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OPERATION MANUAL

Tools for Inside Coating of Pipes or Tubes

**ORBITER I Art. 90901D
and
ORBITER III Art. 90902D**

Clemco
International GmbH



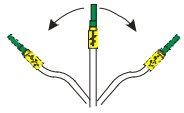


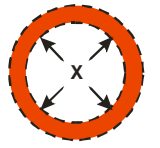

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1 Abbreviations, Definitions, Symbols and Pictograms

| | | | |
|---|---|--|--|
|  | Explosion hazard! Never exceed maximum permissible pressure during operation. |  | Risk of injury! Completely depressurize the system to perform maintenance. |
|  | Whipping of hose! Hold the end of pipe or tube firmly. |  | Whipping of hose Secure coupling |
|  | Caution: Risk of trapping! |  | Hazardous area Apply protective clothing when within 10 x pressure area. |
|  | Noise > 80dB(A) Wear ear protectors | | |

Special pictograms used

| | | |
|--|--|---|
|  |  | Whipping of hose Danger to life! Secure coupling. |
|--|--|---|

2 Product Description

Orbiter Systems are designed for application of any coating inside straight pipes or tubes without rotating the work piece. The tool is pulled through the pipe or tube. The rotating head is driven by compressed air.

The coating (channelled through a paint hose to the rotating head) is applied by centrifugal force alone.

The equipment can be used for any type of paint that is suitable for Airless tools. To operate the system, an AIRLESS tool with a pressure ratio of 45:1 is required.

AIRLESS-tools are not offered by us.

2.1 Proper use and restrictions

Each complete Orbiter System includes:

- **Orbiter I:**
for coating of pipes or tubes with inner diameters from 3.5" to 7" (90mm to 180mm)

or

- **Orbiter III:**
for coating of pipes or tubes with inner diameters from 7" to 37" (180mm to 950mm).

Note:

If using ORBITER III, centering legs supplied will be installed to work in pipe diameters from 260mm to 950mm. To adapt the unit to cover 180mm to 260mm, remove outer section of legs and reattach wheels to inner section.

- Paint Spray Gun 250 (see separate user manual for Paint Spray Gun Model 250)
- one or more Air Hoses for Orbiter
available in the following lengths:
 - 3 m
 - 5 m
 - 10 m

Air hoses may be connected together to obtain desired overall lengths for individual application needs.

Caution! Maximum permissible operating length is 20m.

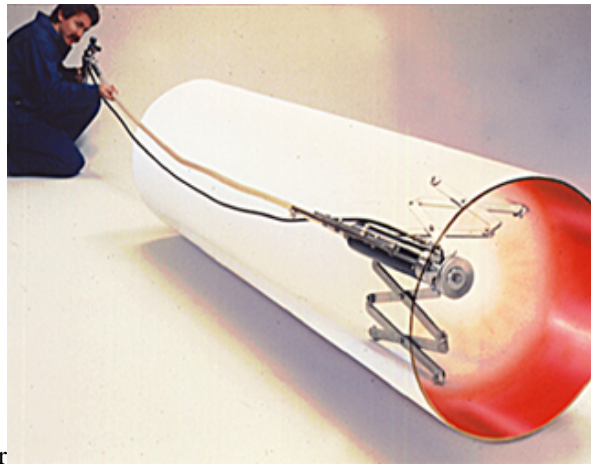
- Paint Hoses between spray gun and Orbiter available in the following lengths:
 - 3.5 m
 - 5.5 m
 - 10.5 m

Best results with coating are achieved when

Orbiter is operated by 2 persons:

one person operates the control gun

another man pulls the tool through the pipe or tube



Orbiter

Note:

Obtain information from the coating manufacturer or supplier on the size of spray tip to be used for applying the type of coating specified. Spray tip is located on the Orbiter tool and is matched to the spray media.

2.2 Improper use – Warning about misuse

Use only high pressure hose and couplings designed for use with this equipment, otherwise warranty will be terminated. Spray tip sizes used on Orbiter are normally larger than tip sizes used for hand spraying applications. Improper spray tip may adversely affect speed and paint thickness.

2.3 Energy consumption – Required air supply

| | | |
|-------------|-----------|-------------|
| Air volume: | 400 l/min | Orbiter I |
| | 600 l/min | Orbiter III |


Pressure: max.7 bar

3 Preparations for Use

3.1 Transport/ Handling

| | | |
|---------|---|--|
| Weight: | Orbiter I in wooden box Orbiter III in wooden box plus weight of supplied application-specific hoses and couplings. | approx. 5 kg approx. 15 kg |
| | Protect against impacts | Observe instructions for complete system |

3.2 Unpacking and disposal of packaging material






| | |
|---|----------------------------------|
|  | Recycling (wooden box) |
|---|----------------------------------|

3.3 Storage

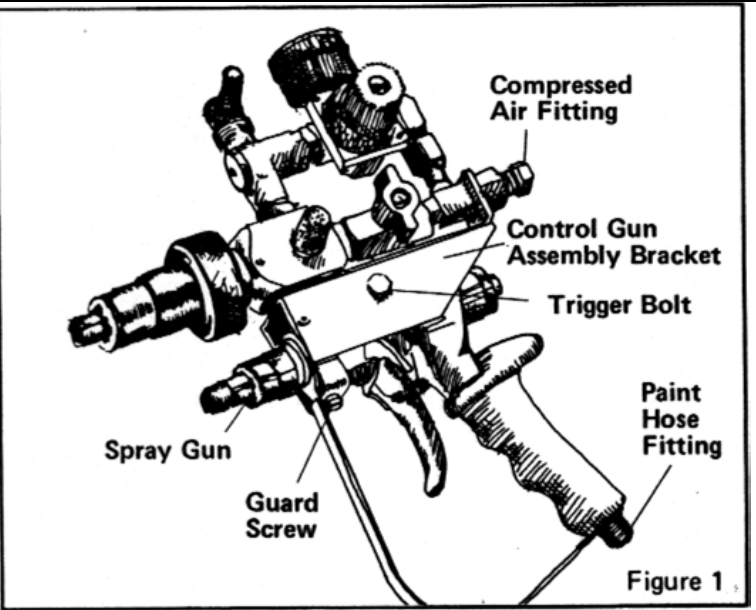
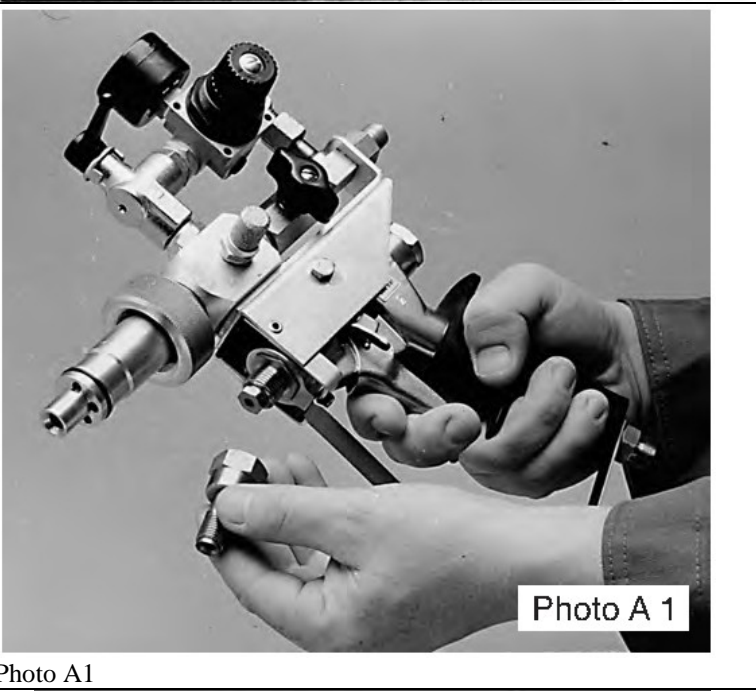

| | | |
|--|--------------------|--|
| | in dry environment | Observe instructions for complete system |
|--|--------------------|--|

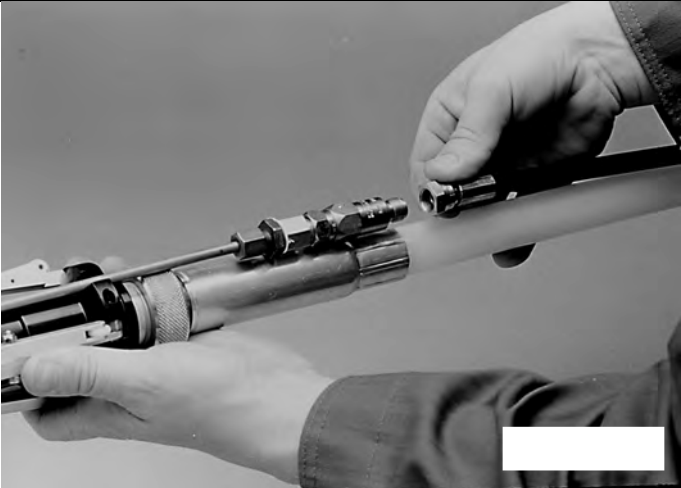
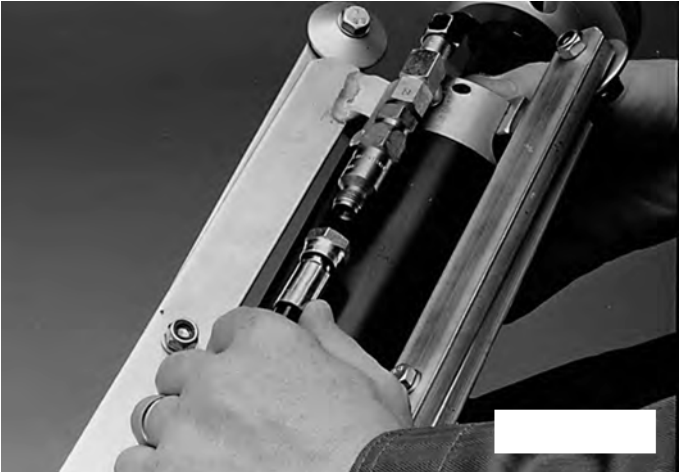
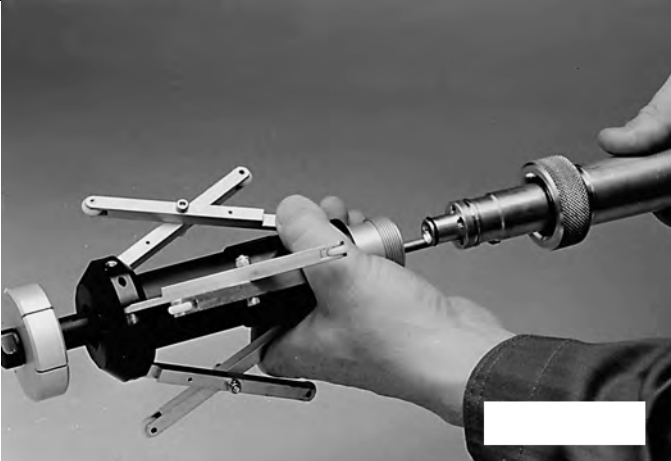
3.4 Preparations for initial and new installation / Commissioning


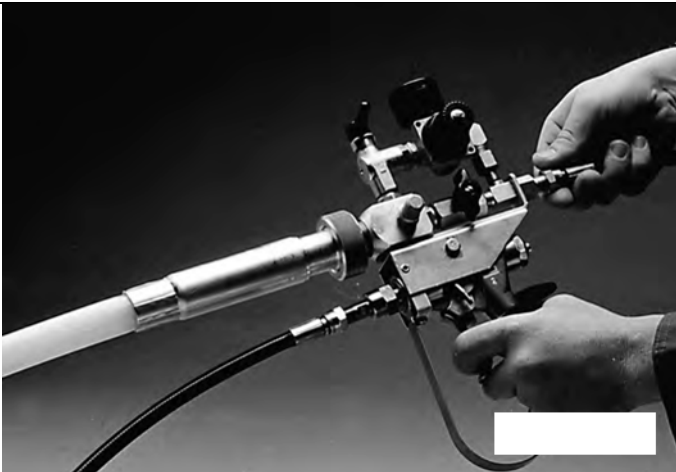
3.4.1 Safety precautions

| | | |
|--|---|---|
| 1 | Adjust the carrier to pipe or tube diameter | See also Chapter |
|  |  WARNING | Whipping of hose Danger to life! Secure coupling. |
| 2 | Check all couplings and connections for tightness, Replace any damaged or worn parts. | |
| 3 | Use only high pressure hose and couplings designed for use with this equipment. | -Warranty will be terminated. -Parts may not be suitable for this application. |
| 4 | Never exceed specified compressed air (or Airless-Pump) pressures. | |
| 5 |  Keep hands clear of centering legs. | Avoid injuries from trapping. |
| 6 | Before making any adjustments, repairs | - Turn off compressor - Release fluid pressure from all lines |
| 7 | Never point paint spray gun on any person | Risk of injury |
| 8 | Always engage spray gun safety lever when gun is not in use | Risk of injury |
| 9 | Always maintain a distance of 3 m from rotating head while paint is flowing | Risk of injury |
|  X(m)= 10 x P(bar) |  WARNING | Hazardous area Apply protective clothing when within 10 x pressure area |

3.4.2 Installation:

| | |
|--|--|
| <p>1</p> <p>Assemble paint spray gun on gun assembly bracket.</p> <p>Remove trigger bolt and insert spray gun body into bracket.</p> <p>Note:</p> <p>Ensure that Teflon gasket is inserted.</p> |  |
| <p>2</p> <p>Assemble nipple on spray gun adapter (Photo A1)</p> |  <p>Photo A1</p> |
| <p>3</p> <p>Connect paint hose to spray gun adapter and to ORBITER paint hose fitting. (See Photos B1, B2 and B3)</p> |  <p>Photo B1</p> |



| | | |
|--|---|--|
| | <p><u>Check</u> - that correct spray tip is in place - that in-line strainer is clean and in good condition.</p> |  <p>Photo B2</p> |
| | <p><u>Important:</u> Tighten all high pressure paint hose fittings with a wrench.</p> |  <p>Photo B3</p> |
| | <p>Attach air control hose - to Orbiter air inlet port and - to paint spray gun assembly bracket air outlet port. (See Photos C1, C2 and C3)</p> |  <p>Photo C1</p> |

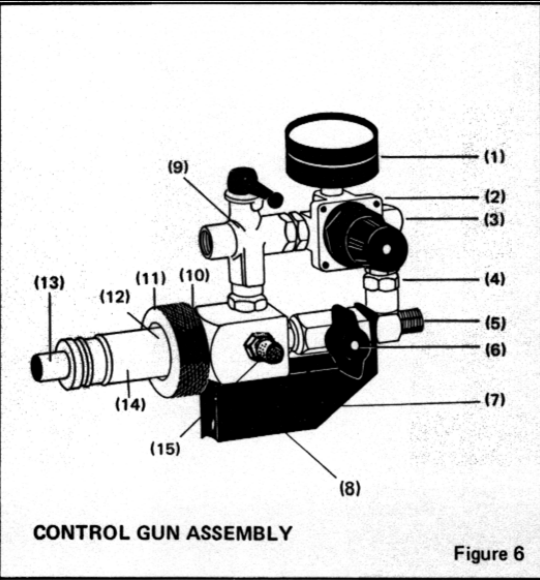

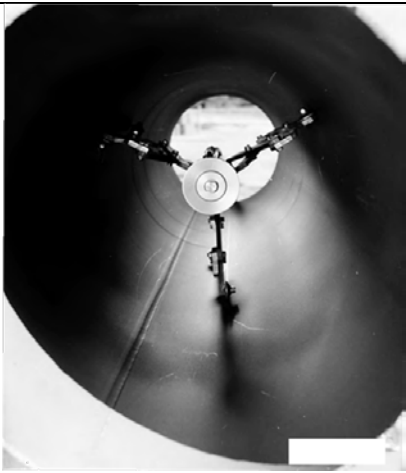
| | | |
|--------|--|--|
| | |  <p>Photo C3</p> |
| | <p>Attach compressed air hose to threaded adapter located at the air control assembly. (See Photo D)</p> <p>Important: Air inlet fitting has 1/4" pipe thread, but inner diameter of air hose should be a minimum of 1/2", <u>to ensure</u> sufficient pressure and volume of air is available to operate air motor and centering legs.</p> |  <p>Photo D</p> |
| Option | <p>Connect paint hose from Airless pump to hose fitting on spray gun.</p> <p>Note: When setting up a spray pump, follow the instructions of Airless spray pump manufacturer. Check all connections for tightness.</p> | <p>The unit is now ready for test and operation.</p> |

4 Operating Instructions

4.1 Operation

4.1.1 Preparations for initial and new installation

| | | |
|---|--|--|
| <p>1</p>  <p>$X(m) = 10 \times P(\text{bar})$</p> | <p>Secure workplace.</p>  | <p>Hazardous area Be sure no one is within 10 x pressure area.</p> |
| 2 | <p>Check pipe interior to ensure that it is clean and ready for coating.</p> | |
| 3 | <p>Turn on the equipment.</p> | <p>Turn on the Start/Stop knob (item 6) to check the spin of the rotating head (see Figure 6).</p> |

| | | |
|--|---|--|
| 4 | Set the air pressure on the pressure regulator at 7 bar. | |
|  <p style="text-align: center;">CONTROL GUN ASSEMBLY</p> <p style="text-align: right;">Figure 6</p> | | |
|  | <p>IMPORTANT: The air valve lever (item 9) operates the centering carriage. Figure 6</p> | <ul style="list-style-type: none"> - Be sure the carriage legs are clear of any obstacles before turning the lever. - Do not put hands on the carriage or its legs when expanding or retracting the carriage legs (risk of trapping). |
| 4 | Adjustment of leg tension. | <p>Lever (item 9) fully opened → legs expanded until forced against inner diameter of pipe. To relax tension of legs, reduce air pressure using the regulator (3)</p> |
| |  <p>Photo E</p> | <p>Note: Adjustment of leg tension may be necessary when approaching bends or protrusions in pipe. Adjustment pressure varies with</p> <ul style="list-style-type: none"> - degree of bend, - size of protrusion, - diameter of pipe. <p>If carriage fails to open fully, a gentle lift on the Orbiter body will assist leg expansion. In order to operate legs properly, the leg positioned on the pipe bottom must be set upright and run from top to bottom. When viewing the ORBITER in the pipe, the carriage should appear in the shape of a "Y" – see Photo E).</p> |
| 5 | Position rotating head inside a container and press the spray gun trigger. | When satisfied with paint flow → pipe spraying may begin |
| 6 | Turn off | - First coating material supply, then air motor. |
| 7 | Withdraw the coating unit manually. | |

4.2 Commissioning and operation

| | | |
|----|--|--|
| 1 | Insert Orbiter in pipe. | Make sure that one leg is directly on the bottom of the pipe. |
| 2 | - Extend carriage legs. - Check proper positioning of legs. | (see Photo E) |
| 3 | Push Orbiter through pipe until rotating head is flush with the pipe edge on the opposite end. | <u>Important:</u> Always pull Orbiter through pipe. (Avoid pushing tool back as carriage wheels will damage wet coating.) |
| 4 | Check carriage leg tension. | Be sure carriage can be pulled at slow and constant speed. |
| 5 | Turn on the Start/Stop knob (item 6 on Figure 1) | Rotating head on Orbiter starts spinning. |
| 6 | Press spray gun trigger. | Paint flow begins. <u>Note:</u> Release trigger immediately if carriage movement is interrupted. |
| 7 | Pull carriage through pipe at an even rate. | Speed varies with pipe diameters (small pipes can be painted faster than larger pipes). <u>Note:</u> If two or more coats are desired, allow each coat to dry sufficiently prior to applying the next coat. Refer to paint manufacturer's instructions for accurate drying time. |
| 8 | Remove Orbiter from end of pipe. | - Release spray gun trigger. - Turn off rotating head knob. - Remove tool from pipe. <u>Caution:</u> - Be sure no one is within a distance of 3 m except the operator. - Legs may expand when disengaged from pipe. |
| 9 | Turn off air compressor. | |
| 10 | Release all fluid pressure from the system. | |

4.2.1 Assembly and disassembly of paint spray gun

See the separate user manual for WIWA Paint Spray Gun Model 250.

4.2.2 Removal from service

4.2.2.1 after finishing work

| | | |
|---|--|--|
| | When painting is finished, promptly clean the Orbiter carefully. Do not allow paint to dry in any of the internal parts or spray gun. | Observe instructions for complete system! Use only solvents that are recommended by the manufacturer! |
| Important: Never submerge the complete system including DL motor in a solvent container! | | |

4.2.2.2 during relocation of equipment

| | | |
|--|-------------------------------|--|
| | No special measures required. | Observe instructions for complete system! |
|--|-------------------------------|--|

5 Maintenance and Cleaning

5.1 General

CAUTION!

Never submerge ORBITER tools in any type of solvent. Damage will occur to gaskets and seals.

| | | |
|---|--|---|
| 1 | When painting is finished, promptly clean the Orbiter carefully. Do not allow paint to dry in any of the internal parts or spray gun. | Proceed as follows: a) Place rotating head in a container and run solution through paint hose. b) Turn on the equipment (knob) to allow solvent to flush out spray gun, paint hose, spray tip and rotating head. When clear solvent is evident on the rotating head → tool has been cleaned sufficiently. Observe instructions for complete system! Use only solvents that are recommended by the manufacturer! |
| 2 | Remove and disassemble filter housing (Figure 2, item 13). Reassemble filter. | Clean filter with solvent. Make sure nylon ring seal is in place. Never allow paint to dry in the system. |
| 3 | Remove rotating head. | Clean inner surface of disc with solvent. Caution: Any buildup of paint will have an adverse effect on uniform paint flow. |
| 4 | Lubrication | Daily, supply 5 to 10 drops of lightweight DL-oil through the air inlet. If air compressor is fitted with an oil mist lubricator → the oil cup must be filled with lightweight oil (SAE10, Mobile Spindle Oil No.1, Shell Spindle Oil 60 etc.). |
| 5 | Air control hose | Avoid sharp bends. Keep hose as straight as possible. Attach protective caps. |
| 6 | Spray gun | Follow the manufacturer's instructions. |
| 7 | Option – Airless spray pump | Follow the manufacturer's instructions. |

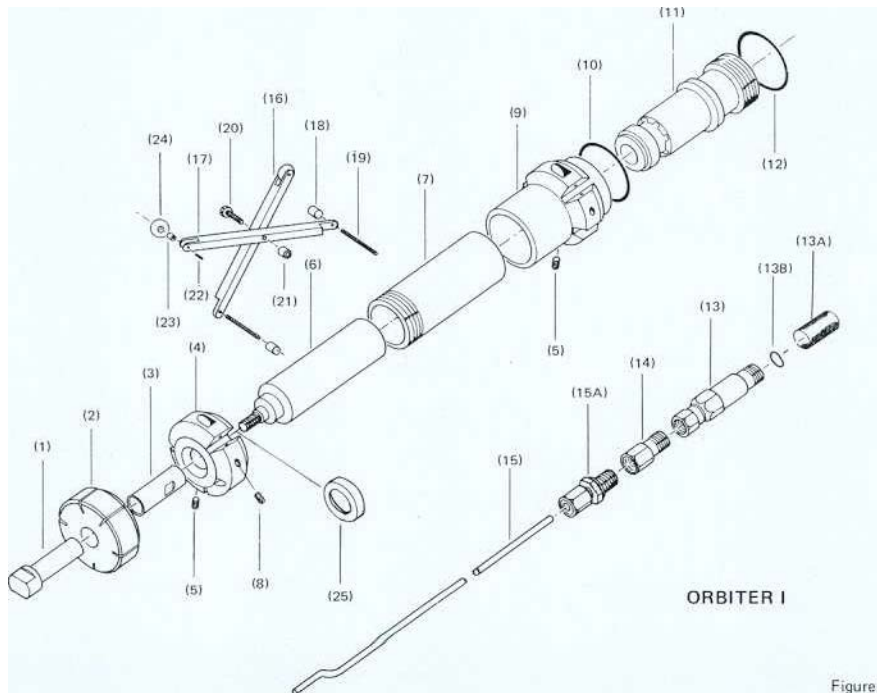


Figure 2

Figure 2

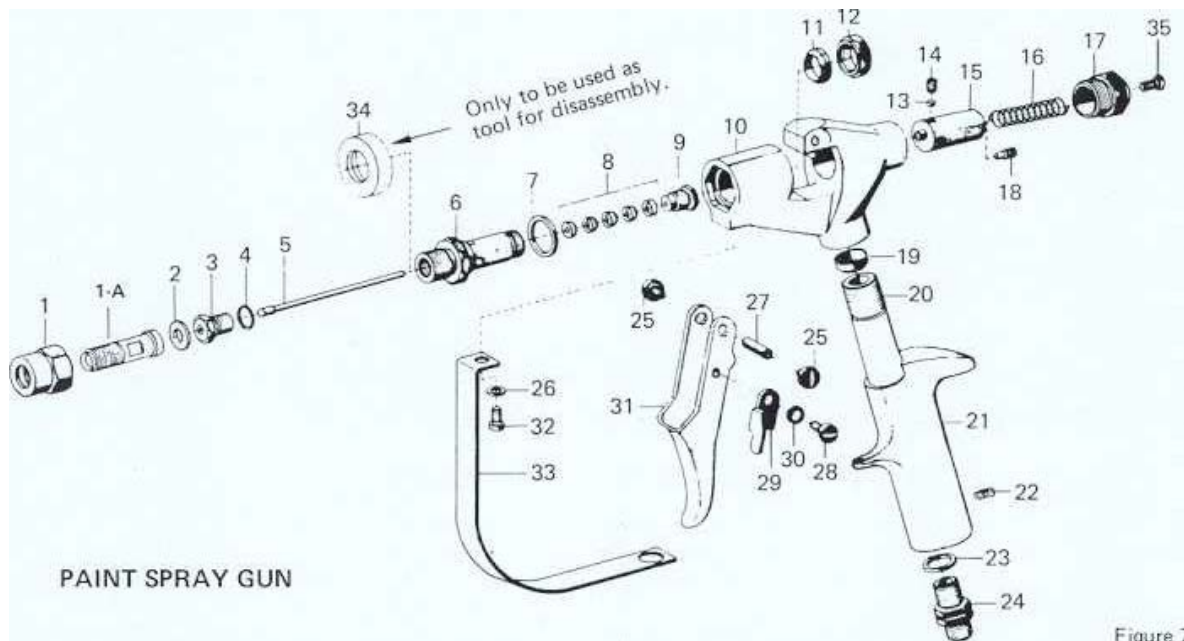


Figure 7

Figure 7

5.2 Inspection cycles

| Inspection cycle | | Risk of |
|------------------|------------------------|--|
| max. 8h | Tips and spraying head | Inspect gaskets and seals, tips and tip heads for wear, and replace if required. |
| max. 16h | Teflon gasket | |
| | Rotating head | |
| | Air hose | Hose couplings and gaskets, seals. |
| max. 300h | DL-Motor | Maintenance by Clemco or service technician of the manufacturer. |

5.3 Other inspection intervals

| Item | Replace (even if not worn) after a maximum of |
|--------------------------------|---|
| Air hose – external air supply | 2 years |
| Gaskets, seals | 1 year |

6 Potential Problems and Remedies

| Symptom | Potential cause | Remedy |
|---|---|---|
| Rotating head does not spin or spins too slowly. | Too low air volume / air pressure to the motor. | 1) Check that air supply is connected to spray gun. |
| | | 2) Check that location of paint tube (Figure 2, item 15) is not preventing head rotation. |
| | | 3) Check that air hose is not damaged. |
| Rotating head does not spin by hand. | Air motor seized due to lack of lubrication. | Disassemble Orbiter tool and replace air motor or have it serviced by a technician. |
| Rotating head spins too slowly. | | 1) Check that air supply is connected to control gun. Insufficient DL → exhaust air filter blocked. |
| | | 3) Check air hose for damage and replace if necessary. |
| | | 3) Check condition of filter on spray gun. Disassemble, clean, replace it if necessary. |
| Centering carriage does not extend or does not extend fully out. | | 1) Lift Orbiter body to assist leg expansion. |
| | | 2) Check air supply is connected to spray gun. |
| | | 3) Check setting of compressed air regulator on spray gun. |
| | | 4) Check that air control hose is not damaged. |
| | | 5) Check legs for obstructions / paint buildup. |
| | | 6) Check that bottom leg of centering carriage is in upright position. |
| Centering carriage does not retract when turning air valve lever to off position. | | 1) Check for paint buildup or obstruction to legs preventing retraction. |
| | | 2) Check that exhaust port on air valve lever is not blocked, that air exhausting from cylinder is not prevented. |
| | | 3) No exhaust air – check air control hose for damage. Replace if necessary. |
| | | 4) Air valve lever to “OFF” position – close carriage manually – Caution: Risk of trapping. |
| No paint flow from rotating head. | Blockage | 1) Check the following parts for blockage: - orifice in rotating head - spray tip (strainer) - paint hose - spray gun Note: If paint has been allowed to dry on interior parts – disassemble, clean / replace. |
| Insufficient paint flow from rotating head. | Blockage | Blockage of: - tube at rotating head, - spray tip (strainer) Disassemble, clean, reassemble. |
| | Spray tip too small | |
| Too thin paint coating on pipe internal. | Withdrawal speed too fast | Withdraw Orbiter at slower speed. |
| Too thick paint coating on pipe internal. | 1) Withdrawal speed too slow | Withdraw Orbiter at faster speed. |
| | 2) Spray tip too large | Use smaller sized spray tip |
| | 3) Spray tip is worn | Disassemble and replace. |

| | | |
|------------------------------------|--|------------------------------|
| | 4) Option – Pump air pressure is set too high. | Reduce air pressure of pump. |
| Air escape from air hose coupling. | | Replace gaskets on air hose. |

7 Permissible Modifications by User

Only with approval of the manufacturer! Otherwise, guarantee and CE conformity will no longer apply.

8 Assembly of Orbiter I and Orbiter III with air motors

8.1 Orbiter I set – less hoses and spray gun

Figure 2

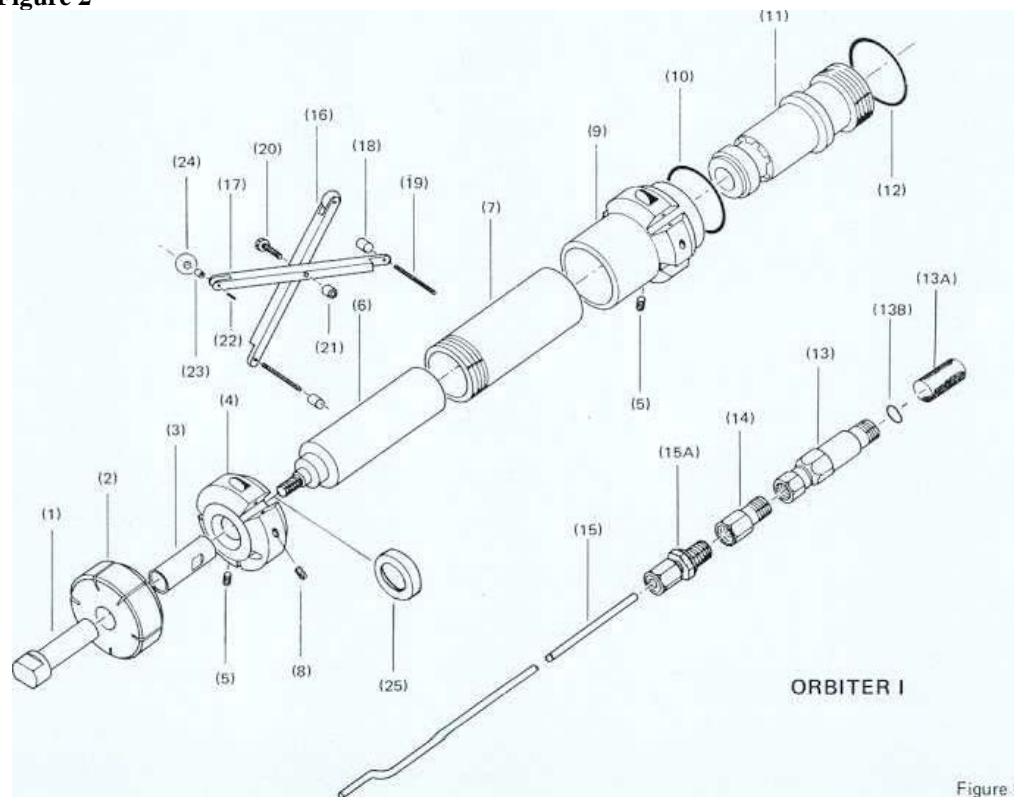


Figure 2

| Ref. | Description | Part No. |
|------|--|----------|
| | Orbiter I pipe tool less hoses & gun | 93063 |
| 1 | Hub nut | ----- |
| 2 | Spray head | 93065 |
| 3 | Sleeve O-9303 | 93066 |
| 4 | Bracket | 93067 |
| 5 | Screw O-9305 | 93068 |
| 6 | Air motor I O-9350 | 93069 |
| 7 | Pipe O-9307 | 93070 |
| 8 | M6x10 Hexagon socket set screw with pin | 93071 |
| 9 | Cylinder | ----- |
| 10 | O-ring, coupling 1-11/32" nom. ID (34.2 mm) | 93073 |
| 11 | Coupling | 93074 |
| 12 | O-ring O-9312 | 93075 |
| 13 | Strainer O-9107 | 93076 |
| 13a | Strainer insert | 93077 |
| 13b | Nylon Ring | 93326 |
| 14 | Spray tip | |
| | .018 tip | 93250 |
| | .021 tip | 93251 |
| | .026 tip | 93078 |
| | .031 tip | 93252 |
| | .036 tip | 93253 |
| | .043 tip | 93254 |
| 15 | Paint tube | 93079 |
| 15a | Nipple | 93281 |
| 16 | Arm with wheel | 93278 |
| 17 | Arm | ----- |

| | | |
|----|--|-------|
| 18 | Bearing | 93082 |
| 19 | Pin | 93081 |
| 20 | Screw | 93083 |
| 21 | Nut | 93283 |
| 22 | Shaft | ----- |
| 23 | Bearing | ----- |
| 24 | Wheel | 93060 |
| 25 | Ring O-9323 | 93280 |
| | Wheel kit including shaft, bearing and wheel | 94000 |

8.2 Orbiter I air motor

Figure 3

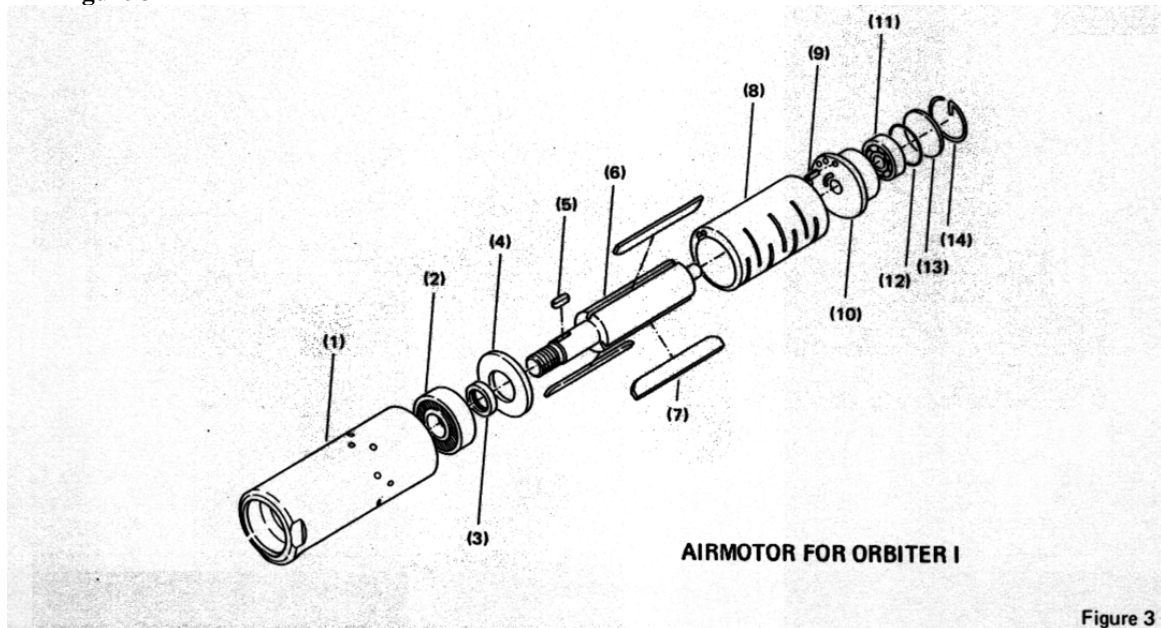


Figure 3

| Ref. | Description | Part No. |
|------|---------------------|----------|
| | Orbiter I air motor | 93069 |
| 1. | Housing | ----- |
| 2. | Bearing O-9352 | 93285 |
| 3. | O-ring 9353 | 93286 |
| 4. | Front plate | 93287 |
| 5. | OB T key | 93288 |
| 6. | Shaft | 93289 |
| 7. | Blade | 93291 |
| 8. | Cylinder | 93292 |
| 9. | Pin | 93293 |
| 10. | Rear plate | 93290 |
| 11. | Bearing | 93294 |
| 12. | O-ring (16.1 x 1.6) | 93295 |
| 13. | Shaft | ----- |
| 14. | Snap ring | 93297 |

8.3 Orbiter III - less hoses and spray gun

Figure 4

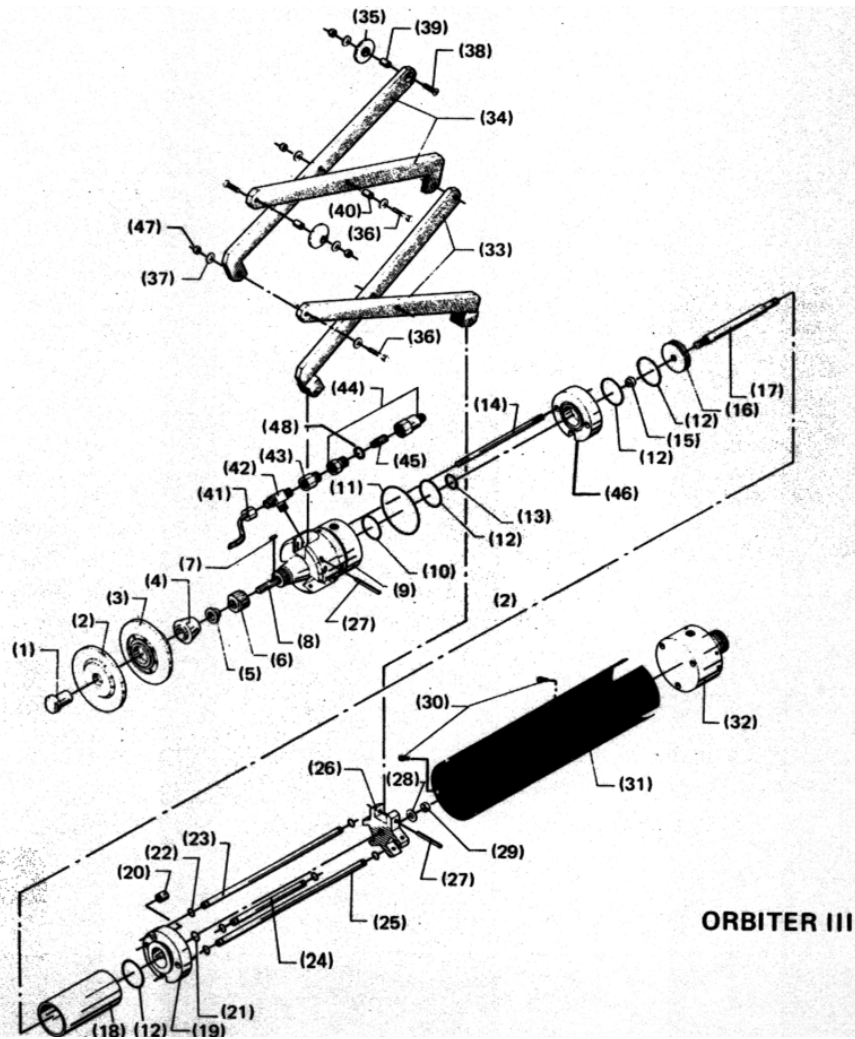


Figure 4

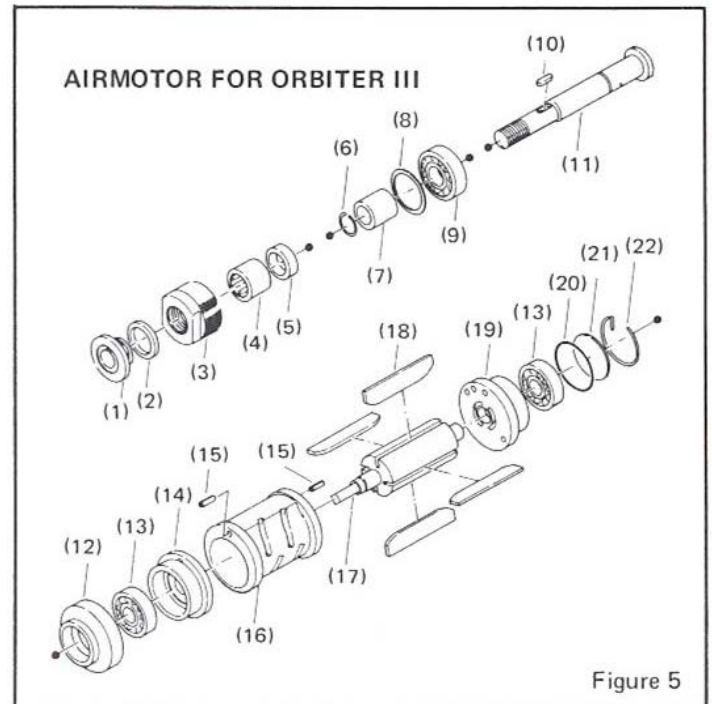
| Ref. | Description | Part No. |
|------|--|----------|
| | Orbiter III pipe tool less hoses & gun | 93133 |
| 1. | Hub nut | 90959 |
| 2. | Front spray head 9110 | 90960 |
| 3. | Rear spray head 9111 | 90961 |
| 4. | Spacer | 90962 |
| 5. | Adapter | 90963 |
| 6. | Bushing | 93262 |
| 7. | Key | 93256 |
| 8. | Air motor O-9170 | 93260 |
| 9. | Motor housing | 90966 |
| 10. | O-ring (37.1 x 1.6) | 93257 |
| 11. | O-ring (79.5 x 30) | 90969 |
| 12. | O-ring (44.2 x 30) | 90970 |
| 13. | O-ring (20.22 x 3.53) | 93258 |
| 14. | Rod | 90981 |
| 15. | Nut O-9127 | 90978 |
| 16. | Piston | ----- |
| 17. | Square tube | 90980 |
| 18. | Flat iron | 90973 |
| 19. | Cover O-9124 | 90975 |
| 20. | Nut | ----- |

| | | |
|-----|---|-------|
| 21. | O-ring (12.1 x 1.6) | 90976 |
| 22. | O-ring (7.1 x 1.6) | 93259 |
| 23. | Air tube 288mm | ----- |
| 24. | Air tube 150mm | ----- |
| 25. | Air tube 310mm | ----- |
| 26. | Socket | ----- |
| 27. | Pin | 90983 |
| 28. | Nut washer | 93093 |
| 29. | Nut O-9127 | 90978 |
| 30. | Screw O-9136 | 93095 |
| 31. | Tube | ----- |
| 32. | Connection body | ----- |
| 33. | Inner arm | 93313 |
| 34. | Outer arm | ----- |
| 35. | Wheel | 93315 |
| 36. | Screw | 93316 |
| 37. | Washer | 93317 |
| 38. | Screw | 93318 |
| 39. | Bushing O-9155 | 93319 |
| 40. | Bushing O-9146 | 93320 |
| 41. | Paint tube | ----- |
| 42. | T-piece | 93322 |
| 43. | Spray tip | |
| | .018 tip | 93250 |
| | .021 tip | 93251 |
| | .026 tip | 93078 |
| | .031 tip | 93252 |
| | .036 tip | 93253 |
| | .043 tip | 93254 |
| 44. | Strainer complete | 93076 |
| 45. | Strainer insert | 93077 |
| 46. | Cover | ----- |
| 47. | Nut O-9142 | 93324 |
| 48. | Nylon Ring | 93326 |
| (-) | Rotation head kit for Orbiter III (with front head and rear head, spacer) | 94001 |
| (-) | Wheel kit for Orbiter III (with screws, sleeve, wheel, washer, nut) | 94002 |

8.4 Orbiter III air motor

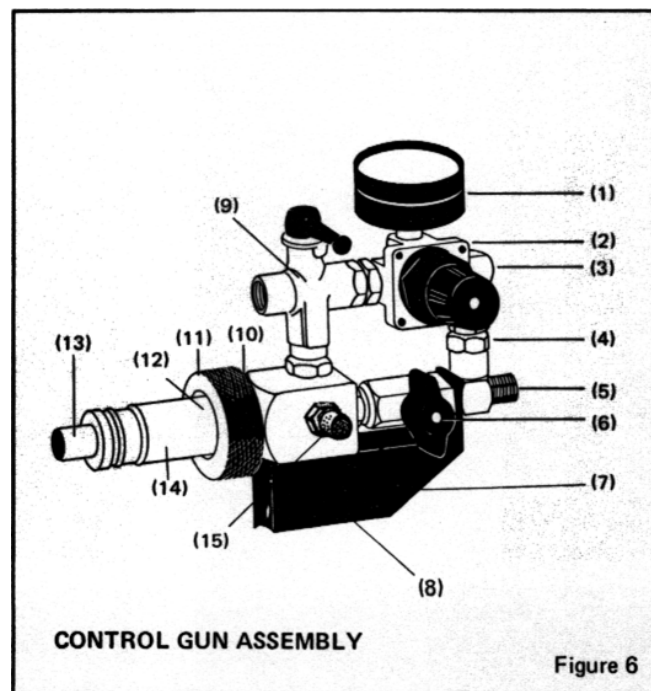
Figure 5

| Ref. | Description | Part No. |
|------|------------------------|----------|
| | Air Motor Orbiter III | 93260 |
| 1. | Adapter | 90963 |
| 2. | Felt ring | 93261 |
| 3. | Bushing O-9173 | 93262 |
| 4. | Bearing | RB070013 |
| 5. | Bushing O-9175 | 93264 |
| 6. | Snap ring O-9114 | 93255 |
| 7. | Distance OBT | 93265 |
| 8. | Bushing | ----- |
| 9. | Bearing | 93267 |
| 10. | Key | 93256 |
| 11. | Spindle | 93268 |
| 12. | Cover plate | 93269 |
| 13. | Bearing | ----- |
| 14. | Front plate | 93271 |
| 15. | Pin | 93272 |
| 16. | Air motor cylinder III | 93273 |
| 17. | Rotor | 93274 |
| 18. | Blade | 93275 |
| 19. | Cover plate O-9189 | 93276 |
| 20. | O-ring | 93277 |
| 21. | Bushing O-9491 | 93304 |
| 22. | Snap ring O-9192 | 93305 |



8.5 Control gun assembly

Figure 6



| Ref. | Description | Part No. |
|------|-----------------------|----------|
| | Control gun assembly | 93131 |
| 1. | Pressure gauge | 90933 |
| 2. | Pressure regulator | ----- |
| 3. | Connection | 90935 |
| 4. | Bushing O-9409 | 90936 |
| 5. | Coupling | 90937 |
| 6. | Hand wheel | 90938 |
| 7. | Bracket | ----- |
| 8. | Bolt | 90940 |
| 9. | Three-way valve | 90931 |
| 10. | Locking ring | ----- |
| 11. | Tightening ring (nut) | 93300 |
| 12. | O-ring (22.1 x 1.6) | 93301 |
| 13. | O-ring | 93303 |
| 14. | Housing | ----- |
| 15. | Silencer | 90941 |

8.6 Paint spray gun

Figure 7

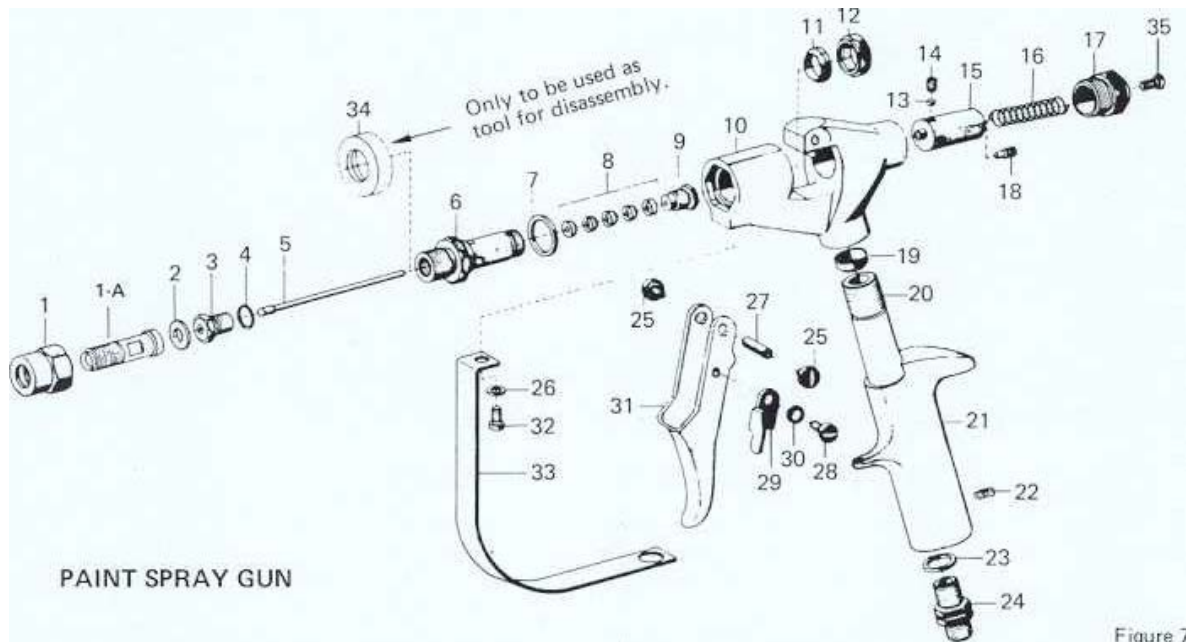


Figure 7

| Ref. | Description | Part No. |
|------|-------------------------|----------|
| | Paint spray gun | 93130 |
| 1. | Cap screw | ----- |
| 1-A. | Connection to spray gun | ----- |
| 2. | Gasket | 93009 |
| 3. | Valve seat | 93010 |
| 4. | Gasket | 93011 |
| 5. | Needle valve | 93012 |
| 6. | Insert | 93013 |
| 7. | Gasket | ----- |
| 8. | Packing | 93015 |
| 9. | Screw | 93016 |
| 10. | Gun body | 93019 |
| 11. | Gasket | ----- |
| 12. | Nut | 93018 |
| 13. | Clamping element | ----- |
| 14. | Pin | 93020 |
| 15. | Guide sleeve | ----- |
| 16. | Spring | ----- |
| 17. | Closure screw | 93025 |
| 18. | Threaded bolt | ----- |
| 19. | Gasket | ----- |
| 20. | Sleeve | ----- |
| 21. | Handle | ----- |
| 22. | Pin | ----- |
| 23. | Gasket | ----- |
| 24. | Nipple | 93087D |
| 25. | Trigger bolt | ----- |
| 26. | Shim | ----- |
| 27. | Trigger axle | ----- |
| 28. | Shoulder screw | ----- |
| 29. | Safety lever | ----- |

| | | |
|-----|--------------------|-------|
| 30. | Washer | 93195 |
| 31. | Trigger | 93088 |
| 32. | Screw | 93027 |
| 33. | Trigger protection | ----- |
| 34. | Extraction ring | 93196 |
| 35. | Screw | ----- |

8.7 Fittings, (no figure)

| | |
|-------------------------------|----------------------|
| Spray tip | |
| .018 tip | 93250 |
| .021 tip | 93251 |
| .026 tip | 93078 |
| .031 tip | 93252 |
| .036 tip | 93253 |
| .043 tip | 93254 |
| Air hose 3m | 90925 |
| Air hose 5m | 90926 |
| Air hose 10m | 90927 |
| O-ring Set, Air control hose | 93310 |
| Paint hose 3,5m | 93054 |
| Paint hose 5,5m | 93056 |
| Paint hose 10,5m | 93057 |
| Paint hose union ¼ "BSP x ¼" | ----- |
| | |
| O-ring Set, Orbiter I with: | 93309 |
| O-ring (34.2) | 93075 |
| O-ring (16.1 x 1.6) | 93295 |
| Nylon Ring | 93326 |
| | |
| O-ring Set, Orbiter III with: | 93308 |
| Nylon Ring | 93326 |
| O-ring (79.5) | 90969 |
| O-ring (44.2) | 90970 |
| O-ring (12.1) | 90976 |
| O-ring (37.1) | 93257 |
| O-ring (20.22) | 93258 |
| O-ring (7.1) | 93259 |
| Felt ring | Not sold separately. |
| O-ring (53/65") | Not sold separately. |

9 Spare parts

| Part No. | Name | Description |
|----------|--|---|
| 90901D | Orbiter I complete | For 90-180mm pipes with pressure regulator and paint spray gun, 3m air hose, 3.5m paint hose in strong wooden box. Tip of type 0.36. |
| 90902D | Orbiter III complete | For 180-950mm pipes, specifications as above. Tip of type 0.36 |
| 93327D | Orbiter I complete for 5m hose | As above, but with 5m air hose and 5.5m paint hose. |
| 93328D | Orbiter III complete for 5m hose | As above, but with 5m air hose and 5.5m paint hose. |
| 93329D | Orbiter I complete for 10m hose | As above, but with 10m air hose and 10.5m paint hose. |
| 93330D | Orbiter III complete for 10m hose | As above, but with 10m air hose and 10.5m paint hose. |
| 93063D | Orbiter I less fittings | |
| 93133D | Orbiter III less fittings | |
| 90925D | Air hose 3m for Orbiter | |
| 90926D | Air hose 5m for Orbiter | |
| 90927D | Air hose 10m for Orbiter | |
| 93054D | Paint hose ¼" x 3.5m + screw connection | |
| 93056D | Paint hose ¼" x 5.5m + screw connection | |
| 93057D | Paint hose ¼" x 10.5m + screw connection | |
| 93130D | Paint spray gun 250 | |
| 93131D | Control gun assembly for Orbiter | |
| 93094D | Control+Paint spray gun Orbiter | |
| 93208D | O-ring. Set | |
| 93309D | O-ring Set Orbiter I | |
| 93310D | O-ring Set Control hose | |
| | Tips of TYPE .018,.021,.026,.031,.036,.043 on request | |