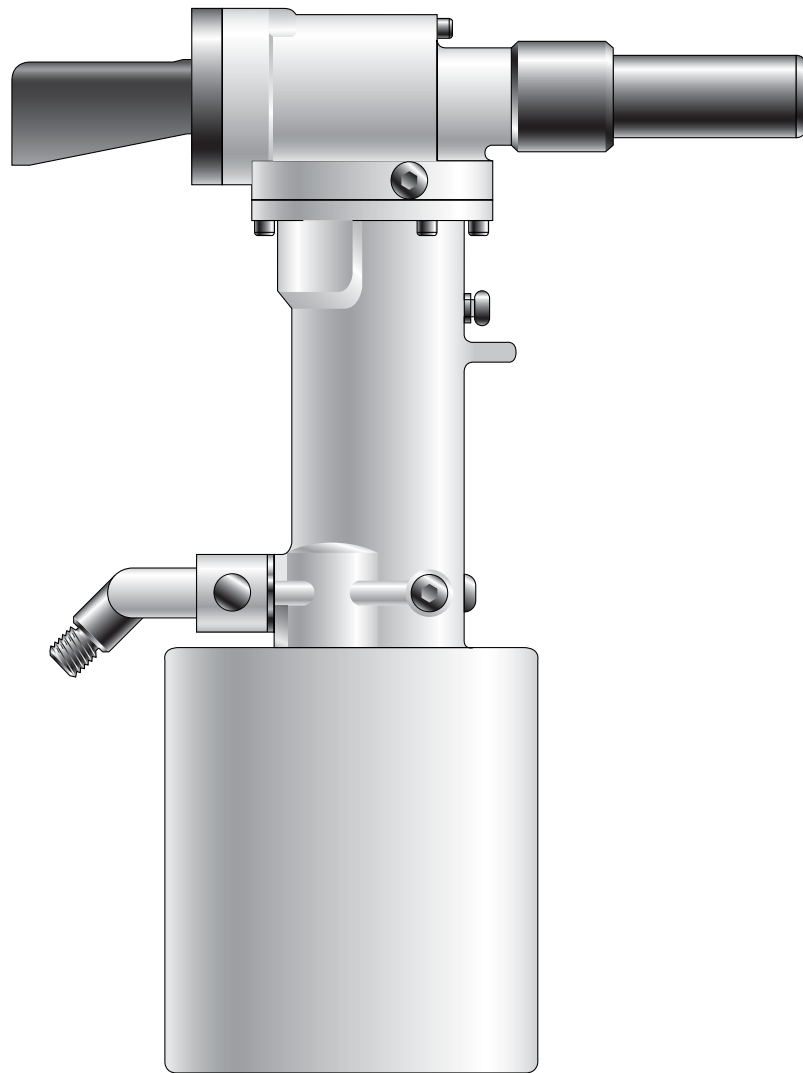




Instruction Manual

Original Instruction



07220

Hydro-Pneumatic Power Tool

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LIMITED WARRANTY

Avdel makes the limited warranty that its products will be free of defects in workmanship and materials which occur under normal operating conditions. This Limited Warranty is contingent upon: (1) the product being installed, maintained and operated in accordance with product literature and instructions, and (2) confirmation by Avdel of such defect, upon inspection and testing. Avdel makes the foregoing limited warranty for a period of twelve (12) months following Avdel's delivery of the product to the direct purchaser from Avdel. In the event of any breach of the foregoing warranty, the sole remedy shall be to return the defective Goods for replacement or refund for the purchase price at Avdel's option. THE FOREGOING EXPRESS LIMITED WARRANTY AND REMEDY ARE EXCLUSIVE AND ARE IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES. ANY IMPLIED WARRANTY AS TO QUALITY, FITNESS FOR PURPOSE, OR MERCHANTABILITY ARE HEREBY SPECIFICALLY DISCLAIMED AND EXCLUDED BY AVDEL.

Avdel UK Limited policy is one of continuous product development and improvement and we reserve the right to change the specification of any product without prior notice.

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** Do not use equipment with this tool/machine other than that recommended and supplied by Avdel UK Limited.
- 3** Any modification undertaken by the customer to the tool/machine, nose assemblies, accessories or any equipment supplied by Avdel UK Limited or their representatives, shall be the customer's entire responsibility. Avdel UK Limited will be pleased to advise upon any proposed modification.
- 4** 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 UK Limited procedures. Do not dismantle this tool/machine without prior reference to the maintenance instructions. Please contact Avdel UK Limited with your training requirements.
- 5** 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 UK Limited.
- 6** The precautions to be observed when using this tool/machine must be explained by the customer to all operators.
- 7** Always disconnect the airline from the tool/machine inlet before attempting to adjust, fit or remove a nose assembly.
- 8** Do not operate a tool/machine that is directed towards any person(s) or the operator.
- 9** Always adopt a firm footing or a stable position before operating the tool/machine.
- 10** Ensure that vent holes do not become blocked or covered and that hoses are always in good condition.
- 11** The operating pressure shall not exceed 8.5 bar (125 lbf/in²).
- 12** Do not operate the tool without full nose equipment in place.
- 13** Care shall be taken to ensure that spent pintails are not allowed to create a hazard.
- 14** 07220 tools must be fitted with an undamaged pintail deflector before operating.
- 15** If the 07220 tool is used in the vertical nose downward position, the pintail deflector should be rotated until the aperture is facing away from the operator and other person(s) working in the vicinity.
- 16** 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.
- 17** 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.
- 18** When carrying the tool from place to place keep hands away from the trigger/lever to avoid inadvertent start up.
- 19** Excessive contact with hydraulic oil should be avoided. To minimise the possibility of rashes, care should be taken to wash thoroughly.
- 20** C.O.S.H.H. data for all hydraulic oils and lubricants is available on request from your tool supplier.

Specifications

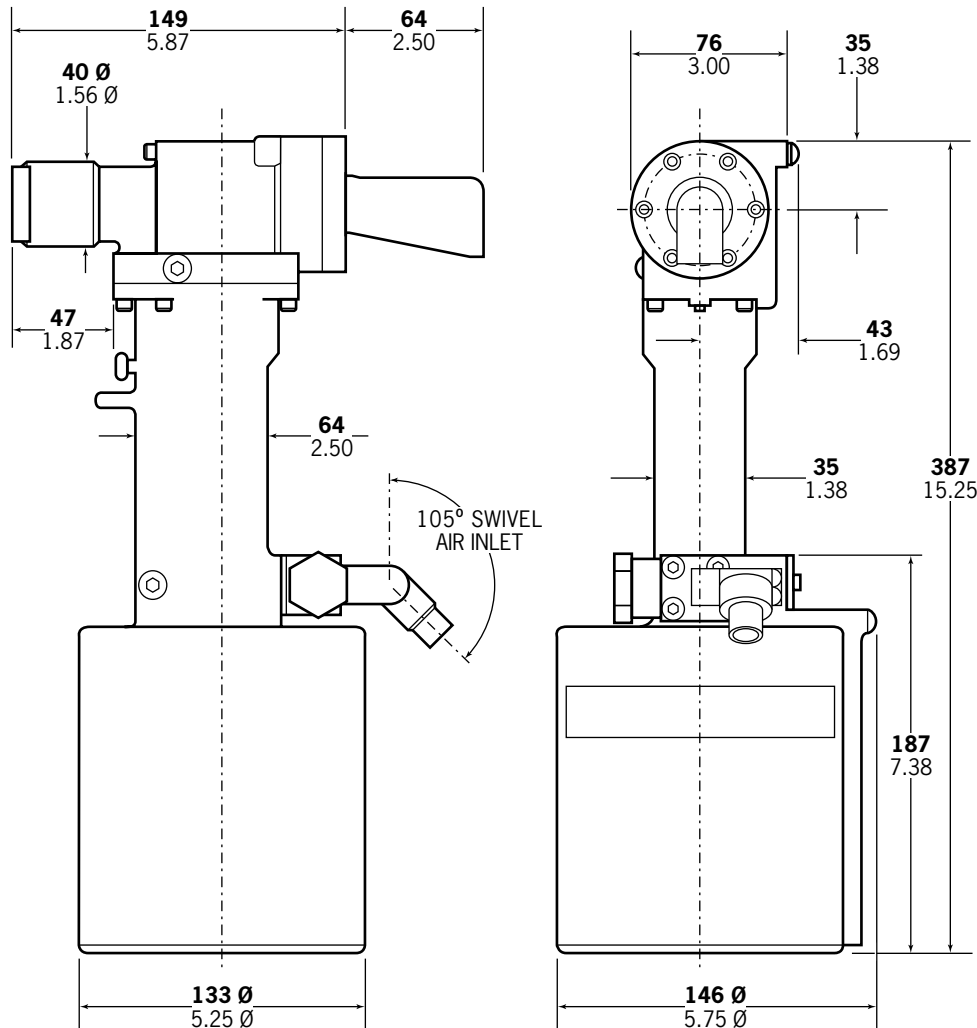
Tool Specifications

Air Pressure	Minimum - Maximum	5.4-8.5 bar (80-125 lbf/in ²)
Free Air Volume Required	@ 5.5 bar/80 lbf/in ²	14.6 litres (0.516 ft ³)
Stroke	Minimum	19 mm (0.75 in)
Pull Force	@ 5.5 bar/80 lbf/in ²	26.7 kN (6000 lbf)
Cycle time	Approximately	3 seconds
Noise Level		71.8 dB(A)
Weight	Without nose equipment	5.0 kg (11 lb)
Vibration	Less than	2.5 m/s ²

Intent of Use

The hydro-pneumatic 07220 type tool is designed to place Avdelok® pins ($\frac{3}{16}$ ", $\frac{1}{4}$ ", $\frac{5}{16}$ " and $\frac{3}{8}$ ") and collars at high speed making it ideal for batch or flow-line assembly in a wide variety of applications throughout all industries.

For a complete tool, order a base tool part number 07220-00200 and select a nose assembly to suit your application from the Nose Assemblies section pages 10-12.



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

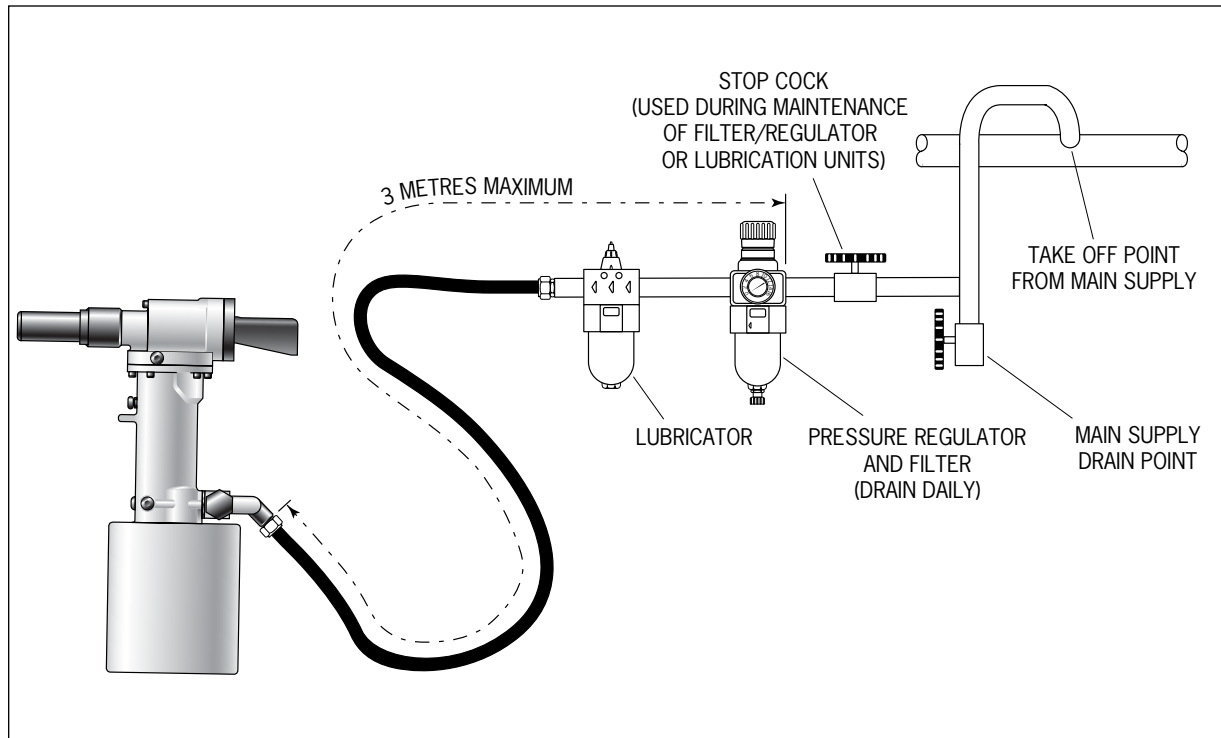
Putting into Service

Air Supply

All tools are operated with compressed air at an optimum pressure of 5.4 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.

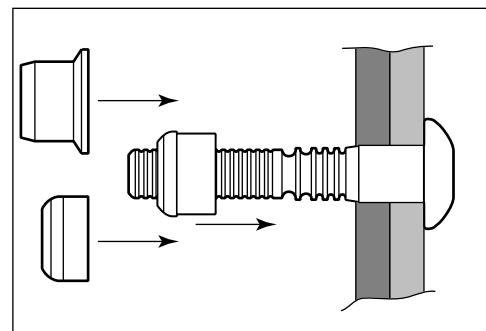
Air supply hoses should have a minimum working effective pressure rating of 150% of the maximum pressure produced in the system or 10 bar, whichever is the highest. Air hoses should be oil resistant, have an abrasion resistant exterior and should be armoured where operating conditions may result in hoses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

Read daily servicing details page 13.



Operating Procedure

- Ensure that the correct nose assembly is fitted.
- Connect the tool to the air supply.
- Push the Avdelok® pin through the application hole .
- Place the collar on the pin (orientation as shown right).
- Keeping the head of the pin against the application, push the tool onto the protruding pin tail.
- Fully depress the trigger. One cycle will ensure that the collar is swaged into the lock grooves of the pin and the the pin breaks at the breaker groove.
- Release the trigger. The tool completes its cycle by pushing itself off the collar and ejecting the pin tail at the rear.

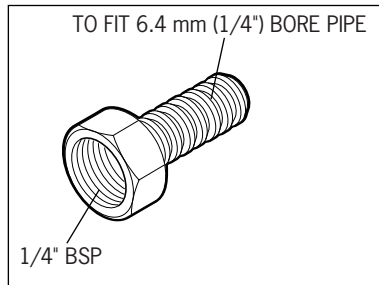


Accessories

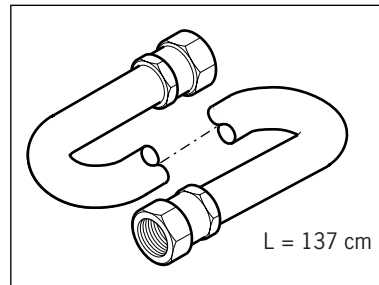
Connectors and Hose Assembly

Three accessories are available to make the connection to your air supply.

Hose Connector
part no 07005-00276

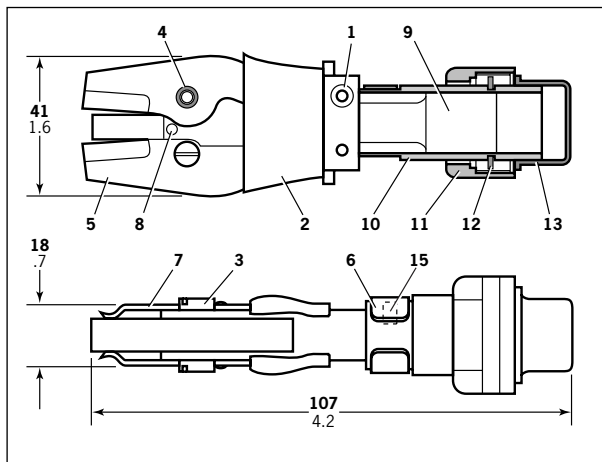


Hose Assembly
part no 07008-00324

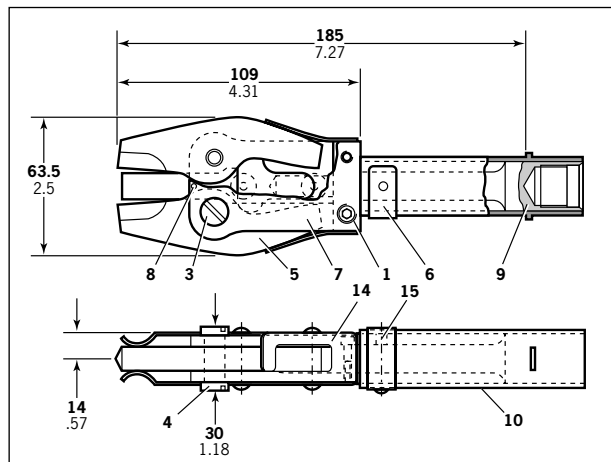


Collar Splitters

You can order collar splitters to cut the collars off placed Avdelok®. The small ones shown below left are for cutting 3/16" and 1/4" collars, the larger ones shown below right are for cutting 5/16" and 3/8" collars.



SMALL COLLAR SPLITTER (07500-06800/07500-06900)



LARGE COLLAR SPLITTER (07220-03700/07220-03900)

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

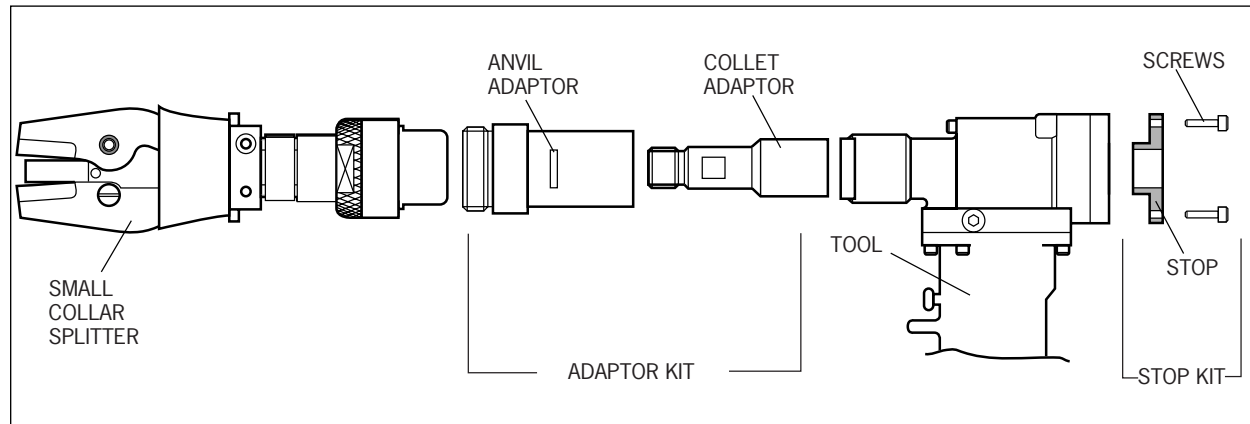
COLLAR SPLITTERS - COMPONENT PART NUMBERS

ITEM N°	DESCRIPTION	3/16" COLLAR	1/4" COLLAR	5/16" COLLAR	3/8" COLLAR	QTY
		SPLITTER	SPLITTER	SPLITTER	SPLITTER	
		07500-06800	07500-06900	07220-03700	07220-03900	
1	SOCKET HEAD CAP SCREW	07001-00004	07001-00004	07001-00142	07001-00142	2
2	SLEEVE	07210-02012	07210-02012	-	-	1
3	BLADE PIN	07210-02014	07210-02014	07220-03712	07220-03712	2
4	BLADE PIN SCREW	07210-02015	07210-02015	07220-03713	07220-03713	2
5	BLADE	07210-02016	07210-02104	07220-03710	07220-03902	2
6	SPRING CLIP ASSEMBLY	07500-08000	07500-08000	07220-04500	07220-04500	1
7	BLADE CARRIER ASSEMBLY	07210-02500	07210-02600	07220-04200	07220-04300	2
8	SPACER PIN	07210-02703	07210-02703	07220-03714	07220-03714	1
9	CAM ROD	07500-06801	07500-06801	07220-03701	07220-03701	1
10	OUTER SLEEVE	07500-06803	07500-06803	07220-03715	07220-03715	1
11	NOSE RETAINING NUT	07500-00212	07500-00212	-	-	1
12	EXTERNAL CIRCLIP	07004-00041	07004-00041	-	-	1
13	RETAINING CAP	07007-00076	07007-00076	-	-	1
14	BLADE SPRING	-	-	07220-03706	07220-03706	2
15	INDEPENDENT RETAINING PIN	07500-08003	07500-08003	07220-04501	07220-04501	1

Accessories

Use 07500-06800 collar splitter to cut $\frac{3}{16}$ " Avdelok® and 07500-06900 to cut $\frac{1}{4}$ " Avdelok®. When using either of these splitters it is necessary to use Adaptor Kit (part number 07220-09000) and to fit a Stop Kit (part number 07229-08973) to reduce the stroke of the tool.

Collar Splitter Assembly, Adaptor Kit (07220-09000) and Stop Kit (07229-08973)



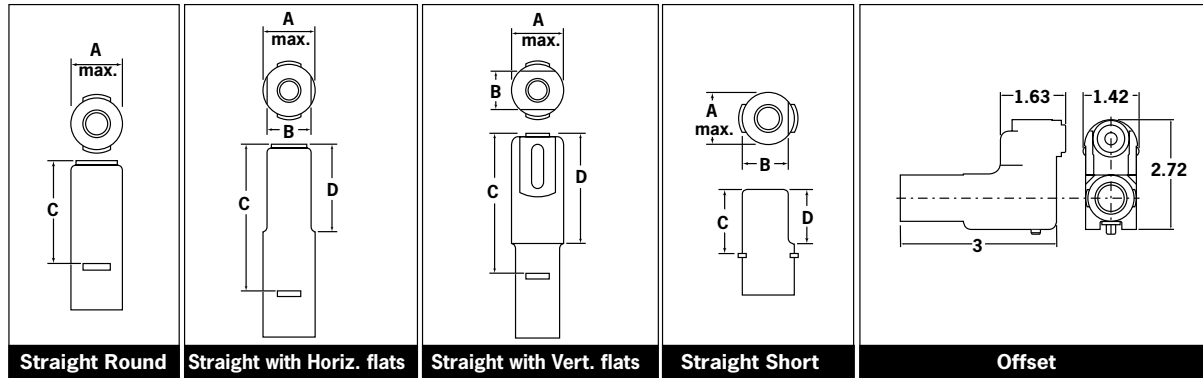
- To fit these collar splitters, first disconnect the air supply to the tool.
- Remove the pin tail Deflector **52** from tool.
- Remove Screws **50** (6 off).
- Insert stop (boss end first) into Head Cap **63**.
- Secure with screws (part number 07001-00002) supplied with the Stop Kit.
- Remove the nose assembly, if fitted.
- Lubricate the collar splitter cam faces, bearing faces and any moving parts with Moly Lithium Grease.
- Pull forward and rotate through 90° the outer ring of the head extension assembly on tool to expose slots.
- Holding the head piston with a $\frac{3}{8}$ " Allen key* through the back of the tool, tighten the collet adaptor onto the head piston with a spanner*.
- Push the anvil adaptor over the collet adaptor and lining up its bayonet with the matching slots of the head extension, push in and turn through 90°.
- Rotate the outer ring of the head extension to lock into position.
- Insert the assembled collar splitter into the anvil adaptor and screw onto the end of the collet adaptor - Tighten the nose retaining nut onto the anvil adaptor with a spanner*.
- To operate, push the collar splitter hard over the collar and depress trigger.
- To cut $\frac{5}{16}$ " or $\frac{3}{8}$ " Avdelok® use 07220-03700 and 07220-03900 collar splitters respectively - **No adaptor or stop kit is required.**
- To fit these larger collar splitters, first disconnect the air supply and remove any fitted nose assembly.
- Fit directly onto the head piston in the same manner as the collet and anvil adaptors above.

* Refers to items included in the 07220 Service Kit. For complete list see page 14. Item numbers in **bold** refer to the General Assembly drawing and Parts List (pages 18-19).

Nose Assemblies

Selection

There are two types of nose assemblies available, straight and offset. Choose the type most suitable according to the access restrictions on your application. It is essential that the correct nose assembly is fitted prior to operating the tool.



07220 NOSE ASSEMBLY SELECTION										
AVDELOK® SIZE	NOSE ASSEMBLY DESCRIPTION	A mm	A inch	B mm	B inch	C mm	C inch	D mm	D inch	NOSE ASSY. PART N ^o
3/16"	Straight with Horizontal Flats	21	.812	16	.625	54	2.12	25	1.0	07200-02700 *
	Straight with Vertical Flats	21	.812	16	.625	54	2.12	25	1.0	07200-02500 *
	Offset	-	-	-	-	-	-	-	-	07220-02800
1/4"	Straight Round	21	.812	-	-	54	2.12	-	-	07200-03500 *
	Straight with Horizontal Flats	21	.812	16	.625	54	2.12	25	1.0	07200-02800 *
	Straight with Horizontal Flats (Stepped)	21	.812	16	.625	54	2.12	25	1.0	07200-03300 *
	Straight with Vertical Flats	21	.812	16	.625	54	2.12	25	1.0	07200-02600 *
5/16"	Offset	-	-	-	-	-	-	-	-	07220-02900
	Straight Round	27	1.06	-	-	91	3.58	-	-	07220-05600
	Straight with Horizontal Flats	27	1.06	23.6	.930	91	3.58	40	1.58	07220-02700
3/8"	Straight with Horizontal Flats (Stepped)	27	1.06	22.6	.890	94	3.70	46	1.83	07220-03400
	Straight Round	27	1.06	-	-	70	2.75	-	-	07220-02000
	Straight Round (Stepped)	21	.812	-	-	74.2	2.92	-	-	07220-03500
	Straight Short	27	1.06	25.2	.992	37	1.45	32	1.25	07220-06100

*It is necessary to use an adaptor (part number 07220-02500) to fit these nose assemblies to the tool.

Stepped anvils give a less severe deformation of the collars thus allowing placing of Avdelok® in softer materials like plastics, wood, etc.

Fitting Instructions

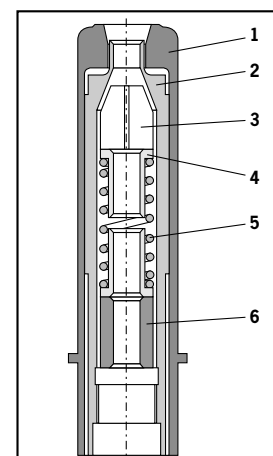
IMPORTANT
The air supply must be disconnected when fitting or removing nose assemblies unless specifically instructed otherwise.

Nose assemblies must be assembled before fitting. Offset nose assemblies are always supplied assembled.

STRAIGHT HORIZONTAL, VERTICAL OR ROUND NOSE ASSEMBLIES

- Lightly coat the jaws with Moly Lithium grease.
- Assemble Spring Guides **4** and Spring **5** and stand on end on a flat even surface.
- Balance the three Chuck Jaws **3** on the upper Spring Guide **4** (using a spent pintail to aid positioning if necessary).
- Carefully lower Chuck Collet **2** over the assembled components.
- Insert Spacer **6** (if required) into Chuck Collet **2** (5/16" dia only).
- Assembly can then be located in anvil.

Item numbers in **bold** refer to the drawing opposite.



Nose Assemblies

Fitting Instructions

- To assemble short nose assemblies 07220-06100, lightly coat the jaws with Moly Lithium grease.
- Drop three Chuck Jaws **11** into Chuck Collet **12**.
- Place Follower Cap **9**, Spring **13** and Washer **14** into Chuck Collet **12**.
- Assembly can then be located in anvil

When using $\frac{3}{16}$ " and $\frac{1}{4}$ " nose assemblies, it is necessary to first fit an adaptor part number 07220-02500 to the tool.

- To fit the reducing adaptor to the tool, pull forward and rotate through 90° the outer ring of the head extension assembly on the tool to expose slots.
- Screw the collet adaptor onto the head piston.
- Insert $\frac{3}{8}$ " A/F Allen key* into the back of the tool and into the piston head to stop rotation of the piston and tighten the collet adaptor with a spanner*.
- Push the anvil adaptor onto the tool, ensuring that the lugs on the body enter the slots in the head extension of the tool .
- Turn the reducing adaptor body through 90 ° then turn the head extension ring until it springs into its position in the slots of the head extension.
- The $\frac{3}{16}$ " and $\frac{1}{4}$ " straight nose assemblies can now be fitted to the tool.

To fit the nose assemblies either direct to the tool or to the adaptor, proceed as follows:

- Pull forward and rotate through 90° the outer ring of the head extension assembly (or outer ring of 07220-02500 if fitted).
- Insert a $\frac{3}{8}$ " A/F Allen key* into the back of the tool and into the piston head.
- Holding the tool pointing downwards, screw the assembly firmly onto the tool using a spanner*, except for the offset nose assembly.
- For straight nose assemblies, place the integral anvil over the chuck collet, ensuring the lugs on the anvil enter the slots on the head extension (or adaptor) .
- Engage lugs on nose assembly to mate with slots on head extension and turn through 90°.
- The offset nose assembly can be turned to the angle required.
- Turn head extension ring through 90° until it springs into position in the slots of the head extension sleeve.

Servicing Instructions

Nose assemblies should be serviced at weekly intervals.

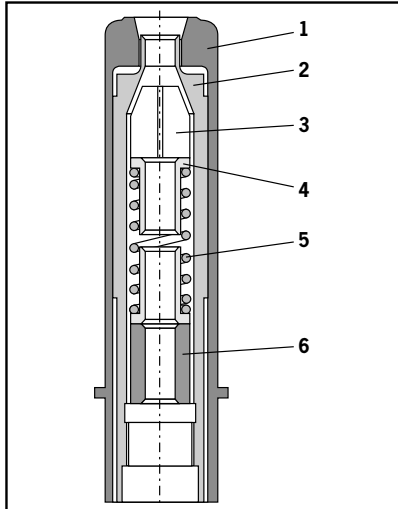
- For straight nose assemblies, remove using the reverse procedure to the 'Fitting Instructions'.
- Particularly check wear on jaws.
- Ensure spring and spring guides (if fitted) are not worn or distorted.
- To dismantle offset nose assembly follow the next six steps.
- Remove cover Screws **30** and Cover **31**.
- Remove Retaining Ring **17**.
- On $\frac{3}{16}$ " offset adaptor only, remove Washer **18** and 'O' Ring **20**.
- Remove Nylon Washer **19**.
- Remove Jaws **23** from Insert **24**.
- Remove 'O' Ring **21** from groove in Jaws **23**.
- Clean and inspect components, renewing worn or damaged items.
- Assemble in reverse order to dismantling.

*Refers to items included in the 07220 Service Kit. For complete list see page 14.
Item numbers in **bold** refer to the drawings and parts list on page 12.

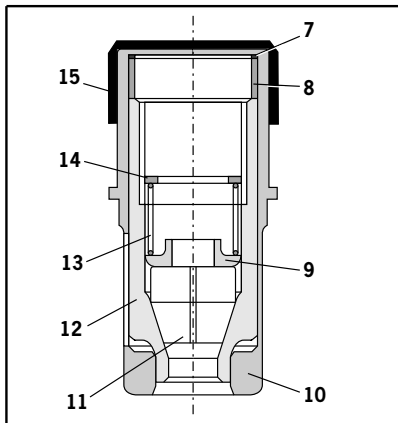
Nose Assemblies

Components

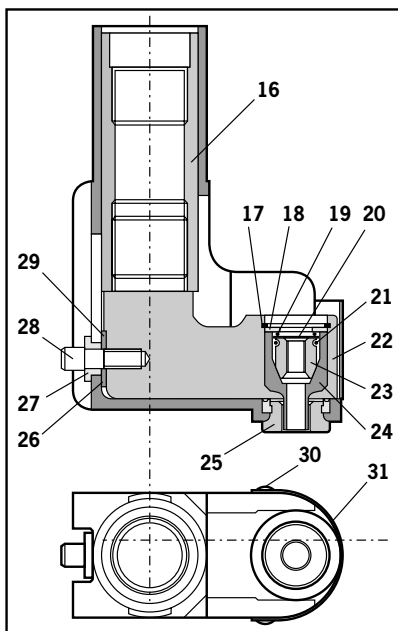
Each nose assembly represents a unique assembly of components which can be ordered individually. Component numbers refer to the illustrations. We recommend some stock as items will need regular replacement. Read the Nose Assemblies servicing instructions carefully.



COMPONENT PART NUMBERS OF ROUND, HORIZONTAL FLATS AND VERTICAL FLATS STRAIGHT NOSE ASSEMBLIES						
DESCRIPTION	ANVIL	CHUCK COLLET	CHUCK JAWS	SPRING GUIDE	SPRING	SPACER
ITEM N°	1	2	3	4	5	6
QTY	1	1	3	2	1	1
NOSE ASSY						
07200-02500	07200-02501	07200-02101	07220-02102	07220-02104	07220-02103	-
07200-02600	07200-02601	07200-02201	07220-02302	07220-02104	07220-02103	-
07200-02700	07200-02701	07200-02101	07220-02102	07220-02104	07220-02103	-
07200-02800	07200-02801	07200-02201	07220-02302	07220-02104	07220-02103	-
07200-03300	07200-03301	07200-03302	07220-02302	07220-02104	07220-02103	-
07200-03500	07200-03501	07200-02201	07220-02302	07220-02104	07220-02103	-
07220-02000	07220-02001	07220-02002	07220-02003	07220-02603	07220-02605	-
07220-02700	07220-02601	07220-02701	07220-02606	07220-02603	07220-02605	07220-02604
07220-03400	07220-03401	07220-03402	07220-02606	07220-02603	07220-02605	07220-02604
07220-03500	07220-03501	07220-03502	07220-02003	07220-02603	07220-02605	-
07220-05600	07220-05401	07220-02701	07220-02606	07220-02603	07220-02605	07220-02604



COMPONENT PART NUMBERS OF SHORT NOSE ASSEMBLIES 07220-06100			
ITEM N°	DESCRIPTION	PART NUMBER	QTY
7	SHIM	07220-06106	1
8	LOCK COLLAR	07220-06105	1
9	FOLLOWER CAP	07220-06107	1
10	ANVIL	07220-06103	1
11	CHUCK JAW	07220-02003	3
12	CHUCK COLLET	07220-06104	1
13	SPRING	07220-06101	1
14	WASHER	07220-06102	1
15	PROTECTIVE CAP	07220-02108	1



COMPONENT PART NUMBERS OF OFFSET NOSE ASSEMBLIES				
ITEM N°	DESCRIPTION	NOSE ASSY 07220-02800	NOSE ASSY 07220-02900	QTY
16	ADAPTOR SLEEVE	07220-02805	07220-02805	1
17	RETAINING RING	07004-00010	07004-00010	1
18	WASHER	07220-02811	07220-02811	1
19	NYLON WASHER	07220-02816	-	1
20	'O' RING	07003-00026	-	1
21	'O' RING	07003-00030	07003-00030	1
22	OPERATING ARM	07220-02809	07220-02809	1
23	JAWS	07220-02815	07220-02902	3
24	INSERT	07220-02810	07220-02903	1
25	ANVIL	07220-03200	07220-03300	1
26	SHIM	07220-02813	07220-02813	1
27	LOCATING BUSH	07220-02807	07220-02807	1
28	SCREW	07220-02814	07220-02814	1
29	PAD	07220-02812	07220-02812	1
30	COVER SCREWS	07001-00010	07001-00010	2
31	COVER	07220-02804	07220-02804	1

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.
- Check for oil leaks.
- 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. If a filter is fitted, drain it.
- Check that the nose equipment is correct.
- Ensure Deflector **52** is fitted to the tool.
- Check that the stroke of the tool meets the minimum specification (page 5). It is the distance travelled by the chuck collet with nose equipment fitted, measured **before trigger is pressed and when trigger is fully depressed**.

Weekly

- Check for air leaks on air supply hose and fittings.
- Dismantle and clean nose assembly, with special attention to jaws (lubricate with Moly Lithium grease EP 3753 before refitting).
- Lubricate cam faces and bearing faces on collar splitters with Moly Lithium grease EP 3753.

Moly Lithium Grease EP 3753 Safety Data

Grease can be ordered as a single item, the part number is shown in the Service Kit page 14.

First Aid

SKIN:

As the grease is completely water resistant it is best removed with an approved emulsifying skin cleaner.

INGESTION:

Ensure the individual drinks 30ml Milk of Magnesia, preferably in a cup of milk.

EYES:

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

Fire

FLASH POINT: Above 220°C.

Not classified as flammable.

Suitable extinguishing media: CO₂, Halon or water spray if applied by an experienced operator.

Environment

Scrape up for burning or disposal on approved site.

Handling

Use barrier cream or oil resistant gloves.

Storage

Away from heat and oxidising agent.

Item numbers in **bold** refer to the General Assembly drawings and Parts List pages 18-19.

Servicing the Tool

Service Kit

For all servicing we recommend the use of the Service Kit (part number 07900-02200).

SERVICE KIT			SERVICE KIT (Continued)		
ITEM PART N°	DESCRIPTION	N° OFF	ITEM PART N°	DESCRIPTION	N° OFF
07900-00043	HEAD PISTON BULLET	1	07900-00068	POWER PISTON ASSY. SLEEVE	1
07900-00130	POWER PISTON BULLET	1	07900-00069	SWIVEL ADAPTOR BULLET	1
07900-00045	POWER CYLINDER SLEEVE	1	07900-00070	POWER CYLINDER PLUG	1
07900-00150	PACKING PLUG WRENCH TOOL	1	07900-00073	PRIMING PUMP ASSY.	1
07900-00051	VALVE PISTON WRENCH ASSY. TOOL	1	07900-00077	'O' RING ASSY. TOOL	1
07900-00054	VALVE PISTON ROD BAR	1	07900-00078	5/32" ALLEN KEY	1
07900-00055	PISTON ROD WRENCH ASSY.	1	07900-00079	3/8" ALLEN KEY	1
07900-00131	BASE REMOVAL TOOL ASSY.	1	03201-00621	PIP PIN (For removal of air piston)	1
07900-00063	BASE REMOVAL TOOL STOP RING	1	07007-00066	7/16" IMPACT SOCKET	1
07900-00064	NOSE LOCKING SPRING ASSY. TOOL	1	07900-00490	5/8" BOX SPANNER	1
07900-00065	RETURN CYLINDER ASSY. TOOL	1			

NOTE: Spanner sizes are measured 'across flats' unless otherwise specified.

Maintenance

Every 500,000 cycles the tool should be completely dismantled and new components should be used where worn, damaged or when recommended. All 'O' rings and seals should be renewed and lubricated with Moly Lithium grease EP 3753 before assembling.

I M P O R T A N T
Safety Instructions appear on page 4.
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.

Dismantling Procedures

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

HEAD ASSEMBLY

- Connect tool to air supply.
- Depress Trigger **87** and hold.
- Disconnect air supply and release trigger.
- Remove Screws **50** using Allen key*.
- Lift off Head Assembly **53**.
- Remove Screw **75** using Allen key* and remove Washer **74**.
- Allow oil to drain.
- Remove Gasket **51** and 'O' Ring **95**.
- Hold Head Assembly **53** in vice fitted with soft jaws, with Return Cylinder **56** uppermost.
- Place return cylinder assembly tool* over Return Cylinder **56** and tighten clinch screw.
- Use tool to unscrew cylinder from Head Assembly **53**.
- Remove tool.
- Withdraw Return Piston **58** and Spring **59**.
- Remove 'O' Ring **60**.
- Pull pintail deflector from Deflector Fitting **61**.
- Remove Deflector Fitting **61** by removing Retaining Ring **65**.
- Remove six Screws **50** using Allen key*.
- Slightly rotate Head Cap **17(63)** and pull out.
- Remove 'O' Ring **64**, Lip Seal **15** and Wiper Ring **14 (66,67)**.
- Place a flat rectangular bar approximately 1/2" thick in slot of Head Extension Assembly **55** and unscrew from Head Sub-assembly **68**.
- Remove Thrust Washer **77** and Shim **76**.
- Gently tap Head Piston **54** out of rear of Head Assembly **53**.
- Remove Lip Seal **16 (72,73)** from Head Sub-assembly **68**.
- Remove Anti-extrusion Ring **71** and Seal **70** from Head Piston **54**.
- Pressure Regulating Screw **85** is factory set and should not normally be disturbed. If attention is required note number of turns of Pressure Regulating Screw **85** necessary to bring the screw level with surface of head cylinder.
- Remove Pressure Regulating Screw **85** and withdraw Spring **84**, Spring Guide **83** and steel Ball **82**.
- Using a suitable screwdriver, engage slot of Ball Seat **78** and unscrew from head cylinder.
- Remove Seal **79** from head cylinder.
- Complete assembly in reverse order to dismantling. Ensure Spring Guide **83** is fitted correct way round and that Pressure Regulating Screw **85** is in its original position. When assembling Head Piston **54** into Head Sub-assembly **68** use head piston bullet* fitted over piston threads.
- When re-attaching Head Assembly **53** to Handle Assembly **1**, care must be taken to ensure correct alignment between Gasket **51**, 'O' Ring **95** and Screws **50**.
- To assist with alignment, apply a thin film of Molycot 111 grease to the upper surface of Gasket **51** and then stick the gasket to the base of Head Assembly **53**, ensuring correct alignment with the 'O' Ring **95** and screw holes.
- Any overlap between Gasket **51** and 'O' Ring **95** must be avoided.
- The grease will hold Gasket **51** in the correct position when attaching head Assembly **53** to Handle Assembly **1**.

* Items in parenthesis for tools prior to ser. no 14000.

* Refers to items included in the 07220 Service Kit. For complete list see page 14. Item numbers in **bold** refer to the General Assembly drawing and Parts List (pages 18-19).

Maintenance

Dismantling Procedures

HANDLE ASSEMBLY

- Connect tool to air supply.
- Depress Trigger **87** and hold.
- Disconnect air supply and release trigger.
- Remove Screws **50** using Allen key*.
- Lift off Head Assembly **53**.
- Pour oil from handle into suitable container.
- Using a spanner, remove Swivel Bolt **23**.
- Using Allen key*, remove four Screws **44** and lift off Valve Assembly **18**.
- Stand handle upside down and remove Retaining Ring **38** using a suitable screwdriver.
- Lift out Base Cover **35**.
- Using a suitable screwdriver remove Retaining Ring **36**.
- Locate stop ring* over base of Handle **2**.
- Place base removal tool* over base of Handle **2** and align two screws in removal tool with two tapped holes in Handle Base **34**.
- Engage and tighten two screws provided. Screw down three remaining screws until Handle Base **34** is released.
- Remove Retaining Ring **33**, Buffer Assembly **32** and 'O' Ring **37** from Handle Base **34**.
- To remove Air Piston Sub-assembly **40** insert piston rod wrench* into top of power Piston Assembly **47**.
- Using a suitable $\frac{3}{8}$ " socket and extension bar unscrew Nut **39**.
- Tap power Piston Assembly **47** out of Air Piston Sub-assembly **40**.
- Insert pip pin* into hole in Air Piston Sub-assembly **40** and withdraw air piston sub-assembly from Handle **2**.
- Remove Seal **31** from Air Piston Sub-assembly **40**.
- Push power Piston Assembly **47** out of top of Handle **2**. Remove Seal **48** and Anti-extrusion Ring **49**.
- Place Handle **2**, air cylinder upwards in bench vice fitted with soft jaws.
- Using packing plug wrench tool*, engage dogs on tool into holes in Packing Plug **3** and unscrew.
- Remove 'O' Ring **13** from Handle **2**.
- Remove Retaining Rings **10** from both ends of Packing Plug **3** and lift out Washer **6**, Seal **12** and Anti-extrusion Ring **5** from top Packing Plug **3**.
- Lift out Washer **6** and 'O' Ring **4** from bottom of Packing Plug **3**.
- Remove Handle **2** from bench vice and stand upright, i.e. on air cylinder.
- Using power cylinder installation and removal tool*, tap Power Cylinder **8** downwards until free.
- Remove Seal **9** from Power Cylinder **8** and 'O' Ring **11**.
- Remove Trigger Sleeve **89** with box spanner*.
- Pull out Trigger **87** and remove 'O' Ring **88**.
- Assemble Seal **9** onto Power Cylinder **8** using 'O' ring assembly tool*.
- Before fitting Power Cylinder **8** to Handle **2**, place power piston assembly sleeve* over Seal **9**. Replace 'O' Ring **11** onto Power Cylinder **8**.
- Before fitting power Piston Assembly **47**, fit power piston bullet* over rod and power piston assembly sleeve* over piston.
- Before fitting 'O' Rings **24** to Swivel Bolt **23**, place swivel adaptor bullet* over swivel bolt threads.
- Complete assembly in reverse order to dismantling. Ensure seals and anti-extrusion rings are fitted in the right order.
- When re-attaching Head Assembly **53** to Handle Assembly **1**, care must be taken to ensure correct alignment between Gasket **51**, 'O' Ring **95** and Screws **50**.
- To assist with alignment, apply a thin coat of Molycote 111 grease to the upper surface of Gasket **51** and then stick the gasket to the base of Head assembly **53** ensuring correct alignment with 'O' Ring **95** and the screw holes.
- Any overlap between Gasket **51** and 'O' Ring **95** must be avoided.
- The grease will hold Gasket **51** in the correct position when attaching head Assembly **53** to Handle Assembly **1**.

* Refers to items included in the 07220 Service Kit. For complete list see page 14.
Item numbers in **bold** refer to General Assembly drawings and Parts List (pages 18-19).

Maintenance

Dismantling Procedures

AIR VALVE

- Remove Valve Seat **45** and Gasket **41** together with Slide Valve **42** and slide valve Spring **43**.
- Unscrew Valve Stop **20** from Valve Block **19** using suitable spanner*.
- Withdraw Spring **21**.
- Unscrew Valve Cylinder Cap **30** from Valve Block **19** and remove Gasket **28**.
- Insert suitable rod into hole in Valve Shaft **26**. Engage dogs of valve piston wrench assembly tool* in holes of Valve Piston **29** and unscrew.
- Remove 'O' Ring **27**.
- Assemble in reverse order to dismantling.

SILENCER

- Remove two Screws **91** and extract sintered Silencer **93** and neoprene Gasket **90**.
- Thoroughly clean silencer or renew if worn before refitting.

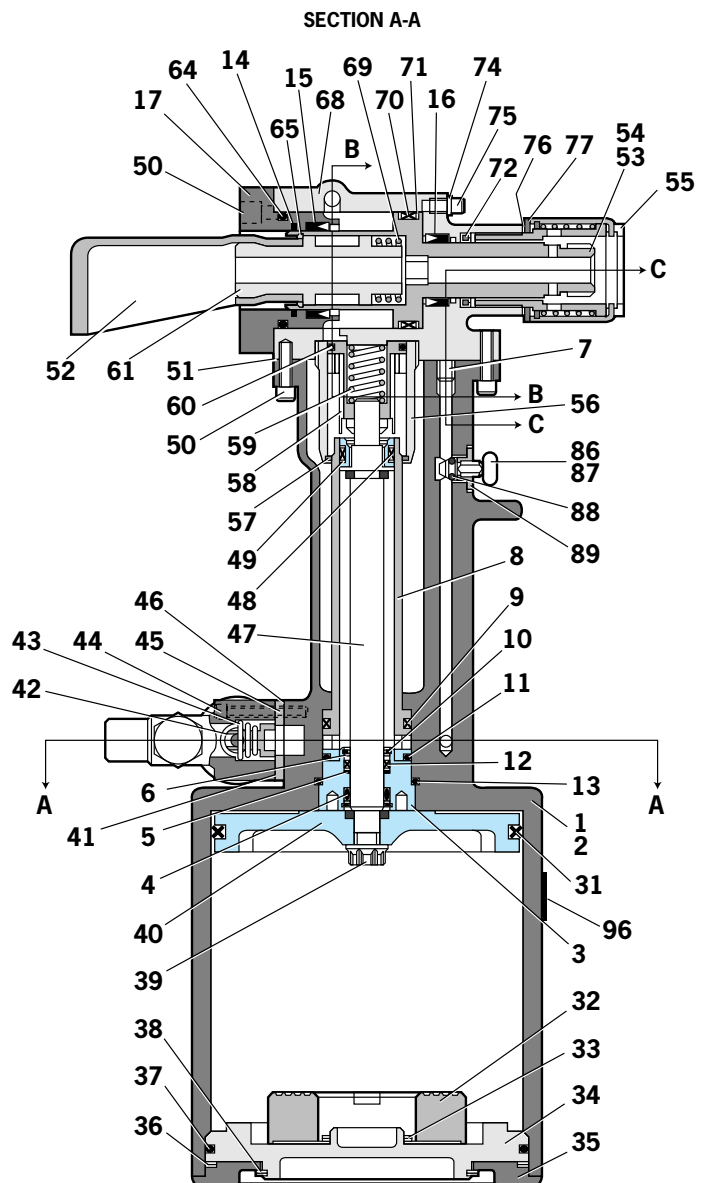
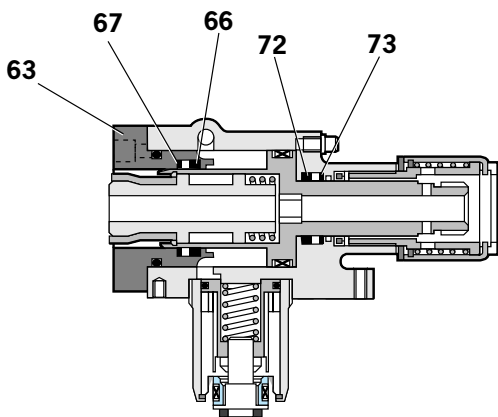
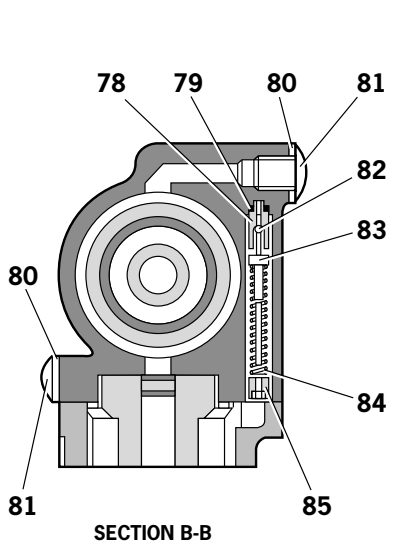
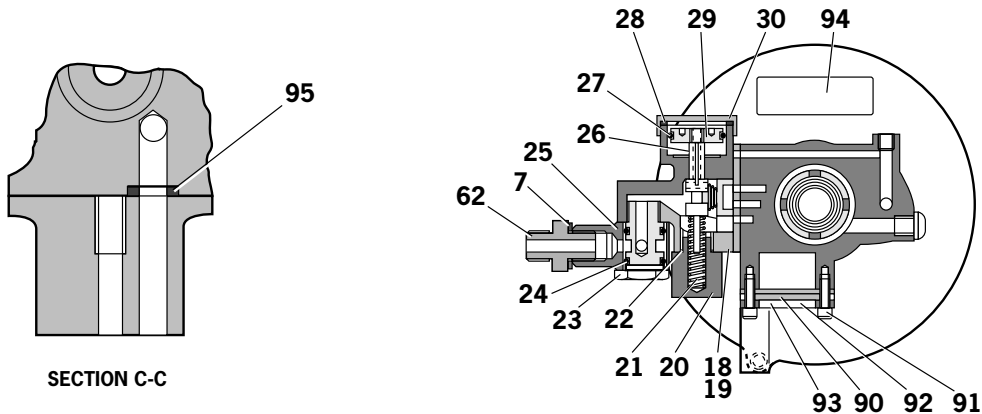
I M P O R T A N T

Check the tool against daily and weekly servicing.

Priming is ALWAYS necessary after the tool has been dismantled and prior to operating.

* Refers to items included in the 07220 Service Kit. For complete list see page 14.
Item numbers in **bold** refer to General Assembly drawings and Parts List (pages 18-19).

General Assembly of Base Tool 07220-00200



Parts List for 07220-00200

07220-00200 PARTS LIST									
ITEM	PART N°	DESCRIPTION	QTY	SPARES	ITEM	PART N°	DESCRIPTION	QTY	SPARES
1	07220-07300	HANDLE ASSEMBLY	1	-	50	07001-00001	SCREW	12	24
2	07220-01600	• HANDLE	1	-	51	07220-00201	GASKET	1	5
3	07220-00304	• PACKING PLUG	1	1	52	07220-00215	DEFLECTOR	1	10
4	07003-00058	• 'O' RING	1	10	53	07220-00400	HEAD ASSEMBLY	1	-
5	07003-00006	• ANTI - EXTRUSION RING	1	5	54	07220-00403	• HEAD PISTON	1	-
6	07220-00306	• WASHER	2	10	55	07220-01500	• HEAD EXTENSION ASSEMBLY	1	-
7	07005-00015	WASHER	1	-	56	07220-00414	• RETURN CYLINDER	1	-
8	07220-00303	• POWER CYLINDER	1	-	57	07004-00004	• RETAINING RING	1	-
9	07003-00003	• SEAL	1	10	58	07220-00416	• RETURN PISTON	1	-
10	07004-00002	• RETAINING RING	2	5	59	07220-00417	• SPRING	1	5
11	07003-00064	• 'O' RING	1	10	60	07003-00012	• 'O' RING	1	10
12	07003-00005	• SEAL	1	10	61	07220-00405	• DEFLECTOR FITTING	1	-
13	07003-00004	• 'O' RING	1	5	62	07005-00041	DOUBLE MALE CONNECTOR	1	-
14	07003-00380	WIPER RING	1	5	63	07220-00425	• HEAD CAP	1	-
15	07003-00378	LIP SEAL	1	5	64	07003-00068	• 'O' RING	1	5
16	07003-00379	LIP SEAL	1	5	65	07004-00003	• RETAINING RING	1	10
17	07220-00430	HEAD CAP	1	-	66	07003-00117	• SEAL	1	5
18	07220-00500	VALVE ASSEMBLY	1	-	67	07003-00118	• SEAL	1	5
19	07220-00511	• VALVE BLOCK	1	-	68	07220-01400	• HEAD SUB - ASSEMBLY	1	-
20	07220-00507	• VALVE STOP	1	-	69	07220-00415	• SPRING	1	5
21	07220-00506	• SPRING	1	2	70	07003-00007	• SEAL	1	10
22	07003-00017	• 'O' RING	1	5	71	07003-00008	• ANTI - EXTRUSION RING	2	5
23	07220-00509	• SWIVEL BOLT	1	-	72	07003-00115	• SEAL	2	10
24	07003-00105	• 'O' RING	2	5	73	07003-00116	• SEAL	1	5
25	07220-00508	• SWIVEL	1	-	74	07220-00424	• WASHER	1	15
26	07220-00503	• VALVE SHAFT	1	-	75	07001-00089	• SCREW	1	-
27	07003-00147	• 'O' RING	1	10	76	07220-00409	• SHIM	1	10
28	07220-00512	• GASKET	1	5	77	07220-00407	• THRUST WASHER	1	5
29	07220-00504	• VALVE PISTON	1	-	78	07220-00411	• BALL SEAT	1	-
30	07220-00505	• VALVE CYLINDER CAP	1	-	79	07003-00011	• SEAL	1	5
31	07003-00020	SEAL	1	5	80	07003-00099	• SEAL	2	10
32	07220-01100	BUFFER ASSEMBLY	1	1	81	07001-00008	• SCREW	2	10
33	07004-00035	RETAINING RING	1	-	82	07007-00043	• BALL	1	5
34	07220-00220	HANDLE BASE	1	-	83	07220-00429	• SPRING GUIDE	1	2
35	07220-00222	BASE COVER	1	-	84	07220-00428	• SPRING	1	5
36	07004-00001	RETAINING RING	1	-	85	07220-00420	• PRESSURE REGULATING SCREW	1	5
37	07003-00002	'O' RING	1	10	86	07220-00800	TRIGGER ASSEMBLY	1	-
38	07004-00034	RETAINING RING	1	-	87	07220-00801	• TRIGGER	1	-
39	07002-00017	NUT	1	5	88	07003-00022	• 'O' RING	1	10
40	07220-01300	AIR PISTON SUB - ASSEMBLY	1	-	89	07220-00803	• TRIGGER SLEEVE	1	-
41	07220-00208	GASKET	1	5	90	07220-00227	GASKET	1	5
42	07220-00202	SLIDE VALVE	1	-	91	07001-00109	SCREW	2	10
43	07220-00204	SPRING	1	1	92	07220-00225	COVER PLATE	1	1
44	07001-00002	SCREW	4	12	93	07220-00226	SILENCER	1	1
45	07220-00206	VALVE SEAT	1	-	94	07220-00216	LABEL	1	-
46	07220-00205	GASKET	1	5	95	07003-00001	'O' RING	1	10
47	07220-01200	PISTON ASSEMBLY	1	-	96	07220-00217	TRANSFER	1	-
48	07003-00018	SEAL	1	5					
49	07003-00019	ANTI - EXTRUSION RING	2	5					

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 (part number 07992-00002) or one gallon containers (part number 07992-00006). Please see safety data below.

Hyspin® VG32 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

Suitable extinguishing media: CO₂, 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

DO NOT OPERATE THE TRIGGER WHILE THE BLEED SCREW IS REMOVED.

All operations should be carried out on a clean bench, with clean hands in a clean area.

Ensure that the priming pump is free from foreign matter and 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.

- Thoroughly clean the exterior of the placing tool.
- Stand the tool in an upright position on the bench and connect to air supply.
- Depress and hold Trigger **87** and, while Air Piston Sub-assembly **40** is in the bottom position, disconnect the air supply from the tool.
- Push Head Piston **54** to rear position.
- Remove lower front side Screw **81** and Seal **80**.
- Attach priming pump part number 07900-00073 filled with priming oil.
- Remove upper rear Screw **81** and Seal **80** on the opposite side of the head.
- Using the priming pump, pump oil through until non-aerated oil issues freely.
- Replace upper rear side Screw **81** and Seal **80**.
- Remove front Screw **75** and Washer **74** on top of front head casting. Continue to pump oil until non-aerated oil issues freely.
- Replace Screw **75** and Washer **74**.
- Attach tool to air supply. Head piston will immediately return to the forward position forcing excess oil and air back into the priming pump.
- Remove priming pump and replace Screw **81** and Seal **80**.

Item numbers in **bold** refer to General Assembly drawings and Parts List (pages 18-19).

Fault Diagnosis

Symptom	Possible Cause	Remedy	Page Ref
Short stroke or incomplete return	Reduced air pressure	Adjust air pressure. Check for leaks	7
	Leaking head/handle gasket	Replace gasket	
	Oil level in tool low or air in oil	Reprime tool	20
Tool fails to grip Lockbolt	Incorrect nose assembly fitted	Change to correct nose assembly	10
	Broken jaws in nose assembly	Replace	11
	Worn or dirty jaws	Clean or renew as necessary	11
Tool fails to break Lockbolt	Insufficient air pressure	Adjust air pressure/air leaks	7
	Incorrect length of bolt	Change to correct length bolt	
	Tool requires priming	Reprime tool	20
	Tool exhaust silencer dirty	Clean silencer	
	Control valve dirty	Remove/clean valve	
Tool fails to swage collar	Insufficient air pressure	Adjust air pressure	7
	Worn anvils	Replace	
	Tool requires priming	Reprime tool	20
	Swaging anvil cracked	Replace	
	Incorrect length of bolt	Change to correct length bolt	
Tool slows and fails to actuate	Exhaust silencer dirty	Clean silencer	17
	Control valve dirty	Remove and clean valve	

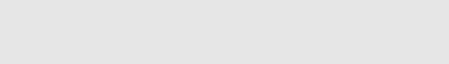
Other symptoms or failures should be reported to your local Avdel® authorised distributor or repair centre.

Notes

Declaration of Conformity

We, Avdel UK Limited, Watchmead Industrial Estate, Welwyn Garden City, Herts, AL7 1LY
declare under our sole responsibility that the product:

Model Type 07220

Serial No. 

to which this declaration relates is in conformity with the following standards:

EN ISO 12100 - parts 1 & 2

BS EN ISO 8662 - part 6

BS EN ISO 3744

ISO EN 792 part 13 - 2000

BS EN ISO 11202

BS EN 982

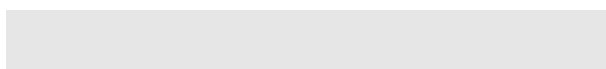
BS EN 983

following the provisions of the Machine Directive 2006/42/EC



A. Seewraj - Product Engineering Manager - Automation Tools

Date of issue





**This box contains a power tool which is in
conformity with Machines Directive
2006/42/EC. The 'Declaration of Conformity'
is contained within.**

AUSTRALIA

Infastech (Australia) Pty Ltd.

891 Wellington Road
 Rowville
 Victoria 3178
 Tel: +61 3 9765 6400
 Fax: +61 3 9765 6445
 info@infastech.com.au

CANADA

Avdel Canada Limited

1030 Lorimar Drive
 Mississauga
 Ontario L5S 1R8
 Tel: +1 905 364 0664
 Fax: +1 905 364 0678
 infoAvdel-Canada@infastech.com

CHINA

Infastech (China) Ltd.

RM 1708, 17/F., Nanyang Plaza,
 57 Hung To Rd., Kwun Tong
 Hong Kong
 Tel: +852 2950 0631
 Fax: +852 2950 0022
 infochina@infastech.com

FRANCE

Avdel France S.A.S.

33 bis, rue des Ardennes
 BP4
 75921 Paris Cedex 19
 Tel: +33 (0) 1 4040 8000
 Fax: +33 (0) 1 4208 2450
 AvdelFrance@infastech.com

GERMANY

Avdel Deutschland GmbH

Klusriede 24
 30851 Langenhagen
 Tel: +49 (0) 511 7288 0
 Fax: +49 (0) 511 7288 133
 AvdelDeutschland@infastech.com

INDIA

Infastech Fastening Technologies

India Private Limited

Plot No OZ-14, Hi Tech SEZ,
 SIPCOT Industrial Growth Center,
 Oragadam, Sriperumbudur Taluk,
 Kanchipuram District,
 602105 Tamilnadu
 Tel: +91 44 4711 8001
 Fax: +91 44 4711 8009
 info-in@infastech.com

ITALY

Avdel Italia S.r.l.

Viale Lombardia 51/53
 20047 Brugherio (MI)
 Tel: +39 039 289911
 Fax: +39 039 2873079
 vendite@infastech.com

JAPAN

Infastech Kabushiki Kaisha

Center Minami SKY,
 3-1 Chigasaki-Chuo, Tsuzuki-ku,
 Yokohama-city,
 Kanagawa Prefecture
 Japan 224-0032
 Tel: +81 45 947 1200
 Fax: +81 45 947 1205
 info@infastech.co.jp

MALAYSIA

Infastech (Malaysia) Sdn Bhd

Lot 63, Persiaran Bunga Tanjung 1,
 Senawang Industrial Park
 70400 Seremban
 Negeri Sembilan
 Tel: +606 676 7168
 Fax: +606 676 7101
 info-my@infastech.com

SINGAPORE

Infastech (Singapore) Pte Ltd.

31 Kaki Bukit Road 3
 #05-03/06 Techlink
 Singapore, 417818
 Tel: +65 6372 5653
 Fax: +65 6744 5643
 info-sg@infastech.com

SOUTH KOREA

Infastech (Korea) Ltd.

212-4, Suyang-Ri,
 Silchon-Eup, Kwangju-City,
 Kyunggi-Do, Korea, 464-874
 Tel: +82 31 798 6340
 Fax: +82 31 798 6342
 info@infastech.co.kr

SPAIN

Avdel Spain S.A.

C/ Puerto de la Morcuera, 14
 Poligono Industrial Prado Overa
 Ctra. de Toledo, km 7,8
 28919 Leganés (Madrid)
 Tel: +34 91 3416767
 Fax: +34 91 3416740
 ventas@infastech.com

TAIWAN

Infastech/Tri-Star Limited

No 269-7, Baodong Rd,
 Guanmiao Township,
 71841 Tainan County,
 Taiwan, R.O.C
 Tel: +886 6 596 5798 (ext 201)
 Fax: +886 6 596 5758
 info-tw@infastech.com

UNITED KINGDOM

Avdel UK Limited

Pacific House
 2 Swiftfields
 Watchmead Industrial Estate
 Welwyn Garden City
 Hertfordshire AL7 1LY
 Tel: +44 (0) 1707 292000
 Fax: +44 (0) 1707 292199
 enquiries@infastech.com

USA

Avdel USA LLC

614 NC Highway 200 South
 Stanfield, North Carolina 28163
 Tel: +1 704 888 7100
 Fax: +1 704 888 0258
 infoAvdel-USA@infastech.com

Manual No.	Issue	Change Note No.
07900-00648	B	07/044
	B2	07/103
	B3	08/326
	B4	11/061

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