Orbiter I and Orbiter III

Internal Pipe Painting Tool

® ABRASIVE BLAST EQUIPMENT

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Our company is proud to provide a variety of products to the abrasive blasting industry, and we have confidence that the professionals in our industry will utilize their knowledge and expertise in the safe efficient use of these products.

OWNER'S MANUAL

 • Stock No.: 09336 • Manual No.: 565-1183 • Date of Issue 2/08/84 • Rev. A, 02/94

1.0 INTRODUCTION: ORBITER tools are designed to coat the inside of pipe or tubing without the need to rotate pipe or tubing and to apply an even paint film thickness throughout. Generally, any type of coating may be used in this tool that can be airless sprayed. To obtain the best possible production, one man should operate the Control Gun while another man pulls the tool through the pipe or tubing.

1.1 NOTE: BE SURE TO CHECK WITH THE COATING MANUFACTURER OR SUPPLIER ON THE SIZE SPRAY TIP TO BE USED FOR APPLYING THE TYPE OF COATING SPECIFIED. SPRAY TIP SIZES USED ON ORBITER ARE NORMALLY LARGER THAN TIP SIZES USED FOR HAND SPRAYING APPLICATIONS. IMPROPER SPRAY TIP MAY EFFECT SPEED AND PAINT THICKNESS. THE ORBITER I IS SUPPLIED WITH A .026 SPRAY TIP AS STANDARD. ORBITER III HAS A .036 SPRAY TIP. ANY NORMAL AIRLESS PAINT SPRAY PUMP MAY BE USED WITH THE ORBITER TOOLS, HOWEVER, THE MINIMUM PRESSURE RATIO SHOULD BE 30:1. FOR BEST RESULTS, USE AN AIRLESS PUMP WITH A RATIO OF 45:1 AND A CAPACITY OF 2.5 U.S. GALLONS PER MINUTE. SPRAY TIP IS LOCATED IN PAINT FEED TUBE ASSEMBLY ON THE ORBITER TOOL. (SEE FIGURE 2, ITEM 14 AND FIGURE 4, ITEM 43).

1.2 Air requirement for ORBITER is 15 CFM at 95 to 100 psig (400 Litre/Min at 7 BAR). Air requirement for ORBITER III is 22 CFM at 95 to 100 psig (600 Litre/Min at 7 BAR). ORBITER I is designed to coat inner diameters from 4" to 6" (90mm to 155mm). ORBITER III handles 7" to 37" (180mm to 950mm).

1.3 SAFETY WARNINGS

IMPORTANT WARNING

HIGH PRESSURE DEVICE: HIGH PRESSURE CAN CAUSE SERIOUS INJURY. SAFETY PRECAUTIONS SHOULD BE TAKEN WHILE SERVICING OR OPERATING HIGH PRESSURE EQUIPMENT.

A. Before operating any part of the ORBITER system, be sure to check all fittings and connections for tightness. Immediately replace any damaged or worn parts.

B. Use only high pressure hose and fittings designed for use with this equipment. Do not substitute any parts as it will void warranty and may be unfit for this application.

C. Never exceed specified airless pump or compressed air pressures.

D. Keep hands clear of centering legs to prevent injury.

E. Before making any adjustments, repairs, etc., shut-off airless pump and air compressor. Release fluid pressure from all lines.

F. If disassembled from system, never point paint spray gun at any person. The high velocity paint is dangerous.

G. Always engage spray gun safety lever when gun is not in use.

H. Refer to Airless Pump Instruction Sheet for additional safety precautions.

I. Always maintain a distance of 10 feet from rotating head while paint is flowing.

2.0 INSTALLATION: Assemble paint spray gun on Control Gun Assembly Bracket. Remove spray gun trigger bolt and insert spray gun body into bracket so that trigger bolt holes line up with bracket holes. Replace bolt to secure spray gun on both sides of the bracket. Guard screw must be removed prior to assembly in bracket. (See Figure 1.)

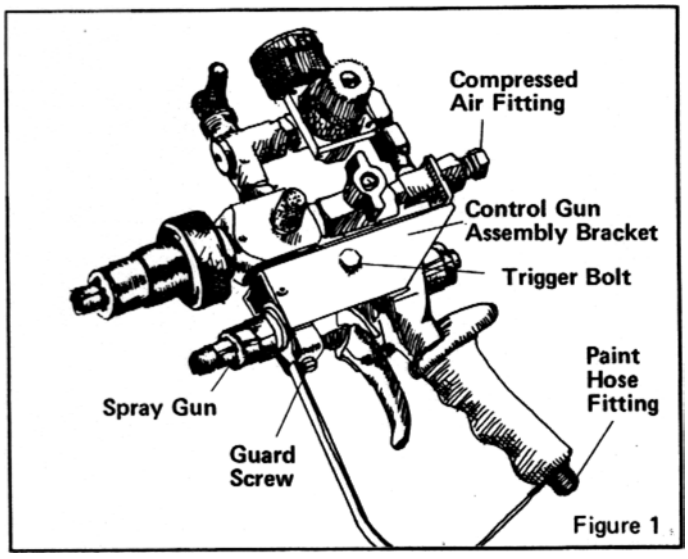


Figure 1

2.1 Unthread spray gun cap screw and insert paint hose connector. Reassemble cap screw onto gun ensuring that the teflon gasket is included. (See Photo A1.)

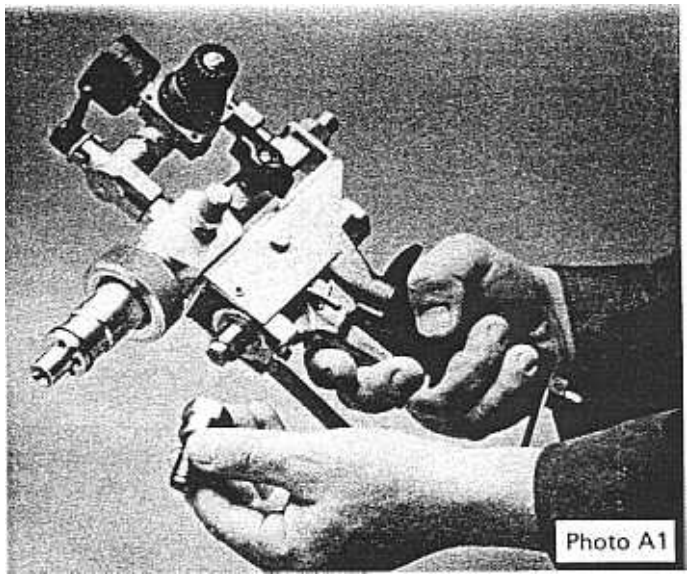


Photo A1

2.2 Connect high pressure paint hose to spray gun connector and to ORBITER paint hose fitting. (See Photo B1, B2 and B3.) Check that correct spray tip is in place and the in-line strainer is clean and in good condition. (See Photo B1, B2 and B3.) Tighten all high pressure paint hose fittings with a wrench.

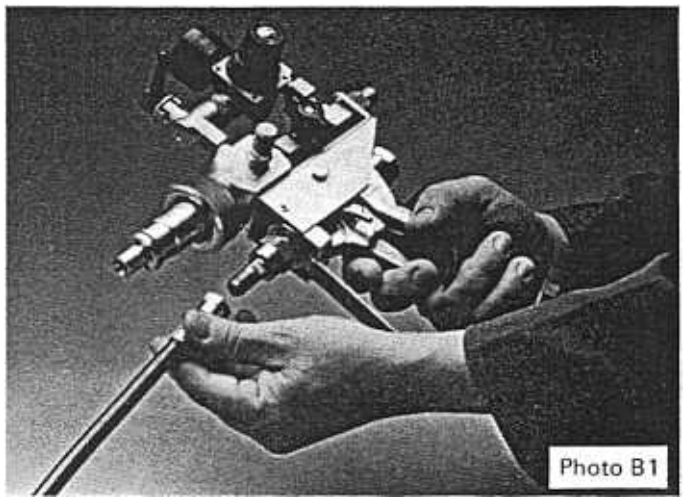


Photo B1


Photo B2

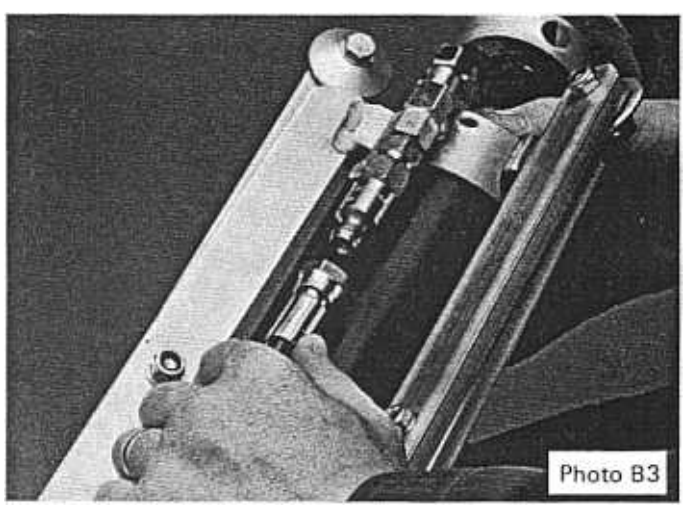


Photo B3

2.3 Attach Air Control Hose to ORBITER air inlet port and Control Gun Assembly air outlet port. Use care in attaching Air Control Hose to avoid damaging O-rings. A drop of oil or grease applied to the O-rings will ease attachment. If an O-ring is damaged, it must be replaced immediately to ensure proper seal. Air Control Hose is available in three lengths: 10 ft., 16 ft. and 32 ft. (3m, 5m, and 10m). Hose is purchased separately in lengths to suit specific applications. Various lengths may be connected together to obtain desired overall length. Airless spray pump performance and paint hose distance capability must be considered with regard to pressure drop in paint hose. Maximum air control hose distance between Orbiter and control gun assembly is 64 ft. (20m). (See Photo C1, C2 and C3.)

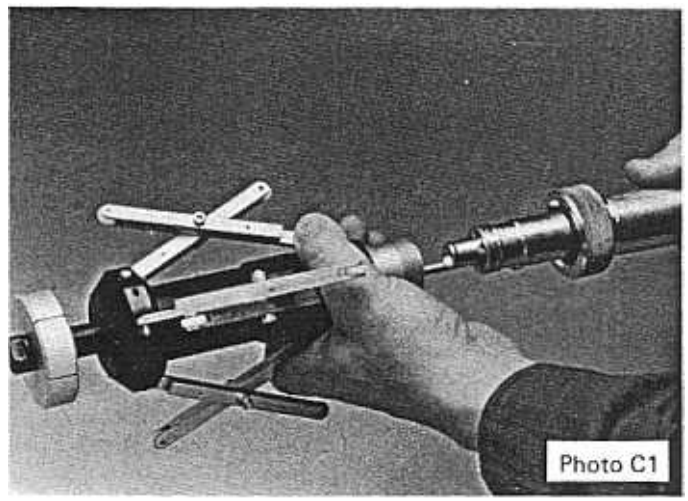


Photo C1

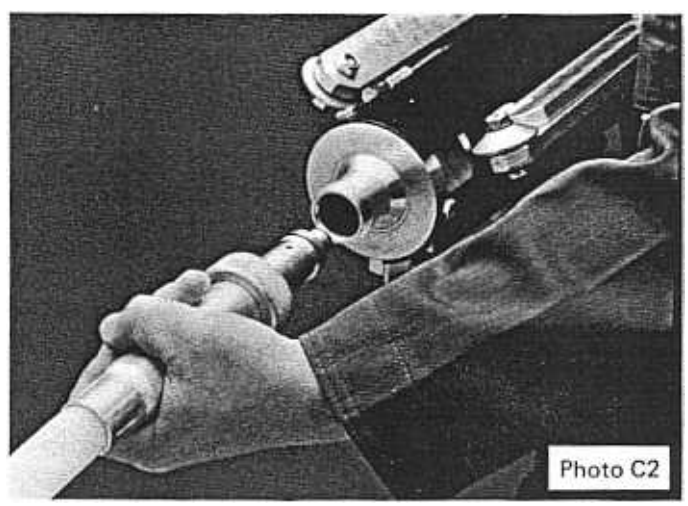


Photo C2

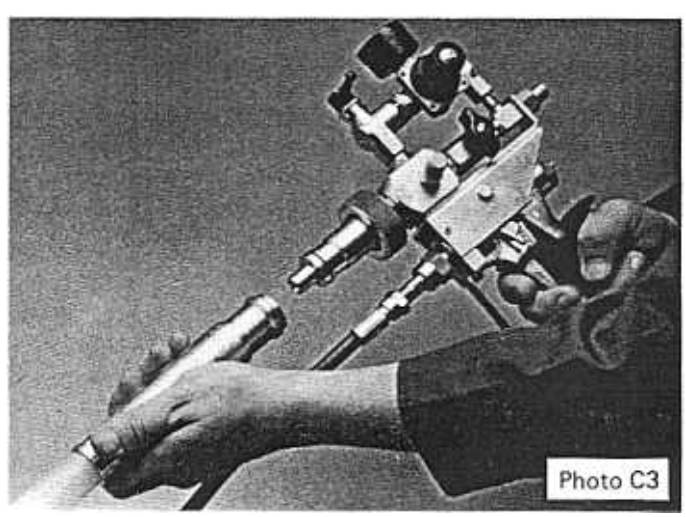


Photo C3

2.4 Attach compressed air hose (not supplied) to threaded fitting located at the back of the Air Control Assembly. (See Photo D.) Air inlet fitting is 1/4" pipe thread, but air hose I.D. should be a minimum of 1/2" to ensure sufficient pressure and volume of air is available to operate air motor and centering legs.

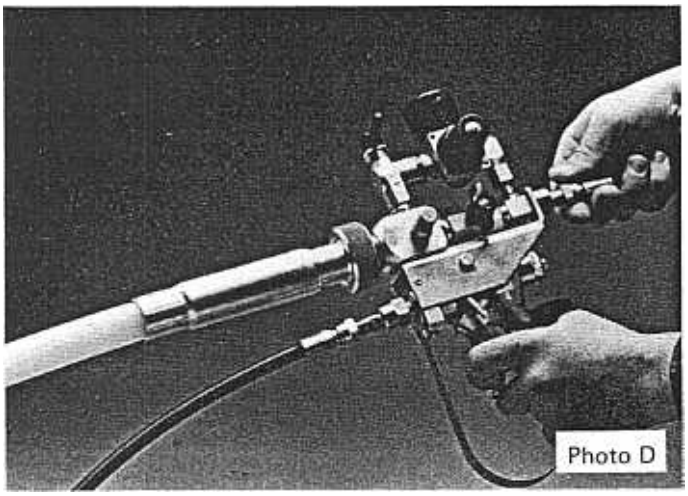


Photo D

2.5 Connect high pressure paint hose from airless pump to hose fitting on spray gun. (See Photo D.) Follow airless pump manufacturers instructions on setting up spray pump. Check all connections for tightness.

2.6 If using ORBITER III, centering legs supplied will be installed to work in diameters from 11" to 37" (260mm to 950mm). To adapt the unit to cover 7" to 11" (180mm to 260mm), remove outer section of legs and reattach wheels to inner section.

2.7 Unit is now ready for test and operation.

IMPORTANT WARNING

TURN ON AIR COMPRESSOR AND CHECK PRESSURE. DO NOT EXCEED 100 PSIG (7 BAR).

3.0 OPERATION: Before starting actual painting, it is advisable to operate the ORBITER without paint in order to become familiar with the handling of the unit.

3.1 Turn on the Start/Stop Knob (Figure 6, Item 6) to check the spin of the rotating head.

3.2 Set the air pressure on the pressure regulator at 100 psig (7 BAR). See Figure 6, Item 2.

3.3 The air valve lever (Figure 6, Item 9) operates the centering carriage. 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 detracting the carriage legs. Serious injury may occur if fingers are caught between the legs.

3.4 Air valve lever, when fully opened, expands legs until forced against inner diameter of pipe. To relax tension of legs, reduce air pressure using the regulator. Adjustment of leg tension may be necessary when approaching bends or protrusions in pipe. Adjustment pressure varies due to degree of bend, size of protrusion and diameter of pipe. If carriage fails to open fully, a gentle lift on the ORBITER body will assist leg expansion. In order to operate carriage legs properly, the leg positioned on the bottom of the pipe must be set straight up and down. When viewing the ORBITER in the pipe, the carriage should appear in the shape of a "Y". (See Photo E.)

3.5 To retract carriage, close air valve lever.

3.5.1 At this point, airless spray pump should be checked for tight fittings and proper pressure setting.

3.5.2 Before inserting ORBITER into pipe, position rotating head inside a container and squeeze spray gun trigger. When satisfied with paint flow, pipe spraying may begin.

3.6 Check pipe interior to ensure that it is clean and ready for coating.

3.7 Insert ORBITER into pipe making sure that one leg is directly on the bottom of the pipe. Extend carriage legs and check proper positioning of legs (See Photo E). Push ORBITER through pipe until rotating head is flush with the pipe edge on the opposite end. Always pull ORBITER through pipe. Avoid pushing tool back as carriage wheels will damage wet coating. Re-check carriage leg tension to be sure carriage can be pulled at a smooth and steady rate.

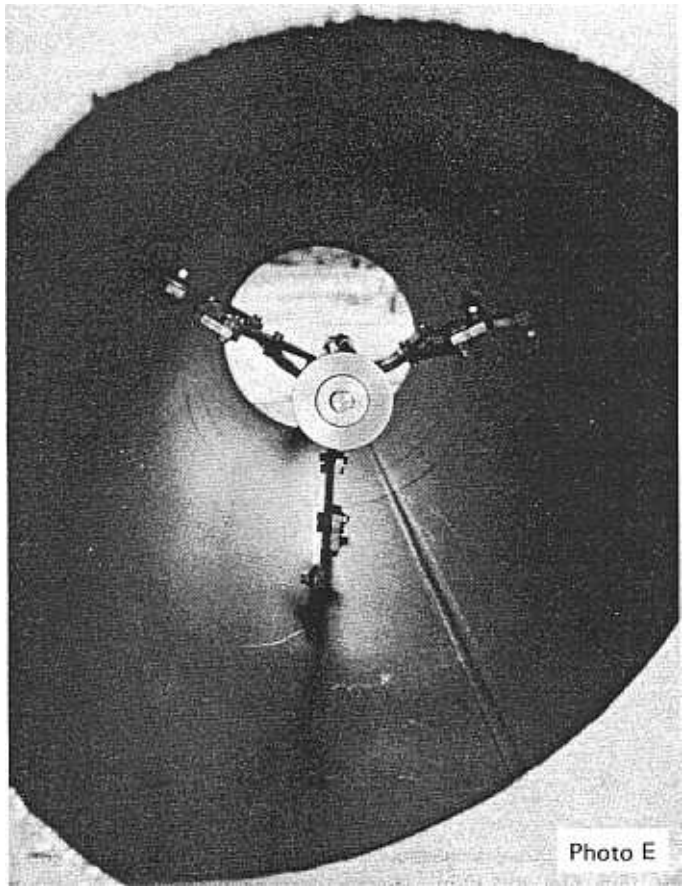


Photo E

3.8 Turn on Start/Stop Knob (Figure 6, Item 6) to spin rotating head. Squeeze spray gun trigger to begin paint flow. Release trigger immediately if carriage movement is interrupted. It is critical that the operator pulling the ORBITER hose move the tool through pipe at an even rate to avoid excessive paint thickness. Speed of tool movement varies with pipe diameters. Small pipe can be painted faster than larger pipes. If two or more coats are desired, allow each coat to dry sufficiently prior to applying the next coat. Refer to paint manufacturers instructions for accurate drying time.

3.9 At the exit end of pipe, furnish a shield to capture overspray as tool leaves the pipe. Use extreme care when removing Orbiter from end of pipe. First, be sure no one is within 10 feet of rotating head except the operator. Second, be careful when handling the tool as it leaves the pipe. Legs may expand when disengaged from pipe. Release spray gun trigger and shut-off rotating head knob when tool is removed from pipe.

3.10 Turn off air compressor and relieve all fluid pressure from the system including airless spray pump.

4.0 MAINTENANCE:

4.1 When painting is finished, promptly clean the ORBITER carefully. Do not allow paint to dry in any of the internal ORBITER or spray gun parts. Place rotating head in a container and run solution through paint hose. Turn on rotating head 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. Use only cleaning solvents that are recommended by the paint manufacturer.

IMPORTANT WARNING

NEVER SUBMERGE ORBITER TOOLS IN ANY TYPE OF SOLVENT. DAMAGE WILL OCCUR TO GASKETS AND SEALS.

4.2 Remove strainer housing (Figure 2, Item 13 and Figure 4, Item 44), disassemble and clean strainer with solvent. Reassemble making sure nylon ring seal is in place. Use pipe thread tape to ensure a good seal when replacing strainer housing. Never allow paint to dry anywhere in the system.

4.3 Remove rotating head and clean internal cavity of disc with solvent. Any build up of paint will have an adverse effect on uniform paint flow.

4.4 Lubrication of the ORBITER is important. Daily, supply 5 to 10 drops of lightweight oil through the air inlet on the ORBITER. If air compressor is fitted with an oil mist lubricator, be sure the oil cup is full of lightweight oil (SAE 10, Mobile Spindle Oil No. 1, Shell Spindle Oil 60 or equivalent).

4.5 Use extra care on handling of air control hose. Sharp bends or crushed hose may damage the two internal hoses which could effect tool performance. Always store hose where it may be kept as straight as possible. Replace protective caps on Air Control Hose to prevent damage to precision threads.

4.6 For smooth operation and long trouble free life of the spray gun apply oil through bore of closure screw (Figure 7, Item 17) by having removed screw (35) and pulled trigger (31). After filling with oil, bring trigger back to closed position, relocate screw (35) and tighten.

4.7 Follow manufacturers instructions on cleaning airless spray pump.

5.0 ASSEMBLY AND DISASSEMBLY OF PAINT SPRAY GUN.

5.1 Paint Section. (See Figure 7.)

5.1.1 Disassembly: Remove retaining nut (1), connector (1a) and gasket (2), using open end wrench. Holding trigger in "OPEN" position unscrew valve seat (3) and remove gasket (4). Turn guide sleeve (15) to align threaded pin (14) with recess in gun body (10). Insert Allen-key in holes provided to rotate item (14) into position. Loosen set screw (14) by one revolution. Pull out needle (5) from front of gun. Using open end wrench, remove nut (12) and pull out inset (6) from front of gun. Should inset (6) bind, install extraction ring (34) over threaded part of inset (6) and using retaining nut (1) pull out item (6). Remove, if damaged, gaskets (7) and (11). Unscrew packing screw (9) and pull out packing (8). Clean all parts in compatible solvent, inspect and replace.

5.1.2 Assembly: Insert packing (8) and packing screw (9). Do not tighten item (9) at this stage. Allow for item (7) and (11). Install inset (6) and nut (12), tighten. Introduce needle (5) from forward end and secure with set-screw (14). Place gasket (4) onto item (3). Holding gun in "OPEN" position, screw in valve seat (3) and tighten. Now tighten packing screw (9) slightly. Apply a light coat of grease to all parts before assembly. Use industrial vaseline or other acid-free grease.

5.2 Pressure Section. (See Figure 7.

5.2.1 Disassembly: As above, align threaded pin (14) and loosen, remove closure screw (17). Take out spring (16). Now push out guide sleeve (15) to the rear.

5.2.2 Assembly: Grease guide sleeve (15) and spring (16) and install. Relocate closure screw (17) and tighten. Probe Allen-key (provided) through opening in closure screw (17) into threaded pin (18). Using threaded pin (18) adjust needle (5) so that a noticeable travel of the trigger (31) can be felt. Now tighten set screw (14).

5.3 Handle. (See Figure 7.

5.3.1 Disassembly: To remove trigger guard, loosen screw (32) and double nipple (24). Pull of trigger guard (33). Loosen set-screw (22) by one revolution, pull-off handle (21). Unscrew sleeve (20). Inspect and replace gaskets (19) and (23), if required.

5.3.2 Assembly: Assemble in reverse order.

6.0 TROUBLESHOOTING

6.1 Problem: Rotating head does not spin when air is applied.

Remedy:

1. Check air supply is connected to control gun.
2. Check that location of paint tube (Figure 2, Item 15 or Figure 4, Item 41) is not preventing head rotation.
3. Check that air control hose is not damaged. Replace if necessary.

6.2 Problem: Rotating head does not spin by hand.

Cause: Air motor seized due to lack of lubrication.

Remedy: Disassemble Orbiter tool and replace or service air motor.

6.3 Problem: Rotating head spins too slowly.

Remedy:

1. Check air supply to control gun. See 1.0.
2. Check air control hose for damage. Replace if necessary.
3. Check condition of exhaust air sintered filters on control gun. Disassemble — clean/replace. Reassemble.

6.4 Problem: Centering carriage does not extend or does not extend fully out.

Remedy:

1. Lift Orbiter body to assist leg expansion. See 3.3 and 3.4.
2. Check air supply is connected to control gun.
3. Check setting of air regulator on control gun. See 3.2.
4. Check that air control hose is not damaged. Replace if necessary.
5. Check legs for obstructions/paint build up.
6. Check that bottom leg of centering carriage is straight up and down.

6.5 Problem: Centering carriage does not retract when turning air valve lever to off position.

Remedy:

1. Check for paint build up or obstruction to legs preventing retraction.
2. Check that exhaust port on air valve lever is not blocked preventing air cylinder exhausting.
3. Check air control hose for damage. Replace if necessary.
4. With air valve lever in off position, manually close carriage ensuring carriage legs and body are clear of obstructions. Do not put fingers or hands where thay can be trapped between carriage legs or Orbiter body. Serious injury could result.

6.6 Problem: No paint flow from rotating head.

Remedy:

1. Check orifice in rotating head, spray tip, strainer, high pressure paint hose, and spray gun for blockages. Also if paint has been allowed to dry on interior parts, disassembly — cleaning/replacement and reassembly may be necessary.
2. Check if airless spray pump is operating correctly. Follow separate manufacturers instructions.

6.7 Problem: Insufficient paint flow from rotating head.

Remedy:

1. Pressure ratio/volume output of airless spray pump too low. Adjust pressure input to spray pump and use correctly sized airless spray pump. See 1.0.
2. Rotating head, strainer, spray tip may be partially clogged with dried paint/pigment particles. Disassemble — clean — reassemble.
3. Spray tip may be sized too small for type of coating used. See 1.0.

6.8 Problem: Insufficient paint deposit on pipe internal.

Cause: Speed of pull of Orbiter through pipe too fast.

Remedy: Try slower pull rate.

6.9 Problem: Too much paint deposit on pipe internal, resulting in paint running to bottom of pipe internal.

Cause: Speed of pull through pipe too slow.

Remedy:

1. Try faster pull rate.

2. Spray tip size too large for type of coating used.

3. Spray tip worn — disassemble and replace.

4. Too high a pressure setting on airless pump. Reduce air input pressure to pump to reduce paint output pressure.

6.10 Problem: Air leakage on air control hose couplings.

Remedy:

1. Replace O-ring seals on air control hose.

7.0 REPLACEMENT PARTS

7.1 ORBITER I Tool, Less Hoses and Gun (See Figure 2.) ..... OBS 93063

Item	Description	Stock No.
(1)	Hub 1	OBS 93064
(2)	Impeller I	OBS 93065
(3)	Cage I	OBS 93066
(4)	Motor end I	OBS 93067
(5)	Locking screw I	OBS 93068
(6)	Airmotor I	OBS 93069
(7)	Tube I	OBS 93070
(8)	Screw I	OBS 93071
(9)	Cylinder I	OBS 93072
(10)	O-ring (34.2 × 3.0) I	OBS 93073
(11)	Coupling I	OBS 93074
(12)	O-ring (34.2 × 3.0) I	OBS 93075
(13)	Strainer complete I	OBS 93076
(13a)	Strainer I	OBS 93077
(13b)	Nylon ring I	OBS 93326
(14)	Spray tip (See spray tip selection list)	
(15)	Paint tube I	OBS 93079
(15a)	Nipple I	OBS 93281
(16)	Leg w/Wheel I	OBS 93278
(17)	Leg (only) I	OBS 93282
(18)	Bearing I	OBS 93082
(19)	Pin I	OBS 93081
(20)	Screw I	OBS 93083
(21)	Nut I	OBS 93283
(22)	Shaft I	OBS 93084
(23)	Bearing I	OBS 93279

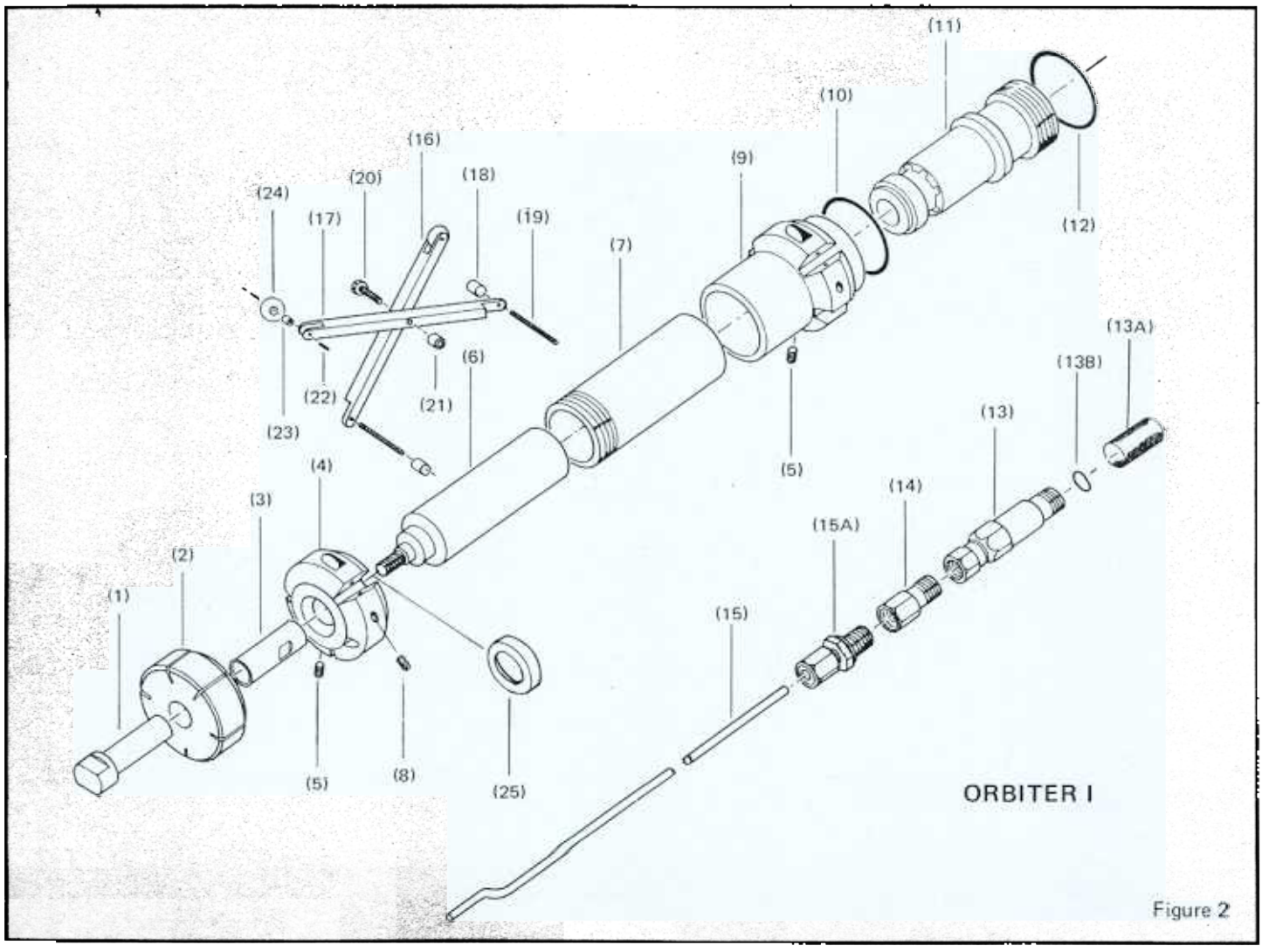


Figure 2

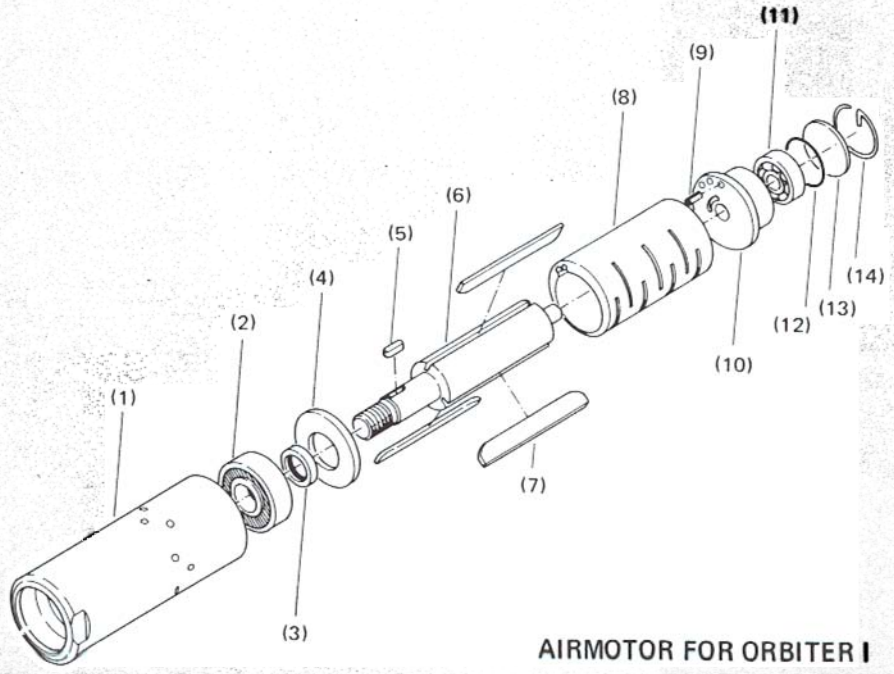
(24)	Wheel I	OBS 93060
(25)	Ring I	OBS 93280
(–)	Wheel kit for ORBITER I Set includes: 93084 shaft, 93279 bearings, 93060 wheel	OBS 94000

7.2 ORBITER I Air Motor, (See Figure 3.) ..... OBS 93069

(1)	Casing I	OBS 93284
(2)	Ball bearing I	OBS 93285
(3)	Spacer I	OBS 93286
(4)	Front plate I	OBS 93287
(5)	Key I	OBS 93288
(6)	Rotor I	OBS 93289
(7)	Blade I	OBS 93291
(8)	Cylinder I	OBS 93292
(9)	Roll pin I	OBS 93293
(10)	Rear plate I	OBS 93290
(11)	Ball bearing I	OBS 93294
(12)	O-ring (16.1 × 1.6) I	OBS 93295
(13)	Spacer I	OBS 93296
(14)	Snap ring I	OBS 93297

7.3 ORBITER III Tool, Less Hoses and Gun (See Figure 4.) ..... OBS 93133

(1)	Hub nut III	OBL 90959
(2)	Head, front III	OBL 90960
(3)	Head, rear III	OBL 90961
(4)	Hub III	OBL 90962
(5)	Flange III	OBL 90963
(6)	Casing III	OBL 93262
(7)	Key III	OBL 93256
(8)	Airmotor, complete III	OBL 93260
(9)	Motor housing III	OBL 90966
(10)	O-ring (37.1 × 1.6) III	OBL 93257
(11)	O-ring (79.5 × 30) III	OBL 90969
(12)	O-ring (44.2 × 30) III	OBL 90970
(13)	O-ring (20.22 × 3.53) III	OBL 93258
(14)	Rod III	OBL 90981
(15)	Nut III	OBL 90978
(16)	Piston III	OBL 90979
(17)	Rod III	OBL 90980
(18)	Cylinder III	OBL 90973
(19)	Cover III	OBL 90975
(20)	Nut III	OBL 90982
(21)	O-ring (12.1 × 1.6) III	OBL 90976
(22)	O-ring (7.1 × 1.6) III	OBL 93259
(23)	Airtube, 288mm (11.34") III	OBL 93102
(24)	Airtube, 150mm (5.91") III	OBL 93104
(25)	Airtube, 310mm (12.2") III	OBL 93100
(26)	Socket III	OBL 90984
(27)	Pin III	OBL 90983
(28)	Plate III	OBL 93093
(29)	Nut III	OBL 90978
(30)	Screw III	OBL 93095
(31)	Tube III	OBL 93311
(32)	Connection body III	OBL 93312
(33)	Inner arm	OBL 93313
(34)	Outer arm	OBL 93314
(35)	Wheel III	OBL 93315
(36)	Screw III	OBL 93316
(37)	Plate III	OBL 93317
(38)	Screw III	OBL 93318
(39)	Bushing III	OBL 93319
(40)	Bushing III	OBL 93320
(41)	Paint tube III	OBL 93321
(42)	T-piece III	OBL 93322
(43)	Spray tip (See spray tip selection list)	



AIRMOTOR FOR ORBITER I

Figure 3

(44)	Strainer housing, complete III	OBL 93076
(45)	Strainer III	OBL 93077
(46)	Cover III	OBL 93323
(47)	Nut III	OBL 93324
(48)	Nylon ring	OBL 93326
(–)	Rotating head kit for ORBITER III Includes: 90960 Front head, 90961 Rear head and 90962 hub	OBL 94001
(–)	Wheel kit for ORBITER III Includes: 93318 Screw, 93319 Bushing, 93315 Wheel, 93317 Plate, 93324 Nut	OBL 94002
7.4	**ORBITER III Air Motor (See Figure 5.)**	**OBL 93260**
(1)	Flange III	OBL 90963
(2)	Felt ring III	OBL 93261
(3)	Casing III	OBL 93262
(4)	Needle bearing III	OBL 93263
(5)	Spacer III	OBL 93264
(6)	Snap ring III	OBL 93255
(7)	Bearing III	OBL 93265
(8)	Spacer III	OBL 93266
(9)	Ball bearing III	OBL 93267
(10)	Key III	OBL 93256
(11)	Spindle III	OBL 93268
(12)	Cylinder setter III	OBL 93269
(13)	Ball bearing III	OBL 93270
(14)	Front plate III	OBL 93271
(15)	Roll pin III	OBL 93272
(16)	Cylinder III	OBL 93273
(17)	Rotor III	OBL 93274
(18)	Blade III	OBL 93275
(19)	Rear plate III	OBL 93276
(20)	O-ring (25.1 × 1.6) III	OBL 93277
(21)	Spacer III	OBL 93304
(22)	Snap ring III	OBL 93305
7.5	**Control Gun Assembly, (See Figure 6.)**	**OBT 93131**
(1)	Gauge	OBT 90933

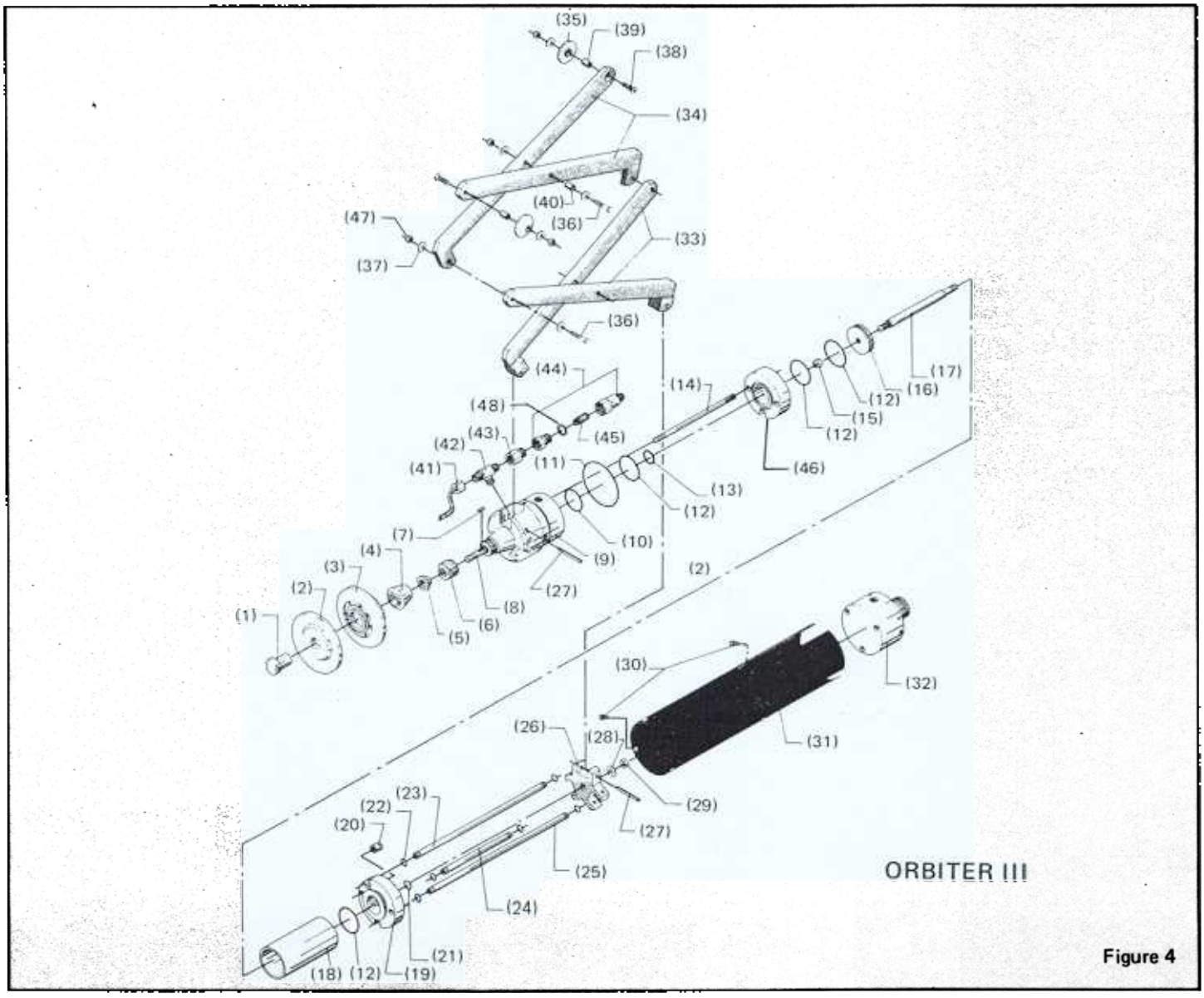


Figure 4

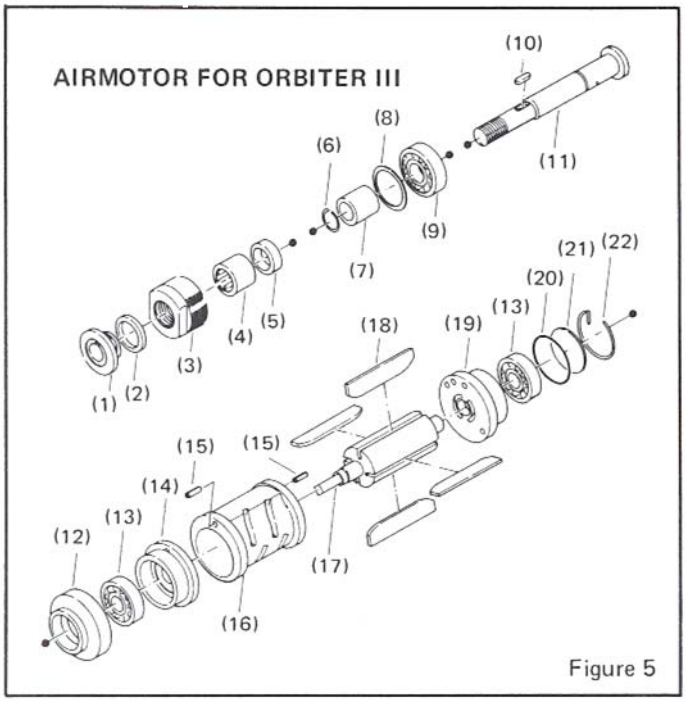
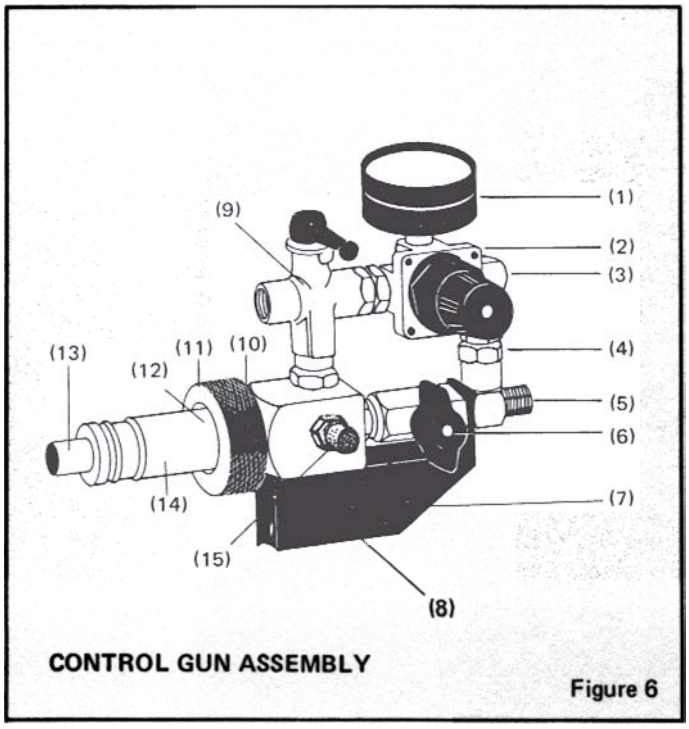


Figure 5

(2)	Air regulator	OBT 90934
(3)	Connection	OBT 90935
(4)	Bushing	OBT 90936
(5)	Coupling	OBT 90937
(6)	Knob	OBT 90938
(7)	Bracket	OBT 90939
(8)	Bolt	OBT 90940
(9)	3-way valve	OBT 90931
(10)	Locking ring	OBT 93299
(11)	Tightening ring	OBT 93300
(12)	O-ring (22.1 × 1.6)	OBT 93301
(13)	O-ring (22.1 × 1.6)	OBT 93303
(14)	Housing	OBT 93298



CONTROL GUN ASSEMBLY
Figure 6

(15)	Silencer	OBT 90941
(—)	O-ring (8.1 × 1.6)	OBT 93306
(—)	O-ring (11.1 × 1.6)	OBT 93307

7.6 Paint Spray Gun, (See Figure 7.) .. OBG 93130

(1)	Cap screw	OBG 93008
(1A)	Connector for paint spray gun	OBT 93302
(2)	Gasket	OBG 93009
(3)	Valve seat	OBG 93010
(4)	Gasket	OBG 93011
(5)	Valve needle	OBG 93012
(6)	Inset	OBG 93013
(7)	Gasket	OBG 93014
(8)	packing	OBG 93015
(9)	Packing screw	OBG 93016
(10)	Body	OBG 93019
(11)	Gasket	OBG 93017
(12)	Nut	OBG 93018
(13)	Pressure plug	OBG 93021
(14)	Threaded pin	OBG 93020
(15)	Guide sleeve	OBG 93022
(16)	Spring	OBG 93024
(17)	Closure screw	OBG 93025
(18)	Threaded pin	OBG 93925
(19)	Gasket	OBG 93029
(20)	Sleeve	OBG 93090
(21)	Handle	OBG 93089
(22)	Threaded pin	OBG 93091
(23)	Gasket	OBG 93086
(24)	Double nipple	OBG 93087
(25)	Trigger screw	OBG 93032
(26)	Washer	OBG 93031
(27)	Trigger axle	OBG 93193
(28)	Shoulder screw	OBG 93194
(29)	Safety lever	OBG 93030
(30)	Elastic washer	OBG 93195
(31)	Trigger	OBG 93088
(32)	Screw	OBG 93027
(33)	Trigger guard	OBG 93028
(34)	Extraction ring	OBG 93196
(35)	Screw	OBG 93334

7.7 Common Parts

(—)	Air control hose, 10 ft. (3.0m)	OBT 90925
(—)	Air control hose 16 ft. (5.0m)	OBT 90926
(—)	Air control hose, 32 ft. (10.0m)	OBT 90927
(—)	Paint hose, 11 ft. (3.5m)	OBT 93054
(—)	Paint hose, 18 ft. (5.5m)	OBT 93056
(—)	Paint hose, 34 ft. (10.5m)	OBT 93057
(—)	O-ring set, ORBITER III	OBT 93308
	Set includes: Nylon ring	OBT 93326
	O-ring (79.5 × 3.0)	OBT 90969
	O-ring (44.2 × 3.0)	OBT 90970
	O-ring (12.1 × 1.6)	OBT 90976
	O-ring (37.1 × 1.6)	OBT 93257
	O-ring (20.22 × 3.53)	OBT 93258
	O-ring (7.1 × 1.6)	OBT 93259
	Felt ring	OBT 93261
	O-ring (25.1 × 1.6)	OBT 93277

(—) O-ring set, ORBITER I	OBT 93309
Set includes: O-ring (34.2 × 3.0)	OBT 93073
O-ring (34.2 × 3.0)	OBT 93075
O-ring (16.1 × 1.6)	OBT 93295
Nylon ring	OBT 93326
—) O-ring set, Air Control Hose	OBT 93310
Set includes: O-ring (22.1 × 1.6)	OBT 93303
O-ring (22.1 × 1.6)	OBT 93301
O-ring (8.1 × 1.6)	OBT 93306
O-ring (11.1 × 1.6)	OBT 93307
—) Paint hose union, 1/4" BSP × 1/4" BSP	OBT 93333
—) Spray tip .018 orifice	OBT 93250
—) Spray tip .021 orifice	OBT 93251
—) Spray tip .026 orifice	OBT 93078
—) Spray tip .031 orifice	OBT 93052
—) Spray tip .036 orifice	OBT 93253
—) Spray tip .043 orifice	OBT 93254

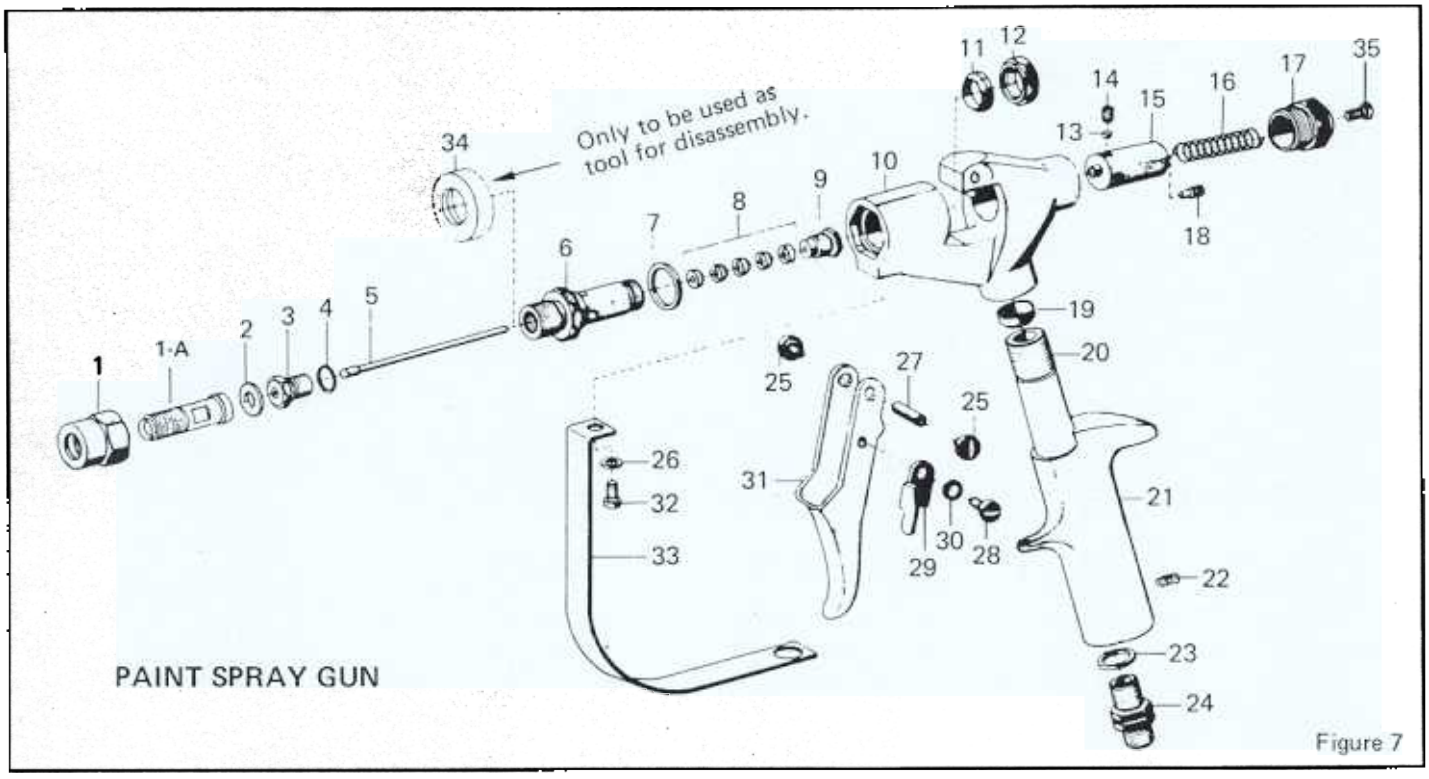


Figure 7