DEVILBISS
The Right Way To Finish™

SERVICE BULLETIN
SB-2-253-G
Replaces SB-2-253-F

■ **Major Repair Kit KK-4987-2**
Minor Repair Kit KK-5034

JGA-503 CONVENTIONAL SPRAY GUN

IMPORTANT: Before using this equipment, read all safety precautions and instructions. Keep for future use.

DESCRIPTION

The standard JGA-503 spray gun is a general purpose, heavy duty, high production spray gun suitable for use with most types of materials. The fluid passageway is plated brass, aluminum and stainless steel. The fluid tip and needle is stainless steel.

WARNING

Halogenated hydrocarbon solvents - for example; 1, 1, 1 - trichloroethane and methylene chloride - can chemically react with the aluminum in this gun and cause an explosion hazard. Read the label or data sheet for the material you intend to spray. Do not use spray materials containing these solvents with this spray gun.

Important: This gun may be used with most common coating and finishing materials. It is designed for use with mildly corrosive and nonabrasive materials. If used with other high corrosive or abrasive materials, it must be expected that frequent and thorough cleaning will be required and the necessity for replacement of parts will be increased.

INSTALLATION

1. Attach the air supply line to the air inlet (24). An air transformer installed as close as possible to the gun will provide filtered and regulated air.

Note

When larger diameter air hoses are used, it is advisable to use an 8' or 10' "whip end" or a smaller diameter hose at the gun for greater flexibility or movement.

2. Attach the suction feed cup or fluid hose to the material inlet.

Note

Protective coating and rust inhibitors have been used to keep the gun in good condition prior to shipment. Before using the gun, flush it with solvents so that these materials will be removed from fluid passages.

OPERATION

Mix, prepare and strain the material to be sprayed according to the paint manufacturer's instructions.

Strain material through a 60 or 90 mesh screen.

1. Fill the suction or pressure feed cup with the material. Do not overfill. Make sure that the cup lid vent hole is clear, if using a suction cup.

2. Turn on the gun air at the source of supply. Adjust the atomization air pressure to 35 psi.

3. Turn on the supply air to the pressure cup if used.

4. Open the spreader adjustment valve (25) (Fan) by turning the valve stem counter-clockwise.

5. Open the fluid needle adjusting screw (28) by turning counter-clockwise.

6. Spray a test area.

If the finish is too sandy and dry, the material flow may be too low for the atomization air pressure being used.

If the finish sags, there is too much material flowing for the atomization air pressure being used.

Both of the above can be corrected by increasing or decreasing the atomization air pressure or the material flow. Pattern width can be altered by turning the spreader adjustment valve (25), either clockwise to decrease the width or counter-clockwise to increase the width.

See Spray Gun Guide SB-2-001 (latest revision) for details concerning set up of spray guns.

PREVENTIVE MAINTENANCE

To clean air cap and fluid tip, brush exterior with a stiff bristle brush. If necessary to clean cap holes, use a broom straw or toothpick. **Never use a wire or hard instrument.** This may scratch or burr holes causing a distorted spray pattern.

To clean fluid passages, remove excess material at source, then flush with a suitable solvent using a device such as the SolventSaver™ (see Accessories). Wipe gun exterior with a solvent dampened cloth. Never completely immerse in solvent as this is detrimental to the lubricants and packings.

Note

When replacing the fluid tip or fluid needle, replace both at the same time. Using worn parts can cause fluid leakage. Matched or lapped sets are available for most pressure feed combinations. See Chart 3. Sets are particularly recommended with thinner, less viscous materials. Also, replace the needle packing at this time. Lightly lubricate the threads of the fluid tip before reassembling. Torque to 20-25 ft. lbs. Do not overtighten the fluid tip.

CAUTION

To prevent damage to the fluid tip (4) or fluid needle (4), be sure to either 1) pull the trigger and hold while tightening or loosening the fluid tip or 2) remove fluid needle adjusting screw (28) to relieve spring pressure against needle collar.

■**Government NSN No. 4940-01-046-9919 = KK-4987-2**

SAFETY PRECAUTIONS

This manual contains information that is improtant for you to know and understand. This information relates to USER SAFETY and PREVENTING EQUIPMENT PROBLEMS. To help you recognize this information, we use the following symbols. Please pay particular attention to these sections.

WARNING

Important safety information - A hazard that may cause serious injury or loss of life.

CAUTION

Important information that tells how to prevent damage to equipment, or how to avoid a situation that may cause minor inury.

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 before using this equipment.

HAZARD	CAUSE	SAFEGUARDS
Fire 	Solvent and coatings can be highly flammable or combustible especially when sprayed.	Adequate exhaust must be provided to keep air free of accumulations of flammable vapors. Smoking must never be allowed in the spray area. Fire extinguishing equipment must be present in the spray area.
Solvent Spray 	During use and while cleaning and flushing, solvents can be forcefully expelled from fluid and air passages. Some solvents can cause eye injury.	Wear eye protection.
Inhaling Toxic Substances 	Certain materials may be harmful if inhaled, or if there is contact with the skin.	Follow the requirements of the Material Safety Data Sheet supplied by your coating material manufacturer. Adequate exhaust must be provided to keep the air free of accumulations of toxic materials. Use a mask or respirator whenever there is a chanced 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.	Guns with stainless steel internal passageways may be used with these solvents. However, aluminum is widely used in other spray application equipment - such as material pumps, regulators, valves and cups. Check all equipment items before use and make sure they can also be used safely with these solvents. Read the label or data sheet for the material you intend to spray. If in doubt as to whether or not a coating or cleaning material is compatible, contact your material supplier.
General Safety	Improper operation or maintenance of equipment.	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). Users must comply with all local and national codes of practice and insurance company require ments governing ventilation, fire precautions, operation, maintenance and housekeeping. These are OSHA Sections 1910.94 and 1910.107 and NFPA-33.
Cumulative Trauma Disorders ("CTD's") CTD's, or musculo-skeletal disorders, involve damage to the hands, wrist, elbows, shoulders, neck and back. Carpal tunnel syndrome and tendinitis (such as tennis elbow or rotator cuff syndrome) are examples of CTD's.	Use of hand tools may cause cumulative trauma disorders ("CTD's"). CTD's when using hand tools, tend to affect the upper extremities. Factors which may increase therisk of developing a CTD include: 1. High frequency of the activity. 2. Excessive force, such as gripping, pinching, or pressing with the hands and fingers. 3. Extreme or awkward finger, wrist, or arm positions. 4. Excessive duration of the activity. 5. Tool vibration. 6. Repeated pressure on a body part. 7. Working in cold temperatures. CTD's can also be caused by such activities as sewing, golf, tennis bowling, to name a few.	Pain, tingling, or numbness in the shoulder, forearm, wrist, hands or fingers, especially during the night, may be early symptoms of a CTD. Do not ignore them. Should you experience any such symptoms, see a physician immediately. Other early symptoms may include vague discomfort in the hand, loss of manual dexterity, and nonspecific pain in the arm. Ignoring early symptoms and continued repetitive use of the arm, wrist and hand can lead to serious disability. Risk is reduced by avoiding or lessening factors 1-7.

SPRAY GUN LUBRICATION

Daily, apply a drop of *SSL-10 gun lube at trigger bearing stud (21) and the stem of the air valve (13) where it enters the air valve assembly (17). The shank of the fluid needle (4) where it enters the packing nut (19) should also be oiled. The fluid needle packing (18) should be lubricated periodically. Make sure the baffle (6) and retaining ring (2) threads are clean and free of foreign matter. Before assembling retaining ring to baffle, clean the threads thoroughly, then add two drops of SSL-10 spray gun lube to threads. The fluid needle spring (30) and air valve spring (12) should be coated with a very light grease, making sure that any excess grease will not clog the air passages. For best results, lubricate the points indicated daily with SSL-10 spray gun lube.

A. Trigger Points
B. Packing
C. Adjusting Valves
D. Baffle Threads
E. Air Valve Cartridge

* Not for air tools or high RPM equipment. "Material Safety Data Sheet" available from DeVilbiss upon request.

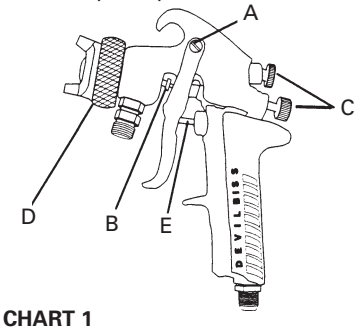


CHART 1

NOZZLE COMBINATIONS				
Air Cap Sizes Order From Chart 2	Fluid Tip and Needle Sizes Order From Chart 3			
	EX	FW	FF	FX
Tip Orifice in./	.070	.063	.055	.042
mm	1.8	1.6	1.4	1.1
80	S	S		
777			P	
9000	S	S		P

S = Suction Feed Combination
P = Pressure Feed Combination

CHART 2

AIR CAPS	
No. on Cap Order♦	Ref. No. (1) Air Cap With Ring
80	MB-4039-80
777	AV-440-777
9000	AV-440-9000

PARTS LIST

Ref. No.	Replacement Part No.	Description	Individual Parts Required
1	See Chart 2	Air Cap/Retaining Ring	1
2	MBC-368	Air Cap Retaining Ring	1
3	JGA-156-K10	Spring Clip	1
4	See Chart 3	Fluid Tip and Needle	1
* 5	JGD-14-K10	Gasket Kit (Kit of 10) (Polyethylene)	1
6	JGD-402-1	Baffle and Gasket Kit	1
7	---	Fluid Inlet Gasket (Teflon)	1
8	---	Lock Nut	1
9	---	Fluid Inlet Nipple	1
10	JGA-4042	Fluid Inlet and Nut Kit	1
•*11	JGS-72-K10	Gasket Kit (Kit of 10) (Teflon)	2
*12	---	Spring	1
*13	---	Air Valve	1
•*14	---	U Cup Seal	1
*15	---	Washer	1
*16	---	Snap Ring	1
17	JGS-449-1	Air Valve Assembly	1
•*18	JGV-463-K3	Packing Kit (Kit of 3)	1
19	34411-122-K10	Packing Nut Kit (Kit of 10)	1
*20	---	Screw	1
21	JGS-478	Stud and Screw Kit (Kit (includes 3 studs and 5 screws)	1
22	JGS-477-1	Trigger, Stud and Screw Kit (Kit includes 1 each)	1
23	JGA-132	Plug	1
24	P-MB-51	Air Inlet Connector 1/4" NPS(M)	1
25	JGA-497-1	Spreader Adjustment Assembly	1
*26	---	Retaining Ring	1
•*27	---	O-Ring (Viton)	1
28	JGS-16	Adjusting Screw	1
*29	---	Spring Pad (Included with # 30 and 32)	1
*30	MBD-19-K10	Spring Kit (Kit of 10)	1
31	---	Bushing	1
32	JGA-4041	Bushing, Spring, Pad and Knob Kit	1
33	---	Gun Body	1

* A quantity of necessary parts is included in repair kit ■ KK-4987-2 for complete gun repair and should be kept on hand for service convenience.

• A quantity of necessary parts is included in Minor Repair Kit KK-5034 for gun repair.

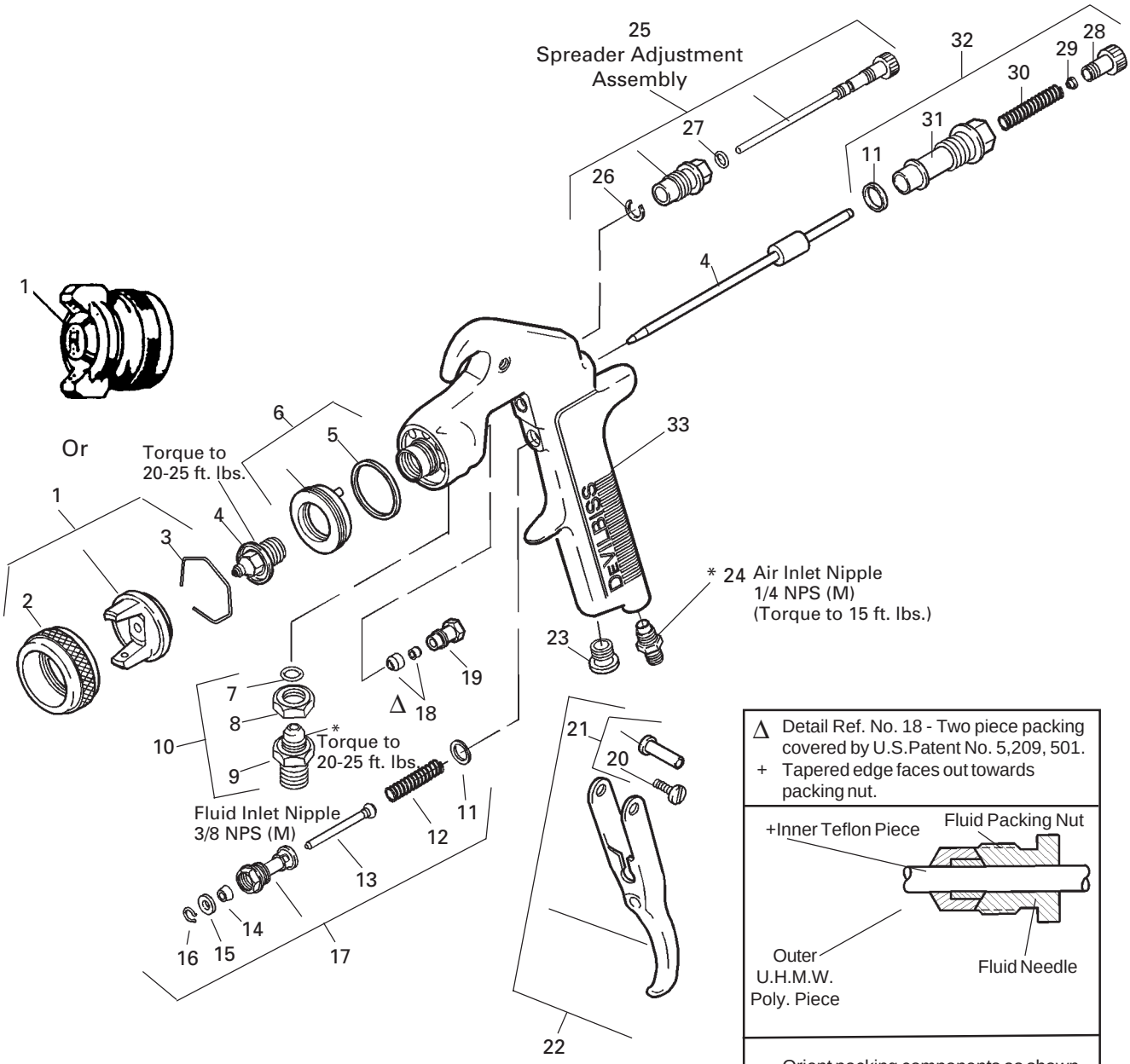
Suffixes - K10 designates kits of multiple parts. (Example) JGD-14-K10 is a kit of 10 gaskets.

■Government NSN No. 4940-01-046-9919 = KK-4987-2

CHART 3

FLUID TIPS AND NEEDLES	
If this is No. on Tip Order →	Ref. No. 4 Tip & Needle Sets
STAINLESS STEEL TIPS AND NEEDLES	
AV-2115-EX	JGA-4040-EX (matched set)
AV-2115-FF	JGA-4040-FF (lapped set)
AV-2115-FW	JGA-4040-FW (matched set)
AV-2115-FX	JGA-4040-FX (lapped set)

AV-1 copper gasket is included with all fluid tip and needle sets, but is not required and should not be used on this spray gun.



Δ Detail Ref. No. 18 - Two piece packing covered by U.S.Patent No. 5,209, 501.

\+ Tapered edge faces out towards packing nut.

- Orient packing components as shown.
- Tighten packing nut until needle starts to drag in packing. Then loosen packing nut just enough so the needle moves freely.

*Apply thread sealant (i.e. Loctite #242 med. strength blue or equal) onto threads.

WARRANTY

This product is covered by DeVilbiss' 1 Year Limited Warranty. See SB-1-000 which is available upon request.

TROUBLESHOOTING

CONDITION	CAUSE	CORRECTION
Heavy top or bottom pattern 	Horn holes plugged. Obstruction on top or bottom of fluid tip. Cap and/or tip seat dirty.	Clean. Ream with nonmetallic point. Clean. Clean.
Heavy right or left side pattern 	Left or right side horn holes plugged. Dirt on left or right side of fluid tip.	Clean. Ream with nonmetallic point. Clean.
	Remedies for the top-heavy, bottom-heavy, right-heavy and left-heavy patterns: 1) Determine if the obstruction is on the air cap or the fluid tip. Do this by making a test spray pattern. Then, rotate the cap one-half turn and spray another pattern. If the defect is inverted, obstruction is on the air cap. Clean the air cap as previously instructed. 2) If the defect is not inverted, it is on the fluid tip. Check for a fine burr on the edge of the fluid tip. Remove with #600 wet or dry sand paper. 3) Check for dried paint just inside the opening. Remove paint by washing with solvent.	
Heavy center pattern 	Fluid pressure too high for atomization air (pressure feed). Material flow exceeds air cap's capacity. Atomizing pressure too low. Material too thick.	Balance air and fluid pressure. Increase spray pattern width with spreader adjustment valve. Thin or lower fluid flow. Spreader adjustment valve set too low. Adjust. Increase pressure. Thin to proper consistency.
Split spray pattern 	Atomization air pressure too high. Fluid pressure too low (pressure feed only). Spreader adjusting valve set too high.	Reduce at transformer or gun. Increase fluid pressure (increases gun handling speed). Adjust.
Jerky or fluttering spray 	*Loose or damaged fluid tip/seat. Material level too low. Container tipped too far. Obstruction in fluid passage. Loose or broken fluid tube or fluid inlet nipple. Dry or loose fluid needle packing nut.	Tighten or replace. Refill. Hold more upright. Backflush with solvent. Tighten or replace. Lubricate or tighten.
Unable to get round spray	Spreader adjustment screw not seating properly. Air cap retaining ring loose.	Clean or replace. Tighten.
Will not spray	No air pressure at gun. Internal mix or pressure feed air cap and tip used with suction feed. Fluid pressure too low with internal mix cap and pressure tank. Fluid needle adjusting screw not open enough. Fluid too heavy for suction feed.	Check air supply and air lines. Change to proper suction feed air cap and tip. Increase fluid pressure at tank. Open fluid needle adjusting screw. Thin material or change to pressure feed.
Starved spray pattern	Inadequate material flow. Low atomization air pressure (suction feed)	Back fluid adjusting screw out to first thread or increase fluid pressure at tank. Increase air pressure and rebalance gun.
Excessive overspray	Too much atomization air pressure. Gun too far from work surface. Improper stroking (arcing, gun motion too fast).	Reduce pressure. Adjust to proper distance. Move at moderate pace, parallel to work surface.
Excessive fog	Too much, or too fast-drying thinner. Too much atomization air pressure.	Remix properly. Reduce pressure.
Dry Spray	Air pressure too high. Gun tip too far from work surface. Gun motion too fast. Gun out of adjustment.	Reduce air pressure. Adjust to proper distance. Slow down. Adjust.
Fluid leaking from packing nut	Packing nut loose. Packing worn or dry.	Tighten, do not bind needle. Replace or lubricate.
Paint bubbles in cup.	Fluid tip not tight.	Tighten tip to 20-25 ft. lbs.

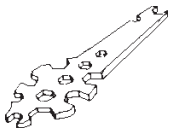
*Most common problem.

Troubleshooting (continued)

CONDITION	CAUSE	CORRECTION
Fluid leaking or dripping from front of gun	Packing nut too tight. Dry packing. Fluid tip or needle worn or damaged. Foreign matter in tip. Fluid needle spring broken. Wrong size needle or tip.	Adjust. Lubricate. Replace tip and needle with lapped sets. Clean. Replace. Replace.
Runs and sags	Too much material flow. Material too thin. Gun tilted on an angle, or gun motion too slow.	Adjust gun or reduce fluid pressure. Mix properly or apply light coats. Hold gun at right angle to work and adapt to proper gun technique.
Thin, sandy coarse finish drying before it flows out	Gun too far from surface. Too much air pressure. Improper thinner being used.	Check distance. Normally approx. 6-8". Reduce air pressure and check spray pattern. Follow paint manufacturer'smixing instructions.
Thick, dimpled finish "orange peel".	Gun too close to surface. Too much material coarsely atomized. Improper thinner being used. Material not properly mixed. Surface rough, oily, dirty.	Check distance. Normally approx. 6-8". Air pressure too low. Increase air pressure or reduce fluid pressure. Follow paint manufacturer'smixing instructions. Follow paint manufacturer'smixing instructions. Properly clean and prepare.

ACCESSORIES

WR-103 Wrench

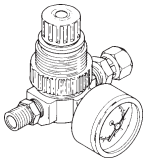


Contains all necessary tip, hose and nut sizes used on or with gun.

42884-214-K5 3/8"
42884-215-K10 5/8"
Cleaning Brushes

These brushes are helpful in cleaning threads and recesses of gun body.

HARG-510 Air Regulator



Use to maintain nearly constant outlet pressure despite changes in inlet pressure and downstream flow.

HAV-500 OR HAV-501 Adjusting Valve
(HAV-501 SHOWN)

HAV-500 does not have pressure gauge. Use to control air usage at gun.

MSP-524 Twin Cartridge, Paint Spray Respirator

NIOSH-Certified (TC-84A-1623 for respiratory protection in atmospheres not immediately dangerous to life.

Spray Gun Lube SSL-10 (2 oz. bottle)

Compatible with all paint materials: contains no silicone or petroleum distillates to contaminate paint. MSDS available upon request.

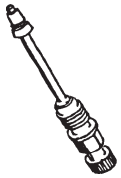
JGA-156-K10 Spring Clip

Joins any single piece DeVilbiss air cap with latest version MBC-368 or MSA-1 retaining ring. Helps prevent parts loss and provides easier assembly.

TGC-545 (Alum.) TLC-555 (Teflon Lined), 2 Qt. Drip Free Suction Cup

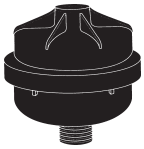
Cup has a unique, two position valve which permits selection of either a drip-free or conventional open vent mode.

JGA-4005 Air Adjusting Valve



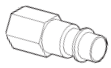
Installs into gun to enable user to control and reduce air usage at the gun. Replaces JGA-132 plug.

HAF-507 Whirlwind™ In-Line Air Filter



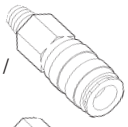
Removes water, oil, and debris from the air line.

Automotive Quick Connects For HVLP Guns (Air) High Flow Type.



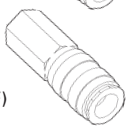
HC-4419 Stem
1/4" NPT(F)

HC-4719
Coupler
1/4" NPT(M) / NPS(M)



HC-1166 Stem
1/4" NPT(M)

HC-4720
Coupler
1/4" NPT(F)



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