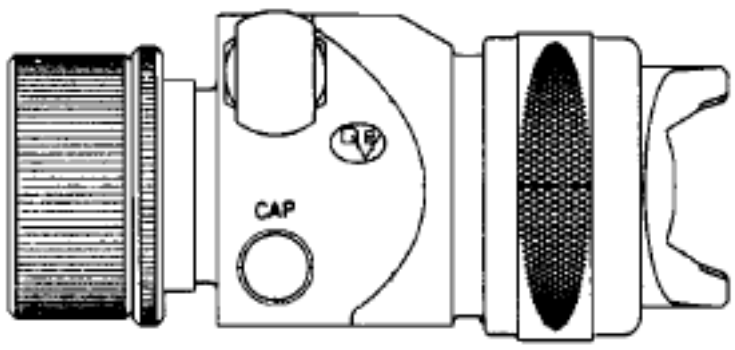
T-AGHV HVLP
COMPACT AUTO GUN Operation Manual

DeVILBISS

Important : Read and follow all instructions and SAFETY PRECAUTIONS before using this equipment.



DESCRIPTION

T-AGHV gun a small, light-weight HVLP compact auto gun and suitable for robots and automatic machines.

This gun is designed to obtain high transfer efficiency with maximum 0.07Mpa (10psi) air cap pressure for all combinations. The actual air cap pressure can be measured with Air Cap Test Gauge (optional).

Models and application information follows.

MODELS

Example: T－AGHV-5 □□ － FX

- T－AGHV-5 : Basic Part Number
- □□ : Air Cap No.
- FX : Fluid Tip Size

Chart 1

Air Cap		Fluid Tip Size (mm)	Pattern Size Shape	Typical Applications
Marking	Code No. / Part No.			
33A	803804 / JGHV-101-33A	E(1.8), FF(1.4) FX(1.1), G(0.7)	230mm, Taper pattern	Most conventional materials For low fluid delivery (max. 300cc/min)
46MP	803798 / JGHV-101-46MP	FF(1.4), FX(1.1)	280mm, Straight pattern	Most conventional materials Medium solid, medium fluid delivery (300~500cc/min)
83MP	803800 / JGHV-101-83MP	D(2.2), E(1.8)	330mm, Straight pattern	Most conventional materials Medium solid, high fluid delivery (Min. 500cc/min)

Actual pattern is determined depending on the orifice size of fluid tip, delivery, atomizing air pressure and pattern air pressure.
It is recommended to use 33A Air Cap, which most paint can be atomized with and consumes less air and better transfer efficiency than 46MP Air Cap.
However, for paint which is difficult to be atomized such as high solid paint or medium delivery of 300~500cc/min, 46MP Air Cap is recommended. Also, 83MP Air Cap is suitable for high delivery of over 500cc/min.
The air passage of this gun is made of Stainless Steel and may be used with chlorinated solvents. If using chlorinated solvents, make sure all other fluid handling components are also compatible.

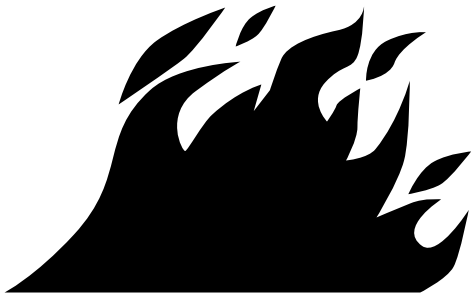
SAFETY PRECAUTIONS

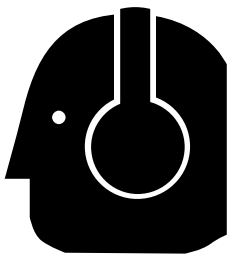
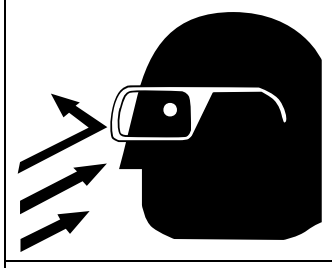
This manual contains important information that ALL users should know and understand BEFORE using this equipment. This information relates to USER SAFETY and PREVENTING EQUIPMENT PROBLEMS.
To help you recognize this information, we use the following terms to draw your attention to certain equipment labels and portions of this manual. Pay special attention to any label or information that is highlighted by one of these terms:

WARNING	Important information to alert you to a situation that might cause serious injury or loss of life if instructions are not followed.
CAUTION	Important information that tells how to prevent damage to equipment.
NOTE	Information that you should pay special attention to.

WARNING

The following hazards may occur during the normal use of this equipment. Please read the following chart.

HAZARD	CAUSE	SAFEGUARDS
Fire 	Solvents and coatings can be highly flammable or combustible, especially when sprayed.	1. Adequate exhaust must be provided to keep the air free of accumulations of flammable vapors. 2. Smoking must never be allowed in the spray area. 3. Fire extinguishing equipment must be present in the spray area. 4. Static discharges must be prevented. Ground(earth) all conductive objects in the spray area, such as a cleaning solvent bucket, fire extinguisher, etc. 5. When using solvents for cleaning: · Those used for equipment flushing must have a flash point equal to or greater than that of the coating. · Those used for general cleaning must have flash points above 100°F (37.8°C).
Inhaling Toxic Substances 	Certain materials may be harmful if inhaled or if there is contact with the skin.	1. Follow the requirements of the Material Safety Data Sheet supplied by coating material manufacturer. 2. Adequate exhaust must be provided to keep the air free of accumulations of toxic materials. 3. Use a mask or respirator whenever there is a chance of inhaling sprayed materials. The mask must be compatible with the material being sprayed and its concentration. Equipment must be as prescribed by an industrial hygienist or safety expert, and be NIOSH approved.
Explosion Hazard – Incompatible Materials 	Halogenated hydrocarbon Solvents- for example: methylene chloride and 1,1,1,-Trichloroethane are not chemically compatible with the aluminum that might be used in many system components. The chemical reaction caused by these solvents reacting with aluminum can become violent and lead to an equipment explosion.	The T-AGB spray gun can be used with these solvents. However, aluminum is widely used in other spray application equipment – such as material pumps, cups, regulators, valves, etc. Check all other equipment items before use of these solvents. Read the label or data sheet for the material you intend to spray. If in doubt as to where or not a coating or cleaning material is compatible, contact your material supplier.

HAZARD	CAUSE	SAFEGUARDS
General Safety	Improper operation or maintenance may create a hazard.	Operators should be given adequate training in the safe use and maintenance of the equipment (in accordance with the requirements of NFPA-33, Chapter 15 in U.S.). Users must comply with all local and national codes of practice and insurance company requirements governing ventilation, fire precautions, operation, maintenance and housekeeping (in the U.S., these are OSHA Sections 1910.94 and 1910.107 and NFPA-33).
Noise Levels 	The continuous A-weighted sound pressure level of this spray gun may exceed 85dB(A) depending on the air cap/nozzle set-up being used. Sound levels are measured using an impulse sound level meter and analyzer, when the gun is being used in a normal spraying application. Details of actual noise levels produced by the various air cap/nozzle set-ups are available on request.	Wear earplugs when using the spray gun.
Spraying solvent 	Pressured air/fluid passage may be broken when cleaning or flashing with solvent. The solvent may be harmful if contacted with eyes.	Always wear eye protection when spraying or cleaning the equipment.

Misuse:

- All spray guns project particles at high velocity and must never be aimed t any part of body.
- Never exceed the recommended safe working pressure for any of the equipment used.
- The fitting of non-recommended or non-original accessories or spare parts may create hazardous conditions.
- Before dismantling the equipment for cleaning or maintenance, all pressures, air and material, must be isolated and released.

Disposal of non-metallic materials must be carried out in an approved manner. Burning may generate toxic fumes.
The removal of waste solvents and coating materials should be carried out by an authorized local waste disposal service.

SPECIFICATIONS

Max. Air Pressure	0.9MPa (9.0 bar)
Max. Fluid Pressure	1.4MPa (14.0 bar)
Cylinder Air Pressure	Min. 0.34MPa (3.5 bar) Max. 0.49MPa (5.0 bar)
Weight	550 g
Gun Stud Diameter	10.5mm
Fluid Thread	R1/8 (F)
CAP Thread	R1/8 (F)
FAN Thread	R1/8 (F)
CYL Thread:	R1/8 (F)

INSTALLATION

Figure 1. Dimensions

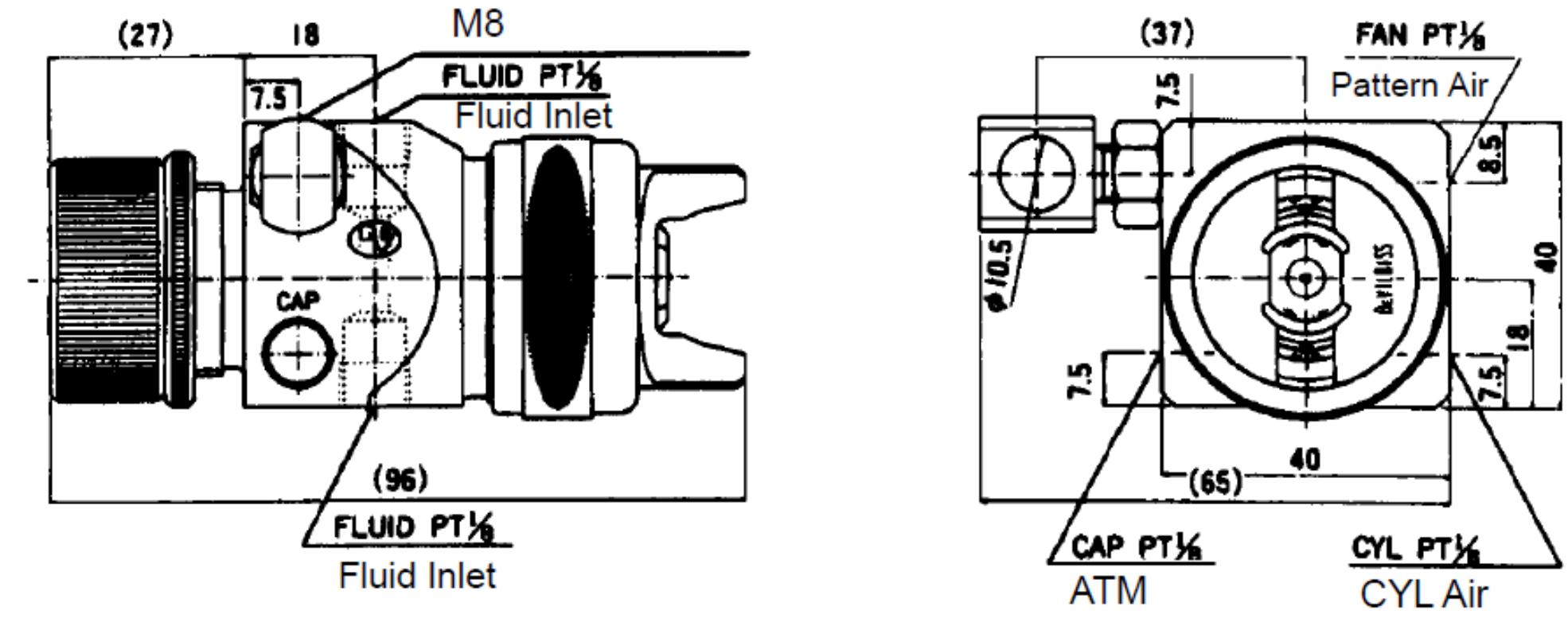
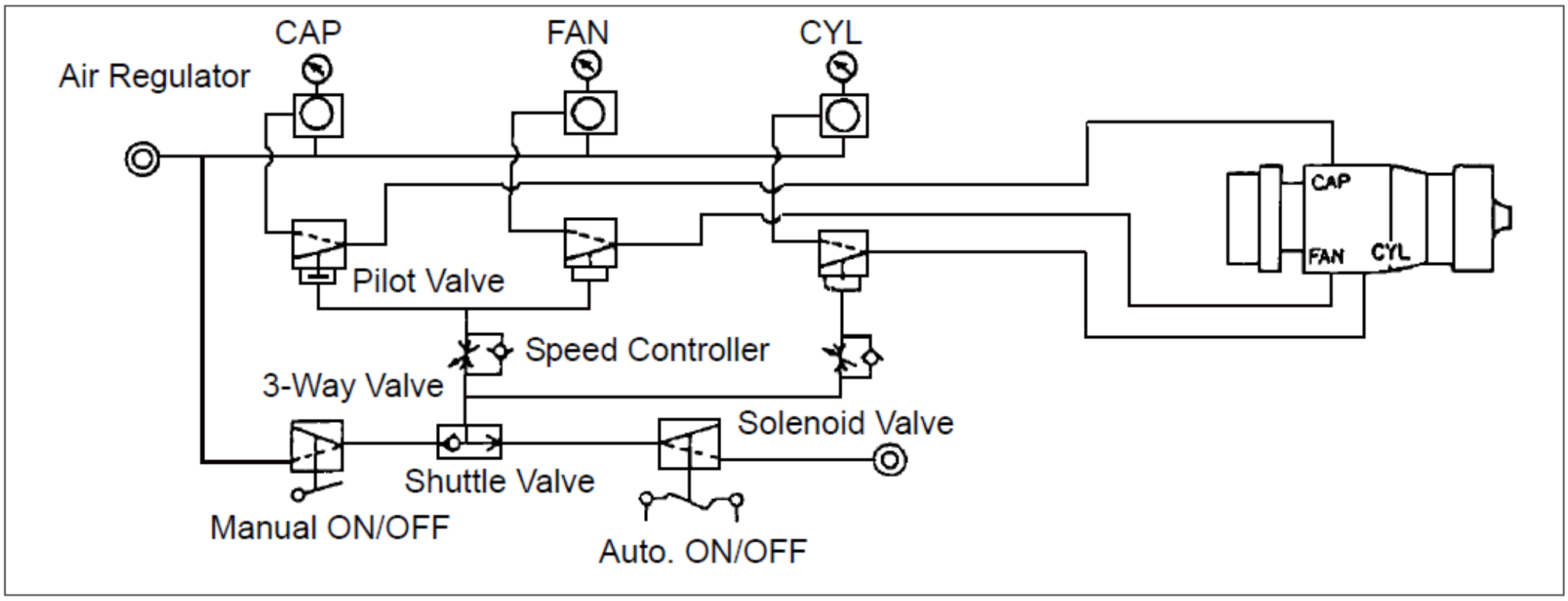


Figure 2. Installation



Mount the gun with the stud (21) or tighten with M8(F) of the gun body.
CAUTION:
The air supplied to the gun should be clean air that removed any impurities. Also, the air hose should have enough inner diameter depending on the length to supply necessary air.
As CYL air is not consumption air, large diameter of the tube is not necessary.
When circulating the paint, remove the plug and install the fluid nipple.

OPERATION

1. Mix, prepare and strain the coating material to be sprayed according to paint manufacturer’s instructions.
2. Adjust the CYL air at 0.34~0.49Mpa.
3. Turn the Adjusting Screw (20) counter-clockwise 3.5 turns from fully closed position and fixed with Lock Nut (19). This makes the Needle fully opened.
4. Adjust the CAP/FAN air at about 0.35Mpa.
5. Adjust fluid air at about 0.07Mpa~0.1Mpa.
6. Turn on CYL air and test spray. Adjust fluid and air pressure until desired pattern is obtained. Control fluid pressure at source supply. Always attempt to keep CAP pressure as low as possible to minimize overspray.

WARNING

Risk of injury. Equipment and fluid may be under pressure. Pressure in the system must be relieved before beginning the cleaning procedure and before replacing any parts. Follow the procedures in the literature provided with the system.

CLEANING

1. Relieve air pressure from pressure tank. Carefully follow instructions in bulletin sent with tank.
2. Replace material in container with a suitable solvent.
3. Re-pressurize system.
4. Trigger gun and repeat procedure until gun and hose are thoroughly clean. A SolventSaver™ type hose and gun cleaner which supplies a mixture of air and solvent can be used to most effectively clean gun and hose internal passages. See “Accessories” for SolventSaver™. Wipe exterior of gun with a solvent dampened cloth.
5. If a recirculating system is used, it may be necessary to fit a shut off valve in return line to ensure fluid tip and forward portion of sprayhead passage are properly cleaned when flushed with solvent.

CAUTION

Do not totally submerge gun in solvent. It is possible to wash solids into air operating sections of gun which could seriously damage piston “O” Ring seals.

CAUTION

The air cap can be immersed in solvent for cleaning. If orifices are clogged, use a broom straw or toothpick to remove obstruction. Never use a steel wire or hard instrument. This will damage air cap and result in a distorted spray pattern.

REPLACEMENT

Tools Required

- Crescent Wrench
- 1/2 Box Wrench (for Item No. 3)
- Pliers (for Needle Assy)
- 3, 6, 13, 14mm Open Wrench (for Item No. 12, 17, 21, 15)
- 1.5mm Hex Wrench (for Item No. 16)
- T-AGB-GRT-1 (for Item No. 7)
- T-AGB-HW-1 (for Item No. 9)

Fluid Tip (3)

1. Relieve all air and fluid pressure in system.
2. Remove Adjusting Screw (20), Lock Nut (19) and Needle Spring(18). Pull Needle Assy out from gun body with Pliers.
3. Remove Retaining Ring (1) and Air Cap (2).
4. Remove Fluid Tip (3) with 1/2 Box Wrench and also remove Nozzle Gasket (22).
5. Reassemble in reverse order. The taper side of inside of Nozzle Gasket (22) should be faced to Fluid Tip side when assembling. Recommended torque of Fluid Tip: 24~27N.m. (for T-AGB-862, the recommended torque is 16~20 N.m.).

NOTE

It is recommended that Fluid Tip (3), Nozzle Gasket (22), Needle (12), Needle Seal Kit (7), and Piston Cup (14) be replaced at the same time.

Replacing Needle (12), Piston Cup (14)

1. Remove Adjusting Screw (20), Lock Nut (19), Needle Spring (18). Pull Needle Assy out from gun body with Pliers.
2. Loosen Set Screw (16) of Retainer (15) by turning 1~2 times with 1.5mm Hex Wrench.
3. Loosen Piston Flange (13) and Retainer (15) a little by turning clockwise with 14mm Spanner for Retainer (15) and 6mm Spanner for Lock Nut (17).
4. Fix this position with Set Screw (16). Remove Retainer (15) with 14mm Spanner and Lock Nut with 6mm Spanner.
5. Using 14mm Spanner for Retainer (15) and 3mm Spanner for Needle (12), remove Needle (12) from Piston Flange (13).
6. Loosen Set Screw (16) with Hex Wrench and remove Piston Flange (13) and Retainer (15), then remove Piston (14).

CAUTION

Do not try to remove Needle (12) with Lock Nut (17) installed as it may cause the damage.

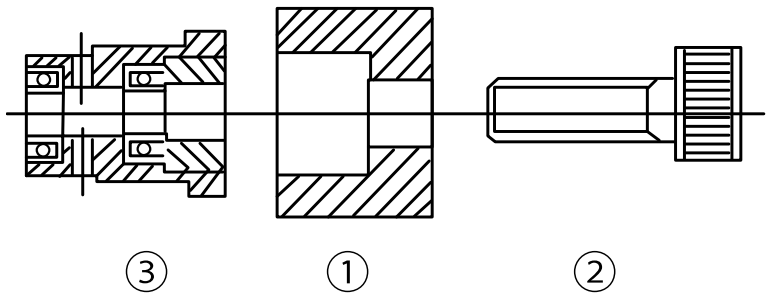
Reassembling Needle Assy

1. Apply small amount of liquid gasket on thread of Needle (12) and screw into Piston Flange (13). Then insert Piston Cup (14) and screw into Retainer (15) fully by finger.
2. Using 14mm Spanner on Retainer (15), tighten it approximately 150~180 degree clockwise from the position where maximally screwed in with finger with 3mm Spanner on Needle (12).(when exchanging to new Piston Cup)
   CAUTION
   If Piston Cup is not brand-new, tighten at 60~90 degree. (Recommended torque: 0.8~1.0N·m)
3. Tighten Set Screw (16) with 1.5mm Hex Wrench.
4. Using14mm Spanner on Retainer (15) and then tighten Lock Nut (17) with 6mm Spanner.
   (Recommended torque: 0.8~1.0N·m)

Replacing Needle Seal Kit (7), Seal (9)

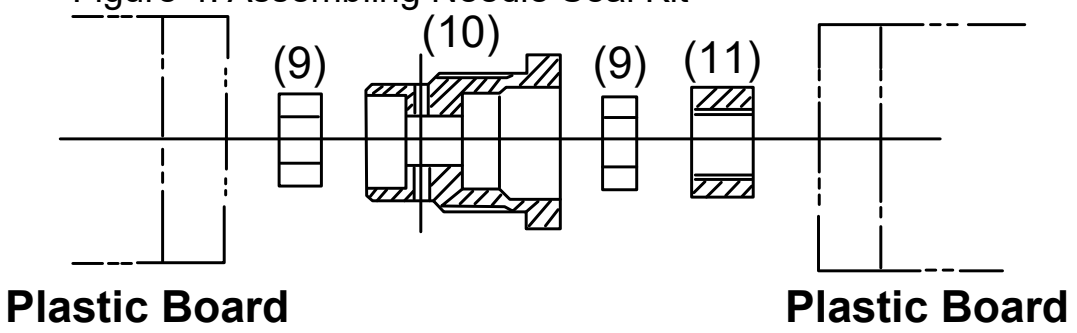
1. Remove Adjusting Screw (20), Lock Nut (19), Needle Spring (18). Pull Needle Assy out from gun body with Pliers.
2. Remove Fluid Seal Kit (7) with T-AGB-HW-1 Housing Wrench (Optional).
3. To remove Seal (9) inside of Needle Seal Kit (7), remove Gland (11) with T-AGB-GRT-1 Grand Removal Tool (Optional). (Refer to Figure 3)

Figure 3. Removing Gland (11)



Holding③ with 13mm Spanner,
①Replace the Spacer, ②tighten the bolt and extract Gland (11).

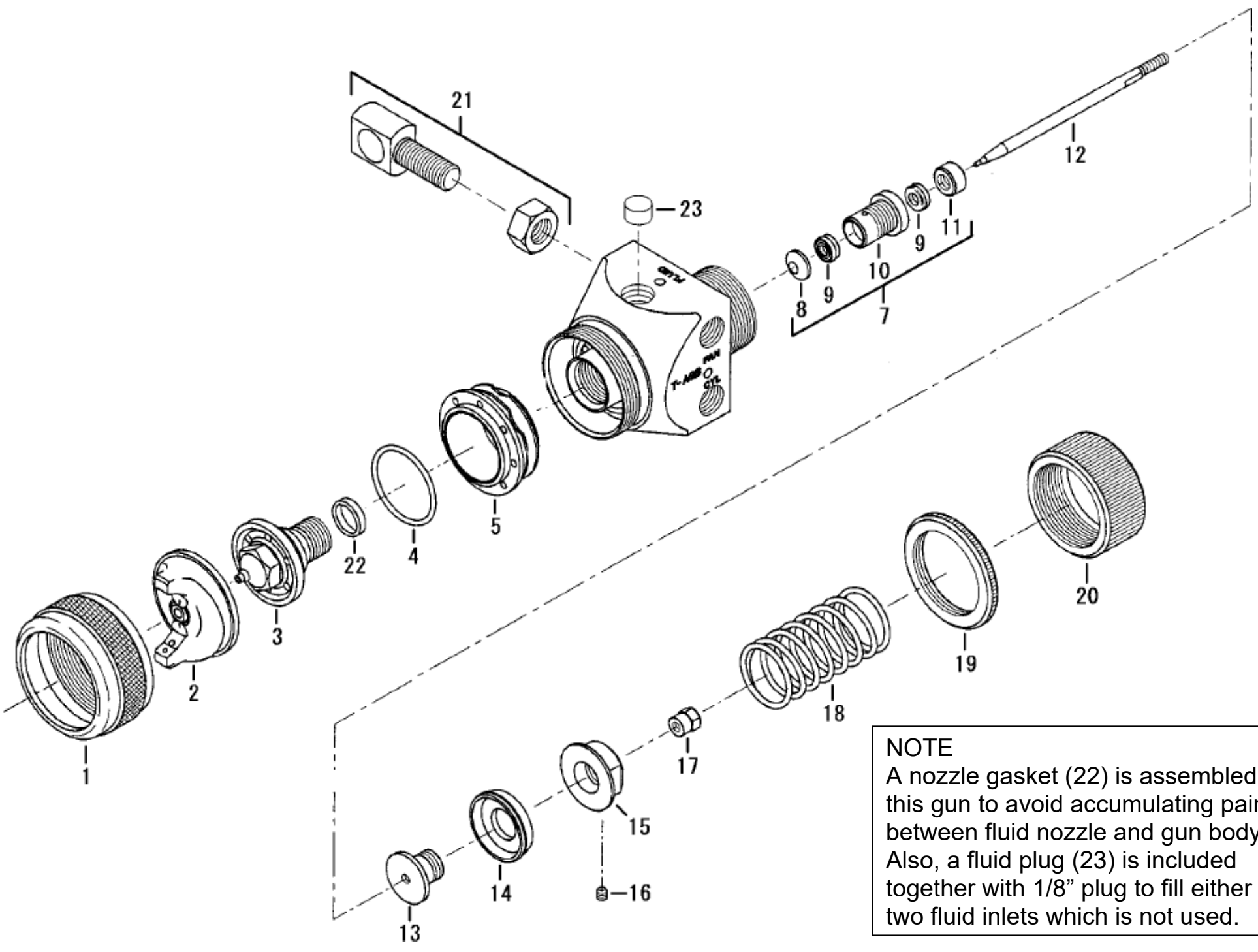
Figure 4. Assembling Needle Seal Kit



Place Seals (9) and Gland (11) as shown the above.
Press them in with plastic board from both side.

4. Bind seal tape 1.5 laps on thread of Housing (10). Careful not to cover the hole in front of the thread.
5. Set Needle Seal Kit (7) on the shaft of T-AGB-HW-1 Housing Wrench and assemble on Gun Body (6).
   ① Tighten as follows.
   ② Screw Needle Seal Kit (7) with T-AGB-HW-1 Housing Wrench from the backside of the Gun Body (6).
   ③ Pressure 0.1Mpa on fluid inlet. (For circulating system, close the one side.)
   ④ Press the point of Fluid Tip (3) to stop the air and tighten until the air stops leaking from 3mm hole.
6. Apply petroleum jelly on Piston Cup (14) of Needle Assy and insert into gun.
7. Insert Needle Spring (18), Lock Nut (19) and assemble Adjusting Screw (20) at the position of 3.5 counter-clockwise turns from fully closed position.
8. Pressure 0.34Mpa on CYL and check the movement of needle.

Figure 5. Gun Exploded View



NOTE
A nozzle gasket (22) is assembled in this gun to avoid accumulating paint between fluid nozzle and gun body. Also, a fluid plug (23) is included together with 1/8” plug to fill either of two fluid inlets which is not used.

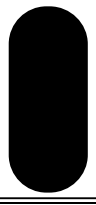
Item No.	Code No.	Part Number	Description	Q'ty
1	804307	MBC-368	Retaining Ring	1
2		REFER CHART 1.	Air Cap	1
3		REFER CHART 2.	Fluid Tip	1
4	802414	AV-1-K5	Gasket	1
5	802359	AGHV-403	Baffle	1
6		T-AGHV-71	Gun Body (303Gr S. Steel)	1
7	805467	T-AGB-10-1	Needle Seal Kit	1
8	805486	T-AGB-11-3	Seat Washer	1
9	805500	T-AGB-12	Seal	2
10	805517	T-AGB-13-2	Housing	1
11	805530	T-AGB-14	Grand	1
12		REFER TO CHART 2.	Needle	1
13	805470	T-AGB-101	Piston Flange	1
14	805472	T-AGB-102	Piston Cup	1
15	805473	T-AGB-103	Retainer	1
16	805475	T-AGB-104-K5	Set Screw Kit of 5	1
17	805477	T-AGB-105	Lock Nut	1
18	805479	T-AGB-106	Needle Spring	1
19	805533	T-AGHV-127	Lock Nut (SUS)	1
20	805534	T-AGHV-128	Adjusting Screw (SUS)	1
21	805483	T-AGB-109-SUS	Gun Stud	1
22		T-AGB-120-K5	Nozzle Gasket	1
23		T-AGB-121-K5	Fluid Plug	1
■Tools				
	805463	T-AGB-GRT-1	Grand Removal Tool	1
	805464	T-AGB-HW-1	Housing Wrench	1

Chart 2 Combination Chart

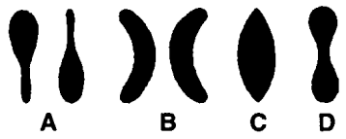
Item No.	Code No.	Part Number	Description	Reference
33A Air Cap Combination				
2	803804	JGHV-101-33A	Air Cap	
3	802581 802576 802577	AV-651-G AV-651-FX AV-651-FF	Fluid Tip (0.7mm) Fluid Tip (1.1mm) Fluid Tip (1.4mm)	300Gr SUS 300Gr SUS 300Gr SUS
12	805654 805653	T-JGA-402-G T-JGA-402-FZ	Fluid Needle (400Gr SUS) Fluid Needle (400Gr SUS)	for AV-651-G for AV-651-FX, FF
46MP Air Cap Combination				
2	803798	JGHV-101-46MP	Air Cap	
3	802583 802584	AV-4920-FX AV-4920-FF	Fluid Tip (1.1mm) Fluid Tip (1.4mm)	300Gr SUS 300Gr SUS
12	805653	T-JGA-402-FZ	Fluid Needle (400Gr SUS)	for AV-4920-FX, FF
83MP Air Cap Combination				
2	803800	JGHV-101-83MP	Air Cap	
3		AV-4920-E AV-2120-D	Fluid Tip (1.8mm) Fluid Tip (2.2mm)	300Gr SUS 300Gr SUS
12	805647 805646	T-JGA-402-E T-JGA-402-DEX	Fluid Needle (400Gr SUS) Fluid Needle (400Gr SUS)	for AV-4920-E for AV-4920-D

SERVICE CHECK

Normal spray pattern



The proper combination of fluid pressure, fan and atomization air pressure, and fluid tip size should result in a pattern of this shape.

problem	Cause	Correction
Will not spray.	No pressure to gun.	Check air and material lines.
	Piston stops moving.	Check CYL air pressure.
Improper spray pattern.  	A. Gun not adjusted properly. A, B. Material build up on the air cap (2)or fluid tip (3).	A. Re-adjust. See “Operation Section”. A, B. Clean the air cap or fluid tip. See “Preventive Maintenance”.
	Note To determine where the material build up is, rotate the air cap 180°and test spray. If the pattern stays in the same position, the condition is caused by material build up on the fluid tip. If the pattern changes with air cap movement, the buildup is in the air cap.	
	C, D. Wrong material or material too thick. Insufficient material or atomizing air pressure too high.	C, D Adjust material pressure or thin material. Increase material or reduce atomizing air pressure.
Jerky or fluttering spray 	1.Insufficient material in the tank or an obstruction in the line. 2.Gun material passage plugged. 3.Worn Needle Seal Kit (7). 4.Loose or damaged Fluid Tip.	1. Fill tank or clear obstruction. 2. Clean. 3. Replace or tighten. 4. Tighten or replace.
Air leaking from Adjusting Screw (20).	1.Damaged or worn Piston Cup (14). 2.Damaged cylinder of Gun Body (6).	1.Replace. 2.Replace.
Dripping from Fluid Tip.	1.Worn or damaged Fluid Tip (2) or Needle (12). 2.Needle Spring (18) damaged or deformed.	1. Replace. 2. Replace.
Air or fluid leaking from Gun Body (6).	Damaged or worn Needle Seal Kit (7)	Replace.

ACCESSORIES

Code No.	Part No.	Description
805153	SSL-10	Gun Lube Kit of (12)
806472	42884-214-K5	Cleaning Brush Kit of 5
800163	GC-100-K48	Gun Cover Kit of (48)
HD-505-W		Quick Cleaner
800279	QMGZ-5200	Solvent Saver (10ℓ)
804097	KK-5033-33A	Air Cap Test Gauge (for JGHV-101-33A)
804099	KK-5033-46MP	Air Cap Test Gauge (for JGHV-101-46MP)
804081	KK-5033-805MT	Air Cap Test Gauge (for JGHV-101-83MP)

DEVILBISS DIVISION
CFT Ransburg Japan KK
15-5, Fukuura 1-chome, Kanazawa-ku, Yokohama, Kanagawa Japan 〒236-0004
TEL : +81-45-785-6434 / FAX : +81-45-785-6517
HP *http://www.carlisleft.co.jp*

2017-07- T-AGHV HVLP