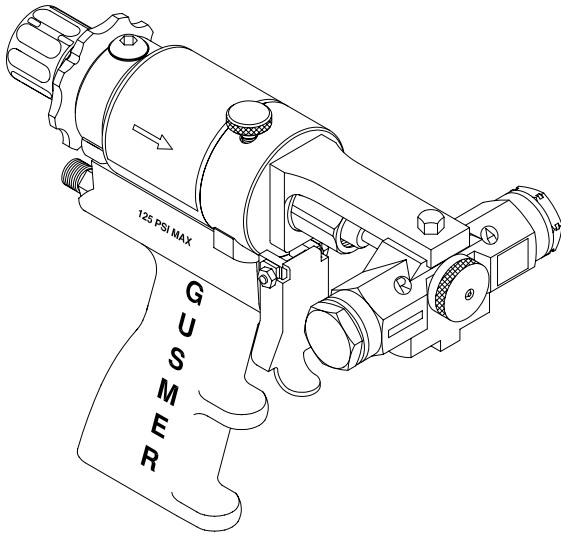


GUSMER[®] CORPORATION

"Success through Unity"



Model D-7 ***Spray Gun*** ***Operating Manual*** ***28943-1***

June 24, 2002

Issue 1

GUSMER CORPORATION[®]

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NOTICE: This manual contains important information for your GUSMER equipment. Read and retain for future reference.

NOTICE:

The equipment described in this technical manual must only be operated or serviced by properly trained individuals, thoroughly familiar with the operating instructions and limitations of the equipment. For technical service, call your local distributor. Call: 1-800-FOR-GSMR (1-800-367-4767) for the name and telephone number of your local distributor.

NOTICE:

All statements, information and data given herein are believed to be accurate and reliable but are presented without guarantee, warranty or responsibility of any kind expressed or implied. Statements or suggestions concerning possible use of GUSMER equipment are made without representation or warranty that any such use is free of patent infringement, and are not recommendations to infringe any patent. The user should not assume that all safety measures are indicated or that other measures may not be required.

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WARRANTY

Gusmer Corporation (Gusmer) provides a limited warranty to the original purchaser (Customer) of Gusmer manufactured parts and equipment (Product) against any defects in material or workmanship for a period of one year from the date of shipment from Gusmer facilities.

In the event Product is suspected to be defective in material or workmanship, it must be returned to Gusmer, freight prepaid. If Product is found to be defective in material or workmanship, as determined solely by Gusmer, Gusmer will issue full credit to Customer for the freight charges incurred in returning the defective Product, and either credit will be issued for the replacement cost of the Product or a replacement part will be forwarded no-charge, freight prepaid to Customer.

This warranty shall not apply to Product Gusmer finds to be defective resulting from: installation, use, maintenance, or procedures not accomplished in accordance with our instructions; normal wear; accident; negligence; alterations not authorized in writing by Gusmer; use of "look alike" parts not manufactured or supplied by Gusmer; or Product used in conjunction with any other manufacturer's pumping or proportioning equipment. Further, the terms and conditions of this warranty shall not apply to services or repairs made to Product by any third party not authorized in writing by Gusmer. For such Product, a written estimate will be submitted to Customer at a nominal service charge, itemizing the cost for repair. Disposition of Product will be done in accordance with the terms stated on the written estimate.

The warranty provisions applied to product that are not manufactured by Gusmer will be solely in accordance with the warranty provided by the original manufacturer of the product.

GUSMER MAKES NO WARRANTY WHATSOEVER AS TO THE MERCHANTABILITY OF, OR SUITABILITY FOR, ITS PRODUCT TO PERFORM ANY PARTICULAR PURPOSE. CREDIT FOR, OR REPLACEMENT OF, PRODUCT DEFECTIVE IN MATERIAL OR WORKMANSHIP SHALL CONSTITUTE COMPLETE FULFILLMENT OF GUSMER OBLIGATIONS TO CUSTOMER. NO OTHER WARRANTY, EXPRESS OR IMPLIED ON ANY PRODUCT IT MANUFACTURES AND/OR SELLS, WILL BE RECOGNIZED BY GUSMER UNLESS SAID WARRANTY IS IN WRITING AND APPROVED BY AN OFFICER OF GUSMER.

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Gusmer through the sale, lease, or rental of Product in no way expresses or implies a license for the use of, nor encourages the infringement of any patents or licenses.

To insure proper validation of your warranty, please complete the warranty card and return it to Gusmer within two weeks of receipt of equipment.

Revised 11/12/98



GENERAL SAFETY INFORMATION

It is necessary to understand and follow the instructions in this manual to ensure proper and safe operation of the equipment.

As with most mechanical equipment, certain safety precautions must be taken when the equipment discussed in this manual is operated or serviced. Severe bodily injury or damage to equipment and property may result if the instructions and precautions listed throughout this manual are not followed.

Needless to say, sufficient guidelines cannot be developed to eliminate the need for good common sense in the use and servicing of this equipment, and in the use and application of the products this equipment has been designed to process. Users of this equipment must therefore make their own determination as to the suitability of the information contained in this manual to their specific operation and requirements. There should be no assumption made that the safety measures and instructions contained herein are all-inclusive, and that other safety measures may not be required for specific use or application.

The following safety guidelines are generally applicable to the safe and efficient use of the equipment.

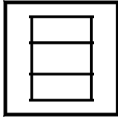
Acceptable Equipment Uses

The equipment is designed for the dispensing of polyurethane foams, two-component coating systems, and some two-component epoxy systems, specifically polyureas. Under no circumstances should any acid or corrosive chemicals be used in the unit. Consult GUSMER if there is any doubt about the compatibility of the chemical system to be used in this equipment.

Any use of this equipment other than as indicated above constitutes misuse unless express written approval is obtained from GUSMER.

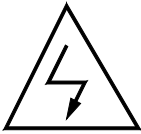
Operational Safety Procedures

This safety information will not be repeated in the text of this manual. The symbols pertaining to this information will appear where appropriate to alert the operator to potential hazards.



Solvents and Chemicals

WARNING: THE SOLVENTS AND CHEMICALS USED WITH THIS EQUIPMENT EXPOSE THE OPERATOR TO CERTAIN HAZARDS. ADEQUATE PERSONAL PROTECTIVE MEASURES MUST BE TAKEN SO AS TO AVOID EXCEEDING THE THRESHOLD LIMIT VALUE (TLV) OF THE PRODUCTS BEING USED, AS ESTABLISHED BY THE OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) OR OTHER QUALIFIED AGENCY. OBTAIN INFORMATION CONCERNING PERSONAL PROTECTION AND PROPER HANDLING FROM THE SUPPLIER OF SUCH CHEMICALS.



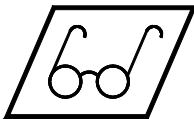
High Voltage

WARNING: TO PREVENT SERIOUS BODILY INJURY FROM ELECTRICAL SHOCK, NEVER OPEN THE ELECTRIC CONSOLES OR OTHERWISE SERVICE THIS EQUIPMENT AND/OR EQUIPMENT USED WITH IT BEFORE SWITCHING OFF THE MAIN POWER DISCONNECT AND INTERRUPTING SUPPLY VOLTAGE AT THE SOURCE. THE ELECTRICAL SERVICE MUST BE INSTALLED AND MAINTAINED BY A QUALIFIED ELECTRICIAN.



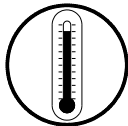
High Pressure

WARNING: THIS EQUIPMENT HAS OR IS USED WITH EQUIPMENT THAT HAS HYDRAULIC COMPONENTS CAPABLE OF PRODUCING UP TO 3500 PSI. TO AVOID SERIOUS BODILY INJURY FROM HYDRAULIC INJECTION OF FLUID, NEVER OPEN ANY HYDRAULIC CONNECTIONS OR SERVICE HYDRAULIC COMPONENTS WITHOUT BLEEDING ALL PRESSURES TO ZERO.



Personal Protective Equipment

WARNING: TO AVOID SERIOUS BODILY INJURY, PROPER PROTECTIVE GEAR MUST BE WORN WHEN OPERATING, SERVICING, OR BEING PRESENT IN THE OPERATIONAL ZONE OF THIS EQUIPMENT. THIS INCLUDES, BUT IS NOT LIMITED TO, EYE AND FACE PROTECTION, GLOVES, SAFETY SHOES, AND RESPIRATORY EQUIPMENT AS REQUIRED.



High Temperature

WARNING: THIS EQUIPMENT HAS OR IS USED WITH EQUIPMENT THAT HAS HIGH TEMPERATURE COMPONENTS SUCH AS PRIMARY HEATERS AND HEATED HOSES. TO PREVENT SERIOUS BODILY INJURY FROM HOT FLUID OR HOT METAL, NEVER ATTEMPT TO SERVICE THE EQUIPMENT BEFORE ALLOWING IT TO COOL.



Warning

WARNING: FAILURE TO READ AND FOLLOW THIS SAFETY INFORMATION MAY RESULT IN PERSONAL INJURY AND/OR DAMAGE TO THE EQUIPMENT FROM ONE OR MORE OF THE ABOVE LISTED HAZARDS.



DESCRIPTION

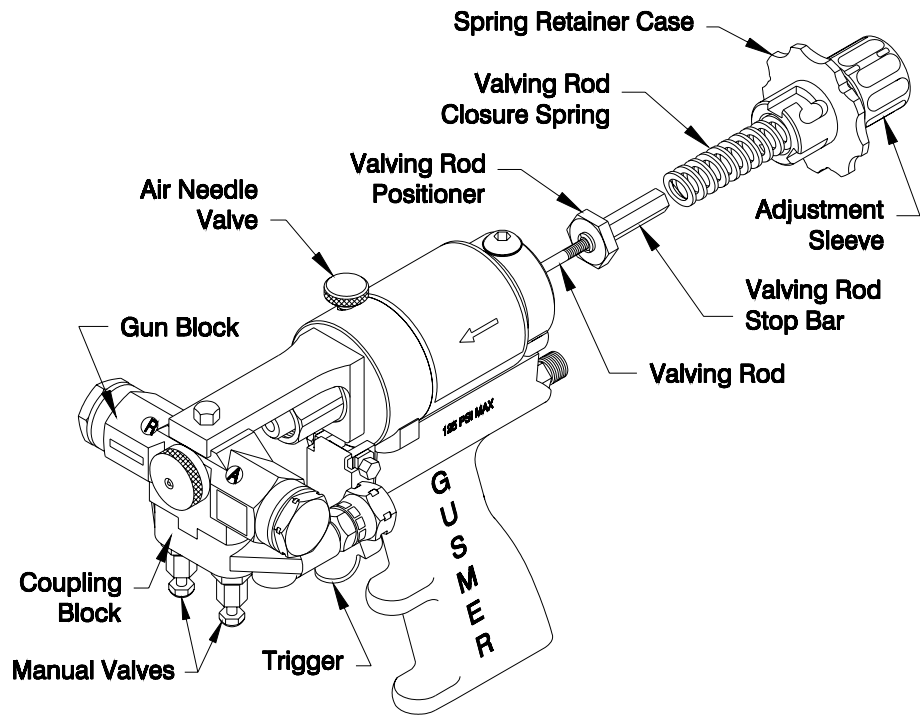


Figure 1. Major Components

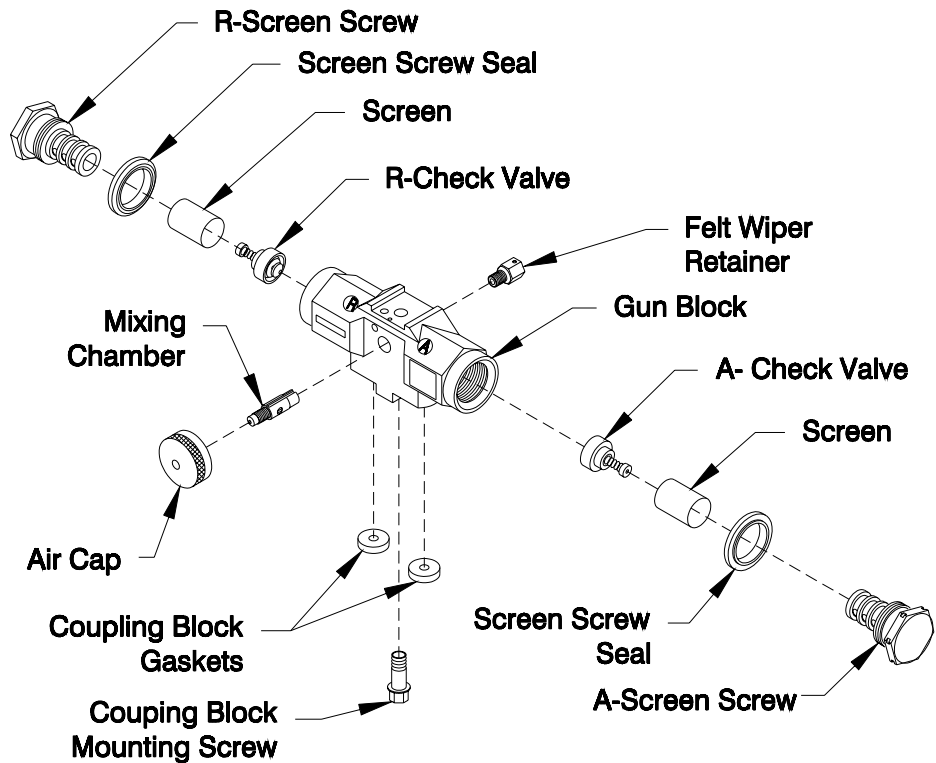


Figure 2. Centerline Components

Equipment Supplied

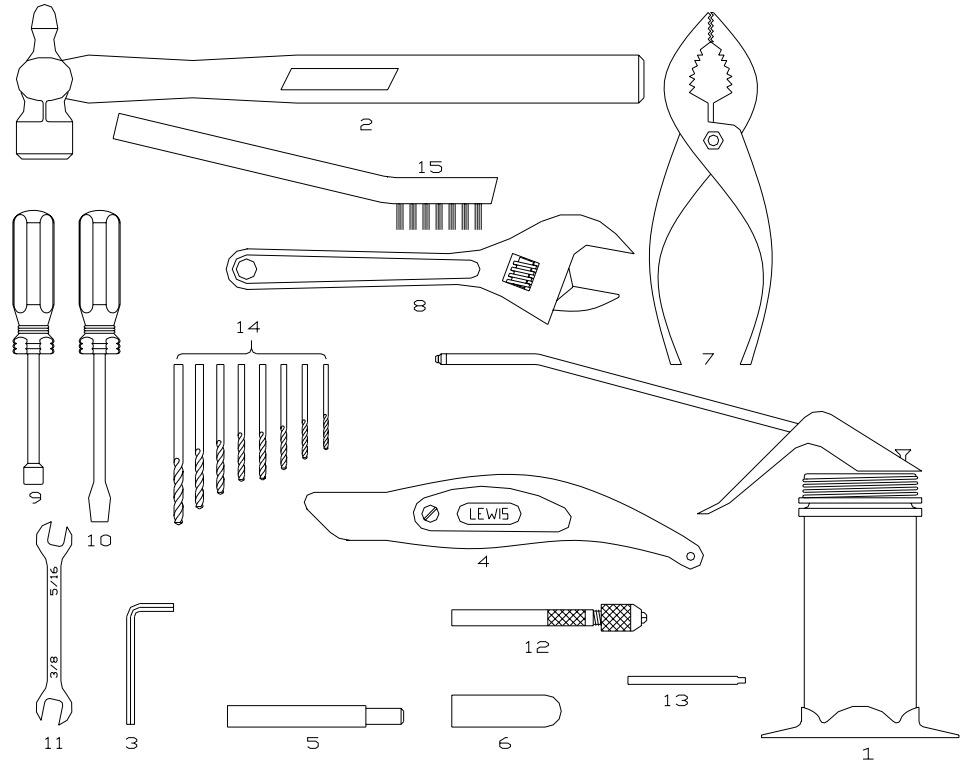


Figure 3. Standard Tool Kit

NOTE:
*Servicing of the Model D-7
 Spray Gun may sometimes
 require the following items not
 included in the Standard Tool
 Kit:*

- pipe cleaners
- cotton swabs
- clean rags
- wooden sticks

- | | |
|-----------------------------------|--|
| 1. Flush Can | 9. 5/16" Spintite |
| 2. 4 oz. Ballpein Hammer | 10. Screw Driver |
| 3. Allen Key | 11. 5/16" x 3/8" Open-End Wrench |
| 4. Utility Knife | 12. Pin Vise |
| 5. Mixing Chamber Knockout Tool | 13. Cleanout Spade (Supplied with Chamber) |
| 6. Mixing Chamber Insertion Block | 14. Set of Cleanout Drills |
| 7. Pliers | 15. Brass Brush |
| 8. 6" Adjustable Wrench | |

Gun Service Kits

Routine cleaning of the Model D-7 Spray Gun is essential to its proper operation and long service life. A gun service kit offers a fast and convenient method for daily flushing of the gun without disassembly. A **1-Quart Gun Service Kit (P/N OP205)** and a **3-Gallon Gun Service Kit (P/N OP206)** are available for this purpose.

NOTE:
For more information about the 1-Quart Gun Service Kit, consult the Parts Identification Manual (P/N OP205-ID).

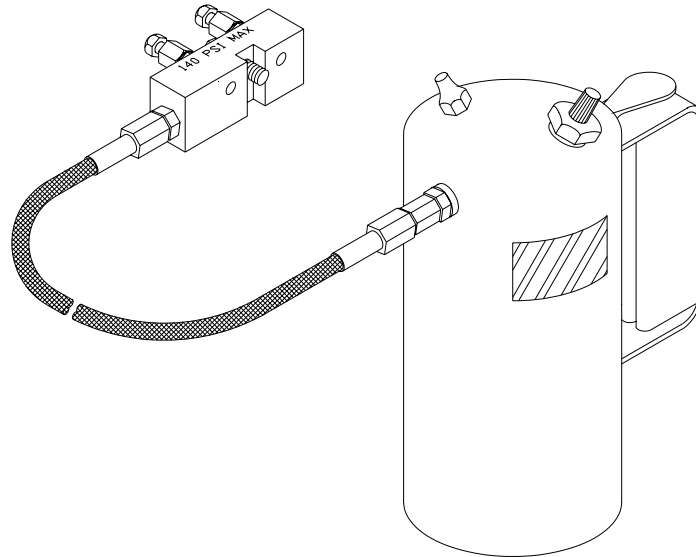


Figure 4. 1-Quart Gun Service Kit (P/N OP205).

NOTE:
For more information about the optional 3-Gallon Gun Service Kit, consult the Parts Identification Manual (P/N OP206-ID).

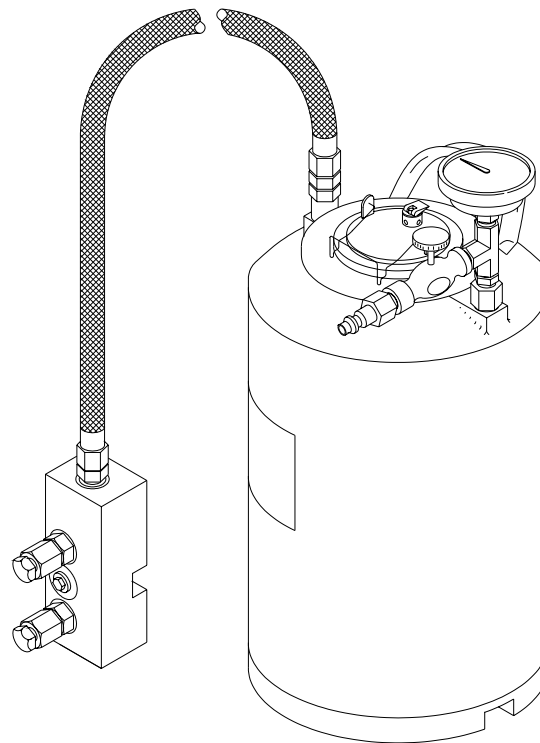
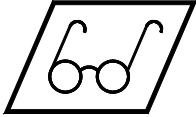


Figure 5. 3-Gallon Gun Service Kit (P/N OP206)



OPERATION



WARNING: WHEN OPERATING THE MODEL D-7 SPRAY GUN, ADEQUATE PROTECTIVE CLOTHING MUST BE WORN TO PREVENT PROLONGED SKIN CONTACT WITH THE CHEMICALS AND SOLVENTS USED IN OR WITH THE GUN. ALWAYS WEAR APPROVED SAFETY GLASSES OR GOGGLES, GLOVES, AND RESPIRATORY EQUIPMENT WHEN SERVICING OR OPERATING THE MODEL D-7 SPRAY GUN.



WARNING: BODILY INJURY AND/OR PROPERTY DAMAGE MAY RESULT FROM ACCIDENTAL OPERATION OF THE GUN. DO NOT POINT THE GUN AT OR NEAR OTHER PERSONNEL OR PLACE ANY PART OF THE BODY IN THE PATH OF THE MATERIAL SPRAY. DO NOT AT ANY TIME LOOK INTO THE DISPENSING END OF THE GUN. ALWAYS CLOSE BOTH MANUAL VALVES WHEN THE GUN IS NOT IN USE.

Manual Valves

TOOLS REQUIRED

- 5/16" Spintite (P/N 0904A)

The Coupling Block of the D-7 Spray Gun has two Manual Valves that control the flow of each chemical to the gun.

1. OPEN BOTH MANUAL VALVES- Using the 5/16" Spintite, turn each valve fully counterclockwise.
2. CLOSE BOTH MANUAL VALVES- Using the 5/16" Spintite, turn each valve fully clockwise.

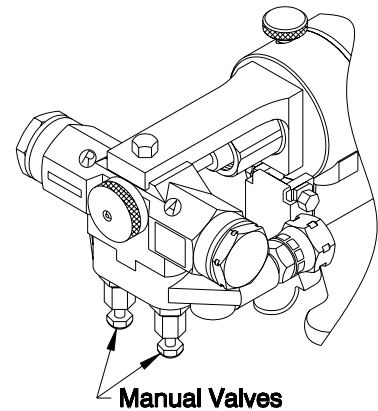


Figure 6. Manual Valves

NOTE:
Unnecessary triggering of the gun with the manual valves closed may cause crossover if there is any residual chemical in the gun ports.

Initial Valving Rod Setting

1. CLOSE BOTH MANUAL VALVES- Using the 5/16" Spintite, turn each valve fully clockwise.
2. VALVING ROD ADJUSTMENT (for Open position)- Turn the Valving Rod Adjustment Sleeve clockwise until it stops.

NOTE:
This is the initial setting for the open position and will be further adjusted to match the particular size of mixing chamber in use.

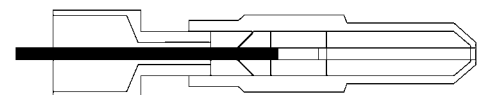
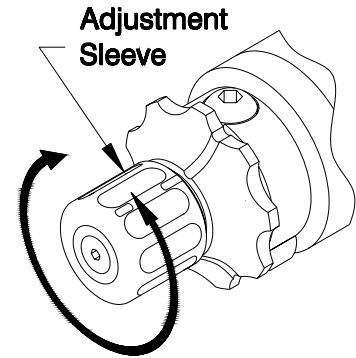


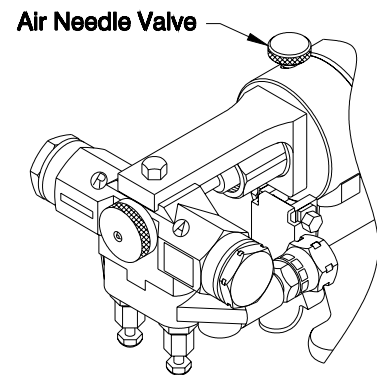
Figure 7. Valving Rod (Open Position)

- Next, connect the air supply and push the trigger. Turn the Valving Rod Adjustment Sleeve two (2) complete turns counter clockwise.
- ADJUST AIR SUPPLY TO AIR CAP
- open the Air Needle Valve 1/8 turn.

**Figure 8. Adjustment Sleeve**

NOTE:
Too much air may distort the spray pattern and too little air will not properly clean the end of the valving rod.

- ADJUST FELT WIPER RETAINER- Using the 5/16" Open-End Wrench, loosen the retainer slightly. Then slowly tighten it by hand until it seats against the rear packing in the mixing chamber. Using the 5/16" Open-End Wrench, tighten the retainer another 1/2 turn.

**Figure 9. Air Needle Valve**

Daily Start Up Procedure

TOOLS REQUIRED

- 5/16" Spintite

IMPORTANT: Before attempting the following procedures, make sure the Coupling Block is properly attached to the gun, the proportioning unit is at the desired temperature and pressure, and the system is ready for operation.

- CONNECT THE AIR SUPPLY- Connect the Air Hose on the gun to the Quick Disconnect Fitting on the Air Supply Hose.
- ADJUST THE AIR NEEDLE VALVE- The knurled knob on the top of the Air Cylinder controls the amount of air that passes over the Mixing Chamber tip. This flow of air helps keep the tip free of sprayed chemical. Too much air can adversely effect spray pattern shape and create undesirable amounts of over-spray. However, the airflow can be used to modify the spray pattern. Experiment to determine what works best for the application.
Turn the knob counter clockwise to open the valve and clockwise to close it.
- OPEN BOTH MANUAL VALVES- Using the 5/16" Spintite, turn each valve at least three full turns counterclockwise.
- TEST SPRAY OFF TARGET- Trigger the gun and adjust the spray pattern if necessary before beginning application (see Spray Pattern Adjustment).

Daily Shutdown Procedure

TOOLS REQUIRED

- 5/16" Spintite

IMPORTANT: Follow this procedure whenever the gun is out of service for any length of time.

1. CLOSE BOTH MANUAL VALVES- Using the 5/16" Spintite, turn each valve fully clockwise.
2. DISCONNECT THE AIR SUPPLY- Disconnect the Air Hose from the Quick Disconnect Fitting on the Air Supply Hose.
3. CLEAN AS REQUIRED- See *Cleaning Procedure* on page 16. See also *Servicing Procedures* on page 18.

NOTE:
Daily disassembly of the gun for cleaning is not recommended if it has been operating properly. However, experience will determine whether disassembly is necessary.

IMPORTANT: As a safety precaution, the Model D-7 Spray Gun air hose has a quick disconnect coupling. Disconnect the air hose when transporting the gun with the chemical hoses connected.

Spray Pattern Adjustment



NOTE:
This step is critical to preventing leakage across the mixing chamber by one pressurized chemical to react with the other when its manual valve is opened.

WARNING: MAKE SURE THE OVERPRESSURE PROTECTION ON THE PROPORTIONING UNIT IS PROPERLY SET. TO AVOID SERIOUS INJURY OR DAMAGE TO THE EQUIPMENT, THE MODEL D-7 GUN MUST NEVER BE OPERATED OR SUBJECTED TO PRESSURES IN EXCESS OF 1500 PSI.

1. BALANCE CHEMICAL PRESSURES-using the 5/16" spintite, briefly open the Isocyanate manual valve 1/2 turn, then close it.

Open the Resin (Polyol) manual valve three (3) full turns.

Open the Isocyanate manual valve three (3) full turns.

There is now balanced pressure on both sides of the valving rod and the gun is ready for operation.



WARNING: CHEMICALS LEAVING THE GUN ARE UNDER HIGH PRESSURE. NEVER POINT THE GUN AT OR NEAR ANOTHER PERSON. NEVER PLACE ANY PART OF THE BODY IN THE PATH OF THE SPRAY.

2. LOCATE THE POINT OF VALVING- Aim the gun at a disposable target. Dispense short (one-second) bursts at the target while turning the Valving Rod Adjustment Sleeve clockwise by ¼-turn increments. When the chemical stream mists as shown, the point of valving has been reached (see Figure 10). Note the position of the notch on the Adjustment Sleeve. Now back the Sleeve out counterclockwise the number of turns specified in Table 1 on page 24. Notice the spray pattern opens up as the adjustment is made (see Figure 11).

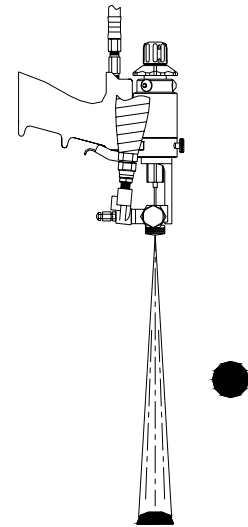


Figure 10. Point of Valving



WARNING: DO NOT BACK THE ADJUSTMENT SCREW OUT MORE THAN THE MAXIMUM NUMBER OF TURNS SPECIFIED IN TABLE 1 OF THE APPENDIX, OR DAMAGE TO THE INTERNAL PARTS OF THE CHAMBER MAY RESULT.

WARNING: A “BUN” OF URETHANE FOAM CAN BE DANGEROUS. VERY HIGH TEMPERATURES ARE CREATED BY THE REACTION OF THE TWO CHEMICALS. INTERNAL HEAT OF A BUN MAY NOT DISSIPATE AFTER THE OUTSIDE SURFACE HAS COOLED. IF A BUN IS LARGE ENOUGH, THE INTERIOR TEMPERATURE WILL CONTINUE TO RISE SEVERAL HOURS AFTER SPRAYING UNTIL THE FLASH (BURNING) POINT OF THE FOAM IS REACHED. ALWAYS BREAK APART BUNS INTO SMALLER PIECES SO THAT HEAT INSIDE CAN ESCAPE.

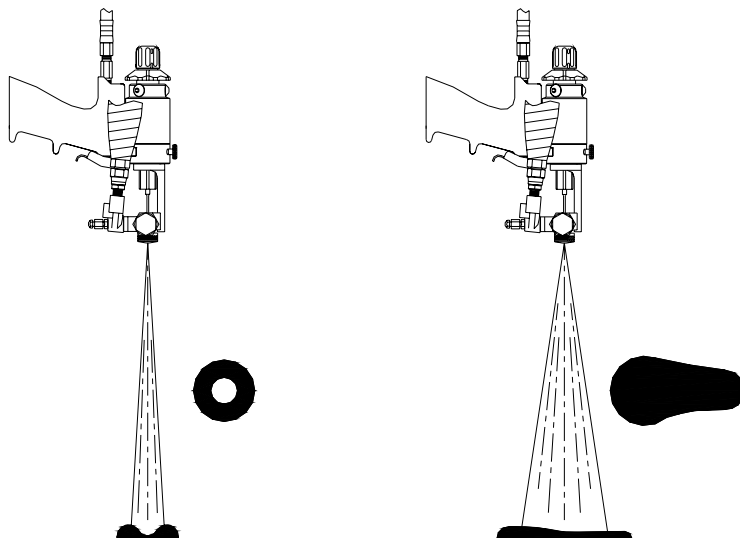


Figure 11. Opening the Spray Pattern

The objective is to obtain a setting that will result in the type of pattern shown in Figure 12.

Moving the Adjustment Sleeve out beyond this point may cause the pattern to split, as shown in Figure 13.

As the full-round spray pattern is reached, make fine adjustments (1/8 turns or less in either direction as required) to give the best possible distribution.

If the full-round pattern cannot be achieved, it is possible that the material temperature or spray pressure is not correct. If the pattern remains closed upon reaching the maximum specified number of turns out from the point of valving, it is likely that the material temperature is too low. If the pattern splits or has a hollow center, even with the Adjustment Sleeve at the minimum number of turns from the point of valving, it is likely that the material temperature is too high.

After reaching a satisfactory spray pattern, note the temperatures at the proportioner and hose, and the position of the notch on the Adjustment Sleeve. As spraying proceeds, the pattern may occasionally start to streak or change from what was established. If this happens, inspect the chamber tip and remove any build-up of solid foam with a wooden stick or brass wire brush. If the buildup reoccurs shortly after cleaning the tip, remove the air cap and make sure it is clean on the inside.

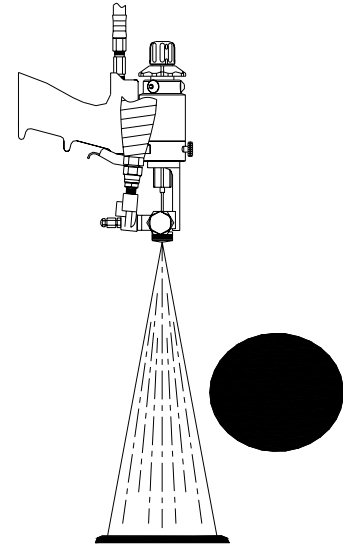


Figure 12. Desired Pattern

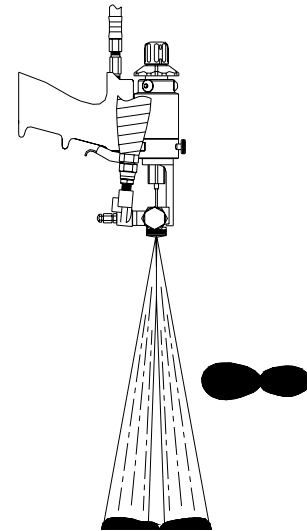


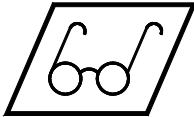
Figure 13. Split Pattern

If there was no buildup on the air cap, check for the following items in this order:

- a) Check the Valving Rod Adjustment Sleeve setting and readjust if necessary.
- b) Check the hose temperature setting and readjust if necessary.
- c) Check the primary heater temperature setting and readjust if necessary.
- d) Make sure the spray pressures between the chemicals are balanced. If they are not, refer to the troubleshooting procedures in the proportioning unit operating manual for the proportioner in use.
- e) Make sure the flow of air to the air cap is adequate but not excessive.



CLEANING PROCEDURE



WARNING: WHEN SERVICING OR OPERATING THE MODEL D-7 SPRAY GUN, ADEQUATE PROTECTIVE CLOTHING MUST BE WORN TO PREVENT PROLONGED SKIN CONTACT WITH THE CHEMICALS AND SOLVENTS USED IN OR WITH THE GUN. ALWAYS WEAR APPROVED SAFETY GLASSES OR GOGGLES, GLOVES, AND RESPIRATORY EQUIPMENT WHEN SERVICING OR OPERATING THE MODEL D-7 SPRAY GUN.



WARNING: PROPERLY GROUND ALL EQUIPMENT USED IN THE CLEANING OPERATION TO AVOID STATIC SPARKING, WHICH COULD RESULT IN FIRE OR EXPLOSION. DO NOT CLEAN ON OR NEAR FOAMED OR COATED SURFACES.

TOOLS REQUIRED

- 5/16" Spintite
- Gun Service Kit, 1-Quart (P/N OP205) or 3-Gallon (P/N OP206)
- Flush Can

IMPORTANT: This procedure is intended for use with a gun service kit. For complete disassembly and cleaning see **Centerline Component Removal** on page 18.

1. CLOSE BOTH MANUAL VALVES- Using the 5/16" Spintite, turn each valve fully clockwise.
2. REMOVE THE GUN FROM THE COUPLING BLOCK- Using the 5/16" Spintite; remove the Coupling Block Mounting Screw. Use a rag soaked with gun cleaner to wipe away any chemical residue from the face of the Coupling Block.
3. ATTACH THE SERVICE BLOCK OF THE GUN SERVICE KIT TO THE GUN- Tighten using the 5/16" Spintite. Pressurize the container to 100 psi.
4. CLEAN THE GUN:
 - a) Open either one of the Manual Valves on the Service Block.
 - b) Aim the gun into a suitable waste container and trigger the Gun Service Kit and the Gun simultaneously. (A fine, unobstructed mist of cleaner should exit the tip.)
 - c) Release both triggers and close the Manual Valves on the Service Block.
 - d) Repeat the Procedure for the other side of the Gun.
 - e) After initial cleaning, remove the Air Cap and flush a second time. (This is done to get a more thorough cleaning.)
 - f) Close the Manual Valves on the Service Block.
5. REMOVE THE SERVICE BLOCK OF THE GUN SERVICE KIT FROM THE GUN- Using the 5/16" Spintite; disconnect the Service Block from the gun.

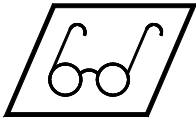
NOTE:
Opening one manual valve at a time allows flushing of individual chemicals. This is a more effective cleaning method, especially when using high-viscosity materials.

6. CLEAN SCREENS AND SCREEN SCREW- Using the Flush Can, flush out the Screens and the Screen Screw Cavities completely. See *Screen Screw Removal and Service Procedure* on page 18 of this manual.

IMPORTANT: *Inspect the Air Cap, Mixing Chamber and Gun Block for build up of material and clean as required.*



SERVICING PROCEDURES



WARNING: WHEN SERVICING OR OPERATING THE MODEL D-7 SPRAY GUN, ADEQUATE PROTECTIVE CLOTHING MUST BE WORN TO PREVENT PROLONGED SKIN CONTACT WITH THE CHEMICALS AND SOLVENTS USED IN OR WITH THE GUN. ALWAYS WEAR APPROVED SAFETY GLASSES OR GOGGLES, GLOVES, AND RESPIRATORY EQUIPMENT WHEN SERVICING OR OPERATING THE MODEL D-7 SPRAY GUN.

Screen Screw Removal and Service Procedure

TOOLS REQUIRED

- 7/8" Open-End Wrench
- Pin Vise W/Collets
- Flush Can



WARNING: BE SURE TO CLEAN THE "CENTER LINE COMPONENTS" USING THE GUN SERVICE KIT PRIOR TO REMOVAL FOR SERVICING AS THEY ARE EXPOSED TO THE CHEMICAL. SEE THE CLEANING PROCEDURE SECTION OF THIS MANUAL.

1. REMOVE THE SCREEN SCREW- holding the opposite side of the gun block to minimize stress to the coupling block screw, use a 7/8" Wrench to remove the Screen Screw Assembly. Disassemble the Screen and Check Valve from the Screen Screw and clean all parts in Gun Cleaner. Replace the Screen if more than 25 percent is clogged after cleaning.
2. REINSTALL THE PARTS- install the Screen Screw in a vertical position so that the Check Valve remains in its proper place during assembly. Snug the Screen Screw with a 7/8" Wrench.

Centerline Component Removal

TOOLS REQUIRED

- 5/16" Spintite
- 7/8" Open-End Wrench
- 5/16" x 3/8" Open-End Wrench
- Mixing Chamber Knockout Tool
- 4 oz. Ballpein Hammer
- Flush Can



WARNING: BE SURE TO CLEAN THE "CENTER LINE COMPONENTS" WITH THE GUN SERVICE KIT PRIOR TO REMOVAL FOR SERVICING AS THEY ARE EXPOSED TO THE CHEMICAL.

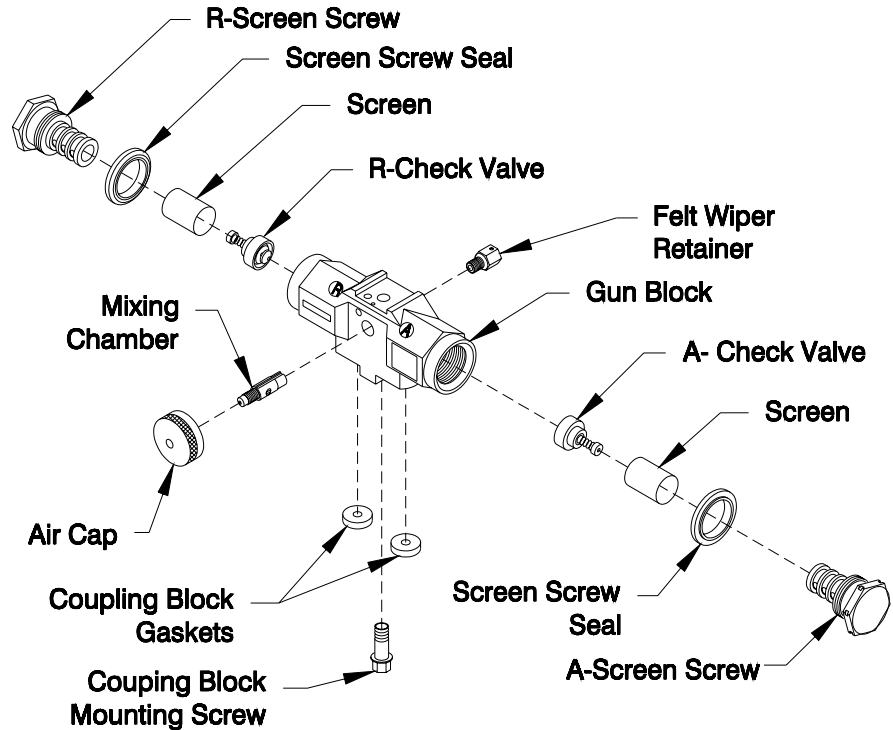


Figure 14. Centerline Components



WARNING: THE MATCHING TAPERS ON THE MIXING CHAMBER AND CENTER HOLE IN THE GUN BLOCK ARE MACHINED TO AN EXACT FIT TO HOLD THE CHAMBER IN PLACE AND CREATE A LEAK-PROOF SEAL. WHEN HANDLING OR CLEANING THESE PARTS, BE EXTREMELY CAREFUL NOT TO MAR OR DAMAGE THE FINISH. DO NOT USE METAL TOOLS TO CLEAN THESE PARTS.

1. CLOSE BOTH MANUAL VALVES- Tighten with the 5/16" spintite.
2. REMOVE GUN FROM COUPLING BLOCK- Loosen with the 5/16" spintite. Flush both material ports with gun cleaner.
3. REMOVE SCREEN SCREW ASSEMBLIES- (See **Screen Screw Removal and Service Procedure** on page 18) Flush and place in gun cleaner.
4. REMOVE CHECK VALVES-Flush and place them in gun cleaner.
5. FLUSH SCREEN SCREW AND CHECK VALVE PORTS.
6. REMOVE AIR CAP-Place in gun cleaner.
7. REMOVE THE SPRING RETAINER CASE- Firmly grasping the spring retainer case, push in and rotate counter clockwise to remove from the air cylinder. Pull the spring out of the air cylinder.
8. LOOSEN THE FELT WIPER RETAINER- Using the 5/16" x 3/8" Open-End Wrench, loosen the Retainer 2-3 turns (*DO NOT REMOVE YET*).

9. REMOVE THE VALVING ROD- Push backward firmly on the piston rod until the end of the Stop Bar emerges from the cylinder. Grasp the Stop Bar and pull out the Valving Rod Assembly.
10. REMOVE THE GUN BLOCK FROM THE MOUNT- Loosen the mounting screw with the 5/16" spintite (See Figure 15).
11. REMOVE THE FELT WIPER RETAINER- Place the Retainer in gun cleaner.
12. REMOVE THE MIXING CHAMBER- Holding the gun block in one hand, insert the mixing chamber knockout tool into the rear of the gun block and tap it with the 4 oz. ballpeen hammer. The chamber will eject into the palm of your hand. Place the chamber into a container of gun cleaner. Flush the entire gun block with gun cleaner (See Figure 16).

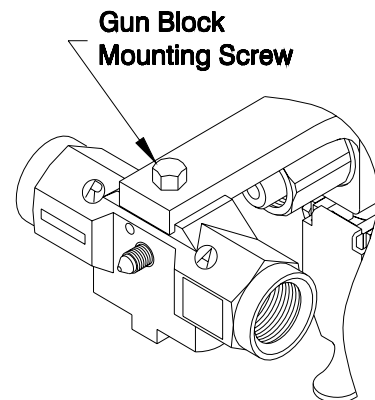


Figure 15. Gun Block Mounting Screw

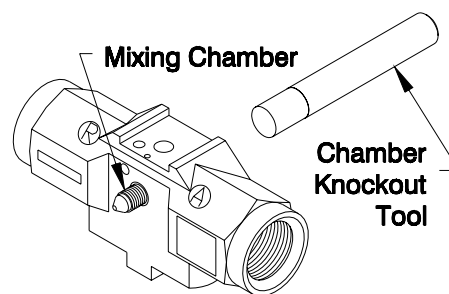


Figure 16. Mixing Chamber Removal

NOTE:
Wooden cleaning sticks cut to the desired shape are useful for cleaning some parts of the gun. Toothpicks, pipe cleaners, and cotton swabs are also handy.

13. CLEAN THE CHAMBER AND REPLACE THE FELT WIPER- Flush the removed chamber with gun cleaner and insert a new felt in the felt wiper retainer. Loosely thread the felt wiper retainer into the rear of the chamber (*DO NOT TIGHTEN DOWN*).

IMPORTANT: *The gun block should not be left open to the atmosphere for extended periods. If cleaning and reassembly cannot be done immediately, immerse the gun block in gun cleaner.*

Centerline Component Installation

TOOLS REQUIRED

- 5/16" Spintite
- 7/8" Open-End Wrench
- 5/16" x 3/8" Open-End Wrench
- Mixing Chamber Insertion Block
- 4 oz. Ballpeen Hammer
- Flush Can

1. INSPECT GUN BLOCK AND GUN BLOCK PARTS BEFORE ASSEMBLY- All parts must be completely clean and free of damage.
2. INSTALL MIXING CHAMBER- Remove the felt wiper retainer from the rear of the mixing chamber and proceed as follows:

NOTE:

When the felt wiper is removed, use care to keep the rear of the chamber in an upright position to prevent possible loss of internal chamber parts. Make sure the brass retaining sleeve has not stuck to the felt wiper.

- a) Insert the chamber into the gun block, using care to align the keyway in the chamber with the pin protruding from the top of the hole in the block (See Figure 17).
- b) Using the Mixing Chamber Insertion Block, press the chamber into the block until the flange is 1/32" to 1/16" above the gun block face (See Figure 18).

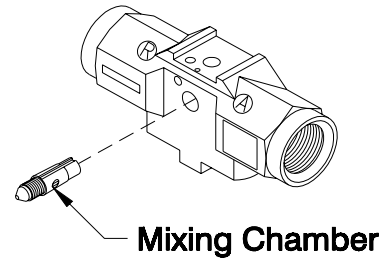


Figure 17. Mixing Chamber

- 3. REINSTALL FELT WIPER RETAINER INTO MIXING CHAMBER- Loosely thread the felt wiper retainer into the rear of the chamber (*DO NOT TIGHTEN DOWN*)

IMPORTANT: *Failure to install the felt wiper retainer in the rear of the chamber could allow internal chamber parts to fall out when the chamber is tapped into place.*

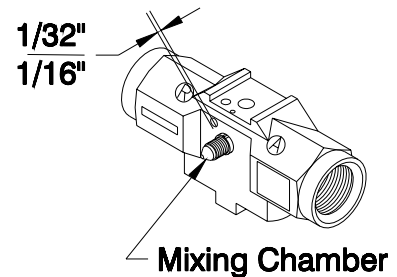


Figure 18. Mixing Chamber Location

- 4. TAP CHAMBER INTO PLACE- With the gun block held in the palm of your hand, place the mixing chamber insertion block over the nose of the chamber so that it rests squarely on the chamber flange. Firmly tap the insertion block with the 4 oz. ballpeen hammer until the flange of the chamber is flush with the face of the gun block (See Figure 19).

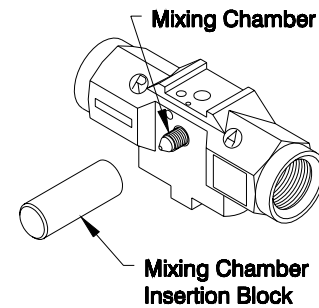


Figure 19. Mixing Chamber Installation

- 5. INSTALL GUN BLOCK ON MOUNT- Tighten the mounting screw using the 5/16" spintite.

NOTE:

If a new felt wiper is being used, push the valving rod through the felt with the retainer case off the chamber. Remove any felt buildup on the tip.

- 6. INSTALL VALVING ROD ASSEMBLY- Put the valving rod assembly through the piston in the air cylinder and guide it through the center of the felt wiper retainer mounted on the back of the chamber. Using firm pressure, carefully push the valving rod into the mixing chamber until the piston of the air cylinder bottoms out.
- 7. CHECK VALVING ROD ADJUSTMENT- The rod should extend approximately 1/32 inch (1mm) beyond the tip of the mixing chamber. If it does not, the Valving Rod Positioner must be adjusted as follows:
 - a) Remove the valving rod from the gun.
 - b) Using two adjustable wrenches, loosen the stop bar and turn the positioner to adjust the length of the valving rod as required.
 - c) Retighten the stop bar against the positioner.
- 8. REPLACE VALVING ROD SPRING AND SPRING RETAINER CASE- Grasping the top of the block firmly, push in all the...

the knurled knob firmly, push in all the way and turn clockwise to lock in place.

9. ADJUST FELT WIPER RETAINER- Slowly tighten it by hand until it seats against the rear packing in the mixing chamber. Using the 5/16" Open-End Wrench, tighten the retainer another 1/2 turn.
10. SOAK FELT WIPER WITH GUN CLEANER
11. REPLACE AIR CAP.
12. REPLACE CHECK VALVES AND SCREEN SCREW ASSEMBLIES.
13. ADJUST VALVING ROD ADJUSTMENT SLEEVE- Turn the Adjustment Sleeve fully in (clockwise) to establish a point of reference and then adjust out (counterclockwise) approximately two (2) turns.
14. CONNECT AIR SUPPLY- Connect the Air Hose of the gun to the Quick Disconnect Fitting on the Air Supply Hose.
15. MOUNT GUN ONTO COUPLING BLOCK.
16. CHECK ACTION OF VALVING ROD- With the manual valves closed, press the trigger several times and make sure the valving rod moves freely.
17. ADJUST AIR SUPPLY TO AIR CAP- Turn the air needle valve counterclockwise until air flows from the air cap.
18. OPEN BOTH MANUAL VALVES AND CHECK GUN BLOCK FOR LEAKAGE-
19. BALANCE CHEMICAL PRESSURES- See *Spray Pattern Adjustment*, Step 1 on Page 13.

NOTE:
Too much air may distort the spray pattern and too little air will not properly clean the end of the valving rod.

If all steps have been followed and no problems have been encountered, the gun is now ready for test spray. Follow the Daily Start Up and Spray Pattern Adjustment Procedures on pages 12-13 of this manual.

Valving Rod Adjustment

TOOLS REQUIRED

- 5/16" Spintite
- (2) 6" Adjustable Wrench



WARNING: CLOSE THE MANUAL VALVES AND DISCONNECT THE AIR HOSE BEFORE SERVICING THE GUN. IN ADDITION, BE SURE TO FLUSH THE GUN BLOCK WITH THE GUN SERVICE KIT PRIOR TO REMOVAL OF INTERNAL PARTS FOR SERVICING.

In the closed position, the Valving Rod should extend approximately 1/32 inch (1mm) beyond the tip of the mixing chamber. If it does not, the Valving Rod Positioner must be adjusted as follows:

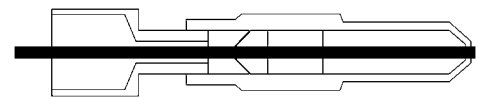


Figure 20. Valving Rod (Closed Position)

1. CLOSE BOTH MANUAL VALVES- Using the 5/16" Spintite, turn each valve fully clockwise.
2. REMOVE THE GUN FROM THE COUPLING BLOCK- Using the 5/16" Spintite; remove the Coupling Block Mounting Screw. Separate the gun from the Coupling Block. Using a rag soaked with Gun Cleaner, clean any material build-up from the face of the Coupling Block.

3. REMOVE SPRING RETAINER CASE- Firmly grasping the spring retainer case, push in and rotate counter clockwise. Pull the spring out of the air cylinder.

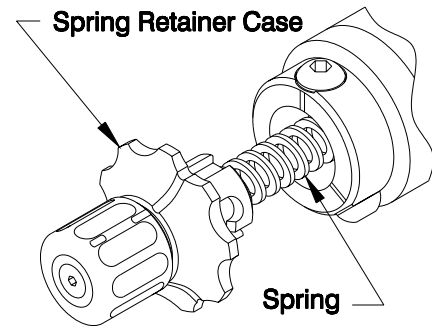


Figure 21. Valving Rod Removal

4. LOOSEN THE FELT WIPER RETAINER- Using the 5/16" x 3/8" Open-End Wrench, loosen the Retainer 2-3 turns (*DO NOT REMOVE*).

5. REMOVE THE VALVING ROD- Push backward firmly on the piston rod until the end of the Stop Bar emerges from the cylinder.

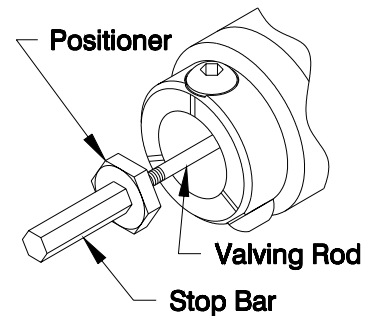


Figure 22. Valving Rod Removal

6. LOOSEN VALVING ROD POSITIONER-Using two adjustable wrenches, loosen the stop bar and turn the positioner to adjust the length of the valving rod as required. Retighten the stop bar against the positioner.

7. REPLACE VALVING ROD, SPRING AND SPRING RETAINER CASE-Grasping firmly, push in all the way and turn clockwise to lock in place.

6. ADJUST FELT WIPER RETAINER- Loosen the retainer slightly, then slowly tighten it by hand until it seats against the rear packing in the mixing chamber. Using the 5/16" Open-End Wrench, tighten the retainer another 1/2 turn.

6. SOAK FELT WIPER WITH GUN CLEANER.

7. CONNECT AIR SUPPLY- Connect the Air Hose of the gun to the Quick Disconnect Fitting on the Air Supply Hose.

8. CHECK ACTION OF VALVING ROD-With the manual valves closed, press the trigger several times and make sure the valving rod moves freely.

9. ADJUST VALVING ROD ADJUSTMENT SLEEVE- Turn the Adjustment Sleeve fully in (clockwise) to establish a point of reference and then adjust out (counterclockwise) approximately two (2) turns.

If all steps have been followed and no problems have been encountered, the gun is now ready for test spray. Follow the Daily Start Up and Spray Pattern Adjustment Procedures on pages 12-13 of this manual.



APPENDIX

Specifications

<u>Technical Data</u>	<u>US</u>	<u>Metric</u>
Maximum Output:	13 lbs./min.	5 kg./min.
Minimum Output:	32 lbs./min	1.3 kg./min.
Maximum Operating Pressure:	1500 psi	103 bars
Air Supply:	90 to 110 psi	6 to 8 bar
Weight:	3.5 lbs.	1.4 kg.
Dimensions:	H=7.5"/W=9"/D=4.0"	H=19 cm/W=23 cm/D=10 cm

Mixing Chamber Description Chart

Four standard mixing chambers are available for use with the GUSMER *Model D-7 Spray Gun*. Below is a general description of the use and operational performance of each chamber in the application of Polyurethane Foam. Non-foam coatings will have similar outputs, but may be limited to smaller chamber sizes. Actual pattern sizes and outputs achieved may vary depending on material viscosity, hose length, condition of equipment, environment, working pressure, etc.

- 46-810** Pattern diameter is about 4 in. (10.2 cm) with gun 4 in. from target. The 46-810 has an output of approximately 3 to 4-1/2 pounds/min. (1.4 to 2.0 kg/min.).
- 55-776** Pattern diameter is about 8 in. (20.3 cm), with gun 18 to 20 in. (45.7 to 50.8 cm) from target. Output is approximately 6 to 8 pounds/min. (2.7 to 3.6 kg/min.).
- 62** Pattern diameter is about 9 in. (22.9 cm) with gun 18 to 20 in. (45.7 to 50.8 cm) from target. Output range is about 7 to 10 pounds/min. (3.2 to 4.5 kg/min.).
- 70** Pattern diameter is about 10 in. (25.4 cm) with gun 18 to 20 in. (45.7 to 50.8 cm) from the target. Output is approximately 9 to 12 pounds/min. (4.1 to 5.4 kg/min.).

TABLE 1. VALVING ROD ADJUSTMENT FOR STANDARD MIXING CHAMBERS

<u>Chamber</u>	<u>Minimum</u>	<u>Maximum</u>	<u>Recommended Distance of Gun From Surface</u>	<u>Size of Pattern</u>
46-810	1/2 turn	2 1/8 turns	12 in. (304-8 mm)	6 in. (152.4 mm)
55-776	1 3/4 turns	2 3/4 turns	18 to 20 in. (457.2 to 508 mm)	8 in. (203.2 to 228.6 mm)
62	2 turns	3 1/8 turns	18 to 20 in. (457.2 to 508 mm)	8 to 9 in. (203.2 to 228.6 mm)
70	2 turns	3 1/8 turns	18 to 20 in. (457.2 to 508 mm)	10 to 12 in. (254 to 304.8 mm)

Field Number	Field Title	Description
1	Date	Enter date report is submitted.
2	Name	Enter name of person making report.
3	IM Number	Enter the Part Number of the Instruction Manual from the title page.
4	Issue Number	Enter the Issue number of the Instruction Manual from the title page. If there is no issue number, enter NONE .
5	Date of Issue	Enter the date of Issue of the Instruction Manual from the title page. If there is no issue date, enter NONE .
6	Page Number	Enter the page number containing the discrepancy.
7	Discrepancy	Provide a brief description of discrepancy.

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