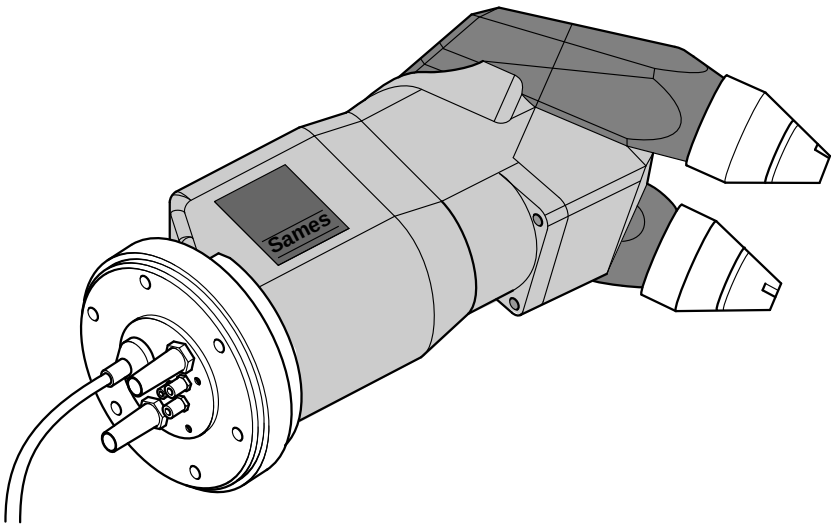
INSTRUCTION MANUAL

From February 1st, 2017 SAMES Technologies SAS becomes SAMES KREMLIN SAS

A partir du 1/02/17, SAMES Technologies SAS devient SAMES KREMLIN SAS

SAMES KREMLIN



SRV 028-2-TWIN 60° - STD US
SPRAY GUN (Ang)
855 457

Nature of the modification : Added plate CO2-1.

established by :	checked by :	checked by :	approved by :
SAIA Sa.	**DI GIOIA M.**	**GOISOT G.**	**VEYRAT D.**

TABLE OF CONTENTS **Page**

1 - DESCRIPTION

1.1 - OVERVIEW

(Refer to **Fig.1**)

The **SRV 028-2Twin 60**° spray gun comprises the following elements:

- two **SRV 028** guns [**A**],
- a high voltage generator [**B**],
- the linking cable [**C**] which links the **GND 504-B** unit (not described in the documentation) to the high voltage generator,
- pneumatic pipes (diam. 5/6 mm) and powder feed pipes (diam.10/14).

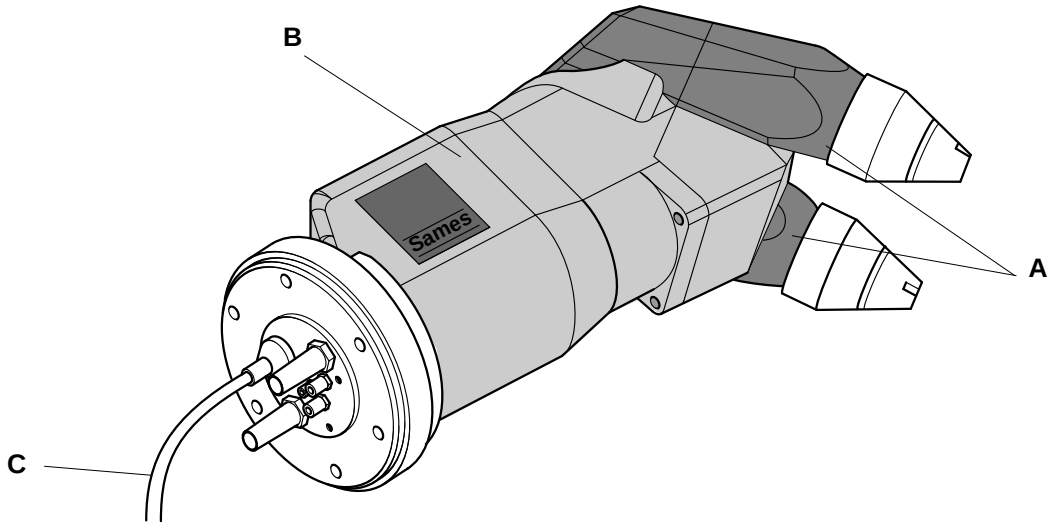


Fig. 1.

1.2 - TECHNICAL SPECIFICATIONS

1.2.1 - High Voltage Generator

- Max. supply voltage..... 22 V.
- Max. supply current..... 0.8 A.
- Max. output voltage.....100 kV.
- Max. output current..... 200 µA.
- Polarity..... negative.

1.2.2 - SRV 028 Guns

- Max. recommended powder flow.....25 kg/h/gun (i.e. 50 kg/h/2 guns).

- Max. recommended output current..... 30 µA/gun (i.e. 60 µA/2 guns).

1.2.3 - Dimensions

(Refer to **Fig.2**)

- Length of powder spray gun.....375 mm.

- Distance between spraying point to spray gun axis .....92 mm.

- **SRV 028** gun orientation .....60°.

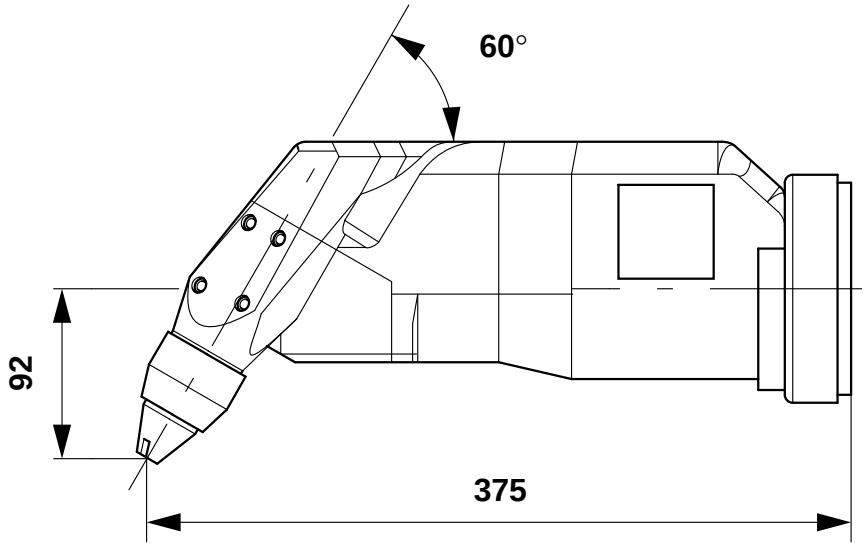


Fig. 2.

1.3 - Operating Principle of Powder Spray Gun

(Refer to **Fig.3**)

The **SRV 028-2-Twin 60**° spray gun operates on the "corona" effect principle. An ionizing electrode [**A**] located at the end of the spray gun and is connected to a high negative potential. Air is ionized by the electrode which is surrounded by the intense electric field.

The emitted ions follow the magnetic field pattern and reach the part being painted. Powder is charged when it passes through the ionized electric field.

In order to ensure that the powder sticks to the part being painted, the latter must be a good conductor (or semi-conductor) and properly earthed (the electrical resistance of the part, in relation to the earth must be less than 1 MΩ).

The high voltage generator is integral with the spray gun.

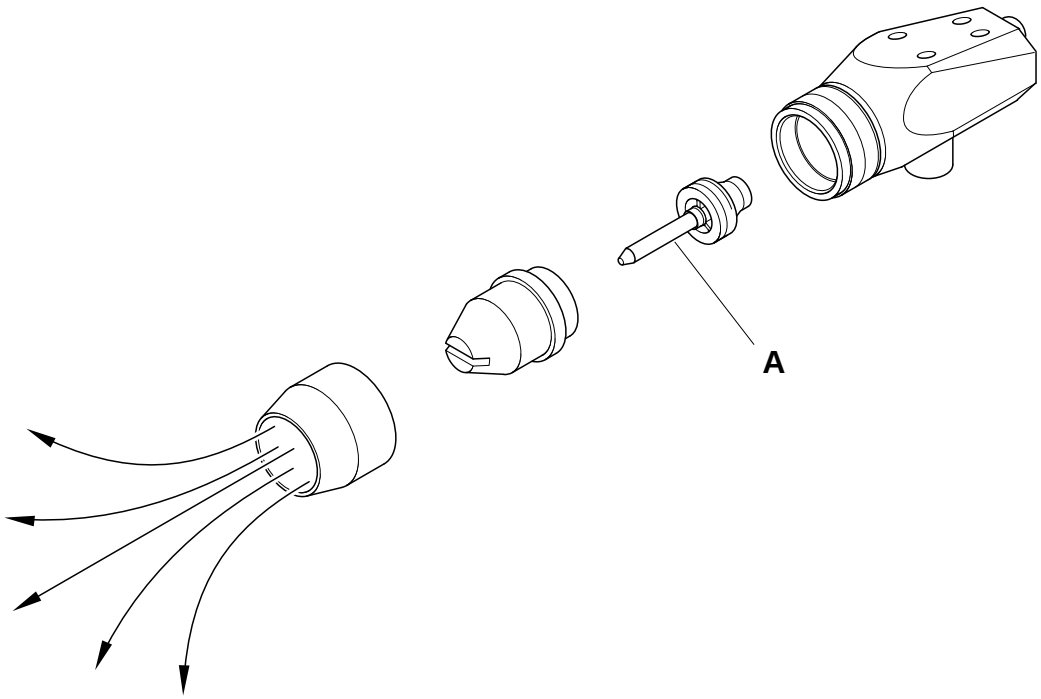


Fig. 3.

2 - INSTALLATION

2.1 - SAFETY RULES

IMPORTANT NOTE.....This spray gun is only for use with powder paints.

Use of the powder spray gun must comply with the safety precautions specified in this manual (refer to articles R233-140 to R233-150 of the Code of Labour Law on paint booths and powdering).

1 - The spray gun should only be used by trained personnel who are fully aware of the safety rules specified in this section.

2 - Powder spraying must be conducted in a specially designed and correctly ventilated booth. The logic control system must link the extractor fan system and the spraying equipment in such a way as to ensure that spraying is only possible when the extractor fan system is running.

3 - All conducting material located in the proximity of the spray gun (including, in particular, the parts being painted) must be connected to the earth associated with the electrical power supply.

4 - The electrical resistance of all parts for painting, in relation to the earth must be less than or equal to 1 MΩ.

5 - The spraying equipment must be regularly maintained, in line with the instructions in the manual. Any repair work must fully comply with the guidelines provided by the manufacturer of the material.

6 - The high voltage current power supply must be turned off before starting to clean the spray guns.

2.2 - INSTALLING THE EQUIPMENT

Care should be taken to ensure that the equipment is installed in compliance with the safety rules specified in section 2.1.

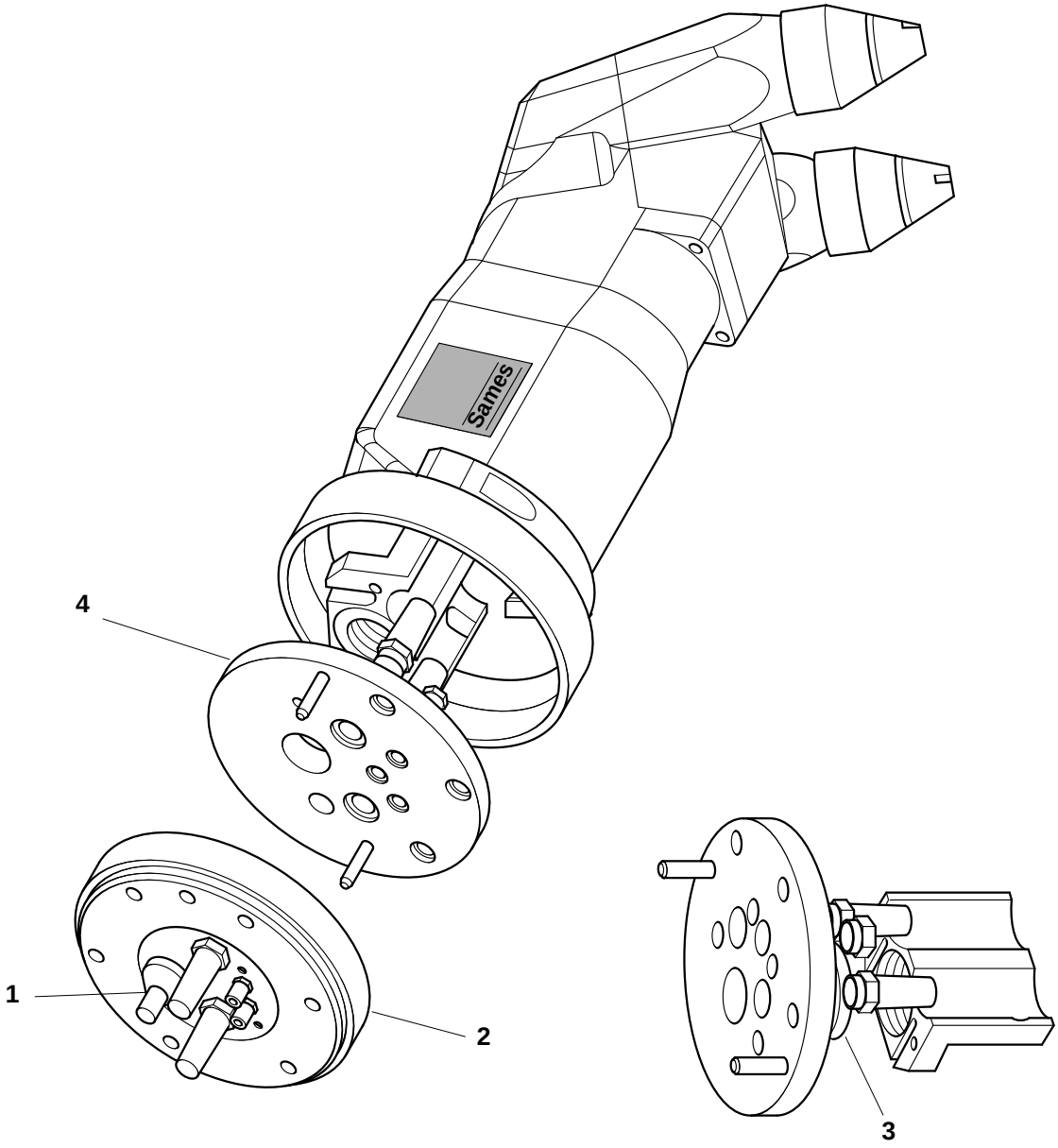


Fig. 4.

3 - COMMISSIONING

3.1 - PREPARING THE SPRAY GUN

(Refer to **Fig.4**)

- Fasten the socket [**1**] of the electrical power supply cable onto the fixed flange [**2**]. Check socket orientation (contact marks in front of plug contacts of plug [**3**] installed in the mobile flange [**4**].

- Connect the pneumatic and powder feed pipes onto the fixed flange [**2**]. Fasten the fixed flange onto the adapter flange [**5**].

3.2 - OPERATION AND SETTINGS

The **SRV 028-2-Twin 60**° powder spray gun should be installed 150 to 300 mm from the part to be painted.

Voltage adjustments are described in the instructions manual of the **GND 504-B** control unit (see **RT 6017** manual).

CAUTION : Current consumption with the **SRV 028-2-Twin 60**° spray gun should never exceed 30 µA per gun (i.e. 60 µA for two guns) during spraying. Higher current consumption would result in fouling of the electrode and will cause loss of efficiency of the spray gun.

4 - MAINTENANCE

4.1 - PERIODICAL MAINTENANCE AND CHECK-UPS

IMPORTANT : All cleaning work should be carried out using compressed air, rags or if necessary brushes.

Water should NEVER be used.

Spray gun soiling and wear, caused by powder flow, clearly depends on the type of powder used.

The guidelines as to cleaning and maintenance frequency provided in the table below can only be taken as an indication of what is required.

Users of **SAMES** equipment should develop their own maintenance programmes.

As a first approach we recommend the following programme :

MAINTENANCE FREQUENCY	ACTION
• Before starting work.	• Check rules 3, 4 and 6 of section 2.1.
• Every day.	• Remove the nozzles from the **SRV 028** spray gun and clean the electrode with a brush. • Clean the nozzles with compressed air.
• Between 150 and 300 hours (or more).	• Replace the nozzle if grooves are visible inside nozzle.

4.2 - DISMANTLING AND RE-ASSEMBLY (GENERAL)

Dismantling and re-assembly of these complex assemblies are described in Chapter 6.

Easy and frequent component dismantling :

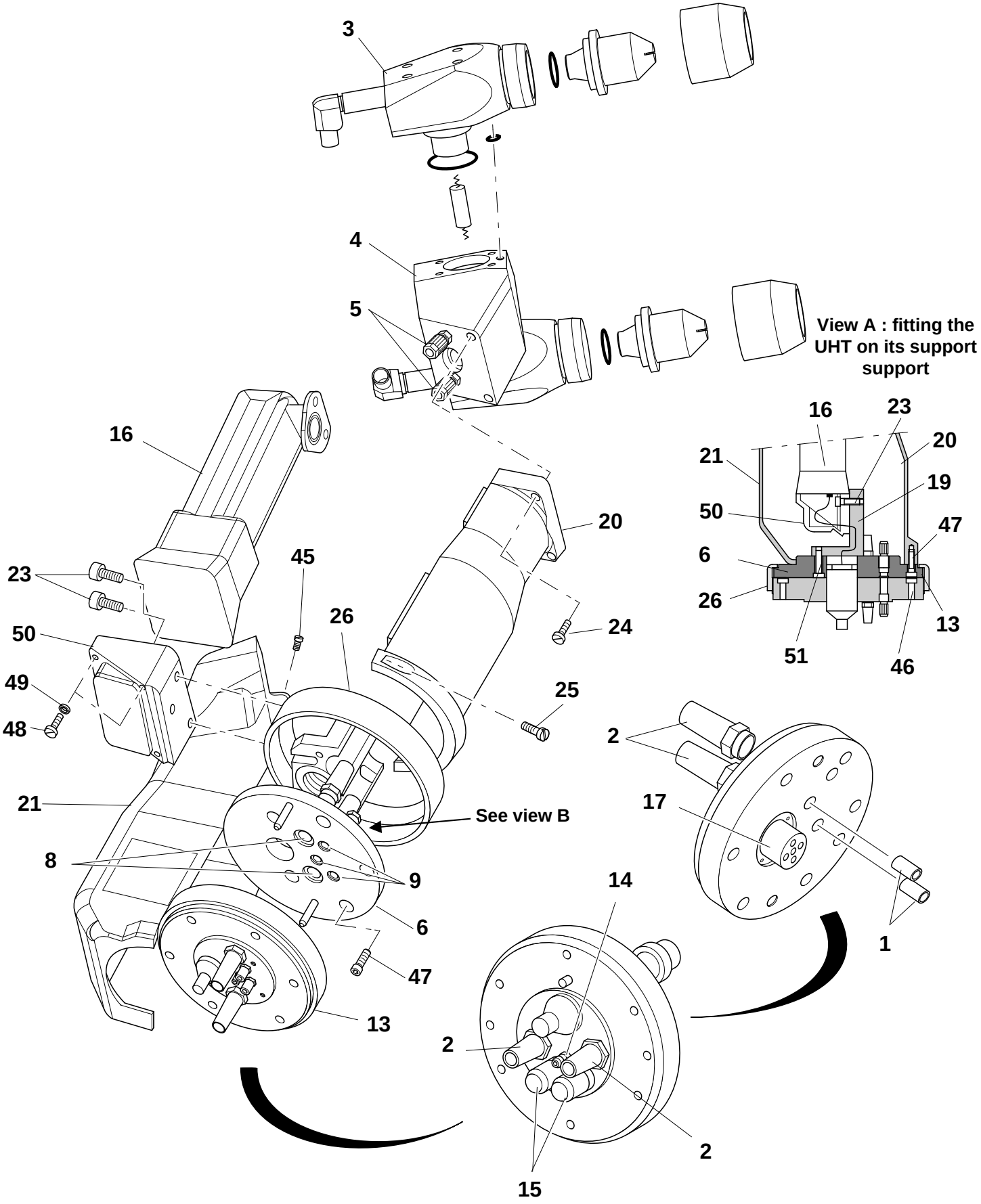
• **SRV 028** spray gun (refer to plate BF4-1).

5 - TROUBLESHOOTING

SYMPTOMS	PROBABLE CAUSES	REMEDIES
• Powder flow stopped.	• Incorrect assembly.	• Check that installation and connections comply with guide lines in chapters 2 and 3.
	• Incorrect spray gun setting.	• Follow instructions in section 3.2.
• Powder flow impossible, zero current even with the trigger pulled.	• Excess generator intensity.	• Check rules 3, 4 and 6 in section 2.1. • Cut power supply, then power up again.
• The quantity of powder is insufficient.	• Incorrect spray gun setting.	• Follow instructions in section 3.2.
• The powder does not adhere to the parts.	• The parts being painted are not properly connected to the earth.	• Check that the electrical resistance of the parts, in relation to the earth is less than 1 MΩ.
	• The ionizing electrode is covered with powder.	• Clean the electrode and check that output current is < 30 µA for flat-jet nozzles.
	• The voltage is too low.	• Increase the voltage, and make sure output current is < 30 µA/gun (i.e. 60 µA for two guns).

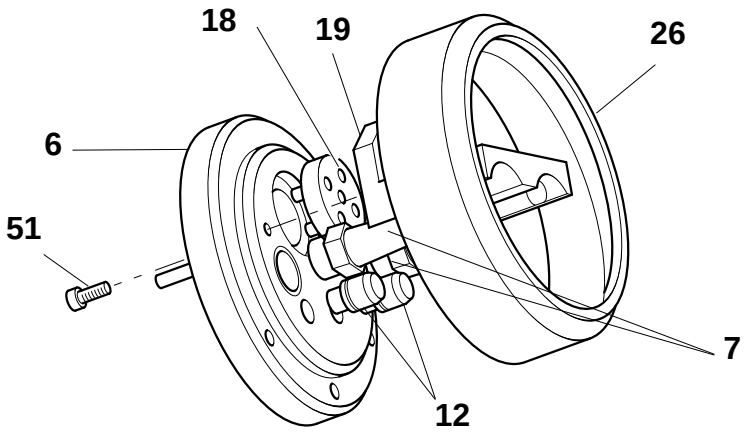
6. SPARE PARTS

SRV 028-2 / UHT 151 RM / BSR 164-P / US



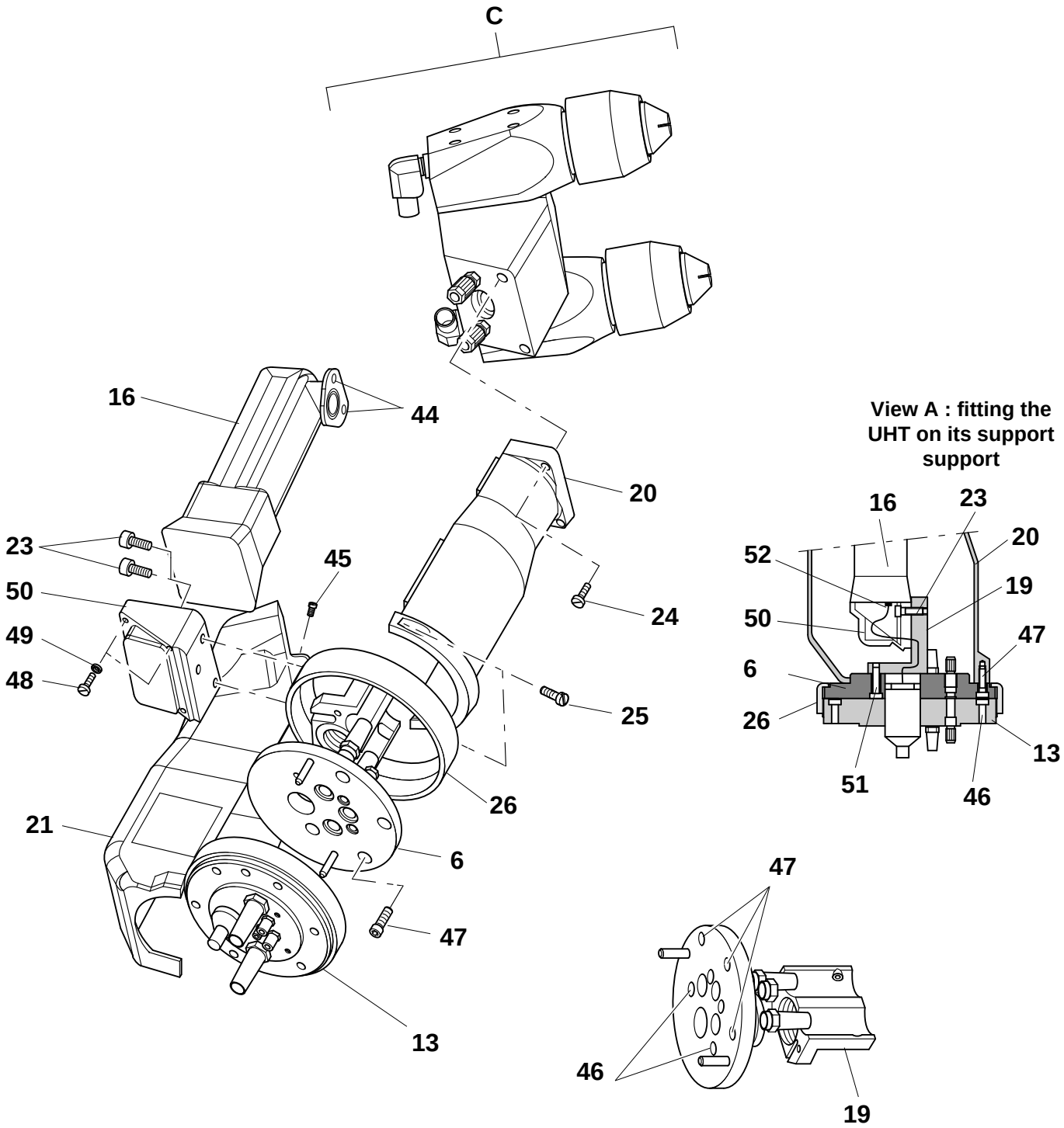
SRV 028-2 / UHT 151 RM / BSR 164-P / US

VIEW B



Item	SAMES code	Description	Qty	Sale unit
	855 457	**SRV 028-2 / UHT 151 RM / BSR 164-P / US**		**1**
1	• 546 440	Powder socket	2	1
2	• 449 161	Short powder inlet piece	2	1
3	• 855 459	**SRV 028** spray gun with **BSR 164-P nozzle**	2	1
4	• 855 461	Manifold with vortex	1	1
5	•• F6R PUK 316	Ø 4 x 6 - 1/8" G union	2	1
6	• 855 463	Mobile flange with vortex	1	1
7	•• 546 442	Powder inlet end piece	2	1
8	•• J3E TOR 020	O-ring Ø 10 x 2.5	2	2
9	•• J3E TOR 004	O-ring Ø 4.2 x 1.9	3	1
12	•• F6R PUK 316	Ø 4 x 6 - 1/8" G union	2	1
13	• 855 465	Fixed flange with vortex	1	1
14	•• F6R AUR 083	Ø 2.7 x 4 - M 5 union	1	1
15	•• F6R PUK 316	Ø 4 x 6 - 1/8" G union	2	1
16	• 757 474	**UHT 151 - RM (see plate CO1-1)**	1	1
17	• 756 639	5 contacts female plug (with wires)	1	1
18	• 544 476	5 contacts male plug (without wires)	1	1
19	• 428 858	UHT bracket	1	1
20	• 428 881	Shell	1	1
21	• 416 792	Cover	1	1
23	• X9N VCB 221	Screw C M 6 x 10 nylon	2	1
24	• X9N VCB 226	Screw C M 6 x 20 nylon	2	1
25	• X9S VCB 183	Screw C M 5 x 15 glass fiber	2	1
26	• 744 633	Stainless steel Q/D nut	1	1
45	• X9N VFB 183	Screw FB M 5 x 16 - nylon	1	10
46	• X4F VSY 186	Screw CHc M 5 x 20 - Stainless steel	6	10
47	• X4F VSY 184	Screw CHc M 5 x 16 - Stainless steel	3	10
48	• X2B VKY 118	Screw SCR M 4 x 10	4	10
49	• J2C RAN 041	Sealing washer	4	4
50	• 438 704	Cover	1	1
51	• X4F VSY 184	Screw CHc M 5 x 16 - Stainless steel	2	10

DISMANTLING AND RE-ASSEMBLY OF THE SRV 028-2-TWIN 60° SPRAY GUN



DISMANTLING AND RE-ASSEMBLY OF THE SRV 028-2-TWIN 60° SPRAY GUN

1 - DISMANTLING

- It is assumed that the spray gun has already been removed.
- Loosen the screws (**25**) and (**45**), and remove the cover (**21**).
- Loosen nut QD (**26**), and remove QD plate (**13**).
- Remove screws (**24**), (**47**) and remove shell (**20**). Remove nut QD (**26**).
- Disconnect powder feed pipes and compressed air hoses (see plate **BF6-1**).
- Remove screws (**44**) (see plate **CO1-1**), and remove gun assembly (**C**). Dismantle guns as needed (see plate **BF3-1**).
- Remove the two screws (**51**) maintening the **UHT 151-RM** (**16**) on its support (**19**).
- Remove the four screws (**48**) and the four sealing washers (**49**) and remove the HV unit cover (**50**) in order to access to the screws (**23**) maintening the **UHT 151-RM** (**16**) on its support (**19**) (see detail (**A**)).
- Disconnect the fastens (**52**) in the **UHT 151-RM casing.**
- Remove screws (**23**) and remove the **UHT 151-RM** (**19**) equiped with the male plug.

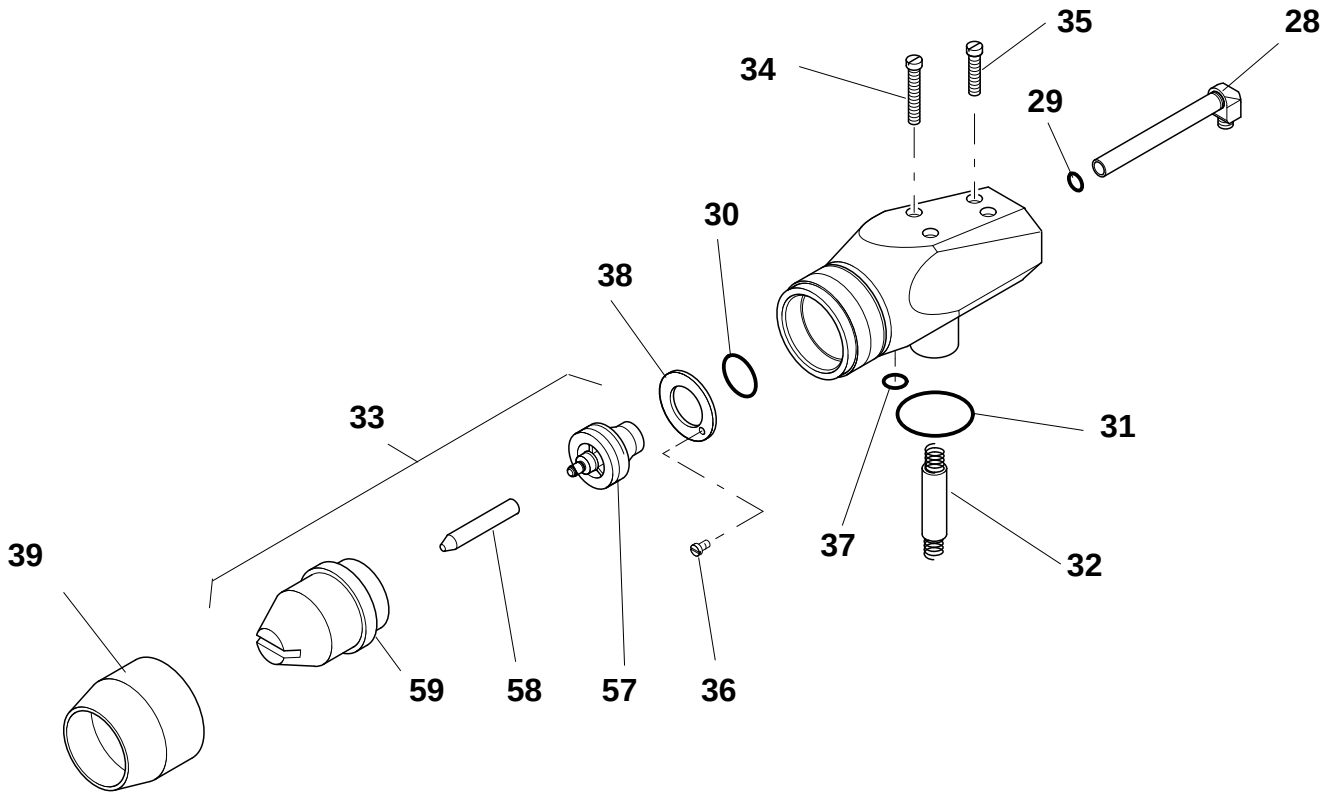
2 - RE-ASSEMBLY

- Check condition of sealing washers (**49**). Replace it if necessary.
- Place the **UHT 151-RM** (**16**) on its support (**19**), then fix it with the screws (**23**).
- Connecter the contacts (**52**).

  Place the **UHT** cover (**50**), fix it with the screws (**48**) equiped with the sealing washers (**49**).
- Place nut QD (**26**) on the mobile flange (**6**).
- Align support (**19**), to HV unit (**16**), on the mobile flange (**6**), and secure with the screws (**51**).

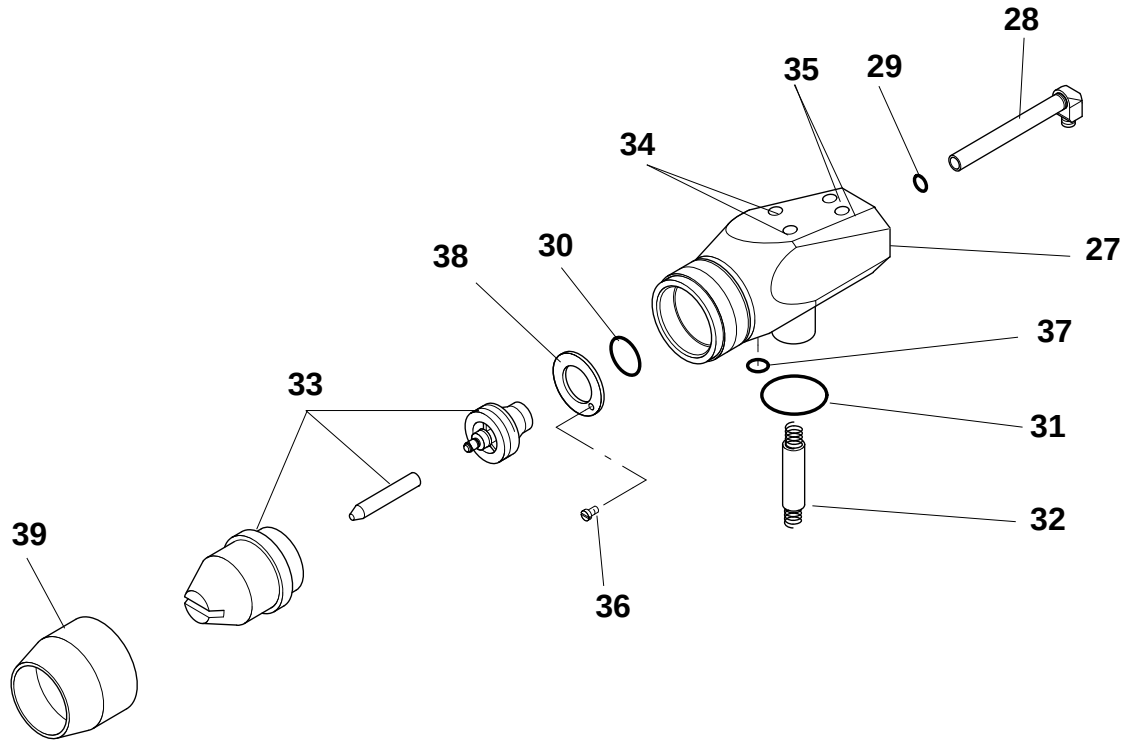
  Insert gun assembly (**C**) into HV unit and secure with two screws (**44**).
- Connect powder feed pipes and compressed air hoses to gun assembly (**C**) (see plate **BF6-1**).
- Align shell (**20**) to mobile flange and secure with screws (**47**) and (**24**).
- Align cover (**21**) to shell (**20**) and secure with screws (**25**) and (**45**).
- Align QD plate (**13**) to mobile flange (**6**) and secure by tightening nut QD (**26**).

SRV 028 / BSR 164-PI / US SPRAY GUN - 855 459



Item	SAMES code	Description	Qty	Sale unit
	855 459	**SRV 028 SPRAY GUN with BSR 164-PI nozzle (US)**		**1**
28	736 222	90° powder inlet end piece	1	1
29	J2F TCF 178	O-ring 14 x 2	1	1
30	J3E TOR 031	O-ring 14 x 2.5	1	1
31	J2F TCF 051	O-ring 25 x 2.4	1	2
32	740 532	Resistor holder	1	1
33	1 500 885	**BSR 164-PI** nozzle	1	1
34	X9S VCB 232	Nylon screw M 6 x 50 glass fiber	2	1
35	X9S VCB 230	Nylon screw M 6 x 40 glass fiber	2	1
36	X7C VCB 064	Brass screw C M 3 x 6	1	1
37	J3T TOR 004	O-ring Ø 4.2 x 1.9	1	1
38	449 156	Contact washer	1	1
39	747 004	Nozzle nut	1	1
57	733 817	Back body of nozzle	1	1
58	755 118	Insulating axis of nozzle	1	1
59	747 037	Front body of nozzle	1	1

DISMANTLING AND RE-ASSEMBLY OF THE SRV 028-2 (US) SPRAY GUN



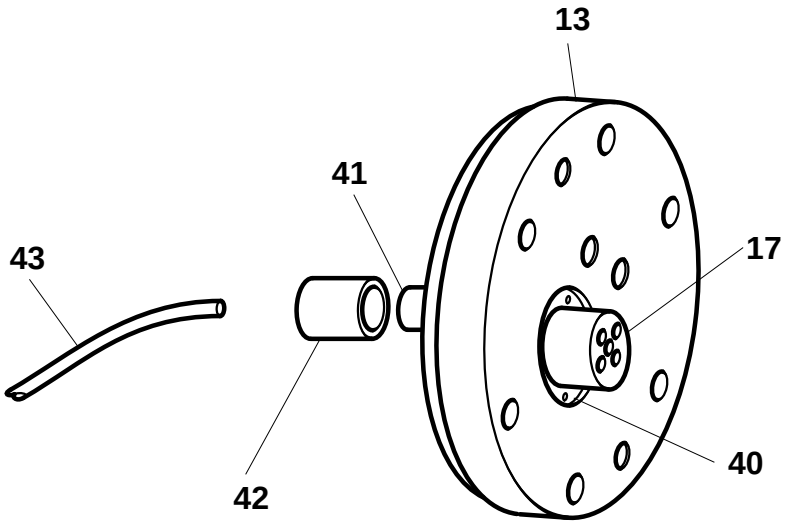
1 - DISMANTLING

- It is assumed that the spray gun has already been removed.
- Loosen the nozzle nut (**39**).
- Dismantle the nozzle (**33**).
- Loosen the screw (**36**) and remove the contact washer (**38**).
- Remove the O-ring (**30**).
- Dismantle the 90° powder feed pipe nozzle (**28**), then remove the O-ring (**29**).

2 - RE-ASSEMBLY

- Check condition of the O-rings (**29**), (**30**), (**31**) and (**37**) and of the brass screw (**36**). Replace if necessary.
- Install the O-ring (**29**). Install the 90° powder feed pipe nozzle (**28**).
- Install the O-ring (**30**).
- Install the brass screw (**36**) on the contact washer (**38**). Put the assy inside the gun body (**27**).
- Install the nozzle (**33**) in the nozzle nut (**39**). Tighten on the gun body (**27**).
- Install the gun assy on the HV unit connecting part.
  Make sure the O-ring (**31**), the resistor holder (**32**) and the O-ring (**37**) are present.
- Fasten the gun using the screws (**34**) and (**35**).

REPLACEMENT OF LOW VOLTAGE CABLE OR SOCKET



1 - DISMANTLING

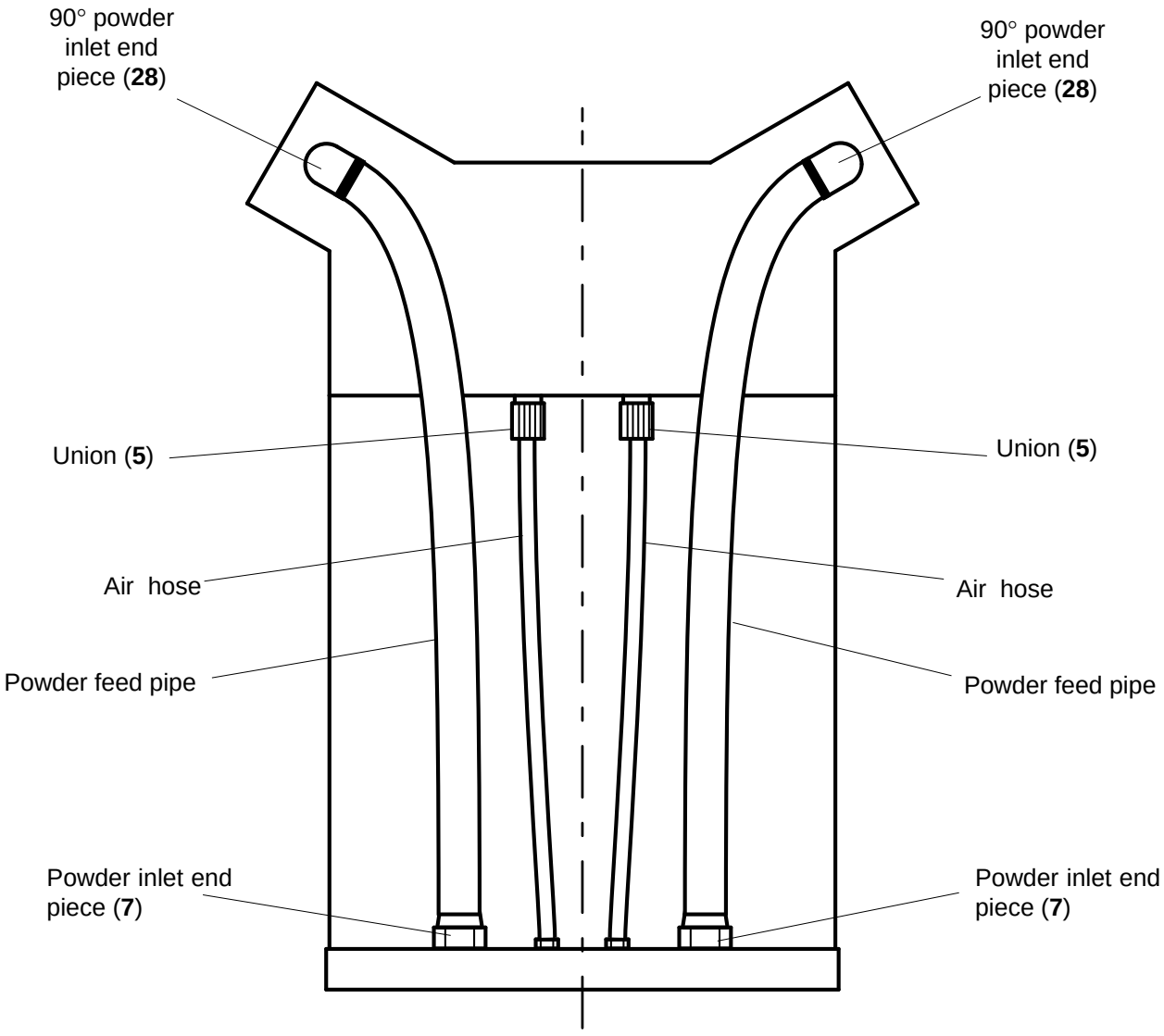
- Remove the **SRV 028-2-Twin 60**° spray gun.
- Loosen the screws (**40**) and pull the receptacle connector assy (**17**).
- Disconnect the other end of low voltage cable and take off all parts.
- Loosen the packing box (**42**).
- Move apart the connector cover (**41**) and the receptacle connector (**17**).
- Identify the cable conductors (**43**) on the receptacle connector (**17**).
- Unsolder the contacts, remove the cable (**43**) and keep the packing box (**42**).

2 - RE-ASSEMBLY

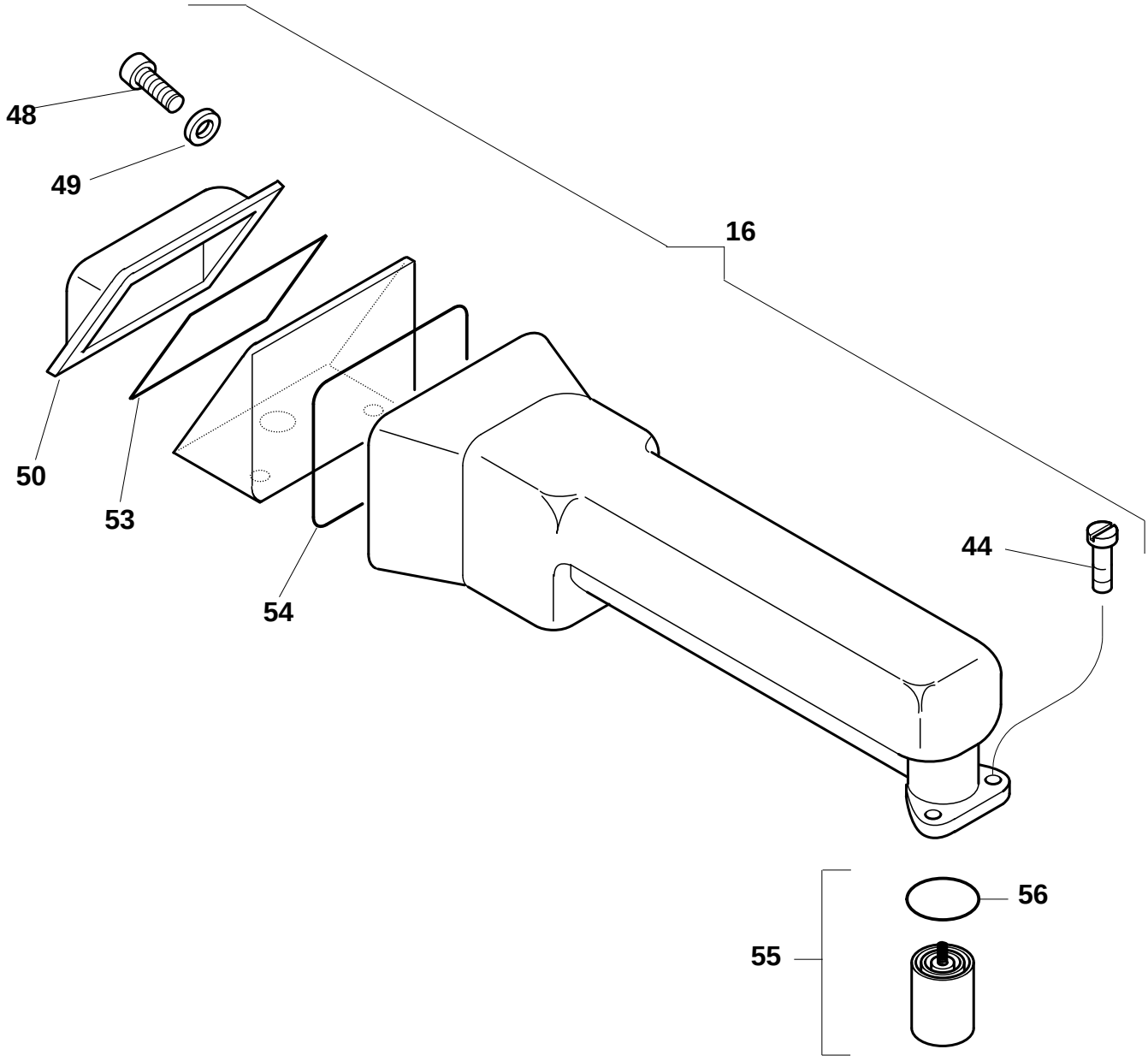
- Install the packing box (**42**) and the connector cover (**41**) on the cable (**43**).
- Solder the cable conductors on the receptacle connector's contacts as per identification.
- Assemble the connector cover (**41**) and the receptacle connector (**17**).
- Install and tighten the packing box (**42**).
- Fasten the receptacle connector (**17**) onto the fixed flange (**13**) using the screws (**40**).

INTERNAL CONNECTIONS OF THE SRV 028 SPRAY GUN

Vue de l'arrière du projecteur SRV 028



HIGH VOLTAGE UNIT 151-RM - 757 474



Item	SAMES code	Description	Qty	Sales unit
16	**757 474**	**High Voltage Unit 151-RM**		**1**
44	X9N VCB 181	Screw C M 5 x 10 nylon	2	10
48	X2B VKY 118	Screw SCR M 4 x 10	4	10
49	J2C RAN 041	Sealing washer	4	4
50	438 704	Cover	1	1
53	J3E TOR 149	O-ring 76 / 3	1	1
54	J3E TOR 154	O-ring 81 / 2	1	1
55	448 768	Main isolator assy	1	1
56	J3E TOR 046	O-ring 22,5 x 2	1	2

CONNECTION DIAGRAM : SRV 028-2 SPRAY GUN / UHT 151- RM