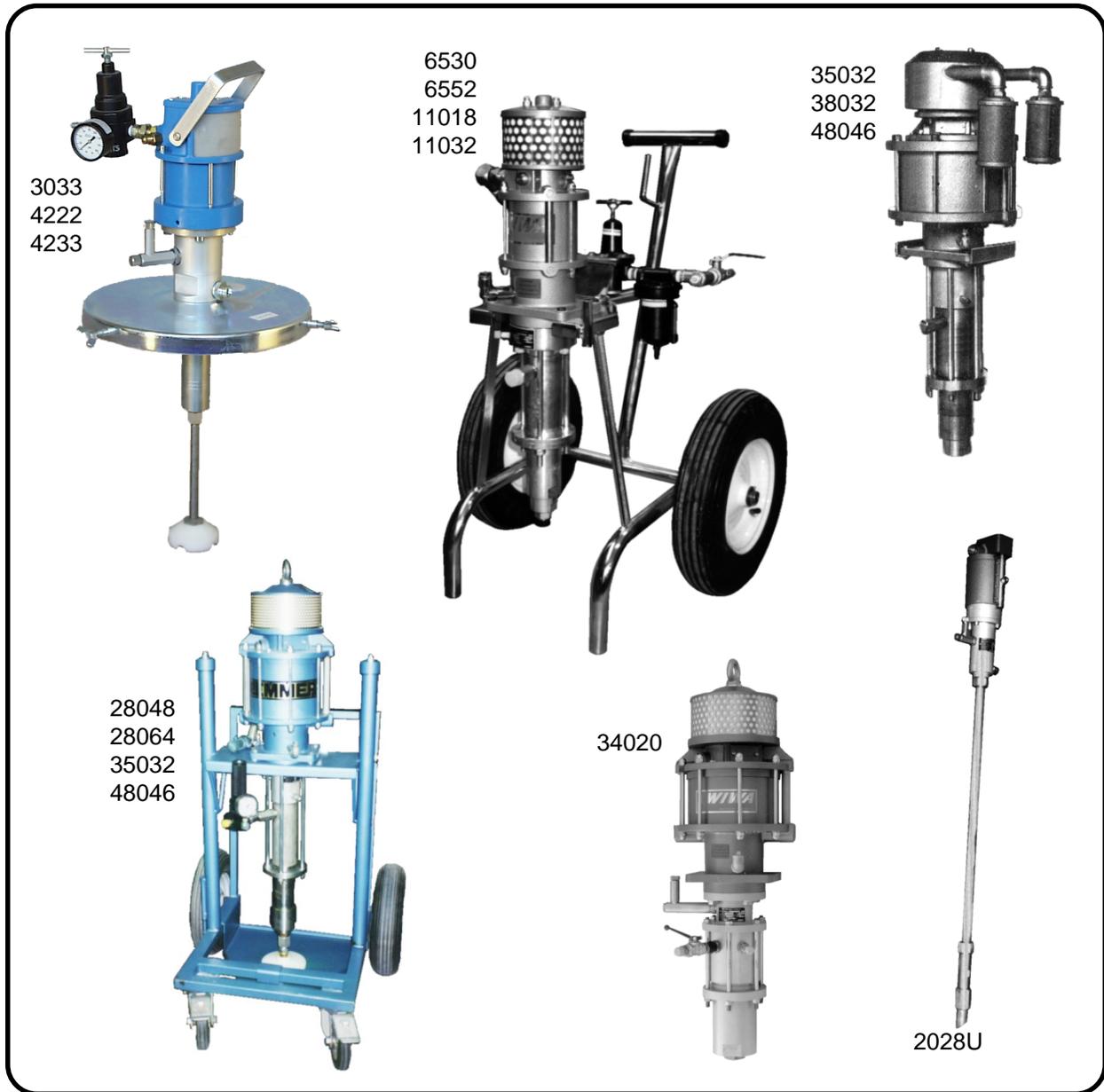


PNEUMATIC AIRLESS PUMP OWNER'S MANUAL



WARNING..Read all instructions carefully before assembling components and operating system. Incorrect procedure could result in damage to the unit, severe personal injury and/or property damage. When spraying flammable materials, electric devices must be placed at least 20 feet from target in a well-ventilated area. Vapours can be ignited by static discharge or electrical sparks and result in severe personal injury. LEMMER airless sprayers generate high fluid pressure. Improper use could result in an injection injury.

LEMMER

CALGARY

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TORONTO

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MONTRÉAL

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SAFETY PRECAUTIONS

WARNING

- 1) Injection hazard:** Airless Painting Equipment can cause serious injury if the spray penetrates the skin. Do not point the gun at anyone or any part of the body. The tip guard provides some protection against accidental injection injuries, but is mostly a warning device. Never put your hand, fingers or body over the spray tip. Gloves and clothing do not necessarily offer any protection either. Keep the gun trigger safety lever in locked position when not spraying. Always have the tip guard in place while spraying.
In case of penetration seek medical aid immediately!
Note to physician: Injection into skin is a serious traumatic injury. It is important to treat the injury surgically as soon as possible. Do not delay treatment to research toxicity. Toxicity is a concern with some exotic coatings injected into the bloodstream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable. Be prepared to tell the doctor what fluid was injected.
- 2) This system is capable of producing high pressure.** To avoid rupture and injury, do not operate this pump with components rated less than the pump's maximum attainable pressure (including but not limited to spray guns, hose and hose connections).
- 3) Do not spray paints or other inflammable fluids indoors** which have a flash point below 21 degree C, 70 degree F. Keep spray area well ventilated. Before spraying, turn off all pilot lights and open flames.
- 4) Wear a respirator** which is approved for the product being sprayed.
- 5) Do not use halogenated hydrocarbon solvents** in this system; it contains aluminium parts and may explode. Cleaning agents, coatings, paints, and adhesives may contain halogenated hydrocarbon solvents. Don't take chances, consult your material supplier to be sure. (ex: methylene chloride and 1,1,1 - Trichlorethane)
- 6) Caution:** When a flammable liquid is sprayed there may be **danger of fire or explosion** especially in a closed area.
- 7) Caution: Static electricity** can be developed by airless spraying. Ground unit and object to be sprayed. Static explosion can occur with ungrounded unit.
- 8) Flush system with spray tip removed.** Always use lowest pressure possible.
- 9) Always follow safety precautions** and warnings printed on paint container.
- 10) Only use spray guns and hoses supplied by Lemmer.** User assumes all risk and liability when using spray guns or hoses not complying with minimum specification and safety devices of Lemmer Spray Systems Ltd.
- 11) Inspect hoses** before each use. Never use a damaged hose. High pressure in hoses with wear, leaks or splits may cause the hose to rupture and cause serious personal injury. Never try to stop or deflect leaks with any part of your body.
- 12) Use extreme caution when cleaning spray tip guard.** **DO NOT** try to wipe off build up around the spray tip before following shut down procedure. Follow the Shut down Procedure, then follow the spray tip manufacturer's instructions for removing and cleaning the spray tip.
- 13) Never attempt to change spray tip** or leave the unit unattended without first shutting off pump, releasing fluid pressure, and locking the trigger safety lock.
- 14) Use extreme caution when changing spray tip.** Follow the Shut down Procedure, then follow the spray tip manufacturer's instructions for changing the spray tip.



ATTENTION

- 1) Risque d'injection de peinture:** Le matériel de pulvérisation sans air peut entraîner de graves blessures s'il y a pénétration de la peau par la peinture. Ne jamais pointer le pistolet vers une personne ou vers soi-même. La garde de la buse limite le risque de blessures accidentelles par injection mais constitue principalement un élément de mise-en-garde. Ne jamais mettre la main, les doigts ou toutes parties du corps contre la buse. Le port de gants et de vêtements n'est pas nécessairement une forme de protection non plus. Laisser le cran de sureté du pistolet en position fermée quand il n'est pas utilisé.
Toujours avoir la garde en place pour peindre.
En cas d'accident, demander immédiatement des soins médicaux.
Note au médecin: La pénétration de peinture dans la peau peut causer de graves blessures. Il est important de traiter la blessure à la chirurgie aussitôt possible. Ne pas retarder le traitement pour rechercher la toxicité. La toxicité peut avoir de graves conséquences quand certains enduits exotiques sont injectés directement dans le système sanguin. Une consultation avec un chirurgien spécialisant en reconstruction de mains serait conseillable. Soyez prêts à décrire au médecin quel liquide a été injecté.
- 2) Ce système peut produire une pression très élevée.** Afin d'éviter des ruptures et des blessures, ne pas utiliser ce système avec des éléments dont la pression nominale de service est inférieure à la pression maximale que la pompe peut atteindre (ceci s'applique, toutefois sans être limité, au pistolet, boyau et aux raccords).
- 3) Ne jamais pulvériser à l'intérieur un produit inflammable** qui a un point éclair inférieur à 21 degrés C, 70 degrés F. L'endroit où vous peignez doit toujours être bien aéré. Avant de pulvériser s'assurer qu'il n'y a aucune flamme ou pilot (veilleuse) de fournaise en marche dans l'appartement.
- 4) Servez-vous d'un masque respiratoire** qui est certifié pour le produit que vous pulvériserez.
- 5) Ne pas utiliser de solvants contenant des hydrocarbures halogénés** avec ce matériel. Il contient des particules d'aluminium et peut exploser. Les agents de nettoyage, enduits, peintures et, adhésifs, peuvent contenir des solvants contenant des hydrocarbures halogénés. Soyez prudents; consultez votre fournisseur pour les informations nécessaires. (ex: méthylène chloride and 1,1,1 - Trichloréthane)
- 6) Attention:** La pulvérisation d'un liquide inflammable peut entraîner un **risque d'incendie ou d'explosion, surtout dans les espaces fermés.**
- 7) Attention:** La pression du produit que l'on pulvérise peut produire une **charge électrostatique.** Mettre le matériel et l'objet à pulvériser à la terre. Des décharges d'électricité statique peuvent se produire si le matériel n'est pas mis à la terre.
- 8) Retirer l'embout de pulvérisation avant de rincer le matériel** tout en utilisant une pression aussi basse que possible.
- 9) Toujours prendre les précautions** nécessaires et observer toutes les consignes de sécurité figurant sur le **pot de peinture.**
- 10) N'utiliser que les pulvérisateurs et les tuyaux flexibles fournis par Lemmer.** Les personnes qui utilisent des pulvérisateurs et des tuyaux flexibles non conformes aux standards d'utilisation et de sécurité minimum du fabricant de la pompe le font à leurs propres risques et seront les seuls responsables.
- 11) Examiner soigneusement** le tuyau avant de s'en servir. Il ne faut jamais utiliser un tuyau endommagé ou avec des fentes. Un tuyau à haute pression qui n'est pas en bon état représente un sérieux danger de blessure à la personne en cas de crevaison soudaine. Il ne faut jamais essayer d'arrêter des fuites de liquide avec n'importe quelle partie de votre corps.
- 12) Il est nécessaire d'exercer beaucoup de précaution pendant le nettoyage de la protection de la buse. Ne jamais essayer d'enlever la peinture** qui aurait pu s'accumuler sur la buse avant d'avoir suivi les consignes de sécurité concernant le nettoyage et le remplacement de la buse.
- 13) Ne jamais essayer de changer la buse** ou laisser l'appareil sans surveillance avant d'arrêter le moteur, couper la pression et verrouiller la gâchette du pistolet.
- 14) Le remplacement d'une buse doit être fait avec beaucoup de précaution.** Référez-vous au PROCÉDÉ D'ENTRETIEN.

SAFETY PRECAUTIONS

- 16) **Do not pull on hoses** to move equipment, **DO NOT kink or bend** the hose sharply.
- 17) **Keep children** or anyone not familiar with airless spray systems **away** from equipment and work area.
- 18) **Conductive metal containers must be used when flushing flammable fluids** through the system. Always flush at low pressure with spray tip removed. A metal part of the spray gun must be held firmly against the grounded metal pail when flushing or relieving pressure from the gun.
- 19) Trigger guard helps reduce the risk of accidentally triggering the gun if dropped or bumped. **Do not use a spray gun without a trigger guard.**



- 16) Il ne faut jamais essayer de déplacer l'appareil en tirant sur le tuyau. Il faut aussi éviter tout tortillement du tuyau.
- 17) **Les enfants** et les personnes n'ayant aucune expérience avec ce genre de pulvérisateur doivent être gardés à l'écart de l'appareil et du chantier de travail.
- 18) **Quand on décharge des liquides inflammables il faut utiliser des pots conducteurs en métal.** Quand on relâche la pression avec le pistolet, une partie métallique du pistolet doit être en contact avec le pot en métal muni de mise à la terre.
- 19) La protection de la gâchette réduit le risque d'activation involontaire si on laisse tomber le pistolet ou s'il est frappé par accident. **Ne jamais utiliser le pistolet sans la protection de gâchette.**

20) Shut Down Procedure

Always follow Shut Down Procedure before starting any troubleshooting, servicing or cleaning.

- 1) Engage the trigger safety lock in the locked position. Test the trigger safety lock to ensure the lock is working properly.
- 2) Turn pressure regulator to minimum.
- 3) Disconnect air supply.
- 4) Open the dump valve to relieve pressure. Leave open until ready to spray or test or clean.
- 5) Remove the spray tip.
- 6) Disengage the trigger safety lock.
- 7) Trigger the gun into a metal pail to relieve any remaining pressure. A metal part of the spray gun should be held firmly against the grounded metal pail when relieving the pressure from the gun. (A grounded metal pail is not required for non-flammables such as latex.)
- 8) Reset the trigger safety lock to locked position.

20) Procédé à suivre avant tout travail d'entretien ou de nettoyage.

- 1) Bloquer la gâchette avec le levier de verrouillage.
- 2) Réduire le régulateur de pression au minimum.
- 3) Couper l'arrivée d'air.
- 4) Ouvrir la vanne de mise à l'air libre pour relâcher la pression. Gardez-la ouverte jusqu'au moment où vous êtes prêts à utiliser l'appareil.
- 5) Enlever la buse.
- 6) Débloquer le levier de verrouillage de la gâchette.
- 7) Relâcher le reste de la pression en déchargeant avec le pistolet dans un pot en métal. Quand on relâche la pression, une partie métallique du pistolet doit être en contact avec le pot en métal muni de mise à la terre. (Il n'est pas nécessaire d'utiliser un pot avec mise à la terre pour des produits non inflammables, comme par exemple le latex).
- 8) Ramener le levier de verrouillage en position bloquée.

PRODUCT SPECIFICATIONS

INTRODUCTION:

We appreciate your decision to purchase a Lemmer high quality professional paint spraying system and believe you will find it to be the best sprayer you ever owned.

Your Lemmer airless paint pump is capable of spraying a wide variety of lacquer, some epoxies, industrial finishes, latex, oil-based and alkyd paints, as well as stains, preservatives and other architectural coatings. The material you are spraying will have a direct effect on the amount of pressure required for the optimum pattern and coverage to be obtained. We recommend that before actually beginning your job, you carefully read this manual and practice with the sprayer until you feel comfortable using it.

The Lemmer pneumatic sprayers are powerful and versatile enough to be used in a variety of setups (pail/cart/wall mount), and with a variety of accessories (extra lengths of hose, extensions, pressure feed rollers, etc. as shown on page 16.) to make them even more versatile systems. Ask your supplier about the recommended accessories for your particular job.

PUMP TYPE:

These units are AIR POWERED DOUBLE ACTION PISTON PUMPS. Top quality parts keep maintenance to a minimum. All paint valves are made of tungsten carbide and stainless steel for extra long abrasion resistance. The advantages of this type of pump is:

- Accurate spray pattern with minimal overspray
- Minimal or no thinning of paint products
- Pumps straight out of original paint container
- Variable pressure
- Various nozzles are available for slow to fast spraying
- Quiet running & stops when spraying stops
- Steady spraying pressure - minimal fan fluctuations
- Safe for hazardous locations - no electricity

HOW PNEUMATIC PUMPS OPERATE:

A pneumatic high pressure pump consists of a reciprocating air motor and a fluid pump. Its speed and pressure are controlled by air regulator. The pressure ratio (pump ratio) of the high pressure pump is determined by the square area of the air motor piston versus the square area of the piston in the fluid pump. The pumps maximum possible output pressure is determined by multiplying the ratio by the compressed air pressure fed into the air motor.

Example:

Pump ratio 14:1
 Air pressure reading at air motor control 71 psi
 Max. fluid pressure (14 x 71) 995 psi

The air is connected to the air motor of the pump. First, the pump is primed, then the pressure is set (lets say at 3000 PSI for spraying latex). When the paint pressure reaches 3000 PSI in the hose, the paint pump parts (including air motor) stop moving. This is the stall position. Now, when the gun trigger is pulled and the paint pressure begins to drop, the air motor and paint pump immediately begin to work to maintain spraying pressure. *The results are minimal air consumption, excellent trigger-paint pressure response, minimum fan fluctuations, and minimal all-around wear!*

TECHNICAL SPECIFICATIONS

Pump model	pump ratio	max free flow volume gpm	output per cycle fl.oz.	max recm'd cycles per min.	approx. air consupt'n at 100 psi, at max. recm'd cycles (cfm)	volume at max recm'd cycles gpm	cycles per gallon	air motor		paint pump		max. tip size using suitable viscosity	air inlet (male)	paint inlet (female)	paint outlet (male)	maximum free flow volume liter/min	bare weight lbs (kg)
								piston dia. mm	piston stroke mm	upper piston dia. mm	lower piston dia. mm						
***P" Series standard high pressure**																	
P2900 Barrel P.	30:1 12:1	0.8 1.0	0.52 1.42	90 95	7 7	0.3 0.6	298 154	70 70	50 50	13 18	18 25	.019 .035	3/8" 1/2" F	1/2" M36x2	1/2" BSP 1/2" BSP	2.9 4	15 (7) 25 (11)
***WIWA" Series standard high ratio**																	
3032	32:1	0.8	0.52	85	7	0.3	248	85	42	15	21.5	.019	3/8"	M12X1.0	3/8"	3.0	13 (6)
3514	14:1	0.9	0.71	70	4	0.4	179	70	43	18	25	.021	3/8"	M25X1.0	3/8"	3.5	13 (6)
4032	32:1	1.1	0.92	70	11	0.5	139	85	75	15	21.5	.023	3/8"	M25X1.0	3/8"	4.0	15 (7)
6034	34:1	1.6	1.24	65	15	0.6	103	105	75	18	25	.031	1/2"	M25X1.0	M22X1.5	6.0	42 (19)
10018	18:1	2.6	2.44	55	13	1.0	52	105	75	25	35	.039	1/2"	M25X1.0	M22X1.5	10.0	40 (18)
10032	32:1	2.6	2.44	55	23	1.0	52	140	75	25	35	.039	1/2"	M25X1.0	M22X1.5	10.0	44 (20)
15042	42:1	4.0	3.85	55	47	1.7	33	200	75	31	44	.045	3/4"	M25X1.0	M22X1.5	15.0	84 (38)
18066	66:1	4.8	3.90	55	75	1.7	33	200	120	25	35	.047	3/4"	M35X1.5	M22X1.5	18.0	115(52)
25048	48:1	6.6	5.10	60	81	2.4	25	200	120	29	40	.061	3/4"	M35X1.5	M22X1.5	25.0	126(57)
31073	73:1	8.2	7.96	50	153	3.1	16	300	120	35	50	.069	3/4"	M42X1.0	1" BSP	31.0	214(97)
34020	20:1	9.0	7.65	50	42	3.0	17	200	75	44	62	.071	3/4"	M25X1.0	M22X1.5	34.0	79 (36)
35032	32:1	9.2	7.96	55	75	3.4	16	200	120	35	50	.073	3/4"	M42X1.0	1" BSP	35.0	132(60)
45046	46:1	11.9	12.24	45	137	4.3	10	300	120	44	62	.079	3/4"	M42X1.0	1" BSP	45.0	236(107)
High ratio barrel pumps																	
2800 U	39:1	0.7	0.64	50	7	0.3	199	81.5	75	13	18	.021	3/8"	N/A	3/8"	2.8	
3500 U	34:1	0.9	0.78	50	7	0.3	165	81.5	75	14	20	.023	3/8"	N/A	3/8"	3.5	
4000 U	29:1	1.1	0.91	50	7	0.4	140	81.5	75	15	21.5	.026	3/8"	N/A	3/8"	4.0	

PUMP COMPONENTS

SPRAY GUN:

The spray gun is designed specifically for airless spraying. Since there is no compressed air to atomize the paint, atomization is accomplished by forcing the paint at a very high pressure (3200 p.s.i) through a very small hole (~.017" diameter). Because of this high pressure, the spray tip and gun valve are made of tungsten carbide for maximum wear resistance. The gun body is made of forged alloy and anodized for chemical resistance.

As a safety feature, the spray gun can be locked with the trigger safety lever when you are not spraying. Be sure to read all warnings concerning the high pressures of airless spraying on page 3&4.

AIR MOTOR

These specially designed air motors convert the energy from compressed air into a double action stroke. Both the up down power strokes are used by the fluid pump to create pressure and volume. The air motors are permanently greased and require minimal maintenance. Its air source must be regulated, clean, (and oiled on larger units)

FLUID PUMP:

The fluid pump is supplied as either of an "open" or "closed" design.

The "open" design has clearly visible tie-rods which separate the air motor and the fluid end and the travel of the piston can be observed. In order to take full advantages of the specially formulated lubricant with the "open" design, the upper packing tightening nut has been designed as a "wet-cup" to prevent fluid hardening around the piston.

The "closed" version features an integrated lube chamber with a vent hole. This lube chamber connects between the air motor and the fluid end and the travel of the piston may not be viewed. A specially formulated lubricant filled into the lube chamber allows for wetting of the upper piston on each upstroke preventing drying up or hardening of deposits on the piston. An important aspect of the "closed" versus "open" version is that blast grit or any other grinding and scoring matter causing piston damage is kept away, and the upper packings are spring loaded to lengthen packing life.

The pump piston has approximately 0.3 mm (0.012") layer of hard chrome to protect against wear. Both the upper and lower ball valves have tungsten carbide seats and stainless steel balls. Leather or Teflon "V"-packings are installed as packing sets and arranged Leather or Teflon "only" or alternating, i.e. "mixed". Teflon "V"-packings are graphite filled and the leather packings are Thiokol impregnated.

Teflon packings are recommended when pumping two-component materials, or coatings using strong aggressive solvents. Leather packings are softer by nature and flex, and thus respond better to coarse particles. A mixed packing arrangement is the best solution for all applications.

PRESSURE REGULATOR:

The manually operated pressure regulator is on the side of the air motor. When the handle is turned clockwise, air pressure is increased, when the handle is turned counter-

clockwise, air pressure is reduced.

Always reduce the pressure (turn the handle all the way counterclockwise, or disconnect air supply) when cleaning or when switching the position of the dump valve (if so equipped).

DUMP VALVE (IF EQUIPPED):

The dump valve is located on the side of the paint pump. When turned to "prime" (handle in-line with body), it circulates fluid to vent the air trapped in the paint pump out the return hose. It will continue to recirculate the paint until the knob is manually turned to the "spray" position.

When the dump valve is turned to "spray", flow is shut off through the return hose and is routed to the paint hose for spraying.

The dump valve also serves to relieve pressure on the system during shutdown and cleanup. The pressure is relieved by turning the prime valve to "dump".

COATINGS:

Nowadays almost all types of paints and coatings can be supplied in "airless quality". Regardless, Lemmer airless units are available with large sized inlet filter screens, and a high pressure filter to prevent possible plugging or damage. In addition, gun filters and tip filters may be supplied for extra critical painting jobs.

Viscosity alone is no measure for good pump priming, pumpability or sprayability. It may well be that a suction hose has to be exchanged for a straight suction tube, or the fluid pump might be immersed into the coating to assist the priming action.

Two-component materials generally have a short "pot life". The unit must be properly flushed and cleaned well before the curing time starts.

We **DO NOT** recommend pumping coarse bodied or aggressive fluids using the airless method. These would include sand filled wall coatings, coatings having coarse fibres, and various types of adhesives. Damage or wear caused to the fluid end or any other system component by pumping or spraying any such material is not covered by the Lemmer warranty.

Whenever in doubt, please contact Lemmer for correct equipment selection and usage.

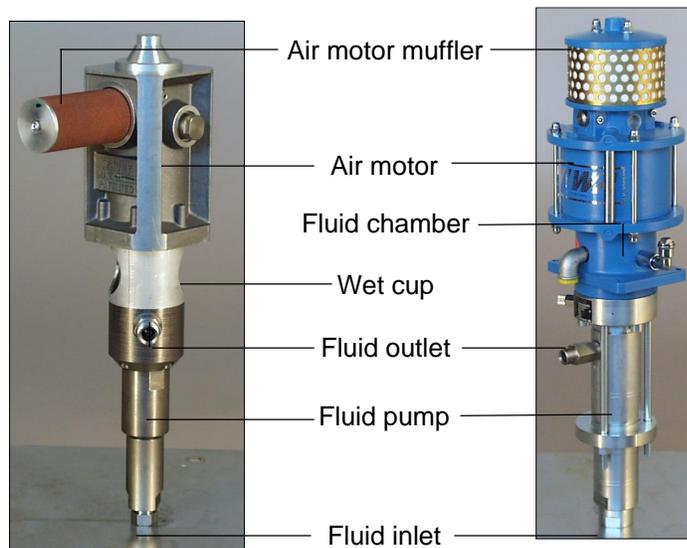


Figure 1. - Pump components 7000 P - 10032.

SETTING UP OF UNIT

TOOLS NEEDED:

2 x 8" or larger crescent wrench

PROCEDURE:

- 1) Remove all system components from the box for assembly.
- 2) Remove all protective caps from inlet and outlet connections of pump.
- 3) Attach suction hose or suction pipe to inlet of pump. Tighten securely.
- 4) Attach return hose or dump valve to fluid outlet fitting to approximately 20 ft. lbs.
- 5) Connect high pressure airless paint hose to pump outlet. Tighten to approximately 20 ft. lbs.
- 6) Attach the tip assembly to the spray gun.
- 7) Connect the paint hose to the swivel connection of the spray gun. Tighten 20 ft. lbs. Ensure the gun handle is securely hand tightened to the gun.
- 8) Double check all connections, the unit is now ready for flushing.

Note: The pump contains a preservative oil when you receive it, that may drip from the various connections when the protective caps are removed.

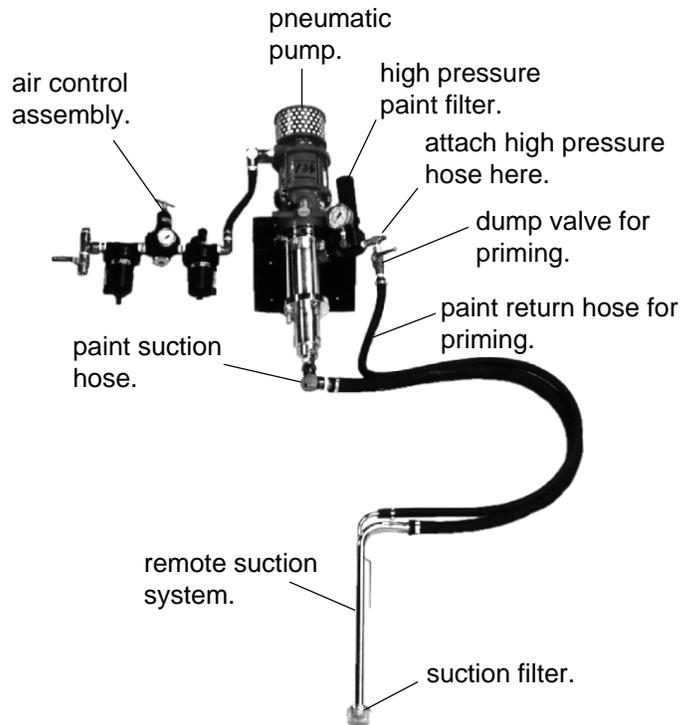


Figure 3. - Typical wall mount system components.

WARNING: INJECTION HAZARD POSSIBLE. DO NOT SPRAY WITHOUT TIP IN PLACE. ALWAYS ENGAGE TRIGGER LOCK BEFORE REMOVING, REPLACING OR CLEANING TIP. NEVER TRY TO CLEAN THE TIP WITH YOUR FINGERS.

To disengage your trigger lock: Your spray gun is shipped from the factory with the trigger lock in the engaged position (horizontal on the L-45). To disengage, turn the trigger lock down until it is in a vertical position. To engage the trigger lock, turn it back to a horizontal position.

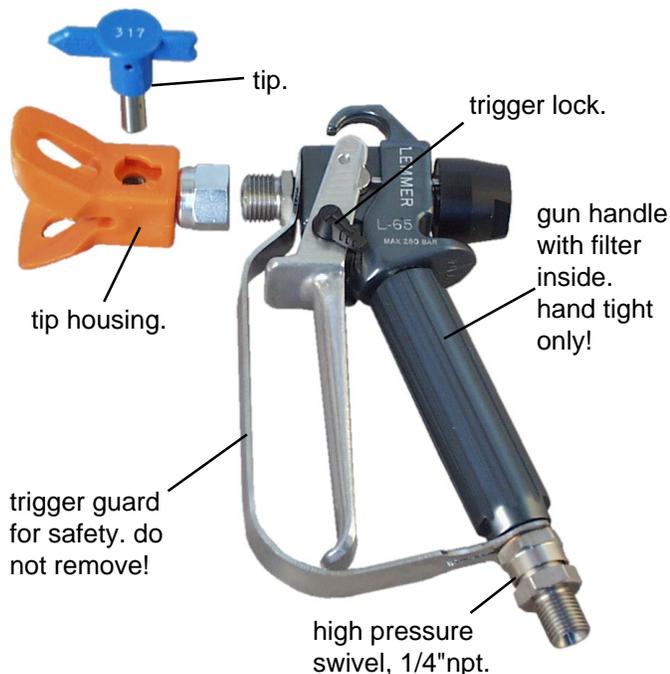


Figure 2. - L-65 gun components.

ZIP TIP INFORMATION

PART NO.	ORIFICE	FAN AT 1'	FAN ANGLE	FLOW LTR/MIN	TIP MARKING
L043-091	.009	2"	10 DEG.	0.26	109
L043-092	.009	4"	20 DEG.	0.26	209
L043-093	.009	6"	30 DEG.	0.26	309
L043-094	.009	8"	40 DEG.	0.26	409
L043-095	.009	10"	50 DEG.	0.26	509
L043-096	.009	12"	60 DEG.	0.26	609
L043-111	.011	2"	10 DEG.	0.40	111
L043-112	.011	4"	20 DEG.	0.40	211
L043-113	.011	6"	30 DEG.	0.40	311
L043-114	.011	8"	40 DEG.	0.40	411
L043-115	.011	10"	50 DEG.	0.40	511
L043-116	.011	12"	60 DEG.	0.40	611
L043-117	.011	14"	70 DEG.	0.40	711
L043-131	.013	2"	10 DEG.	0.60	113
L043-132	.013	4"	20 DEG.	0.60	213
L043-133	.013	6"	30 DEG.	0.60	313
L043-134	.013	8"	40 DEG.	0.60	413
L043-135	.013	10"	50 DEG.	0.60	513
L043-136	.013	12"	60 DEG.	0.60	613
L043-137	.013	14"	70 DEG.	0.60	713
L043-138	.013	16"	80 DEG.	0.60	813
L043-151	.015	2"	10 DEG.	0.80	115
L043-152	.015	4"	20 DEG.	0.80	215
L043-153	.015	6"	30 DEG.	0.80	315
L043-154	.015	8"	40 DEG.	0.80	415
L043-155	.015	10"	50 DEG.	0.80	515
L043-156	.015	12"	60 DEG.	0.80	615
L043-157	.015	14"	70 DEG.	0.80	715
L043-171	.017	2"	10 DEG.	1.0	117
L043-172	.017	4"	20 DEG.	1.0	217
L043-173	.017	6"	30 DEG.	1.0	317
L043-174	.017	8"	40 DEG.	1.0	417
L043-175	.017	10"	50 DEG.	1.0	517
L043-176	.017	12"	60 DEG.	1.0	617
L043-177	.017	14"	70 DEG.	1.0	717
L043-178	.017	16"	80 DEG.	1.0	817
L043-192	.019	4"	20 DEG.	1.3	219
L043-193	.019	6"	30 DEG.	1.3	319
L043-194	.019	8"	40 DEG.	1.3	419
L043-195	.019	10"	50 DEG.	1.3	519
L043-196	.019	12"	60 DEG.	1.3	619
L043-197	.019	14"	70 DEG.	1.3	719
L043-198	.019	16"	80 DEG.	1.3	819
L043-213	.021	6"	30 DEG.	1.6	321
L043-214	.021	8"	40 DEG.	1.6	421
L043-215	.021	10"	50 DEG.	1.6	521
L043-216	.021	12"	60 DEG.	1.6	621
L043-217	.021	14"	70 DEG.	1.6	721
L043-218	.021	16"	80 DEG.	1.6	821
L043-219	.021	18"	90 DEG.	1.6	921
L043-234	.023	8"	40 DEG.	1.9	423
L043-235	.023	10"	50 DEG.	1.9	523
L043-236	.023	12"	60 DEG.	1.9	623
L043-237	.023	14"	70 DEG.	1.9	723
L043-238	.023	16"	80 DEG.	1.9	823
L043-239	.023	18"	90 DEG.	1.9	923
L043-254	.025	8"	40 DEG.	2.3	425
L043-255	.025	10"	50 DEG.	2.3	525
L043-256	.025	12"	60 DEG.	2.3	625
L043-257	.025	14"	70 DEG.	2.3	725
L043-258	.025	16"	80 DEG.	2.3	825
L043-259	.025	18"	90 DEG.	2.3	925
L043-274	.027	8"	40 DEG.	2.7	427
L043-275	.027	10"	50 DEG.	2.7	527
L043-276	.027	12"	60 DEG.	2.7	627
L043-277	.027	14"	70 DEG.	2.7	727
L043-278	.027	16"	80 DEG.	2.7	827
L043-279	.027	18"	90 DEG.	2.7	927
L043-294	.029	8"	40 DEG.	3.1	429
L043-295	.029	10"	50 DEG.	3.1	529
L043-296	.029	12"	60 DEG.	3.1	629
L043-297	.029	14"	70 DEG.	3.1	729
L043-298	.029	16"	80 DEG.	3.1	829
L043-299	.029	18"	90 DEG.	3.1	929
L043-313	.031	6"	30 DEG.	3.5	331
L043-314	.031	8"	40 DEG.	3.5	431
L043-315	.031	10"	50 DEG.	3.5	531
L043-316	.031	12"	60 DEG.	3.5	631
L043-317	.031	14"	70 DEG.	3.5	731
L043-318	.031	16"	80 DEG.	3.5	831

(larger sizes are available on request)

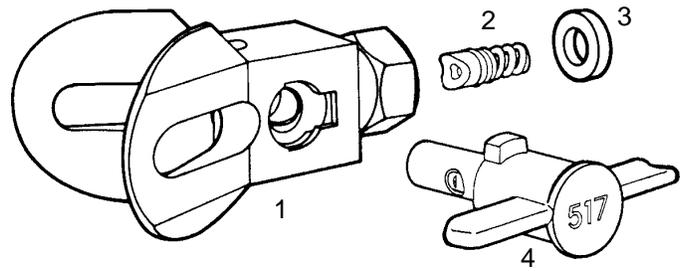


Figure 4. - Zip tip

Pos.	Part nos.	Description
1	L043-001	Zip Tip housing with guard
	L043-007	Zip Tip guard (not shown separately)
2	L043-005	Zip Tip seal kit (includes gasket #3)
	L043-006	Spring, 3/pkg (not shown separately)
3	L043-008	Nylon gasket
	L043-009	Tube of 8x nylon gaskets
4	L043-***	Zip Tip - see chart on opposite page

FEATURES:

Fast Tip Size Changes - no tools required.

Long Seal Life - withstands harsh solvents - won't swell or leak - replaces in minutes.

Tip Rotates Easily - even under "high pressure" clog-up.

Venturi-Guard - less paint accumulation - helps protect against accidental injection and prevents tip from slipping out of position.

Patented Diffuser - safer unclogging in clean-out position.

TO OPERATE:

When tip clogs, turn zip-tip handle 180° to "cleanout position". Trigger gun and line pressure will purge clog.

DO NOT spray or empty the hose in "clean out" position, this will cause extreme wear and premature failure. Always remove the tip when cleaning out the hose.

TO CLEAN PLUGGED TIP:

- 1) Rotate the tip to the "Clean" position.
- 2) Pull trigger and spray. This should clear the tip of any blockage.
- 3) Rotate the tip back to the "Spray" position and continue spraying.
- 4) If the clogging continues, clean or replace the gun filter and see the section in this manual on instructions for straining and thinning paint.

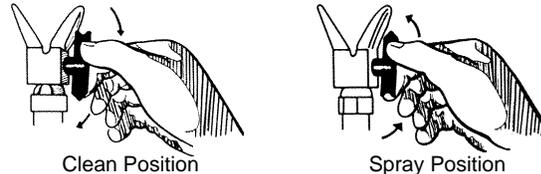


Figure 5. - Tip unclogging.

CAUTION: DO NOT USE A NEEDLE OR SHARP OBJECT TO CLEAN THE TIP. TUNGSTEN CARBIDE IS BRITTLE AND CAN BE CHIPPED.

TO CHANGE ZIP TIPS:

- 1) Rotate zip-tip 90°.
- 2) Remove from housing.
- 3) Install new zip tip.
- 4) Rotate 90° to spray position.

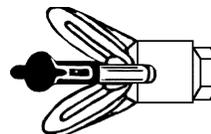


Figure 6. - Removing tip seal.

TO CHANGE SEAL ASSEMBLY:

- 1) Relieve line pressure and set gun safety.
- 2) Remove zip tip housing from gun.
- 3) Remove zip tip from housing.
- 4) Insert zip tip cylinder into front of housing and press seal assembly out of housing.
- 5) Install zip tip (4) through slot in guard and into body.
- 6) Insert seal ass'y (2) through gun nut to seat seal around zip tip cylinder (press firmly to insure seal is tight against cylinder).
- 7) Insert tip/gun washer (3) over spring (in gun nut). Install unit on gun. Tighten gun nut.

IMPORTANT: The seal ass'y (2) is a wear part that must be replaced periodically. If leaking occurs, replace the seal ass'y immediately before it damages the tip (4).

HOW TO SELECT TIP SIZE AND PROPER FILTER

(BASIC INFORMATION)

Coating	Fan Size (measured at 1 foot)					
	2"	4"	6"	8"	10"	12"
Lacquer, varnish, furniture stain <small>(viscosity of 15 to 35 seconds, similar to vegetable oil)</small>	1-09 R	2-09 R	3-09 R	4-11 R	5-11 R	6-11 R
Industrial enamels, stain, colored lacquer <small>(viscosity of 25 to 50 seconds, similar to dish washing liquid)</small>	1-09 R	2-11 R	3-11 R	4-13 R	5-13 R	6-15 Y
Shop primer, solid stain, oil base, latex <small>(viscosity of 40 to 100 seconds, similar to 10-30 motor oil)</small>	1-11 R	2-13 Y	3-13 R	4-15 Y	5-15 Y	6-17 W
Flat oil base, latex <small>(viscosity of 60 to 150 seconds, similar to 50 weight oil)</small>	1-13 Y	2-15 W	3-15 Y	4-17 W	5-17 W	6-19 W
Thick latex, prepared blockfiller <small>(viscosity of 150 to 200 seconds, similar to gear oil)</small>	1-15 W	2-17 W	3-17 W	4-19 W	5-19 W	6-21 *
Most block fillers <small>(viscosity of over 200 seconds, are not measurable with the Lemmer cup)</small>	1-17 W	2-19 W	3-19 W	4-21 *	5-21 *	6-23 *

Tip chart example: Latex stain is being sprayed onto fencing. The paint is fairly thick (like a very heavy motor oil) and the 2900 P is the spray pump. The maximum tip size is a .019 for a 2900 P. Draw a line along the .019 tips as shown below. Everything above the line is sprayable with the 2900 P. Now just choose the fan width. For fences a 6" width will give a lot of control, so the intersecting best choice would be a 3-19 tip with a white gun filter.

explanation of tip and filter sizing: **eg:4-15 Y**

4 = half of fan width (8" @ 1 foot)

15 = orifice size in thousands of an inch (.015)

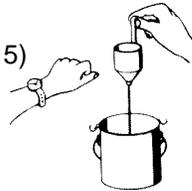
Y = Yellow 100 mesh filter.

(**R** = Red 180 mesh)

(**Y** = Yellow 100 mesh)

(**W** = White 50 mesh)

(* = *not recommended)



Measure the paint's viscosity as follows: (note, paints that are intended to be rolled should be thinned for air or airless spraying. A general rule of thumb is 5 to 15% for latex and oils, 30% or more for fine finishes. (consult your paint supplier for best results).

- Submerge the Lemmer Viscosity cup in the paint.
- Lift the cup out of the paint and begin timing.
- Stop timing when the steady paint stream is first broken.
- The time recorded is the paint's viscosity.

Coating	Fan Size (measured at 1 foot)					
	2"	4"	6"	8"	10"	12"
Lacquer, varnish, furniture stain <small>(viscosity of 23 to 45 seconds, similar to vegetable oil)</small>	1-09 R	2-09 R	3-09 R	4-11 R	5-11 R	6-11 R
Industrial enamels, stain, colored lacquer <small>(viscosity of 30 to 70 seconds, similar to dish washing liquid)</small>	1-09 R	2-11 R	3-11 R	4-13 R	5-13 R	6-15 Y
Shop primer, solid stain, oil base, latex <small>(viscosity of 58 to 125 seconds, similar to 10-30 motor oil)</small>	1-11 R	2-13 Y	3-13 R	4-15 Y	5-15 Y	6-17 W
Flat oil base, latex <small>(viscosity of 80 to 180 seconds, similar to 50 weight oil)</small>	1-13 Y	2-15 W	3-15 Y	4-17 W	5-17 W	6-19 W
Thick latex, prepared blockfiller <small>(viscosity of 150+ seconds, similar to gear oil)</small>	1-15 W	2-17 W	3-17 W	4-19 W	5-19 W	6-21 *
Most block fillers <small>(viscosity of over 180 seconds, are not measurable with the Lemmer cup)</small>	1-17 W	2-19 W	3-19 W	4-21 *	5-21 *	6-23 *

↑ ok for L-1500 ↑

Tip volume at various pressures.

—Gallons per minute—

Results are based on water, heavier viscosities will produce less volume. This is especially noticeable with large tips and very heavy coatings.

TIP SIZE	500 PSI	1000 PSI	1500 PSI	2000 PSI
.009	.039	.055	.067	.078
.011	.06	.08	.10	.12
.013	.09	.12	.15	.18
.015	.12	.16	.20	.23
.017	.16	.23	.27	.32
.019	.20	.27	.33	.39
.021	.24	.33	.41	.47
.023	.28	.40	.49	.57
.025	.33	.47	.58	.68
.027	.37	.52	.64	.76
.029	.47	.65	.79	.98
.031	.53	.75	.91	1.1
.035	.69	.9	1.0	1.2
.043	1.1	1.5	1.8	2.1
.053	1.5	2.2	2.9	3.4
.057	1.8	2.5	3.1	3.5
.063	2.2	3.1	3.9	4.4
.067	2.5	3.5	4.3	5.0
.073	2.9	4.1	5.1	5.9
.079	3.6	5.1	6.3	7.3
.085	3.9	5.5	6.7	7.8
.089	4.3	6.0	7.4	8.5
.099	5.3	7.5	9.2	10.6

Pump maximum tip size		
Pump	Absolute maximum	To allow for tip wear
2900 P	.019	.017
6034	.031	.029
25048	.061	.059 (2X.041)

Notes:

Approximate wear values comparing tungsten tips and paint type. (Paint is in gallons)				
New tip size	.015	.017	.019	.027
	worn to	worn to	worn to	worn to
Tip worn to	.017	.019	.021	.029
Lacquer	400	-	-	-
Latex	75	150	250	-
Block filler	-	-	75	250
Road marking paint	2	20	50	200

The two most important things to remember about tips.....

- Low pressure** means longer life, for tips and the pump. Less overspray too!
- Worn tips** waste paint and overwork the pump, causing premature pump wear. The maximum tip for a pump is the largest tip that will deliver a proper pressure for spraying without overworking or overloading. When a tip is used for some period of time, it can wear beyond the maximum size recommended for the pump, which will cause low pressure and poor spray pattern.
 - Stains and thick latex products often cause the most rapid wear of the tip, while clear lacquers and varnishes cause the least wear. Thus tip life can vary from as little as 50 gallons to as much as 200 or more, depending on the product being sprayed and the pressure used.
 - Filter screen mesh for the gun or pump are picked not because of the type of paint being used, but to protect a given size of tip. Pick the tip for the type of paint and job being done and then choose the filter to protect that tip.

STARTUP PROCEDURE

Whenever the pump is to be used, it must be prepared for the type of paint to be used. This requires the unit to be flushed out with an appropriate solvent (water for latex, mineral spirits for oil base, etc.). Incorrect flushing can cause gumming of the valves and priming problems.

UNIT PRIMING AND FLUSHING:

1. Check that all hose, gun handle and tip connections are tight.
2. Place trigger lock in "LOCK" position.
3. Place dump valve into open or "PRIME" position, ie: handle pointing in-line with valve body.
4. Turn pressure regulator counterclockwise until there is no tension. This is the MINIMUM pressure setting. Connect air supply.
5. Place suction/return tube in correct solvent. Turn pressure regulator clockwise until the pump begins to cycle. DO NOT cycle fast.
- 6) Unit will begin pumping and solvent will flow from return tube. Prime for about 2 minutes. If it will not prime, try unsticking the inlet valve.
- 7) Turn pressure regulator back to MINIMUM. Close dump valve, ie: "SPRAY" position, with handle pointing out at 90°.

NOTE: ALWAYS TURN DOWN PRESSURE REGULATOR BEFORE CHANGING POSITION OF THE DUMP VALVE HANDLE. THIS REDUCES SHOCK LOADING OF THE PUMP.

- 8) Turn zip tip to halfway position and remove from gun (see page 9). Turn up pressure so that pump cycles slowly. This gives a good low pressure for flushing and cleaning.
- 9) Aim gun into empty metal pail, holding gun body against pail edge to ground gun for safety. Open trigger, and allow solvent to flow for one minute. Release and lock trigger.
Read static safety on pg. 4.
- 10) Turn pressure control to minimum and open dump valve to release pressure.
- 11) Lift both hoses above the level of solvent and turn up pressure slightly to pump out solvent from pump.
- 12) Shut off unit and turn pressure regulator to minimum. Unit is now flushed out.

PRIMING UNIT IN PAINT:

Follow same procedure as steps 1 - 8 of "Priming and Flushing", but instead using paint. Then continue with the remaining steps as outlined below.

- 13) Remove tip from gun. Unlock trigger. Aim gun into solvent pail and hold trigger open until solvent flow changes to paint. Release and lock trigger. Re-install tip.
- 14) Turn up pressure until about 1000 psi is reached on the fluid outlet. If your system is not equipped with a high pressure fluid gauge, divide 1000 (psi) by the pump ratio to get suggested starting air pressure. ie: $1000 \div 30$ (for a 30:1 ratio pump) = 33 psi input air pressure. Test spray pattern on cardboard. Increase or decrease pressure as required for best pattern.
Important: use lowest possible pressure which still gives proper atomization. Excessive pressures do not improve spray atomization, but will cause excessive overspray and increased system wear.

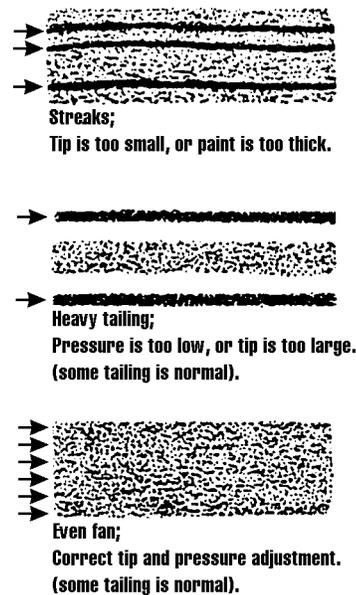


Figure 7. - Spray pattern examples.

TO TURN UNIT OFF:

Always reduce pressure first, then turn dump valve to prime, trigger gun to release pressure build up in hose, and disconnect air supply.

AIRLESS SPRAYING METHODS

WARNING: DO NOT BEGIN SPRAYING BEFORE READING THIS SECTION AND ALL PREVIOUS SAFETY INFORMATION.

PAINTING AND TIP SELECTION:

Correct adjustment of pressure and proper tip selection are crucial to the best spray pattern....

- 1) In any situation, the lowest pressure that gives an adequate spray pattern is the best pressure to use. It will give maximum pump and tip life and produce minimum overspray.

- 2) Typically, thicker materials require larger tips and higher pressures than thinner paints do. Some very thick paints may require slight thinning (5-10%) depending upon pump and tip size and application. Generally, thinning is performed when a good spray pattern cannot be obtained with an appropriate tip size at maximum pressure. (see page 11).

SPRAY PAINTING METHOD:

- 1) **Keep the gun perpendicular to the surface.** Always hold the gun perpendicular to the surface with the tip

AIRLESS SPRAYING METHODS

approximately 12" from the surface. If held at an angle (up and down or side to side) paint will build up unevenly and leave the work splotchy. (See figure 8).

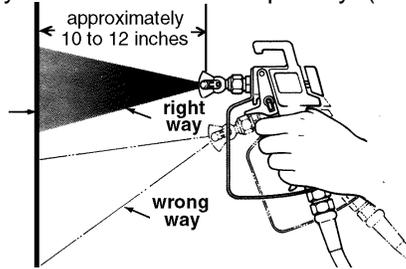


Figure 8. - Right and wrong way to hold spray gun.

- 2) **Move with a smooth arm stroke.** Move the gun at a steady even pace while keeping the gun perpendicular to the surface. (See figure 9) Do not move the gun by flexing your wrist. Fanning the gun will cause excessive overspray and uneven coverage. (See figure 10).

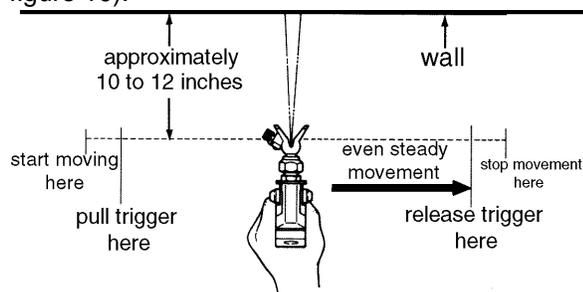


Figure 9. - Proper way to trigger spray gun.

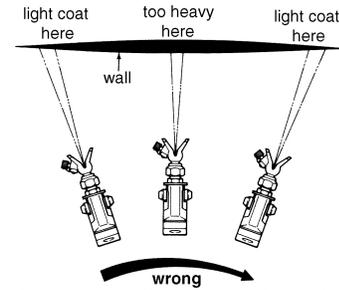


Figure 10. - Result of flexing wrist while spraying.

- 3) **Start moving the gun before triggering.** To get smooth overlap and prevent initial paint buildup, start your stroke movement before pulling the trigger. At the end of the stroke release the trigger before stopping. **NOTE:** To assure uniform paint coverage, overlap each stroke by 40% - 50%.
- 4) **Intermittent use.** If you are spraying and decide to stop for several minutes, lock the spray gun trigger and submerge the tip in a container of the appropriate solvent. This will prevent paint from hardening in the tiny spray opening and clogging the tip. Be sure to release the pressure by opening dump valve and turn off pump.

HELPFUL HINTS FOR TROUBLE FREE PAINTING

PUMP:

- 1) Flush before each use with a solvent that is correct for the paint you will be spraying. ie: Water for latex paints.
- 2) Clean unit well after each use. A clean unit works better and lasts longer. (*exceptions are plumbed-in systems where the coating being pumped does not change its state while "sitting", and where the coating will not corrode or react with any part of the pump*).
- 3) Flush with mineral spirits when storing the unit for more than 3 or 4 days.

PAINT:

- 1) Prepare paint according to manufacturer's recommendations.
- 2) Remove all skins on paint.
- 3) Stir paint thoroughly.
- 4) Strain paint through a fine mesh strainer bag to avoid clogging of pump and filters.

SPRAY TIPS:

- 1) Use minimum pressure that gives a good spray pattern to reduce tip and pump wear and cut down overspray.
- 2) Replace tips before they become too worn. Worn tips waste paint and overwork the sprayer.

FILTERS:

- 1) Clean the filters after each use of sprayer.
- 2) Use correct filter for the tip size and paint type. See chart page 11.
- 3) Push down on filter after inserting it into the gun

handle to test if the filter spring is at the bottom. Make sure the filter is inserted with the double lip going into the gun first.

PAINT HOSE:

- 1) **INSPECT THE HOSE PERIODICALLY. DO NOT USE KINKED, WORN OR DAMAGED HOSE. SEE WARNINGS ON PAGES 3 & 4!**
- 2) Use only hose that is designed for the high pressures of airless units. Minimum working pressure of the maximum working pressure of the pump being used. Be sure it is grounded, static dissipating type hose.
- 3) Protect both the paint hose from vehicle traffic and sharp cutting edges or objects.
- 4) For best performance, maximum hose length is about 150 ft. of 1/4". This maximum will largely depend on tip size and thickness of paint.

LUBRICATING CHAMBER OIL:

- 1) Check oil regularly. If it is dirty, change it. If there is any sign of paint in the oil, tighten the upper packings, or have them replaced at a qualified repair shop.
- 2) Use only proper oil, Lemmer order number L034-121 for one liter.

STATIC CHARGE:

THE GROUND WIRE MUST BE CONNECTED TO A GOOD EARTH GROUND FOR PROPER SAFETY. FAILURE TO DO THIS MAY RESULT IN A STATIC SPARK, FIRE, PERSONAL INJURY AND PROPERTY DAMAGE.

CLEANING INSTRUCTIONS

As with all spray equipment, your spray system must be cleaned properly or it will not operate properly. Clogged valves and filters are the most common causes of problems. If followed, these guidelines will insure trouble free performance from your spray system.

CAUTION: Clean with water if latex is used. Clean with paint thinners for oil based paints. Both water and paint thinner will be referred to as "solvent" from here on in.

CLEAN-UP:

To get the best use and longest life from your spray system, it is very important to clean it out properly. The procedure is simple and is very similar to the flushing procedure performed earlier. Cleaning and flushing would also be required when changing color, or type of paint, ie: latex changing to oil base.

- 1) Lock gun trigger, turn pressure regulator to minimum, open dump valve to **release all system pressure**.
- 2) Turn **zip tip** to halfway position and **remove** from gun. (if so equipped).
- 3) Lift both suction and return hose above the level of paint in the pail and turn pressure up to a slow cycle rate. Allow unit to **pump out paint**.

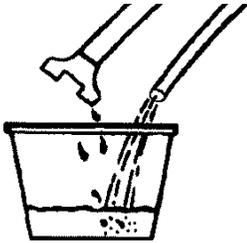


Figure 11. Pump fluid out.

- 4) Place suction/return hose into pail with proper solvent to flush out paint and allow unit to **prime in the solvent**. Clean the outside of metal suction tube.

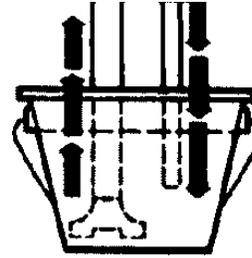


Figure 12. Clean pump with suitable solvent .

- 5) Turn **pressure regulator to minimum** and **close** dump valve.
- 6) Unlock trigger, and with spray tip still removed and starting with minimum pressure, aim gun into paint container and hold trigger open until paint flow stops and solvent flow just begins. Release trigger. Aim gun into solvent pail/hopper and **circulate solvent** for about two minutes. To reduce splashing, direct the fluid stream along inside of bucket at a side angle and well above the fluid level (or submerge the tip in the solvent). Release trigger. Point spray gun into an empty waste bucket and spray at least 1 gallon of fluid into it. (see figure 13).

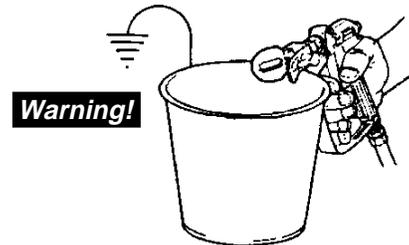


Figure 13. Pump until clean solvent appears.

Warning: *conductive metal containers must be used when flushing flammable fluids through the system. Always flush at low pressure with spray tip removed. A metal part of the spray gun must be held firmly against the grounded metal pail when flushing or relieving pressure from the gun.*

CLEANING INSTRUCTIONS

- 7) Pump solvent out by lifting both suction and return hose out of the solvent. Turn pressure regulator to minimum and open dump valve to **release system pressure and disconnect air supply. Lock trigger** and clean spray tip before installing back onto gun.

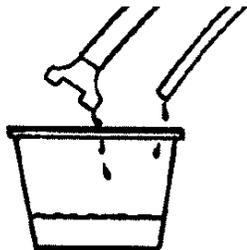


Figure 14. Fluid is pumped out.

- 8) Follow above steps 1-7 using **clean solvent** to completely flush system. You may at this time, if you wish, blow compressed air into the tip (dump valve open and air supply disconnected) to push the solvent all the way out the return hose.
- 9) **If changing paint types**, ie: latex (water base) to oil base, you would have to flush system with clean mineral spirits using above steps 1-7. This would prepare the pump for the oil base paint. Water would have to be used as a last flush if changing from oil base paints to latex.
- 10) Ensure **pressure regulator is turned to minimum** and all pressure is released. **Open dump valve. Turn pump air supply OFF.**
- 11) Unthread gun handle from gun body to access gun filter. **Remove filter** and brush clean with appropriate solvent. Inspect filter for pinholes, plugging, or other damage. Replace if required. Re-install with "double

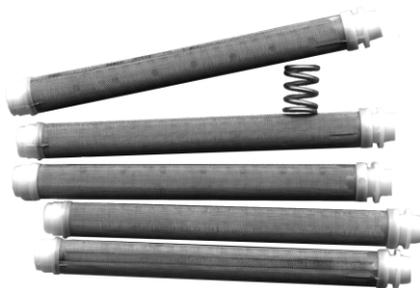
lip" end pointing up into gun. Lightly grease handle threads (petroleum jelly, auto grease) and re-install firm hand tight. Brush exterior of gun clean.

- 12) **Remove intake screen** on metal suction tube and brush clean, re-install.
- 13) **Storing unit for more than 3 days.** If system was cleaned with an oily paint thinner such as varsol, it is now ready for storage (after step 14). If system was cleaned with water or a strong thinner (ie. lacquer thinner) pump varsol (or mineral spirits) through the entire system by repeating step 8. If varsol is not available, drain all the solvent out of the hose, gun, and pump. **(Tungsten carbide parts in the valves will corrode if left in water for long periods of time).** With the pump running in the prime mode, place the inlet valve in a container of light oil. Let the pump run until it spits oil drops out the return fittings. This will displace any remaining solvent and lubricate the valves for storage.
- 14) Coil up spray hose, inspecting for signs of damage. Suggested minimum coil size for 1/4" paint hose is 18 inches.

DO NOT COIL PAINT HOSE TOO TIGHTLY. THIS MAY CAUSE KINKS, WHICH WEAKEN THE HOSE. A PAINT HOSE WITH KINKS OR OTHER DAMAGE SHOULD BE CONSIDERED UNSAFE AND BE REPLACED IMMEDIATELY.

WARNING: DO NOT CLEAN THE SPRAY GUN UNLESS THE PRESSURE HAS BEEN RELEASED FROM THE SYSTEM. SEE PAGES 3 & 4 FOR FURTHER PRECAUTIONS.

ACCESSORIES FOR LEMMER AIRLESS EQUIPMENT



GUN FILTERS (for the L-45, L-50, & L-60)
 Gun filter kit (5 X red & 1 X spring) . L032-100
 Gun filter kit (5 X yellow& 1 X spg) . L032-101
 Gun filter kit (5 X white& 1 X spg) .. L032-102



FIBRE BRAID AIRLESS HOSE
 1/4" X 25' Hose L031-073
 1/4" X 50' Hose L031-074
STEEL BRAID AIRLESS HOSE
 3/16" X 3' Whip hose L031-010
 3/16" X 5' Whip hose L031-011
 3/16" X 25' Hose L031-012
 3/16" X 50' Hose L031-013
 1/4" X 5' Whip hose L031-020
 1/4" X 25' Hose L031-021
 1/4" X 50' Hose L031-022
 1/4" X 100' Hose L031-023



HOSE CONNECTORS
 1/4"m X 1/4"m L035-001
 3/8"m X 3/8"m L035-002
 1/4"m X 3/8"m L035-005



"SF" SUPER FINE FINISHING TIP
 SF tip, state size L044-***
 Standard tip nut L032-501
 Nylon gasket for standard tip L043-008



PIPE COATING "HOLLOW CONE" TIP
 Pipe coating tip, state size L033-5**



TIP CLEANING BROACH
 Package of 12X L033-021



TIP EXTENSIONS
 1/4 Meter extension with swivel L033-024
 1/2 Meter extension with swivel L033-025
 1 Meter extension with swivel L033-026
 2 Meter extension with swivel L033-027



POLE GUNS
 3' Pole gun W/O tip assembly L033-050
 6' Pole gun W/O tip assembly L033-051



TELESCOPIC PRESSURE FEED ROLLER
 Telescopic roller L012-002
 3/8 X 12" cover L012-503
 1/2 X 12" cover L012-504
 3/4 X 12" cover L012-505
 1-1/4 X 12" cover L012-506
 End cap kit L012-508



GAUGE KIT
 General use, 1/4" connections L034-104



STRAINER BAGS
 1 Gallon strainer bag w/elastic L034-208
 5 Gallon strainer bag w/elastic L034-209



COTTON OVERALLS & STIR RODS
 Small overalls L034-220
 Medium overalls L034-221
 Large overalls L034-222
 Extra large overalls L034-223

1 Gal stir rod (2-3/8" dia., 3/8" chuck) L034-050
 1 Gal stir rod (3-1/4" dia., 3/8" chuck) L034-051
 5 Gal stir rod (4-3/4" dia., 1/2" chuck) L034-052



SPRAY HOODS
 Spray hoods (package of 3) L034-205



RESPIRATOR
 North respirator (complete) L034-200

OTHER QUALITY LEMMER PRODUCTS

LEMMER'S Full line of equipment comes with **FIRST CLASS SERVICE** in numerous locations across **CANADA**, and a **FULL ONE YEAR WARRANTY**. For information on choosing the right sprayer for your job, please contact your nearest **LEMMER** outlet.



ELECTRIC CUP GUNS

Hand held airless sprayers to spray all standard paints. They are suitable for large jobs where time is not a factor, and also for the professional to touch up after the large equipment is finished.



AIR GUNS & PRESSURE POTS

Conventional air spray guns for fine finishing. Suitable for countless industrial and automotive applications. Available in suction, gravity, and pressure feed versions. Each is available in many different needle sizes.



HVLP TURBINE & VENTURI UNITS

High Volume Low Pressure sprayers are used for fine finishing where overspray must be kept to a minimum. The finish results are equal to or better than conventional air spray. The turbine systems are self contained and do not require an outside air source. The VENTURI spray gun only uses about 8 CFM of shop air. Applications vary from automotive finishing to commercial multi-color architectural coating.



AIRLESS ACCESSORIES

A very large assortment of hoses, guns, tips, and filters, etc. These items are universal to most airless spray equipment on the market.



PAINTING SUNDRIES

Overalls, strainer bags, stir rods, etc. A large variety of painting accessories to help make a cleaner and more efficient working environment.



ELECTROSTATIC UNITS

The electrostatic WRAP-A-ROUND charge makes this the best method of spraying metal with next to no overspray. It is best suited for industrial paints with an aromatic thinner base, i.e: toluol, xylol. The conversion kit will hook up to most airless pumps and we carry a completely self contained portable system.



AUTOMATIC GUNS

Suitable for all heavy duty airless applications. Air actuated, universal rod mounting, and standard 1/4" NPS hose connection.



ELECTRIC PISTON PUMPS

Commercial airless sprayers for all sizes of jobs and spraying a large variety of paint types. These units are portable and come in many different performance categories. There are small units for spraying a house or barn once a year, and large units for spraying warehouses on a continuous basis.



GAS DIAPHRAGM

These sprayers are the same as the electric diaphragm pumps, but with the advantage of a gas engine. All use Honda motors and belt drive systems.



PNEUMATIC PISTON PUMPS

Being an air powered airless, these units are generally used for industrial coatings. Applications range from portable lacquering to plumbed-in automatic systems. Also excellent for industry where operating conditions are very demanding.



ELECTRIC DIAPHRAGM

These sprayers are the same as above piston pumps except in a lower cost diaphragm design. The motor runs continuous for the ultimate spraying pressure control. Hopper models are easiest to clean.



LINEMARKERS

Designed to handle the abrasive nature of road marking paint. There are three sizes of walk-behinds, and some are available with two or more guns. Custom systems are also made to order depending on the requirements.



TRANSFER PUMP

It can be used to transfer paint to remote locations, or directly to high pressure pumps. At a 1:1 ratio with up to 125 PSI air pressure it can also supply numerous air guns.

TROUBLESHOOTING

Provided you have followed the instructions, the spray system will operate efficiently and give trouble-free service. Should any unexpected problem arise you can, in most cases, remedy the problem by following the chart below. If you find that you cannot correct the problem, then take the sprayer to your nearest authorized service agency. Many of the "causes" listed are unlikely to happen. However, all are included in an attempt to cover every possibility.

IT IS ABSOLUTELY ESSENTIAL FOR TROUBLE-FREE OPERATION THAT YOUR AIRLESS SPRAY SYSTEM BE KEPT CLEAN AND FREE OF RESIDUAL PAINT BUILD-UP ON THE INTERNAL PARTS. IT MUST BE CLEANED AND LUBRICATED AFTER EVERY USE.

Problem	Cause	Remedy
I Pump does not cycle.	1) Air supply is not connected. 2) Dump valve is not open. 3) Jammed air motor. (not frosted). 4) Jammed air motor. (frosted). 5) Jammed fluid end. (improper cleaning).	1) Turn on. 2) Open (handle inline with valve body). 3) Shift air motor shifter manually to help identify problem. 4a) Reduce air pressure, use smaller tip. 4b) Install air filter to remove water. 4c) Replace oil in air lubricator with radiator antifreeze (only for as long as necessary). 5) Disassemble and clean.
II Pump cycles but does not draw up fluid.	1) No fluid or suction tube not totally immersed in fluid. 2) Suction filter clogged. 3) Suction tube loose at inlet valve. 4) Inlet valve stuck or dirty. 5) Shaft valve stuck or dirty. 6) Outlet fitting (back pressure valve) plugged. 7) Dump valve (prime valve) plugged. 8) Packings and/or valves worn.	1) Add more fluid or immerse suction tube in fluid. 2) Clean or replace filter. 3) Clean connection and tighten. 4) Unstick valve ball with blunt object (pencil). If this doesn't work remove valve and give it a good cleaning. 5) Remove inlet valve to inspect shaft valve. Unstick shaft valve ball with blunt object (pencil). If this doesn't work remove valve and give it a good cleaning. 6) Clean. 7) Take valve off and clean it. 8) Overhaul pump fluid end.
III Pump pressurizes fluid but single strokes. (holds pressure on up stroke with air motor shifter in down position).	1) Inlet valve stuck or dirty or worn.	1) Clean or replace.
III Pump pressurizes fluid but single strokes. (holds pressure on down stroke with air motor shifter in up position).	1) Shaft valve stuck or dirty or worn. 2) Lower packings worn. 3) Lower piston/cylinder worn.	1) Clean or replace. 2) Replace pump packings. 3) Replace.
III Pump pressurizes fluid but does not stop cycling. (does not hold pressure on either stroke).	1) Inlet and shaft valve stuck or dirty or worn. 2) Packings worn. 3) Pump piston worn. 4) Dump valve worn. 5) Fluid leak somewhere in system.	1) Clean or replace. 2) Replace pump packings. 3) Replace. 4) Replace valve. 5) Check all connections and components.

TROUBLESHOOTING

Problem	Cause	Remedy
IV Sprayer draws up paint, pressure builds up, but drops away markedly when gun is opened (low performance).	<ol style="list-style-type: none"> 1) Insufficient air supply. 2) Spray tip hole too large, either wrong size or worn. 3) Suction filter clogged. 4) Gun filter or h.p. filter plugged. 5) Gun filter too fine for coarse paint being sprayed. 6) Suction tube not firmly tightened to inlet valve. 7) Paint too heavy or coarse. 8) Leaky dump valve. 9) Valves and/or packings dirty or worn. 10) Air motor worn (air hissing sounds). 	<ol style="list-style-type: none"> 1) Increase air supply volume. 2) Select smaller tip or try newer tip. 3) Clean or replace filter. 4) Clean or replace, daily. Keep extra filters on hand. 5) Use correct filter OR strain/thin paint. 6) Clean connection thoroughly and tighten. 7) Thin or strain paint. 8) Replace valve. 9) See problems III, IV, & V to pinpoint. 10) Overhaul air motor.
V Pressure/spray fan fluctuation.	<ol style="list-style-type: none"> 1) Pump pressure too low. 2) Leaky suction tube at inlet valve. 3) Leaky or dirty dump valve. 4) Leaky, worn, or damaged inlet valve. 5) Valves and/or packings dirty or worn. 	<ol style="list-style-type: none"> 1) Increase air regulator pressure setting. 2) Clean connection thoroughly and tighten. 3) Clean or replace valve. 4) Replace valve. 5) See problems III, IV, & V to pinpoint.
VI Paint in oil chamber (at upper packings).	<ol style="list-style-type: none"> 1) Upper packings loose. 2) Worn upper packings. 	<ol style="list-style-type: none"> 1) Tighten adjusting nut. (where applicable). 2) Replace pump fluid end packings.
VII Spray gun won't shut off.	<ol style="list-style-type: none"> 1) Foreign matter or paint buildup between ball and seat. 2) Worn ball or seat. 3) Ball not in correct position. 	<ol style="list-style-type: none"> 1) Disassemble and clean. 2) Replace. 3) Adjust rear tension nut. If this doesn't work examine ball and replace if necessary.
VIII Spray gun leaks.	Worn packing	Replace or adjust (where applicable).
IX Spray gun won't spray.	Spray tip or gun filter plugged.	Clean spray tip. Clean or replace gun filter.
X Low paint output from spray gun.	Partially plugged spray tip or filter.	Clean or replace gun filter. Clean spray tip.

NOTE: When dump valve is in "spray" position and you are getting flow back through the return tube, remove the dump valve and repair or replace.

Hint... to get maximum use out of the dump valve:

- a) Always reduce pressure before turning the handle.
- b) Turn the handle with a continuous solid movement. (Do not turn slowly or leave it partially open or closed).

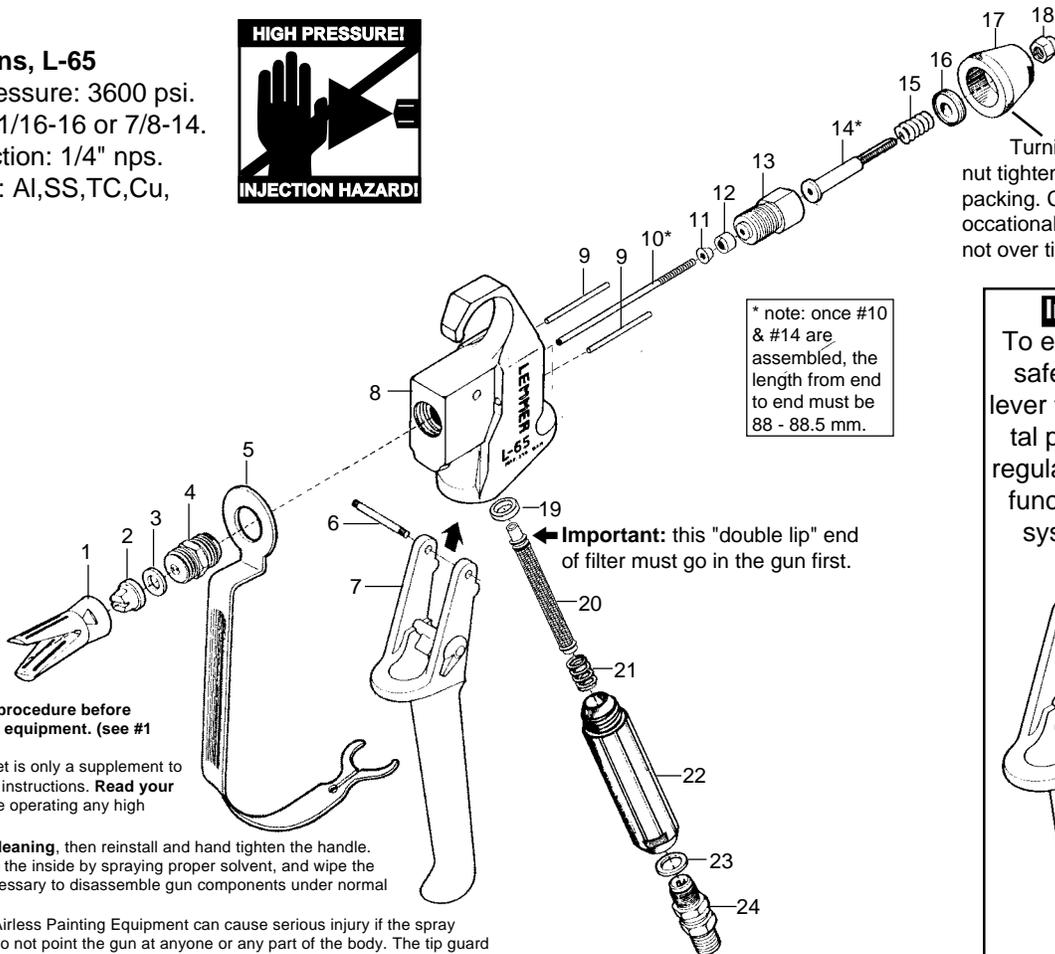
NOTE: The air motor should always be fed clean, dry and oiled air. If system does not have an oiler, squeeze wheel bearing grease into air inlet of motor once or twice per year.

L-65 PARTS LIST & DIAGRAM

Apr99

Specifications, L-65

Maximum pressure: 3600 psi.
 Tip thread: 11/16-16 or 7/8-14.
 Hose connection: 1/4" nps.
 Wetted parts: Al,SS,TC,Cu,
 Brass,Tef.



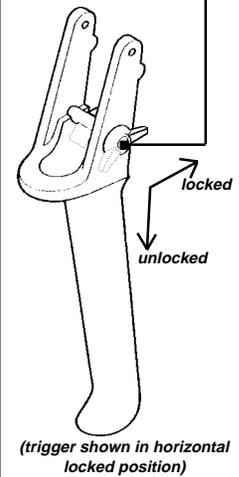
Turning this nut tightens the packing. Check occasionally and do not over tighten.

* note: once #10 & #14 are assembled, the length from end to end must be 88 - 88.5 mm.

Important: this "double lip" end of filter must go in the gun first.

Important

To engage trigger safety lock, turn lever tab to horizontal position. Test regularly for proper functioning while system is shut down.



- Follow shut down procedure before servicing or cleaning equipment. (see #1 overleaf)
- This instruction sheet is only a supplement to your system operating instructions. Read your system manual before operating any high pressure equipment.
- Remove filter for cleaning, then reinstall and hand tighten the handle.
- To clean gun: flush the inside by spraying proper solvent, and wipe the exterior. (It is not necessary to disassemble gun components under normal circumstances).
- Injection hazard: Airless Painting Equipment can cause serious injury if the spray penetrates the skin. Do not point the gun at anyone or any part of the body. The tip guard provides some protection against accidental injection injuries, but is mostly a warning device. Never put your hand, fingers or body over the spray tip. Gloves and clothing do not necessarily offer any protection either. Keep the gun trigger safety lever in locked position when not spraying. Always have the tip guard in place while spraying.
- In case of penetration seek medical aid immediately! Note to physician: Injection into skin is a serious traumatic injury. It is important to treat the injury surgically as soon as possible. Do not delay treatment to research toxicity. Toxicity is a concern with some exotic coatings injected into the bloodstream. Consultation with a plastic surgeon or reconstructive hand surgeon may be advisable. Be prepared to tell the doctor what fluid was injected.
- Do not use halogenated hydrocarbon solvents in this system; it contains aluminium parts and may explode. Cleaning agents, coatings, paints, and adhesives may contain halogenated hydrocarbon solvents. Don't take chances, consult your material supplier to be sure. (ex: methylene chloride and 1,1,1 - Trichlorethane)
- Caution: When a flammable liquid is sprayed there may be danger of fire or explosion especially in a closed area.
- Use extreme caution when cleaning spray tip guard. DO NOT try to wipe off build up around the spray tip before following shut down procedure. Follow the Shut down

Procedure, then follow the spray tip manufacturer's instructions for removing and cleaning the spray tip.

- Never attempt to change spray tip or leave the unit unattended without first shutting off pump, releasing fluid pressure, and locking the trigger safety lock.
- Conductive metal containers must be used when flushing flammable fluids through the system. Always flush at low pressure with spray tip removed. A metal part of the spray gun must be held firmly against the grounded metal pail when flushing or relieving pressure from the gun.
- Trigger guard helps reduce the risk of accidentally triggering the gun if dropped or bumped. Do not use a spray gun without a trigger guard.

Pos.	Part nos.	Description	Qty.
	L032-030	L-65 airless gun without tip nut	
	L032-035	L-65 airless gun without tip nut (G-thread)	
1	L032-501	Tip retainer (11/16" L-thread)	opt.
	L032-710	Tip retainer (7/8" G-thread)	opt.
2		tip (see separate list)	opt.
3	L043-008	Nylon washer	1
4	L032-711	Seat, (11/16" L-thread)	1
	L032-712	Seat, (7/8" G-thread)	1
5	L032-589	Trigger guard	1
6	L032-523	Trigger pin	1
7	L032-713	Trigger complete	1
8	L032-714	Gun body	1
9	L032-591	Pin	2
10	L032-715	Ball with shaft	1
11	L032-507	Wedge	1
12	L032-508	Packing	1

Pos.	Part nos.	Description	Qty.
13	L032-716	Housing	1
14	L032-582	Spring shaft	1
15	L032-588	Spring	1
16	L032-583	Housing nut	1
17	L032-587	Retainer cap	1
18	L032-590	Lock nut	1
19	L032-514	Handle seal	1
20	L032-516	Gun filter, white (50 mesh)	1
	L032-517	Gun filter, yellow (100 mesh)	opt.
	L032-518	Gun filter, red (200 mesh)	opt.
21	L032-519	Filter spring	1
22	L032-717	Handle	1
23	L032-520	Copper seal	1
24	L032-521	Swivel, 1/4" nps	1

Accessories:

- L032-718 Repair kit, L-65-L (#4,10,12,14,18)
- L032-719 Repair kit, L-65-G (#4,10,12,14,18)

L-65 SPRAY GUN OVERHAUL

Use diagram on opposite side for reference.

Tools needed:

- 10 mm socket and driver
- 2 x 8" or larger crescent wrench
- 1 x L-65 repair kit
- Cleaning brush and lacquer thinner
- needle nose pliers

- 1) Initiate shut down procedure:
Shut Down Procedure: Always follow Shut Down Procedure before starting any troubleshooting, servicing or cleaning.
 - 1) Engage the trigger safety lock in the locked position. Test the trigger safety lock to ensure the lock is working properly.
 - 2) Turn pressure regulator to minimum.
 - 3) Disconnect electric plug from wall socket, or disconnect air supply.
 - 4) Open the dump valve to relieve pressure. Leave open until ready to spray or test or clean.
 - 5) Remove the spray tip.
 - 6) Disengage the trigger safety lock.
 - 7) Trigger the gun into a metal pail to relieve any remaining pressure. A metal part of the spray gun should be held firmly against the grounded metal pail when relieving the pressure from the gun. (A grounded metal pail is not required for non-flammables such as latex.)
 - 8) Reset the trigger safety lock to locked position.
- 2) Using the two crescent wrenches, disconnect the gun and gun handle from spray hose.
- 3) Remove spray tip or attachment assembly from gun.
- 4) Hold gun trigger open and remove seat (#4) from gun. Release trigger. **Never remove or attach seat unless trigger is held in the open position. Permanent and expensive damage to both ball and seat will result!**
- 5) Using 10mm socket and driver, remove adjusting nut (#18) from rear of gun.
- 6) Grasp retainer cap (#17) and pull away from rear of gun. Remove the two trigger pins (#9) from gun.
- 7) The ball spring assembly can be removed from the rear of the gun body by unthreading six to eight turns and then pulling firmly towards rear of gun body (#13). Push packing & wedge

- (#11&12) out of rear of gun body.
- 8) Remove gun handle from gun and remove filter and filter spring.
- 9) Using points of needle nose pliers, unscrew housing nut (#16) from housing (#13). Grasp end of shaft (#14) and remove. Take spring (#15) off of shaft for cleaning.
- 10) If the ball (#10) has a groove worn in it, the ball with shaft will have to be replaced. Usually the seat will have to be replaced as well, as it wears against the ball. Both of these parts are included in the repair kit.
- 11) Lightly grease wedge & packing & assemble together. Install wedge first, and then the packing into gun body until they bottom.
- 12) Lightly grease spring & outside of housing. Install spring on spring shaft, and put into housing. Install housing nut & tighten until flush with rear face of housing.
- 13) Thread housing into rear of gun body. Tighten to a maximum of 3-5 ft/lbs.
- 14) Examine the trigger pins for wear and equal length. Lightly grease and install.
- 15) Install retainer cap on rear of gun and install locking nut. Tighten locking nut until approximately two threads show out rear of the nut.
- 16) Thread gun handle into gun body and hand tighten.
- 17) Lightly grease threads of seat. Install trigger guard over open end of seat. Hold gun trigger in open position and install seat. Tighten to 30-40 ft. lbs. and release trigger.
- 18) The retainer cap should have a bit of slack in it and should not be bottomed against the gun tightly. The trigger should have 3/8" slack at the bottom of the trigger before engaging against the trigger pins.
This slack is very important for the correct operation of your gun. The gun and safety lock will not work properly if this step is not performed correctly.
To increase slack, loosen the locknut a little and test slack again.
To decrease slack, tighten the locknut a little and test slack again.
With too much slack, the gun may not turn on, but the safety lock will work fine. With too little or no slack, the gun may be permanently ON and the safety lock does nothing.
DO NOT RUSH OR IGNORE THIS STEP, CORRECT OPERATION OF THE SAFETY TRIGGER LOCK REQUIRES PROPER ADJUSTMENT OF TRIGGER SLACK.
- 19) Install tip attachment onto gun. Remove gun handle, install spring and filter, lightly grease threads and re-install.
- 20) Place trigger in LOCK position. Install gun to hose, tightening securely. Install tip where applicable. The gun is now ready for testing and use.

L-50 & L-50N GUN

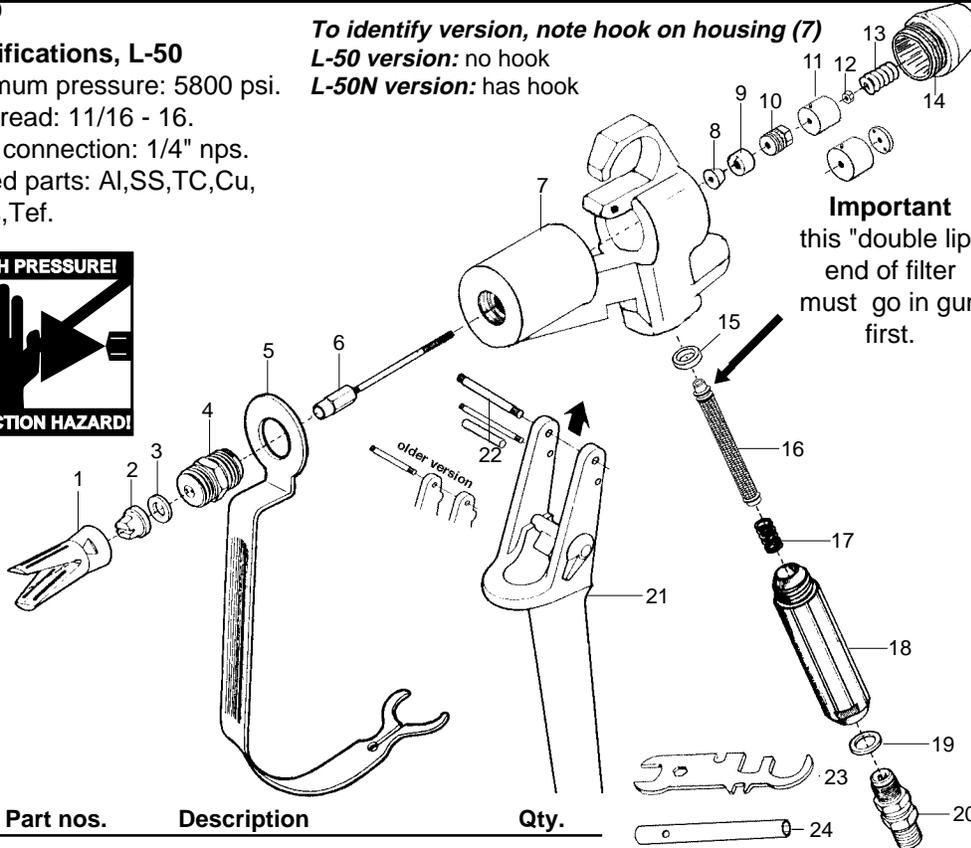
May99

Specifications, L-50

- Maximum pressure: 5800 psi.
- Tip thread: 11/16 - 16.
- Hose connection: 1/4" nps.
- Wetted parts: Al,SS,TC,Cu, Brass,Tef.

To identify version, note hook on housing (7)

- L-50 version: no hook
- L-50N version: has hook



Important
this "double lip"
end of filter
must go in gun
first.

Important

To engage trigger safety lock, turn lever tab to horizontal position. Test regularly for proper functioning while system is shut down.

(trigger shown in horizontal locked position)

Pos.	Part nos.	Description	Qty.
	L032-009	L-50 airless gun without tip nut	
	L032-010	L-50 airless gun with tip nut	
1	L032-501	Tip retainer	opt.
2		tip (see separate list)	opt.
3	L043-008	Nylon washer	opt.
4	L032-503	Seat	1
5	L032-589	Trigger guard (L-45, L-50N)	1
	L032-530	Trigger guard with hook (L-50)	1
6	L032-531	Ball with shaft	1
7	L032-532	Gun body (L-50)	1
	L032-528	Gun body (L-50N)	1
8	L032-507	Wedge	1
9	L032-508	Packing	1
10	L032-533	Packing nut	1
11	L032-534	Drum (L-50)	1
	L032-527	Drum with pin (L-50N)	1
12	L032-511	Nut	1
13	L032-535	Spring	1

Pos.	Part nos.	Description	Qty.
14	L032-536	Tension knob	1
	L032-566	Tension knob (L50N)	1
15	L032-514	Handle seal	1
16	L032-516	Gun filter, white (50 mesh)	1
	L032-517	Gun filter, yellow (100 mesh)	opt.
	L032-518	Gun filter, red (200 mesh)	opt.
17	L032-519	Filter spring	1
18	L032-529	Handle, blue	1
19	L032-520	Copper seal	1
20	L032-521	Swivel, 1/4" nps	1
21	L032-537	Trigger complete	1
22	L032-523	Trigger pin	1
Accessories:			
23	L032-560	Wrench, general use	opt.
24	L032-538	Wrench, L-35/L-50 for nut #12	opt.
	L032-595	Repair kit (Incl. pos. 4,6,8,9,12,15)	

LEMMER SPRAY SYSTEMS LTD.

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CALGARY Lemmer Spray Systems Ltd.
(head office) 4624 - 12th Street N.E. Calgary, AB, T2E 4R4
TEL: (403) 250-7735 **FAX: (403) 291-9095**

TORONTO Lemmer Spray Systems (Ont.) Ltd.
7585 Torbram Rd, #7&8, Mississauga, ON, L4T 1H2
TEL: (905) 673-1555 **FAX: (905) 673-3201**

MONTRÉAL Lemmer (Qué.) Inc.
2851 Bd le Corbusier, Chomedey, Laval, QC, H7L 4J5
TEL: (450) 681-8220 **FAX: (450) 681-4914**

Jul-22-16

(specifications are subject to change without notice)
(caractéristiques sont sujets à changement sans préavis)

LEMMER PAINT SPRAYING EQUIPMENT LIMITED WARRANTY

LEMMER Spray Systems Ltd. extends to the original purchaser of its paint spray equipment a limited **one year warranty** from the date of purchase against **defects in material or workmanship** provided that the equipment is installed and operated in accordance with the recommendations and instructions written in the owners manual. LEMMER Spray Systems Ltd. will **repair or replace**, at its option, defective parts without charge if such parts are returned (still intact in the original equipment) with transportation charges **prepaid** to the nearest LEMMER Spray Systems Ltd. outlet. An original **proof of purchase** must be attached.

THIS WARRANTY DOES NOT COVER:

Normal wear and/or defects caused by or related to abrasion, corrosion, abuse, negligence, accident, faulty installation or tampering in a manner which impairs normal operation.

Transportation costs and other incidental, direct, special, or consequential damages or loss.