ECS/Nexus

ECS-Nexus(81266)
User Manual

ONLINE RESOURCES

BAZOOKA FARMSTAR

8/10/2024

OVERVIEW

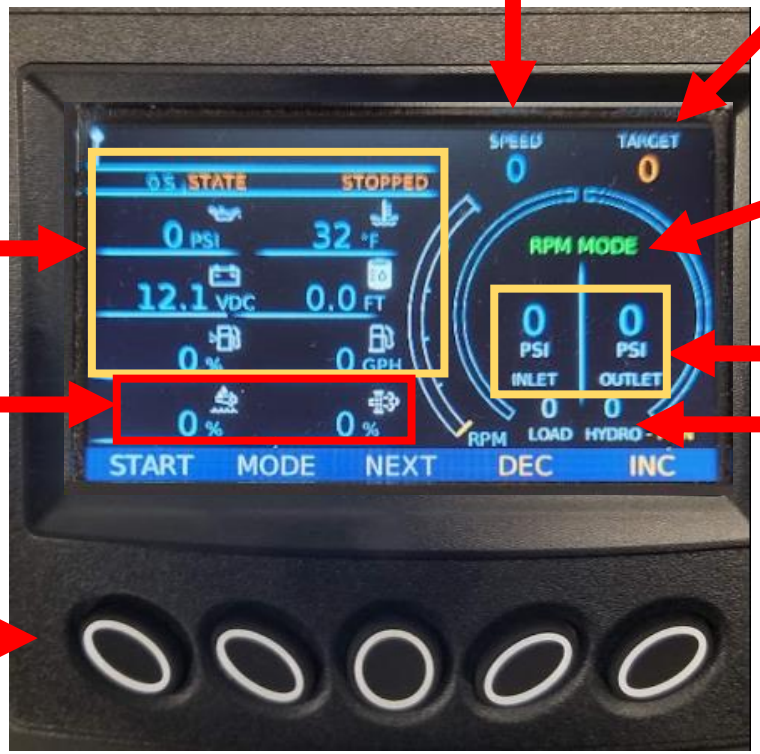
This manual covers the basics of the Bazooka-Farmstar ECS/Nexus panel. This manual only covers the physical panel & operation, see the online remote operation guide for details on remote access & control as well as other benefits.

For videos and additional resources, point phone camera at QR code and click the link.

https://bazookafarmstar-5546834.hs-sites.com/nexus

TABLE OF CONTENTS

Screens - Main



Screens - Vitals

Oil pressure

Coolant temp

Pit depth or Flow rate

Battery Voltage

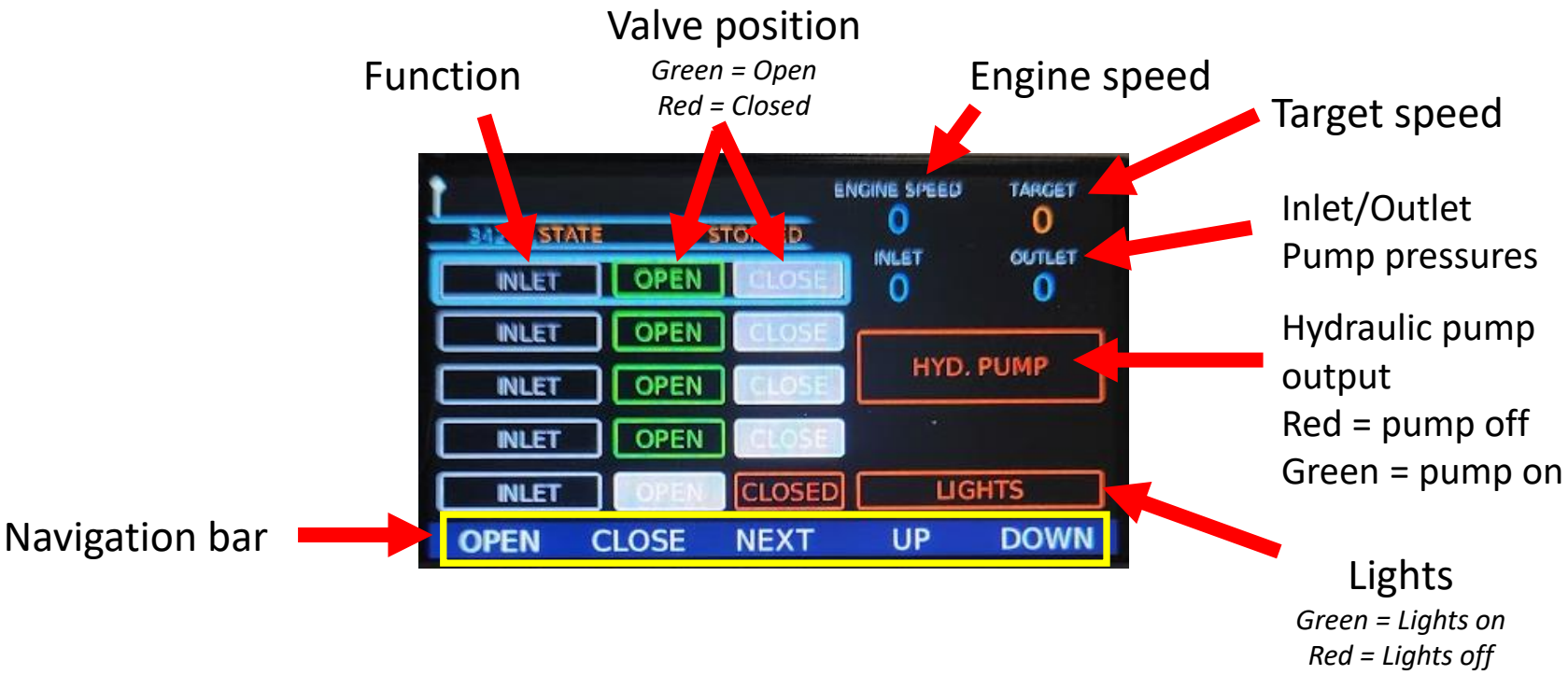
Fuel level

Gallons per Hour (electronic engines only)

Decrease engine RPM

Increase engine RPM

Screens – Valves



- Scroll through the valves using the up/down screen buttons
- A white outline will cover the valve or function you intend to command

Gate valve display colors:

- Two proxes detecting gate = Open
- One prox detecting gate = “In between”
- No proxes detecting gate = Closed

Screen – Hydrostat (optional)

Actual Engine speed

Auto Mode = pressure mode

Inlet/Outlet pump pressures

High/Low Hydraulic pressures

Pit depth

Percentage of hydrostat pump commanded

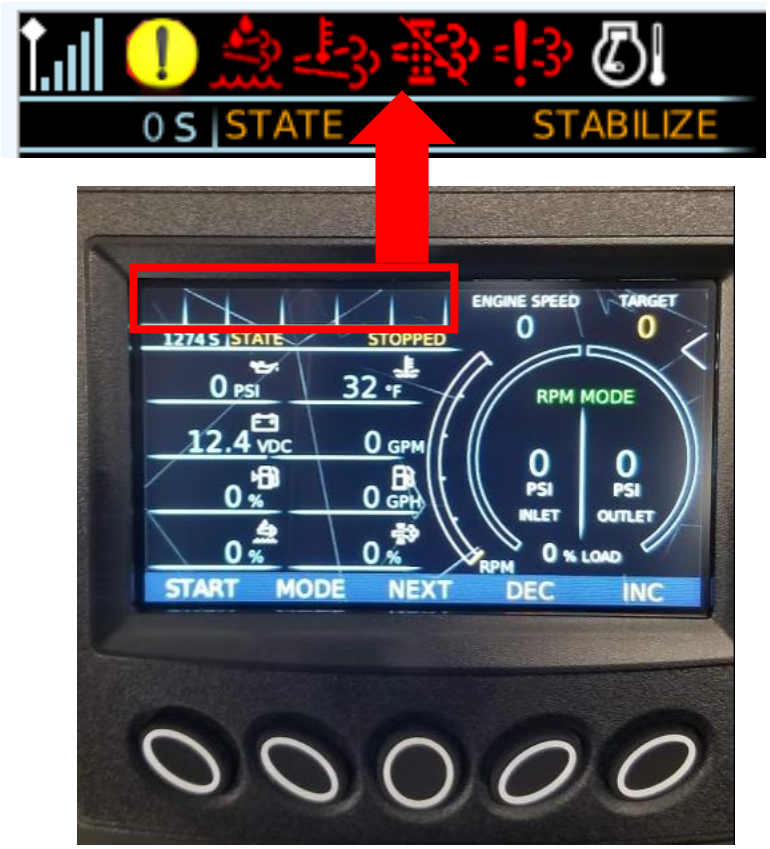
Previous page

Next page

Hydrostat controls

Screens - Tier Four

Warnings, Stop errors, and Tier four icons will display on the main vitals screen to show the status of the DEF system



A Alarm/Stop signal

B Low diesel exhaust fluid. Displays when the DEF is low.

C CAT/ PERKINS DPF Burner Temp (HEST). Exhaust System High Temperature Lamp

D Regen inhibit/Regen Required

E Operator induced severity

F Purge Lamp

Screens – Main Menu

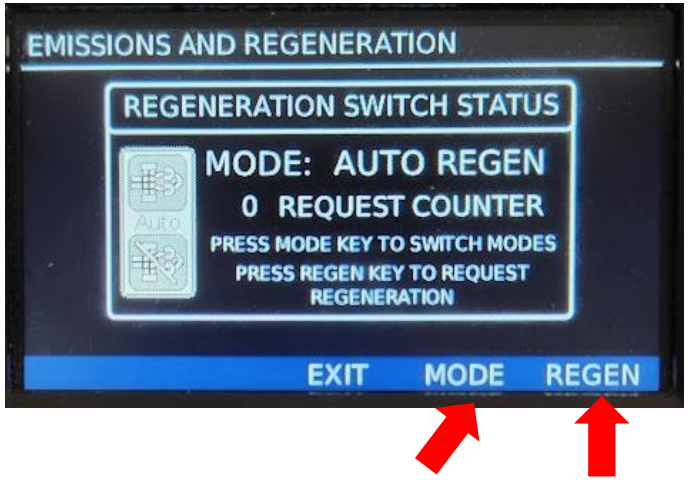
- Nexus software version
- OEM MENU:
  - **3300** - Advanced Nexus settings
  - **3482** - Valve settings
  - **6100** - Engine settings
  - **6400** - Input & output settings
- Refer to the Setup section for commonly used settings.
- Refer to the end of this manual for a full list of panel settings

Screens – Active Faults

- This screen will display engine codes in 3 colors based on their severity:
  - Green: No active faults (May be old unacknowledged faults)
  - Yellow: Active warnings
  - Red: Active stop conditions

- You can clear Nexus faults, but you cannot clear any codes that are being generated from the engine
- Certain engine codes may prevent engine from running or throttling above a certain RPM targets until the issue is resolved
- Refer to SPN/FMI code list at the end of this manual for reference

Screens – Emissions Control

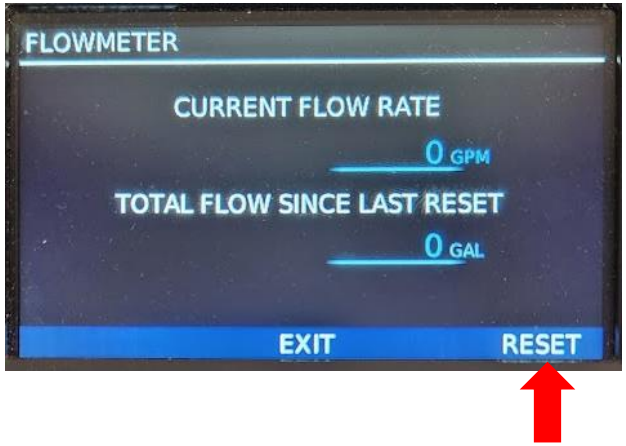


Turn on inhibit mode to prevent regen from occurring

Request regen

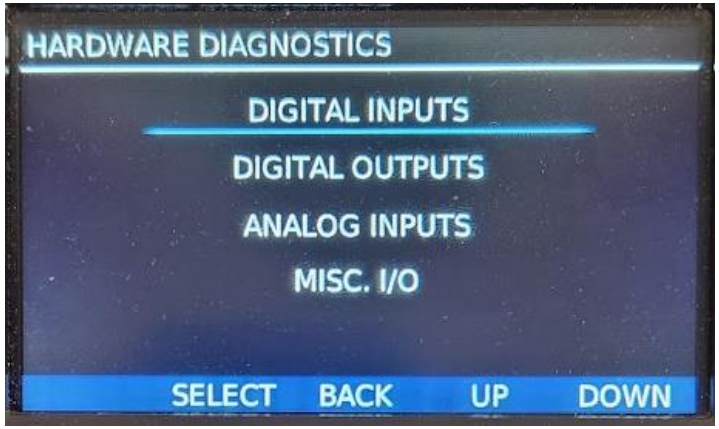
- Tier 4 & 5 engines will usually Auto-regen on their own
- You can prevent a regen from occurring by pressing the “Mode” button once, putting the engine in “Inhibit-regen” status (preventing engine from performing regens)
- If the engine does not regen, you can send a manual request to perform this, but it will only work when conditions exist (please refer to engine manual for what those conditions look like)

Screens – Flowmeter



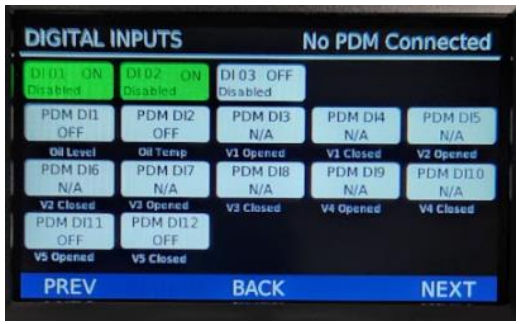
- Select “RESET” to reset the Total Gallons on the display.
- Flowmeters can be tied into the Nexus panel & dashboard using one of the dedicated analog inputs. See the setup section later in this manual.
- For detailed instructions on connecting a flow meter to a Nexus panel, contact your local dealer for a manual.

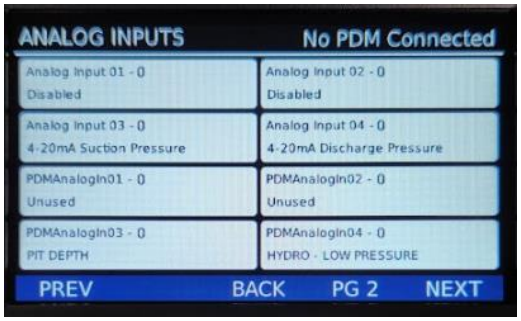
Screens – I/O & Diagnostics

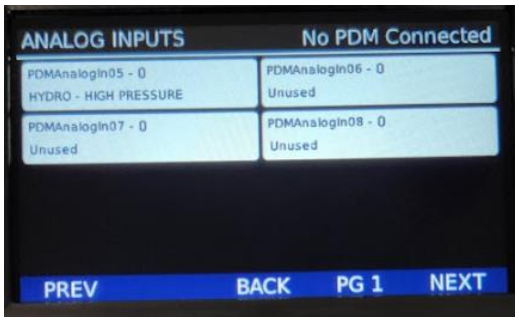


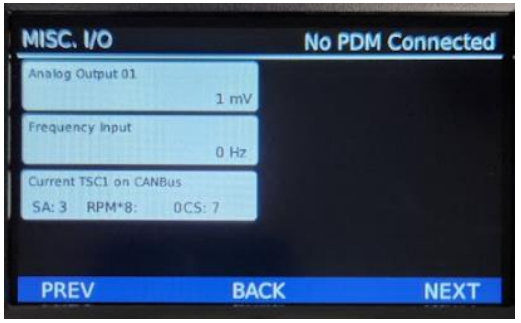
- This feature will take you to a list of inputs & outputs that are monitored through the Nexus software
- This can be used to help troubleshoot an issues with panel configuration to an input/output
- This can also be used to determine if an input/output is functioning and what it may be reading for a value

Screens – I/O & Diagnostics





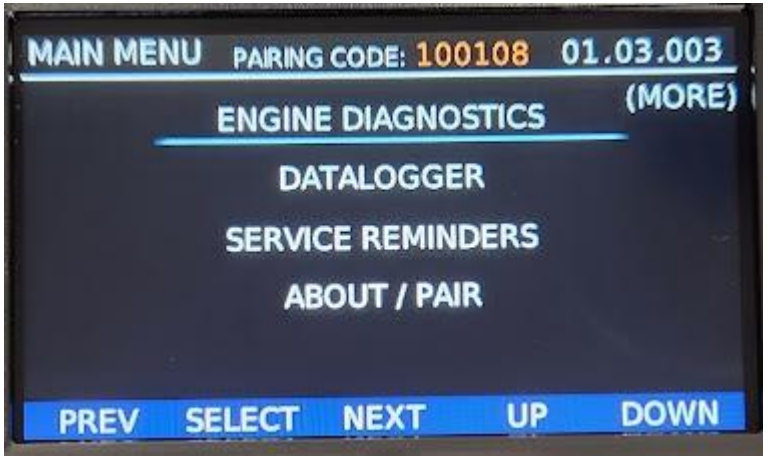


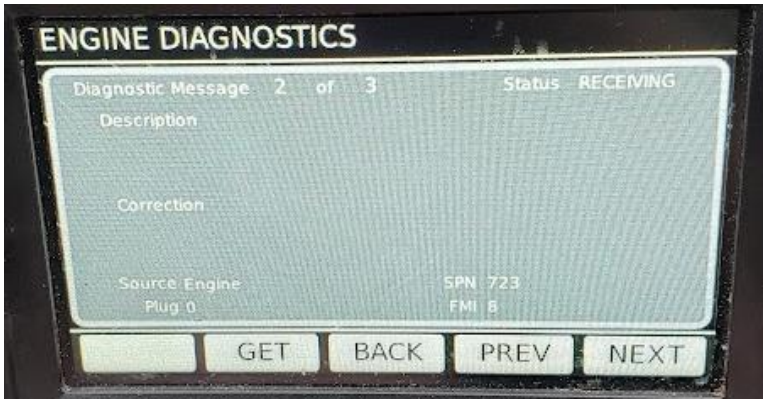


- Each digital input is labeled according to the configured function. Green means that the input is active.
- Each digital output is labeled as to what it controls and is green when active.
- The number on some outputs is the amount of current it is sending (in Amps).
- Each Analog input is labeled with it's configured function. The values shown are in raw digital units, not volts or milliamps.
- Misc. I/O page can be used for advanced troubleshooting.

Screens – Engine Diagnostics

- You can request to see any active or inactive “stored” error codes from the Engine ECU using the “GET” button
- You cannot clear any of these codes using the Nexus panel
- You can scroll through these using the “PREV” or “NEXT” buttons
- Using an approved OEM CAN tool or your engine’s service provider will be required to clear any engine codes

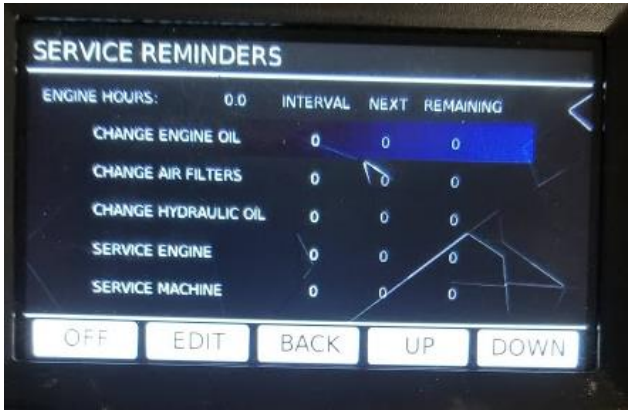




Screens – Datalogger

- The Datalogger feature captures each vital on the machine while key is on and records the value every 15 seconds
- This data can be captured and transferred to a Flash drive by pressing the “WRITE” button, with a Flash drive inserted into the USB port
- The data exported may need to be converted using formulas to show true vital values
- This will also have a time stamp associated with it

Screens - Service Reminders

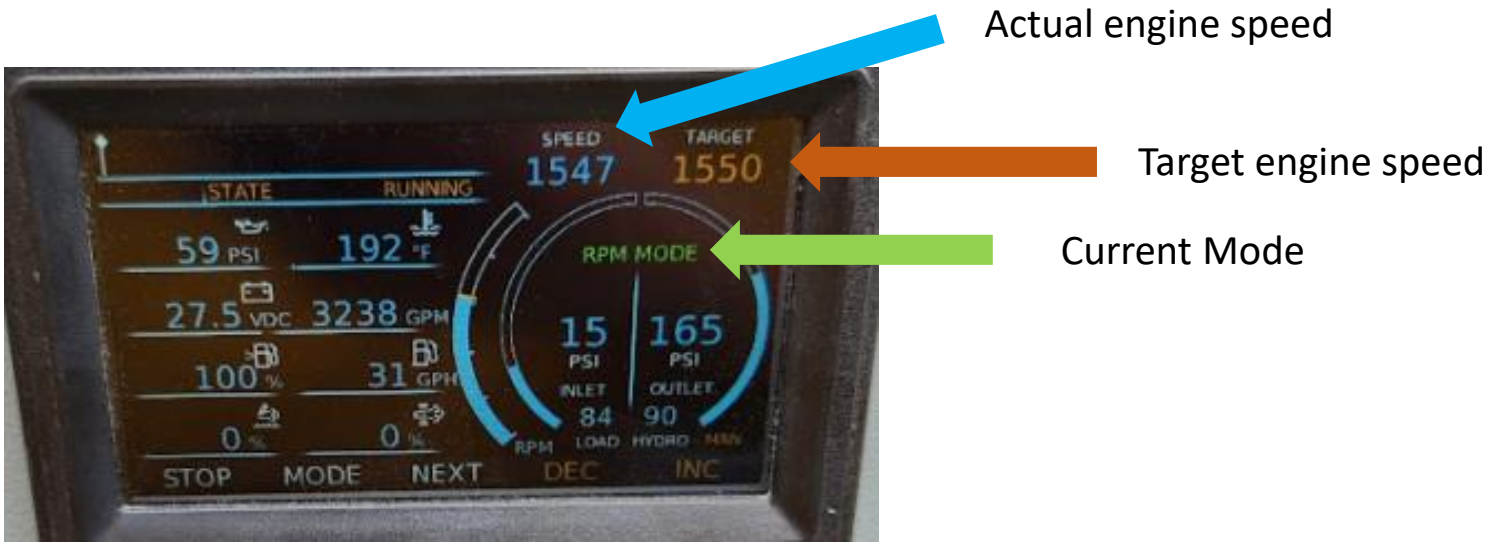


- Select “SERVICE REMINDERS” for prompts to perform preset service tasks based on engine hours.
- The engine hour meter is located on the top left
- Set the desired intervals of each maintenance task listed
- A warning will appear on the panel when these items are due for service, they will require a user to acknowledge the warning from the screen to make it go away.
- The keypad will appear when you press edit on a service task reminder
  - **Set** – Takes you back to task list
  - **Select** – Selects the item circled in blue
  - **Back** – Takes you back to task list
  - **Prev** – Highlights previous item
  - **Next** – Highlights next item

Screens - About/Pair

- Displays you what version of software you are running
- Displays the units pairing code for remote dashboard access
- Displays the Engine hours

How to use RPM Mode



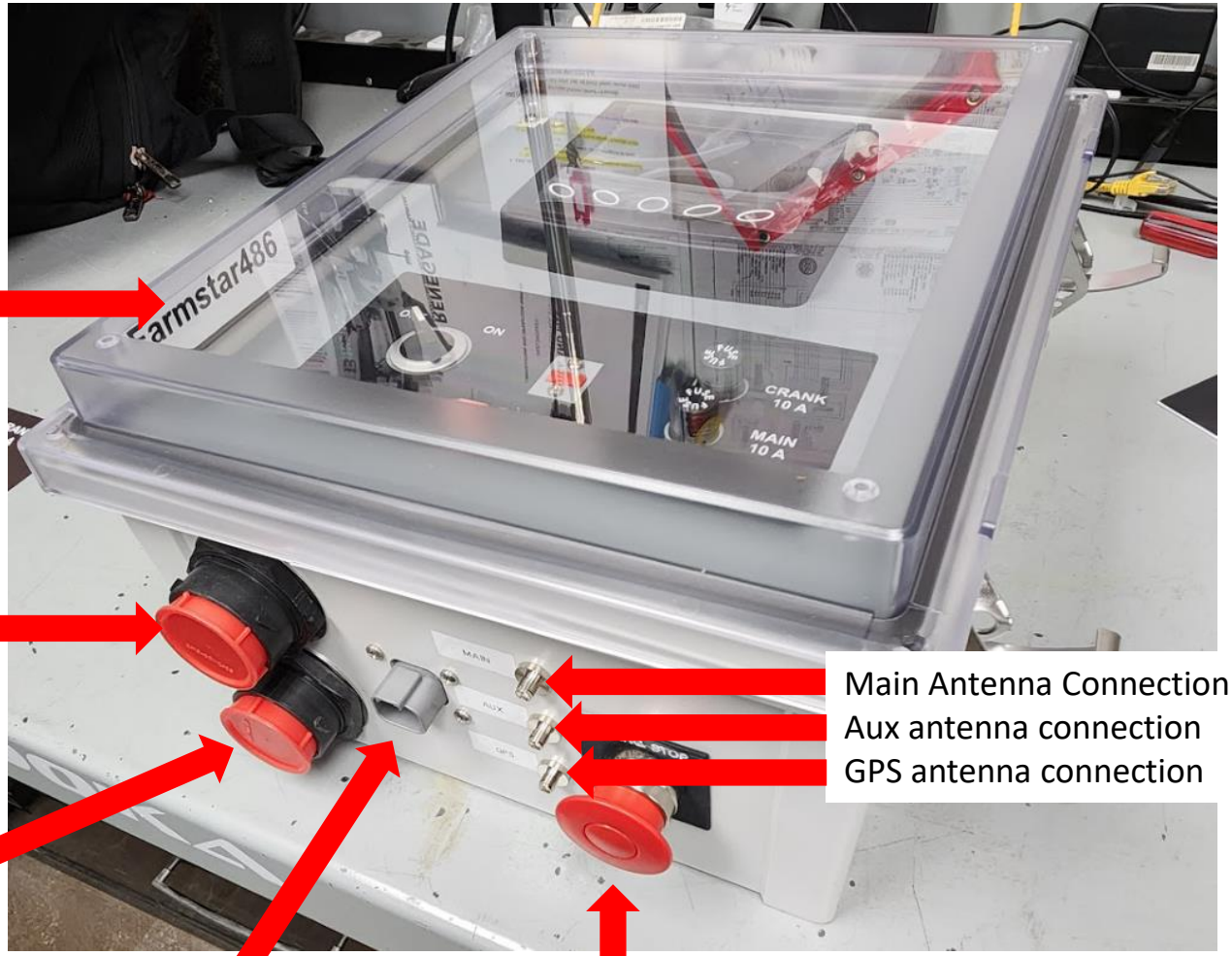
- Press the “Mode” button to toggle between manual RPM Mode or auto Pressure Mode
- When the engine is in a running state you can manually adjust the RPM target in “RPM MODE”.
  - This is only a requested speed
  - If max load has been reached the engine will not increase RPM
  - Some active engine errors may prevent engine from increasing RPM
- Use the buttons “DEC” & “INC” shown in yellow to change target speed
- Default idle speed is 900 RPM on most engine units, this can be configured (6100, P-007)
- When adjustments are made, the engine will make its way to the target at a default speed of 25 RPM/Sec, this can be adjusted for Increase & Decrease RPM (6400, S-010 & 011)

How to use Pressure Mode

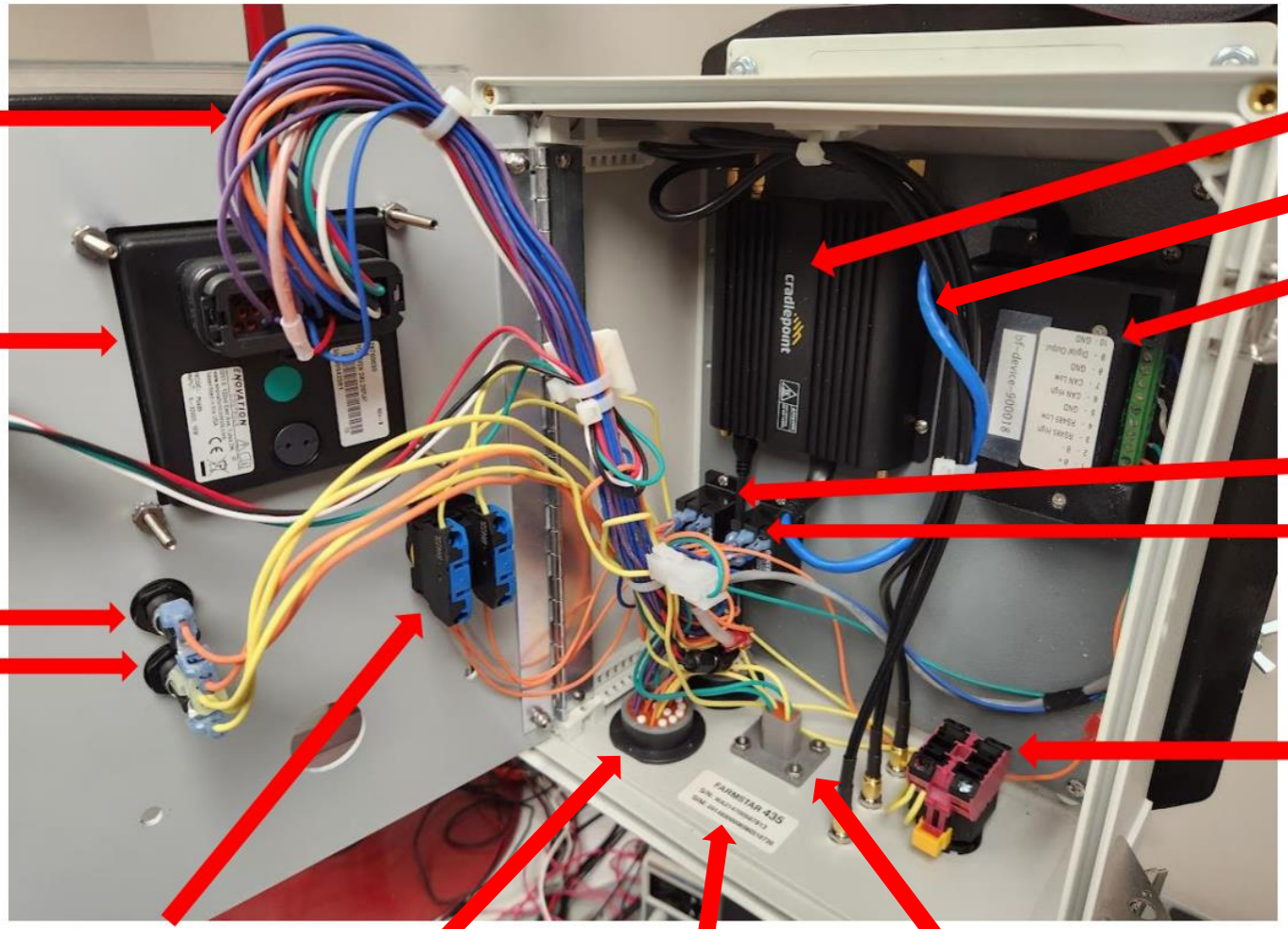
Inlet Outlet

- Press the “Mode” button to toggle between manual RPM Mode or auto Pressure Mode
- The current line pressures for inlet and outlet will be your starting set points when toggling over to “Pressure” mode
- When in “Pressure” mode you may not notice anything happening until user input for pressures are increased/decreased
- You can finely tune the inlet & outlet pressures to be at the targets desired
- The longer you press & hold the button, the faster the value will change.
- Inlet is prioritized over outlet, so inlet will never go below the selected value on the inlet target
- Outlet can only be reached if there is enough inlet supply
- It is safe to toggle between modes while running

Hardware - Outside



Hardware - Inside



Main, one-piece Wire harness
70-1866

Engine controller
70-1543

Main fuse
Crank fuse
Holder - 70-1704
Fuse 10A – 70-1541

On/Off switch
70-2134

Engine plug (21 pin)
Options plug (31 pin)

Farmstar ID # plate

Power input plug
Auxiliary power harness
70-1919

Modem
70-3870

Blue network cable 70-1542

Communication module

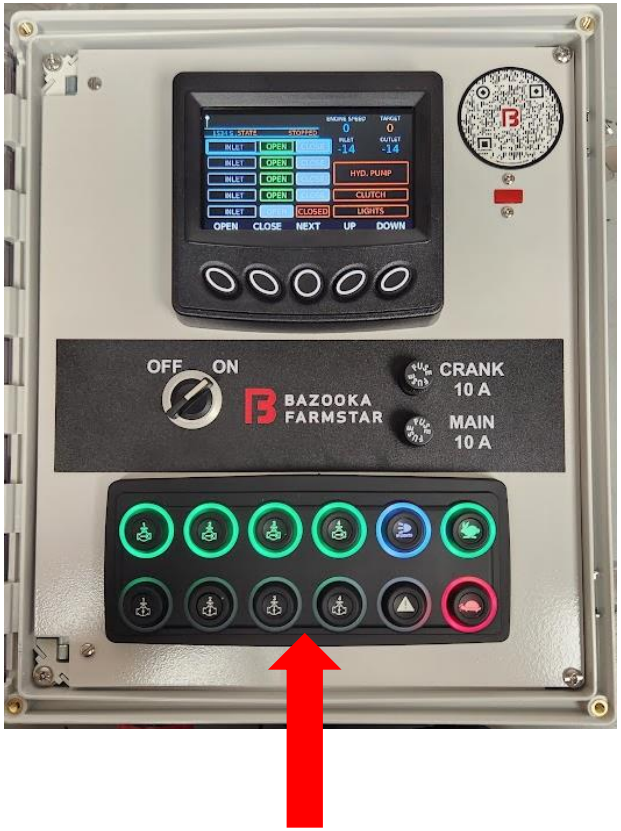
Platforms
.Com - 70-3019
.Net - 81246-12

Relay for Crank

Relay for main power
12V – 70-1544
24V – 70-1602

E-Stop
81246-19

Hardware - Keypad



Nexus Keypad kit 70-3010
(comes with keypad, decal, & faceplate)

Valve position
Open = Green
Closed = Red

Valve One open

Valve Two open

Valve Three open

Valve Four open

Lights Off (light blue)

Lights On (Dark Blue)

Engine speed increase (Green)

Valve One close

Valve Two close

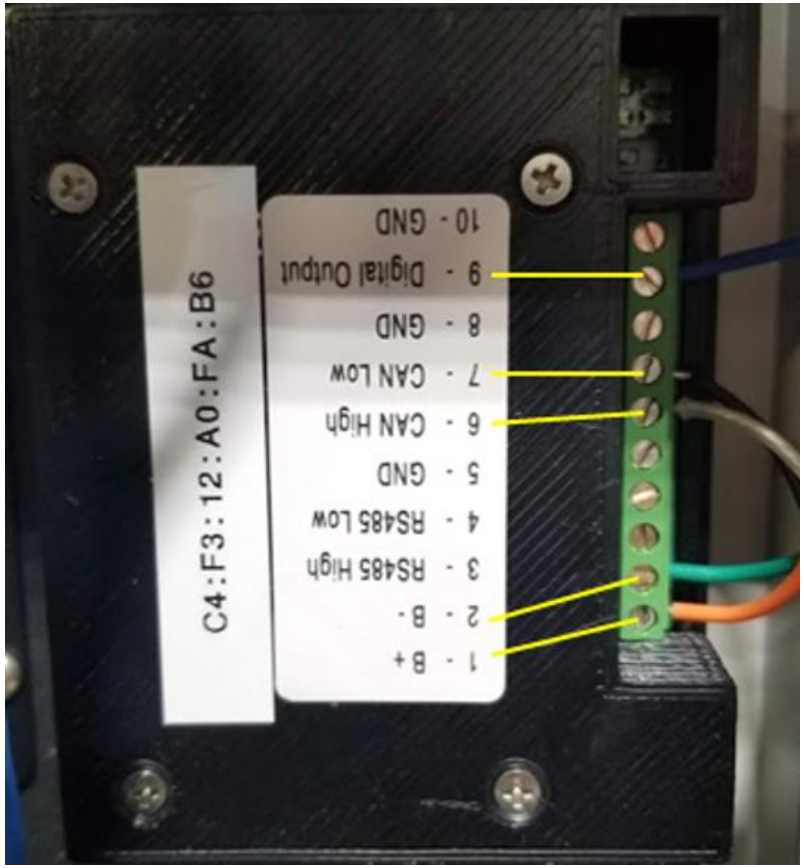
Valve Three close

Valve Four close

Engine Codes
Warning = Yellow
Stop = Red

Engine speed decrease (Red)

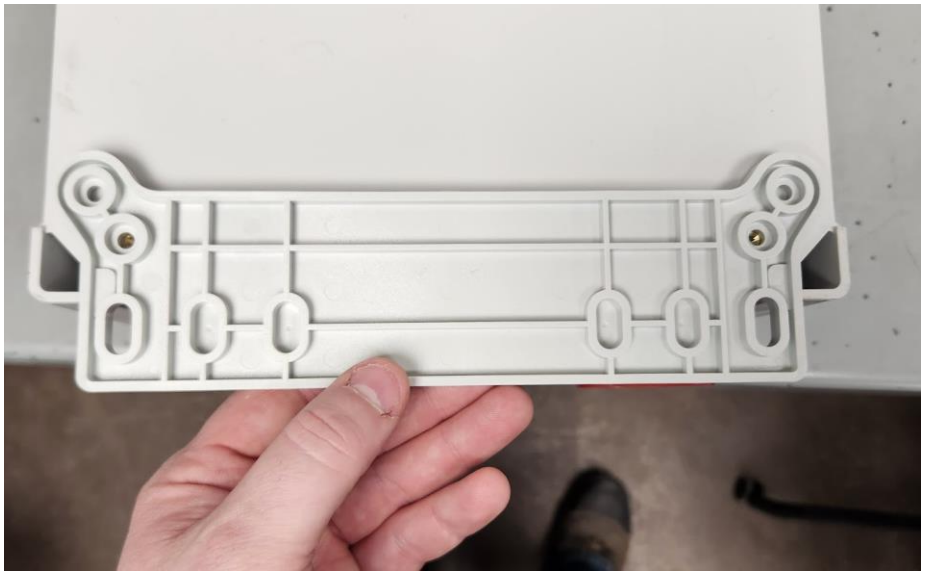
Hardware - BVR



- Blue wire-Digital Output (9)
- Black wire-CAN LOW (7)
- Clear wire-CAN HIGH (6)
- Green wire- B- (2)
- Orange wire – B+ (1)

- Blue network cable connects to the top of this module and goes to the Modem

Hardware - Mounting



Anti-vibration
20894

Flange nut
11514C

- Place both mounting plates over the top/bottom brass-colored holes you see on the back of panel
- Fasten them in place using the four screws provided with the brackets (ECS/Nexus mounting brackets 70-3017)
- Use the slots provided in the brackets to install the anti-vibration rubbers
- Mount panel to stand and tighten nuts on both sides of the bracket

Hardware - Antenna

- The antenna requires a 7/8” hole drilled into the desired mounting location
- For optimal performance, the antenna must be mounted at the highest point on the unit and has at least 1’ of grounded metal surface surrounding it
- 1-1/8” wrench will be needed to tighten down nut on antenna to desired location

ECS/Nexus Antenna
70-1600

- Two larger cables from antenna go into “MAIN” and “AUX” on bottom of panel in no special order
- The smaller of the three cables goes to port labeled “GPS”
- For connection and troubleshooting please refer to the “Modem connection troubleshooting” guide located in the Nexus resource page

Hardware - PDM panels

- **PDM panel with Valves & Hydro**

Power indicator LED light comes on with Nexus key switch

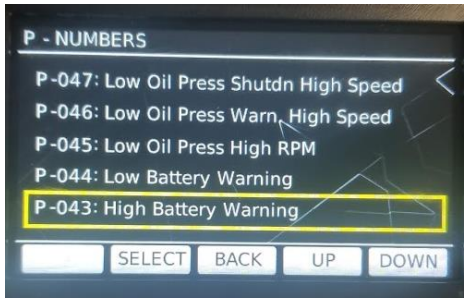
Force feed pump direction (FWD) or (REV)

- **PDM panel with Valves only**

Vibration control mounts - 20894

¼” Flange nut – 11514C

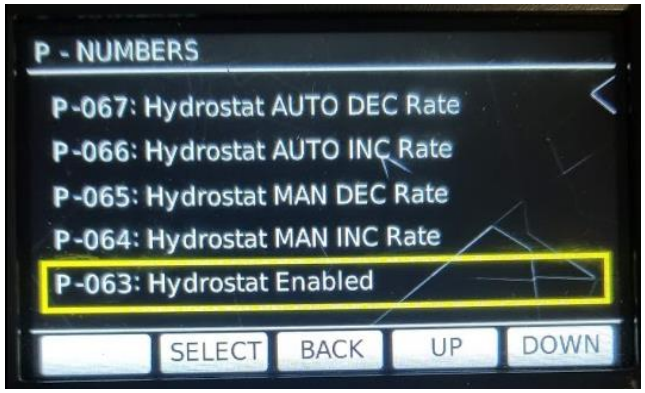
Setup – Engine Voltage



- 6100 passcode
- P-043 High Battery Warning
- P-044 Low Battery Warning

- Depending on 12V or 24V systems this may need to be adjusted
- Recommended to set 4V above & below the rated system for the warnings
  - 12V: 8V and 16V
  - 24V: 20V and 28V

Setup - Hydrostat Enable

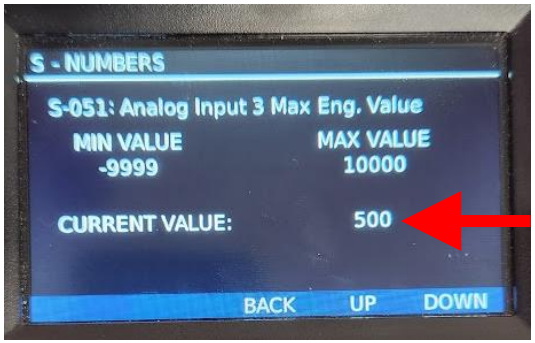


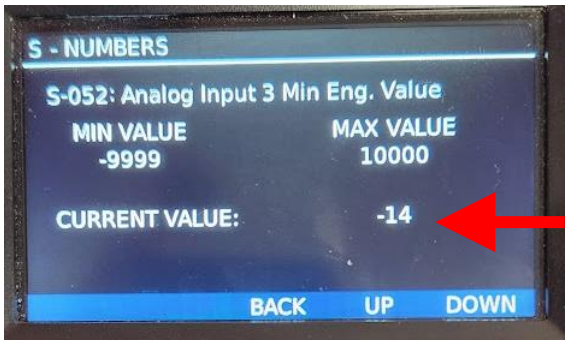
- Passcode 6100
- P-063 Hydrostat enable

- This option will enable the hydrostat feature which will display an extra page, shown on the bottom right

- This feature provides a signal to control a hydrostatic pump. This is usually used adjust the speed of a force-feed pump.

Setup – Inlet Pressure Sensor



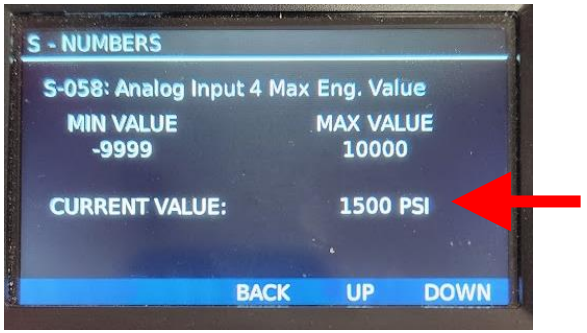


- Enter passcode 6400.

- S51: Analog Input 3 Max Eng. Value
- Enter the maximum PSI range printed on the inlet sensor:
  - **Ashcroft: 500 PSI**
  - **Murphy: 1000 PSI**
  - **Transducers Direct: 1500 PSI**

- S52: Analog Input 3 Min Eng. Value
- Enter the minimum PSI range printed on the inlet sensor:
  - **Ashcroft: -14 PSI**
  - **Transducers Direct: -14 PSI**
  - **Murphy: 0 PSI**

Setup – Outlet Pressure Sensor

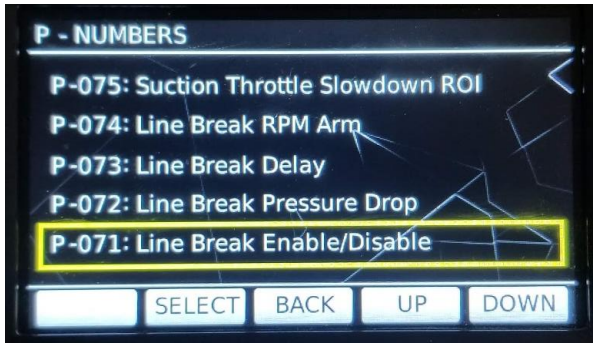


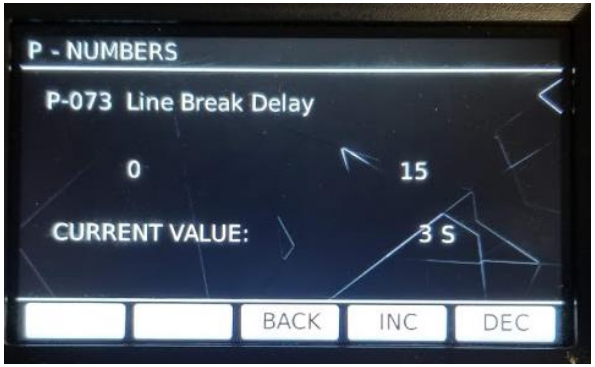
- Enter passcode 6400.

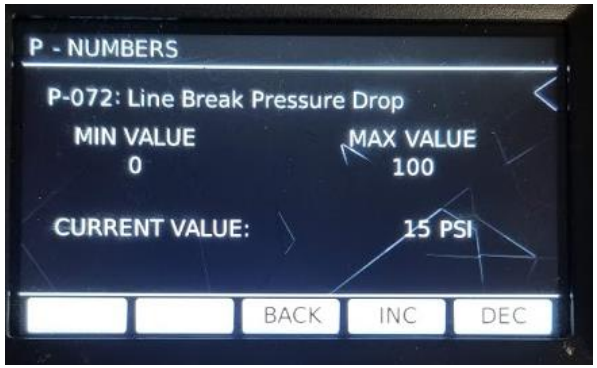
- S58: Analog Input 4 Max Eng. Value
- Enter the maximum PSI range printed on the outlet sensor:
  - **Ashcroft: 500 PSI**
  - **Murphy: 1000 PSI**
  - **Transducers Direct: 1500 PSI**

- S59: Analog Input 4 Min Eng. Value
- Enter the minimum PSI range printed on the outlet sensor:
  - **Ashcroft: -14 PSI**
  - **Transducers Direct: -14 PSI**
  - **Murphy: 0 PSI**

Setup – Line Break

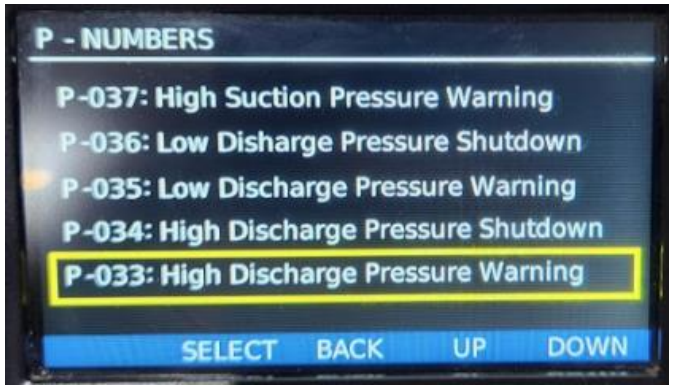






- Enter passcode 6100
- P-071 Enables the Line break detection feature
- P-072 Sets amount of PSI required to drop before triggering line break
- P-073 Sets time in which the drop in pressure must remain
- P-074 Sets the minimum RPM above which this feature is engaged
  - Prevents false detection during startup

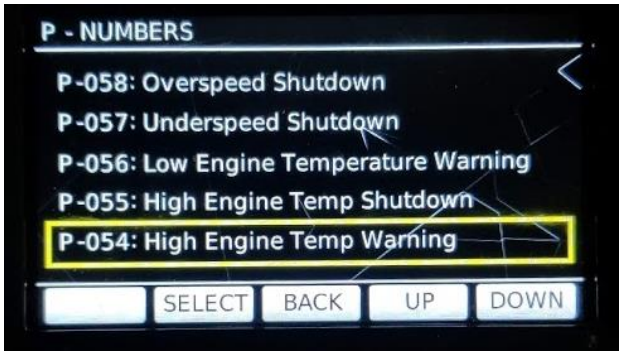
Setup – High Pressure

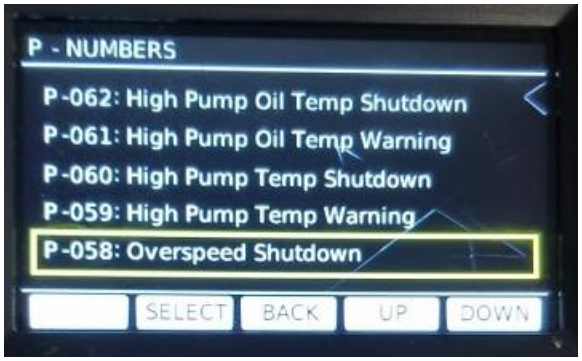


- Passcode 6400
- P-033 High Discharge Pressure Warning
- P-034 High Discharge Pressure Shutdown
- P-035 Low Discharge Pressure Warning
- P-036 Low Discharge Pressure shutdown
- P-037 High Suction Pressure Warning
- P-038 High Suction Pressure Shutdown
- P-039 Low Suction Pressure Warning
- P-040 Low Suction Pressure Shutdown

- These protective features monitor pressure and will warn the operator or shut down the pump in the event of pressures exceeding a value that is set in these parameters
- Any value other than 0 will enable each of these features

Setup – Overspeed & Engine Temp





- Passcode 6400

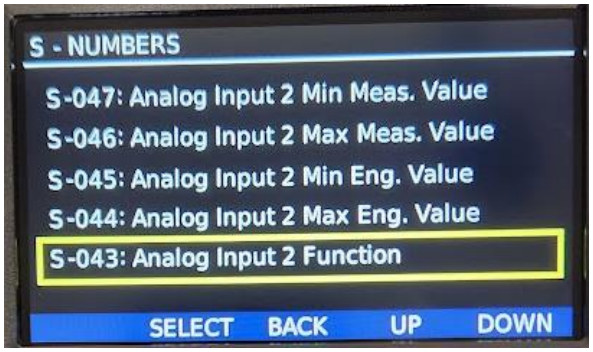
- P-054 High Engine Temp Warning
  - Will warn operator of excess engine temp on panel, if reached
  - Warnings can be cleared from the screen if operator presses “Hide”
- P-055 High Engine Temp Shutdown
  - Will do as intended once a set target is reached, default is 225°F for shutdown
- P-058 Overspeed shutdown
  - Will stop an engine that exceeds RPM target, default is 2200RPM

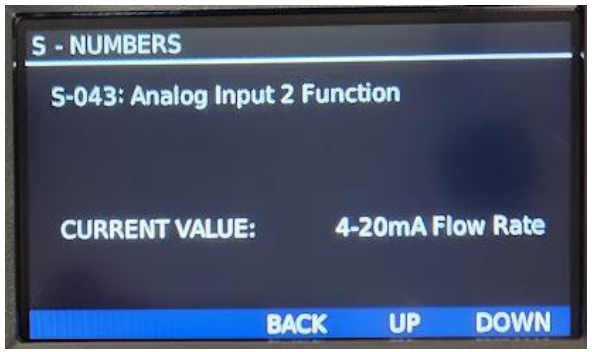
Setup – Pit Depth & Flowmeter

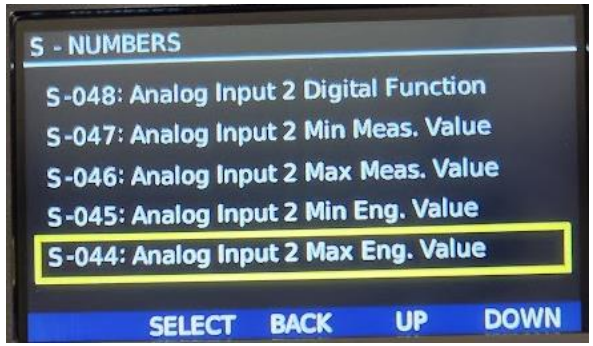
- 3300 passcode
- M-011 Display flow or tank level
  - Set to “tank level”

- Nexus pit depth sensors comes with a stock 63-inch length cable & can be easily trimmed to the required size, depending on the measurement needed to reach the end of a boom, stick, tank, or other various applications.

Setup – Flowmeter



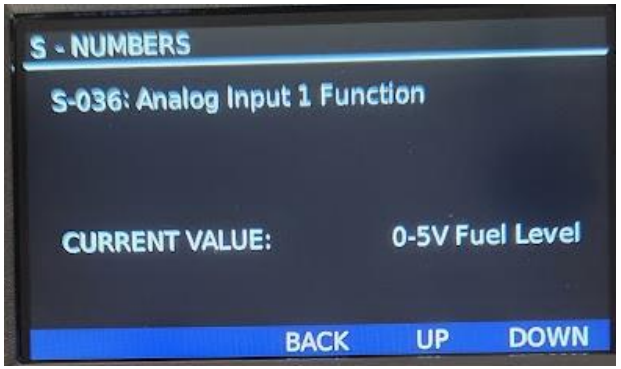




- 6400 passcode
- S-043 “Analog Input 2 Function” set to “4-20 mA flow rate”
- S-044 “Analog Input 2 Max Eng. Value”
  - You will need set based on the tube diameter

  - Krohne tube is 6”: set to 3500
  - Krohne tube is 8”: set to 4500
  - Krohne tube is 10”: set to 6000

Setup – Fuel Level



- To Enable:
  - 6400 passcode
  - S36: Analog input 1 Function
    - Set to “0-5V Fuel level”

- Fuel level is shown on panel & dashboard as 0% – 100%
- Nexus fuel level senders comes in a 60 or 40-inch length & can be easily trimmed to the required size, depending on the measurement needed from the top of the tank down.
- A simple recalibration will be required once power is applied, and the sensor is cut to the appropriate size. Please refer to the manual for the calibration process.

Setup – Valves & Aux

- 3482 passcode
- I1 - I10 Valve timing for open/close functions
- I11 - I15 Valve names
- I87 - I91 Valve hide/show

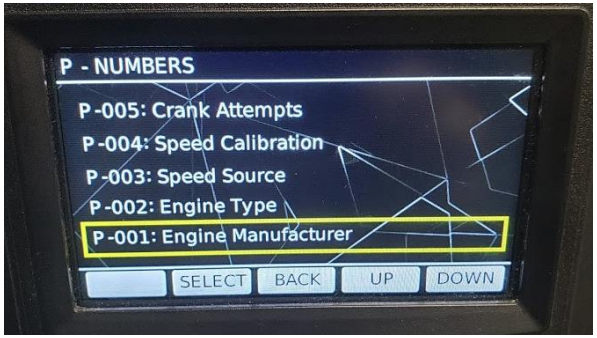
- Select preset names for each button on the panel to distinguish each valve
- Adjust timing per open or close functions to ensure the valve is secured in position no matter the size
- Show/hide valves that are unused
- Label Aux output (Pump, Lights, or Clutch)
- Show/hide Aux output button if unused

Setup – Droop

- 3300 passcode
- M-007: Droop compensation
- Enable or Disable

- Droop refers to the effect of an engine slowing down under load. Droop compensation will increase throttle to maintain speed under load.
- Electronic engines usually have their own built-in droop compensation. But if not, enable this feature.
- This will need to be enabled on Mechanical type engines

Setup - Engine Communications



- If you modify any engine communication parameters in the 6100 menu, you MUST:
  - Back out of all menus
  - Power cycle the panel using the keyswitch, not the e-stop!
  - This is important because it needs to reset communication with the engine ECU
  - On newer versions the screen will warn you that power needs to be reset.

Important!

Power cycle panel using the key switch

Setup – Throttle Electronic engines

- P-001 “Engine Manufacturer”
- P-002 “Engine Type”
  - *J1939*
- P-007 “Minimum engine speed”
- P-008 “Maximum engine speed”

- If a value is entered into these parameters, the engine will go to the speed for the time entered when started or stopped:
  - P-009 “Warm up speed”
  - P-010 “Cooldown speed”
  - P-013 “Warm up delay”
  - P-014 “Cooldown delay”

- S-010 “Throttle Inc rate”
- S-011 “Throttle Dec rate”

Speed of the engine throttle actually going to the target speed. The default is 25RPM/sec, which is very conversative. Increase for faster engine throttle response.

- M-009 “Throttle Origination”
  - PV485 or MTM
  - This determines the device that sends throttling messages
  - This may need addressed if engines run rough
- M-007 Droop compensation
  - Comes enabled, will need to be disabled for electronic engines
- M-003 Address claim #
  - This can be set manually, if the engine manufacturer is set to “other”

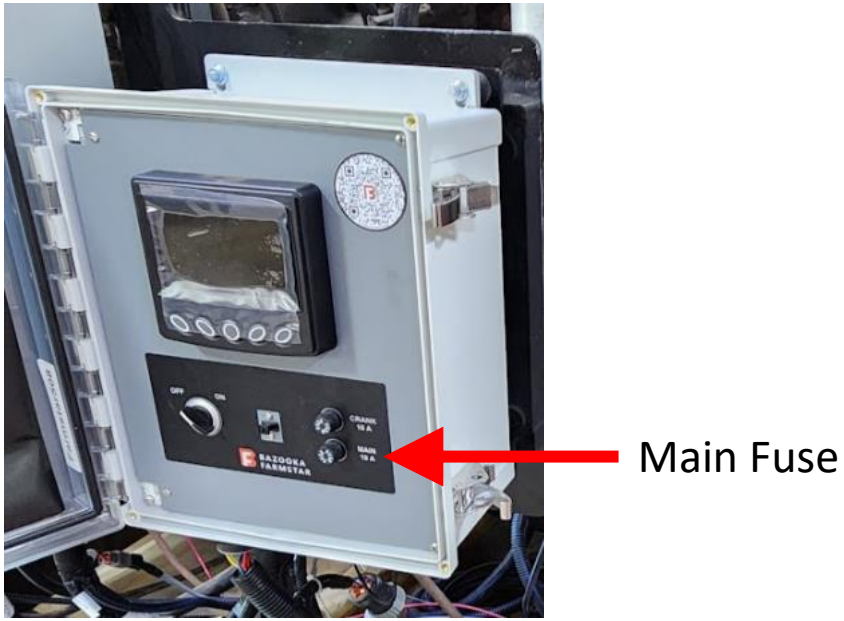
Setup – Throttle Mechanical engine

- P-002 “Engine Type”
  - *Mechanical*
- P-003 “Speed source”
  - Mag pickup
  - Alternator
- P-004 “Speed calibration”
  - *Setting the number of teeth on the flywheel for accurate RPM*
- P-006 “Crank disconnect speed”
- P-007 “Minimum engine speed”
- P-008 “Maximum engine speed”

- S-003 “Throttle type”
  - 0-5V or Pulse Inc/Dec
- S-007 “Throttle Inc/Dec pulse
  - Controls the speed of the actuator adjustments
- S-008 “Throttle Inc/Dec pulse delay”
  - Controls time between actuator adjustments

- S-010 “Throttle Inc rate”
- S-011 “Throttle Dec rate”
  - Speed of the engine throttle actually going to the target speed. The default is 25RPM/sec, which is very conversative. Increase for faster engine throttle response.

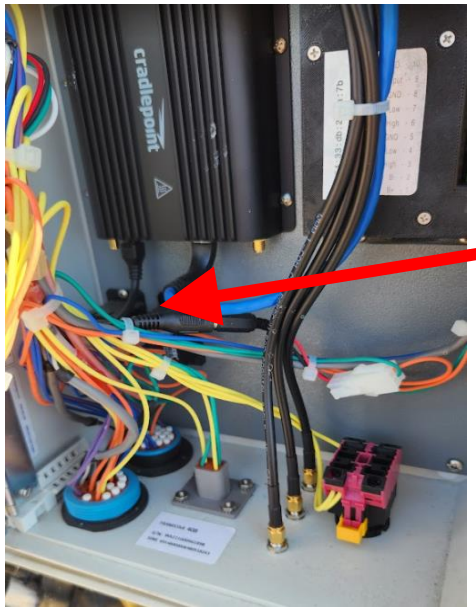
Troubleshooting – Power



Panel will not power up

- Check to make sure E-Stop is pulled out
- Check main fuse (glass 10 Amp)
- Check for voltage on the 21-pin connector, end that plugs into panel
  - Pin B (+)
  - Pin E (-)
- Check voltages back to power source battery, bus bar, or master switch
- Isolate panel with just the engine harness, unplug the 31 pin (WIKA harness) and power up

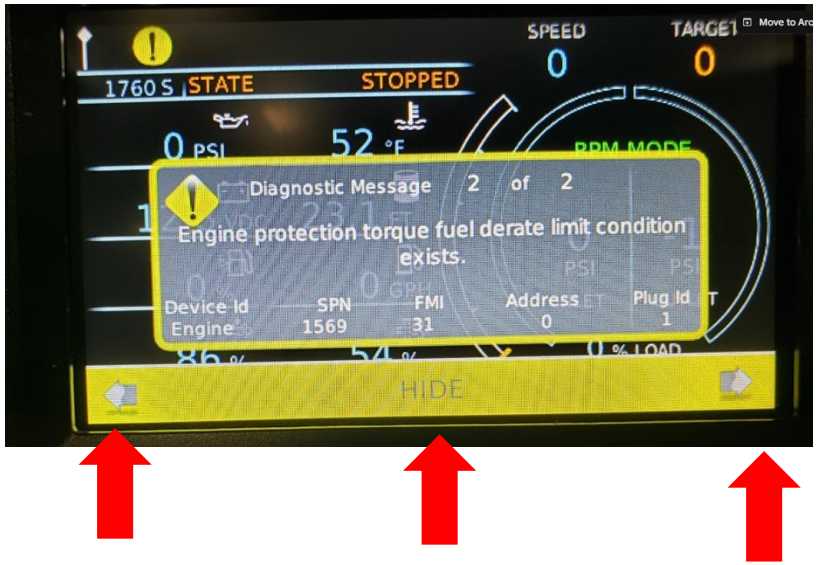
Troubleshooting – Crank



Panel powers up but will not crank engine

- Check Crank fuse located on front of the Nexus panel.
- Check for failed solenoid or starter. Check to see if crank signal is reaching pilot solenoid with test light or meter.
- Check internal relay, located inside Nexus panel, bottom left, below the “Cradlepoint” modem.
- The relay should click when cranking.
- Check the relay’s rated voltage VS. engine voltage

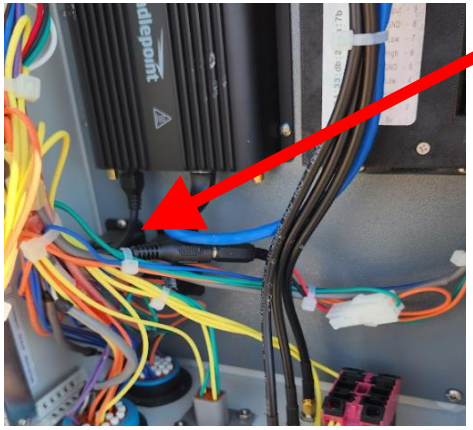
Troubleshooting – Diagnostic Messages



- Green: Fault is no longer active
- Yellow: Warning
- Red: Engine shutdown

- Engine-specific issues are detected and reported with ECU codes
- Engine derate conditions may exist to protect engine
- Scroll to the right using the arrow to see what other codes exist
- You can press the “Hide” button in the center of the controller to remove the code from the screen, but this does not clear code
- Correct engine issues to clear these errors
- And codes with a number greater than 520000 are Nexus-specific error codes

Troubleshooting – CAN BUS FAILURE



Relay location for ECU power and Crank

Check relay rating vs. engine voltage requirements

CAN BUS FAILURE

This means that the Nexus panel can't communicate with the Engine's electronic ECU.

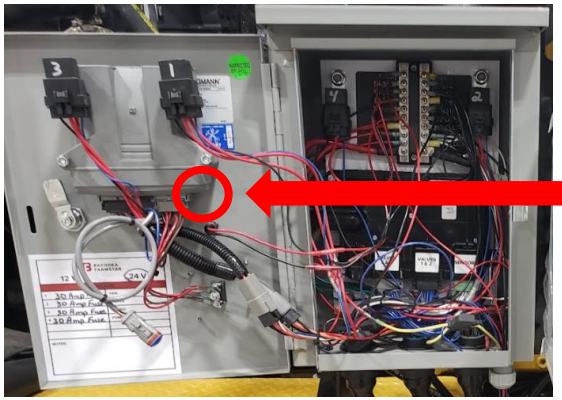
- If this is the first time starting up, check engine manufacturer is set to proper engine type (6100 menu, P-001)
- Check that throttle type set to ECU/J1939 (6400 menu, S-003)
- Check fuses on front of panel
- Check if "picker" relays inside panel to see if it clicks when powered up
- Check the relay's rated voltage VS. engine voltage
- Check battery connections in engine harness going to the ECU
- Check the ECU power relay inside of the Nexus panel in bottom left corner, this should click during power up, a few seconds after turning the key switch on

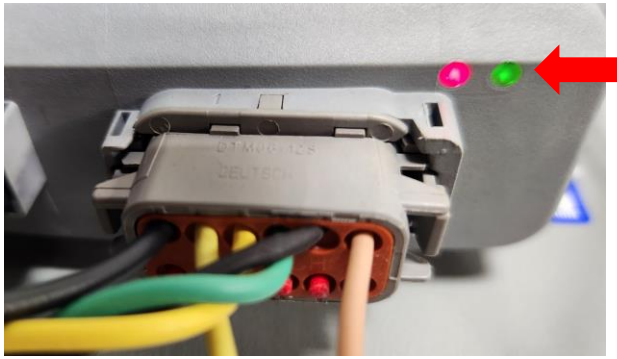
Troubleshooting – SPEED SIGNAL LOST

SPEED SIGNAL LOST

- This means that the Nexus panel does not see any RPM feedback coming from the engine
- This is a universal code for engine-related issues preventing it from running
- Check fuel lines, air restrictions, or mechanical issues preventing engine from running

Troubleshooting – Danfoss Hydrostat

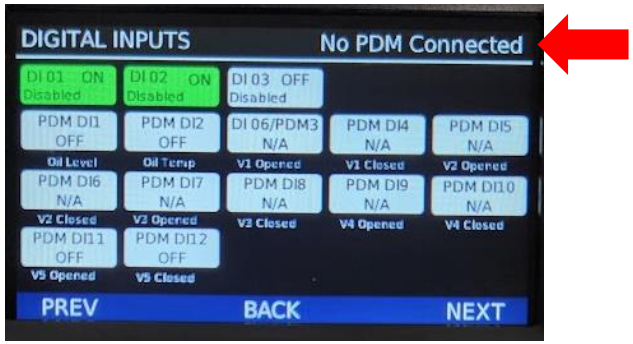


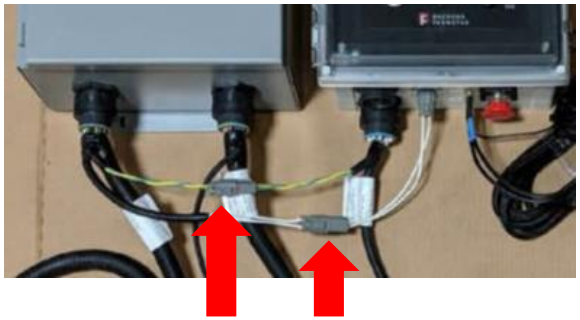


Power and error indicator lights

- The system might alternatively be using the Kartech for throttling, depending on model.
- When power is applied a green LED light will be lit on the bottom right of the gray Danfoss module inside of the PDM
- If any electrical errors are present, they will show up on the left light as a red LED that blinks
- If the light is green and the red light is off, try using the override buttons on some pump models
- Call Bazooka-Farmstar for the hydrostat troubleshooting manual for further instructions

Troubleshooting - PDM Panel

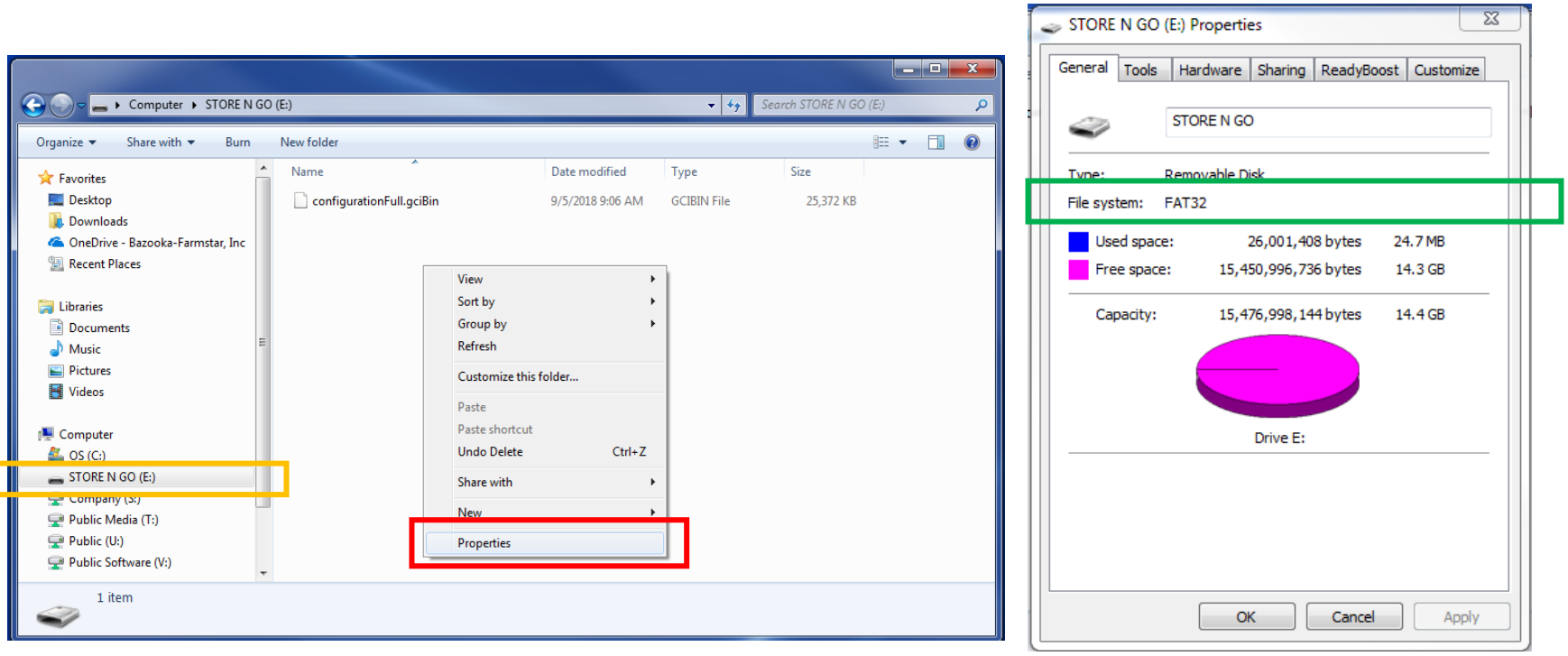




If you experience issues with valves, then check the following:

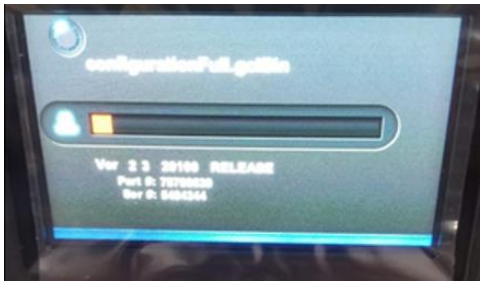
- Check the I/O & Diagnostics page to see if there is a connection to the PDM panel. If the PDM does not have power or CAN BUS connection it will tell you in the top right corner
- The Digital Inputs page shows the status of each proximity sensor
- Text under each box tells you what valve & function it corresponds with
- When active the box will turn green
- Check the harnesses to make sure connection is made between the Nexus panel and the PDM panel
    - 2 pin Deutsch (Green & Yellow wire) Can Bus
    - 3 Pin Deutsch (Green, Yellow, & Red wire) Key power

Updating Software – Preparing the USB Drive



- USB thumb drive must be formatted to Fat32 which should be the case for most thumb drives, to check this right click in window and click on properties highlighted in Red (to reformat, right click the disc drive highlighted orange on the left, then click format, choose Fat32 as the file system)
- This will open up another window which will display the file system type, this is highlighted in green
- Copy the “configurationFull.gcibin” file to the flash drive. DO NOT change the name.

Updating Software – Loading the software



1. Insert the USB thumb drive into the USB port in the panel (You might have to first remove a protective red dust plug.)
2. Hold down the center button while turning the panel on.
3. Continue holding the button down until the screen looks like the one shown.
4. Hit the far right button under the right arrow.
5. Hit the far right button again to start the download.
6. The file download status bar will appear as shown
7. Once the file download is complete you will see a green checkmark in the center of the screen.
8. The panel will then automatically reboot with the new software loaded. Remove the flash drive and reinstall the dust plug if present.

Settings - 3300

Menu	Number	Option Name	Default Value	Notes
3300	M-001	Reboot To Bootloader		
3300	M-002	Auto/Manual	Boot into auto mode	Always use AUTO
3300	M-003	J1939 Adress Claim	3	J1939 address for this device
3300	M-004	ECU Source Address	0	
3300	M-005	Controller Hour Select	0	
3300	M-006	Internal Engine Hours	0 HRS	
3300	M-007	Droop Compensation	On	Adjusts actual RPM request to achieve target
3300	M-008	Factory Reset		
3300	M-009	TSC1 Throttle Origination	PV485	Use PV485, or MTM if throttle is rough with PV
3300	M-010	TSC1 Checksum	On	Some ECUs require this
3300	M-011	Display Flow or Tank Level	Tank level	
3300	M-012	Nexus Generation	Generation 1	Always use Generation 1
3300	M-013	Stability RPM Adjustment	50	Used in droop mode for small changes
3300	M-014	Ramp RPM Adjustment	25	Used in droop mode for large changes

Settings – 3482

Menu	Number	Option Name	Default Value	Notes
3482	I-001	Valve 1 Open Delay	8 SEC	
3482	I-002	Valve 1 Close Delay	8 SEC	
3482	I-003	Valve 2 Open Delay	8 SEC	
3482	I-004	Valve 2 Close Delay	8 SEC	
3482	I-005	Valve 3 Open Delay	8 SEC	
3482	I-006	Valve 3 Close Delay	8 SEC	
3482	I-007	Valve 4 Open Delay	8 SEC	
3482	I-008	Valve 4 Close Delay	8 SEC	
3482	I-009	Valve 5 Open Delay	8 SEC	
3482	I-010	Valve 5 Close Delay	8 SEC	
3482	I-011	Valve 1 Name	Inlet	
3482	I-012	Valve 2 Name	Inlet	
3482	I-013	Valve 3 Name	Inlet	
3482	I-014	Valve 4 Name	Inlet	
3482	I-015	Valve 5 Name	Inlet	

I16 through I55 aren’t used anymore

Settings – 3482

3482	I-056	AI 03 Max Count	5.0 VDC	(Pit Depth Sensor - no adjustment needed)
3482	I-057	AI 03 Max Eng	23 FT	
3482	I-058	AI 03 Min Count	0.0 VDC	
3482	I-059	AI 03 Min Eng	0 FT	
3482	I-060	AI 03 Offset	0.0 FT	
3482	I-061	AI 04 Max Count	4.5 VDC	(Hydraulic Low Pressure - no adjustment needed)
3482	I-062	AI 04 Max Eng	5800 PSI	
3482	I-063	AI 04 Min Count	0.5 VDC	
3482	I-064	AI 04 Min Eng	0 PSI	
3482	I-065	AI 04 Offset	0.0 PSI	
3482	I-066	AI 05 Max Count	4.5 VDC	(Hydraulic High Pressure - no adjustment needed)
3482	I-067	AI 05 Max Eng	5800 PSI	
3482	I-068	AI 05 Min Count	0.5 vdc	
3482	I-069	AI 05 Min Eng	0 PSI	
3482	I-070	AI 05 Offset	0.0 PSI	
3482	I-071	AI 06 Max Count	0	(Not used)
3482	I-072	AI 06 Max Eng	0	(Not used)
3482	I-073	AI 06 Min Count	0	(Not used)
3482	I-074	AI 06 Min Eng	0	(Not used)
3482	I-075	AI 06 Offset	0	(Not used)
3482	I-076	AI 07 Max Count	0	(Not used)
3482	I-077	AI 07 Max Eng	0	(Not used)
3482	I-078	AI 07 Min Count	0	(Not used)
3482	I-079	AI 07 Min Eng	0	(Not used)
3482	I-080	AI 07 Offset	0	(Not used)
3482	I-081	AI 08 Max Count	0	(Not used)
3482	I-082	AI 08 Max Eng	0	(Not used)
3482	I-083	AI 08 Min Count	0	(Not used)
3482	I-084	AI 08 Min Eng	0	(Not used)
3482	I-085	AI 08 Offset	0	(Not used)

Settings – 3482

3482	I-086	Aux Output Label	Lights	
3482	I-087	Valve 1 Visibility	Show	*I93 in older versions
3482	I-088	Valve 2 Visibility	Show	*I94 in older versions
3482	I-089	Valve 3 Visibility	Show	
3482	I-090	Valve 4 Visibility	Show	
3482	I-091	Valve 5 Visibility	Show	
3482	I-092	Aux Visibility	Show	
3482	I-093	Low Hyd. Oil Level Delay	15 SEC	*I87 in older versions
3482	I-094	High Hyd. Oil Temp. Delay	15 SEC	*I88 in older versions
3482	I-095	Inverse Hydrostat Control	(Not used)	
3482	I-096	Hydrostat - Analog or PWM	(Not used)	
3482	I-097	Hydrostat Model	(Not used)	
3482	I-098	Hydrostat Auto Voltage Detect	(Not used)	
3482	I-099	P5.H Frequency	(Not used)	
3482	I-100	P5.H Duty Cycle	(Not used)	
3482	I-101	P5.H Current Min	(Not used)	
3482	I-102	P5.H Current Max	(Not used)	
3482	I-103	P5.H Proportional	(Not used)	
3482	I-104	P5.H Integral	(Not used)	
3482	I-105	P5.H Differential	(Not used)	
3482	I-106	P5.J Frequency	(Not used)	
3482	I-107	P5.J Duty Cycle	(Not used)	
3482	I-108	P5.J Current Min	(Not used)	
3482	I-109	P5.J Current Max	(Not used)	
3482	I-110	P5.J Proportional	(Not used)	
3482	I-111	P5.J Integral	(Not used)	
3482	I-112	P5.J Differential	(Not used)	
3482	I-113	Valve 1 as Output	Valve	Use these to convert a valve to a simple on/off output
3482	I-114	Valve 2 as Output	Valve	
3482	I-115	Valve 3 as Output	Valve	
3482	I-116	Valve 4 as Output	Valve	
3482	I-117	Valve 5 as Output	Valve	

Settings - 6100

Menu	Number	Option Name	Default Value	Notes
6100	P-001	Engine Manufacturer	John deere	*select your engine*
6100	P-002	Engine Type	ECU/J1939	Mechanical/Electronic
6100	P-003	Speed Source	J1939	J1939 or Mag pickup/Alternator
6100	P-004	Speed Calibration	150.00 Teeth	Mag pickup/Alternator calibration
6100	P-005	Crank Attempts	3	
6100	P-006	Crank Disconnect Speed	500 RPM	
6100	P-007	Minimum Engine Speed	900 RPM	
6100	P-008	Maximum Engine Speed	2150 RPM	
6100	P-009	Warm-Up Speed	900 RPM	
6100	P-010	Cooldown Speed	800 RPM	
6100	P-011	Clutch Engage Speed	1200 RPM	
6100	P-012	Clutch Disengage Speed	1000 RPM	
6100	P-013	Warm-up Delay	1 SEC	
6100	P-014	Cooldown Delay	1 SEC	
6100	P-015	Minimum Run Time	0 SEC	
6100	P-016	ECU Stabalize Time	5 SEC	
6100	P-017	Crank Time	10 SEC	
6100	P-018	Crank Rest Time	10 SEC	
6100	P-019	Prestart 1 Delay	0 SEC	Turn on an output before starting
6100	P-020	Prestart 2 Delay	0 SEC	Turn on another output before starting
6100	P-021	Prestart 2 Delay Mode	Prestart 2 Only	Pre-crank or through cranking
6100	P-022	Energize To Stop Time	0 SEC	(not used)
6100	P-023	Spindown Timer	6 Sec	
6100	P-024	Outlet Deadband Pressure	5.0 PSI	Don't adjust throttle when pressure is in this range
6100	P-025	Pressure Maintain	Maintain Discharge Pressure	Throttle engine on inlet or outlet pressure
6100	P-026	Steady/Proportional	Maintain Proportional	(not used)
6100	P-027	Line Fill 1 Speed	900 RPM	Line Fill 1 & 2 are optional states after warmup
6100	P-028	Line Fill 1 Delay	0 SEC	
6100	P-029	Line Fill 1 Pressure	0 PSI	
6100	P-030	Line Fill 2 Speed	900 RPM	
6100	P-031	Line Fill 2 Delay	0 SEC	
6100	P-032	Line Fill 2 Pressure	0 PSI	

Settings - 6100

6100	P-033	High Discharge Pressure Warning	0 PSI	All of these from here will need corresponding inputs
6100	P-034	High Discharge Pressure Shutdown	0 PSI	
6100	P-035	Low Discharge Pressure Warning	0 PSI	
6100	P-036	Low Discharge Pressure Shutdown	0 PSI	
6100	P-037	High Suction Pressure Warning	0 PSI	
6100	P-038	High Suction Pressure Shutdown	0 PSI	
6100	P-039	Low Suction Presure Warning	0 PSI	
6100	P-040	Low Suction Pressure Shutdown	0 PSI	
6100	P-041	Low Fuel Level Warning	0%	
6100	P-042	Low Fuel Level Shutdown	0	
6100	P-043	High Battery Warning	16.0 VDC	
6100	P-044	Low Battery Warning	10 VDC	
6100	P-045	Low Oil Press High RPM	2000 RPM	
6100	P-046	Low Oil Press Warn. High Speed	35.0 PSI	
6100	P-047	Low Oil Press Shutdown High Speed	30.0 PSI	
6100	P-048	Low Oil Press Warn. Low Speed	15 Psi	
6100	P-049	Low Oil Press Shutdown Low Speed	10.0 PSI	
6100	P-050	High Oil Tempature Warning	210 °F	
6100	P-051	High Oil Tempature Shutdown	225 °F	
6100	P-052	High Oil Pressure Warning	200 PSI	
6100	P-053	High Oil Pressure Shutdown	200 PSI	
6100	P-054	High Engine Temp Warning	210 °F	
6100	P-055	High Engine Temp Shutdown	225 °F	
6100	P-056	Low Engine Temperature Warning	32 °F	
6100	P-057	Underspeed Shutdown	0 RPM	
6100	P-058	Overspeed Shutdown	2200 RPM	
6100	P-059	High Pump Temp Warning	0 °F	
6100	P-060	High Pump Temp Shutdown	0 °F	
6100	P-061	High Pump Oil Temp Warning	0 °F	
6100	P-062	High Pump Oil Temp Shutdown	0 °F	

Settings - 6100

6100	P-063	Hydrostat Enabled	Enabled	
6100	P-064	Hydrostat MAN INC Rate	1 %/S	(not used-see Auto)
6100	P-065	Hydrostat MAN DEC Rate	1 %/S	(not used-see Auto)
6100	P-066	Hydrostat Auto INC Rate	2 %/S	Speed that the hydrostat output raises
6100	P-067	Hydrostat Auto DEC Rate	2 %/S	Speed that the hydrostat output lowers
6100	P-068	Fuel Tank Height	0 in	(not used)
6100	P-069	Inlet Maintain Pressure	0 PSI	Value overwritten by remote control
6100	P-070	Inlet Deadband Pressure	1 PSI	Value overwritten by remote control
6100	P-071	Line Break Endable/Disable	Disabled	
6100	P-072	Line Break Pressure Drop	15 PSI	
6100	P-073	Line Break Delay	3 S	
6100	P-074	Line Break RPM Arm	1100 RPM	
6100	P-075	Suction Throttle Slowdown ROI	3 RPM/S	Same as S10 while in pressure mode
6100	P-076	Suction Throttle Slowdown ROD	3 RPM/S	Same as S11 while in pressure mode
6100	P-077	Suction Throttle Slowdown Dband	21 PSI	Overwritten by dashboard control
6100	P-078	Pit Depth Sensor Disabled/Enabled	Enabled	

Settings - 6400

Menu	Number	Option Name	Default Value	Notes
6400	S-001	Backlight Timer	1800 sec	
6400	S-002	Auto Start-Stop Type	Telemetry	(ALWAYS Telemetry)
6400	S-003	Throttle Type	J1939 TSC1	J1939/Pulse/Analog
6400	S-004	Auto Throttle Method	Preset RPM	(ALWAYS Preset RPM)
6400	S-005	Target RPM Step Size	10 RPM	RPM change when using screen buttons
6400	S-006	Throttle Deadband RPM	20 RPM	In Analog or Droop, if actual RPM is in this range, won't adjust throttle
6400	S-007	Throttle Inc-Dec Pulse	50 ms	In Pulse type, length of pulse
6400	S-008	Throtttle Inc-Dec Pulse Delay	250 ms	In Pulse type, time between pulses
6400	S-009	Analog Minimum Value	.50 VDC	In Analog or Hydrostat, minimum output voltage
6400	S-010	Throttle Inc Rate	25 RPM/S	Max rate the engine speed will increase
6400	S-011	Throttle Dec Rate	25 RPM/S	Max rate the engine speed will decrease
6400	S-012	Post Crank Lockout Time	30 Sec	Time after crank for which the following faults won't trigger
6400	S-013	Post Crank Lockout 1	High Engine Temp	Select a fault that won't trigger during this time
6400	S-014	Post Crank Lockout 2	Disabled	
6400	S-015	Post Crank Lockout 3	Disabled	
6400	S-016	Post Crank Lockout 4	Disabled	
6400	S-017	Post Crank Lockout 5	Disabled	
6400	S-018	Post Warm-Up Lockout Time	0 SEC	Time after warmup for which the following faults won't trigger
6400	S-019	Post Warm-Up Lockout 1	Disabled	Select a fault that won't trigger during this time
6400	S-020	Post Warm-Up Lockout 2	Disabled	
6400	S-021	Post Warm-Up Lockout 3	Disabled	
6400	S-022	Post Warm-Up Lockout 4	Disabled	
6400	S-023	Post Warm-Up Lockout 5	Disabled	
6400	S-024	Post Bubble Lockout Time	7 SEC	Time that the following fault must be active to trigger
6400	S-025	Post Bubble Lockout 1	Low Suction Press	Select a fault that won't trigger until active this long
6400	S-026	Post Bubble Lockout 2	High Pump Level	
6400	S-027	Post Bubble Lockout 3	Disabled	
6400	S-028	Post Bubble Lockout 4	Disabled	
6400	S-029	Post Bubble Lockout 5	Disabled	

Settings - 6400

6400	S-030	Digital Input 1 Function	Disabled	
6400	S-031	Digital Input 1 Action	Not Used	
6400	S-032	Digital Input 2 Function	Disabled	
6400	S-033	Digital Input 2 Action	Not Used	
6400	S-034	Digital Input 3 Funtion	Disabled	
6400	S-035	Digital Input 3 Action	Not Used	
6400	S-036	Analog Input 1 Function	Disabled	Typically fuel level or coolant temp on mechanical engines
6400	S-037	Analog Input 1 Max Eng. Value	0	
6400	S-038	Analog Input 1 Min Eng. Value	0	
6400	S-039	Analog Input 1 Max Meas. Value	0	
6400	S-040	Analog Input 1 Min Meas. Value	0	
6400	S-041	Analog Input 1 Digital Function	Disabled	
6400	S-042	Analog Input 1 digital Action	Not Used	
6400	S-043	Analog Input 2 Function	Disabled	Typically flow Rate or oil pressure on mechanical engines
6400	S-044	Analog Input 2 Max Eng. Value	0	
6400	S-045	Analog Input 2 Min. Eng. Value	0	
6400	S-046	Analog Input 2 Max Meas. Value	0	
6400	S-047	Analog Input 2 Min Meas. Value	0	
6400	S-048	Analog Input 2 Digital Function	Disabled	
6400	S-049	Analog Input 2 Digital Action	Not Used	
6400	S-050	Analog Input 3 Function	4-20mA Suction Pressure	Inlet pressure sensor
6400	S-051	Analog Input 3 Max Eng. Value	1500	
6400	S-052	Analog Input 3 Min Eng. Value	-10	
6400	S-053	Analog Input 3 Max Meas. Value	20	
6400	S-054	Analog Input 3 Min Meas. Value	4	
6400	S-055	Analog Input 3 Digital Function	Disabled	
6400	S-056	Analog Input 3 Digital Action	Not Used	
6400	S-057	Analog Input 4 Function	4-20mA Discharge press	Outlet pressure sensor
6400	S-058	Analog Input 4 Max Eng. Value	1500	
6400	S-059	Analog Input 4 Min Eng. Value	-10	
6400	S-060	Analog Input 4 Max Meas. Value	20	
6400	S-061	Analog Input 4 Min Meas. Value	4	
6400	S-062	Analog Input 4 Digital Function	Disabled	
6400	S-063	Analog Input 4 Digital Action	Not Used	

Settings - 6400

6400	S-064	Digital Output 1	Crank	
6400	S-065	Digital Output 2	ECU Enable	
6400	S-066	Digital Output 3	Throttle Increase	Can be used for a lot of different functions.
6400	S-067	Digital Output 4	Throttle Decrease	Can be used for a lot of different functions.
6400	S-068	Preset RPM	900 RPM	RPM shown on screen when first booted up
6400	S-069	John Deere Icons	Enabled	Tier 4 icons shown on main page
6400	S-070	Analog Maximum Value	4.50 VDC	For hydrostat or analog throttle output voltage

Engine Generated - SPN & FMI list

SPN	FMI	Description
28	4	Accelerator pedal position 3 voltage is below normal, or shorted to low.
28	3	Accelerator pedal position 3 voltage is above normal, or shorted to high.
29	4	Accelerator pedal position 2 voltage is below normal, or shorted to low.
29	3	Accelerator pedal position 2 voltage is above normal, or shorted to high.
84	8	Tachometer signal failed. Velocity signal defective.
91	11	Error occurs on hard set point 1.
91	2	Sensor voltage 2 (+5VDC) below normal or short low
91	4	Accelerator pedal position 1 voltage is below normal, or shorted to low.
91	3	Accelerator pedal position 1 voltage is above normal, or shorted to high.
91	14	Accelerator pedal position 1 signal voltage is out of range.
91	9	A valid throttle message from accelerator pedal position has not received.
94	3	Fuel rail pressure voltage is out of range high.
94	16	Fuel delivery pressure is high.
94	18	Fuel delivery pressure is low.
94	4	Fuel rail pressure voltage is out of range low.
94	10	Fuel delivery pressure is dropping too fast.
94	17	No fuel rail pressure.
94	13	Fuel delivery pressure is out of calibration.
94	1	Fuel delivery pressure is very low.
96	17	Fuel level is low.
97	0	Water in fuel is detected.
97	3	Water in fuel indicator voltage is out of range high.
97	4	Water in fuel indicator voltage is out of range low.
97	16	Water in fuel is detected.
97	31	Water in fuel is detected.
98	1	Oil level switch is off.
100	16	Engine oil pressure reading is incorrect.
100	18	Engine oil pressure reading is low.
100	1	Engine oil pressure is low.
100	2	Oil pressure sensor is defective.
100	4	Engine oil pressure voltage is below normal, or shorted to low.
100	3	Engine oil pressure voltage is above normal, or shorted to high.
102	2	Turbocharger air pressure sensor is defective.
105	0	Intake manifold 1 air temperature is high.
105	2	Intake manifold 1 air sensor is defective.
105	3	Intake manifold 1 voltage is above normal, or shorted to high.
105	16	Intake manifold 1 air temperature is high.
105	4	Intake manifold 1 voltage is below normal, or shorted to low.
107	31	Air filter 1 differential pressure plugged air filter is detected.
107	0	Air filter 1 differential pressure plugged air filter is detected.
108	12	Bad atmospheric pressure.
110	3	Engine coolant temperature voltage is above normal, or shorted to high.
110	15	Engine coolant temperature is high.
110	4	Engine coolant temperature voltage is below normal, or shorted to low.
110	16	Engine coolant temperature is high.
110	0	Engine coolant temperature is high.
110	2	Engine coolant temperature sensor is defective.
111	1	Low engine coolant level.
120	15	Hydraulic retarder oil temperature is above normal.
158	17	Key switch circuit has problems.
158	2	Key switch is intermittent.
171	12	Bad internal temperature.
174	0	Fuel temperature is high.
174	2	Fuel temperature sensor is defective.
174	3	Fuel temperature voltage is above normal, or shorted to high.
174	4	Fuel temperature voltage is below normal, or shorted to low.
174	15	Fuel temperature is high.
174	16	Fuel temperature is high.
174	31	Fuel temperature voltage is out of range.
177	15	Transmission oil temperature is above normal.
189	31	Engine speed derate condition exists due to the fault.
190	0	Excess speed switch off, over speed.
190	3	Engine speed voltage is above normal, or shorted to high.
190	4	Engine speed voltage is below normal, or shorted to low.
190	5	Engine speed circuit is open.
190	8	Engine speed sensor is defective.
190	16	Engine is over speed.
190	2	Engine speed data is erratic, intermittent or incorrect.
201	2	Speed set point 2 (hand throttle is defective)
441	0	Auxiliary temperature 1 is high - most severe level.
535	7	Control travel has differences.
535	13	Auto calibration BOSCH-EDC-PUMP is unsuccessful.
536	12	Bad feedback rack position.
536	13	Reference feedback rack position is out of calibration.
563	6	Excess current on digital output 3 (stop solenoid).
563	2	Digital output 3 supervision is incorrect (stop solenoid).
572	2	Digital output 6 supervision is incorrect.
611	3	Injector wiring is shorted to battery.
611	4	Injector wiring is shorted to ground.
620	3	Sensor supply voltage 1 (+5V DC) is above normal, or shorted to high.
620	4	Sensor supply voltage 1 (+5V DC) is below normal, or shorted to low.
627	4	Power supply interruption occurs.
627	1	Power supply has a low voltage to injectors.
629	13	Reprogram controller ECU has problems.
629	19	ECU is not receiving message from the pump.
632	5	Fuel shutoff valve is non-functional.
632	2	Fuel shutoff valve error is detected.
632	11	Fuel shutoff valve solenoid circuit is open or shorted.
636	2	Engine position sensor has timing signal errors.
636	10	Engine position sensor has timing signal errors.
636	8	Engine position sensor has timing signal errors.
637	8	Crank timing sensor has timing signal errors.
637	7	Crank timing sensor has timing signal errors.
637	10	Crank timing sensor has timing signal errors.
637	2	Crank timing sensor has timing signal errors.
638	3	Rack actuator circuit voltage is above normal.
638	6	Rack actuator circuit voltage is grounded.
638	2	Rack actuator error bleeds air into fuel system.
638	5	Rack actuator circuit voltage is open.
638	7	Rack actuator position error.
639	13	CAN bus failure.
651	7	Injector cylinder 1 fuel flow is lower than expected.
651	6	Injector cylinder 1 current increases too rapidly.
651	5	Injector cylinder 1 current is less than expected.
652	6	Injector cylinder 2 current increases too rapidly.
652	7	Injector cylinder 2 fuel flow is lower than expected.
652	5	Injector cylinder 2 current is less than expected.
653	5	Injector cylinder 3 current is less than expected.
653	6	Injector cylinder 3 current increases too rapidly.
653	7	Injector cylinder 3 fuel flow is lower than expected.
654	6	Injector cylinder 4 current increases too rapidly.
654	7	Injector cylinder 4 fuel flow is lower than expected.
654	5	Injector cylinder 4 current is less than expected.
655	7	Injector cylinder 5 fuel flow is lower than expected.
655	6	Injector cylinder 5 current increases too rapidly.
655	5	Injector cylinder 5 current is less than expected.
656	6	Injector cylinder 6 current increases too rapidly.
656	5	Injector cylinder 6 current is less than expected.
656	7	Injector cylinder 6 fuel flow is lower than expected.
676	5	Glow plug relay will not turn on.
676	3	Glow plug relay is stuck on.
702	14	Speed warning in thrust mode.
729	3	Inlet air heater driver 1 is stuck on.
729	5	Inlet air heater driver 1 will not turn on.
743	14	Line is broken, shorted or has heavy bus load. (CAN bus passive)
743	12	CAN controller is bus off.
743	9	According to CAN communication in SAE J1939, receiving messages is missing.
752	12	Cyclic flash test.
752	2	Stack-overflow.
765	12	Parameter programming error: EEPROM writing error.
765	2	Parameter error: EEPROM checksum is incorrect.
766	2	Internal errors.
833	4	Rack position sensor voltage is below normal.
833	2	Rack position sensor error.
833	3	Rack position sensor voltage is above normal.
834	7	Rack actuator position error.
834	6	Rack actuator circuit is grounded.
834	5	Rack actuator circuit is open.
834	2	Rack actuator error bleeds air into fuel system.
834	3	Rack actuator circuit voltage is above normal.
898	2	Error on CAN set point 1.
916	17	No fault code.
970	2	External auxiliary engine shutdown switch is intermittent
970	11	External auxiliary engine protection shutdown is active.
970	31	External auxiliary engine shutdown switch is active.
971	31	Engine derate switch is activated.
1041	3	Start signal indicator is always active.
1041	2	Start signal indicator is missing.
1076	1	Fuel injection pump controller valve error.

Engine Generated - SPN & FMI list

1076	2	Fuel injection pump controller valve error.
1076	3	Fuel injection pump controller valve error.
1076	5	Fuel injection pump controller valve error.
1076	0	Fuel injection pump controller valve error.
1076	10	Fuel injection pump controller valve error.
1076	13	Fuel injection pump controller valve error.
1076	7	Fuel injection pump controller valve error.
1076	6	Fuel injection pump controller valve error.
1077	31	Fuel injection pump controller power derated.
1077	11	Fuel injection pump controller VP44 voltage is out of range.
1077	12	Fuel injection pump controller VP44 self test error.
1077	7	Fuel injection pump controller VP44 error.
1077	19	Fuel injection pump controller VP44 detected CAN bus failure.
1078	11	Fuel injection pumping speed or position error.
1078	7	Fuel injection pumping speed or position error.
1078	31	Fuel injection pumping speed or position VP44 is unable to achieve timing specification.
1079	4	Sensor supply voltage 1 (+5V DC) is below normal, or shorted to low.
1079	3	Sensor supply voltage 1 (+5V DC) is above normal, or shorted to high.
1080	4	Sensor voltage 2 (+5VDC) below normal or short low
1080	3	Sensor supply voltage 2 (+5V DC) is above normal, or shorted to high.
1109	31	Engine protection system is approaching shutdown.
1110	31	Engine protection system has shut engine down.
1210	2	Rack position sensor error.
1210	3	Rack position sensor voltage is above normal.
1210	4	Rack position sensor voltage is below normal.
1347	7	Fuel pump pressurizing assembly 1 rail pressure controller mismatch.
1347	10	Fuel pump pressurizing assembly 1 has low fuel flow.
1347	5	Fuel pump pressurizing assembly 1 circuit is open, shorted to ground or overloaded.
1348	10	Fuel pump pressurizing assembly 2 has low fuel flow.
1348	5	Fuel pump pressurizing assembly 2 circuit is open, shorted to ground or overloaded.
1387	1	Auxiliary pressure 1 is low - most severe level.
1485	2	ECU main relay has pump power relay faults.
1569	31	Engine protection torque fuel derate limit condition exists.
1761	1	DEF Level Empty
1761	18	DEF Level Low
2000	6	Fuel injection pump controller valve error.
2000	13	Security violation proper controller is not installed.
2003	31	General transmission fault is unknown.
3251	3	DPF Removal
3251	4	DPF Removal
3251	7	DPF Removal
3697	15	Diesel Particulate Filter Lamp Command
3719	0	Exhaust Filter Restricted
3719	16	Exhaust Filter Restricted
3719	15	Exhaust Filter Restricted
4795	31	DPF Removal
5246	13	Inducement - Initial
5246	15	Inducement - 1st Warning
5246	16	Inducement - 2nd Warning
5246	0	Inducement - 3rd Warning
5246	14	Inducement - Final Warning
5246	31	Inducement - Final
52411	1	High Engine Oil Temp
65736	3	FIAT Code
523792	4	EPGDS LTC PUMP SIGNAL OUT OF RANGE LOW
524099	11	EPGDS LTC PUMP BLOCKAGE

Nexus Generated - SPN & FMI list

SPN	DESCRIPTION
524100	CAN BUS FAILURE
524101	AUTO MODE NO MANUAL START
524102	STOP BUTTON PRESSED
524103	OVERSPEED
524104	UNDERSPEED
524105	ECU RELAY NOT SET
524106	RPM ABOVE ZERO DURING STOP
524107	MANUAL MODE NO AUTO START
524108	OVERCRANK
524109	LOW OIL PRESSURE
524110	HIGH OIL PRESSURE
524111	HIGH OIL TEMPERATURE
524112	LOW ENGINE TEMP
524113	HIGH ENGINE TEMP
524114	FUEL LEVEL
524114	LOW FUEL LEVEL
524115	BATTERY WEAK
524116	BATTERY LOW
524117	BATTERY HIGH
524118	LOW DISCHARGE PRESSURE
524119	HIGH DISCHARGE PRESSURE
524120	RUN TO DESTRUCT MODE ENABLED
524121	SPEED SIGNAL LOST
524122	NOT IN AUTO
524123	TRANSDUCER SHORTED
524124	TRANSDUCER OPEN
524125	NO FLYWHEEL TEETH SET
524126	BATTERY CHARGER FAIL
524127	LOW ENGINE LUBE LEVEL
524128	FUEL LEAK
524130	FUEL FILTER RESTRICTION
524131	AIR DAMPER CLOSED
524132	AIR FILTER RESTRICTION
524133	OIL FILTER RESTRICTION
524134	EMERGENCY STOP
524135	USER INPUT FAULT
524136	AUTO START INHIBIT INPUT
524137	MANUAL MODE ONLY
524138	OIL LIFE EXPIRED
524139	OIL FILTER LIFE EXPIRED
524140	BELT LIFE EXPIRED
524141	BATTERY LIFE EXPIRED
524142	FUEL FILTER LIFE EXPIRED
524143	AIR FILTER LIFE EXPIRED
524144	OVERHAUL LIFE EXPIRED
524145	NO TEMPERATURE SENDER SET
524146	NO OIL PRESSURE SENDER SET
524147	REGEN NEEDED LOW
524148	REGEN NEEDED MODERATE
524149	REGEN NEEDED HIGH
524150	REGEN NEEDED UNKNOWN
524151	PASSIVE REGEN
524152	ACTIVE REGEN
524153	ENGINE COOLANT LEVEL EXTREMELY LOW
524170	No Flow
524171	High Level Alarm
524172	Low Level Alarm
524173	High Flow Alarm
524174	Low Flow Alarm
524177	High Pump Oil Temperature
524178	High Pump Housing Temp
524179	WATER IN FUEL
524180	LOW ENGINE TEMP
524181	User 1
524182	User 2
524183	User 3
524184	User 4
524185	User 5
524186	User 6
524187	LOW SUCTION PRESSURE
524188	HIGH SUCTION PRESSURE
524188	LINE BREAK DETECTED - ENGINE SENT TO IDLE
524189	Low Hydraulic Oil Level
524190	High Hydraulic Oil Temperature

BAZOOKA FARMSTAR WARRANTY POLICY

This warranty document contains the sole explanation of any and all warranty coverage and is subject to the provisions expressed below.

Customer Responsibility

It is the customer's responsibility to maintain the equipment in accordance with the instructions provided in the operations manual.

If a failure in the product occurs, it is the customer's responsibility to cease operation until the proper repairs have taken place. *Damage which occurs from continued operation after a failure may not be covered by warranty.*

Limited Warranty Coverage

New manufactured equipment comes standard with a 1-year limited warranty, beginning at the date the equipment was invoiced to the original purchaser of use, or from the date the equipment was first put into use. We guarantee the manufactured product to be free of material defects or workmanship issues. Limited Warranty Coverage is only valid on registered equipment.

In the event a failure occurs during normal operational use, Bazooka Farmstar will replace, repair, or credit the product or part at our discretion. Labor costs for the dealer and/or customer to install or assemble the replacement will be determined by Bazooka Farmstar at the time the claim in submitted.

Bazooka Farmstar has the right to inspect the customer's equipment to determine if a defect in materials or workmanship exists, as well as the labor hours required, prior to repairs made by the dealer and/or customer.

Certain products sold by Bazooka Farmstar are covered under their original manufacturer's warranty. These include but are not limited to engines and pumps.

Our dealers do not have authority to access, evaluate, or administer warranty on behalf of Bazooka Farmstar.

We do not guarantee our products to meet local municipal, state, or national laws or regulations.

BAZOOKA FARMSTAR WARRANTY POLICY

This warranty does not cover used equipment or failures caused by:

- Accidents
- Alterations or modifications
- Abusive operation
- Improper repairs
- Misuse or neglected maintenance
- Use beyond original design intention (as specified in the Operation's Manual)
- Unapproved attachments or accessories
- Natural wear and tear

Submitting a Claim

Contact your Account Manager to begin the warranty process. **To be considered for approval, claims on registered equipment must be submitted within 30 days of the date the issue occurred.**

If you need replacement parts to repair the failure, your Account Manager will ship them out as soon as possible. After your replacement parts have shipped, you will receive an invoice with 60-day terms*.

If your Account Manager informs you that parts need to be returned as part of your warranty evaluation, a Return Material Authorization (RMA)** will be sent to you and you will have 30 days to return the items.

Upon receipt of the failed replacement parts, a warranty evaluation will be performed to determine a disposition. If approved, a credit will be issued in full.

Bazooka Farmstar will send your approval or denial via email for your records.

** We understand that evaluation, especially when involving a third party, may extend past 60 days. However, if the claim is in process and the items were returned by the expected return date on the RMA, no finance charges will be assessed.*

**This change is only applicable to warranty orders that require parts to be shipped when warranty coverage is not clearly approved, or the problem is not easily identified. Manufactured products containing material defects or workmanship issues, or instances where Bazooka Farmstar is undeniably at fault for the problem, will continue to be processed with no additional charges.*

***Issuance of an RMA does not guarantee credit or approval of warranty coverage.*

BAZOOKA FARMSTAR CONTACT INFO

ARE YOU READY TO DEDICATE YOURSELF TO GREATNESS?

Phone: (319) 653-5080 | (800) 775-7448

Office Hours: 8:00 a.m. – 5:00 p.m. Monday-Friday

Loading/Unloading Hours: 8:00 a.m. – 4:00 p.m. Monday-Friday

Location: 800 E. 7th Street Washington, IA 52353