



Instruction Manual



T10 Installation Tool

Hydro-Electric Power Tool

Contents

Safety	4
Specifications	
Intent of Use	5
Tool Specification	5
Tool Dimensions	5
Putting into Service	
Principle of Operation	6
Preparation for Use	6
Hydraulic Hose Kit	6
Operating Instructions	7
Maintenance	
Dismantling Instructions	8
Assembling the Tool	8
To Bleed the Tool	9
General Assembly of Installation Tool	
73411-02000	10
Parts List for Installation Tool	
73411-02000	11
Servicing the Tool	
Daily / Weekly	12
Every 1200 Working Hours (at least once a year)	12
Service Tools	12
Hydraulic Oil General Safety Data	12
Fault Diagnosis	
Symptom, Possible Cause & Remedy	13-14

Warranty

The ninety day warranty herein expressed shall be the exclusive warranty on items manufactured by seller and shall be in the place and stead of any other warranty, expressed or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

Seller shall not be liable for any loss or damage resulting from delays or non-fulfilment or orders owing to strikes, fires, accidents, transportation companies or for any reason or reasons beyond the control of seller or its suppliers.

All warranty claims must be submitted to the seller in writing, within 90 days from date of shipment, and no returns will be accepted without written permission.

Other provisions hereof notwithstanding, seller shall not be liable for any loss of business profits or any incidental or consequential damages incurred by Buyer or any third person in connection with the items or use thereof, however caused.

Tool Warranty

Seller expressly disclaims any warranty express or implied, as to the condition, design, operation, merchantability or fitness for use of any tool, or part(s) thereof not manufactured by seller. The only warranties made with respect to such tool or part(s) thereof are those made by the manufacturer thereof and seller agrees to cooperate with buyer in enforcing such warranties when such action is necessary. Seller agrees to repair or replace F.O.B. seller's plant, any tool or part(s) thereof manufactured by it and proved to seller to be defective due to faulty workmanship or material.

Safety

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 by Avdel UK Limited.
- 3 Any modification undertaken by the customer to the tool/machine shall be the customer's entire responsibility.
- 4 Always disconnect the tool from the hydrapac 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 10,000 psi (69 mPa) working pressure.
- 9 The operating pressure shall not exceed 8,000 psi (55.2 mPa).
- 10 Care shall be taken to ensure that spent pintails are not allowed to create a hazard.
- 11 The flexible pintail deflector T108 must always be attached to the tool and in good condition.
- 12 Take care to avoid entanglement of loose clothes, ties, long hair, cleaning rags etc. in the moving parts of the tool.
- 13 The tool should be kept clean and dry for the best possible grip.
- 14 When carrying the tool from place to place keep hands away from the trigger to avoid inadvertent start up.
- 15 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.
- 16 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®.

CAUTIONS

AVDEL RECOMMENDS THAT ONLY HYDRAPAC 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 SYSTEMS OF THE TOOLS AS THIS WILL CAUSE THE TOOL AND HYDRAPAC TO MALFUNCTION

Specifications

Intent of Use

The T10 Installation Tool is basically 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 $\frac{3}{8}$ " Avdelok®, $\frac{5}{16}$ " to $\frac{3}{8}$ " Avbolt® and 16mm to 20mm Avseal® in Industrial Environments.

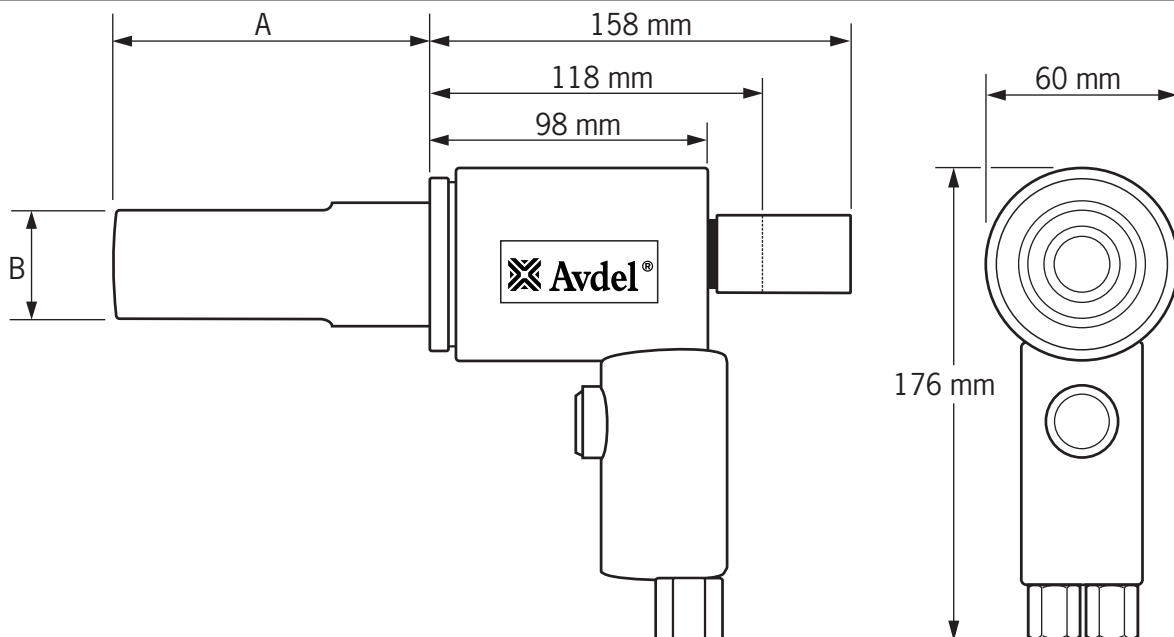
Refer to the table below for the list of applicable fasteners and associated nose equipment.
Refer to the datasheets listed in the table for the relevant nose assembly instructions.

FASTENER		NOSE ASSEMBLY				NOSE ASSEMBLY DATASHEET
TYPE	SIZE	PART N°	HAT REF.	DIM. 'A'	DIM. 'B'	PART N°
Avdelok®	$\frac{3}{8}$ " (10mm)	73411-03100	N10	89mm	28mm	07900-00919
Avbolt®	$\frac{5}{16}$ "	73411-03300	-	86mm	27mm	07900-00905
	$\frac{3}{8}$ "	73411-03200	N11	86mm	29mm	07900-00905
Avseal®	16mm	73411-05000	-	89mm	27mm	07900-00840
	16mm flanged	73411-05000	-	89mm	27mm	07900-00840
	18mm	73411-05200	-	89mm	27mm	07900-00840
	20mm	73411-05400	-	89mm	27mm	07900-00840

Tool Specification

Length	158 mm	6.25 in
Body Diameter	60 mm	2.36 in
Height	176 mm	6.93 in
Weight	3.5 kg	7.7 lbs
Stroke	25 mm	1 in
Pull-Force	58kN	13040 lbf
Pull pressure	55.2 mPa	8000 psi
Return Pressure	20.7 mPa	3000 psi
Hydraulic Oil	ISO VG 46 OR EQUIVALENT	
Fastener Range	5 to 10 mm incl. M.G. and Blind Fasteners	
Noise Level	Below reportable levels	
Sound Power	Below reportable levels	
Vibration	Below reportable levels	

Tool Dimensions



Putting Into Service

IMPORTANT
Read the safety rules on page 4 carefully

Principle of Operation

When both hoses and control cord are connected to the HydraPac, the pull and return cycles of the tool are controlled by depressing and releasing the trigger switch located in the handle respectively.

When the switch is depressed the solenoid valve located in the HydraPac is energised and directs the pressurised oil flow to the pull side of the piston in the tool. This also allows the oil in the return side of the tool to return to the tank. The piston/collet assembly now moves towards the rear of the tool allowing the 'O' Ring type cushion to push the follower and jaws forward. If a Avdelok® pin has been inserted in the nose for assembly, the jaw set will clamp onto the pintail and assembly will commence.

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 hard up against the joint and as movement continues the pintail will be broken off.

The trigger switch must 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.

Pressurised oil will now flow into the return side of the installation tool with the oil in the pull side returning to the tank.

The forward movement of the piston/collet assembly will eject the installed fastener from the anvil and as the forward movement continues, the jaw release mechanism will partly open the jaws to allow the next fastener to be inserted into the nose.

When the piston returns to the fully forward position the pressure build up in the system will cause the HydraPac to go into idle mode. This keeps the installation tool in the forward position.

Please note that with all electric HydraPacs there is a built in "Sleep Mode" which in effect means that the electric motor will automatically switch off if the trigger switch is not operated for approximately 10 seconds. The HydraPac will automatically start up on depression of the tool trigger switch. (The diesel HydraPac does not have a "Sleep Mode".)

Preparation for Use

- Attach the correct nose assembly to tool as per instructions in the relevant nose assembly data sheet.
- Ensure the HydraPac is not running.
- Connect hoses and the control cord to the HydraPac, the tool is supplied with a 0.7m hose length. Additional hydraulic hose lengths are available to order separately as required. Refer to the table below for the available lengths and associated part numbers.
- Start the HydraPac. Depress and release the trigger switch a few times to almost the full stroke of the tool to circulate hydraulic fluid. Observe action of tool. Check for fluid leaks and ensure that in the idler mode the piston is in the fully forward position.

HYDRAULIC HOSE KITS	
PART NUMBER	HOSE LENGTH
07005-10014	6 METRE
07005-10034	10 METRE
07005-10035	15 METRE

Putting Into Service

Operating Instructions

To install a Avdelok® 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 Avdelok® fastener into hole.
- Slide Avdelok® collar over pin. (The bevelled 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 switch. 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 AVDELOK® PIN TO EJECT FROM THE NOSE AT A HIGH SPEED AND FORCE.

Maintenance

Dismantling Instructions

IMPORTANT

Be sure the HydraPac is turned off before removing tool or nose.

- Uncouple the two Hydraulic Hoses and disconnect the Control Cord.
- Unscrew and remove the Anvil by hand.
- Unscrew the Collet and remove the inner assembly by hand.
- Loosen the Grub Screw **14** using a 2 mm Allen Key.
- Unscrew the Anvil Retainer **4**.
- Place a tray under tool to catch the oil.
- If a hand pump (73010-00001) is available, connect to female coupling and slowly pump Piston **10** out of Cylinder **15**.
- Otherwise clamp the Piston **10** in a soft jawed vice and tap the Cylinder **15** backwards with a soft mallet.
- Remove the Brass Plug **1** by inserting a sharp object(eg. a small screwdriver) into the keyway and levering out the plug.
- Unscrew the Collet Adaptor **2**.
- Remove the Gland **7**.
- Inspect and replace 'O' Rings and Back-up Rings as per the Service Kit **28** if necessary.

Assembling the Tool

Examine and replace all worn parts. Fit new 'O' Rings and Back-up Rings (Service Kit **28**).

- Apply hydraulic oil to all 'O' rings, back-up rings and contact surfaces before fitting.
- Fit new 'O' Rings **6, 9** and Back-up Rings **5, 8** to the Gland **7**.
- Fit 'O' Ring **12** and Back-up Ring **11** to Piston **10**.
- Fit 'O' Ring **16** and Back-up Ring **17** into the rear of the Cylinder **15**.
- Install the Piston **10** into the Cylinder **15**.
- Install the Gland **7**.
- Install the Anvil Retainer **4**.
- Re-clamp the Grub Screw **14** using a 2 mm Allen Key.
- Refit the Collet Adaptor **2**
- Align the hole with the Keyway.
- Insert the Brass Plug **1**.
- Bleed the Tool.

Item numbers in **bold** refer to the General Assembly drawing and Parts List on pages 10-11.

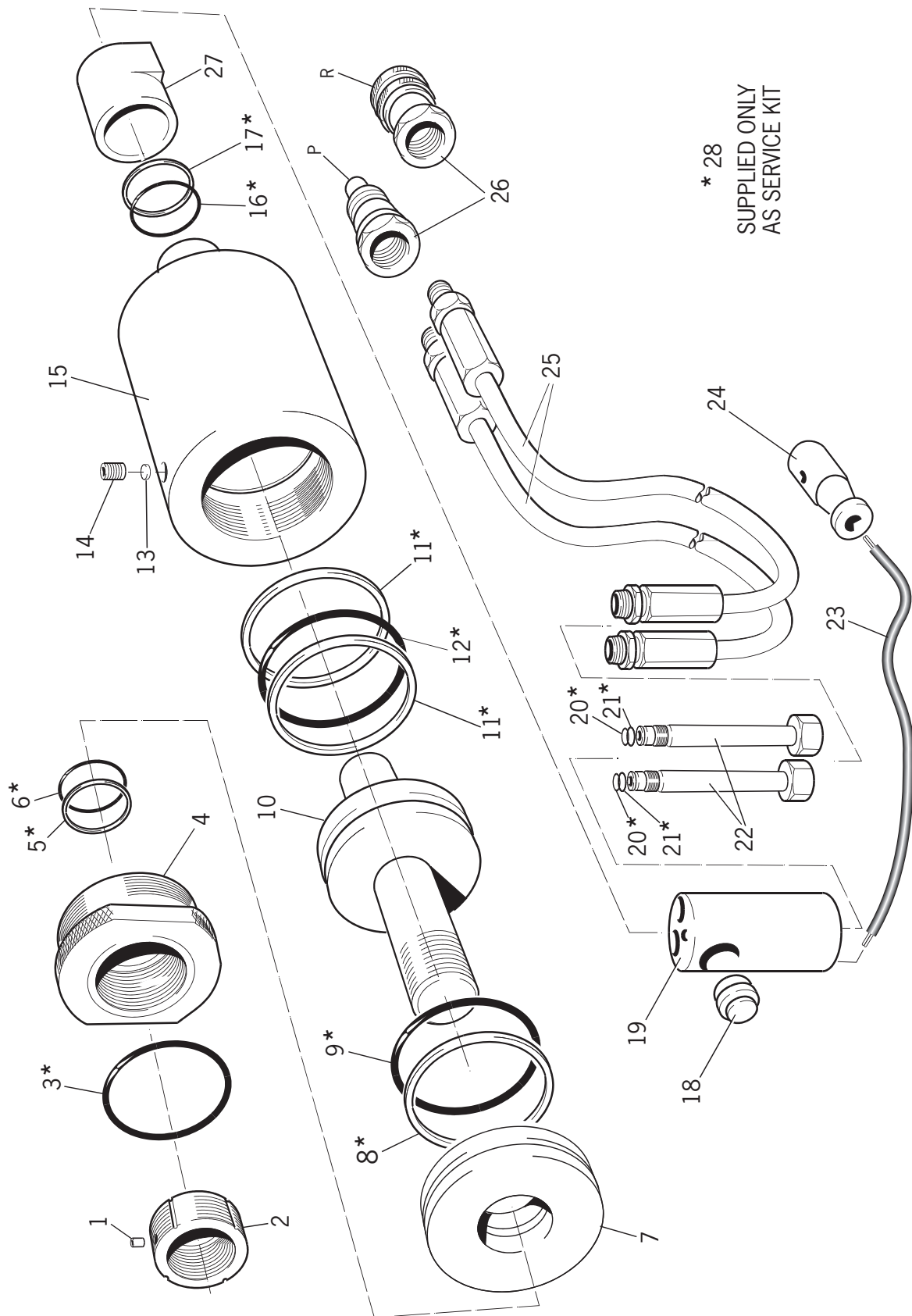
Maintenance

To Bleed the Tool

To Bleed the Tool:

- Couple the short Tool Hoses directly onto a HydraPac or compatible hydraulic power source. Note Do not use long extension hoses as these will prevent the air from escaping into the HydraPac.
- Plug in a HydraPac Test Trigger.
- Position the tool so that the piston rod side faces vertically up.
- Cycle a few times.
- Reverse the vertical position and cycle again.

General Assembly of T10 Installation Tool 73411-02000



Parts List for T10 Installation Tool 73411-02000

T10 INSTALLATION TOOL PARTS LIST				
ITEM	PART N°	DESCRIPTION	QTY	SERVICE KIT
1	MS24	BRASS PLUG	1	
2	T107	COLLET ADAPTOR	1	
3	R227	'O' RING	1	*
4	T104	ANVIL RETAINER	1	
5	B116	BACK-UP RING	1	*
6	R116	'O' RING	1	*
7	T103	GLAND	1	
8	B129	BACK-UP RING	2	*
9	B114	BACK-UP RING	1	*
10	T102	PISTON	1	
11	B220	BACK-UP RING	2	*
12	R220	'O' RING	1	*
13	M515	PAD	1	
14	G511	GRUBSCREW	1	
15	T101	CYLINDER	1	
16	R114	'O' RING	1	*
17	B114	'O' RING	1	*
18	I11142	TRIGGER SWITCH	1	
19	T106	HANDLE	1	
20	R010	'O' RING	2	*
21	B010	BACK-UP RING	2	*
22	T105	HANDLE STEM	2	
23	C106	CONTROL CORD	1	
24	C112	MALE PLUG	1	
25	HS02	HYDRAULIC HOSE	2	
26	HS01	QUICK COUPLER SET	1	
27	T108	DEFLECTOR	1	
28	SK10	SERVICE KIT	1	*

* 'O' Rings and Back-up Rings only supplied in Service Kit SK10

Servicing the Tool

Daily

- Check for oil leaks.
- Check the stroke of tool.
- 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.
- Check function of pull pressure safety valve.

Weekly

- Dismantle and clean the nose assembly especially the jaws.
- Check for oil leaks.

Every 1200 working hours (at least once a year)

The tool should be completely dismantled and worn components replaced including 'O' rings and back-up rings.

Service Tools

- Open Ended Flat Spanners - 17, 19, 24
- Allen Keys - 2 mm, 6 mm
- 150 mm Engineers Vice with Jaw Guards
- Hydraulic Hand Pump if available (73010-00001)

Hydraulic Oil General Safety Data

First Aid

SKIN:

Under normal conditions skin irritation will not occur, contaminated skin should however be washed thoroughly with soap and water. Launder contaminated clothing.

ORAL:

If swallowed and person is conscious give water or milk. Do not induce vomiting unless on advice of medical personnel. Take person to nearest medical centre.

EYES:

Flush immediately with water for several minutes

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.

Fault Diagnosis

Symptom	Possible Cause	Remedy	Page Ref
Tool fails to operate	Inoperative HydraPac	Check power supply to HydraPac	
	Loose or disconnected control cord	Check for loose or broken wires	
	Defective switch assembly	Replace switch assembly	
	Faulty hydraulic hose couplings	Replace faulty couplings	
Tool leaks hydraulic oil	Depending on what leaks occur, defective or worn 'O' rings, loose hydraulic hose connections at tool	Check and replace 'O' rings and back-up rings, or tighten hydraulic hose	
Hydraulic oil overheats	Restriction in hydraulic line	Check couplings and replace if necessary	
1 Tool operates erratically and fails to install fastener properly	Low or erratic hydraulic pressure supply	See HydraPac instruction manual	
	Defective or excessively worn piston, 'O' ring and back-up rings and back-up rings in tool	Replace 'O' ring and back-up rings	
	Excessive wear or scoring of sliding surface of tool parts	Check and replace defective parts	
2 Pull grooves on fastener pintail stripped during pull stroke	Operator not pushing nose completely onto fastener pintail before operating tool	Instruct operator in proper installation methods	
	Incorrect fastener length	Use correct length fastener	
	Worn or damaged jaw segments	Check and replace jaw set	
	Metal chips accumulated in pull grooves of jaw segments	Clean jaw segments	
	Excessive sheet gap	Eliminate excessive gap	
Collar of Hydraloc fastener not completely swaged	Improper tool operation	See 2	
	Worn anvil in nose	Check and replace anvil	
Tool "hang up" on swaged collar	Improper tool operation	See 1	
	HydraPac in idler mode	Switch HydraPac off and on and restart by depressing trigger switch	
Pintail of fastener fails to break	Pull grooves on fastener stripped	See 2	
	Improper tool operation	Instruct operator in correct tool operation	

continued overleaf

Fault Diagnosis

Symptom	Possible Cause	Remedy	Page Ref
Jaw segments do not maintain proper position in collet	Improper operation of jaw follower	Check internal parts of the collet for wear i.e. jaws, follower, cushion and end cap. Clean before reassembling	
Hydraulic couplers leak oil	Defective or worn 'O' ring in coupler body	Replace 'O' ring and back-up ring	
Pintail fails to release	Incorrect assembly of Nose	Refer to nose assembly table on page 5	

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: 73411-02000

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. 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.**



Since 1922

Avdel® iForm™

Since 1936

2010



Our Technology, Your Success

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.	Date
07900-00820	B	07/044	02-07
	B2	07/103	03-07
	B3	08/131	06-08
	B4	11/061	03-11

www.avdel-global.com
www.infastech.com

Autosert® (equipment), Avbolt®, Avdel®, Avdelmate®, Avdel TX2000®, Avdelok®, Avex®, Avibulb®, Avinox®, Avinut™, Avlug®, Avmatic®, Avplas®, Avseal®, Avsert®, Avtainer®, Avtronic®, Briv®, Bulbex®, Chobert®, Eurosert®, Fastriv®, Finsert®, Genesis®, Grovit®, Hemlok®, Hexsert®, Holding your world together®, Hydra®, Interlock®, Klamp-Tite®, KlampTite KTR®, Kvex®, Maxlok®, Monobolt®, Monobulb®, Neobolt®, Nutsert®, Nutsert SQ®, Portariv®, Rivmatic®, Rivscrew®, Speed Fastening®, Squaresert®, Stavex®, Supersert®, Thin Sheet Nutsert®, Titan®, T-Lok®, TLR®, TSN®, TX2000®, Versa-Nut®, Viking® and Viking 360® are trademarks of Avdel UK Limited. Infastech™ and Our Technology, Your Success™ are trademarks of Infastech Intellectual Properties Pte Ltd. The names and logos of other companies mentioned herein may be trademarks of their respective owners. This document is for informational purposes only. Infastech makes no warranties, expressed or implied, in this document. Data shown is subject to change without prior notice as a result of continuous product development and improvement policy. Your local Avdel representative is at your disposal should you need to confirm latest information.