

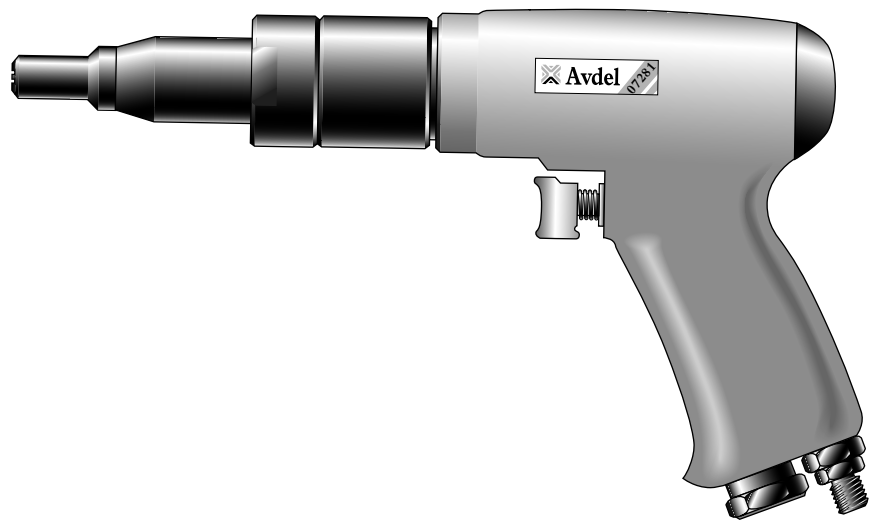


An Acument™ Global Technologies Company



## Instruction Manual

Pass onto user to read and keep for reference



**Jo-Bolt & Jo-Lok Power Tool**

**07281**

AVDEL policy is one of continuous development. Specifications shown in this document may be subject to changes which may be introduced after publication. For the latest information always consult Avdel.

### SPECIFICATIONS FOR 07281 TOOL

AIR PRESSURE	■	Minimum - Maximum	■ 5 - 8 bar	■ 70 - 120 lbf/in <sup>2</sup>
FREE AIR VOLUME REQUIRED	■	@ 5.6 bar / 80 lbf/in <sup>2</sup>	■ 566 litres/min	■ 20 ft <sup>3</sup> /min
MOTOR SPEED	■	@ 70 lb/in <sup>2</sup> minimum	■ 500 RPM	■ (clockwise)
CYCLE TIME	■	Approximately	■ 5 seconds	■
NOISE LEVEL	■		■ 75 dB(A)	■
WEIGHT	■	Without nose equipment	■ 1.5 kg	■ 3.3 lb
VIBRATION	■	Less than	■ 2.5 m/s <sup>2</sup>	■ 8 ft/s <sup>2</sup>

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# S A F E T Y

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

⚠ DO NOT USE OUTSIDE THE DESIGN INTENT.

⚠ DO NOT USE EQUIPMENT WITH THIS TOOL/MACHINE OTHER THAN THAT RECOMMENDED AND SUPPLIED BY AVDEL.

⚠ ANY MODIFICATION UNDERTAKEN BY THE CUSTOMER TO THE TOOL/MACHINE, NOSE ASSEMBLIES, ACCESSORIES OR ANY EQUIPMENT SUPPLIED BY AVDEL OR THEIR REPRESENTATIVES, SHALL BE THE CUSTOMER'S ENTIRE RESPONSIBILITY. AVDEL WILL BE PLEASED TO ADVISE UPON ANY PROPOSED MODIFICATION.

⚠ 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. ANY DISMANTLING PROCEDURE SHALL BE UNDERTAKEN ONLY BY PERSONNEL TRAINED IN AVDEL PROCEDURES. DO NOT DISMANTLE THIS TOOL/MACHINE WITHOUT PRIOR REFERENCE TO THE MAINTENANCE INSTRUCTIONS. CONTACT AVDEL WITH YOUR TRAINING REQUIREMENTS.

⚠ THE TOOL/MACHINE SHALL AT ALL TIMES BE OPERATED IN ACCORDANCE WITH RELEVANT HEALTH AND SAFETY LEGISLATION. IN THE U.K. THE "HEALTH AND SAFETY AT WORK ETC. ACT 1974" APPLIES. ANY QUESTION REGARDING THE CORRECT OPERATION OF THE TOOL/MACHINE AND OPERATOR SAFETY SHOULD BE DIRECTED TO AVDEL.

⚠ THE PRECAUTIONS TO BE OBSERVED WHEN USING THIS TOOL/MACHINE MUST BE EXPLAINED BY THE CUSTOMER TO ALL OPERATORS.

⚠ ALWAYS DISCONNECT THE AIRLINE FROM THE TOOL/MACHINE INLET BEFORE ATTEMPTING TO ADJUST, FIT OR REMOVE A NOSE ASSEMBLY.

⚠ DO NOT OPERATE A TOOL/MACHINE THAT IS DIRECTED TOWARDS ANY PERSON(S).

⚠ ENSURE THAT VENT HOLES DO NOT BECOME BLOCKED OR COVERED AND THAT HOSES ARE ALWAYS IN GOOD CONDITION.

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In addition to the general safety rules opposite, the following specific safety points must also be observed:

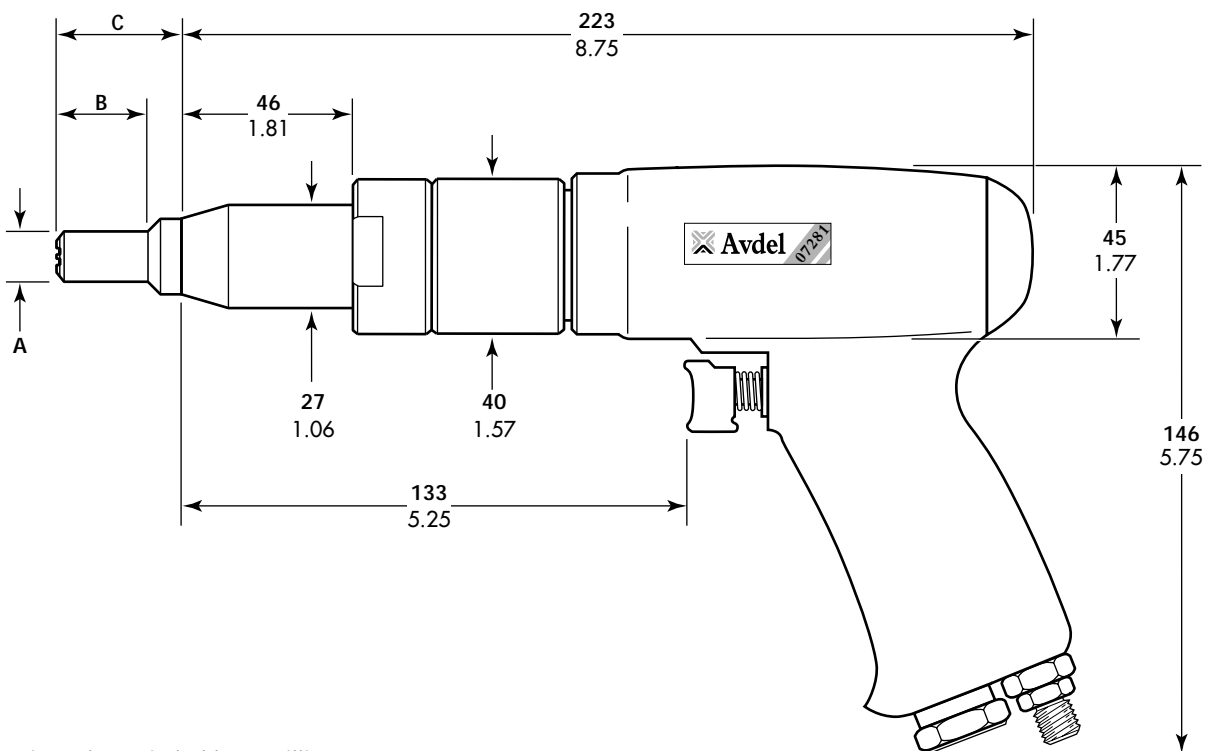
- ⚠ THE OPERATING PRESSURE SHALL NOT EXCEED 8 BAR - 120 LBF/IN<sup>2</sup>.
- ⚠ DO NOT OPERATE THE TOOL WITHOUT FULL NOSE EQUIPMENT IN PLACE.
- ⚠ WHEN USING THE TOOL, THE WEARING OF SAFETY GLASSES IS REQUIRED BOTH BY THE OPERATOR AND OTHERS IN THE VICINITY TO PROTECT AGAINST FASTENER PROJECTION, SHOULD A FASTENER BE PLACED 'IN AIR'. WE RECOMMEND WEARING GLOVES IF THERE ARE SHARP EDGES OR CORNERS ON THE APPLICATION.
- ⚠ 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.
- ⚠ WHEN CARRYING THE TOOL FROM PLACE TO PLACE KEEP HANDS AWAY FROM THE TRIGGER/LEVER TO AVOID INADVERTENT START UP.
- ⚠ ALWAYS ADOPT A FIRM FOOTING OR A STABLE POSITION BEFORE OPERATING THE TOOL AND BE AWARE OF A TORQUE REACTION ON THE HANDS WHEN THE TOOL IS OPERATING. GRIP THE TOOL FIRMLY TO BE ABLE TO COUNTER THE TORQUE REACTION, BUT NOT TOO TIGHTLY.
- ⚠ KEEP HANDS AWAY FROM THE NOSE END OF THE TOOL.
- ⚠ THE TOOL IS NOT ELECTRICALLY INSULATED.
- ⚠ THIS TOOL IS NOT DESIGNED FOR USE IN COMBUSTIBLE OR EXPLOSIVE ATMOSPHERES.

# INTENT OF USE

The pneumatic 07281 type tool is designed to place Avdel Jo-Bolt and Jo-Lock fasteners at high speed making it ideal for batch or flow-line assembly in a wide variety of applications throughout all industries.

Use the selection table opposite to select a complete tool which will be fitted with the correct nose assembly for the fastener selected. 'A', 'B' and 'C' dimensions will help you assess the accessibility of your application.

It is also possible to order the base tool only (part number 07281-00300). For details of Nose Assemblies see pages 8 and 9.



Dimensions shown in bold are millimetres.  
Other dimensions are in inches.

## 7281 TOOL SELECTION

FASTENER TYPE	BODY Ø	NOSE (see drawing opposite for A,B&C)						NOSE ASSY PART N°	COMPLETE TOOL PART N°
		A (mm)	B (mm)	C (mm)	A (in)	B (in)	C (in)		
HEXAGON HEAD (Alloy Steel & Stainless Steel)	.164	12.45	22.94	31.52	.49	.90	1.24	07280-07000	07281-00005
	.190	12.45	22.35	30.94	.49	.88	1.22	07280-07100	07281-00006
	.200	12.45	22.35	30.94	.49	.88	1.22	07280-07100	07281-00006
	.249	13.46	22.35	30.94	.53	.88	1.22	07280-07300	07281-00008
	.260	13.46	22.35	30.94	.53	.88	1.22	07280-07300	07281-00008
	.312	15.75	24.13	32.71	.62	.95	1.29	07280-07400	07281-00010
90° & 100° GSK. HEAD (Alloy Steel & Stainless Steel)	.164	12.70	21.79	30.38	.50	.86	1.20	07280-07500	07281-00025
	.190	12.70	21.54	30.12	.50	.85	1.19	07280-07600	07281-00026
	.200	12.70	21.54	30.12	.50	.85	1.19	07280-07600	07281-00026
	.249	12.70	21.67	30.25	.50	.85	1.19	07280-07700	07281-00028
	.260	12.70	21.67	30.25	.50	.85	1.19	07280-07700	07281-00028
	.312	14.35	22.86	31.44	.57	.90	1.24	07280-07800	07281-00030

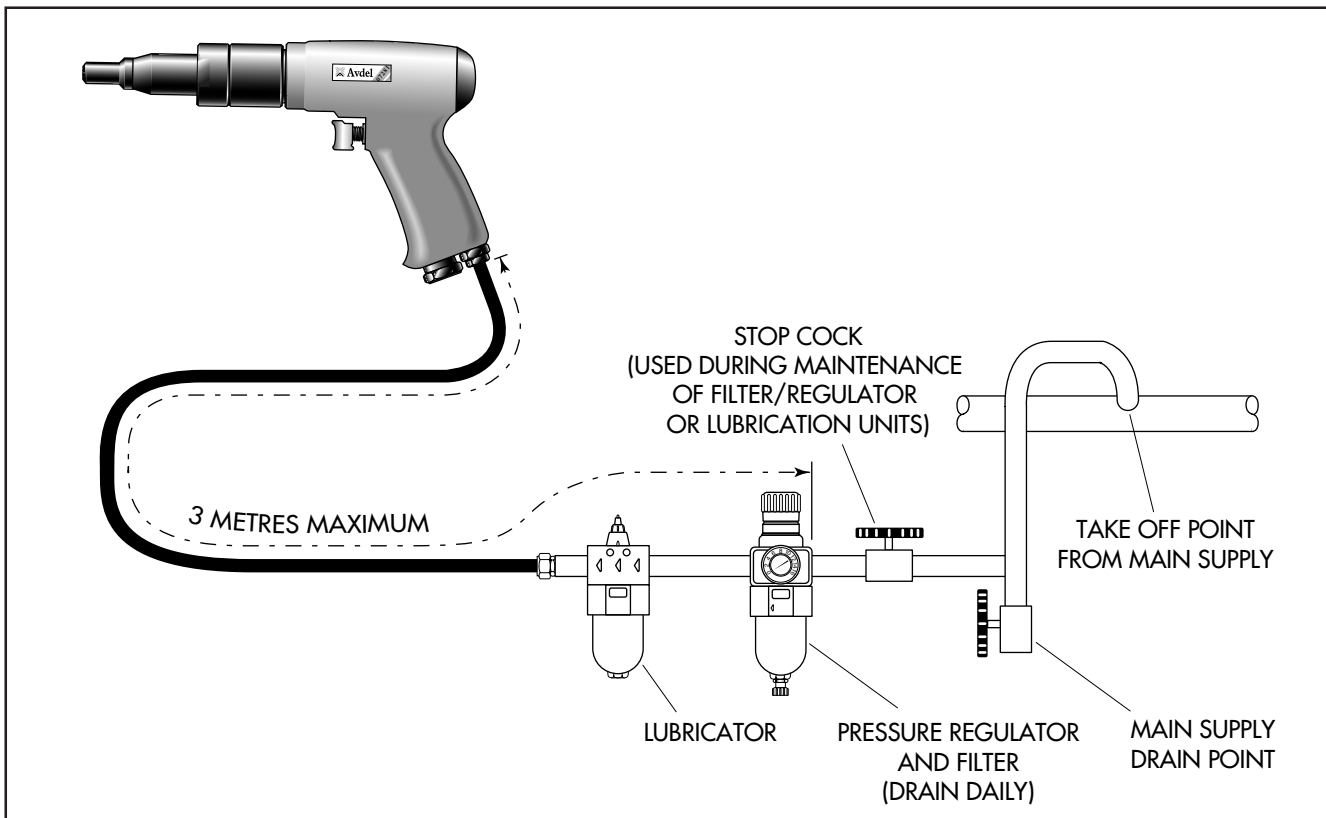
# PUTTING INTO SERVICE

## 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  $\frac{1}{4}$  inch.

Read servicing daily details page 10.



## OPERATING PROCEDURE

### OPTION 1

- Ensure that the correct nose equipment is fitted.
- Connect the tool to the air supply.
- Place the fastener into the prepared hole of the application.
- Locate the nose adaptor onto the head of the fastener, holding it square to the application and applying slight pressure.
- Operate the trigger. The tool will rotate the fastener bolt whilst holding the nut stationary. At a predetermined load the bolt shears leaving the fastener placed in the application.

### OPTION 2

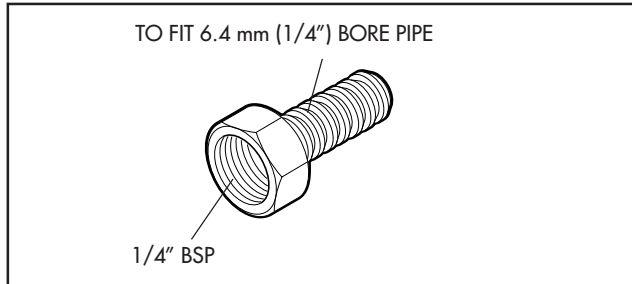
- Ensure that the correct nose equipment is fitted.
- Connect the tool to the air supply.
- Insert the fastener into the tool ensuring the fastener locates in the nose adaptor.
- With the fastener on the tool locate it into the prepared hole in the application.
- Operate the trigger. The tool will rotate the fastener bolt whilst holding the nut stationary. At a predetermined load the bolt shears leaving the fastener placed in the application.



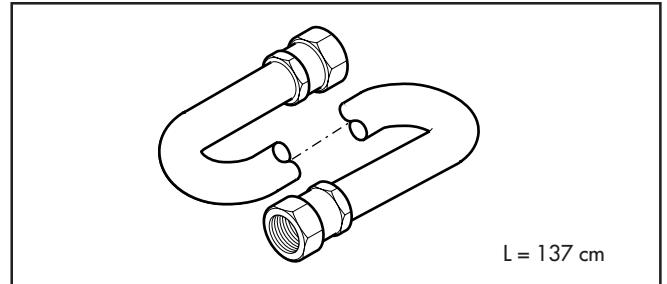
## ACCESSORIES

Two different accessories are available to make the connection to your air supply:

Hose Connector  
part n° 07005-00276



Hose Assembly  
part n° 07008-000324



# NOSE ASSEMBLIES

Nose assemblies are designed to place a specific size and type of head for either Jo-Bolt or Jo-Lok fasteners. If you have purchased a complete tool, it will already be fitted with the correct nose assembly for your fastener.

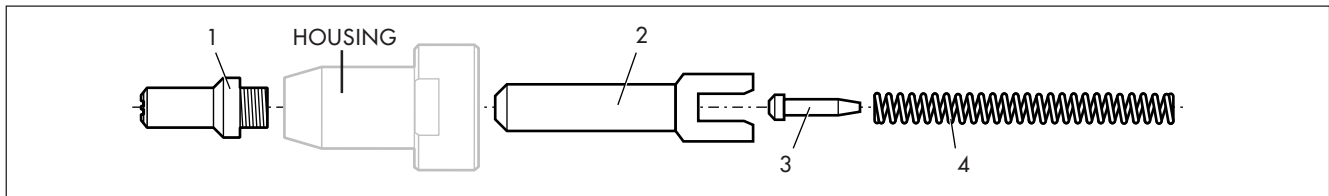
It is essential that the correct nose assembly is fitted prior to operating the tool. By knowing your original complete tool part number or the details of the fastener to be placed, you can select a new complete nose assembly using the selection table on page 5.

## FITTING INSTRUCTIONS

### IMPORTANT

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

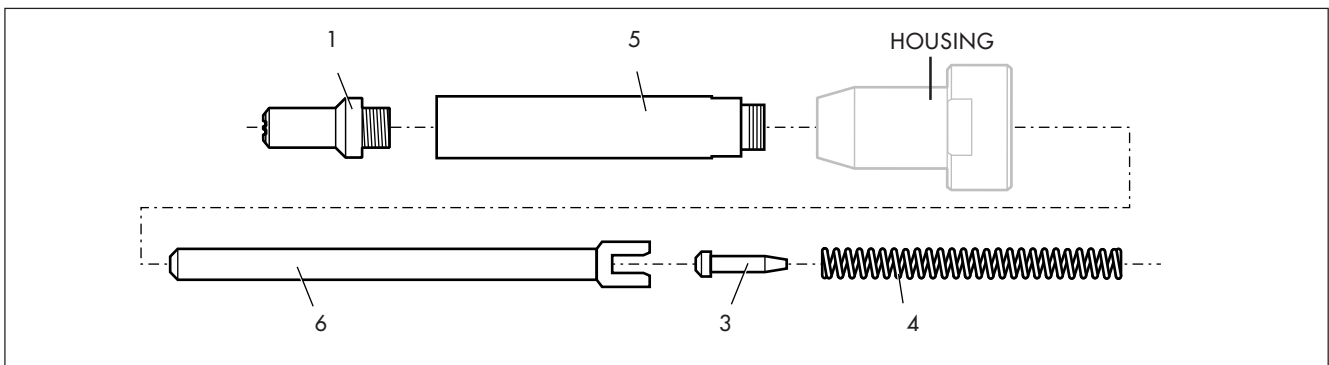
- If still fitted, remove the housing from the base tool.
- Insert spring 4 into front of the tool over pin of driving socket assembly the insert stop pin 3 into spring 4.
- Locate wrench adaptor 2 so that the forked end locates in slots in driving socket assembly of base tool.
- Screw housing onto front of tool and tighten with a spanner (left hand thread).
- Screw nose adaptor 1 into housing and tighten with a spanner (left hand thread).



For applications with restricted access the nose assembly can be extended by 4 inches with the addition of a long wrench adaptor (item 6 below and opposite) and extension tube (item 5 below and opposite). This is only available when placing fasteners of diameters listed in the table opposite.

To fit extension unit to base tool.

- Remove the housing from the base tool.
- Insert spring 4 into front of the tool over pin of driving socket assembly, then insert stop pin 3 into spring 4.
- Locate long wrench adaptor 2 into tool, ensuring forked end locates in slots of driving socket assembly of base tool.
- Screw housing onto front of tool and tighten with a spanner (left hand thread).
- Screw extension tube 2 into front of housing and tighten with a spanner.
- Screw nose adaptor 1 into front of extension tube and tighten with a spanner (left hand thread).



## 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.
- Particularly check wear on nose adaptor.
- Check springs are not distorted.
- Lubricate wrench adaptor with high pressure grease (eg Shell Alvania E.P.I.)
- Assemble according to fitting instructions.

## NOSE ASSEMBLY COMPONENTS

The table below lists all nose assemblies available. Each nose assembly represents a unique assembly of components which can be ordered individually. Components numbers refer to the text and illustration opposite. We recommend some stock as items will need regular replacement. Read the nose assemblies servicing instructions above carefully.

NOSE ASSY	1	2	3	4
07280-07000	07280-04005	07280-02105	07280-02001	07280-02002
07280-07100	07280-04006	07280-02106	07280-02001	07280-02002
07280-07300	07280-04008	07280-02108	07280-02001	07280-02002
07280-07400	07280-04010	07280-02110	07280-02001	07280-02002
07280-07500	07280-03005	07280-02105	07280-02001	07280-02002
07280-07600	07280-03006	07280-02106	07280-02001	07280-02002
07280-07700	07280-03008	07280-02108	07280-02001	07280-02002
07280-07800	07280-03010	07280-02110	07280-02001	07280-02002

Refer to the table below to order the correct long wrench adaptor and extension tube.

FASTENER BODY Ø	5	6
.190	07280-06106	07280-06001
.200	07280-06106	07280-06001
.249	07280-06108	07280-06001
.260	07280-06108	07280-06001

# SERVICING THE TOOL

Regular servicing should be carried out and a comprehensive inspection performed annually or every 200000 cycles, whichever is soonest.

## 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 the air hose to the tool. If a filter is fitted, drain it.
- Check that the nose assembly is correct.

## WEEKLY

- Fully dismantle and service the nose assembly (see instructions page 9).
- Check for air leaks in the air supply hose and fittings.

For lubricating internal tool parts other than those described previously, use Moly Lithium Grease EP3753 (part number 07992-00020)

## MOLY LITHIUM GREASE EP 3753 SAFETY DATA

<b>FIRST AID</b> SKIN: As the grease is completely water resistant it is best removed with an approved emulsifying skin cleaner.  INGESTION: Make the individual drink 30ml Milk of Magnesia, preferably in a cup of milk.  EYES: Irritant but not harmful. Irrigate with water and seek medical attention.	<b>FIRE</b> FLASH POINT: Above 220°C. Not classified as flammable. Suitable extinguishing media: CO <sub>2</sub> , Halon or water spray if applied by an experienced operator.
<b>ENVIRONMENT</b> Scrape up for burning or disposal on approved site.	<b>HANDLING</b> Use barrier cream or oil resistant gloves  <b>STORAGE</b> Away from heat and oxidising agent.

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## MAINTENANCE

Every 200000 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 Moly Lithium grease EP 3753 before assembling.

### IMPORTANT

Safety Instructions appear on pages 2 & 3.

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 not to.

It is recommended that any dismantling operation be carried out in clean conditions.

Item numbers in **bold** refer to the General Assembly drawing and parts list (pages 14 and 15).

Prior to dismantling the tool it is necessary to remove the nose assembly. For simple removal instructions see the nose assemblies section, pages 8 and 9.

For total tool servicing we advise that you proceed with the dismantling of sub-assemblies in the order shown on page 12.

## HANDLE ASSEMBLY

- Grip the tool pistol grip handle in a vice fitted with soft jaws.
- Unscrew nose assembly from housing 1.
- Using a spanner on the flats of ring gear 10, remove front gear assembly 3 and by the use of the flats of housing 1, unscrew rear gear assembly 13.
- Prise 'O' ring 23 from handle assembly 36 and remove spacer 54.
- Remove tool from vice and gently tap the front end of body assembly 36 on a wooden block. The motor assembly 24 will slide out. Return tool to the vice.
- Unscrew silencer retainer assembly 45 and remove perforated washer 46, silencer bodies 41 and silencer element 47.
- Unscrew nipple 44 from adaptor 43, and adaptor 43 from body assembly 36. Remove filter 42.
- Tap out roll pin 27 and carefully pull out the trigger assembly.
- Drive out pin 52 from trigger 53 and pull off trigger 53 from valve 38.
- Remove 'O' rings 49 and 39 from valve 38 and 'O' rings 50 and 40 from valve body 48.

### IMPORTANT

Do NOT remove knob 37 from body assembly 36

## FRONT GEAR ASSEMBLY (previously removed).

- Unscrew driving socket assembly 34 from Adaptor 2.
- Unscrew adaptor 2 from planet gear spindle 12.
- Tap out internal assembly from ring gear 10.
- Remove wave washer 11.
- Remove bearings 4 and 7 and spacer 9 from planet gear spindle 12.
- Tap out two planet gear shafts 6 and remove two planet gears 5 and bearings 8 from planet gear 5.
- Press out bearing 8 from planet gears 5.
  
- Assemble in reverse order of dismantling.

## REAR GEAR ASSEMBLY

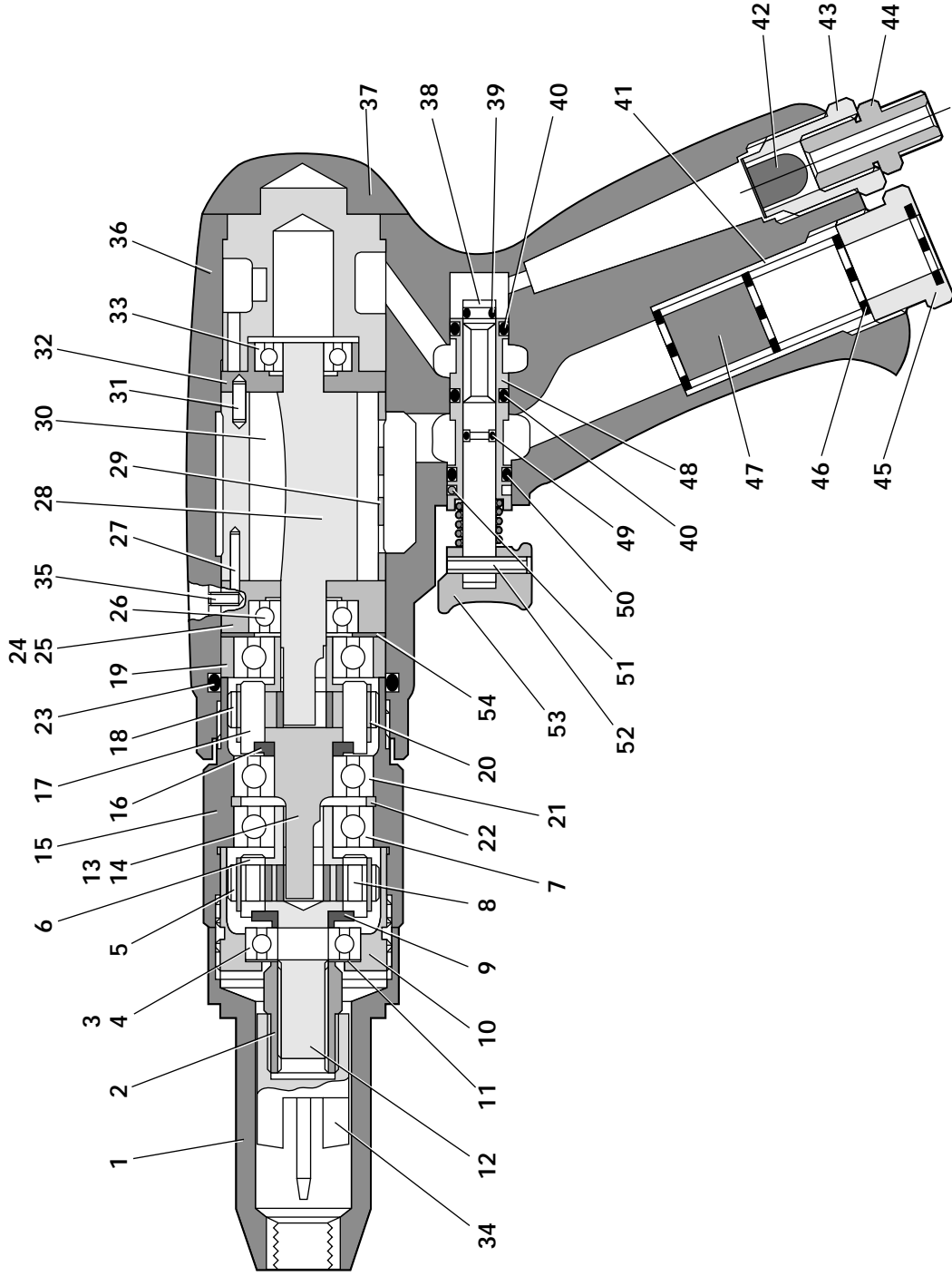
- Pull off spacer 19.
- Hold housing 15 and push out internal assembly from the front end.
- Remove two bearings 21 and spacers 19 from planet gear spindle 14.
- Push out two shafts 17 and slide out two planet gears 18 together with two bearings 20.
- Press bearings out of planet gears 18.
- Remove circlip 22 from housing 15.
  
- Assemble in reverse order to dismantling.

## MOTOR ASSEMBLY

- Remove locating pin 35 from side of front end plate 25.
- Hold front end plate 25 and tap splined end of rotor 28 with a soft hammer so as not to damage the splines and remove front end plate 25 and bearing 26.
- Remove cylinder 29 complete with roll pin 27 and pin 31.
- Remove the five rotor blades 30 from rotor 28.
- Support rear end plate 32 using a piece of tube with a bore diameter as close as possible to largest diameter of rotor 28, then tap non-splined end of rotor 28 to remove it from rear end plate 32 and bearing 33.
- Using a suitable punch, tap out bearing 26 from front end plate 25 and bearing 33 from rear end plate 32.
  
- When assembling, make sure that locating pin 35 in front end plate 25 locates in groove in the front bore of handle assembly 36.
- Pay special attention to front end plate 25 and rear end plate 32, ensuring they are free from burrs and surface marking. If necessary, lap faces that abut cylinder 29 on a flat fine grade abrasive paper.
- Press fit bearings 26 & 33 into front and rear end plates 25 & 32.
- Support bearing 33 in rear end plate 32 on its inner ring and using a soft hammer, tap rotor 28 on its splined end until rotor 28 locates against rear end plate 32.
- Support inner face of rear end plate 32 as close as possible to largest diameter of rotor 28.
- Tap non-splined end of rotor 28 until a clearance of 0.040 mm (0.0015 in) to 0.065 mm (0.0025 in) is obtained between inner face of rear end plate 32 and rotor 28.
- Check clearance by pulling rotor 28 away from rear end plate 32 and bearing 33.
- Spin rotor 28 ensuring that it rotates freely in rear end plate bearing 32.
- Locate cylinder 29 with pin 31 to rear end plate 32 and check ports in rear end plate 32 align with ports in cylinder 29.
- Insert five rotor blades 30 into rotor 28.
- Fit front end plate 25 to cylinder 29 with locating pin 27.
- Ensure rotor 28 spins freely.
- Refit motor in reverse order to removal.
  
- Complete assembly in reverse order of dismantling.

### IMPORTANT

Checked the tool against daily and weekly servicing.





**07281-00300 PARTS LIST**

ITEM	PART N°	DESCRIPTION	QTY	SPARES	ITEM	PART N°	DESCRIPTION	QTY	SPARES
01	08281-00411	HOUSING	1	-	29	08281-00404	● CYLINDER	1	-
02	08281-00418	ADAPTOR	1	-	30	08430-00608	● ROTOR BLADE	5	5
03	08281-00401	FRONT GEAR ASSEMBLY (04-12)	1	-	31	08435-00203	● PIN	1	1
04	08433-00239	● BEARING	1	-	32	08281-00403	● REAR END PLATE	1	-
05	08430-00702	● PLANET GEAR	2	-	33	08430-00606	● BEARING	1	-
06	08430-00704	● SHAFT	2	-	34	07280-00400	DRIVING SOCKET ASSEMBLY	1	-
07	08430-00705	● BEARING	1	-	35	08435-00202	LOCATING PIN	1	-
08	08430-00703	● BEARING	2	-	36	08281-00419	HANDLE ASSEMBLY	1	-
09	08281-00413	● SPACER	1	-	37	08281-00410	KNOB	1	-
10	08281-00417	● RING GEAR	1	-	38	08281-00408	VALVE	1	-
11	08281-00414	● WAVE WASHER	1	1	39	08520-00209	'O' RING	1	1
12	08281-00415	● PLANET GEAR SPINDLE	1	-	40	08415-00207	'O' RING	2	1
13	08430-00700	REAR GEAR ASSEMBLY (14-22)	1	-	41	08415-00205	SILENCER BODY	2	2
14	08430-00709	● PLANET GEAR SPINDLE	1	-	42	08415-00201	FILTER	1	1
15	08430-00708	● HOUSING	1	-	43	08415-00202	ADAPTOR	1	-
16	08430-00701	● SPACER	1	-	44	08433-00221	NIPPLE	1	-
17	08430-00704	● SHAFT	2	-	45	08415-00203	SILENCER RETAINER ASSEMBLY	1	1
18	08430-00702	● PLANET GEAR	2	-	46	08432-00201	WASHER	1	1
19	08430-00706	● SPACER	1	-	47	08415-00204	SILENCER	1	1
20	08430-00703	● BEARING	2	-	48	08281-00407	VALVE BODY	1	-
21	08430-00705	● BEARING	2	-	49	08441-00402	'O' RING	1	1
22	08430-00707	● CIRCLIP	1	1	50	08520-00215	'O' RING	1	1
23	08522-00205	'O' RING	1	1	51	08524-00207	ROLL PIN	1	1
24	08281-00402	MOTOR ASSEMBLY (25-33)	1	-	52	08433-00233	PIN	1	1
25	08281-00416	● LOWER END PLATE	1	-	53	08281-00405	TRIGGER	1	-
26	08430-00601	● BEARING	1	-	54	08430-00215	SPACER	1	-
27	08433-00233	● ROLL PIN	1	1	55	08415-00234	NAMEPLATE	1	-
28	08430-00605	● ROTOR	1	-				2	NOT SHOWN

# FAULT DIAGNOSIS

## FAULT DIAGNOSIS TABLE

SYMPTOM	POSSIBLE CAUSE	REMEDY
Tool runs slowly	→ Incorrect bore of hose	→ Ensure bore of hose is 6.4 mm minimum
	→ Insufficient air volume	→ Ensure there is no restriction in the air supply or connections
	→ Tool not properly lubricated internally	→ Lubricate as per instructions
	→ Tool not properly lubricated	→ Depress button several times after lubricating tool
Tool fails to start	→ Restricted air pressure/volume	→ Ensure there is no restriction in the air supply

**Declaration of Conformity**

We, *Avdel UK Limited, Mundells, Welwyn Garden City, Herts, AL7 1EZ*

declare under our sole responsibility that the product

*type 07281*

*Serial N°*

to which this declaration relates is in conformity with the following standards or other formative documents

EN292 part 1 and part 2

ISO 8662 part 1 and part 7

ISO 3744 and PNEUROP test code PN8TC1

ISO PREN792 part 6

***following the provisions of the Machine Directive 98/37/EC  
This box contains a power tool which is in conformity with Machines Directive  
98/37/EC. The 'Declaration of Conformity' is contained within.***

Welwyn Garden City - date of issue



A. Seewraj  
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