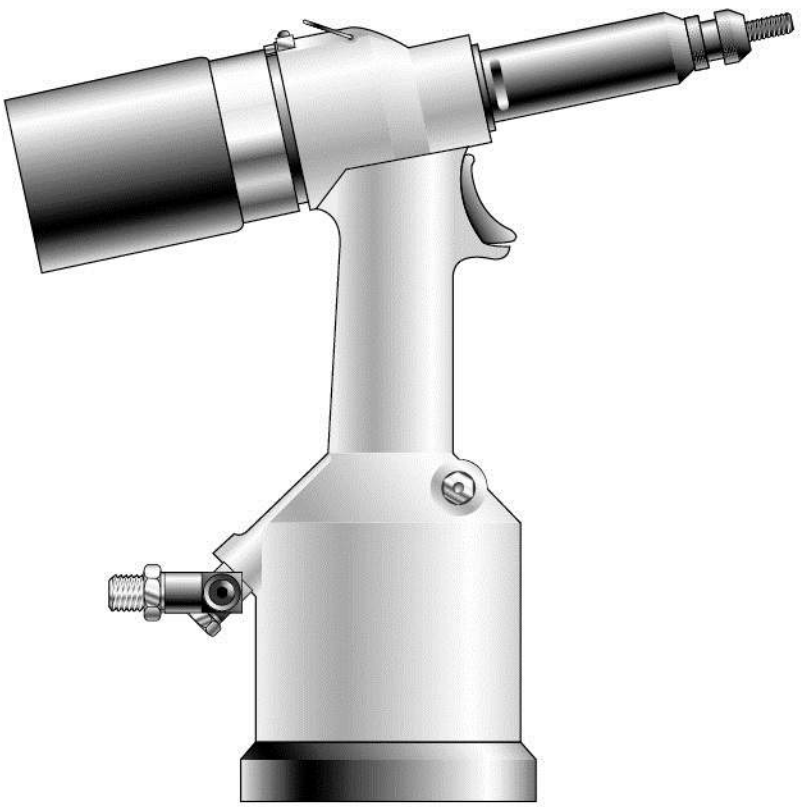
# Air Hydraulic Riveter Nut

# Instruction Manual

## OP-PS12-O2



# Contents

# Safety Rules

**This instruction manual must be read with particular attention to the following safety rules, by any person installing, operating, or servicing this tool.**

1 Do not use outside the design intent.

2 The tool/machine must be maintained in a safe working condition at all times and examined at regular intervals for damage and function by trained competent personnel.

3 The precautions to be observed when using this tool/machine must be explained by the customer to all operators.

4 Always disconnect the airline from the tool/machine inlet before attempting to adjust, fit or remove a nose assembly.

5 Do not operate a tool/machine that is directed towards any person(s) or the operator.

6 Always adopt a firm footing or a stable position before operating the tool/machine.

7 Ensure that vent holes do not become blocked or covered and that hoses are always in good condition.

8 The operating pressure shall not exceed 7 bar (100 lbf/in$^2$).

9 Do not operate the tool without full nose equipment, oil plug and oil bleed screw in place.

10 When using the tool, the wearing of safety glasses is required both by the operator and others in the vicinity to protect against pin ejection, should a fastener be placed 'in air'. We recommend wearing gloves if there are sharp edges or corners on the application.

11 Take care to avoid entanglement of loose clothes, ties, long hair, cleaning rags etc. in the moving parts of the tool which should be kept dry and clean for best possible grip.

12 When carrying the tool from place to place keep hands away from the trigger/lever to avoid inadvertent start up.

13 Excessive contact with hydraulic oil should be avoided. To minimise the possibility of rashes, care should be taken to wash thoroughly.

# Specifications

## Tool Specification

| | | |
|---|---|---|
| **Air Pressure** | Minimum - Maximum | 5-7 bar (75-100 lbf/in²) |
| **Free Air Volume Required** | @ 5 bar/75 lbf/in² | 8 litres (.28 ft³) |
| **Stroke** | Maximum | 6 mm (.236 in) |
| **Motor Speed** | Spin On | 2700 rpm |
| | Spin Off | 2700 rpm |
| **Pull Force** | @ 5 bar/75 lbf/in² | 1954 kg (4300 lbf) |
| **Cycle time** | Approximately | 2.5 seconds |
| **Noise Level** | Less than | 75 dB(A) |
| **Weight** | Without nose equipment | 2.2 kg (4.85 lb) |
| **Vibration** | Less than | 2.5 m/s² (8 ft/s²) |

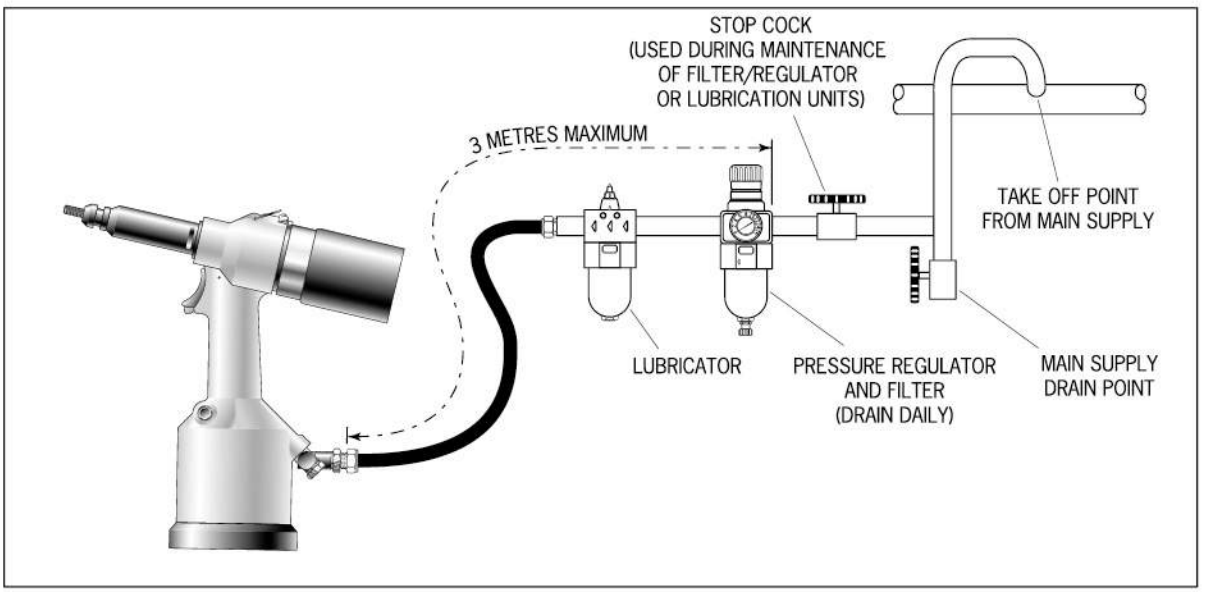
# Putting into Service

## Air Supply

All tools are operated with compressed air at an optimum pressure of 5.5 bar. We recommend the use of pressure regulators and automatic oiling/filtering systems on the main air supply. These should be fitted within 3 metres of the tool (see diagram below) to ensure maximum tool life and minimum tool maintenance.

Air supply hoses should have a minimum working effective pressure rating of 150% of the maximum pressure produced in the system or 10 bar, whichever is the highest. Air hoses should be oil resistant, have an abrasion resistant exterior and should be armoured where operating conditions may result in hoses being damaged. All air hoses MUST have a minimum bore diameter of 6.4 millimetres or 1/4 inch.

Read servicing daily details page 5 .

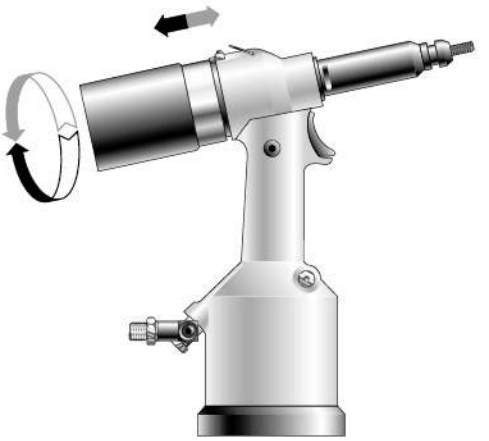



## Stroke Adjustment

This adjustment is necessary to ensure optimum insert deformation. It is suggested, therefore, that a test plate with the same thickness and hole size as workpiece be used.

If deformation is insufficient, the insert will rotate inside the application. If deformation is excessive, thread distortion will occur and possibly drive screw fracture.

The stroke is adjusted by the amount the rear casing **62** is screwed in or out. To shorten stroke, screw in; to lengthen stroke, unscrew the rear casing but never more than 5 turns from the fully "IN" position unless dismantling the tool. Adjust until optimum deformation is obtained. Lock the stroke set finger **23** into the rear casing.



## Operating Procedure

- Connect tool to air supply.
- Offer up insert, lip first to drive screw. A light pressure will start the motor and automatically thread the insert up against nose and stop.
- Insert fastener into application squarely.
- Fully depress trigger. This will both place insert into the application and reverse it off the drive screw.

Item numbers in **bold** refer to the General Assembly drawing and parts list (pages 8-9 ).

# Nose Assemblies

It is essential that the correct nose assembly is fitted prior to operating the tool. By knowing the details of the fastener to be placed, you will be able to order a new complete nose assembly using the selection tables on page 9.

## Fitting Instructions

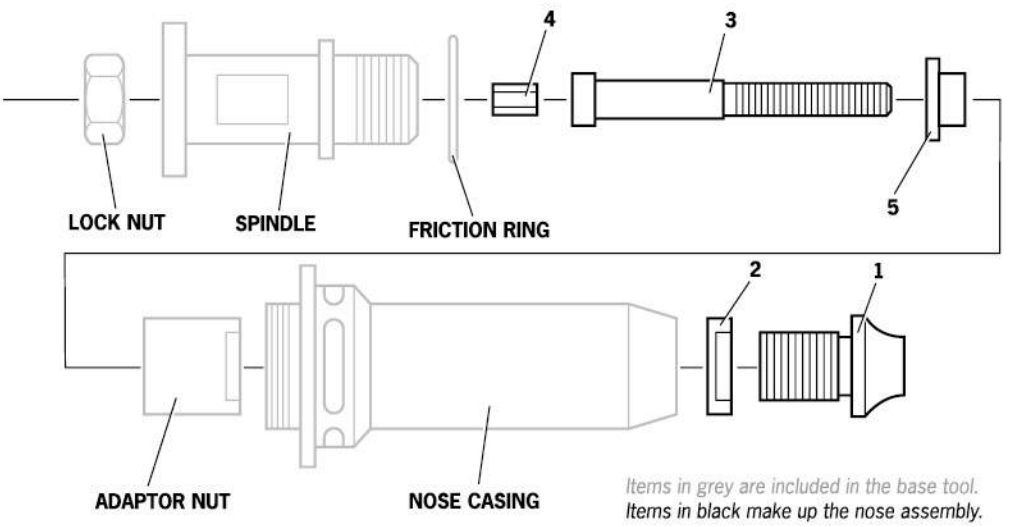
**IMPORTANT**

**The air supply must be disconnected when fitting or removing nose assemblies unless specifically instructed otherwise.**

Item numbers in **bold** refer to illustration below:

- If still fitted remove the nose casing and the adaptor nut.
- Insert drive shaft **4** into spindle.
- Fit drive screw **3** onto drive shaft **4**.
- Insert reducing sleeve **5** (if specified) into the adaptor nut.
- Screw the adaptor nut onto the spindle.
- Hold the spindle with a spanner* and tighten the adaptor nut clockwise.
- While holding the adaptor nut with the spanner*, tighten the lock nut anti-clockwise.
- Screw on the nose casing and nose tip **1** with the nose tip lock nut.
- The reverse operation is carried out for equipment removal.

- With tool still disconnected from air supply, screw one insert onto drive screw manually - making sure the insert is flush with the end of drive screw.
- Set nose tip in exact position and lock nose tip nut clockwise with a spanner*.
- Remove the insert from drive screw.




*Items in grey are included in the base tool.*
*Items in black make up the nose assembly.*

## Servicing Instructions

Nose assemblies should be serviced at weekly intervals.

- Remove the complete nose assembly using the reverse procedure to the 'Fitting Instructions'.
- Any worn or damaged part should be replaced by a new part.
- Particularly check wear on drive screw.
- Assemble according to fitting instructions.

* Refers to items included in the Tools service kit. For complete list see page 5-2 .

# Servicing the Tool

Regular servicing should be carried out and a comprehensive inspection performed annually or every 500,000 cycles, whichever is sooner.

**IMPORTANT**

**The employer is responsible for ensuring that tool maintenance instructions are given to the appropriate personnel. The operator should not be involved in maintenance or repair of the tool unless properly trained.**

## Daily

- Daily, before use or when first putting the tool into service, pour a few drops of clean, light lubricating oil into the air inlet of the tool if no lubricator is fitted on air supply. If the tool is in continuous use, the air hose should be disconnected from the main air supply and the tool lubricated every two to three hours.
- Check for air leaks. If damaged, hoses and couplings should be replaced by new items.
- If there is no filter on the pressure regulator, bleed the air line to clear it of accumulated dirt or water before connecting air hose to tool.
- Check that the nose assembly is correct.
- Check the stroke of the tool is adequate to place selected insert. (See stroke adjustment page 7).
- Inspect the drive screw in the nose assembly for wear or damage. If any, renew.

## Weekly

- Check for oil leaks and air leaks on air supply hose and fittings.

## Molykote 55m Safety Data

**First Aid**

SKIN: Wipe off and wash with soap and water.

INGESTION: No adverse effects are normally expected.
Treat symptomatically.

EYES: Irritant but not harmful. Irrigate with water and seek medical attention.

**Environment**

Scrape up for incinerating or disposal on approved site.

**Fire**

FLASH POINT: 101°C
Not classified as flammable.
Suitable extinguishing media: Carbon dioxide, foam, dry powder or fine water spray.

**Handling**
Plastic or rubber gloves should be worn.

**Storage**
Away from heat and oxidising agent.

# Servicing the Tool

## Service Kit

For all servicing we recommend the use of the service kit supplied in its own plastic case.

| SERVICE KIT | | |
|---|---|---|
| **PART N°** | **DESCRIPTION** | **O' TY** |
| PS12-O2#103 | Accessories ( spanner ) | 1 |
| PS12-O2#104 | Accessories ( spanner ) | 1 |
| PS12-O2#105 | Accessories ( spanner ) | 1 |
| PS12-O2#106 | Hex wrench #5 | 1 |
| PS12-O2#107 | Screwdriver Pin | 1 |
| PS12-O2#108 | 12mm x 13mm spanner | 1 |
| PS12-O2#109 | 17mm x 19mm spanner | 1 |

# Maintenance

Every 500,000 cycles the tool should be completely dismantled and components replaced where worn, damaged or when recommended. All 'O' rings and seals should be replaced with new ones and lubricated with Molykote 55M grease before assembling.

**IMPORTANT**

**Safety Instructions appear on page 2-1.**
**The employer is responsible for ensuring that tool maintenance instructions are given to the appropriate personnel.**
**The operator should not be involved in maintenance or repair of the tool unless properly trained.**

The airline must be disconnected before any servicing or dismantling is attempted unless specifically instructed otherwise.

It is recommended that any dismantling operation be carried out in clean conditions.
Before proceeding with dismantling, empty the oil from the tool. Remove oil plug **14**, oil seal washer **15**, bleed screw **18** and bleed screw washer **49** from the handle assembly and drain the oil into a suitable container.

Prior to dismantling the tool it is necessary to remove the nose assembly. For simple removal instructions see the nose assemblies section, pages 4-(5-1).

For total tool servicing we advise that you proceed with dismantling of sub-assemblies in the order shown below.

## Pneumatic Cylinder

- Remove rubber base **28**
- Place tool, base uppermost in vice fitted with soft jaws.
- Using a spanner*, unscrew end plug **75**. Pneumatic piston **71** should move upward under spring **69** pressure (it may be necessary to exert hand pressure to pneumatic piston **71**).
- Remove 'O' ring **74**.
- Withdraw pneumatic piston **71**.
- Remove lip seal **72** and 'O' ring **76**.
- Hold piston rod **70** in soft vice jaws to avoid scratching rod diameter.
- Separate piston rod **70** from pneumatic piston **71** by unscrewing piston rod fastening bolt using a spanner*.
- Inspect air tube **85** for damage or distortion.
  necessary to remove air tube, the base of the air tube will require warming to a temperature of 100o C to soften the Loctite adhesive. The air tube **85** can then be unscrewed from the handle using an Allen key*.
- Check spring **69** is not distorted or damaged.
- Assembly is in reverse order to dismantling.

## Rod Guide

- With tool in upside down position in vice, unscrew rod guide **65** using a spanner* and T-bar*.
- Withdraw rod guide **65**.
- Unscrew locknut **68** using an Allen key*, remove seal **66** and 'O' ring **67**.
- Remove 'O' ring **64**.
- Assembly is in reverse order to dismantling.

## Trigger

- With tool held in vice, remove pin **98** using a pin punch*.
- Remove trigger **99**, pin **102**, roller **106** and push wedge **100**.
- Gently push on the head of trigger rod **80** and, remove together with 'O' rings **79** and **84**, guide **81**, lip seal **82** and plug **83**.
- Assembly is in reverse order to dismantling. Ensure lip of lip seal **82** is towards head of tool.

complete list see page 5-2.
Item numbers in **bold** refer to the General Assembly drawing and parts list (pages 8-9).

# Maintenance

## Differential Valve

- Using special flat spanner* unscrew valve locking plug **86**, withdraw and remove spring **88** and 'O' ring **87**.
- Remove silencer **95** using a spanner* and remove washer **94**.
- Push valve piston **86** out from its housing together with 'O' rings **86, 86** & **86**.
- Check spring **86** for distortion and renew if required.
- Assemble in reverse order of dismantling.

## Head Assembly

- Remove nose equipment prior to commencing dismantling.
- Using spanners* remove spindle **9** and locknut **10**.
- Remove return spring locknut **11** using a spanner*.
- Remove return spring **12**, washer **13** and locking ring **110**.
- Check return spring **12** for distortion and renew if required.
- Assemble in reverse order of dismantling.

## Rear Casing

- Using an Allen key* remove screw **20** from stroke set finger **23** and lift off bridge washer **21**.
- Disengage stroke set finger **23** by pushing it back against spring **22**.
- Unscrew rear casing **62**.
- Remove rear casing rubber band **63** if necessary.
- Extract circlip **60** using circlip pliers* and remove sintered silencer **61**.
- Complete assembly in reverse order of dismantling.

## Distributor

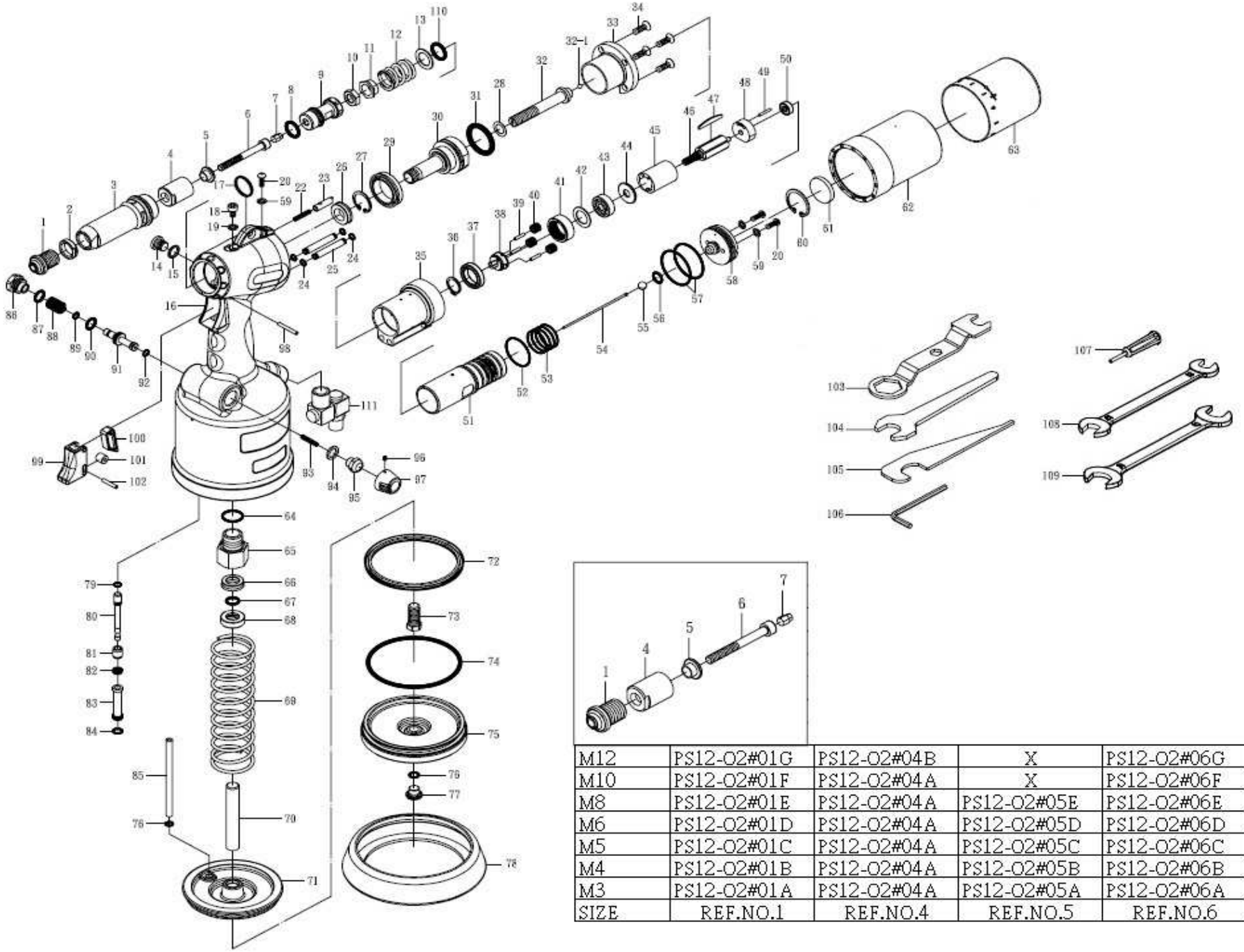
- Using an Allen key* remove two screws **20**.
- Withdraw distributor **35** together with air motor end plug **58** and 'O' rings **57** & **56** taking care not to drop ball **55** and push rod **54**.
- Using an Allen key* remove four countersunk socket head screws **34** and withdraw stroke stop **33**.
- Pull out two air supply tubes **25** and four 'O' rings **24**.
- Assemble in reverse order of dismantling.

## Hydraulic Piston & Air Motor Assembly

1. Wrap adhesive tape around hydraulic piston **30** thread and move assembly backwards slowly and firmly. Using circlip pliers* remove circlip **27** and front seal **26**.
2. Remove 'O' rings **53** and **52**.
3. Using two spanners* separate the hydraulic piston **30** from air motor casing **51**. Shim adjustment ring **28**, movement pivot **32** and 'O ring **31** will come out with hydraulic piston **30**.
4. Remove air motor assembly out of air motor casing **51**, remove circlip **36** using circlip pliers*, then tap air motor casing **51** on bench to free components.
5. Parts **37** to **49** can be pulled out as an assembly, taking care not to drop pin **49**.
6. Remove bearing **37**, planet gear spindle **38**, three planets **40**, planet gear **41** and spacer **42**.
7. Using a soft mallet tap splined head of rotor **46**.
8. Bearing **43** and front end plate **42** will come out with stator **45** and five rotor blades **47**. (rotor **46** remains in hand).
9. Place rear end plate **48** in vice with soft jaws.
10. Using a pin punch* tap centre of rotor **46** to remove bearing **50**. (turn rotor **46** upside down and bearing **50** will come out).
11. When assembling air motor, rear side of rotor **46** must just touch rear end plate **48** without any axial gap, (any existing gap will disappear when bearing **50** is fully located.
12. When inserting air motor into air motor casing **51** carefully align parts so that pin **49** locates in centre hole between spin on/off ports of air motor casing **51** and rear end plate **48**.
13. When assembling hydraulic piston **30** onto air motor assembly, tighten parts by hand and blow air into one of the outer ports of air motor casing **51**, checking to see air motor rotates freely.
14. When assembling front seal **26** ensure larger diameter faces rear of tool.
15. Complete assembly in reverse order to dismantling.

**IMPORTANT**

**Check the tool against daily and weekly servicing.**
**Priming is ALWAYS necessary after the tool has been dismantled and prior to operating**





| | | | | | |
|---|---|---|---|---|---|
| M12 | PS12-02#01G | PS12-02#04B | X | PS12-02#06G | PS12-02#07G |
| M10 | PS12-02#01F | PS12-02#04A | X | PS12-02#06F | PS12-02#07F |
| M8 | PS12-02#01E | PS12-02#04A | PS12-02#05E | PS12-02#06E | PS12-02#07E |
| M6 | PS12-02#01D | PS12-02#04A | PS12-02#05D | PS12-02#06D | PS12-02#07D |
| M5 | PS12-02#01C | PS12-02#04A | PS12-02#05C | PS12-02#06C | PS12-02#07C |
| M4 | PS12-02#01B | PS12-02#04A | PS12-02#05B | PS12-02#06B | PS12-02#07B |
| M3 | PS12-02#01A | PS12-02#04A | PS12-02#05A | PS12-02#06A | PS12-02#07A |
| SIZE | REF.NO.1 | REF.NO.4 | REF.NO.5 | REF.NO.6 | REF.NO.7 |

| REF. NO | PART. NO | DESCRIPTION | Q'TY | REMARK |
|---|---|---|---|---|
| 1 | PS12-02#01 | NOSE | 1 | |
| 2 | PS12-02#02 | NOSE NUT | 1 | |
| 3 | PS12-02#03 | NOSE CASING | 1 | |
| 4 | PS12-02#04 | ADAPTOR NUT | 1 | |
| 5 | PS12-02#05 | BUSH | 1 | |
| ※6 | PS12-02#06 | DRIVE SCREW | 1 | |
| 7 | PS12-02#07 | DRIVE SHAFT | 1 | |
| 8 | PS12-02#08 | O-RING(ID14XW2) | 1 | |
| 9 | PS12-02#09 | SPINDLE | 1 | |
| 10 | PS12-02#10 | LOCKNUT | 1 | |
| 11 | PS12-02#11 | RETURN SPRING LOCKNUT | 1 | |
| ※12 | PS12-02#12 | RETURN SPRING | 1 | |
| 13 | PS12-02#13 | WASHER | 1 | |
| 14 | PS12-02#14 | OIL PLUG | 1 | |
| 15 | PS12-02#15 | OIL SEAL WASHER | 1 | |
| 16 | PS12-02#16 | HEAD & HANDLE | 1 | |
| 17 | PS12-02#17 | SUSOENSION RING | 1 | |
| 18 | PS12-02#18 | BLEED SCREW | 1 | |
| 19 | PS12-02#19 | OIL SEAL BLEED WASHER | 1 | |
| 20 | PS12-02#20 | SCREW | 3 | |
| 22 | PS12-02#22 | SPRING | 1 | |
| 23 | PS12-02#23 | STROKE SET FINGER | 1 | |
| 24 | PS12-02#24 | O-RING(ID4XW1) | 4 | |
| 25 | PS12-02#25 | PNEU.MOTOR AIR SUPPLY TUBE | 2 | |
| 26 | PS12-02#26 | FRONT SEAL | 1 | |
| 27 | PS12-02#27 | C-RING | 1 | |
| ※28 | PS12-02#28 | SHIM ADJUSTMENT RING | 1 | |
| ※29 | PS12-02#29 | LIP SEAL | 1 | |
| 30 | PS12-02#30 | HYDRAULIC PISTON | 1 | |
| ※31 | PS12-02#31 | O-RING | 1 | |
| 32 | PS12-02#32 | MOVEMENT PIVOT | 1 | |
| 32-1 | PS12-02#32-1 | BALL(φ4) | 1 | |
| 33 | PS12-02#33 | STROKE STOP | 1 | |
| 34 | PS12-02#34 | SCREW | 4 | |
| 35 | PS12-02#35 | DISTRIBUTOR | 1 | |
| 36 | PS12-02#36 | C-RING | 1 | |
| 37 | PS12-02#37 | BEARING | 1 | |
| 38 | PS12-02#38 | PLANET GEAR SPINDLE | 1 | |

| REF. NO | PART. NO | DESCRIPTION | Q'TY | REMARK |
|---|---|---|---|---|
| 39 | PS12-02#39 | PLANET PIN | 3 | |
| 40 | PS12-02#40 | PLANET | 3 | |
| 41 | PS12-02#41 | PLANET GEAR | 1 | |
| 42 | PS12-02#42 | WASHER | 1 | |
| 43 | PS12-02#43 | BEARING | 1 | |
| 44 | PS12-02#44 | FRONT END PLATE | 1 | |
| 45 | PS12-02#45 | STATOR | 1 | |
| 46 | PS12-02#46 | ROTOR | 1 | |
| ※47 | PS12-02#47 | ROTOR BLADE | 5 | |
| ※48 | PS12-02#48 | REAR END PLATE | 1 | |
| 49 | PS12-02#49 | PIN | 1 | |
| 50 | PS12-02#50 | BEARING | 1 | |
| 51 | PS12-02#51 | AIR MOTOR CASING | 1 | |
| ※52 | PS12-02#52 | O-RING | 1 | |
| ※53 | PS12-02#53 | O-RING | 5 | |
| 54 | PS12-02#54 | PUSH ROD 80MM LONG | 1 | |
| 55 | PS12-02#55 | BALL (RUBBER) | 1 | |
| 56 | PS12-02#56 | O-RING | 1 | |
| 57 | PS12-02#57 | O-RING | 2 | |
| 58 | PS12-02#58 | AIR MOTOR END PLUG | 1 | |
| 59 | PS12-02#59 | SHAKEPROOF WASHER | 3 | |
| 60 | PS12-02#60 | C-RING | 1 | |
| 61 | PS12-02#61 | SINTERED SILENCER | 1 | |
| 62 | PS12-02#62 | REAR CASING | 1 | |
| 63 | PS12-02#63 | REAR CASING RUBBER BAND | 1 | |
| 64 | PS12-02#64 | O-RING(ID19XW2) | 1 | |
| 65 | PS12-02#65 | ROD GUIDE | 1 | |
| ※66 | PS12-02#66 | LIP SEAL | 1 | |
| ※67 | PS12-02#67 | O-RING | 1 | |
| 68 | PS12-02#68 | LOCK NUT | 1 | |
| 69 | PS12-02#69 | SPRING | 1 | |
| 70 | PS12-02#70 | PISTON ROD(INTENSIFIER) | 1 | |
| 71 | PS12-02#71 | PNEUMATIC PISTON | 1 | |
| 72 | PS12-02#72 | LIP SEAL | 1 | |
| 73 | PS12-02#73 | PISTON ROD FASTENING BOLT | 1 | |
| 74 | PS12-02#74 | O-RING | 1 | |
| 75 | PS12-02#75 | END PLUG(SCREWED) | 1 | |
| 76 | PS12-02#76 | O-RING | 2 | |

| REF. NO | PART. NO | DESCRIPTION | Q'TY | REMARK |
|---|---|---|---|---|
| 77 | PS12-02#77 | PLUG | 1 | |
| 78 | PS12-02#78 | RUBBER BASE | 1 | |
| 79 | PS12-02#79 | O-RING | 1 | |
| 80 | PS12-02#80 | TRIGGER ROD | 1 | |
| 81 | PS12-02#81 | GUIDE | 1 | |
| 82 | PS12-02#82 | LIP SEAL | 1 | |
| 83 | PS12-02#83 | PLUG | 1 | |
| 84 | PS12-02#84 | O-RING | 1 | |
| 85 | PS12-02#85 | AIR SUPPLY TUBE | 1 | |
| 86 | PS12-02#86 | VALVE LOCKING PLUG | 1 | |
| 87 | PS12-02#87 | O-RING | 1 | |
| 88 | PS12-02#88 | SPRING | 1 | |
| 89 | PS12-02#89 | O-RING | 1 | |
| 90 | PS12-02#90 | O-RING | 1 | |
| 91 | PS12-02#91 | VALVE PISTON | 1 | |
| 92 | PS12-02#92 | O-RING | 1 | |
| 93 | PS12-02#93 | SPRING | 1 | |
| 94 | PS12-02#94 | WASHER | 1 | |
| 95 | PS12-02#95 | 1/8" SILENCER | 1 | |
| 96 | PS12-02#96 | SCREW | 1 | |
| 97 | PS12-02#97 | DEFLECTOR ASSEMBLY | 1 | |
| 98 | PS12-02#98 | PIN | 1 | |
| 99 | PS12-02#99 | TRIGGRT | 1 | |
| 100 | PS12-02#100 | PUSH. WEDGE | 1 | |
| 101 | PS12-02#101 | ROLLER | 1 | |
| 102 | PS12-02#102 | PIN | 1 | |
| 103 | PS12-02#103 | SPANNER GAUGE | 1 | |
| 104 | PS12-02#104 | SPANNER B | 1 | |
| 105 | PS12-02#105 | SPANNER C | 1 | |
| 106 | PS12-02#106 | HEX WRENCH(#5) | 1 | |
| 107 | PS12-02#107 | SCREWDRIVER PIN | 1 | |
| 108 | PS12-02#108 | SPANNER D(12 X 13) | 1 | |
| 109 | PS12-02#109 | SPANNER E(17 X 19) | 1 | |
| 110 | PS12-02#110 | O-RING | 1 | |
| 111 | PS12-02#111 | GIMBAL | 1 | |



Remark:Ref No. or Part No. has been noted by ※ are not in warranty.

# Priming

Priming is ALWAYS necessary after the tool has been dismantled and prior to operating. It may also be necessary to restore the full stroke after considerable use, when the stroke may be reduced and fasteners are not fully placed by one operation of the trigger.

## Oil Details

The recommended oil for priming is Hyspin VG32 available in 0.5l or one gallon containers

## Hyspin VG 32 Oil Safety Data

**First Aid**

SKIN:

Wash thoroughly with soap and water as soon as possible. Casual contact requires no immediate attention. Short term contact requires no immediate attention.

INGESTION:

Seek medical attention immediately. DO NOT induce vomiting.

EYES:

Irrigate immediately with water for several minutes. Although NOT a primary irritant, minor irritation may occur following contact.

**Fire**

Flash point 232°C. Not classified as flammable.

Suitable extinguishing media: $CO_2$, dry powder, foam or water fog. DO NOT use water jets.

**Environment**

WASTE DISPOSAL: Through authorised contractor to a licensed site. May be incinerated. Used product may be sent for reclamation.

SPILLAGE: Prevent entry into drains, sewers and water courses. Soak up with absorbent material.

**Handling**

Wear eye protection, impervious gloves (e.g. of PVC) and a plastic apron. Use in well ventilated area.

**Storage**

No special precautions.

## Priming Procedure

**IMPORTANT**

**All operations should be carried out on a clean bench, with clean hands in a clean area.**
**Ensure that the oil is perfectly clean and free from air bubbles.**
**Care MUST be taken at all times, to ensure that no foreign matter enters the tool, or serious damage may result.**
**The tool must remain on its side throughout the priming sequence**

- Place tool on its side, oil plug **14** side up.
- Pull back stroke set finger **23** and unscrew rear casing **62** by a maximum of 5 turns from the fully 'IN' position.
- With an Allen key, unscrew oil plug **14** and remove with oil seal washer **15**.
- Fill tool with priming oil rocking gently to expel air.
- Replace oil seal washer **15** and oil plug **14** and tighten.
- You must now bleed the tool. This operation is to ensure air bubbles are eliminated from the oil circuit.
- Ensuring oil bleed screw **18** is fully tightened unscrew by ONE TURN only, using an Allen key. Connect the tool to the air supply and depress the trigger.
- Wait until oil appears all around oil bleed screw **18** then re-tighten. Wipe excess oil away.
- Release the trigger.
- Using an Allen Key open oil plug **14**.
- Top-up with priming oil to reset level. Replace oil seal washer **15** and oil plug **14** and fully tighten.
- It is necessary to fit the appropriate nose equipment and adjust the tool stroke prior to operating the tool.

Item numbers in **bold** refer to general assembly drawings and parts list (pages 8-9 ).

# Fault Diagnosis

| Symptom | Possible Cause | Remedy | Page Ref |
|---|---|---|---|
| Pneumatic motor runs slowly | Air leak from motor | Check for worn seals. Replace | 7 |
| | Low air pressure | Increase | 3 |
| | Air way blockage | Clear restriction in air supply | |
| | Worn drive screw | Replace | 4 |
| | Vanes jamming | Lubricate tool through air inlet | |
| Insert does not deform properly | Stroke incorrectly set | Adjust | 4 |
| | Air pressure outside the tolerance | Adjust | 4 |
| | Low oil level | Prime tool | 10 |
| | Insert out of grip | Check grip range of Insert | |
| Drivescrew turns independent of motor | Worn or damaged drive shaft | Replace | |
| | Worn or damaged drive screw | Replace | 4 |
| | Adaptor nut loose | Tighten | 4 |
| | Locking ring **90** missing | Fit new locking ring | 7 |
| Insert will not place onto drivescrew | Incorrect Insert thread size | Change to correct insert | |
| | Incorrect drive screw fitted | Change to correct drive screw | |
| | Worn or damaged drive screw | Replace | |
| | Nose equipment incorrectly assembled | Disconnect air supply, re-fit nose equipment carefully | 8 |
| Tool is jammed on placed insert | Excessive stroke/ Defective insert/ Worn or defective drive screw | DO NOT DEPRESS TRIGGER. Unlock stroke locking device and bring rear casing forward to zero stroke position. Depress trigger. Tool should spin off. Reset stroke. If not, disconnect air to tool. Insert a 4 mm Ø pin through nose casing slots into spindle **9** . Turn until drive screw leaves. Insert. Use new insert AND drive screw. | |
| Drive screw breaks | Stroke of tool excessive | Re-set stroke | |
| | Side load on drive screw | Hold tool square to application when placing Insert | |

*continued overleaf*

Item numbers in **bold** refer to general assembly drawings and parts list (pages 14-15).

Other symptoms or failures should be reported to your local Avdel authorised distributor or repair centre.

# Fault Diagnosis

| Symptom | Possible Cause | Remedy | Page Ref |
|---|---|---|---|
| Tool does not spin on | Screw adaptor nut loose | Tighten | |
| | No air supply | Connect | 3 |
| | Insufficient gap between locknut **10** and spindle **9** | Adjust to 1.5 mm gap to 2mm gap | 7 |
| | Push rod **54** too short | Replace | 7 |
| | Air motor jammed | Lubricate tool at air inlet. If insufficient dismantle and clean air motor thoroughly | |
| Trigger inoperative | Static friction | Depress trigger a few times | |
| | Low air pressure | Increase air pressure | |
| | Valve piston remains stuck | Depress trigger several times. Lubricate tool through air inlet. If unsuccessful, dismantle, clean and lubricate trigger elements | |
| Drivescrew does not return and/or keeps spinning off | Lip seal **82** is defective | Replace | 6 |
| Tool does not spin off | Adaptor nut **4** loose | Tighten | |
| | No air supply | Connect | |
| | Rear casing unscrewed by more than 5 turns | Set tool stroke | |
| | 'O' ring **57** leaking air | Replace | 7 |
| | Distributor stuck | Lubricate | |
| | Air motor jammed | Lubricate tool at air inlet. If insufficient dismantle and clean air motor thoroughly | |

Item numbers in **bold** refer to general assembly drawings and parts list (pages 8-9).