Setting up a NH3 or Liquid system to run on the X30 Apollo

There can be problems when trying to hook up a NH3 or Liquid system to be controlled by the X30.

This document will familiarize you with the X30 Apollo system and how to test your system to determine if everything is working correctly.
1. Required hardware (harnesses)

- Ensure required harness are plugged into proper locations on ECU’s so the channel 3132-38 is plugged into must match what you see in the settings of the monitor, if it says it is in CM40-2 drive 2 it should be in CH 2 on the second CM-40
Drive harness 3132-38

- This harness has 2 caps, the correct cap must be chosen for your application. If the incorrect cap is used, the system will not function properly.
- There is also a diode on this harness which can fail, ensure it is placed in a position so water cannot enter.
Correct harness location

- In this example tank 6 is the NH3 tank. Under the ECU name we see that it needs to be connected to CM-40 2 – Drive 2 (CH 2)
- Harness 3132-38 must be connected to CH 2 on the second CM-40 or nothing will work.
Section harness – 3132-54

• The section harness plugs into the EM 24 on the drill to Relays 2 if you have granular sectional control, or Relays 1 if there is no granular sectional control.
Section power harness – 3132-66

- For sectional control power harness 3132-66 must be connected to the Aux power (dirty power) plug near the ECU breakout harness.
Raven 6-10 section adapter harness – 3132-47

- The previous 3 harness all plug into this one harness.
- 3132-38 into DRIVE
- 3132-54 into SECTIONS
- 3132-66 into SEC PWR

- Pinouts for this harness are near the back of this document
2. Monitor set up

- Ensure you have a profile that has LIQ(SCN) or NH3(SCN)

- Make sure that the monitor is synchronizing with the ECU’s
Sections

- The section number must be entered in this location.
- The size of each section must also be entered, the overall width must match the width for your granular boom which you can find in the tab above the NH3 or LIQ tab.
Section Switchbox

- Set the number of section switches to match your NH3 or LIQ sections.
Section Switchbox

- Enable Virtual Section Switchbox.
NH3 or LIQ Tank setup

• Go to the Tank setup tab to enable and select section control.
• You may also enter on off times for reference while testing system.
Drive setup

- For this testing Make sure controller type is set to Regulator Valve
Tank setup

- Make sure NH3 or LIQ tank is enabled.
- For simplicity disable all granular tanks.
Fans

- Disable all fans prior to testing.
SRC Setup

- Product must be selected NH3 or LIQ and fill tank.
- There must be a requested rate.
- Turn tank clutch on.
Configuration

- Open Configuration tab and enter Manual speed, select Manual speed so tab is green.
- If uncalibrated touch Multi-tank calibration tab, then Manual Entry
- Enter calibration factor for NH3 or LIQ. This is generally a tag on the flow meter or stamped into the flow meter.
- For NH3 this must be in Pulses/lb N
- For LIQUID it is Pulses/L
ASC and Switchbox mini views

- Open the Auto section mini view tab and turn ASC OFF
- Open the Switchbox mini view tab and set to NH3 tab.
- At this point the X30 will be ready to control NH3 or LIQ
- If Master switch is touched it will cycle Green then back to White back to Green etc.
- You are now ready to attach the test harness to ensure the X30 is working correctly.
Required test components

- Test harness
- Part # 3151-47
- Bourgault dealer mandatory tool
- Can be used to test IB-1 or Apollo 1-6 section systems and Apollo 8-10 section systems.
Required test components

- Topcon pulse generator
- Part # 3131-80
- Bourgault dealer mandatory tool
3. Testing the X30 using test harness 3132-47

- Make sure loop cap “STD valve” (3132-38-02) is installed on harness 3132-38, as in top picture to right for testing.
- Connect Pulse generator to test harness at weather pack connector, Bottom picture.
- Connect Test harness to Raven adapter harness using appropriate connector (6 or 10 section) 10 section connected in picture to right.
- Do not connect any other harness to the Test harness for initial testing.
• You are now ready to begin testing to confirm the X30 is properly controlling the NH3/LIQ option.
• When testing 10-section 4 lights should have power all the time, when ECU’s are Synchronized, SNSR PWR, BATT PWR 1,2 & 3.
• When testing 6-section 3 lights should have power all the time, when ECU’s are Synchronized, SNSR PWR, BATT PWR 1 & 2.
• Turn all sections “ON” switchbox
• Testing 10-section “Master” should cycle on/off when tank clutch or Master clutch are turned on/off.
• On 6-section there is no “Master”, when engaged the selected sections should all be lit.
• REG 1A+ and 1B- will come on or off as flow is changed using pulse generator from above to below desired rate and visa versa.
• REG 1A+ will be on or blinking when X30 is trying to increase rate.
• REG 1B- will be on or blinking when X30 is trying to decrease rate.
• Next you can check each of the sections using the section switchbox to confirm function of each section. When section is on in monitor, light on test harness should also be on for that section.
Once testing with harness has confirmed that the X30 functions are working correctly. You will be able to test the Liquid or NH3 system.

1. Make sure you select the correct valve type – Regulator or Proportional

2. Make sure you have the correct cap on harness 3132-38 for your system.

3. If it still does not work correctly you can check voltages at the test lead or output connector. See pinout diagram, should have 12v on all pins corresponding to the lights if they are lit and set to Regulator valve.

4. If Voltages are correct and it still fails to work something is not working or pinned wrong on the Liquid or NH3 components. REMEMBER this is Pinned to match Raven harnessing if a different system is being used an adapter harness may be required.
Harness 3132-38

<table>
<thead>
<tr>
<th>Pin</th>
<th>Function</th>
<th>Color</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12V Relay Out</td>
<td>Red/White</td>
<td>U4</td>
</tr>
<tr>
<td>2</td>
<td>12V Clutch Out</td>
<td>Red/White</td>
<td>U4</td>
</tr>
<tr>
<td>3</td>
<td>Filtered Pin A</td>
<td>Red/Blue</td>
<td>U4</td>
</tr>
<tr>
<td>4</td>
<td>Filtered Pin B</td>
<td>Blue/White</td>
<td>U4</td>
</tr>
<tr>
<td>5</td>
<td>Power</td>
<td>Red</td>
<td>U1</td>
</tr>
<tr>
<td>6</td>
<td>Power</td>
<td>Black</td>
<td>U1</td>
</tr>
<tr>
<td>7</td>
<td>Battery Power</td>
<td>Red</td>
<td>U1</td>
</tr>
<tr>
<td>8</td>
<td>Battery Ground</td>
<td>Black</td>
<td>U1</td>
</tr>
<tr>
<td>9</td>
<td>Battery Ground</td>
<td>Black</td>
<td>U1</td>
</tr>
</tbody>
</table>

**Diagram:**
- U1 to Master ECU Channel
- AGA5518 Rev 1.0
  - Topcon Precision Agriculture
- U4 to Liquid NH3 Drive
  - Part # 3132-38 REV 01
Harness 3132-38

**INSTRUCTION:** 0252-01-07
**DESCRIPTION:** INSTR CAP NH3/LIQ DRV HARN

**IMPORTANT:**
INSTALL APPROPRIATE 6-PIN CAP ONTO THE 3132-38 NH3/LIQ DRIVE HARNESSES DEPENDING ON THE VALVE CONFIGURATION BEING USED.

3132-38-01 USED FOR RAVEN REGULATOR FAST VALVE.
3132-38-02 USED FOR STANDARD REGULATOR VALVE OR PROPORTIONAL VALVE.
Harness 3132-47
Harness 3132-54
Harness 3132-66

<table>
<thead>
<tr>
<th></th>
<th>U1</th>
<th>U2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dirty Power Red 12G</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Dirty Power Red 12G</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Dirty Ground Black 12G</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Dirty Ground Black 12G</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>
Harness 3151-47