



# Instruction Manual

Original Instruction



## **AV™ 15 Installation Tool – 73432-02000**

Hydro-Electric 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 one hundred and eighty (180) days 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 Instructions

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

- 1** Do not use outside the design intent.
- 2** Do not use equipment with this tool/machine other than that recommended by Avdel® UK Limited.
- 3** Any modification undertaken by the customer to the tool/machine shall be the customer's entire responsibility.
- 4** Always fully disconnect the tool from the hydraulic pump unit before attempting to adjust, remove or fit the nose assembly.
- 5** Do not operate a tool/machine that is directed towards any person(s).
- 6** Always adopt a firm footing or a stable position before operating the tool/machine.
- 7** It is recommended that ear and eye protection be worn by the operator and those in the vicinity.
- 8** Do not fit flexible hoses rated at less than 700bar (10,000 PSI) working pressure.
- 9** Avoid damaging hydraulic hoses. Avoid sharp bends and kinks when routing hydraulic hoses. Using a bent or kinked hose will cause severe back-pressure. Sharp bends and kinks will internally damage the hose leading to premature hose failure.
- 10** Do not drop heavy objects on hoses. A sharp impact may cause internal damage to hose wire strands and lead to premature hose failure.
- 11** Do not lift the placing tool by the hoses. Always use the placing tool handle.
- 12** Do not pull or move the hydraulic pump unit using the hoses. Always use the pump unit handle or roll cage.
- 13** The operating pressure shall not exceed 550bar (8,000 PSI).
- 14** Care shall be taken to ensure that spent pintails are not allowed to create a hazard.
- 15** The flexible pintail deflector must always be attached to the tool and in good condition.
- 16** Take care to avoid entanglement of loose clothes, ties, long hair, cleaning rags etc. in the moving parts of the tool.
- 17** The tool should be kept clean and dry for the best possible grip.
- 18** When carrying the tool from place to place keep hands away from the trigger to avoid inadvertent start up.
- 19** The 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 the machine without prior reference to the maintenance instructions. Contact Avdel® with your training requirements.
- 20** The machine shall at all times be operated in accordance with relevant Health & Safety legislation. In the UK the "Health & Safety at Work etc Act 1974" applies. Any question regarding the correct operation of the machine must be directed to Avdel®.

# Safety Instructions

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**AVDEL® RECOMMENDS THAT ONLY AVDEL®/ENERPAC® HYDRAULIC PUMP UNITS BE USED TO DRIVE INSTALLATION TOOLS, AS OTHER MAKES OF HYDRAULIC POWER UNITS MAY NOT OPERATE AT THE SAFE DESIGNED WORKING PRESSURES.**

**ENSURE THAT THERE IS ADEQUATE CLEARANCE FOR THE TOOL OPERATOR'S HANDS BEFORE PROCEEDING.**

**DO NOT ABUSE THE TOOL BY DROPPING OR USING IT AS A HAMMER.**

**KEEP DIRT AND FOREIGN MATTER OUT OF THE HYDRAULIC SYSTEM OF THE TOOL AS THIS WILL CAUSE THE TOOL AND PUMP UNIT TO MALFUNCTION.**

# Specification

## Intent of Use

The AV™ 15 Installation Tool is principally a piston and cylinder assembly. When coupled hydraulically and electrically to a compatible hydraulic power source and the relevant nose assembly is attached, it is then used to install 1/2" Infalok® and 1/2" Avbolt® in Industrial Environments.

The placing tool and hydraulic pump unit may only be used in accordance with the operating instructions for placing Avdel® fasteners.

Refer to the table below for the list of applicable fasteners and associated nose equipment.  
Refer to the datasheets listed in the table for the relevant nose assembly instructions.

FASTENER		NOSE ASSEMBLY			NOSE ASSEMBLY DATASHEET
TYPE	SIZE	PART NUMBER	DIM. 'A'	DIM. 'B'	PART NUMBER
AVBOLT®	1/2"	73432-03100	108 mm	43 mm	07900-00905
		73433-03100*	108 mm	43 mm	07900-00905
INFALOK®	1/2"	73432-03200	107 mm	43 mm	07900-00919
		73433-03200*	107 mm	43 mm	07900-00919

\*Nose assembly with jaw release.

Refer to the illustration on page 6 for the identification of the nose assembly dimensions 'A' and 'B'.

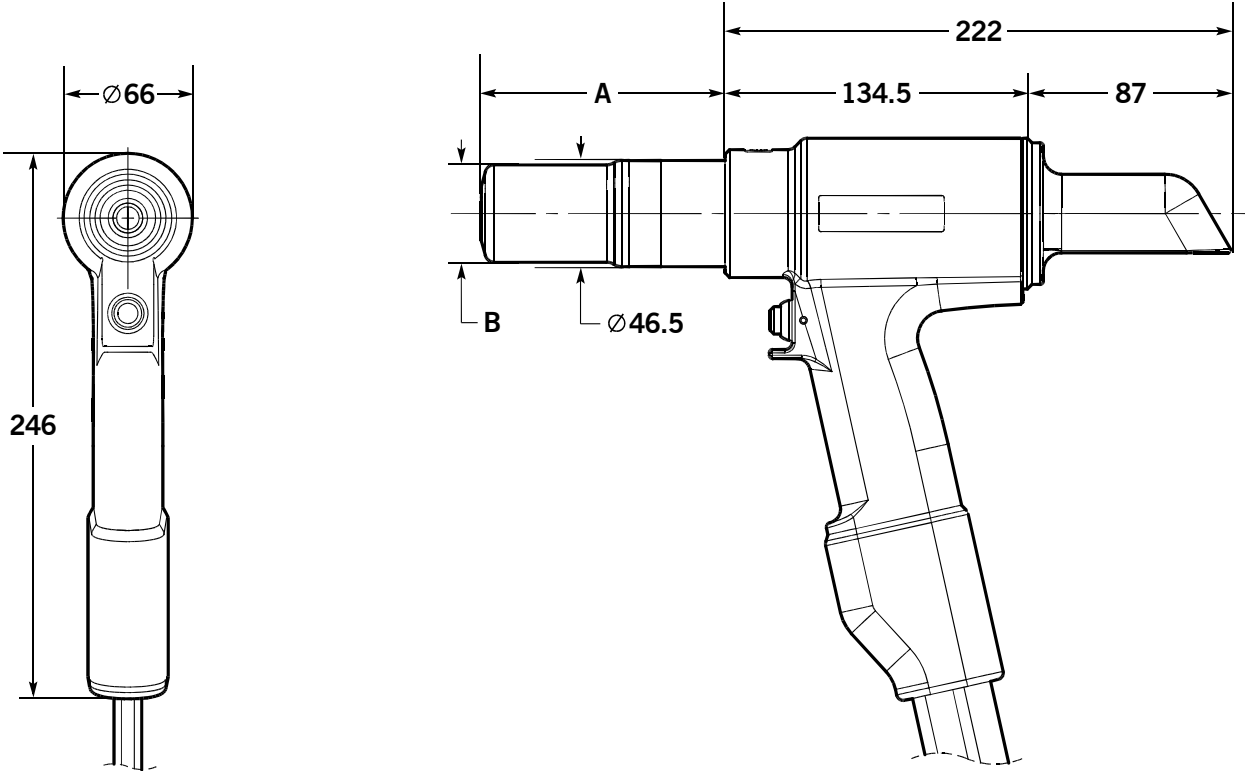
The safety instructions must be followed at all times.

## Placing Tool Specification

SPECIFICATION		METRIC	IMPERIAL
<b>Force:</b>	Pull at stated pull pressure	80.0 kN	17984.7 lbf
	Push Off at stated return pressure	37.0 kN	8317.9 lbf
<b>Pressure:</b>	Pull	510 bar	7397 PSI
	Return	200 bar	2901 PSI
<b>Stroke:</b>	Piston Stroke	32.0 mm	1.26 in
<b>Weight:</b>	Without nose equipment	4.5 kg	9.9 lb
<b>Noise Level:</b>	Less than	80 dB(A)	
<b>Vibration:</b>	Less than	2.5 m/s <sup>2</sup>	8 ft/s <sup>2</sup>
<b>Hydraulic Oil:</b>	Enerpac® Hydraulic Oil – HF-95X		
<b>Product Range:</b>	Avbolt®	12.7 mm	1/2 in
	Infalok®	12.7 mm	1/2 in
<b>Additional Features:</b>	Stem Ejection – Front or Rear	Rear	
	Seal Arrangement	Twin Lip and Wiper Seals	
	Hydraulic Bearing Rings	Yes – Front and Rear	
	Protective Handle / Hose Gator	Yes	
	Protective Hose Guard	Yes	
	Hose / Cable Retention Clamps	Yes	

# Specification

## Placing Tool Dimensions



All dimensions are shown in millimetres.

Refer to the table on page 5 for the nose assembly dimensions 'A' and 'B'.

The tool is fitted with two Hydraulic Hoses and an electrical Control Cable, 0.6m in length. Additional hydraulic hose and cable extension lengths are available to order separately as required. Refer to the table below for the available hose assembly lengths and associated part numbers.

HYDRAULIC HOSE ASSEMBLY	
PART NUMBER	HOSE LENGTH
07008-00448	5 Metre
07008-00449	10 Metre
07008-00450	15 Metre

# Putting Into Service

## Principle of Operation

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### **IMPORTANT - READ BOTH THE SAFETY INSTRUCTIONS ON PAGE 3 AND 4 AND THE PUMP UNIT INSTRUCTION MANUAL CAREFULLY BEFORE PUTTING INTO SERVICE**

When both hoses and control cable are connected to the Avdel®/Enerpac® hydraulic pump unit, the pull and return cycles of the tool are controlled by depressing and releasing the trigger located in the handle.

When the switch is depressed the solenoid valve, located in the hydraulic pump unit, is energised and directs the pressurised oil flow to the pull side of the piston in the placing tool. This also allows the oil in the return side of the placing tool to return to the reservoir.

During the pull cycles the piston/collet assembly moves towards the rear of the tool allowing the O-ring type cushion to push the follower and jaws forward. If a fastener pin has been inserted in the nose assembly, the jaw set will clamp onto the pintail and assembly will commence.

For Avbolt® and Infalok® the cycle of installation will first clamp the joint to be fastened and then as the anvil continues to move forward the collar will be swaged into the locking grooves of the pin. At the end of the swaging cycle the anvil will come up against the joint and as movement continues the pintail will be broken off.

The trigger switch should be released immediately after pin break occurs. Releasing the trigger switch will cause the solenoid to de-energise and reverse the flow of pressurised oil.

If the trigger is not released, the placing tool piston will continue to move towards the rear of the tool until it reaches the end of its stroke. The pressure in the pull side will then increase until a preset 'High Pressure' value is achieved at the pump. At this point the solenoid valve will automatically de-energise and reverse the flow of pressurised oil to the return side of the placing tool.

In either case, pressurised oil will now flow into the return side of the placing tool, with the oil in the pull side returning to the reservoir.

The forward movement of the piston/collet assembly will eject the installed fastener from the anvil.

At the point of releasing the trigger or when the 'High Pressure' value is achieved, the solenoid valve will de-energise and activate a preset 'Return Timer'. This controls the time that the pump motor will continue run before switching to the idle mode. The timer can be manually set between 5 and 20 seconds to ensure that the placing tool piston always fully returns to the forward position (refer to pump manual 07900-01030, pages 10 and 13).

When the piston returns to the fully forward position, the pressure will increase to preset low pressure value - c200bar. The pump motor will continue to run until the Return Timer has expired. After this time period the motor will stop automatically and valve will switch to the idle position. The solenoid valve will then automatically cycle to release pressurised oil to the reservoir from both the pull and return side of the placing tool.

This keeps the installation tool in the forward position. No pressure will be present in the hydraulic system at this point.

The hydraulic pump unit will automatically start up on depression of the tool trigger switch.

# Putting Into Service

## Preparation for Use

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**CAUTION - CORRECT PULL AND RETURN PRESSURES ARE IMPORTANT FOR PROPER FUNCTION OF THE INSTALLATION TOOL. PERSONAL INJURY OR DAMAGE TO EQUIPMENT MAY OCCUR WITHOUT CORRECT PRESSURES. THE PULL AND RETURN PRESSURES SUPPLIED BY THE HYDRAULIC PUMP UNIT MUST NOT EXCEED THOSE PRESSURES LISTED IN THE PLACING TOOL SPECIFICATION**

**IMPORTANT – BEFORE PUTTING THE PLACING TOOL AND HYDRAULIC HOSE SET INTO SERVICE:**

**ENSURE THAT THE PUMP PRESSURE RELIEF VALVES HAVE BEEN SET IN ACCORDANCE WITH THE PUMP INSTRUCTIONS AND THE MAXIMUM PRESSURES SPECIFIED FOR THE PLACING TOOL AND HOSES.**

**ENSURE THAT THE HOSE KIT IS PRIMED WITH HYDRAULIC FLUID IN ACCORDANCE WITH THE PROCEDURE IN THE PUMP INSTRUCTION MANUAL 07900-01030.**

- Ensure the mains power supply to the hydraulic pump unit is switched off.
- Connect the placing tool hydraulic hose quick couplers directly to the pump unit before connecting the electrical control cable. Hoses and control cable must be connected in this order and disconnected in reverse order.
- Switch on the mains supply to the hydraulic pump unit. Wait 5 seconds for the pump unit to complete the boot sequence, before pressing the trigger switch. When all set the LCD screen on the pump unit will display 'AVDEL'.
- During the boot sequence the pump control system identifies any trigger operation as a potential malfunction and prevents the motor from starting. The LCD screen will display 'BUTTON FAULT' in this instance. Reset by switching off the power supply for 10 seconds.
- Ensure that the placing tool is positioned below the pump reservoir tanks. Depress and release the placing tool trigger switch a few times to almost the full stroke of the tool to circulate hydraulic fluid and expel any air from the tool.
- Observe action of tool. Check for fluid leaks and ensure that in the idler mode the piston is in the fully forward position. The placing tool will now be primed.
- Switch off the mains power supply to the hydraulic pump unit and then disconnect the placing tool from the pump unit in reverse order to that described above.
- Now connect the placing tool to the primed hydraulic hose kit and electrical control cable. Then connect hydraulic hose kit quick couplers and the electrical control cable to the pump unit.
- Attach the nose assembly to the tool as per the instructions in the relevant nose assembly datasheet.
- Switch on the mains supply to the hydraulic pump unit as described above.
- Depress and release the placing tool trigger switch a few times to almost the full stroke of the tool to circulate hydraulic fluid.
- The placing tool is now ready for use.



# Putting Into Service

## Operating Instructions

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### To Install an Avbolt® Fastener

- Check work and remove excessive gap. (Gap is the space between components of the Joint. Gap is excessive if not enough pintail sticks through the collar for the nose assembly jaws to grab onto).
- Put Avbolt® fastener into hole.
- Push nose assembly onto pin until the nose assembly anvil stops against the collar. Tool and nose assembly must be held at right angles (90°) to the work.
- Depress tool trigger switch to start installation cycle.
- When the forward motion of the nose assembly anvil stops and the pintail breaks off, release the trigger. The tool will go into its return stroke and push off the installed fastener. At the end of the return stroke the jaws will partially release the expended pintail which can then be pushed through the jaws with the next installation and then ejected through the rear of the tool.
- Once the installed fastener been ejected, the tool and nose assembly is ready for the next installation.

### To Install an Infalok® Fastener

- Check work and remove excessive gap. (Gap is the space between components of the Joint. Gap is excessive if not enough pintail sticks through the collar for the nose assembly jaws to grab onto).
- Put Infalok® fastener into hole.
- Slide Infalok® collar over pin. (The beveled end of the collar must be towards the nose assembly and tool.)
- Push nose assembly onto pin until the nose assembly anvil stops against the collar. Tool and nose assembly must be held at right angles (90°) to the work.
- Depress tool trigger switch to start installation cycle.
- When the forward motion of the nose assembly anvil stops and the pintail breaks off, release the trigger. The tool will go into its return stroke and push off the installed fastener. At the end of the return stroke the jaws will partially release the expended pintail which can then be pushed through the jaws with the next installation and then ejected through the rear of the tool.
- Once the installed fastener been ejected, the tool and nose assembly is ready for the next installation.

**CAUTION - DO NOT ATTEMPT TO BREAK OFF A PINTAIL WITHOUT THE INSTALLATION OF A COLLAR AS THIS WILL CAUSE THE UNSECURED PORTION OF THE AVBOLT® OR INFALOK® PINTAIL TO EJECT FROM THE NOSE AT A HIGH SPEED AND FORCE.**

# Servicing the Tool

**IMPORTANT - READ SAFETY INSTRUCTIONS ON PAGE 3 AND 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 TOOL SHALL BE EXAMINED REGULARLY FOR DAMAGE AND MALFUNCTION.**

## Daily

- Check placing tool, hoses and quick couplers for oil leaks.
- Worn or damaged hoses and couplings should be replaced.
- Check that the stroke of tool meets the specification.
- Check that the stem deflector is fitted.
- Check that the pump pull / advance pressure relief valve is functioning correctly.
- Check for worn anvil indicated by score marks on the installed collar. This can also be confirmed by referring to the installed data in the fastener catalogue. Excessive wear can cause the anvil to rupture.

## Weekly

- Dismantle and clean the nose assembly especially the jaws as described in the relevant nose assembly datasheet.
- Check for oil leaks in placing tool, hoses and quick couplers.

## Annually or every 250k operations

- Every 250,000 cycles the tool should be completely dismantled and new components should be used where worn, damaged or as recommended. All O-rings, back-up rings and seals should be renewed and lubricated with MolyKote® 111 grease before assembling.

## Service Kit

For a complete service the following Service Kit is available:

SERVICE KIT: 73432-99990			
PART NUMBER	DESCRIPTION	PART NUMBER	DESCRIPTION
07005-10118	Quick Coupler - Male	07900-00966	AV15 Piston Guide Sleeve
07005-10120	Quick Coupler - Female	07900-00967	AV15 End Cap Assembly Tool
07900-00961	AV15 Piston Bullet - Front	07992-00020	Grease – MolyLithium EP3753
07900-00962	AV15 Piston Bullet - Rear	07900-00755	Grease – Molykote® 111
07900-00965	AV15 Front Gland Guide Rod	07900-00756	Loctite® 243 Threadlocker

The following standard tools are also required:

- Allen Key: 2.0 / 3.0 mm
- Open End Flat Spanner: 12 / 14 / 18 / 24 / 45 mm A/F
- PTFE Tape: 10 mm
- Engineers Vice with Jaw Guards – 150 mm

# Servicing the Tool

Use only Enerpac® HF hydraulic oil – the use of any other oil may cause the placing tool and pump to malfunction and will render the placing tool warranty null and void. Hydraulic oil is available to order under the following part numbers.

HYDRAULIC OIL			
PART NUMBER	07992-00081	07992-00082	07992-00083
Enerpac® Part Number	HF-95X	HF-95Y	HF-95T
Volume	1 Litre	5 Litres	20 Litres
Viscosity	32 mm <sup>2</sup> /s	32 mm <sup>2</sup> /s	32 mm <sup>2</sup> /s

## Dismantling Instructions

**IMPORTANT – ENSURE THE MAINS POWER SUPPLY TO THE HYDRAULIC PUMP UNIT IS SWITCHED OFF BEFORE REMOVING THE NOSE ASSEMBLY OR DISMANTLING THE PLACING TOOL.**

### Before Dismantling:

- Uncouple the Quick Couplers **10** and **11** and the electrical Control Cable **14** between the placing tool and the Hydraulic Hose Assembly.
- Remove the nose assembly from the placing tool as per the instructions in the nose assembly datasheet.

For a complete service of the tool, we advise that you proceed with dismantling the tool in the order shown on pages 11 to 14. After dismantling the tool we recommend that you replace all seals.

All numbers in bold refer to the General Assembly and Parts List on pages 15, 16 and 17.

### Head Piston Assembly:

- Using a small flat screwdriver, remove the Pin **41** from the Collet Adapter **40**.
- Unscrew and remove the Collet Adapter **40** from the Piston **1**.
- Remove the Deflector **3**, from the End Cap **17**.
- Clamp the tool handle in a vice with soft jaws so that the tool is pointing nose down. Insert the dowel pins on the \*End Cap Assembly Tool into the three holes in the End Cap **17**.
- Using a 24 mm A/F spanner, unscrew and remove the End Cap **17**, from the Body **2**.
- Using a small flat screwdriver, remove O-Ring **21** from the End Cap **17** and discard.
- Connect the spare \*Quick Coupler - Male to the Quick Coupler – Female **11** on the Hydraulic Hose - Return **18**. This will release pressure from the return side of the Piston and ease the removal of the Rear Seal Gland **16**.
- Insert three M4 screws into the Rear Seal Gland **16**, and use them to pull the part off the rear shaft of the Piston **1** and out of the Body **2**.
- Using a small flat screwdriver or similar tool, remove O-Ring **30** and Spiral Back-up Ring **36**, from the external groove on the Rear Seal Gland **16**, and discard. When removing the seals, take care not to damage the surface of the Rear Seal Gland with the screwdriver.
- Remove Rod Seal **28** and Wiper Seal **31**, from the internal grooves on the Rear Seal Gland **16**, and discard. When removing the seals, take care not to damage the surface of the Rear Seal Gland with the screwdriver.

All numbers in **bold** refer to the General Assembly and Parts List on pages 15, 16 and 17.

\* Service Kit on page 10

# Servicing the Tool

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- Remove Rear Bearing Ring **29** and check the part for wear or damage. Discard if necessary.
- Remove the placing tool from the vice and empty the hydraulic oil from the rear of the tool. Remove the spare \*Quick Coupler – Male from the Quick Coupler - Female **11**.
- Connect the spare \*Quick Coupler - Female to the Quick Coupler - Male **10** on the Hydraulic Hose – Pull **19**. This will release any pressure from the pull side of the Piston **1** and ease the removal of the Piston.
- Screw the \*Piston Bullet - Front on to the front of the Piston **1**.
- Place the Body **2** nose up on a bench. Then using a soft mallet, tap the Piston **1** towards the rear of the Body and out the back end, taking care not to damage the bore within the Body.
- Note that when removing the Piston **1**, oil on the pull side of the Piston will leak from the front and rear of the Body **2**.
- When removing the Piston **1**, the Front Seal Gland **15** may be retained on the Piston shaft. If this is the case, unscrew the \*Piston Bullet - Front and pull the Front Seal Gland off of the Piston.
- Using a small flat screwdriver remove Piston Seal **26** and the two Anti-Extrusion Rings **27**, from the external groove on the Piston **1**, and discard. When removing the seals, take care not to damage the surface of the Piston with the screwdriver.
- If the Front Seal Gland **15** is still retained in the Body **2**. Place the Body nose up on a bench and then push the Front Seal Gland from the front until it is free from the recess within Body. The Front Seal Gland can then be removed from the back end of the Body. Take care not to damage the bore within the Body when doing so.
- Using a small flat screwdriver remove O-Ring **23** and Spiral Back-up Ring **34**, from the external groove on the Front Seal Gland **15**, and discard. When removing the seals, take care not to damage the surface of the Front Seal Gland with the screwdriver.
- Remove Rod Seal **25** and Wiper Seal **22**, from the internal grooves on the Front Seal Gland **15**, and discard. When removing the seals, take care not to damage the surface of the Front Seal Gland with the screwdriver.
- Remove the Front Bearing Ring **24** and check the part for wear or damage. Discard if necessary.
- Using a small flat screwdriver, remove O-Ring **21** from the Body **2** and discard.
- Remove the spare \*Quick Coupler - Female from the Quick Coupler – Male **10** on the Hydraulic Hose – Pull **19**.
- Do not remove Set Screw **42** from the Body **2**.

## Assemble in reverse order to dismantling noting the following points:

- Clean all components before assembling.
- To aid assembly of seals apply a light coating of Molykote® 111 grease to all seals, seal grooves, back-up rings and the assembly tools.
- Slide O-Ring **23** over the Front Seal Gland **15** and into the external groove. Insert the Spiral Back-up Ring **34** in the same groove, in front of the installed O-Ring. Refer to the General Assembly and Parts List for the correct orientation of the O-Ring and Spiral Back-up Ring.

All numbers in **bold** refer to the General Assembly and Parts List on pages 15, 16 and 17.

\* Service Kit on page 10

# Servicing the Tool

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- Press the Front Bearing Ring **24** into the internal recess within the Front Seal Gland **15** and then install Rod Seal **25** behind the Front Bearing Ring. Install the Wiper Seal **22** in the front recess of the Front Seal Gland. Refer to the General Assembly to ensure the correct orientation of the Rod Seal and Wiper Seal.
- Lubricate the surface and leading edge of the Body **2** bore into which the Front Seal Gland **15** is to be installed with Molykote® 111 grease.
- Lubricate the spigot on the \*Front Gland Guide Rod tool and then place the Front Seal Gland **15**, Rod Seal **25** end first, fully over spigot. Insert \*Front Gland Guide Rod into the rear of the Body **2** and then push the Front Seal Gland fully into the bore within the Body. Reasonable force is required to insert Front Seal Gland into the Body, so the use of a press or vice may be necessary. Remove the \*Front Gland Guide Rod while ensuring that the Front Seal Gland stays in place.
- Lubricate the seal groove and major external diameter of the Piston **1** with Molykote® 111 grease. Slide the Piston Seal **26** over the front of the major Piston diameter and into the seal groove. Install two Anti-Extrusion Rings **27** into the Piston seal groove, one either side of the Piston Seal.
- Screw the \*Piston Bullet - Front on to the front of the Piston **1**. Lubricate the \*Piston Bullet - Front, Piston shaft and Piston Seal **26** with Molykote® 111 grease.
- Screw the \*Piston Guide Sleeve fully into the rear of the Body **2**. Lubricate the bores in both the Body and the \*Piston Guide Sleeve with Molykote® 111 grease.
- Connect the spare \*Quick Coupler - Female to the Quick Coupler - Male **10** on the Hydraulic Hose – Pull **19**. This will allow air to be released from the pull side Piston **1** when inserting the Piston.
- Insert the assembled Piston **1** into the rear of the Body **2** and through the assembled Front Seal Gland **15**. Push the Piston into the fully forward position until it stops against the Front Seal Gland. Hydraulic oil will be expelled from the Hydraulic Hose – Pull **19**.
- Remove the spare \*Quick Coupler - Female from the Quick Coupler - Male **10** on the Hydraulic Hose **19**. Remove the \*Piston Guide Sleeve from the rear of the Body **2**.
- Slide O-Ring **30** over the Rear Seal Gland **16** and into the external groove. Insert the Spiral Back-up Ring **36** in the same groove, behind the installed O-Ring. Refer to the General Assembly and Parts List for the correct orientation of the O-Ring and Spiral Back-up Ring.
- Press the Rear Bearing Ring **29** into the internal recess within the Rear Seal Gland **16** and then install Rod Seal **28** behind the Rear Bearing Ring. Install the Wiper Seal **31** in the rear recess of the Rear Seal Gland. Refer to the General Assembly to ensure the correct orientation of the Rod Seal and Wiper Seal.
- Clamp the tool handle in a vice with soft jaws so that the tool is pointing nose down.
- Lubricate the surface and leading edge of the Body **2** bore into which the Rear Seal Gland **16** is to be installed with Molykote® 111 grease. Lubricate the rear Piston **1** shaft with Molykote® 111 grease.
- Insert the \*Piston Bullet - Rear into the rear Piston **1** shaft and Lubricate with Molykote® 111 grease.
- Fill the rear of the Body **2** with Enerpac® HF hydraulic oil. Oil level should be just above the rear inlet bore into the Body.
- Connect the spare \*Quick Coupler - Male to the Quick Coupler - Female **11** on the Hydraulic Hose - Return **18**. This will allow air to be released from the return side of the Piston when inserting the Rear Seal Gland **16**.

All numbers in **bold** refer to the General Assembly and Parts List on pages 15, 16 and 17.

\* Service Kit on page 10

# Servicing the Tool

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- Place the Rear Seal Gland **16** over the \*Piston Bullet - Rear. Then push the Rear Seal Gland over the Piston **1** shaft and into the rear of the Body **2**. Push the Rear Seal Gland into the Body until a few internal threads are exposed at the rear of the Body. Take care not to damage the O-Ring **30** and Spiral Back-up Ring **36** on the threads when inserting the Rear Seal Gland.
- Lubricate both the internal thread in the Body **2** and the external thread on End Cap **17** with MolyLithium Grease.
- Screw the End Cap **17** fully into the rear of the Body **2** using the \*End Cap Assembly Tool. In doing so, the Rear Seal Gland **16** will be pressed into position within the Body and a small amount of oil will be expelled from the Hydraulic Hose - Return **18**.
- Remove spare \*Quick Coupler - Male from the Quick Coupler - Female **11** on the Hydraulic Hose – Return **18**.
- Push the Deflector **3**, on the End Cap **17**.
- Screw the Collet Adapter **40** on to the Piston **1** until the front face is flush with the end of the Piston. Align the hole in the Collet Adapter with the slot in the end of the Piston and then insert Locking Pin **41**.
- Prime the placing tool as described in Preparation for Use on page 8.

## Hose Assembly:

- Remove the two Screws **9** from the Hose Clamp **13** using a 3.0mm Allen Key. Remove the Hose Clamp and Clamp Insert **20** from the Protective Sleeve **37** and Hydraulic Hoses **18** and **19**.
- Using the small flat screwdriver prize the Handle Gator **8** from the handle of Body **2**. Pull the Handle Gator over the Protective Sleeve **37**, Hydraulic Hoses **18** and **19** and remove.
- Cut the Cable Tie **35** and slide back the Protective Sleeve **37** to expose the fittings on the Hydraulic Hoses **18** and **19**. The Hydraulic Hoses can be removed from the Body **2** using 12mm and 14mm spanners.
- The Quick Couplers **10** and **11** can be removed from the Hydraulic Hoses **18** and **19** using 18mm and 24mm spanners.
- To remove Trigger Switch **7**, first loosen Cable Gland **38**, so that the Control Cable **14** is free to move within the Body **2**. Then undo M4 Set Screw **12** using a 2.0mm Allen Key.
- Push the Control Cable **14** into the Body **2** and simultaneously pull the Trigger Switch **7** out of the Body to expose the solder joints on the Trigger Switch terminals. Unsolder the terminals to remove the Trigger Switch and Trigger Insert **39**. The Trigger Insert is bonded to the Trigger Switch and cannot be removed.
- The Control Cable **14** can now be pulled from the Body **2** and removed from the Protective Sleeve **37**.

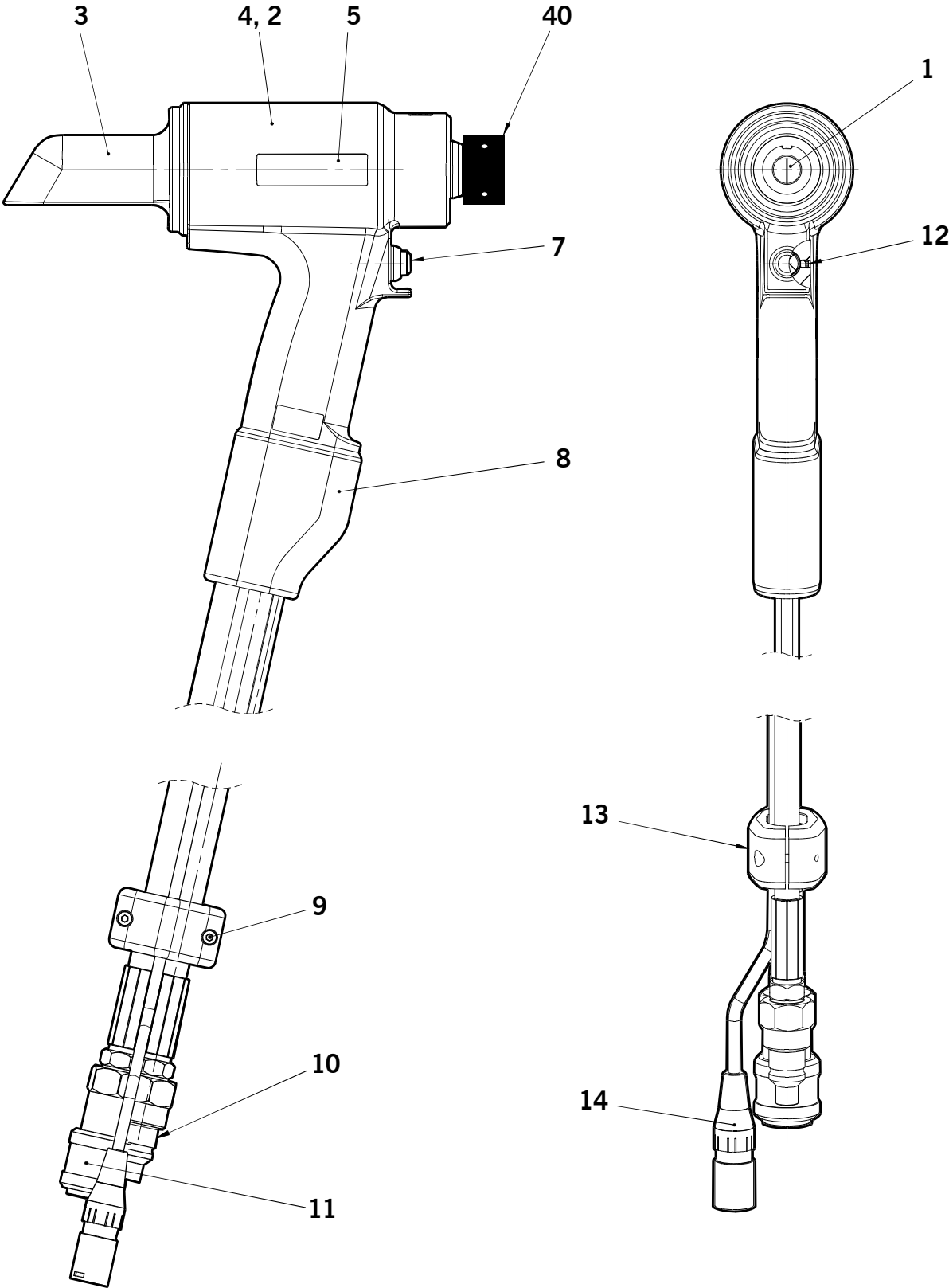
## Assemble in reverse order to dismantling noting the following points:

- Prior to assembly clean all threads on the Quick Couplers - Male **10** and Female **11** and the Hydraulic Hoses – Return **18** and Pull **19**. Apply 2 to 3 layers of 10mm PTFE tape to the male threads of both Hydraulic Hoses.
- When replacing the Trigger Switch **7** apply Loctite® 243 to the male thread on the Trigger Switch before assembling the Trigger Insert **39**.
- Apply Loctite® 243 to M4 Set Screw **12** prior to assembly.
- Once assembled, prime the tool as per the instructions on page 8.

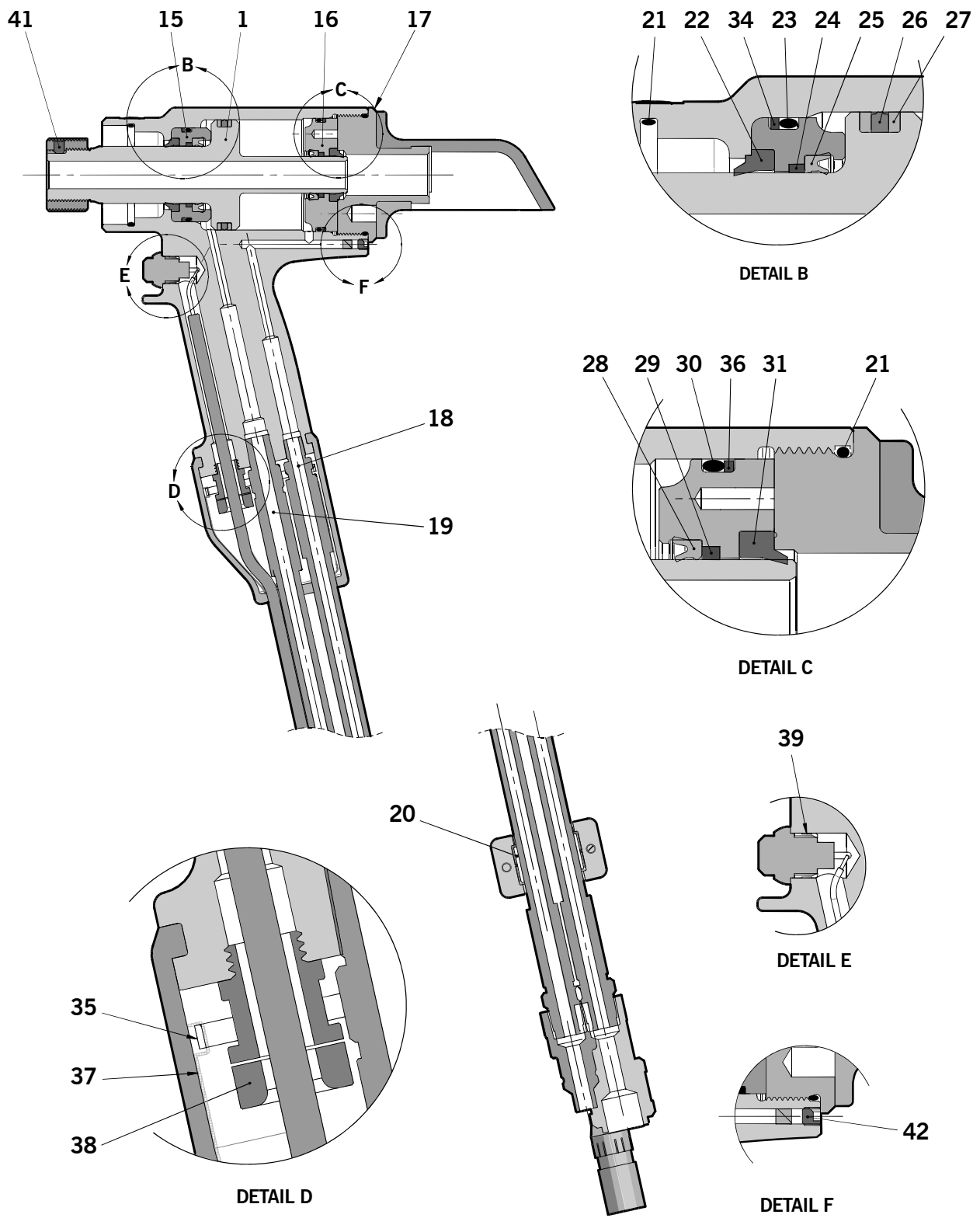
All numbers in **bold** refer to the General Assembly and Parts List on pages 15, 16 and 17.

\* Service Kit on page 10

# General Assembly of Installation Tool 73432-02000



# General Assembly of Installation Tool 73432-02000





# Parts List for Installation Tool 73432-02000

<b>73432-02000 Parts List</b>			
<b>ITEM</b>	<b>PART NUMBER</b>	<b>DESCRIPTION</b>	<b>QTY.</b>
1	73432-02003	PISTON	1
2	73432-02001	BODY	1
3	73432-02011	DEFLECTOR	1
4	73430-02025	SAFETY LABEL	1
5	73432-02026	AV15 LABEL	2
6			
7	07007-02103	TRIGGER SWITCH	1
8	73430-02020	HANDLE GATOR	1
9	07001-00686	M4 X 16 SKT CAP HD SCREW	2
10	07005-10118	QUICK COUPLER - MALE	1
11	07005-10120	QUICK COUPLER - FEMALE	1
12	07001-00479	M4 X 4 SKT SET SCREW	1
13	73430-02023	HOSE CLAMP	1
14	07007-02105	CONTROL CABLE	1
15	73432-02004	FRONT SEAL GLAND	1
16	73432-02006	REAR SEAL GLAND	1
17	73432-02005	END CAP	1
18	07005-10119	HYDRAULIC HOSE - RETURN	1
19	07005-10117	HYDRAULIC HOSE - PULL	1
20	73430-02024	CLAMP INSERT	1
21	07003-00460	O-RING	2
22	07003-00446	WIPER SEAL	1
23	07003-00459	O-RING	1
24	73432-02009	FRONT BEARING RING	1
25	07003-00445	ROD SEAL	1
26	07003-00449	PISTON SEAL	1
27	07003-00450	ANTI-EXTRUSION RING	2
28	07003-00447	ROD SEAL	1
29	73432-02010	REAR BEARING RING	1
30	07003-00462	O-RING	1
31	07003-00448	WIPER SEAL	1
32			
33			
34	07003-00493	SPIRAL BACK-UP RING	1
35	07007-02032	CABLE TIE	1
36	07003-00495	SPIRAL BACK-UP RING	1
37	07005-10121	PROTECTIVE SLEEVE	0.6m
38	07007-02104	CABLE GLAND	1
39	73430-02008	TRIGGER INSERT	1
40	73432-02012	COLLET ADAPTER - AV15	1
41	73432-02013	LOCKING PIN - AV15	1
42	07001-00481	M5 X 5 SKT SET SCREW	1
-	07900-01021	AV15 TOOL INSTRUCTION MANUAL	1

# Safety Data

## **Enerpac® HF Hydraulic Oil - Safety Data**

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### **FIRST AID**

#### **SKIN:**

Unlikely to cause harm to the skin on brief or occasional contact but prolonged or exposure may lead to dermatitis. Wash skin thoroughly with soap and water as soon as reasonably practicable. Remove heavily contaminated clothing and wash underlying skin.

#### **ORAL:**

Unlikely to cause harm if accidentally swallowed in small doses, though larger quantities may cause nausea and diarrhea. If contamination of the mouth occurs, wash out thoroughly with water. Except as a deliberate act, the ingestion of large amounts of product is unlikely. If it should occur, do not induce vomiting; obtain medical advice. Take person to nearest medical centre.

#### **EYES:**

Unlikely to cause more than transient stinging or redness if accidental eye contact occurs. Wash eyes thoroughly with copious quantities of water, ensuring eyelids are held open. Obtain medical advice if any pain or redness develops or persists.

#### **MEDICAL ADVICE:**

Treatment should in general be symptomatic and directed to relieving any effects.

#### **Note:** High Pressure Applications:

Injections through the skin, resulting from contact with the product at high pressure, constitute a major medical emergency. Injuries may not appear serious at first but within a few hours tissue becomes swollen, discoloured and extremely painful with extensive subcutaneous necrosis.

Surgical exploration should be undertaken without delay. Thorough and extensive debridement of the wound and underlying tissue is necessary to minimize tissue loss and prevent or limit permanent damage. Note that high pressure may force the product considerable distances along tissue planes.

### **DISPOSAL**

Remove all spills with inert absorbent material. Ventilate spill area. Place contaminated materials in a disposable container and dispose in a manner consistent with local regulations.

### **FIRE**

FLASH POINT: 200°C.

Extinguish with either dry chemical, foam or carbon dioxide. Do not enter confined space without self contained breathing apparatus.

### **HANDLING**

Use barrier cream or oil resistant gloves.

### **STORAGE**

Undercover and consistent with local regulations for inflammable material.

## **MolyLithium Grease EP 3753 - Safety Data**

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Grease can be ordered as a single item, the part number is shown in the Service Kit page 10.

### **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.

# Safety Data

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## **FIRE**

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.

## **ENVIRONMENT**

Scrape up for incineration or disposal on approved site.

## **HANDLING**

Use barrier cream or oil resistant gloves

## **STORAGE**

Away from heat and oxidising agent.

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## **Molykote® 111 Grease - Safety Data**

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Grease can be ordered as a single item, the part number is shown in the Service Kit page 10.

## **FIRST AID**

SKIN:

No first aid should be needed.

INGESTION:

No first aid should be needed.

EYES:

No first aid should be needed.

INHALATION:

No first aid should be needed.

## **FIRE**

FLASH POINT: Above 101.1°C. (closed cup)

Explosive Properties: No

Suitable Extinguishing Media: Carbon Dioxide Foam, Dry Powder or fine water spray. Water can be used to cool fire exposed containers.

## **ENVIRONMENT**

No adverse effects are predicted.

## **HANDLING**

General ventilation is recommended. Avoid eye contact.

## **STORAGE**

Do not store with oxidizing agents. Keep container closed and store away from water or moisture.

# Fault Diagnosis

SYMPTOM	POSSIBLE CAUSE	REMEDY	PAGE REF.
Placing Tool will not operate	Inoperative pump unit	Check pump power supply and refer to pump unit instruction manual	
	Faulty Quick Couplers <b>10</b> and <b>11</b>	Replace Quick Couplers	14
	Trigger Control Cable <b>14</b> not connected correctly	Check Control Cable is correctly connected at pump and placing tool	8
	Damaged Trigger Switch <b>7</b> or Control Cable <b>14</b>	Replace Trigger Switch and/or Control Cable	14
Trigger Switch <b>7</b> does not function	Pump in local mode	Refer to pump instruction manual	
	Trigger Switch <b>7</b> , Control Cable <b>14</b> or connector damaged	Replace Trigger Switch and/or Control Cable	14
Pump running but placing tools does not function	Hydraulic Hoses not connected	Check for correct connections at pump and placing tool	8
	Low oil level	Ensure placing tool is filled with oil and correctly primed Refer to pump instruction manual	8
	Placing tool external oil leak	Inspect placing tool – replace worn or damaged components	11 - 14
	Hose Assembly external oil leak	Inspect Hose Assembly – ensure hose connections are tight and/or replace damaged hose connectors	14
	Pump internal/external oil leak	Refer to pump instruction manual	
Placing tool operates erratically	Low or erratic hydraulic pressure supply	Refer to pump instruction manual	
	Worn or damaged hydraulic seals in placing tool	Inspect placing tool – replace worn or damaged seals	11 - 14
	Worn or damaged hydraulic sealing surfaces in placing tool	Inspect placing tool – replace worn or damaged components	11 - 14
	Pump internal/external oil leak	Refer to pump instruction manual	
Pump builds full pressure, but pintail does not break	Breakload greater than placing tool capacity at full pressure	Refer to placing tool specification	5
	Flow to placing tool blocked	Check Quick Couplers <b>10</b> and <b>11</b> for full engagement	8
	Pump pressure relief valve set too low	Adjust pressure relief valve settings – refer to pump instruction manual	
	Pull grooves on fastener pintail stripped	See Symptom on page 21	9
	Improper tool operation		9

# Fault Diagnosis

SYMPTOM	POSSIBLE CAUSE	REMEDY	PAGE REF.
Placing tool Piston <b>1</b> will not return	Return flow restricted or blocked	Check Quick Couplers <b>10</b> and <b>11</b> for full engagement and/or fault	8
	Hydraulic Hoses not connected	Check for correct connections at pump and placing tool	8
	Pump valve malfunction	Refer to pump instruction manual	
Placing tool does not eject the collar from the anvil	Pump Return Timer setting incorrect – set too low	Adjust Return Timer to recommended setting – refer to pump instruction manual	
	Pump return pressure relief valve set too low	Adjust return pressure relief valve to correct setting – refer to pump instruction manual	
	Low or erratic hydraulic pressure supply	Refer to pump instruction manual	
	Worn or damaged hydraulic seals in placing tool	Inspect placing tool – replace worn or damaged seals	11 - 14
	Worn or damaged hydraulic sealing surfaces in placing tool	Inspect placing tool – replace worn or damaged components	11 - 14
	Pump internal/external oil leak	Refer to pump instruction manual	
Pull grooves on fastener pintail stripped during installation	Operator not pushing nose completely onto fastener pintail before operating tool	Instruct operator in correct installation method	9
	Incorrect fastener length / grip length	Use correct fastener	9
	Worn or damaged jaw segments	Check and replace jaw set – refer to nose equipment datasheet	
	Debris in jaw segments and/or pintail grooves	Clean jaw segments – refer to nose equipment datasheet	
Avbolt® or Infalok® collar not fully swaged	Excessive sheet gap	Close gap between sheets	9
	Improper tool operation		9
Pintail fails to release from nose equipment	Worn Anvil bore	Check and replace Anvil – refer to nose equipment datasheet	
	Incorrect assembly of nose equipment	Refer to nose equipment datasheet	
Placing tool and Hydraulic oil runs hot	Restriction in hydraulic line	Check hydraulic Quick Couplers <b>10</b> and <b>11</b> and replace if necessary	14
	High ambient temperature		
Hydraulic Quick Couplers <b>10</b> and <b>11</b> leak oil	Worn O-Ring in body of Quick Coupler Male <b>10</b>	Replace O-Ring and Back-up Ring in Quick Coupler <b>10</b>	14

# Notes

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# Declaration of Conformity

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

**Model: AV™15 INSTALLATION TOOL – 73432-02000**

**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 11202

BS EN ISO 3744 BS EN 982

ISO EN 792 part 13 - 2000 BS EN 983

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



A K Seewraj – Technology Manager

Welwyn Garden City - 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.



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Manual No.	Issue	Change Note No.
07900-01021	B	12/153

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