

# AL-96 AIRLESS AUTOMATIC SPRAY GUN

**GB** Before use, adjustment or maintenance, it is important to read this instruction manual very carefully. This manual must be stored in a safe place for any future reference that may be necessary.

This **ANEST IWATA** airless spray guns kit complies to ATEX regulations 94/9/EC.



Protection level: II 2 G X Suitable for using Zones 1 and 2.

X marking: Any static electricity discharge from the spray gun is to be diverted to the ground via the conductive air hose as stipulated.

## IMPORTANT

This airless spray gun should be operated only by an adequately trained operator, for safe use and maintenance of the equipment. Any misuse or handling other than those indicated in this Instruction Manual is not covered by guarantee. ANEST IWATA disclaims all responsibility for any accident or damage caused by failure to observe the operational and safety procedures as from this manual. In the interest of user friendliness, this manual contains information in a brief and concise form.

For any additional information you may require regarding Airless spray guns operations, or if any missing parts or any damage during transportation is found, please contact your nearest ANEST IWATA Company (see last cover page).

Be sure to observe warnings and cautions in this instruction manual. If not, it can cause paint ejection and serious bodily injury by drawing organic solvent. Be sure to observe following marked items which are especially important.

<b>WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, may result in serious injury or loss of life.
<b>CAUTION</b>	Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or property damage.
<b>IMPORTANT</b>	Indicates notes which we ask you to observe. The safety precautions in this instruction manual are the minimum necessary conditions. Follow national and local regulations regarding fire prevention, electricity and safety as well as your own company regulations.

## IMPORTANT SPECIFICATIONS

Max. Pressure Fluid:	250 bar (3600 PSI)	Max. Temperature:	
Max. Pressure Air:	7.0 bar (100 PSI)	Atmosphere	5 ~ 40 °C
Noise Level (LAeqT)	62.9 dB (A)	Air and fluid	5 ~ 43 °C
Spray conditions	Used with nozzle tip NT-3005		
	Fluid pressure 100 bar (1440 PSI)		
	Tested with water	Measuring point:	1m backwards from gun, 1.6 m height

## TECHNICAL SPECIFICATIONS

Model	Max. operating air pressure bar (PSI)	Operating air pressure bar (PSI)	Use	Fluid output ml/min.	Fluid hose connection	Fitting dimension	Mass g (lbs)
AL-96	250 (3600)	0.4 ~ 0.7 (57~100)	General	Ref. to 4. selection of nozzle tip according to kind of paint	G 1/4" Air G 1/4" Fluid	Ø 16 hole or M8 screw	480 (1.06)

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## SAFETY WARNINGS



### FIRE OR EXPLOSION HAZARD

**1. Spark and open flames are strictly prohibited.**

Paints can be highly flammable and can cause fire. Avoid any ignition sources such as smoking, open flames, electrical goods, etc.

**2. Be sure to stop pump, reduce operating air pressure and fluid pressure down to 0 pressure before you fit or remove nozzle tip.**

Emission of paint or solvent during operation can cause great danger.

**3. Securely ground airless spray gun by using air hose with built-in ground wire or using fluid hose with built-in ground wire or using grounded gun stay.**

Use air hose with built-in ground wire or fluid hose with built-in ground wire or use grounded gun stay. Ground resistance : Less than 1 MΩ. Check the earth stability periodically. Securely ground pump, airless spray gun, workpiece and containers containing paint or solvent. If not, insufficient grounding can cause fire and explosion due to static electric sparking. Insufficient grounding will cause explosion or fire by spark of electricity.

**4. Never use the following HALOGENATED HYDROCARBON SOLVENTS**

which can cause cracks or dissolution on gun body (aluminum) by chemical reaction. Unsuitable solvents: methyl chloride, dichloromethane, 1,2-dichloroethane, carbon tetrachloride, trichloroethylene, 1,1,1-trichloroethane. (Be sure that all fluids and solvents are compatible with gun parts. We are ready to supply a material list used in the product)



### IMPROPER USE OF EQUIPMENT

**1. Never point airless spray gun toward people or animal.**

If done, it can cause inflammation of eyes and skin or bodily injury. If you feel any abnormality during operation, consult with a medical doctor immediately.

**2. Never exceed maximum operating pressure and maximum operating Temperature.**

Usage at more than max. operating pressure can cause explosion of airless spray gun resulting in great danger.

**3. Be sure to release fluid pressures before cleaning, disassembling or servicing.**

If not, remaining pressure can cause bodily injury due to improper operation or scattering cleaning liquid. In order to release pressure, first stop supply of compressed air, fluid and thinner to airless spray gun.



### PROTECTION OF HUMAN BODY

**1. Use in a well-ventilated site by using spray booth.**

If not, poor ventilation can cause organic solvent poisoning and catch fire. If you feel any abnormality during operation, consult with a medical doctor immediately.

**2. Always wear protective gear (safety glasses, mask, gloves).**

If not, cleaning liquid, etc., can cause inflammation of eyes and skin. If you feel something wrong with eyes or skin, immediately see a doctor.

**3. Wear earplugs if necessary.**

Noise level can exceed 85 dB(A), depending on operating conditions and painting site.

**4. Be sure to stop pump, reduce air and fluid pressure down to 0 pressure before you fit or remove nozzle tip, cleaning, disassembling or servicing.**

Emission of paint or solvent during operation can cause great danger.

**5. Never try to stop leaks by hand, when paint leaks.**

In that case, stop pump immediately and reduce paint pressure down to 0 pressure. High pressure paint emitted through small hole can pierce an iron plate and can cause severe injury since paint can enter human body directly through eye, mouth or skin. It is very dangerous. If you feel any abnormality or receive any injury, consult with a medical doctor immediately



### BURST OF FLUID HOSE

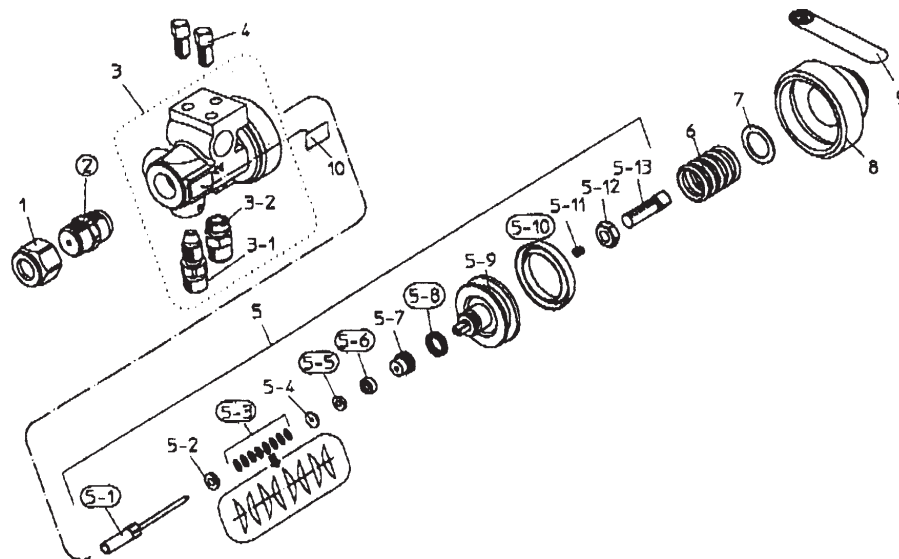
**1. Never use cracked, damaged, bent or crushed fluid hose.**

High pressure paint emitted at small hole can pierce an iron plate and cause great danger.

**2. Never bend fluid hose with a radius of less than permitted bend radius.**

Contact the shop who sold the hose to you, or us, about permitted bend radius. Never put heavy things on it in order not to damage the hose. If done, hose can explode causing great danger.

## SPARE PARTS LIST



● Marked parts are consumable parts

DESCRIPTION	REF. PART
NOZZLE HOLDER	1
NOZZLE GLAND SET	● 2
GUN BODY SET	3
FLUID NIPPLE	3-1
AIR NIPPLE	3-2
BOLT SET	4
NEEDLE SET	5
NEEDLE BAR SET	● 5-1
CONICAL SPRING HOLDER	5-2
CONICAL SPRING WASHER	● 5-3
PACKING HOLDER	5-4
SUB PACKING	● 5-5
NEEDLE PACKING	● 5-6

DESCRIPTION	REF. PART
NEEDLE PACKING SEAT	5-7
MINI Y PACKING	● 5-8
PISTON SET	5-9
PISTON PACKING	● 5-10
SCREW	5-11
HEX. NUT	5-12
SQUARE SCREW	5-13
PISTON SPRING	6
COLLAR	7
PISTON SPRING HOLDER	8
CAUTION PLATE	9
NAME PLATE	10

# PROBLEMS AND REMEDIES

**IMPORTANT :** As for \* marked items, ask our distributor to remedy it for you. Incorrect remedy cannot achieve satisfactory performance.

Problem	Cause	Remedies
Paint does not come out.	Nozzle tip is clogged.	Clean nozzle tip and remove foreign matter from hole by needle.
	Paint is not fed.	Inspect pump.
	Operating air pressure is low.	Set it at 4.0 -7.0 bar
	Filter in paint circuit is completely clogged.	Clean or replace.
Paint comes out weakly.	Pump fluid pressure is low.	Increase pump fluid pressure.
	Filter in paint circuit is clogged.	Clean or replace.
	Nozzle tip is worn or number of nozzle tip is too large. (Pump capacity is small compared with nozzle tip being used.)	Replace with new tip or proper sized tip.
Paint does not stop smoothly. (Paint leaks from the gun tip).	Pump paint pressure is too high.	Reduce paint pressure down to 250bar (3600 psi)
	Paint sticks to needle packing [5-6].	Disassemble, clean or replace parts.*
	Seat between needle bar set [5-1] and nozzle gland set [2] is worn.	Disassemble, clean or replace parts.*
Paint leaks from leak detection hole of gun body.	Wear or damage of needle packing [5-6]	Adjust needle packing [5-6]. (Refer to item 6 on page 7.)*
	Wear or damage of needle bar set[5-1]	Disassemble, clean or replace.

## ADJUSTMENT OF NEEDLE PACKING



**WARNING**  
Be sure to stop pump, reduce paint pressure down to 0 pressure and stop operating air before you adjust needle packing



**IMPORTANT**  
Adjust needle packing in correct way. If not done, it can cause failure such as slow gun operation (slow start and/or stop).

When leak does not stop even after you have adjusted needle packing, ask the distributor who sold the gun to you for disassembly and inspection.

- Paint can leak from leak detection hole of gun body due to wear of needle packing after long periods of use.
- If paint leaks, you can stop the leak temporarily with the following procedure.  
But in that case, please disassemble and inspect immediately for protection of gun body and other parts.

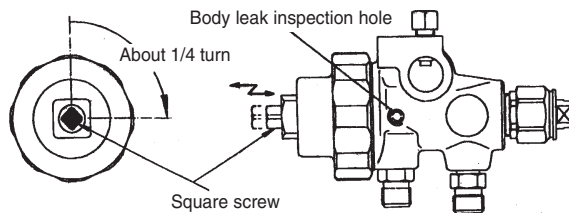
**JOB 1** Stop operating air and reduce it down to 0 pressure.

**JOB 2** Turn square screw at the back of gun body about 1/4 turn clockwise to tighten needle packing.

**JOB 3** Check that paint does not leak from paint leak detection hole.

**JOB 4** If leak still does not stop, turn the square locking crew another about 1/4 turn.

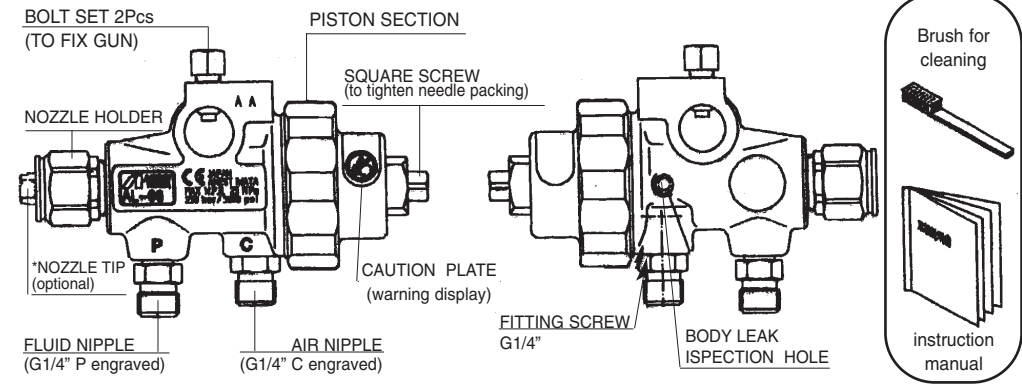
**JOB 5** Supply operating air and check that square locking screw operates smoothly.



## OTHER PRECAUTIONS

- 1. Never alter this airless spray gun.**  
If done, it can cause insufficient performance and failure.
- 2. Enter working areas of other equipment (robots, reciprocators, etc.) after machines are turned off.**  
If not, contact with them can cause injury.
- 3. Never spray foods or chemicals through this gun.**  
If done, it can cause accident by corrosion of fluid passages or adversely affect health by mixed foreign matter.
- 4. Securely connect fluid hose.**  
If hose is disconnected during operation, hazardous hose movement and paint ejection will cause severe bodily injury.
- 5. If something goes wrong, immediately stop operation and find the cause. Do not use again until you have solved the problem.**

## NAME OF COMPONENTS AND CHECKING THE PRODUCT



- When you open the package, be sure to check that all goods are included and are in good condition.
- If there is any damage or missing components, do not use the product to avoid danger and immediately contact the distributor who sold it to you.
- Always keep caution plates (warning display) in good condition and clean.  
If they are damaged or missing, replace with new ones.

## PAINTING JOB

### CONNECT FLUID HOSE



**WARNING**  
Securely connect fluid hose. When paint leaks, never try to stop it by hand / In that case, stop pump immediately and reduce paint pressure down to 0 pressure .  
Be sure to use air hose with built-in ground wire or fluid hose with built-in ground wire or use grounded gun stay in order to connect ground.

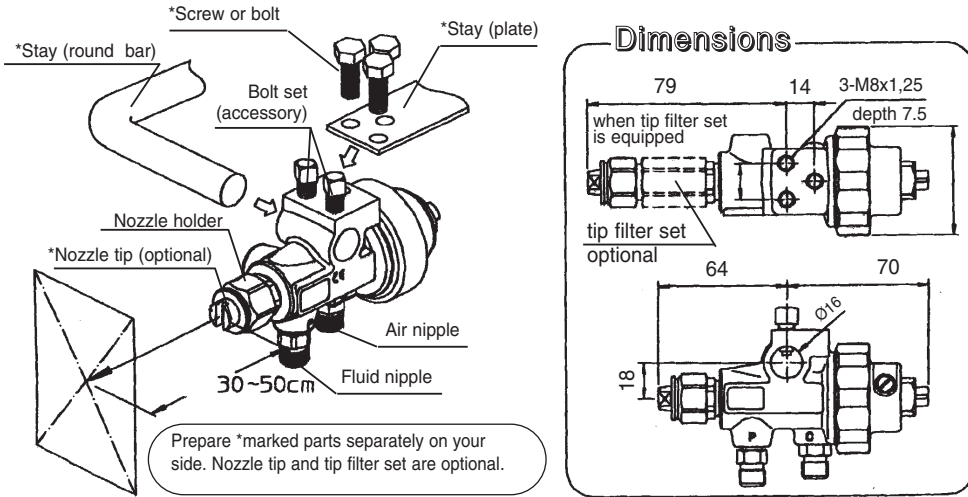


**CAUTION**  
Before using a new airless spray gun, clean inside of the new airless spray gun. If not, rust preventive inside air less spray gun can cause painting failure.



**ATTENTION**  
Use tip filter set when you use paint with lots of pigments, which are likely to clog (tip filter set is optional).  
For general painting conditions, paint gun perpendicularly against painting surface and keep painting distance at about 30 - 50 cm between nozzle tip of gun and painting surface. (It differs depending on each condition).

- JOB 1** Fit airless automatic spray gun to stay (round bar or plate) and fix it in painting direction.
- JOB 2** Remove nozzle holder and fit nozzle tip. (Refer to item 4 on page 4 selection of nozzle tip according to paint to be used).
- JOB 3** Connect operating air hose to air nipple (C engraved side for operating air), and nylon (fluid) hose to fluid nipple (P engraved side for fluid.).



## OPERATING CIRCUIT (REFERENCE)

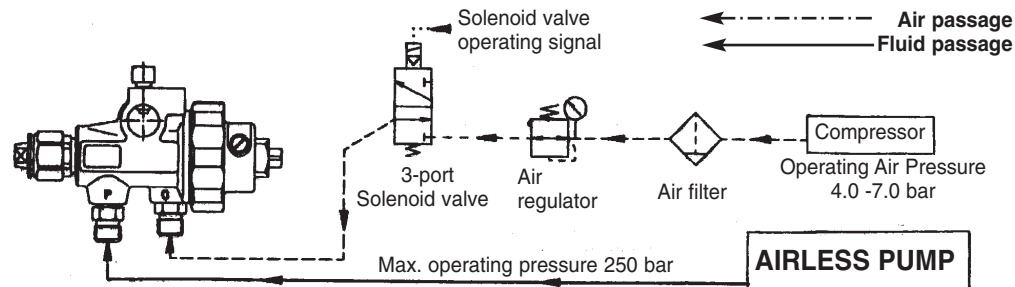


**IMPORTANT**  
Use clean operating air after it is filtered through air dryer and air filter. Dirty piston or moisture in air can cause failure.

Use 3-port solenoid valve with effective area of more than 12.6mm<sup>2</sup> (equivalent to  $\varnothing 4\text{mm}$  Cv=0.7). Small effective area can cause failure such as slow operation (slow start or stop) of airless automatic spray gun.

Use operating air hose with less than  $\varnothing 6$  inner dia. and less than 10m length between 3-port solenoid valve and airless automatic gun. Big or long air hose can cause failure such as slow operation (slow start or stop) of airless spray gun.

## REFER TO OPERTING CIRCUIT BELOW



## PAINTING JOB



**ATTENTION**  
As fluid pressure increases, paint output increases. But on the other hand, high pressure can be dangerous and precipitate corrosion of equipment and nozzle tip. Adjust pressure as low as possible as far as finish is satisfactory.

## CLEANING AND MAINTENANCE

Fully clean after job is finished in order to get longer lifetime and good performance at next job.



**WARNING**  
During cleaning, be sure to wear protective cover such as glasses, mask or gloves to avoid serious injury caused by paint or solvent which might enter your eyes or you might inhale.

Be sure to stop pump, reduce fluid pressure down to 0 pressure and stop operating air before you fit or remove nozzle tip. Paint or solvent can be very dangerous when it enters human body directly through eyes, mouth or skin.



**CAUTION**  
Never use commercial or other parts instead of ANEST IWATA original spare parts.

**IMPORTANT**  
Do not immerse spray gun in solvent in order to clean it. If done, it can cause piston packing, resulting in failure.

\*In order to get longer lifetime and good performance at the next job, fully clean it according to the instructions below :

- JOB 1** Remove nozzle tip from airless spray gun and clean it.
- JOB 2** Clean paint passage of airless spray gun with clean cleaning liquid, which is compatible with paint used.

## SELECTION OF NOZZLE TIP ACCORDING TO KIND OF PAINT

<Numbering system>

Pattern width 25 cm at 30 cm spray distance.

Fluid output 0.7ml/sec/cm of width at fluid pressure 98 bar/ 1421 PSI

**NT - 25 07**

Use nozzle tip with large figures of last 2 digits when you spray paints of high viscosity or easily clogged.

USAGE	KIND OF PAINT	MODEL (NT - - - -)	REMARKS
Shipbuilding	Rubber chloride paint, Ship-bottom paint	2507-4009	Commonly used
	Tar epoxy paint	3011-4013	Last two digits are large due to high viscosity.
	Zinc rich paint (organic)	2507-4009	Commonly used
	Zinc rich paint (non-organic)	3019-4016	Last two digits are large because it is easy to clog.
Construction	Water base (emulsion paint), Ready mixed paint	2505-4007	Commonly used
Steel frame	Anti-corrosive paint	1507-2513	First two digits are small, and last two digits are large, for angle iron.
Woodwork	Clear lacquer, Synthetic resin varnish	1503-3005	Commonly used
Common metal	Lacquer, Melamine	1504-4007	Commonly used