

Operation Manual

COBRA 3C – Automatic Spray Gun



Table of Contents

Topic	Page
Characteristics	3
EC Declaration of Conformity	3
Safety Warnings	4
Model Part Numbers	5
- Table 1: Air Cap Range	5
- Table 1: Fluid Nozzle & Needle Range	5
Specification & Materials of Construction	5
Exploded View	6
Parts List	7
Dimensions	8
Air Connection	9
Maintenance	10
Body Removal	10
Piston/Needle Removal	11
Needle Packing Removal	11
Fluid Nozzle Removal	12
Manifold O-ring and Connector Removal/ Assembly	12
Setting Micrometer	13
Air Cap Indexing (Optional)	13
Troubleshooting	14
Accessories	16
Warranty	16

Manual Operation

Cobra 3C Automatic Spray gun

Important - Read and follow all instructions and Safety Precautions before using this equipment.

CHARACTERISTICS:

- This automatic spray gun complies with ATEX regulations 94/9/EC, protection level II 2 G X T6, suitable to use in zones 1&2.
- This Cobra 3 is a production spray gun suitable for use with automatic and semi-automatic machines in HVLP or Trans-Tech applications.
- Remotely positioned valves (supplied by user) control all air supplies for atomisation, fan size and triggering.
- To handle a wide range of coating materials this spray gun is made from high grade stainless steel.

IMPORTANT: These Spray guns are suitable for use with both water based and solvent based coating materials. These guns are not designed for use with highly corrosive and/or abrasive materials and if used with such materials it must be expected that the need for cleaning and/or replacement of parts will be increased. If there is any doubt regarding the suitability of a specific material, contact your DeVilbiss Distributor or DeVilbiss direct. **NOTE:** This gun is not to be used with halogenated hydrocarbon solvents or cleaning agents such as 1, 1, 1,-Trichloroethane or methylene chloride. These solvents can react with the aluminium components used in this gun. The reaction can become violent and lead to an equipment explosion.

- Fluid Tips and Needles are only available in hardened stainless steel.
- Pressure feed material supply can be re-circulated or direct.
- The needle adjustment knob has a micrometer control allowing fine and accurate fluid flow control.

EC Declaration of Conformity

We, **Finishing Brands UK Limited, Ringwood Rd, Bournemouth, Dorset, BH11 9LH, UK** as the manufacturer of the spray gun model **Cobra 3C**, declare, under our sole responsibility that the equipment to which this document relates is in conformity with the following standards or other normative documents:

BS EN 12100:2010, BS EN 1953:2013; and thereby conforms to the protection requirements of Council Directive **2006/42/EC** relating to **Machinery Safety Directive**, and;

EN 13463-1:2009, Council Directive **94/9/EC** relating to **Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres** protection level **II 2 G X T6**.



D.Smith General Manager
14th March 2014

Finishing Brands UK Limited reserves the right to modify equipment specification without prior notice



Safety Warnings

Fire and explosion



Solvents and coating materials can be highly flammable or combustible when sprayed. **ALWAYS refer to the coating material supplier's instructions and COSHH sheets before using this equipment.**



Users must comply with all local and national codes of practice and insurance company requirements governing ventilation, fire precautions, operation and house-keeping of working areas.



This equipment, as supplied, is NOT suitable for use with Halogenated Hydrocarbons.



Static electricity can be generated by fluid and/or air passing through hoses, by the spraying process and by cleaning non-conductive parts with cloths. To prevent ignition sources from static discharges, earth continuity must be maintained to the spray gun and other metallic equipment used. It is essential to use conductive air and/or fluid hoses.



Personal Protective Equipment



*Toxic vapours – When sprayed, certain materials may be poisonous, create irritation or are otherwise harmful to health. Always read all labels, safety data sheets and follow any recommendations for the material before spraying. **If in doubt, contact your material supplier.***



The use of respiratory protective equipment is recommended at all times. The type of equipment must be compatible with the material being sprayed.



Always wear eye protection when spraying or cleaning the spray gun.



Gloves must be worn when spraying or cleaning the equipment.



Injection Hazard – Spray from the gun, hose leaks or ruptured components can inject fluid through skin into the body and cause extremely serious injury including poisoning. **GET IMMEDIATE MEDICAL ATTENTION. INFORM THE DOCTOR WHAT TYPE OF MATERIAL WAS INJECTED.**

Do not put fingers or hand over the spray tip.

Replace all worn, damaged or loose parts immediately.

Training – Personnel should be given adequate training in the safe use of spraying equipment.

Misuse

Never aim a spray gun at any part of the body.

Never exceed the max. Recommended safe working pressure for the equipment.

The fitting of non-recommended or non-original spares may create hazards.

Before cleaning or maintenance, all pressure must be isolated and relieved from the equipment.

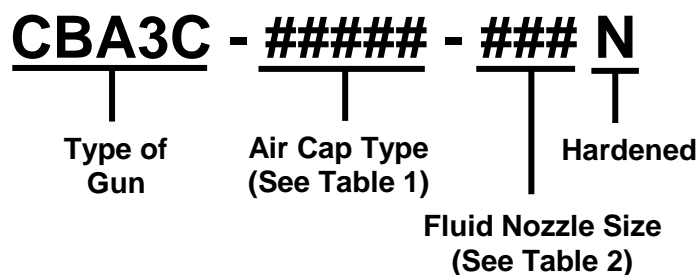
The product should be cleaned using a gun-washing machine. However, this equipment should not be left inside gun-washing machines for prolonged periods of time.

Noise Levels



The A-weighted sound level of spray guns may exceed 85 dB (A) depending on the set-up being used. Details of actual noise levels are available on request. It is recommended that ear protection is worn at all times when spraying.

Model Part Numbers



e.g. **CBA3C-590-085N**

Where:-

590= 590 Trans-Tech Air Cap

085=0.85mm Fluid Nozzle and Needle

N= Hardened Fluid Nozzle and Needle

e.g. **CBA3C-590HV-10N**

Where:-

590HV= 590HV HVLP Air Cap

10= 1.0mm Fluid Nozzle and Needle

N= Hardened Fluid Nozzle and Needle

Table 1: Air Cap Range

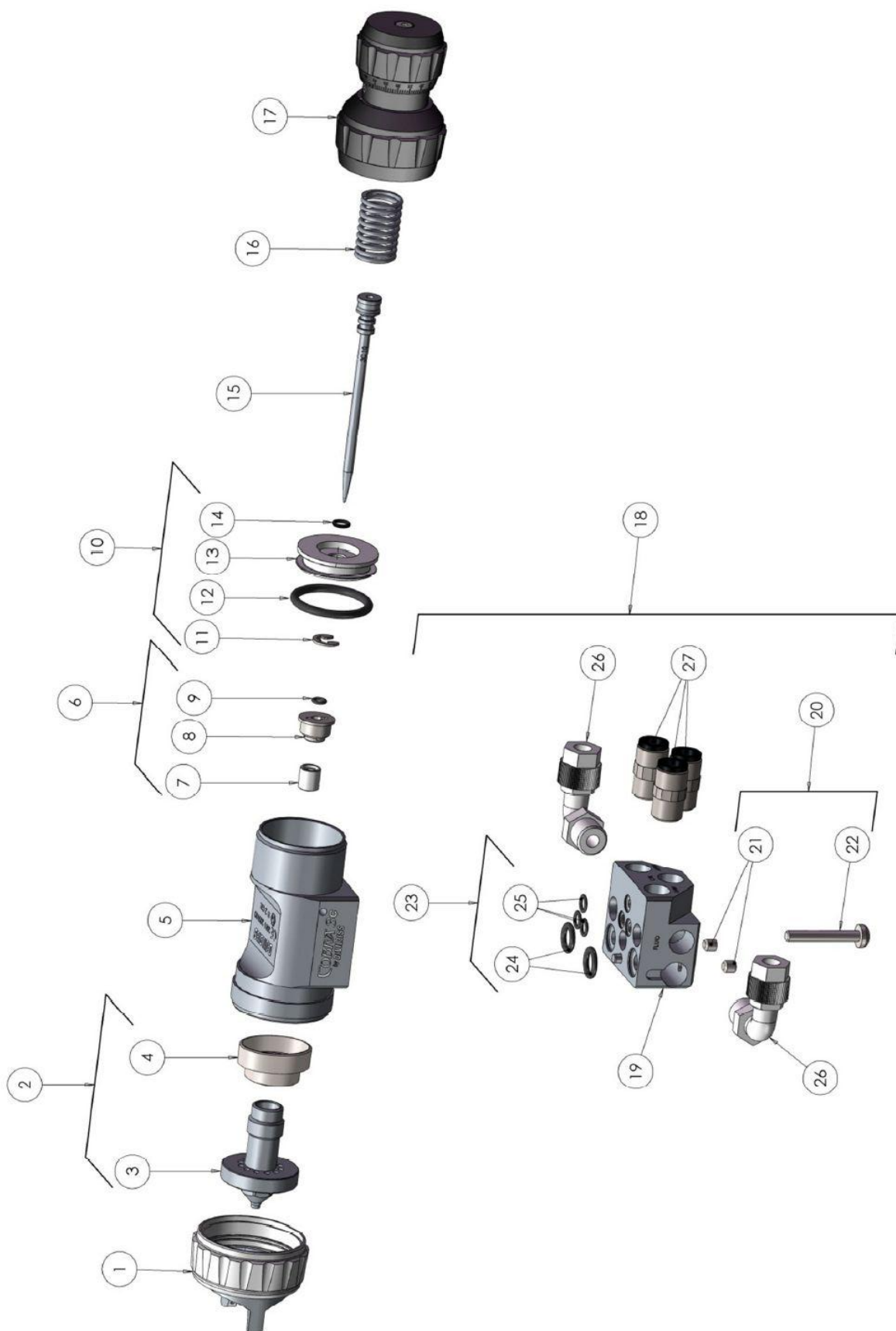
Air Cap Type	Part No.	Technology	Marking On Cap
590	SP-100-590-K	Trans-Tech	COM 590
590 HV	SP-100-590HV-ADV-K	HVLP	590 HV

Table 2: Hardened Fluid Nozzle and Needle Range

Fluid Nozzle Size mm	Hardened Fluid Nozzle	Hardened Fluid Needle	Marking on Fluid Needle
0.7	SP-259N-07-K	SPA-353-07-K	3C 07
0.85	SP-259N-085-K	SPA-353-085-K	3C 085
1.0	SP-259N-10-K	SPA-353-10-K	3C 10

Specification & Materials of Construction

	Thread	Pressure
Air inlet Pattern + Length (P1)	1/8" BSP Female	P1 Max 12 bar / 174 psi
Fluid inlet & fluid recirculation (P2)	1/8" BSP Female	P2 Max 15 bar / 218 psi
Cylinder/trigger	1/8" BSP Female	3.5 to 6 bar / 51 to 87 psi
Maximum temperature in use	40° C / 104°F	
Spray gun weight	496 g / 17.5 oz.	
Materials of construction		
Gun body / Manifold / Micrometer Assembly	303 Stainless steel, 6082 Aluminium Alloy	
Tip / Needle	Hardened 303 Stainless steel.	
Fluid seals	Viton Extreme, Polyethylene, PTFE	



PARTS LIST				
REF.	DESCRIPTION	PART NO.	QTY.	
1	AIR CAP ASSEMBLY	SEE TABLE 1, p5	1	
2	FLUID NOZZLE KIT	SEE TABLE 2, p5		
3	FLUID NOZZLE	-	1	(a)
4	SEPARATOR - KIT OF 5	SP-626-K5	1	(a)
5	BODY	-	1	
6	NEEDLE PACKING KIT	SPA-408-K		
7	NEEDLE PACKING - KIT OF 2	SPA-118-K2	1	(b)
8	PACKING NUT	-	1	(b)
9	O-RING	-	1	(b)
10	PISTON ASSEMBLY	SPA-409-K		
11	E CIRCLIP		1	
12	O-RING		1	
13	PISTON		1	
14	O-RING		1	(c)
15	FLUID NEEDLE	SEE TABLE 2, p5	1	
16	PISTON SPRING	SPA-123-K	1	
17	MICROMETER ASSEMBLY	SPA-405-K	1	
18	MANIFOLD ASSEMBLY	SPA-410-K		
19	MANIFOLD		1	(d)
20	SCREW KIT	SPA-411-K		
21	GRUB SCREW		2	(d)
22	M4 TORX SCREW		1	(d)
23	O-RING KIT	SPA-412P-K		
24	O-RING		2	(d)
25	O-RING		3	(d)
26	ELBOW FITTING - KIT OF 2	SPA-136-K2	2	(d)
27	PUSH FITTING - KIT OF 3	SPA-137-K3	3	(d)

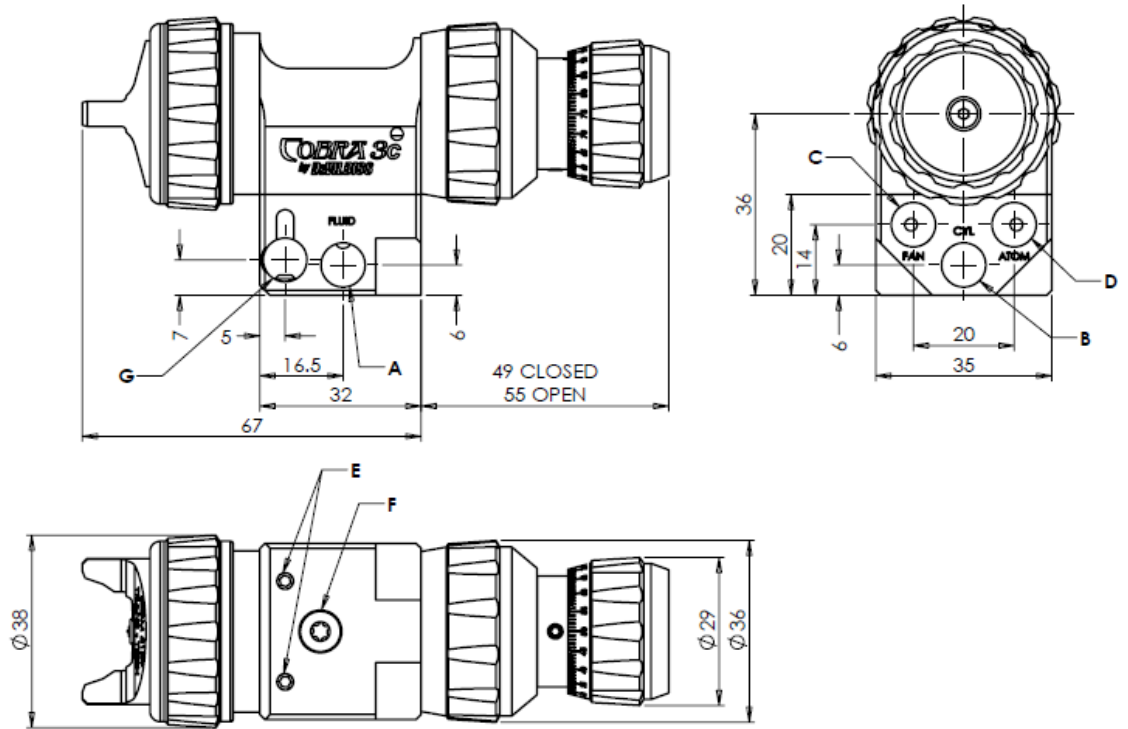
a= Included with Fluid Nozzle Kit

b= Included in Needle Packing Kit SPA-408-K

c= Included on Fluid Needle

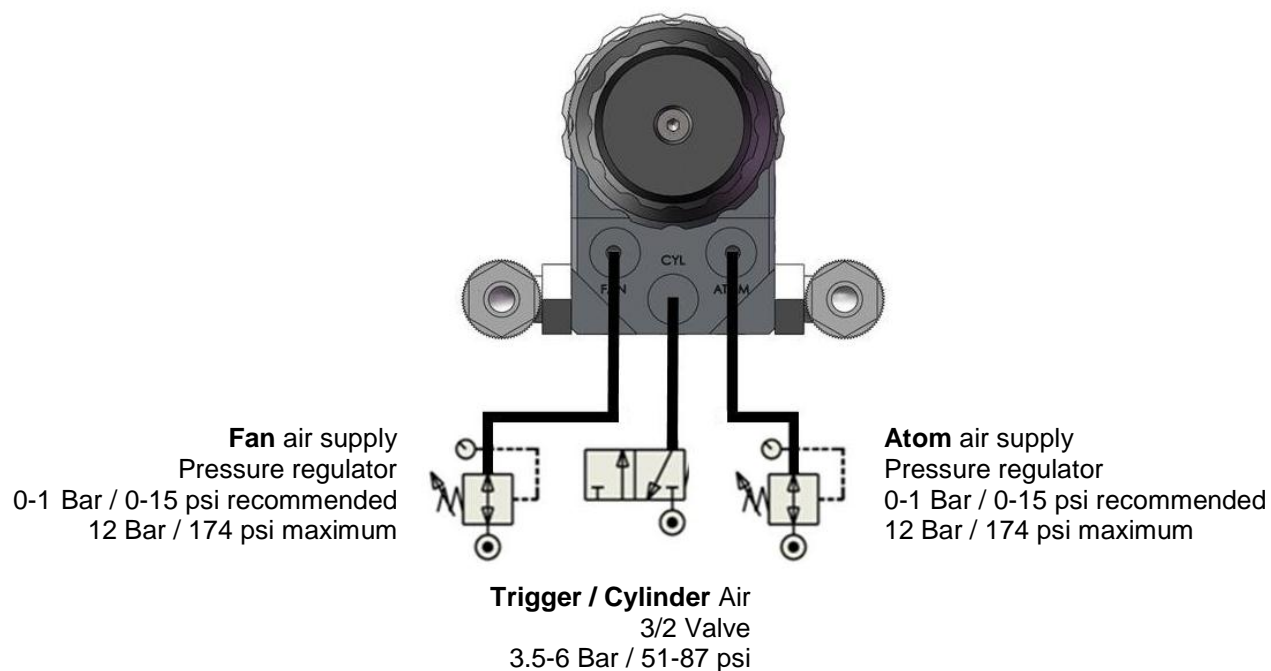
d= Included with Manifold Assembly SPA-410-K

Dimensions



- A - FLUID INLET (x2) $\frac{1}{8}$ " BSP
B- TRIGGER / CYLINDER AIR INLET $\frac{1}{8}$ " BSP
C- LENGTH AIR INLET $\frac{1}{8}$ " BSP
D- PATTERN AIR INLET $\frac{1}{8}$ " BSP
E- M6 MOUNTING HOLES (x2)
F- M4 BODY / MANIFOLD CONNECTION HOLE

Air Connection



Important: The spray gun must be earthed to dissipate any electrostatic charges which may be created by fluid or air flows. This can be achieved through the spray gun mounting, or conductive air/fluid hoses. Electrical bond from the spray gun to earth should be checked with an Ohm meter. A resistance of less than 10^6 Ohms is recommended

Key to Symbols

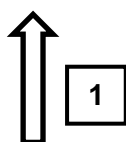
Lubricate with Petroleum Grease



Tool type & size required



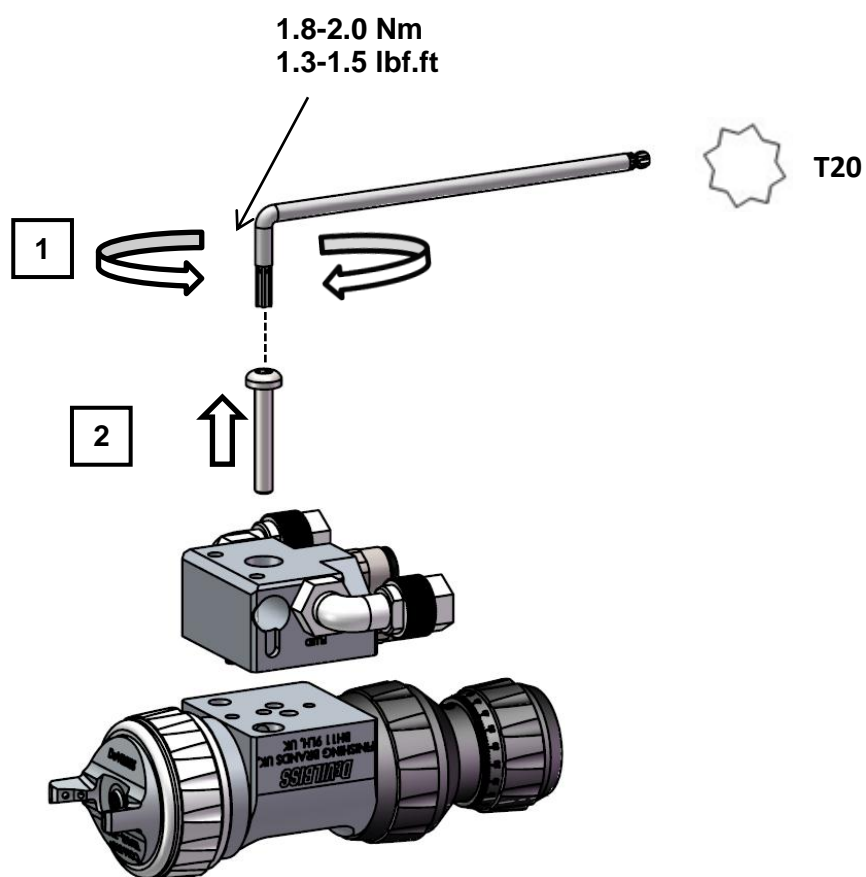
Component direction arrow
For dis-assembly and sequence
number. (Reverse sequence to
Re-assemble).



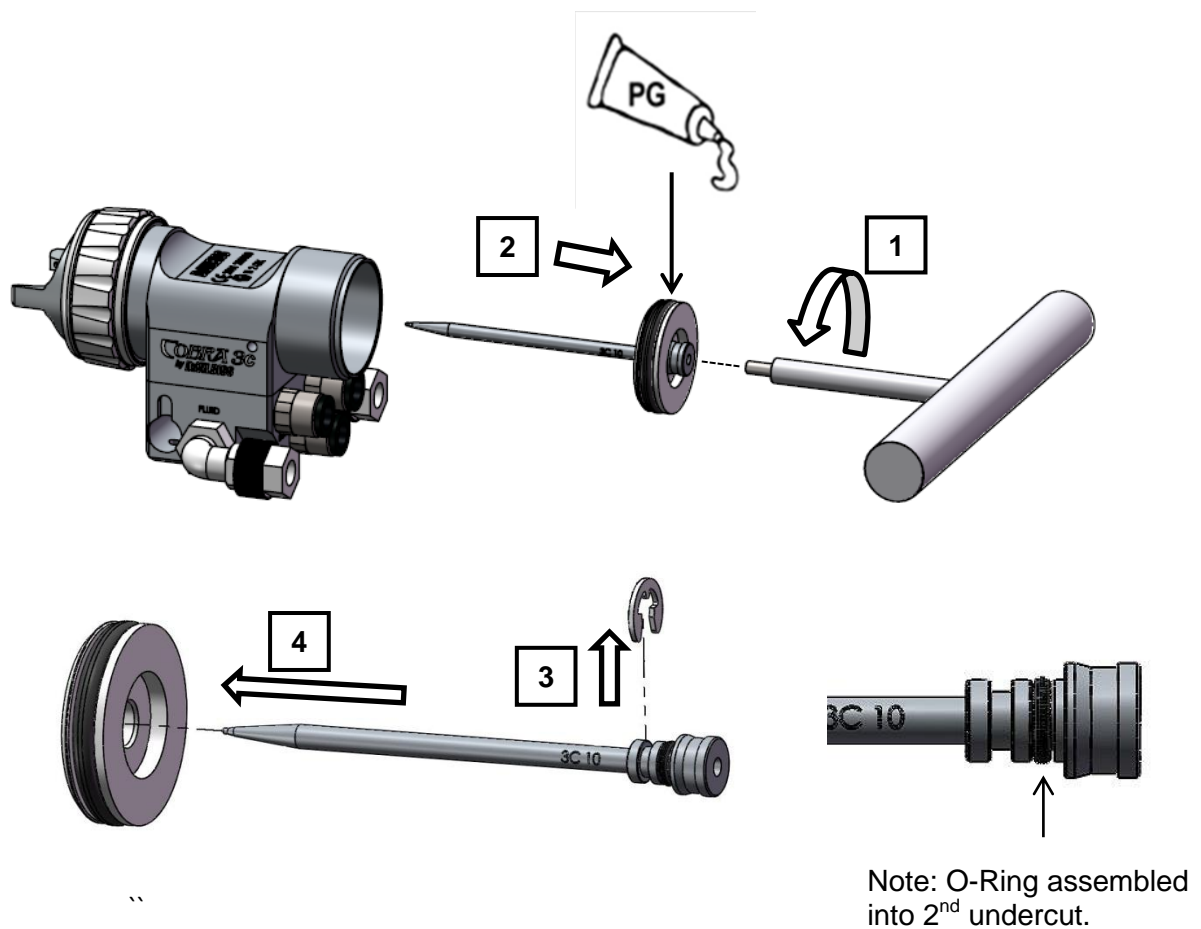
MAINTENANCE

WARNING – Check all air and fluid pressure is removed before starting maintenance.

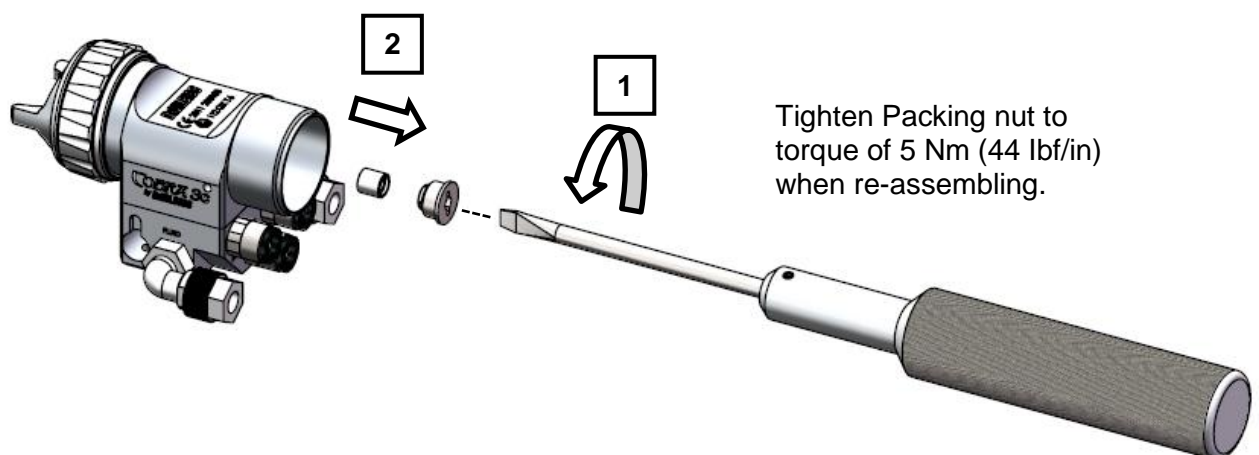
Body Removal



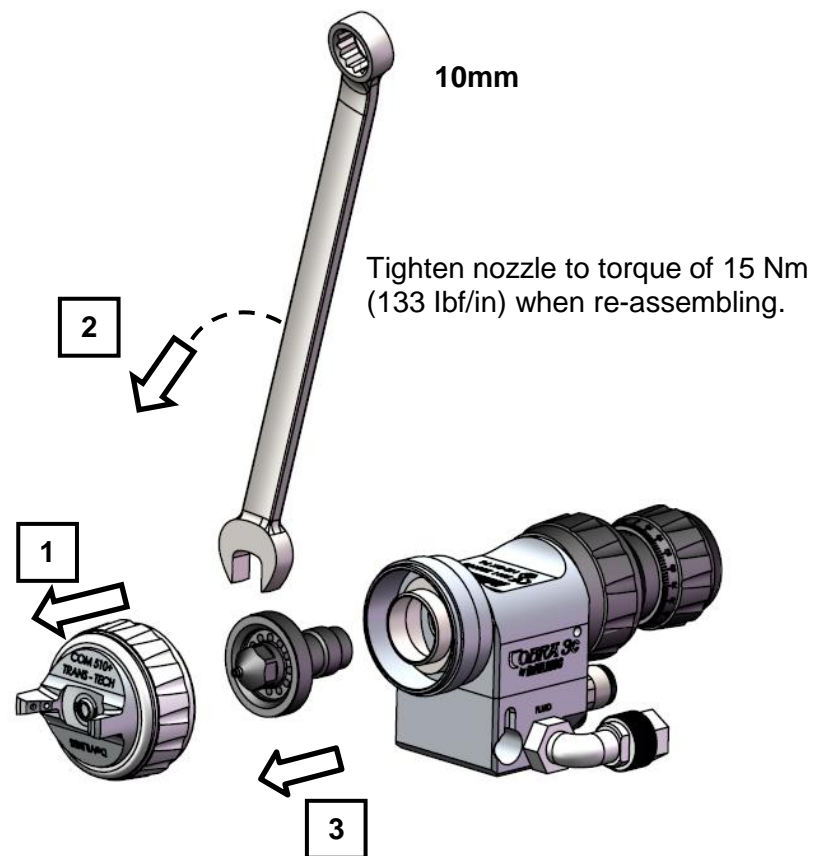
Piston/Needle Removal



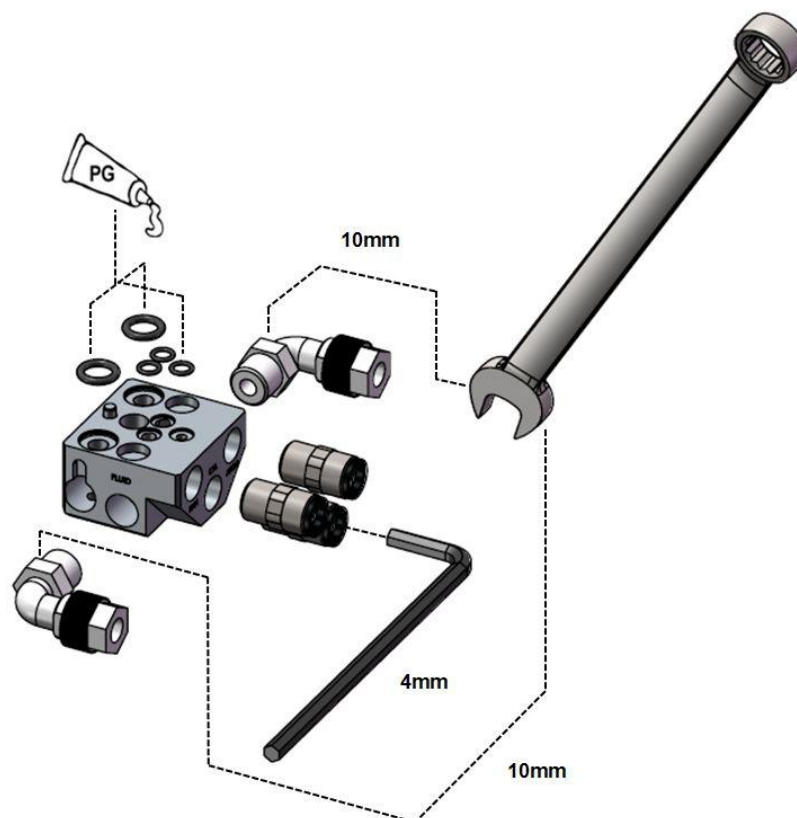
Needle Packing Removal



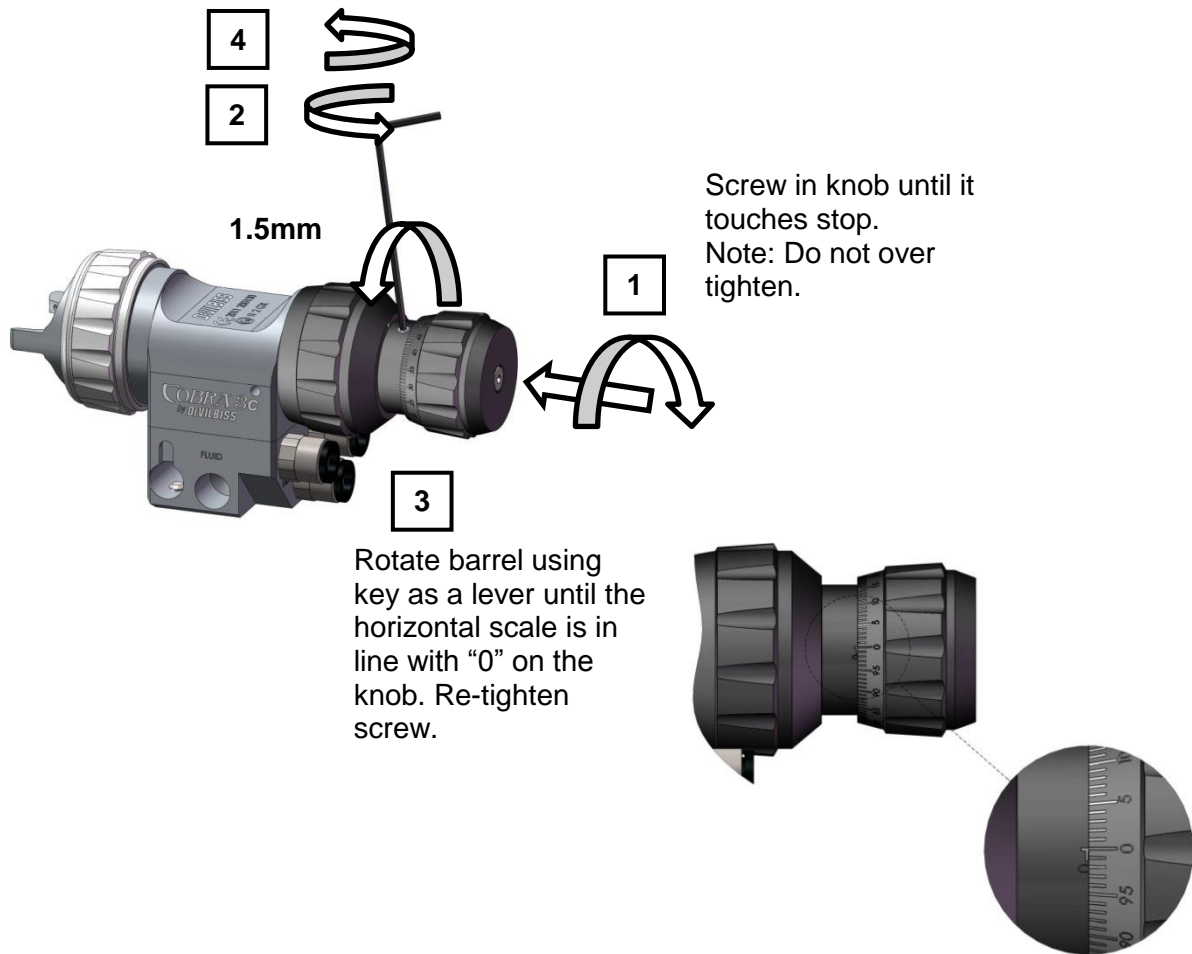
Fluid Nozzle Removal



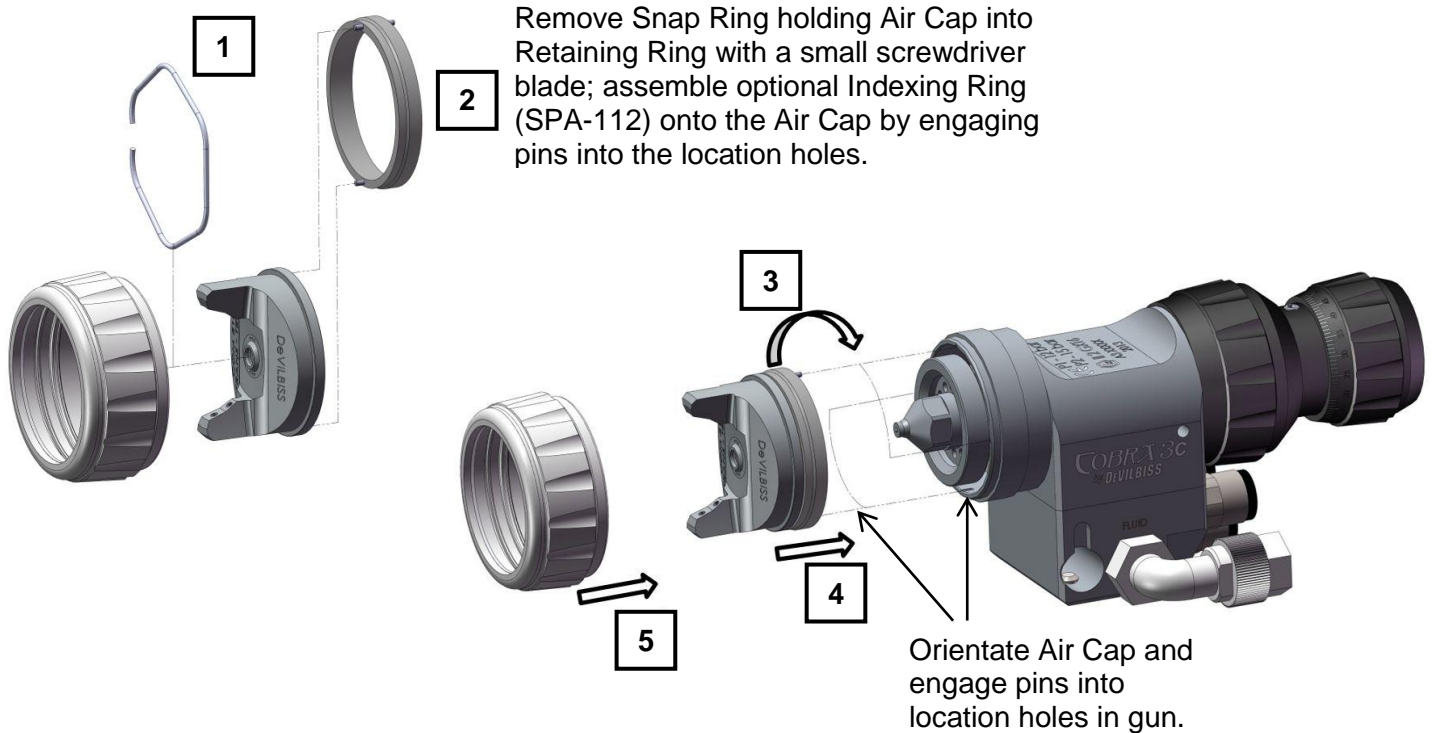
Manifold O-Ring and Connector Removal/Assembly



Setting Micrometer Zero (0mm Needle stroke)

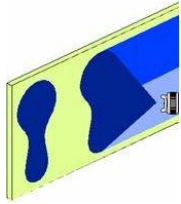
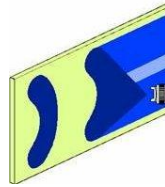
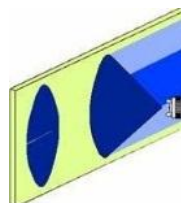
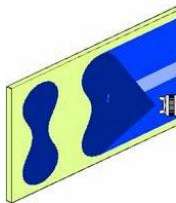
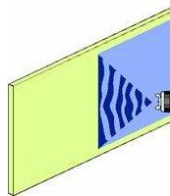


Indexing Air Cap 90° (Optional)




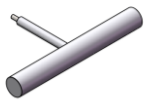






Troubleshooting

Possible Problems in Operation

CONDITION	CAUSE	CORRECTION
Spray Pattern		
<p>Heavy top or bottom pattern.</p>  <p>Heavy right or left side pattern.</p> 	<p>Horn holes plugged.</p> <p>Obstruction on top or bottom of fluid nozzle.</p> <p>Cap and/or nozzle seat dirty.</p> <p>Left or right side horn holes plugged.</p> <p>Dirt on left or right side of fluid nozzle.</p>	<p>Clean with non-metallic point.</p> <p>Clean.</p> <p>Clean.</p> <p>Clean with non-metallic point.</p> <p>Clean.</p>
<p>Remedies for the top-heavy and bottom-heavy patterns:</p> <p>1. Determine if the obstruction is on the air cap or the fluid nozzle. 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. Also check for dried paint just inside the cap centre hole opening; remove by washing with solvent.</p> <p>2. If the defect is not inverted, it is on the fluid nozzle. Clean nozzle. If problem persists, renew nozzle.</p>		
<p>Heavy centre pattern.</p> 	<p>Fan Air pressure set too low.</p> <p>Material too thick.</p>	<p>Increase Fan Air pressure to achieve correct pattern.</p> <p>Thin to correct consistency.</p>
<p>Split spray pattern.</p> 	<p>Fluid Flow set too low.</p> <p>Fan Air pressure set too high.</p>	<p>Increase Fluid Flow to achieve correct pattern.</p> <p>Decrease Fan Air pressure to achieve correct pattern.</p>
<p>Jerky or fluttering spray.</p> 	<p>Material level too low.</p> <p>Obstruction in fluid passage.</p>	<p>Refill.</p> <p>Back flush with solvent.</p>

Possible Problems in Operation (cont.)

Fluid Starved spray pattern.	Inadequate material flow.	Increase Fluid Flow. Change to larger fluid nozzle size. Check hose for blockage.
Excessive overspray.	Air pressure too high. Gun too far from work surface.	Reduce air pressure. Adjust to correct target distance.
Dry spray.	Air pressure too high. Gun too far from work surface. Gun motion too fast. Fluid flow too low.	Reduce air pressure. Adjust to correct distance. Slow down. Increase Fluid Flow or use larger nozzle size.
Runs and sags.	Too much material flow. Material too thin. Motion too slow.	Reduce Fluid Flow or change to smaller fluid nozzle and fluid needle size. Mix correctly or apply light coats. Increase Gun Traverse speed.
Leakages		
Fluid leaking from Detection hole.	Packing or Fluid Needle worn.	Replace.
Fluid leaking or dripping from front of gun.	Fluid nozzle or fluid needle worn or damaged. Foreign matter in fluid nozzle. Fluid needle dirty or stuck in needle packing. Wrong size fluid needle or fluid nozzle.	Replace fluid nozzle and fluid needle. Clean. Clean. Replace fluid nozzle and fluid needle.
Fluid leaking between the Spray Gun and the Manifold.	O-Rings damaged or missing. Torx screw not tight.	Replace O-Rings using kit SPA-412-K. Tighten Torx screw or replace using kit SPA-411-K.
Assembly Faults		
Spray Gun is loose when assembled onto Manifold.	Torx screw not tight.	Tighten Torx screw 1.8-2.0 Nm (1.3-1.5 lbf.ft) or replace using kit SPA-411-K.

ACCESSORIES					
Mounting Bar	SPA-406-K		Fluid Needle Removal Tool	SPA-407-K	
1.5mm Allen Key	SPN-10-K		2mm Allen Key	SPN-11-K	
T20 Torx Key	SPN-8-K2		Indexing Ring	SPA-112	
10mm Spanner	-		4mm Allen Key	-	

WARRANTY

This product is covered by Finishing Brands UK Limited one year warranty.

Finishing Brands UK Limited,
Ringwood Road,
Bournemouth,
BH11 9LH,
UK.
Tel.No: 01202 571111
Fax No: 01202 581940
Website address: [http:// www.finishingbrands.eu](http://www.finishingbrands.eu)

Registered office:
Finishing Brands UK Limited,
400, Capability Green,
Luton,
Bedfordshire,
LU1 3AE,
UK.
Registered in England No: 07656273
Vat No: GB 113 5531 50