

2019

MB Epoxy Detail Trucks

PT – 13, 20, & 21



SMC
Safety Marking Inc.

45 Years of Quality Service

Participant Guide
Equipment Training
SMC Inc. Training Library

Rev. 1.1

PURPOSE

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Session One: Course Overview

Introduction

1. Detail epoxy trucks are used for applying epoxy handwork (turn arrows, stop bars, cross walks, hatching, chevrons, etc.). The trucks are equipped with 150 gallon tanks and are capable of spraying approximately 20,000 square feet of epoxy. Beads are applied manually with bead carts ,or by hand, after the epoxy is applied. Epoxy handwork is applied at 15-20 mils thickness.



General Information

2. Epoxy is a two-component durable application used for permanent markings. The catalyst (hardener) and resin (color) are sprayed at a 2:1 ratio. The resin and catalyst that make up the two component application are hazardous chemicals and should be treated as such. Information on these materials is found on the (Material) Safety Data Sheets (SDS) located in the shop in the **Right To Know** center, and in the epoxy trucks information binder.
3. While these trucks operate similarly, each truck has its differences. These differences will be explained by the operators of each detail truck.

Session Two: Cautions

1. Epoxy is considered a Hazardous Material. SMC's Hazardous Communication Program requires that everyone knows where to read about the potential hazards of the material we work with. The Right to Know information centers with Material Safety Data Sheets (SDS) are located outside of the office and in the lunch room in BPT. The Right to Know Center in Rhode Island is in the lunch room. Every Epoxy truck carries SDS sheets in the truck as required by law.
2. NEVER subject fingers or body parts to material spraying from guns.
3. GUNS SPRAY AT 2000 PSI, WHICH CAN CAUSE INJECTION WOUNDS RESULTING IN SERIOUS INJURY!
4. These epoxy trucks are equipped with high pressure lines for material and hydraulic fluid. Any leak or damage to either of these systems requires IMMEDIATE shut down and PROMPT clean up procedures.
5. EYE PROTECTION AND RESPIRATORY PROTECTION is required when epoxy is being sprayed. Wearing gloves is always recommended when working with epoxy.
6. A CDL is required to drive these trucks because they require a HAZMAT Endorsement to operate.

Session Three: Pre-Trip

1. Pre-Trip truck: running gear, tires, wheels, lights, mirrors, safety equipment, etc. Fill out the Drivers Inspection Report daily.
2. Check material level and fill if needed.
3. Check for all tools and spare parts needed in case of breakdown for road repair (i.e. – spare gun, mixing tube, tips, solenoid, etc.).
4. Spare fuel.
5. Pre-trip box van and complete box van checklist.
6. Pre-trip cone truck.
7. Check for stencils, load beads, bead carts, etc.
8. Check for PPE, Respirators and Eye Protection are required.

Session Four: Standard Operating Procedure:

1. Turn ON **Master** power switch in cab.



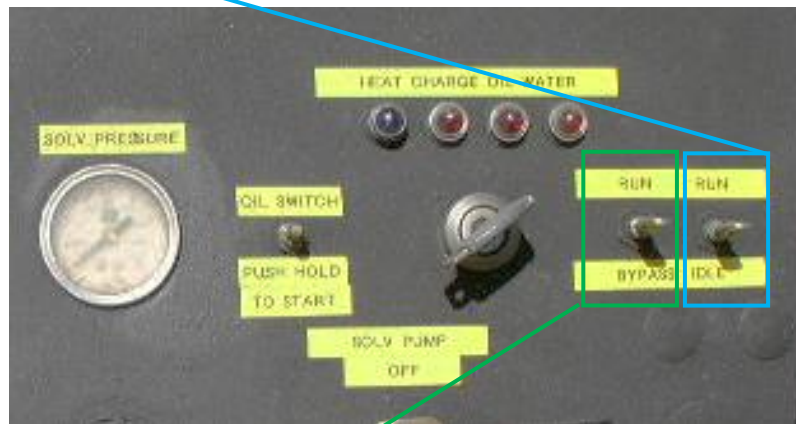
2. Turn ON **Master** power switch on control panel.



3. To Start Pony Motor: Press Oil Pressure Bypass Button (L) and turn Ignition Key (R).



4. Rev-up Pony Motor.



5. Engage hydraulics by switching to RUN.

6. Turn **ON** Circulating Pump7. Turn **ON** heat to Glycol.

8. Turn individual heat switches **ON** to warm catalyst and white material.



9. Make sure bypass Whitey valves at high pressure pump are **OPEN**



10. ...and Whitey gun valves are **OPEN** to cart or handgun.

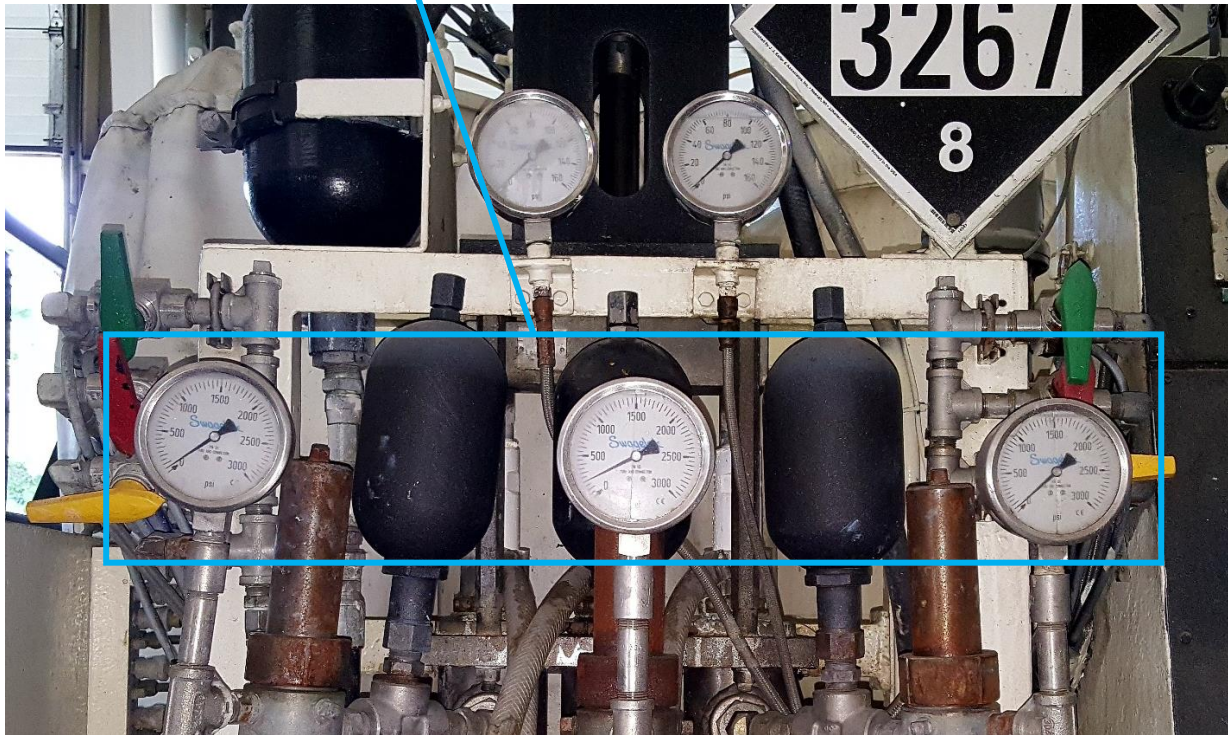


11. When material has begun to heat and glycol thermostat reaches approximately 180°, Turn hydraulic pump **ON** and stroke in material (when turning on hydraulic pump, both the electric toggle switch and the pump ON/OFF arm must be turned to the **ON** position. Material should be at least 80° before stroking in.



NOTE: When stroking in material in cold weather, pump pressure should never exceed 1000 psi.

12. When gauges drop to zero (0) psi, **CLOSE** bypass Whitey valves. Gauges should then all read 500 psi. Fine tune material temperatures: a) resin between 125°-130° and b) catalyst 135°-140°. You are now ready to spray.



13. Flush gun with solvent. Install tips on paint guns, use correct tip for the line width you will be spraying. Refer to TIP section following operating procedure.
14. To '**LOAD UP**,' turn down pump pressure, open appropriate valve for cart, or handgun, and turn pressure back up to 1800-2100 psi. To load up, shoot gun into bucket, making sure all three pump pressure gauges read 1800-2100 psi.
15. When finished spraying, reverse procedure to '**BLOW OUT**'.
16. Turn pump pressure DOWN.
17. **CLOSE** supply whiteys, squeeze gun trigger to relieve pressure.
18. **OPEN** solvent whiteys, or solvent valve on handgun, and blow out into bucket.

Gun Tips:

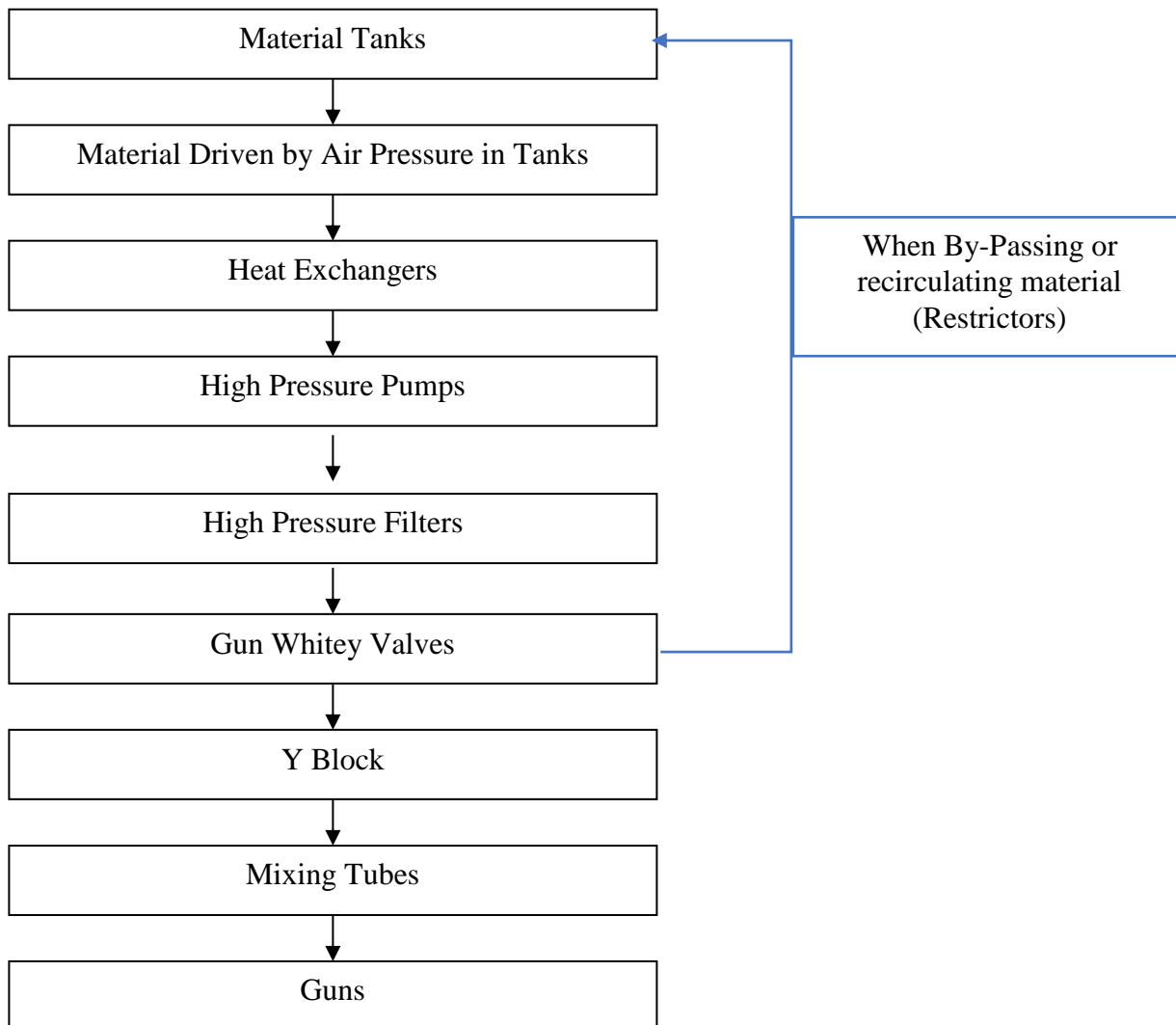
Line Width:	4"	6"	8"	12"	Handgun
Tip Size:					449/841

Truck Shutdown Steps:

1. Dial down high pressure pump(s).
2. Turn OFF heat to glycol and material
3. Remove tips
4. Flush all guns used with solvent
5. Switch Hydraulics to BYPASS
6. Idle Down Pony Motor
7. Shut OFF Pony Motor

Session Five: Material Flow Progression

(Keep this progression in mind while troubleshooting)



Session Six: Maintenance

Daily:

1. Check all fluid levels
2. Check all supply valves
3. Check all tank pressures
4. Inspect hydraulic lines
5. Drain air tank, drain valves/water traps (This should be done throughout the day)
6. Rebuild guns
7. Clean Y-blocks
8. Check pump shafts, tighten anything loose
9. Check purge, fill if needed
10. Lube pumps with throat oil (FILL CUPS)
11. Clean high pressure filters
12. Check/clean check valves at Y-blocks

Weekly:

13. Check glycol, fill if needed
14. Check/fill oilers
15. Wash truck.

Monthly:

16. Check/charge accumulators

Session Seven: Troubleshooting

1. MATERIAL NOT HEATING

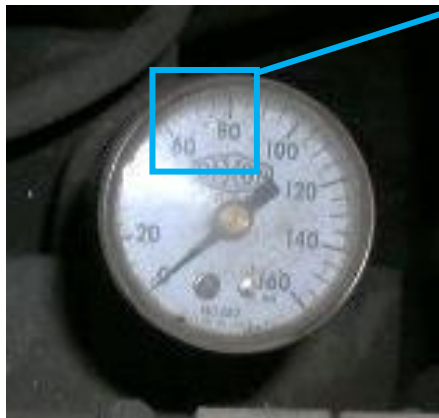
- Check furnace controls on panel
- Check that furnace is running (furnace light on panel ON)
- Check glycol thermostat setting

2. NO FLOW LIGHT

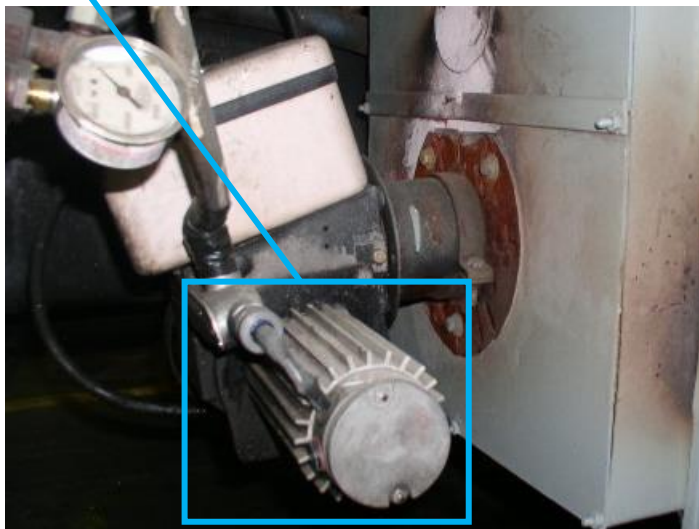
- Check that circulating pump(s) are turned ON. Visually check that circulating pump(s) are working/spinning. If pump is spinning FLOW light bulb may be burnt out. If pump is not working that is not a road fix.
- Check sight glass in glycol tank. If fluid is low, fill. Still not working. May be power or flow switch by furnace.

3. FURNACE NOT FIRING

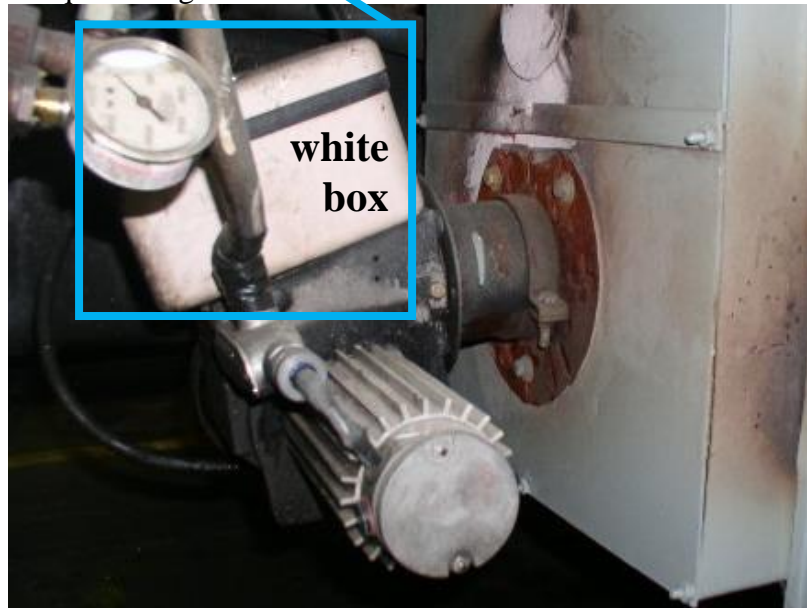
- Try RESET button. If this doesn't work after two attempts, move on to next step.
- Check fuel pressure gauge to furnace (behind furnace motor). Should be 60-80 psi. No fuel pressure, filter may be clogged. Clean or change and try RESET button again.



- Check furnace motor. Motor should be supplying fuel and air.
 - Motor not working, check wiring connections



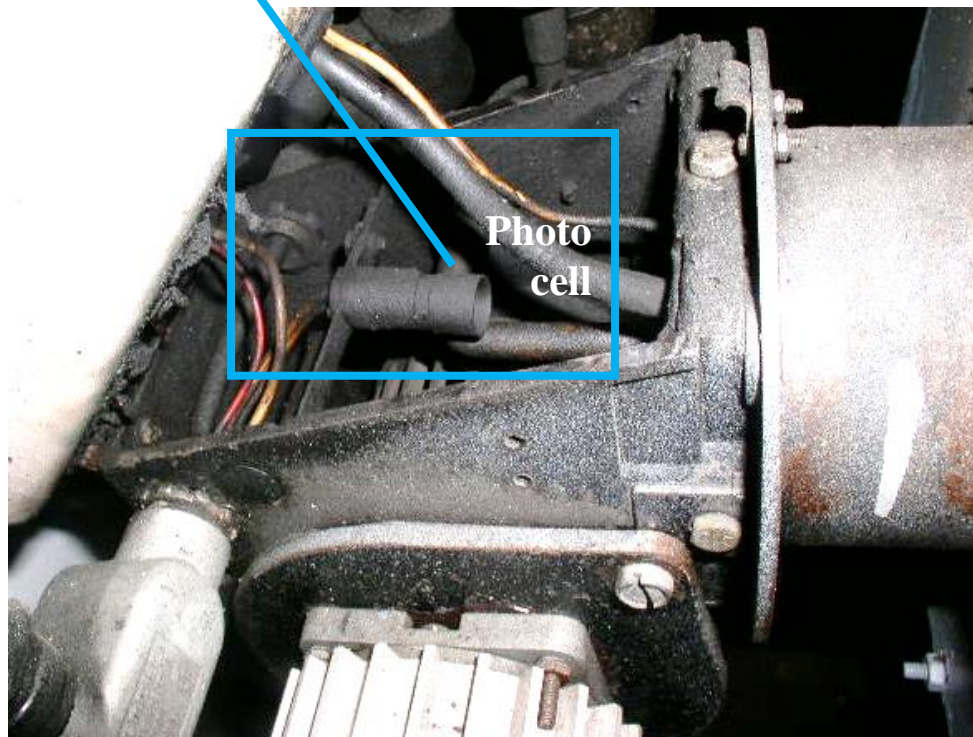
- d. Check inside furnace (furnace motor must be pulled to inspect)
- Inspect fuel nozzle
 - Inspect injectors
 - Inspect squirrel cage



- e. Inside white box, check ignition module connections



- f. Check condition of **photo cell** under white box furnace. GLASS LENS MUST BE CLEAN AND CLEAR OF SOOT.



4. Furnace to temperature, material not heating

- Pony motor must be running with hydraulics on to supply air to tanks to move material.
- Check thermostat settings
- Check if heat exchangers are warm
- Check Humphrey valve to heat exchangers, make sure valve is opening. Solenoid or \ Humphrey Valve could be bad.
- Bleed glycol coming out of heat exchangers, check temperature.

Audible Furnace Alarm is sounding. It will only sound if furnace is on and glycol is overheating.

- Shut furnace OFF immediately. Leave circulating pump ON. Check that circulating pump is working.*
- Check glycol level in glycol tanks and fill if low.*

No material flow from tanks

- Supply valves closed. Open valves.*
- No air supply to material tanks. Check tank pressure.*
- Check charge pressure gauges.*

Pumps not stroking

- Check that pump is ON.*
- Check for hydraulic pressure*

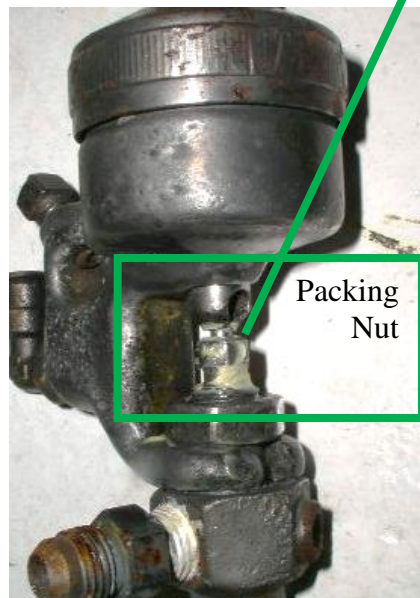
3. Check magnet switch on pump, may need reset.



5. Broken pump shaft, check shafts.

No material from guns

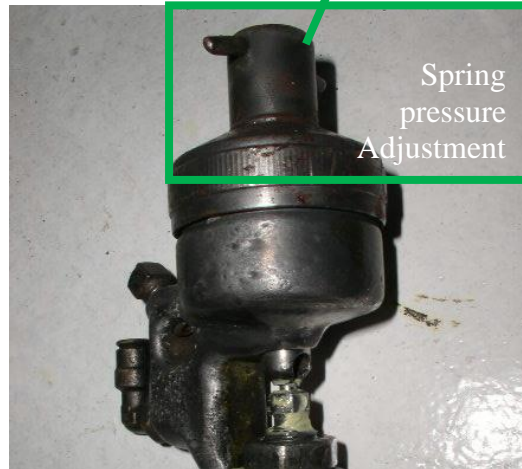
- 1. Check that all supply valves are open.*
- 2. Clogged tip. Remove and clean.*
- 3. Gun pin movement restricted. Loosen packing nut.*



4. Solenoids not opening gun.

- 1. Check air supply to gun solenoid, trace airline from paint gun to its solenoid*
- 5. Cooked gun, material hardened before flushed.*

6. Guns not shutting off
 - a. Loosen packing nut
 - b. Tighten cover on top of gun(Spring Pressure Adjustment)
 - c. Check gun solenoid (See above)
 - d. Teflon packing washers worn (Inside gun).



7. Black spots
 1. Clogged check valve
 2. Clogged high press filter
 3. Bad whitey valve, sending material back to tank.
 4. Bad accumulator
 5. If you are getting black spots your high pressure gauges are not staying together when loading up.

OPERATIONS TEST

1. Because epoxy is considered a hazardous material, where can you find information on the hazards of this material?
 - a.
 - b.
2. What Personal Protective Equipment is required and recommended when working with Epoxy?
 - a.
 - b.
 - c.
3. Can a detail epoxy truck be driven without a CDL ?
 - a.
4. What is the procedure to “stroke in” or prepare the truck to spray ?
 - a.
 - b.
 - c.
 - d.
 - e.
 - f.
 - g.
 - h.
 - i.
 - j.
 - k.
5. At what point do you know the truck is ready to spray while “stroking in”?
 - a.
6. What is the procedure to “LOAD UP” the guns to spray?
 - a.
 - b.
 - c.
 - d.
7. What is the primary cause for “black spots”?
 - a.
8. What is “BLOW OUT “ procedure ?
 - a.
 - b.
 - c.
9. If you are not getting material from guns, what are three things you can check?
 - a.
 - b.
 - c.
10. How often should the high pressure filters be cleaned?
 - a.
11. How often should Y-block check valves be checked and cleaned ?
 - a.
12. What is the material progression flow of epoxy to the guns in order?
 - a.
 - b.
 - c.
 - d.
 - e.
 - f.
 - g.
 - h.

TEST ANSWERS

1. Gun pin movement restricted, loosen packing nut.
2. Respirators
3. Heat Exchangers
4. Turn ON master in cab
5. Adjust pump pressure with Sun dial as material heats or “strokes in”. Operating pump pressure should be approximately 500 psi
6. Eye protection
7. Start pony motor and let warm up
8. Open Whitey valve for cart or handgun (whichever is being used)
9. Daily
10. Make sure bypass Whitey valves at high pressure pump are OPEN and Whitey gun valves are OPEN to cart or handgun.
11. No
12. Y-Block
13. Turn ON heat to Catalyst and White material
14. Monthly
15. High Pressure Pumps
16. Clogged tip, remove and clean
17. CLOSE supply whiteys, pop gun to relieve pressure.
18. Weekly
19. Gun Whitey Valves
20. Turn pump pressure DOWN
21. Mixing Tubes
22. Turn pump pressure up to 1900-2000 psi
23. Yes
24. Guns
25. Once gauges drop to 0 psi, close bypass Whitey valves. Gauges should all read 500 psi. Fine tune material temperatures, between 125°-130° for resin and 135°-140° for catalyst.
26. When material has begun to heat and glycol thermostat reaches approximately 180°, Turn hydraulic pump ON and stroke in material (when turning on hydraulic pump, both the electric toggle switch and the pump ON/OFF arm must be turned to the ON position. Material should be at least 80° before stroking in.
27. Gloves
28. Flush guns with solvent. Install tips on paint guns, use correct tip for the line width you will be spraying.
29. Material tanks
30. OPEN solvent whiteys, or solvent valve on handgun, and blow out into bucket.
31. Load into bucket, if all three gauges stay together (above 1500 psi) ready to spray.
32. MSDS sheets in truck
33. Gauges not together when loading
34. Check flow by pushing down on top of gun, adjust with nut on top
35. Check that material supply valves are OPEN
36. Idle UP Pony Motor and Engage hydraulics to RUN
37. Check tank pressure
38. Check solenoid
39. Turn ON circulating pump(s)
40. Turn ON master on control console
41. Right to Know Center in Shop
42. Turn ON Furnace (heat to glycol)
43. High Pressure Filters

BOX VAN CHECK LIST

(Before leaving the shop everyday)

☐

Pre-Trip Truck

☐

Duct Tape (1 Crate)

☐

Carb Cleaner (1 Box)

☐

Layout Paint (1 Box White/1 Box Black)

☐

Rags (1 Crate)

☐

Fuel (2 Cans Diesel/1 Can Gas/ 1 Can Mixed Gas/ 1 Bottle Oil Mix)

☐

Grease (1 Bucket)

☐

Hand Torch

☐

Blower (Push/Hand)

☐

Tape Grinder

☐

Broom, Shovel, Trash Can

☐

40 Bags of Beads

MAINTENANCE CHECKLIST

Daily:

- ☐ Pre-Trip Truck and write up any and all defects
- ☐ Rebuild Guns
- ☐ Change Mixing Tubes
- ☐ Clean Y-blocks
- ☐ Clean check valves
- ☐ Clean whiteys
- ☐ Drain all water traps
- ☐ Wipe down and oil pump cups with Throat Oil
- ☐ Check pump shafts
- ☐ Clean Cabs of all crew trucks

Twice a Week:

- ☐ Clean High Pressure Filters
- ☐ Check Purge and fill if needed

Weekly:

- ☐ Check glycol level and fill if needed
- ☐ Wash all crew trucks

Monthly:

- ☐ Check accumulator pressure and fill if needed. Pump accumulators should be 1200 psi. Hydraulics accumulators should be 750 psi.
- ☐ Clean tank check valves