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AFD(E) FAULT FINDING with A1 Control Block

Action/Reason	Check/Solution
1. Drill does not advance - No Air Leaking around Red Button	
1.1 Push Green Button	Tool should advance if not go to 1.2, else goto 1.5
1.2 No mains air supply	Connect mains air (10mm/3/8" I.D. pipe)
1.3 Low air pressure	Adjust to 6 Bar/90psi
1.4 Feed/Retract screws closed	* See chart and adjust according to model.
1.5 Remote signalling incorrect	
1.5.1 Incorrect signalling (Pneumatic)	Pulse signal required to '1' port for approx. 0.5sec
1.5.2 Incorrect signal (PLC Interface)	Energise the N.C. solenoid at S1 for approx. 0.5 sec
2. Drill does not advance - Air leaking around Red Button	
2.1 Incorrect signalling (Pneumatic)	Remove Constant air signal to O or P port
2.2 Incorrect signalling(PLC interface)	N.C. solenoid valve on S2 constantly energised -- Remove signal - pulse only for emergency retract
	N.O. solenoid valve not energised constantly -- Apply constant signal - remove for emergency retract
2.3 Depth return valve stuck down	SW2 proximity switch screwed in too far - back it out approx. 1 turn, make sure it signals at depth
3. Drill advances but will not retract - No Air Leaking around Green Button	
3.1 Depth stop valve not being reached	* Fit and adjust depth stop screw to contact depth stop valve Ensure HCU is not bottoming out before screw can reach valve - reposition HCU if necessary
3.2 Feed/Retract screwsclosed.	See chart and adjust according to model.
3.3 Retract signal lost	Ensure ports 'O' & 'P' are blanked off or are not exhausting to atmosphere in remote circuitry.
4. Drill advances but will not retract - Air Leaking around Green Button	
4.1 Incorrect signalling (Pneumatic)	Ensure that signal into 1 port is a pulse only for approx. 0.5sec
4.2 Incorrect signalling(PLC interface)	Ensure that signal to S1 solenoid valve is a pulse only for approx 0.5sec.
5. Peck Feed Kit (D4,D5,D6) will not work	
5.1 Incorrect fitting	*Ensure that the adaptor, lock nut and O' ring are fitted to the 'O' port correctly Ensure that all ports are connected according to the instructions
5.2 Incorrect timer setting/HCU setting	Adjust HCU to give required feed rate, timer valve to give required number of pecks
5.3 Feed/Retract screws closed	* See chart and adjust according to model.
6. Dwell Kit (E1) will not work	
6.1 Incorrect fitting	*Ensure that the adaptor, lock nut and O' ring are fitted to the 'O' port correctly
7. Combination of 'Old' & 'New' AFD's will not work together	
7.1 'M' port signals are opposites ie. new units have a live 'M' port signal and old units have a dead signal in the retracted position.	Invert the 'M' port signal on the new units. See Kit available.
8. Drill Stalls	
8.1 Incorrect feed rate on HCU	* Fit and/or adjust Hydraulic control unit.
8.2 Feed/Retract screws fully open (no HCU)	* See chart and adjust according to model.
9. With multiple tools connected to a common start signal - 1port. All tools start when green button is pressed on one tool	
9.1Check valves not fitted	Fit check valves in individual start lines
10. With multiple tools connected to a emergency stopt signal - O or P port All tools retract when the first tool reaches depth	
10.1Check valves not fitted	Fit check valves in individual stop lines
11. No HOME signal from M port	
11.1Actuator Pin Worn	Replace actuator pin

4. AFTE's - A7/A8 Simple Control Block

The electric leadscrew tappers from Desoutter come equipped with three proximity switches for home/datum, depth and no-hole sensing.

NOTE: **WARNING!**

Before cycling a leadscrew tapper check the following:-

Electric Motor is running in the correct direction.

Proximity switches are fitted correctly i.e. are sensing datum and depth and that the logic of the control circuitry is functioning correctly:-

i.e. Depth reverses the direction of the electric motor.

Datum stops the electric motor.

4.1 Tool advances but does not stop - WARNING this can cause damage to the leadscrew and feed mechanism of the unit.

Depth proximity switch is not sensing - NOTE - No hole proximity switch will act as a fail safe if this occurs.

Check depth proximity switch is functioning correctly and is set to sense correctly.

Depth - 24V (Brown) to 24V
0V (Blue) to 0V
Output (Black) to Out

No Hole - 24V (Brown) to 24V
0V (Blue) to 0V
Output (Black) to Out

With the tool at the datum position fit a proximity switch in depth position by gently rotating clockwise until it touches the depth screw. Rotate the switch approximately one turn anti-clockwise - make sure it is sensing.

4.2 Tool retracts but does not stop - WARNING this will pull the leadscrew from it's mounting and can cause damage to the leadscrew.

Datum proximity switch is not sensing

Check datum proximity switch is functioning correctly and is set to sense correctly.

Datum - 24V (Brown) to 24V
0V (Blue) to 0V
Output (Black) to Out

With the tool at the datum position fit a proximity switch in datum position by gently rotating clockwise until it touches the ring on the extension tube of the unit. Rotate the switch approximately one turn anti-clockwise - make sure it is sensing.

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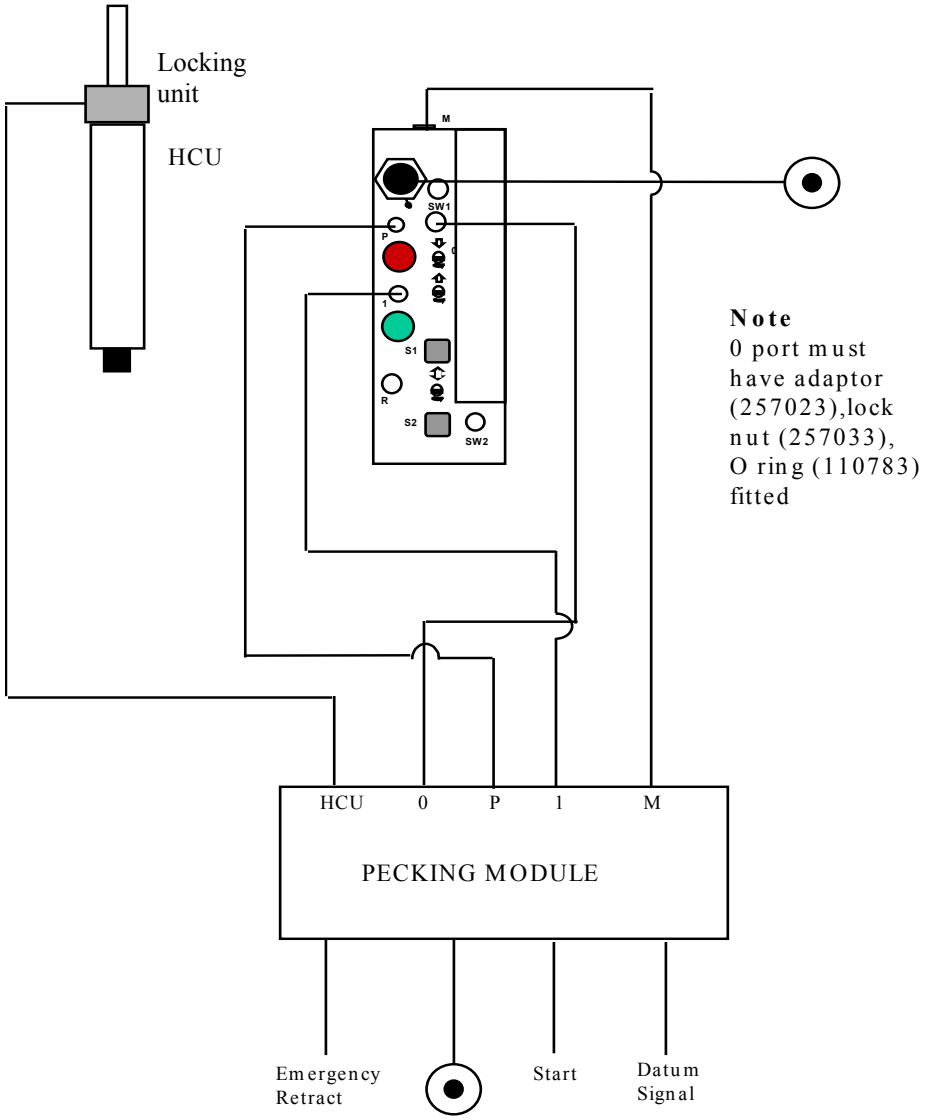
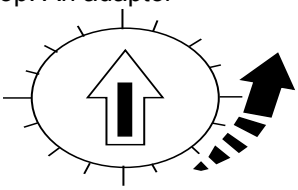
5. AFD's and AFDE's - A1 Full Feature Control Block with Peck Feed Kit.

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).



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.



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5.1 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.

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 ⇳ 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 0 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	⇳	⇧	⇩
AFDE200/22 AFD205/22S AFD215/22	Open To give fast retract	Adjust to Control Retract Rate	Adjust to Control Feed
AFD415/41	Adjust to Control Feed	Adjust to Control Retract Rate	Not Applicable
AFDE400/410/41 AFDE600/610/620/62	Adjust to Control Feed	Adjust to Control Retract Rate	Not Applicable
AFDE400/410/41 AFDE600/610/620/62 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.

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5.2 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.**

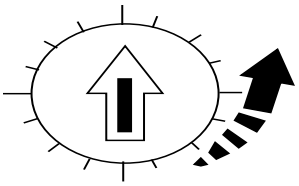
With the tool in the datum/home/rest position make sure a maintained signal comes from the M port on the A1 control block. Note carefully remove this tube.

5.3 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 simultaneously into S and M port on control box.

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 O 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 and a constant signal from the HCU port on the control box.

Input a maintained signal into the M port. **A maintained signal should come from the ICS port on the control box.**

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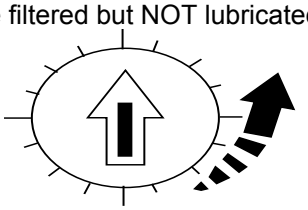
5.4 Check the connection of the Peck module to the A1 control block.

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.

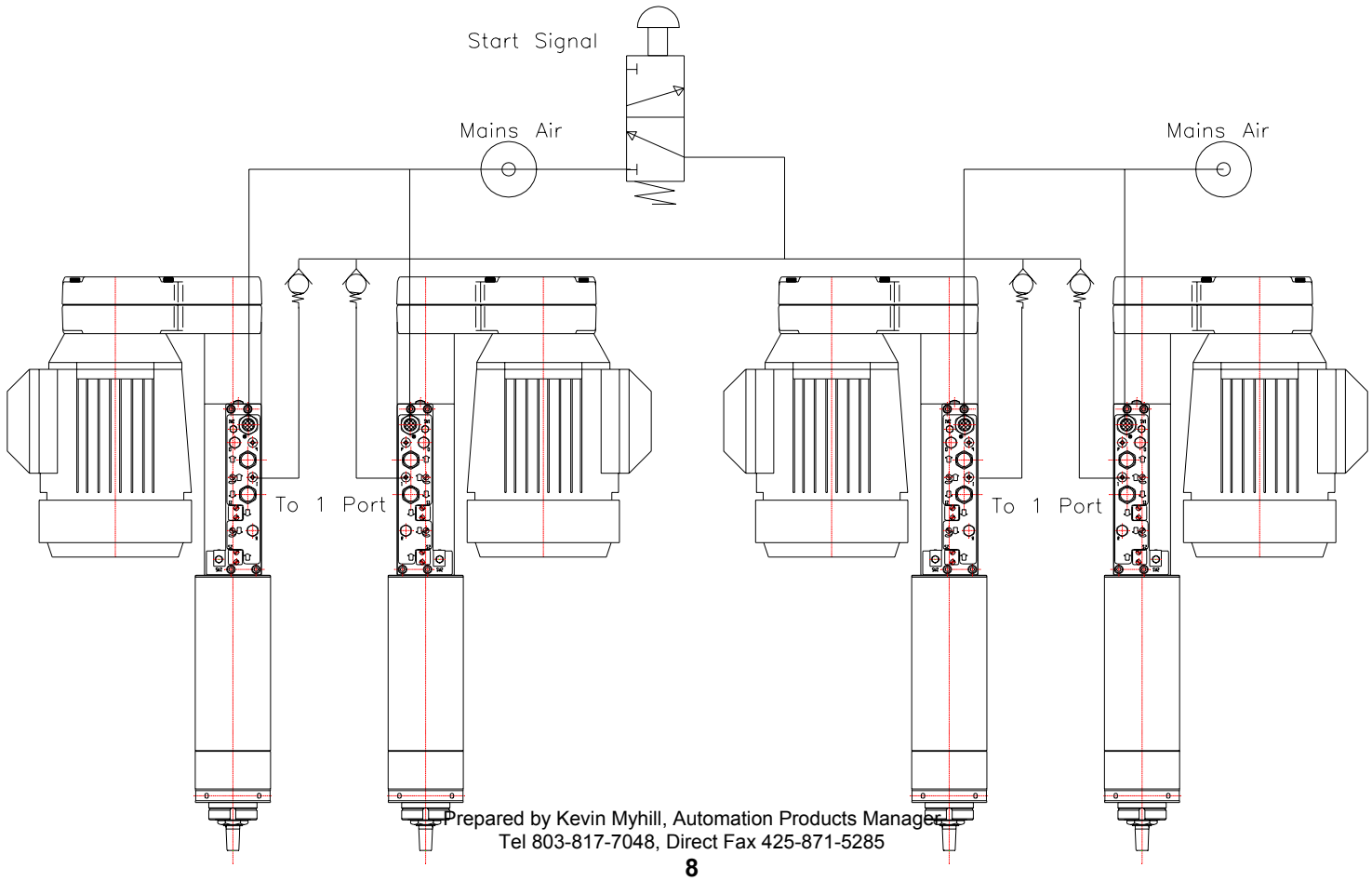
Guide to Connecting Tools Together

Tools can be connected in series with common inputs but **NON RETURN VALVES MUST** be used in the signal supply lines as below.

This must be followed for a start signal to the **1 port** or a retract signal to the **O or P ports**.

If this is NOT done then pushing the manual button on any tool could start all the tools.

Similarly when one tool reaches depth it could return all the tools even though they have not completed the cycle.



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