Peck Feed Control

Model	Part number
D4 25mm (1")	92282
D5 50mm (2")	92292
D6 75mm (3")	92302

Original instructions.

Software and documentation available at:

http://cadfiles.desouttertools.com

No login/password required.

1. PECK FEED KITS

Type	Part No.
D4 25mm (1")	92282
D5 50mm (2")	92292
D6 75mm (3")	92302

A peck feed kit controls the sequence by allowing a small depth to be drilled, the tool retracts rapidly, a further depth is drilled, the tool retracts again, etc .. until the final depth is reached and the tool returns to datum.
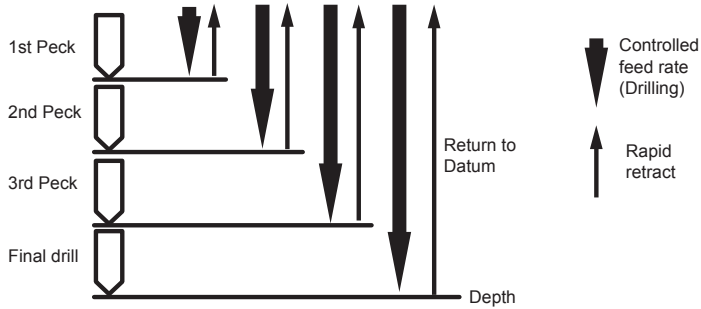
1.1. Circuit diagram
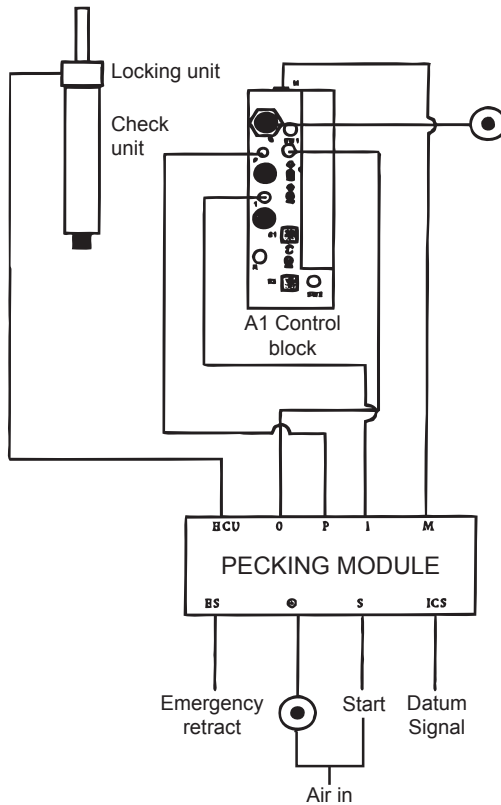
2. PARTS LIST

The peck Feed Kit comprises:

D4 25mm (1") Stroke - Part no. 92282

Item	Part no.	Description	Qty
1	92902	Pecking Module	1
2	91972	Check Unit	1
3	92002	Locking Unit	1
4	62862	Tubing 4mrn	10m
5	-	Stud M5-4mm	4
6	-	Elbow M5-4mrn	1
7	257023	Adaptor	1
8	257033	Lock Nut	1
9	250913	O-Ring	1
10	-	Blanking Plug	1

D5 50mm (2") Stroke - Part no. 92292

Item	Part no.	Description	Qty
1	92902	Pecking Module	1
2	91982	Check Unit	1
3	92002	Locking Unit	1
4	62862	Tubing 4mrn	10m
5	-	Stud M5-4mm	4
6	-	Elbow M5-4mrn	1
7	257023	Adaptor	1
8	257033	Lock Nut	1
9	250913	O-Ring	1
10	-	Blanking Plug	1

D6 75mm (3") Stroke - Part no. 92302

| Item	Part no.	Description	Qty
1	92902	Pecking Module	1
2	91992	Check Unit	1
3	92002	Locking Unit	1
4	62862	Tubing 4mrn	10m
5	-	Stud M5-4mm	4
6	-	Elbow M5-4mrn	1
7	257023	Adaptor	1
8	257033	Lock Nut	1
9	250913	O-Ring	1
10	-	Blanking Plug	1

3. FITTING INSTRUCTIONS

Disconnect the air supply and electrical supply (if applicable) from the tool.

- Fit the items (5), (6), (7), (8) and (9) as follows:

Port on A1 Control Block	Fitting
P	Item (5)
I	Item (5)
M	Item (5)
O	Item (5), (7), (8), (9)

- Fit item elbow 6) to the locking unit, item (3) .
- For the O port fittings screw the locking nut (8) onto the adaptor (7) and fit the 0 ring (9) into the bottom of the O port as shown in fig. 2.

Fig. 2: Adaptor Assembly

(7) Adaptor
(8) Lock Nut
(9) O-Ring
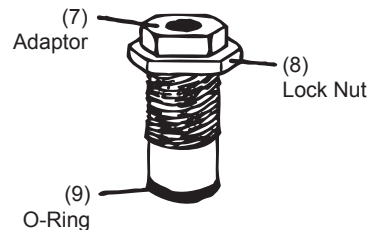
Screw the adaptor (9) into the 0 port securely. Lock in position by tightening the locking nut (8) on to the face of the control block. Fit the stud (5) into the adaptor.

To mount the pecking module (1) into position on the machine use the two screws on the side of the module as per fig. 3.

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Fig. 3: Mounting Dimensions for Pecking Module

Fig. 3: Mounting Dimensions for Pecking Module
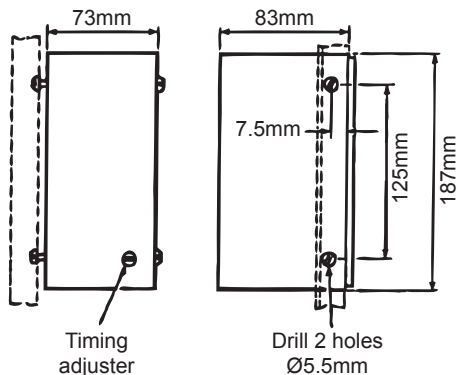
- Measure and cut the tubing (4) and connect the ports on the control block and the locking unit (3) to the pecking module (1) with the tubing (as per fig. 1) ensuring the tubing is securely pushed into the fittings by pulling on them.

ℹ️ If fitting the peck kit to an AFD60 fit a signal inversion kit (part no. 104822) in the line from the M port on the control block to the M port on the pecking module (1).

3.1. Fitting the Locking Unit

- Remove the tubing from the "RCU" port on the pecking module (1).
- Connect the tube to an air supply and turn the air on. This releases the lock.
- Slide the locking unit (3 ion to the check unit (2) as per fig. 5.
- Secure in position by tightening the 3 grub screws.

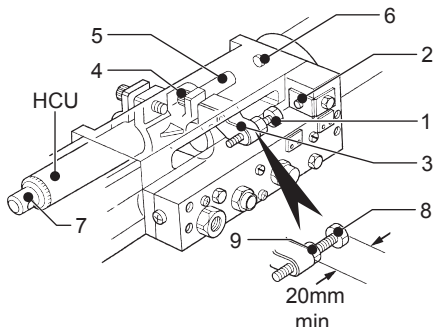### Fig. 5: Mounting the Locking Unit
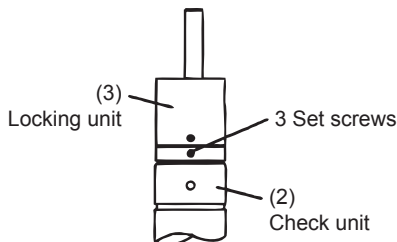
- Switch off the air supply and disconnect the tube and reconnect to the "RCU" port on the pecking module (1).

3.2. Fitting the check unit and setting the depth on the tool

- To set the depth on the AFD (E) tools the drill bit should be as close as possible to the work to reduce the cycle time.

Fig. 5: Mounting the Locking Unit

HCU: Hydaulic Check Unit

- Depth is set by adjusting the gap between the adjusting screw (1) and the depth valve (2).
- The gap should be equal to the depth to be drilled, plus the distance of the drill bit above the work piece and any clearance through the other side (refer to the operating instructions for the tool service sheet).
- Slide the crosshead (3) to the correct position and locking it in that position using screw (4).
- Use the setting screw (8) to finally set the depth and lock in position with nut (9).
- To fit the check unit, slide the check unit into the crosshead (3), align the flat on the check unit with that in the crosshead and set the gap between the check unit rod (5) and the housing (6) to the distance required above the work piece.
- Lock the check unit in position with screw on crosshead.
- Unscrew the check unit adjuster (7) away from the check unit to adjust the control rate to a minimum.
- On the AI control block adjust the flow regulators ⇧, ⇕ and ⇩ as per the operating instructions for the tool.

3.3.   Connection to the Mains Air Supply

● Ensure that the air supply is turned off.
● The air supply to the pecking module should be filtered (minimum of 30μm filter) and non-lubricated.
● A suitable supply can be found by connecting between the filter and the lubricator on the Desoutter range of filter, regulator, lubricator units.
● A minimum pressure of 6 bar (90psi) is required.
● Connect the ⊙ port on the pecking module (1) to the air supply using an appropriate fitting.
● Ensure all fittings are secure prior to turning the air supply on.

3.4.   Setting the Peck Adjustment

● To set the pecking timer rotate the adjuster to the zero rate of pecking (see fig.6).

Fig. 6: Peck Adjustment

Rotate adjuster to vary the number of pecks
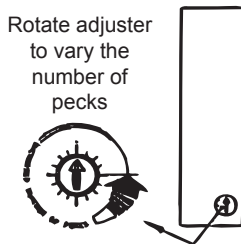
● Set up a trial drilling operation and set the feed rate desire first.
● Then adjust the timer to give the required number of pecks dictated by the component material and the depth of drilling.
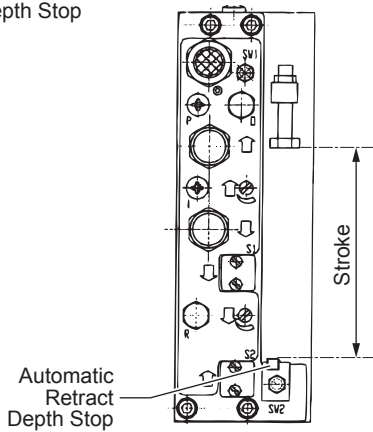
3.5. Connecting to an External Circuit
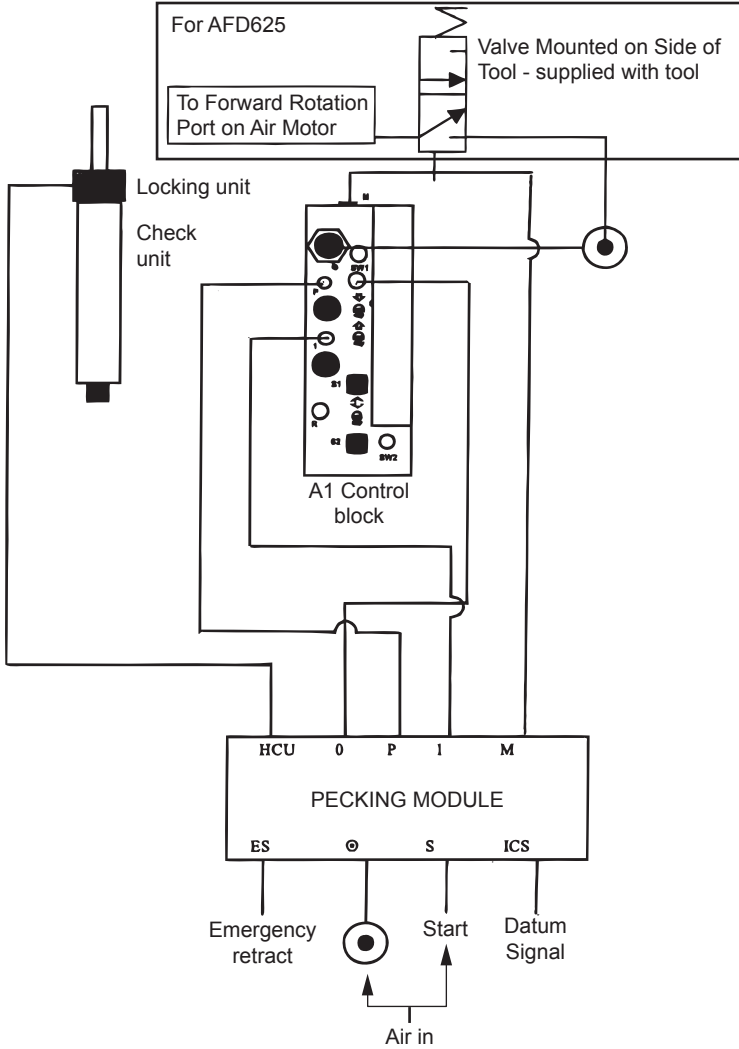
- The pecking unit can be controlled by using the following pneumatic signals:

Start	Apply a pulse of air for 0.5-1 seconds into the "S" port on the pecking module (1). The tool will cycle automatically.
Emergency Retract	Apply a pulse of air for 0.5-1 seconds into the "ES" port on the pecking module (1). The tool will cycle return to datum automatically.

Tool at Datum Signal	A positive continuous air signal is emitted from the "ICS" port when the tool is at the datum position. This signal decays when the tool is cycling. This port should be blanked off using the blanking plug (10) when not in use.

4. STROKE SETTING

Rough stroke
adjustment by
sliding bracket
up and down

Fine stroke
adjustment

Stroke

Automatic
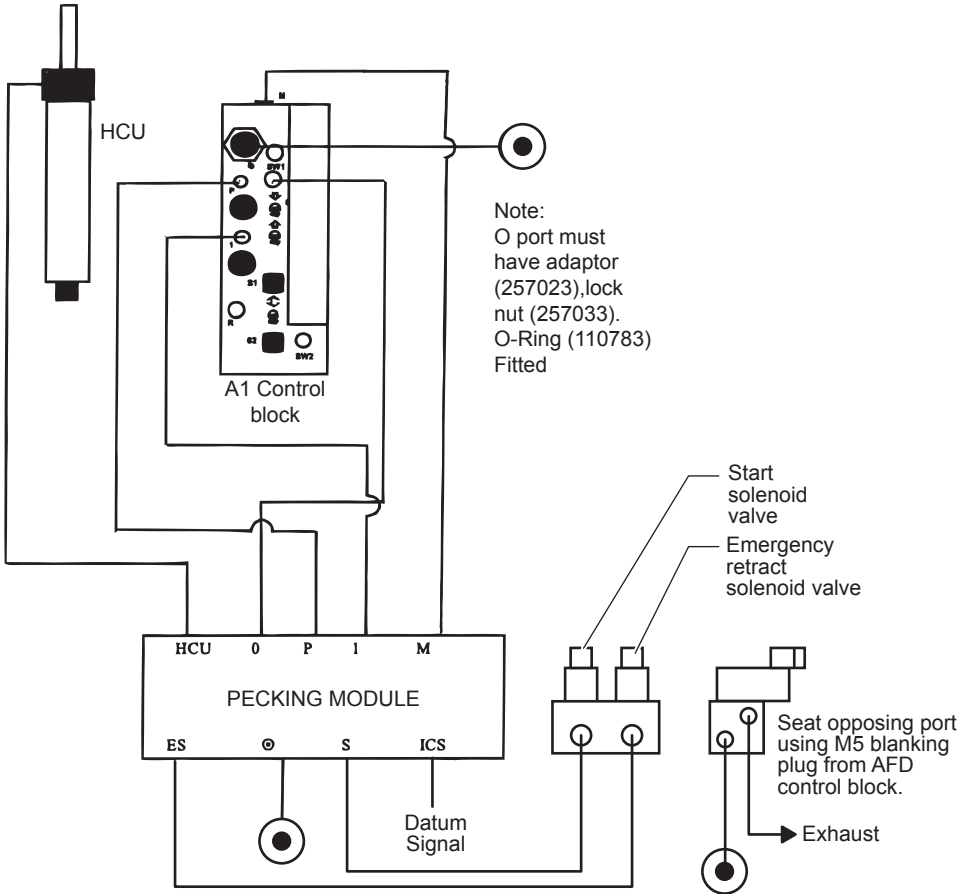Retract
Depth Stop

Stroke

Automatic
Retract
Depth Stop
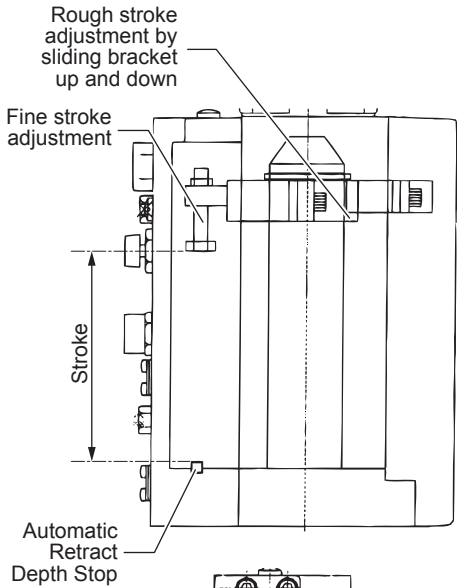
5. PECK FEED WITH INTERFACE KIT

When using a peck feed kit in conjunction with an interlace kit (C1, C6, C10, C11, C12) additional parts will be required:

● (1) off: Manifold for Solenoid Valves
● (3) off: Male Stud

The solenoid valves are fitted to the manifold and not to the control block (see diagram).

Control signals are exactly the same as per the conventional interface kits except that a signal will be received each time from the SW1 proximity switch when the tool returns to datum during the pecking cycle.

HCU

A1 Control block

Note:
O port must have adaptor (257023),lock nut (257033). O-Ring (110783) Fitted

Start solenoid valve

Emergency retract solenoid valve

HCU   0   P   1   M

PECKING MODULE

ES   ⊕   S   ICS

Seat opposing port using M5 blanking plug from AFD control block.

Exhaust

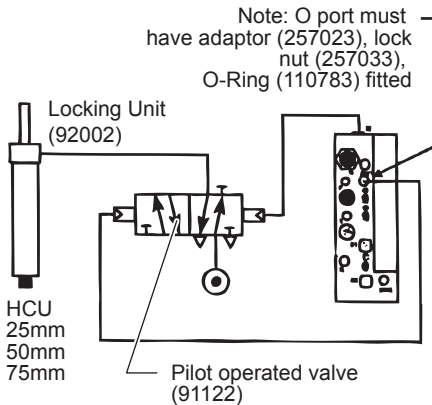Datum Signal

6. PECK FEED WITH PLC CONTROL

If the customer wishes to use a PLC to control the pecking cycle then the following control sequence and circuit should be used.

6.1. Sequence

1. Start signal to PLC.
2. Energise solenoid S1 for 0.5 seconds, tool will feed forward.
3. Set advance time using timer in PLC.
4. Energise solenoid 52 for 0.5 seconds, after set time, tool will retract to datum.
5. Output from SW1 to PLC.
6. Energise solenoid S1 for 0.5 seconds, tool will advance to drilled depth due to HCU brake unit (92002) holding rod at previous depth position.
7. Set advance time using timer in PLC.
8. Energise solenoid S2 for 0.5 seconds, afler set time, tool will retract to datum.
9. Repeat pecking until Signal from SW2 switch indicates that drill has reached depth.
10. Energise solenoid S2 for 0.5 seconds, after set time, tool will retract to datum and M port signal will shuttle vale across, releasing the brake and allowing the rod to extend ready for the next component.

11. PECK FEED PART NUMBERS

Part no.	Description
92282	D4 25mm (1") Peck Feed Kit
92292	D5 50mm (2") Peck Feed Kit
92302	D6 75mm (3") Peck Feed Kit
104822	M Port conversion kit
94982	HCU fitting kit for AFD60
94522	Manifold for solenoid valves
62392	Male stud
91972	Peck feed HCU 25mm (1")
91982	Peck feed HCU 50mm (2")
91992	Peck feed HCU 75mm (3")
92002	HCU locking unit
91122	Pilot operated 5/2 valve

Note: O port must have adaptor (257023), lock nut (257033), O-Ring (110783) fitted

Locking Unit (92002)

HCU 25mm 50mm 75mm

Pilot operated valve (91122)

12. TROUBLE SHOOTING

The start, emergency return and datum pneumatic signals are via the pecking module which in turn controls the pecking sequence through a full feature control block (see diagram).
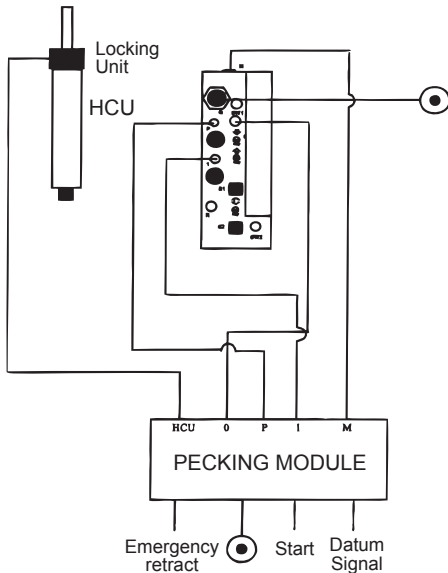
Note: O port must have adaptor (257023), lock nut (257033), O-Ring (110783) fitted

The ports are connected to the corresponding ports on the full feature control block.

ICS is work cycle complete port (constant at end of cycle); S is Start Port; ES is Emergency Stop.

An adaptor is fitted into the O port on the full feature block to blank it from the P port - this can be tested by depressing the end stop with the adaptor fitted and ensuring no air comes from the P port.

For set up the feed rate required should be set on the HCU and the number of pecks by the timer within the control modules, larger time = less pecks.

1   Timer

12.1. Check that the tool itself is operating correctly

(With peck feed still connected as above.)

● Depress Green Start Button: Tool should advance strike depth stop and retract.

12.2. If Tool will not advance using Green Start Button

● Check Main Air is connected to main air inlet on tool.
● Air must be on and set at 90psi.
● Open advance rate $\updownarrow$ regulating screw - tool should advance.

If not:

● Is there anything else connected to the tool that would be giving it a retract signal such as: Maintained Air signal into O or P port.
● If so check that the air line is not giving a constant air signal.
● If it is then remove this signal.
● It should be a pulse only for emergency retract.

Tool will advance but will not Retract

● Check that the depth adjustment screw is striking the depth stop.
● If it is not this could be due to Incorrect HCU fitting.
● Check HCU is not acting as the hard stop. WARNING! - this will damage the HCU leading to failure.
● Incorrect depth screw position.
● If depth adjustment screw is striking the depth stop then check the flow control valves, these should be set as:

Tool Type	$\updownarrow$	$\upharpoonright$	$\downharpoonright$
AFDE200 AFD205 AFD215	Open To give fast retract	Adjust to Control Retract Rate	Adjust to Control Feed
AFD415	Adjust to Control Feed	Adjust to Control Retract Rate	Not Applicable
AFDE400/ 410 AFDE600/ 610/ 620	Adjust to Control Feed	Adjust to Control Retract Rate	Not Applicable
AFDE400/ 410 AFDE600/ 610/ 620 With R port connected	Open To give fast retract	Adjust to Control Retract Rate	Adjust to Control Feed

If depth adjustment screw is striking the depth stop and flow control valve are opened then check that no signals are still telling the unit to advance such as.

Maintained Air signal into 1 port:

- If so check that the air line is not giving a constant air signal
- If it is then remove this signal - it should be a pulse only.

12.3. Check the signals from the A1 control block

- Check Main Air is connected to main air inlet on tool.
- Air must be on and set at 90psi.
- Remove the tubes from the P and O ports.
- Depress the end stop on the A1 control block.
- The adaptor and O-Ring fitted into the O port should give an air signal from the O port but not the P port.
- If a signal comes from both ports then refit the adaptor and O-Ring to ensure it seals correctly.
- Refit the tubes to the O and P ports.
- With the tool in the datum/home/rest position make sure a maintained signal comes from the M port on the A1 control block.
- Note carefully remove this tube.

12.4. Check Operation of the peck feed control box

Remove the tube connections from the control box and follow the sequence below.

- Check Main Air is connected to main air inlet on peck control box.
- Air must be on and set at 50psi minimum - should be filtered but NOT lubricated Input a pulse of air into S start port on control box, and the M port simultaneously.
- Check that a pulse of air comes out of the 1 port on the control box.
  - This is the signal that would normally advance the tool.
- After a certain time set by the timer in the control box a constant air signal should come from the P port on the control box.
  - This is the signal that would normally retract the tool when pecking.
- Input a pulse of air into the M port on the control box.
  - This is the signal that would tell the box that the AFD is home and ready to peck again.

- The constant signal from P will disappear and the above sequence should be repeated i.e. a pulse of air comes out of the 1 port on the control box and After a certain time set by the timer in the control box a constant air signal should come from the P port on the control box.
- Input a pulse of air into the 0 port on the control box. This is the signal that tells the AFD that the hole has been completed to depth.
- A pulse of air should come from the P port.
- Input a maintained signal into the M port. A maintained signal should come from the ICS port on the control box and a constant signal from the HCU port on the control box.
- If the sequence above operates correctly than the control box is functioning correctly.

12.5. Check the connection of the Peck module to the A1 control block

- Having established that the tool functions correctly and the peck control box functions correctly - refit all pipe connections and try the peck cycle again.
- Check Main Air is connected to main air inlet on tool. Air must be on and set at 90psi.
- Check Main Air is connected to main air inlet on peck control box. Air must be on and set at 50psi minimum - are should be filtered but NOT lubricated.
- Make sure timer is set to a minimum.
- Make sure Hydraulic Control Unit is set to required feed rate.
- Input a pulse signal to the S port on the control box.
- Tool should advance and retract repeatedly.
- Increase the time set on the timer until the number of pecks required is achieved.

More Than Productivity