Handleiding

CA 35Bis – 35/5 – 35/6 – 35/7 – Jolly

MSH equipment
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CONTENTS

1 GENERAL INFORMATION

1. 1 MANUFACTURER

CAV S.r.l. has been manufacturing Service control units for industrial use for more than thirty years; this experience has led to a considerable technological Know-how based on many years of R&D activities carried out in tight connection with the product manufacturing and trading on the international market, and this is the best quality guarantee that CAV can offer to users.

1. 2 POINTS OF SALE AND SERVICE CENTRES

CAV directly offers after-sales service for its products sold in Italy or in Europe.
(Sales, After-sales, Spare parts)

CAV S.r.l.,
Via Morandi, 90 - Toscanella di Dozza (Bologna), Italy
Postal Code 40060
Phone +39 (0)542 673488
E-mail: sales@cavitaly.com

Customers are kindly requested to contact the above-indicated central After-sales Service for any doubt or clarification about use, maintenance or request for spare parts. Please remember to specify the Machine identification details that can be found on the nameplates:
See Nameplate A, paragraph 3.9

1. 3 CERTIFICATION

The Machine complies with the prevailing European Union Directives applicable at the moment of its release on the market, as detailed in the declaration of conformity.
According to service control unit which is chosen for coupling with the arm, compliance with 94/9/ EC directive (Atex) may or not be ensured.
If the standard service control unit is replaced by an Atex-compliant one, arm-control unit assembly ground wires continuity must be checked.

1. 4 WARRANTY

Machine components are covered by a 12-month (twelve months) Warranty: this period starts from the date indicated on the purchase document (invoice).
Warranty only covers faulty parts, no labour costs and service call fee.
Warranty excludes any Service arm damage due to:

- transport and/or handling;
- wrong installation;
- wrong or improper use of the Machine;
- failed compliance with maintenance specifications given in this Manual; (see paragraph 6.5)
- failures and/or faults not ascribable to faulty parts.

1. 5 CUSTOMER'S OBLIGATIONS

The Customer shall, within the time frame agreed upon with the Manufacturer, fulfil its obligations indicated in the Documents attached to the sales contract. Unless otherwise agreed, the Customer normally shall take care of:

- Preparing the rooms, including any required building works and/or channels.
- Air supply with compressed air (see paragraph 4.6.1).
- Machine Power Supply, complying with the prevailing rules in the Country of use (see paragraph 4.6.2).

1. 6 MANUAL LAYOUT

The Customer is required to carefully read this manual since correct pre-setting, installation and use of the Machine are basic requirements for its trouble-free and safe operation.

1. 6. 1 PURPOSE AND CONTENTS

This manual shall give all necessary information for correct and safe use of the product. It deals with technical information, operation and maintenance details, as well as instructions for spare parts and safety warnings. Before attempting any operation on the machine, operators and qualified technicians are required to carefully read the instructions given herein.
Manual content derives from an ongoing and methodical job of data processing and technical tests filed and approved by C.A.V., complying with the internal safety procedures and data quality rules.
Data herein indicated are **EXCLUSIVELY** for specialised personnel, that could interface with the product under safety conditions for any person, the machine and the environment, carry out a simple troubleshooting and understand strange/faulty operating conditions, carry out simple inspections and maintenance, still fully complying with the instructions given in the following pages and prevailing health and safety regulations.
All details about installation, assembly, removal, extraordinary maintenance, repair and installation procedures for any accessories, devices and equipment, are mentioned and can only be performed by specialised personnel or by the **AUTHORISED AFTER-SALES SERVICE**, fully complying with the manufacturer's recommendations and the prevailing health and safety rules.
It is important to keep this manual in a known place and ensure it is legible, for possible future reference. In case of damage or for further technical and operation details, please contact directly our **AUTHORISED AFTER-SALES SERVICE**.

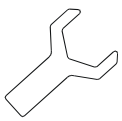
1. 6. 2 MANUAL ADDRESSEES

This Manual addresses both the operator and the technicians allowed to carry out maintenance operations on the machine. Operators shall not carry out any operation reserved to Maintainers or Qualified Technicians. Failure to do so, the Manufacturer will not be liable for any resulting damage.

1.6.3 MANUAL STORAGE

This Manual shall be kept next to the Machine and in such a position protected from any fluid or any other condition that could compromise its readability.

1.6.4 SYMBOLS

	DANGER	Indicates a hazard resulting in a (serious) risk for user or any other person.
	WARNING	Pay utmost attention to the paragraphs highlighted by this symbol.
	DANGER OF ELECTROCUTION	Indicates a hazard of electrocution resulting in a (serious) risk for user or any other person.
	SPECIALISED PERSONNEL	Specialised personnel is required for special operations.
	SEE MANUAL	It is necessary to refer to the User's Manual before attempting a certain operation.
	ADJUST	Mechanical adjustment and/or electric set-up could be necessary.

2 MACHINE DESCRIPTION

2. 1 PRINCIPLE OF OPERATION

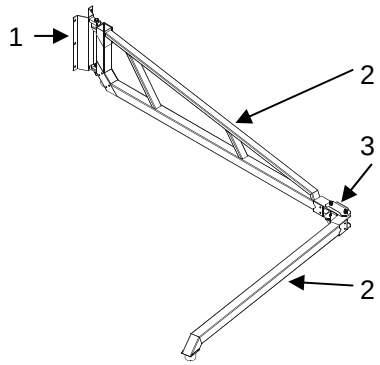
This service arm is made of a load bearing frame on which are installed mechanical, electromechanical, electronic and pneumatic devices or units that are used, altogether or combined with one another, for suction of the dust resulting from dry sanding primer or filler/surfacer.

The machine description specifies the intended use for which the product was designed, produced and protected. Any different use or failure to comply with the following specifications could create danger for persons and/or property.
The model described herein consists of some main and auxiliary units, whose functions are listed here below and are aimed at carrying out a production cycle under safety conditions.
Please exclusively contact directly the AUTHORISED AFTER-SALES SERVICE for further details or specifications.

2. 2 MAIN COMPONENTS

The machine consists of the following main components:

1. Wall mounting plate
2. Arm main framework
3. Central hinge



2. 3 ARM FRAMEWORK

The service arm framework is in metal tube. At the rear are fittings for connection to the wall-mounting plate and feeding tubes and cables outlet. At the centre is a hinge joint for turning the service arm front part over 360°. At the service arm front is service control unit power cables outlet (supplied separately).

2. 4 DIMENSIONS

Overall dimensions are specified under paragraph 2.9 -Specifications.

2. 5 AMBIENT CONDITIONS

The arm does not require any special ambient conditions. Nevertheless, it shall be installed in a well-lit industrial building.
Ambient temperature for correct unit operation shall be in the range +5°C to +40° C.

2. 6 LIGHTING

Room lighting shall comply with the prevailing rules in the country where the machine is installed. In the area where the Service arm is installed, good visibility shall be ensured for easier routine and extraordinary maintenance. Minimum recommended illumination: 400 lux.

2. 7 VIBRATIONS

It does not feature vibrations in use conditions complying with the intended use instructions.

2. 8 NOISE EMISSIONS

No noise emissions.

2. 9 SPECIFICATIONS

This section indicates Machine technical features and specifications user shall refer to in case of contact with the Manufacturer After-sales Service.

TABLE 2. 9A - Technical Features and Specifications

Description	**Features**
Power supply	According to the type of control unit installed
Installed power	According to the type of control unit installed
Compressed air supply	Max 10 Bar
Relative humidity	Max 90% w/out condensate
Ground, completed with control unit of the SR series	35Bis - 65 (kg) 35/5 - 83 (kg) 35/6 - 98 (kg) 35/7 - 113 (kg) Jolly - 94 (kg)
Dimensions (mm)	35Bis - 5280x260x600(h) 35/5 - 4985x260x774(h) 35/6 - 5985x260x774(h) 35/7 - 6985x260x774(h) Jolly - 5985x260x620(h)
Nominal power input	According to the type of control unit installed

2. 10 OUTFIT

The following equipment refers to the standard production service arm. Any special machine could hence require parts different than the listed ones.

2. 10. 1 STANDARD

The arm comes with:

- User's Manual
- Declaration of conformity
- Installation equipment

2. 10. 2 OPTION EQUIPMENT ON REQUEST

No options are set with respect to the standard outfit.
Any change and/or addition of any accessory whatsoever must be explicitly approved and made by the Manufacturer.

2. 11 ELECTROMAGNETIC ENVIRONMENT

The service arm is designed to operate correctly within an industrial electromagnetic environment.
Electronic equipment that could be built-in shall be installed as indicated in the instructions that come with the equipment itself and considering the general criteria for **EMC** specified in **EN 60204-1 art. 4.**

3 SAFETY RULES

3. 1 GENERAL WARNINGS

The Operator shall carefully read the information given in this Manual, especially the Safety rules and precautions specified in this section.
Moreover, it is fundamental that the Operator follows these warnings:

- Keep the service arm and the work area clean and in order;
- Use the service arm under normal psychophysical conditions;
- wear appropriate clothes and personal protection gear suitable for products in use;
- Do not remove or tamper with the Manufacturer nameplates on service arm;

3. 2 INTENDED USE

The service arm is designed for supporting the SR series service control units, for suction of dust or similar material, and conceived for the installation and use in Zone 22 classified areas or non-classified ones. **If the control unit is not designed for the use in Zone 22 classified areas, the arm-control unit assembly cannot be installed in classified areas!**

3. 3 UNSUITABLE USE

The service arm shall not be used:

- for different purposes than those indicated in 3.2;
- outdoors, exposed to any weather condition;
- to take in red-hot parts and/or parts on fire;
- in a different way than stated in safety installation rules given herein.

3. 4 DANGEROUS AREAS

The service arm can only be moved manually and does not entail important danger for any exposed persons. It shall nevertheless be used taking the following precautions:

- The operator could squeeze its fingers while adjusting (central and rear) hinges;
- If unit is matched to a SR series service control unit, the operator could accidentally get in contact with dangerous chemicals that were taken in without being aware of the danger.
- The production supervisor shall assess the usage conditions according to the possible danger of the assembly and take any suitable action before using the unit.

3. 5 SAFETY DEVICES

The service arm comes complete with suitable guards to protect the persons exposed to risks due to manual handling of the service arm, pressurised air lines blowing up, or risks connected to power supply, and so on.
The unit fits the following safety devices:

- Metal barrier all around the mobile parts or the ones under pressure. Basically, the enclosures are a barrier for any potentially dangerous parts.

The User is requested to install the following safety devices:

- **Electrical equipment with TT system:** automatic circuit breaker with differential protection against direct and indirect contacts on machine power control panel (if activated, it causes uncontrolled stop of all actuators and power cut-off);
- **Electrical equipment with TN or IT system**: refer to control panel specifications to install the suitable protections.

3. 6 STOP CONTROLS
No service arm stop functions are provided for.

3. 7 SAFE WORKING PROCEDURES
The service arm design features aim at eliminating all risks connected to its use.
The residual risks linked with work mode (after coupling with the service control unit) are:

- risks connected with the use of pneumatic energy;
- risks connected with the use of electric energy;
- risks of possible contact with product removed by suction.

To limit any consequence of these danger instances (after coupling with the service control unit), strictly follow the instructions below:

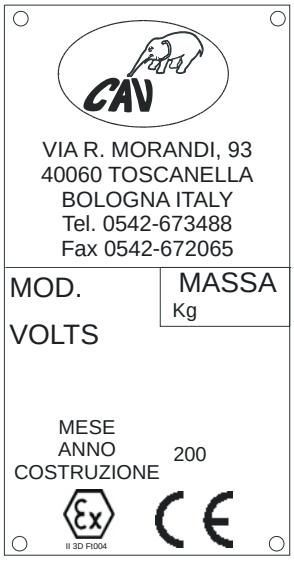
- Ensure that air supply pressure is available and set to specified value: **max. 10 bars**;
- **Do not use the service arm before checking the correct installation (from the mechanical and electrical viewpoint);** this can be done by running a cycle with no product to be taken in;
- Wear the personal protection gear suitable for the product in use;
- Wear clothes with close-fitting sleeves.

3. 8 RESIDUAL RISKS
During the normal suction cycle (after coupling with the service control unit) and during maintenance, the Operators can run some residual risks that can not be completely avoided, due to the type of operation being performed, such as danger of electrocution, chemical risk and squeezing hazard.

3. 9 NAMEPLATES
Table 3. 9A - Types of Nameplates

Nameplates for the service arm, fig.3.9.A

Nameplate “A”



Nameplate “B”

Figure 3. 9 B - Nameplates position

	WARNING! THE SAFETY WARNING NAMEPLATES SHALL NOT BE REMOVED, COVERED OR DAMAGED.

4 INSTALLATION

4. 1 TRANSPORT AND HANDLING

Have unit transported by qualified and trained Personnel. The service arm shall be handled in a suitable way so as to avoid damages. All protections, electric circuits, control equipment, shall be suitably closed and fastened.

The service arm is packed on pallet, wrapped in plastic and covered with cardboard. Packed machine dimensions and weight are indicated on the package. Check for transport damages together with the carrier.

N.B.: The Manufacturer will not be liable for damages due to improper lifting and handling of the packed unit.

	WARRANTY does not cover any damage to the service arm due to Transport and Handling. Any repair or replacement of damaged parts is at the Customer's charge.

4. 2 STORAGE

For any long period of inactivity, store the service arm in a suitable place, considering storage environment and time. In particular, consider allowed temperature range, humidity and pollution.

- Store the service arm indoors;
- Protect the service arm from shocks and stress;
- Protect the service arm from humidity and extremely wide temperature ranges +0° C + 60 °C;
- Avoid contact with corrosive substances.

4. 3 ARRANGEMENTS BEFORE INSTALLATION

Before installation, it is necessary to prepare a suitable operating area, limiting any interference with other activities as much as possible.

4. 4 ASSEMBLY

Considering that the arm is usually installed at a height of more than 2 metres, it is necessary to equip oneself with all the individual protection equipment and devices for works at height.

Service arm can be assembled either by the Technicians authorised by the manufacturer or directly by the customer, following these steps:

Unpacking.

Remove all packing material from the machine, using suitable tools and setting it in a suitable place. Dispose of the packing material according to the prevailing environment protection regulations.

(Visually) **check** machine external parts for damage, carefully ensure that there are no scratches, denting or damaged parts.

Report any fault, failure or missing parts found within five days from machine arrival. Beyond this term the Manufacturer is no longer liable for the machine supplied.

WARNINGS AND PRECAUTIONS for installation

First of all, always ensure that all parts necessary for installation are available. Have **any maintenance intervention** -as per the definition of "user" given in the foreword section- performed by qualified personnel. **Using spare parts** that do not comply with the following specifications, any change or tampering (though small as they may be) relieve the Manufacturer of any liability concerning the correct use, operation and safety of persons and/or property. **It is strictly forbidden** to tamper with equipment, control organs and safety devices. **Dispose of waste** as required by the prevailing laws. **If the machine is used by many operators**, all of them shall read the instructions for use and indicate any maintenance intervention or parts replaced, or just suspected faults on the servicing data sheet.

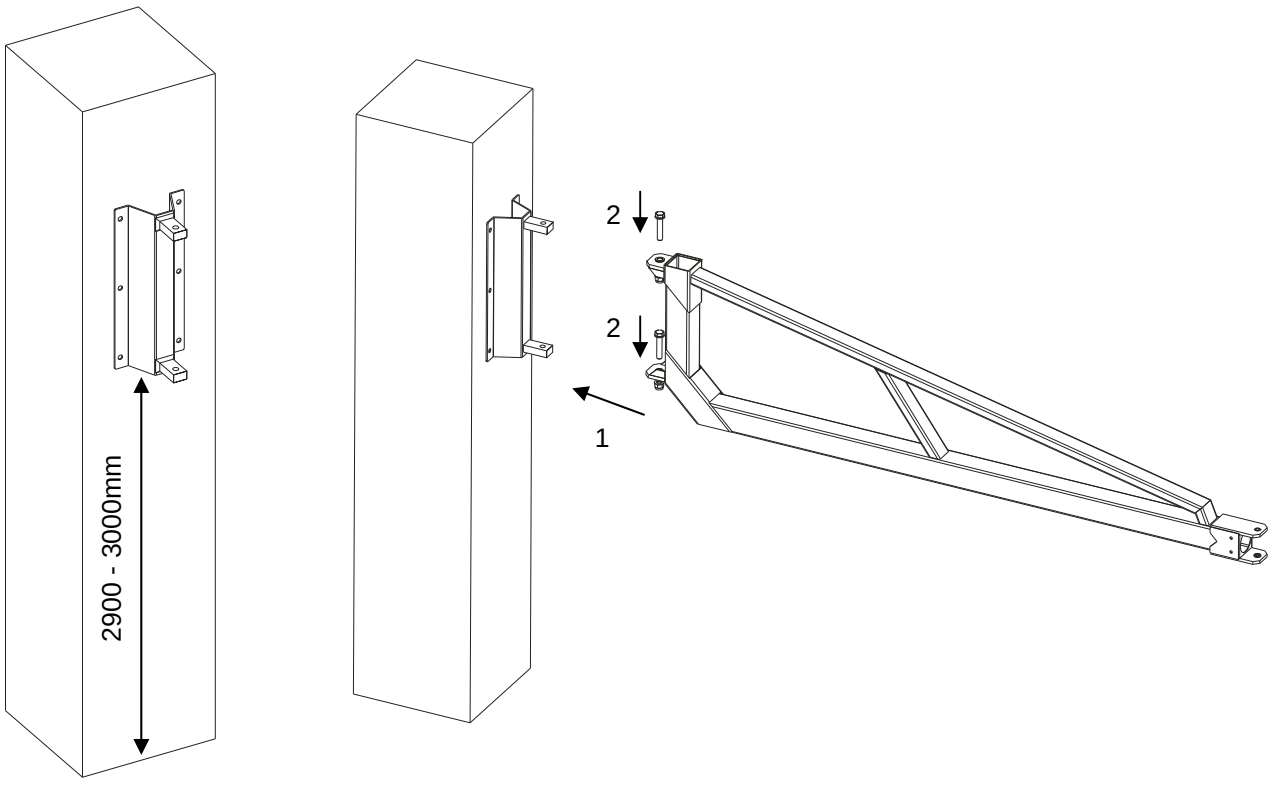
4. 5 SET-UP

Fasten the service arm to a concrete post (or equivalent support approved by a qualified Technician) by means of the supplied rear hinge.

Set arm framework vertically without removing the fastening that joins the front and rear parts. Use a fork lift to lift the arm until reaching the height of the rear hinge, ensure it is safe and firm, and then fix it using the supplied bolts.

Standard outfit:

- no.6 blocks Hilti HST 12x140;
- no.2 bolts M20x100 with self-locking nuts and washers (M16x100 - 35Bis)



Operations for laying the plate retaining blocks on the wall:

1. Drill a hole Ø12.
2. Blow compressed air in the hole to remove dust and residues.
3. Insert the block.
4. Tighten the nut (recommended torque 60Nm).

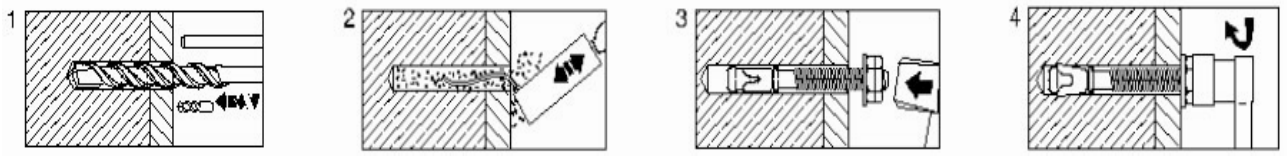


Chart about the stress applied to framework

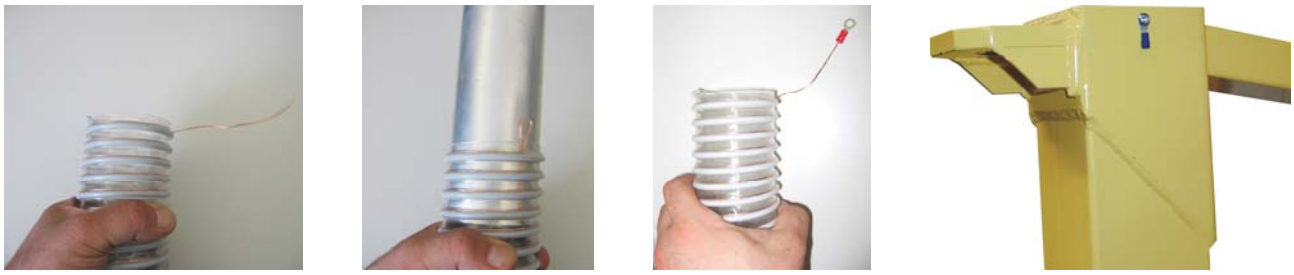
These values are used for sizing and checking the structure to which arm shall be fixed in case it is impossible to use the supplied blocks*

Model	Maximum stress at the joint cross-section (daN*cm)	Maximum shearing stress for retaining screws (daN)	Maximum normal stress for retaining screws (daN)
35Bis	7321	99	498
35/5	7321	99	498
35/6 - Jolly	9962	123	669
35/7	12334	149	878

*** The supplied block Hilti HST 12x140 is approved for the following conditions:**
Concrete class: >25N/sq. mm
Block minimum distance from post edge: >110mm

4. 6 CONNECTIONS

Connect the power and signal cables (2x1 sq. mm). Connect to compressed air supply, installing in-between a gate valve for cut-off and maintenance purposes. Connect the dust suction tube to suction central line. “Peel” the copper wire and fold it inward (if tube is grounded) or connect it to a ground or bonding lead. Connect the arm too to the ground by means of the relevant pre-setting (see figure). With regard to the electrical, pneumatic and control unit suction connections, please look up in the SR service control unit manual.



4. 7 PRELIMINARY INSPECTION

Before starting up the Machine it is necessary to perform some inspections and checks in order to avoid errors or accidents:

- Ensure that the service arm did not suffer any damage during assembly;
- Carefully check cables and air lines for damage and leak;
- Ensure that all mechanical parts are assembled correctly;
- ensure that all mobile parts can move freely.

4. 8 ADJUSTMENTS AND CHECKS

Service arm is assembled at the Manufacturer's premises before shipment. It is then necessary to adjust the central and rear hinges as required.
To make these adjustments proceed as follows:

- Rear hinge: with two wrenches, tighten or loosen the two hinge retaining bolts until obtaining a smooth movement (with a slight friction) of the service arm;
- Central hinge: with two wrenches, tighten or loosen the four hinge retaining bolts until obtaining a smooth movement (with a slight friction) of the service arm (see below).

5 OPERATION

5. 1 PERSONNEL

The service arm is designed for use by many Operators.
Personnel allowed to work on the service arm shall have the following knowledge (or acquire it after suitable training) and be familiar with the contents of this Manual as well as all Safety-related concerns:

- General and technical knowledge of suitable level to understand Manual contents;
- Knowledge of the main health and safety and accident prevention rules;
- Knowledge of how to behave in an emergency situation, where to find personal protection gear and how to use it correctly.

Maintainers, apart from the above, shall also have suitable electrical, pneumatic and mechanical Technical knowledge.

5. 2 CONTROL PANEL

For this section, please refer to the manual about the service control unit of the SR series.

5. 3 COMMISSIONING AND USE

After performing the operations described under paragraph 4.8, please refer to the manual about the service control unit of the SR series for any specific usage instruction.

5. 4 OPERATING MODES

After commissioning, it is possible to use the service arm - SR series control unit assembly as specified in the manual about the same control unit. Please remember that service arm can only be moved manually.

5. 5 JOB END

For this section, please refer to the manual about the service control unit of the SR series.

5. 6 DECOMMISSIONING

After long periods of inactivity, **after coupling the arm to the service control unit**, or in case of maintenance interventions, you must:

- Open and padlock the main switch on main control panel (see Figure 6.1 A);
- Close and lock compressed air inlet valve (see Figure 6.1.B);
- Release circuit air by inserting a fitting into direct air quick cock;
- Put out a panel reading "SERVICE ARM BEING SERVICED".

6 MAINTENANCE

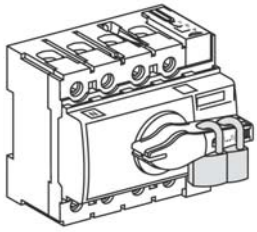
All these operations refer to the assembly formed by service arm and SR series control unit.

6. 1 SERVICE ARM CUT-OFF

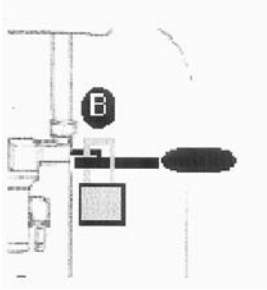
Before attempting any Maintenance or Repair job, user must cut all service arm supplies, proceeding as follows:

1. Open and padlock the main switch on main control panel.
2. Close and padlock the compressed air supply and fit a coupling to direct air rapid cock to drain the system.

6.1A



6.1B



6. 2 SPECIAL PRECAUTIONS

When carrying out maintenance or repair jobs, it is recommended to proceed as follows:

- Before starting, put out a panel reading "SERVICE ARM BEING SERVICED" in a visible position.
- Do not use solvents and flammable materials;
- Do not release lubricants into the environment;
- Machine parts are not designed to bear a Person's weight; do not stand on them or they could break.
- When job is completed, restore and correctly fasten all protections and guards previously removed or opened, as well as any safety device, if previously disabled.
- Please refer to the manual about the service control unit of the SR series for more specific instructions.

6. 3 PARTS SUBJECT TO ROUTINE MAINTENANCE

Maintenance shall be carried out with the service arm set out of service for replacement of damaged or worn parts. The service arm maintenance is not too frequent.

6. 4 CLEANING

It is recommended to frequently clean the whole Machine (intervals depend on type and frequency of use). Use a soft rag. Do not use water and/or solvents.

6. 5 ROUTINE MAINTENANCE

The following operations shall be performed at the indicated time intervals. Failure to comply with this schedule will relieve the Manufacturer of any liability or warranty obligation.
These operations, though simple as they may be, shall be carried out by **suitably trained and expert Personnel.**
Scheduled routine maintenance includes inspections, tests and interventions aiming at preventing system stoppage due to faults or potentially dangerous situations.

MAINTENANCE	DESCRIPTION	INTERVENTION
Pneumatic System	Tubing	No scheduled maintenance required.
Suction System	Tubing	Change every year.
Mechanical components	Hinge bolts	Change in case of evident and severe wear.
Mechanical components	Blocks tightening	Check mounting blocks tightening every six months.

6. 6 EXTRAORDINARY MAINTENANCE

Extraordinary maintenance is an activity reserved to personnel appointed by the manufacturer or the manufacturer itself. Please contact the centres specified under paragraph 1.2 in case of need. **Considering the machine routine maintenance, the intervention of a technician for extraordinary maintenance is highly unlikely, unless for special cases or when expressly requested.**

7 DIAGNOSTICS

7. 1 TROUBLESHOOTING

Table 7.1 A

TROUBLE	CAUSE	INSPECTION AND/OR FIX
Arm front part does not stay in the desired position.	• Failed/wrong setting of the central hinge; • Severe wear of the clutch plates.	• Adjust central hinge. • Change clutch plates.
Arm front part does no more feature the original preload.	• Severe wear of central hinge fasteners	• Change M14 - M12 bolts.
Arm rear part does not stay in the desired position.	• Failed/wrong setting of the rear hinge; • Loose blocks.	• Adjust rear hinge. • Restore all mounting plate squareness and tighten the blocks to the specified torque.
For service control unit faults, please refer to the relevant manual.		

7. 2 AFTER-SALES SERVICE

The Manufacturer is always willing to answer Customer's questions and give information on use, maintenance or installation and so on. Please follow the instructions given under paragraph 1.2 on how to request our assistance.

8 SPARE PARTS

8. 1 SPARE PARTS LIST

Service arm use does not involve any expendable parts. Following is the list of available spare parts.

Table 8.1- A

POS.	DESCRIPTION	PART NO.
1	Tubes and cables sheath	MP0418
2	Dust suction tube	8122
3	Compressed air tube	MP0321

8. 2 ORDERING SPARE PARTS

We remind you that the machine can only be repaired by a qualified technician.
It is hence recommended to contact the Manufacturer After-sales Service that will make available Qualified Personnel, suitable equipment and original spare parts.
To order above-listed spare parts, please refer to paragraph 1. 2

9 SCRAPPING

9. 1 DISPOSING OF WASTE

During processing, waste or rejections are created that shall be collected, recycled or disposed of, in compliance with the prevailing laws of the country where the Machine is installed.

9. 2 MACHINE SCRAPPING

Upon unit scrapping, separate the plastic parts from any electrical components, that shall be sent to different waste disposal centres, as per prevailing rules.
The machine metal parts shall be divided into steel and other metals or alloys, and then routed to recycling firms.
Unit scrapping does not cause any special risk, as far as it is performed by qualified personnel with suitable equipment.

10 ANNEXES

10. 1 DECLARATIONS

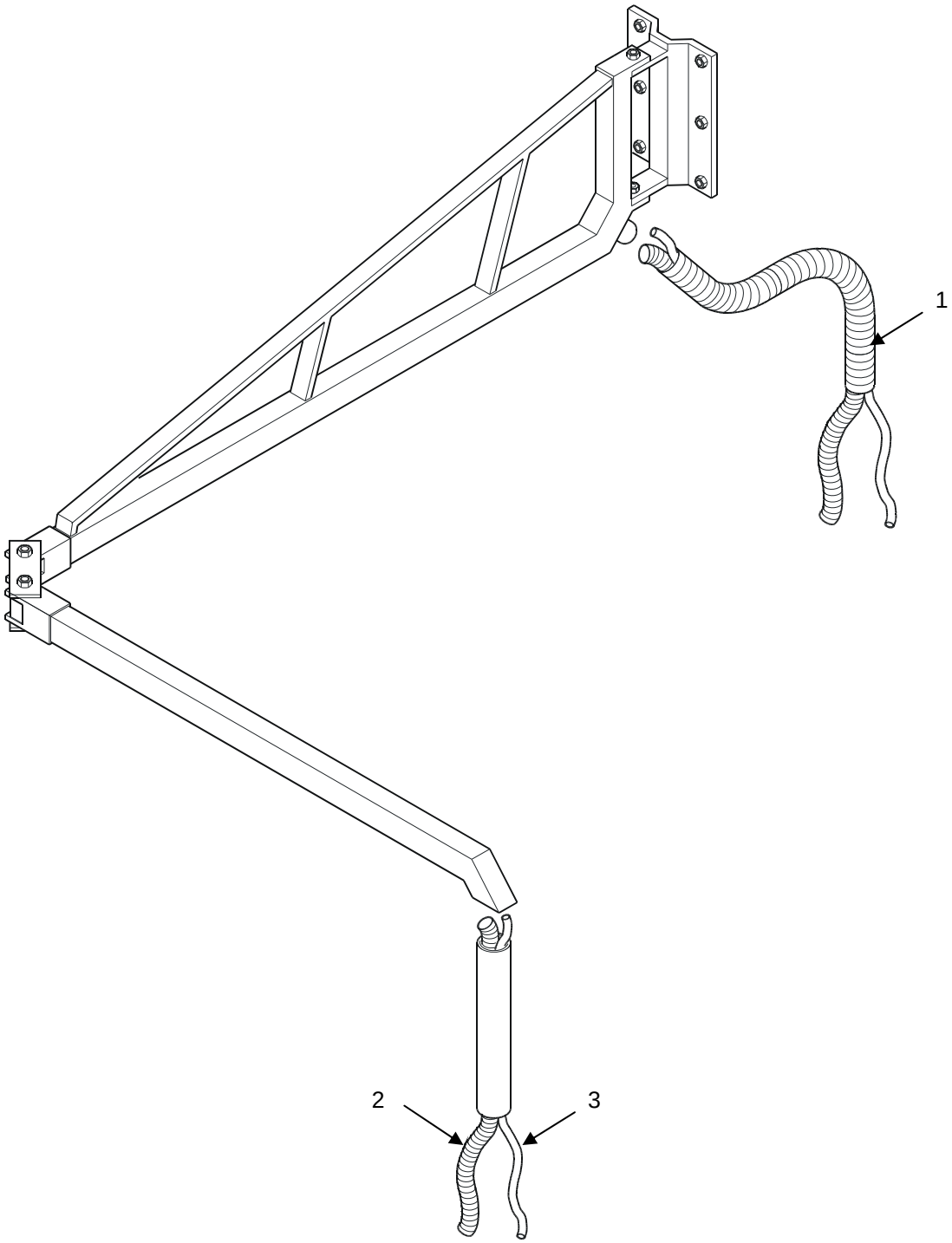
The following Declarations are hereby attached:

- Declaration of conformity

10. 2 DIAGRAMS

The following Diagrams are hereby attached:

- Machine exploded view.



Please see descriptions in Table 8.1 A

Please fill in and return this form by fax for Warranty registration

Date: ……

Machine model:

Serial no.:

Year of manufacture:

To be filled in by the Customer

Company name ……..

Address ..…….

Phone no.: ……Fax no.: ……E-mail: ……

Company name of installing firm

……
……..

Maintenance log book
(please fill in at any servicing)

Date	Operation description	Signature

THE UNDERSIGNED COMPANY **C.A.V SR.L.**

VIA R. VIA MORANDI, 93 - 40060 TOSCANELLA DI DOZZA (BOLOGNA), ITALY
PHONE: +39 0542 673488 - TELEFAX: +39 0542 672065
E-MAIL: SALES@CAVITALY.COM - HTTP://WWW.CAVITALY.COM
M/BO 015576
ITALY

DECLARES, UNDER ITS OWN RESPONSIBILITY, THAT THE MACHINE

MODEL

SERIAL NO.:

CONSTRUCTION DATE

TO WHICH THIS DECLARATION IS REFERRED, COMPLIES WITH THE FOLLOWING DIRECTIVES:

DIRECTIVE 2006/42/EC (MACHINERY DIRECTIVE)

DIRECTIVE 2006/95/EC (LOW VOLTAGE DIRECTIVE)

DIRECTIVE 2004/108/EC (ELECTROMAGNETIC COMPATIBILITY DIRECTIVE)

DIRECTIVE 94/9/EC (ATEX)

FURTHERMORE, WE DECLARE THAT THE TECHNICAL DOSSIER HAS BEEN DRAWN UP BY:

LUCA LUCIA
C/O C.A.V. SRL
VIA R. VIA MORANDI, 93 - 40060 TOSCANELLA DI DOZZA (BOLOGNA), ITALY
PHONE: +39 0542 673488 - TELEFAX: +39 0542 672065
E-MAIL: UT@CAVITALY.COM

TOSCANELLA,

TECHNICAL DOSSIER DRAFTER **LEGAL REPRESENTATIVE**

LUCA LUCIA DOMENICO LUCIA

II 3D

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