALLY DAMAGE THE HOSE)
- TURN ON THE CIRCUIT BREAKERS IN THE RIG (PLEASE NOTE THAT SOME RIGS WILL HAVE A SWITCH TO CHANGE FROM SHORE POWER TO GENERATOR POWER)
- TURN ON THE ON/OFF SWITCH ON THE RIGHT HANDED SIDE OF THE HVLP CABINET (PLEASE LET THE HOSE HEAT UP FIRST AS THIS WILL TAKE A LITTLE LONGER TO HEAT UP THAN THE PREHEATERS, PLUS IT TAKES MORE POWER TO HEAT UP THE HOSE)
- ONCE THE HOSE IS UP TO TEMPERATURE, THEN YOU CAN TURN ON THE “A” SIDE AND “B” SIDE PREHEATERS (PLEASE SEE TEMPERATURE RECOMMENDATIONS IN MANUFACTURER’S DATA SHEET)
- CONNECT THE AIR LINES TO THE STICK PUMPS AND SET THE PRESSURE GAUGE TO THE DESIRED PRESSURE (PLEASE SEE PRESSURE RECOMMENDATIONS IN MANUFACTURERS DATA SHEET)
- TURN ON CHEMICAL LINES ON THE RIGHT SIDE OF THE CABINET
- MAKE SURE GUN AND SPRAY NOZZLE IS CLEAN AND FREE OF DEBRIS, TURN ON CHEMICAL AND AIR LINES AND THEN DO A TEST SPRAY
- ADJUST TEMPERATURE AND PRESSURE TO MEET YOUR DESIRED RESULTS

SHUT DOWN PROCEDURES FOR THE HVLP RIG

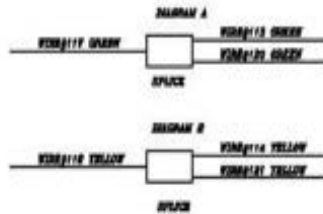
- TURN OFF CHEMICAL AND AIR LINES TO GUN
- TURN OFF CHEMICAL LINES ON THE RIGHT HANDED SIDE OF THE CABINET
- TURN OFF ON/OFF SWITCH ON THE RIGHT HANDED SIDE OF THE CABINET (PLEASE NOTE THAT THIS WILL RESET THE HEATERS TO THE OFF POSITION, BUT YOUR SET POINTS WILL BE SAVED)
- TURN OFF CIRCUIT BREAKERS IN THE CABINET (PLEASE NOTE THAT YOU MAY HAVE TO SWITCH THE RIG TO SHORE POWER VERSUS GENERATOR POWER)
- TURN OFF GENERATOR
- TURN AIR REGULATORS ON THE STICK PUMPS DOWN TO ZERO AND DISCONNECT AIR LINES
- TURN OFF COMPRESSOR AND DRAIN THE AIR RECEIVER TANK(S) ON THE UNIT AND, IF APPLICABLE, TIP UP TO DRAIN WATER TOWARD DRAIN VALVE
- DRAIN THE MOISTURE TRAPS IN THE RIG (YOU MAY NEED TO DRAIN THIS 2 OR 3 TIMES DURING THE DAY BASED ON CLIMATE CONDITIONS AND OR GEOGRAPHICAL LOCATION)
- RETURN HOSE TO THE HOSE RACK AND MAKE SURE THAT YOU DO NOT KINK THE HOSE
- CLEAN THE END OF THE GUN OF ANY RESIDUAL MATERIAL AND MAKE SURE THAT THE PORTS ARE CLEAN OF ANY MATERIAL AS WELL
- GREASE THE GREASE ZERK FITTINGS ON BOTH THE “A” AND “B” SIDE OF THE GUN, MAKE SURE THAT YOU FILL THE GUN FULL OF GREASE (METAL GUN)
- INSTALL A USED NOZZLE, WITH CURED FOAM, OR A “NIGHT CAP”(METAL GUN) ON THE GUN TO PREVENT AIR AND MOISTURE FROM GETTING INTO THE GUN
- PUSH LUBRICANT USING THE “SURE SHOT CAN” THROUGH THE PUSH- LOCK FITTINGS ON THE RIGHT HAND SIDE OF THE CABINET. USING AN APPROVED LUBRICANT, EITHER DOP OR TSL. (MAKE SURE THE SURE SHOT CAN HAS A MINIMUM OF 50 PSI AND THAT YOU FLUSH THE “A” SIDE A LITTLE LONGER THAN THE “B” SIDE, AS IT IS HARDER TO PUSH THE THICKER ISO FROM THE LUBRICATION CHANNEL ON THE “A” SIDE, THIS IS USUALLY A 3 TO 5 SECOND BURST.

17. ELECTRICAL SCHEMATICS

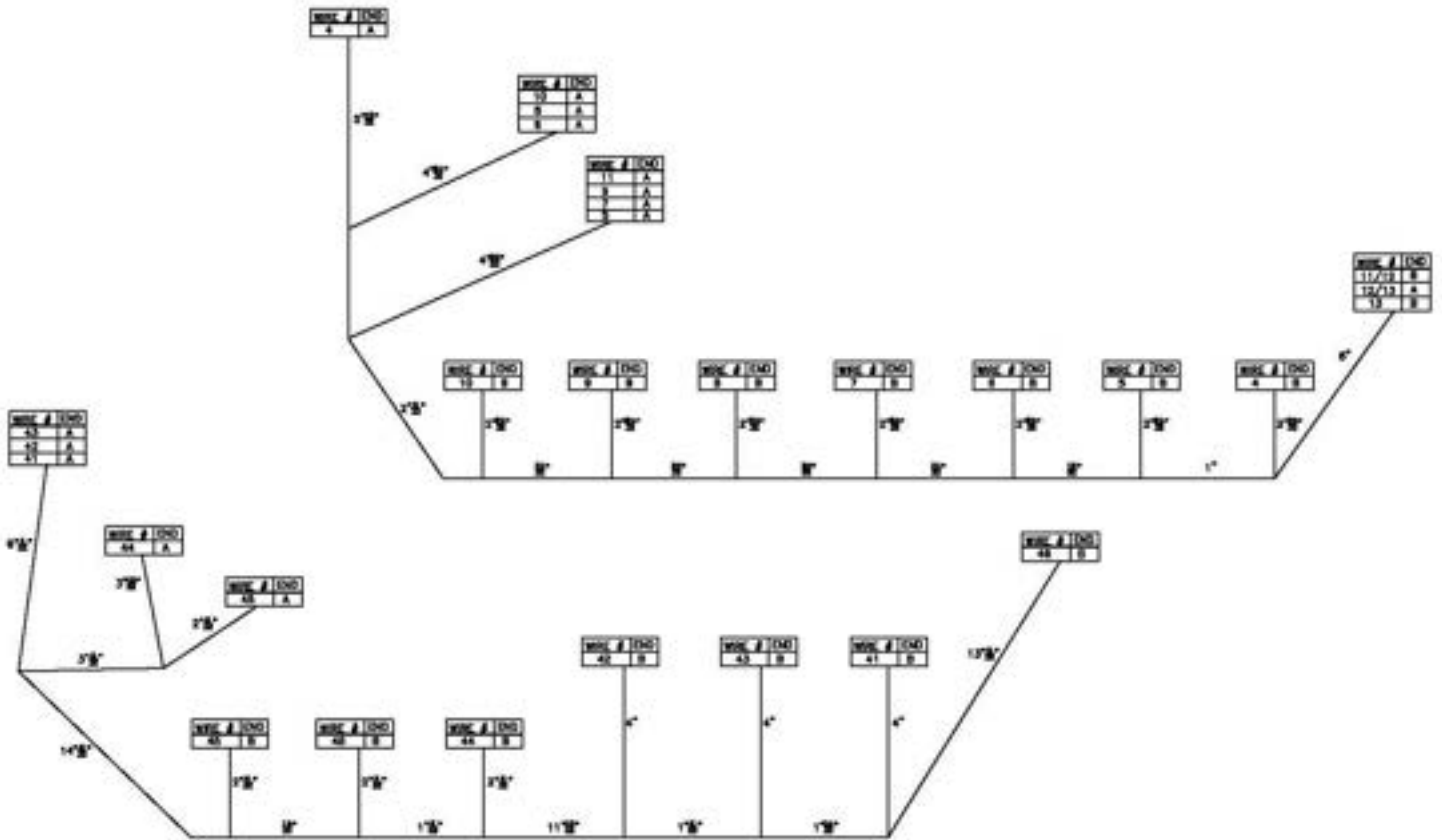


NOTES

- 1) All wires not represented on drawing are to be bugged separately.
- 2) CAN BUS 120 ohm terminating resistors to be used at end of 2 AE 1199-2002 @ 6 ohms going to 776164-1 Connector A & 776164-1 Connector B. Cover resistor with heat shrink. Cover this heat shrink with shielded heat shrink.
- 3) TE back shell 776403.1 to be used on the following connectors:
 - a. 776164-1 Connector A
 - b. 776164-1 Connector B
 - c. 776164-2



ELECTRICAL SCHEMATICS CONTINUED



TECHNICAL SPECIFICATIONS

Nitrosys HVLP

Maximum Fluid Working Pressure	360 PSI MAX – With a suggested operating pressure up to 250 PSI
Maximum Fluid Temperature	165°F
Maximum Flow Rate	30 LB/MIN SPRAY 50 LB/MIN POUR
Maximum Heated Hose Length	310'
Output Per cycle ISO and RES	Nitrosys HVLP - 1.82 Cycles is One gallon (1/2 A and 1/2 B)
Line Voltage Requirement	220-250 Vac
Minimum Breaker Required	60 amp
Heater Power	10,200 Watts – Primary Heat 14 Watts