UNIC DF Training

User Interface, LDU-20 Panel

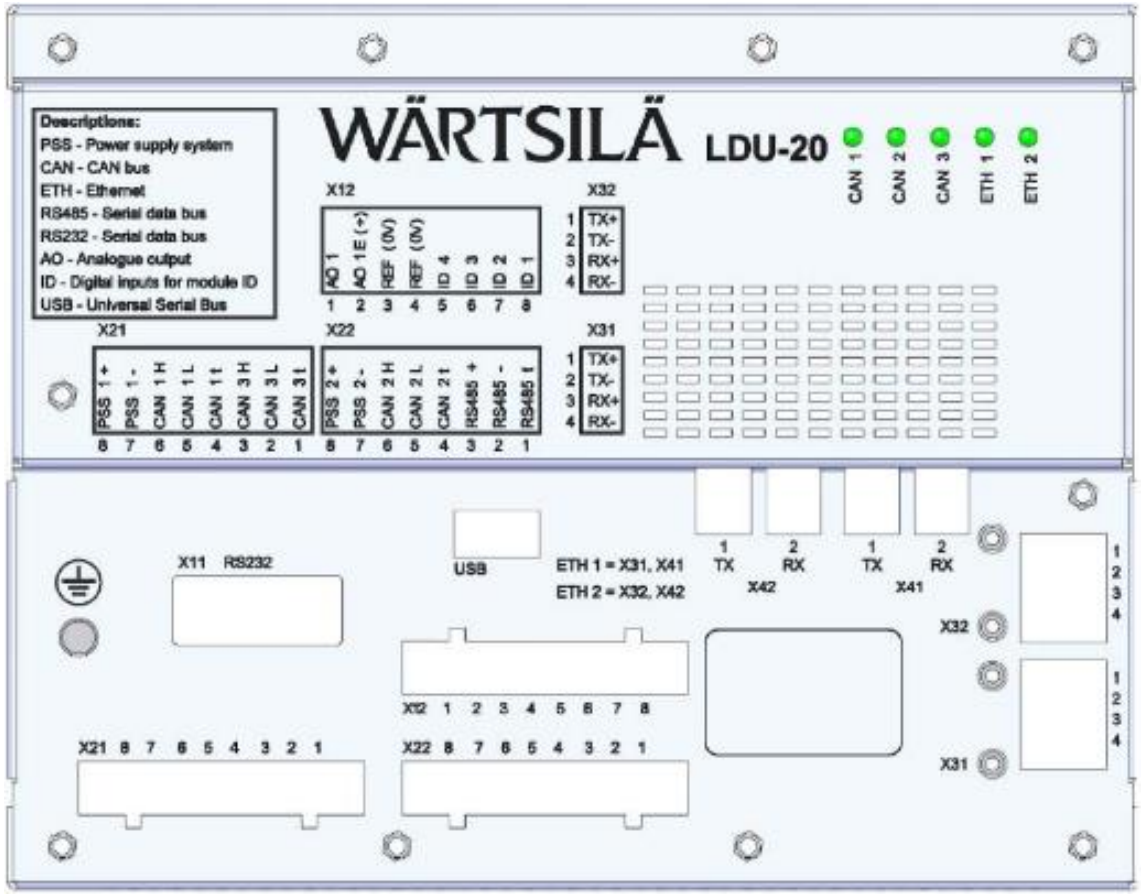
LDU-20 Layout

Layout of “Local Display User-interface” panel, LDU

- Colour display 640x480 pixels
- One rotating button, 16 steps for one revolution, can also be pressed
- 10 multi-function buttons
- Two Power / Status LEDs

LDU-20 Layout

- CAN-bus 3 channels
- Ethernet 2 channels
- USB 1.1 1 channel (for USB drives)
- RS-485 serial port 1 channel
- RS-232 serial port 1 channel
- Digital input 4 inputs
- Analogue output 1 output



LDU-20 Layout

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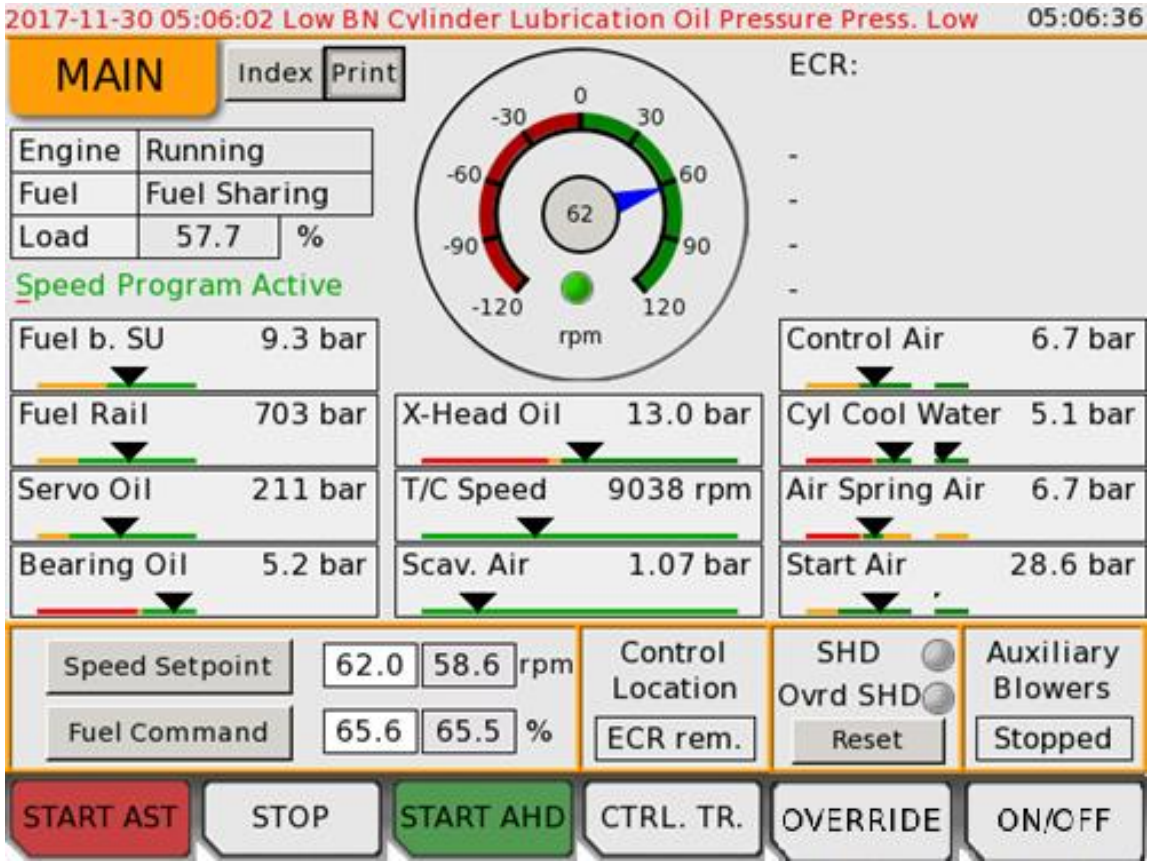
Main Page

The main page contains the overview over the main data like:

- Engine speed and sense of rotation
- Various pressures
- Engine status
- Engine speed / fuel command
- Control location
- Shutdown reset and override
- Aux. Blower On/Off
- Function of multi-function buttons



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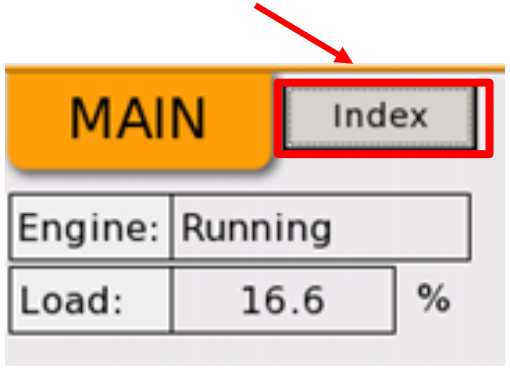
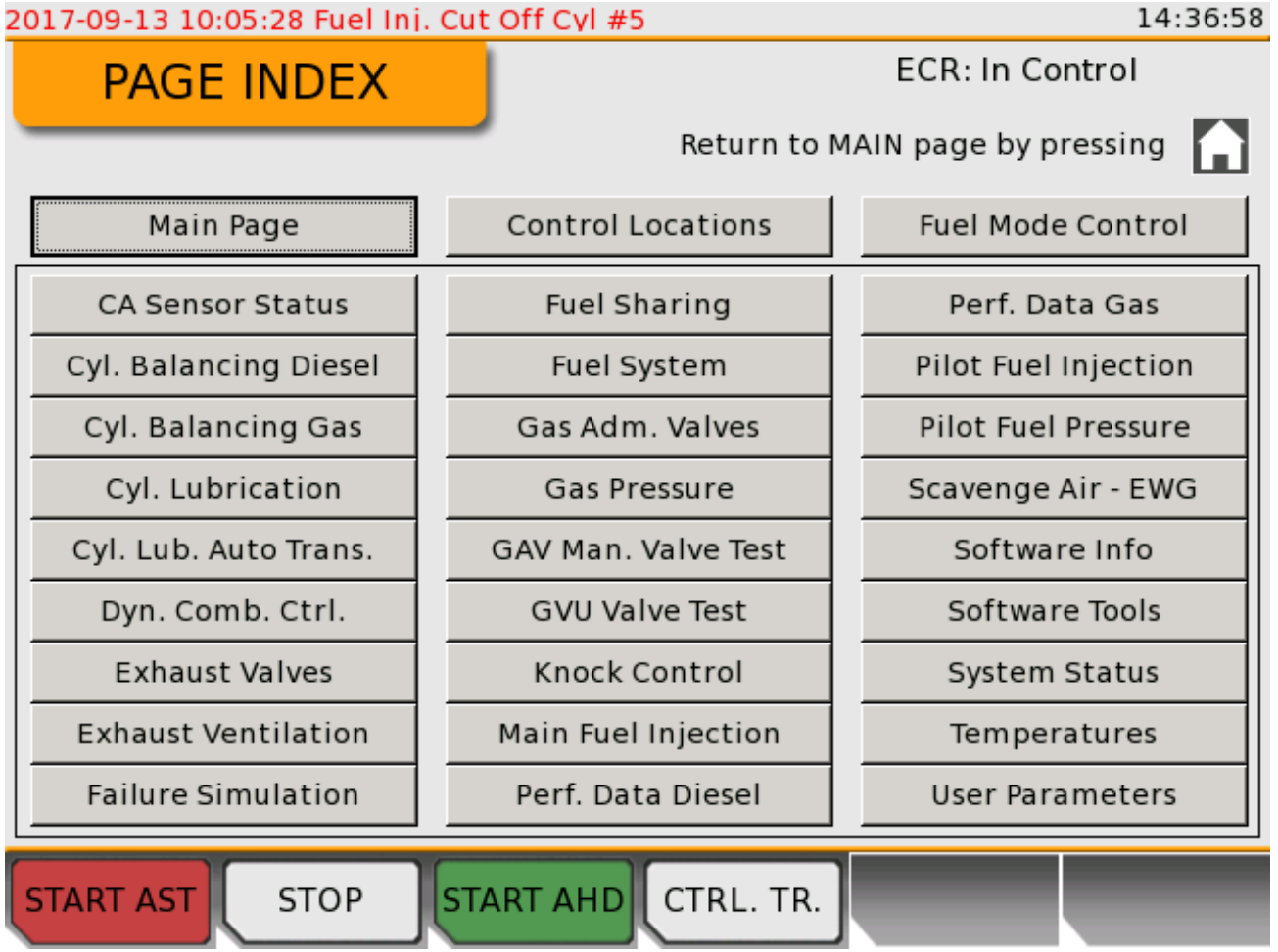
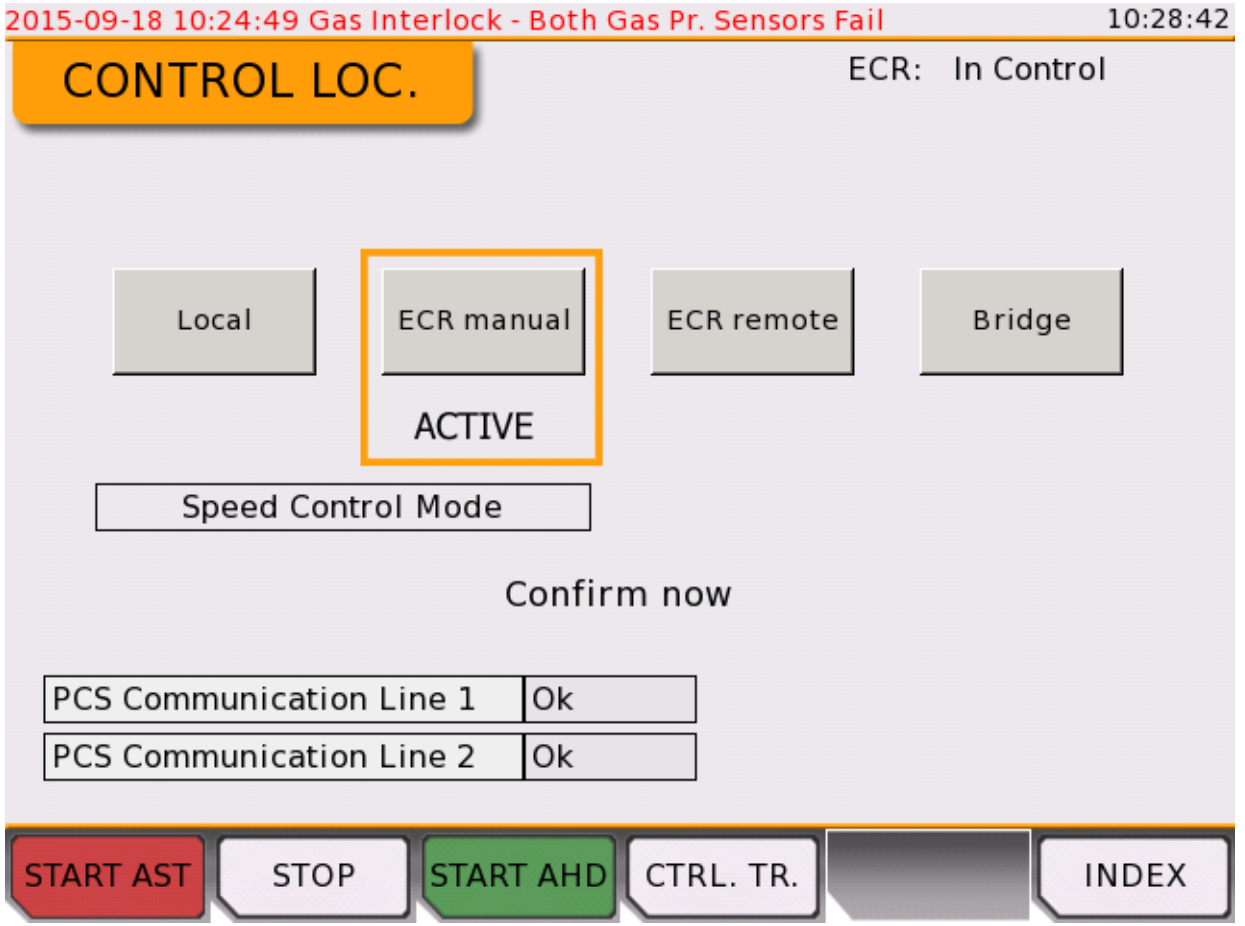
Index

Click on Main Page





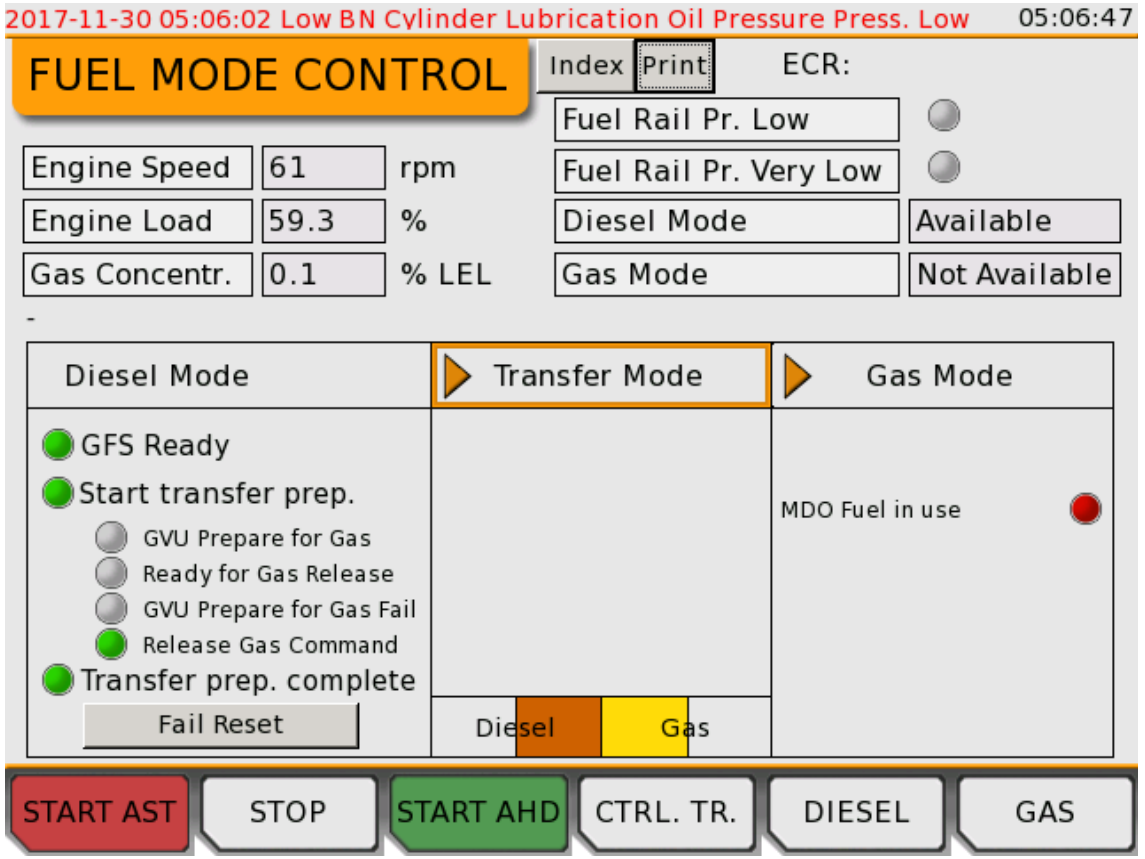
Control Location



Fuel Mode Control

Gas Mode Available

- Fuel Cmd Mode Inactive
- MDO Fuel in Use
- No Heavy sea Mode
- No external Gas Trip
- No Gas Interlock
- No Astern / Stop
- Load/Speed in Range
  - Speed 29~100 rpm
  - Load 10~80%



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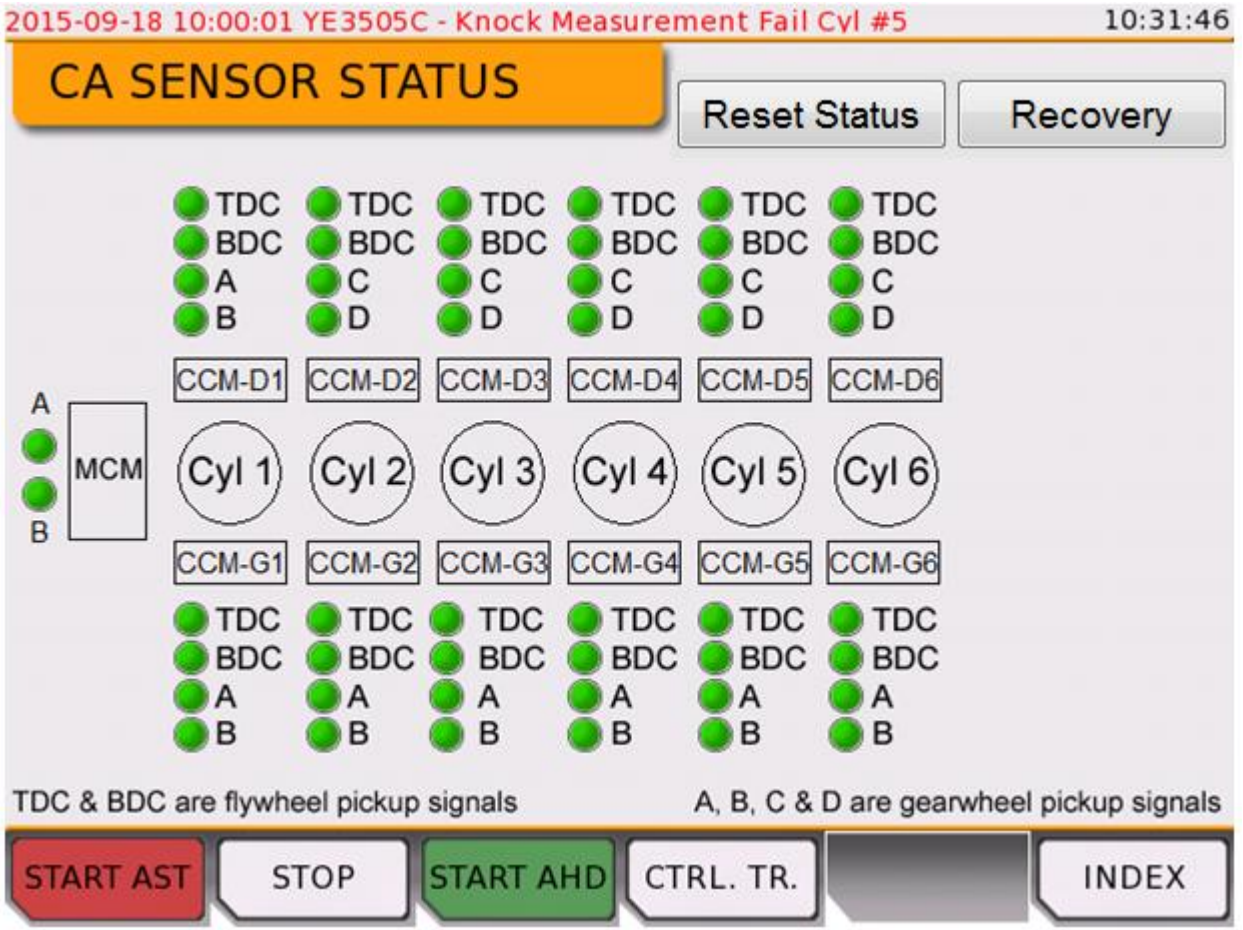
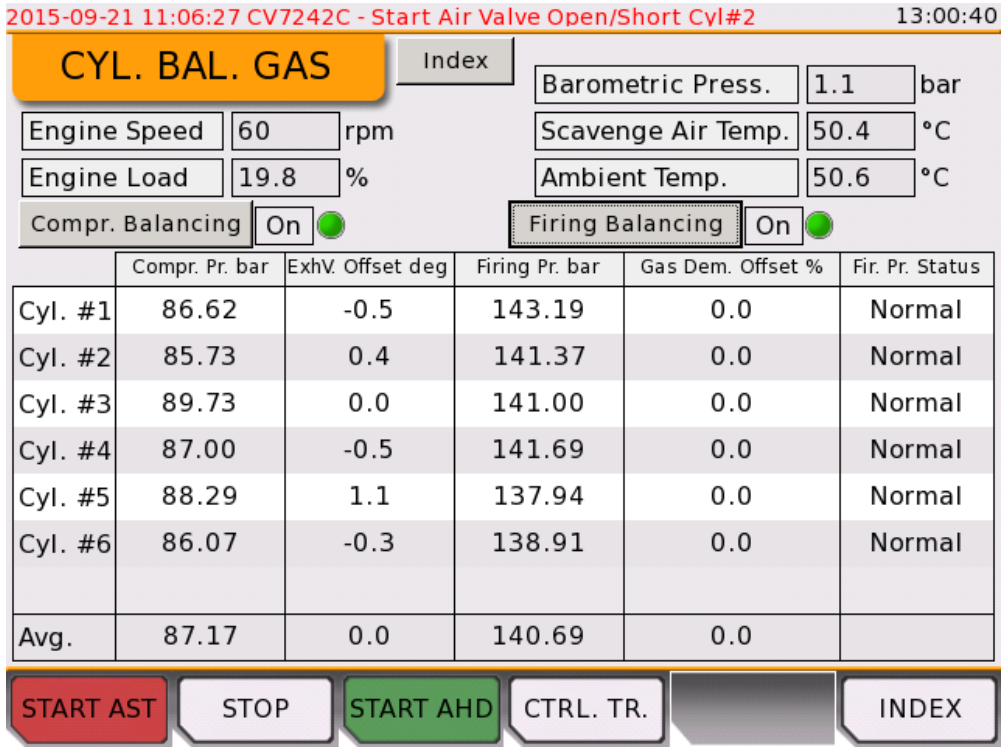
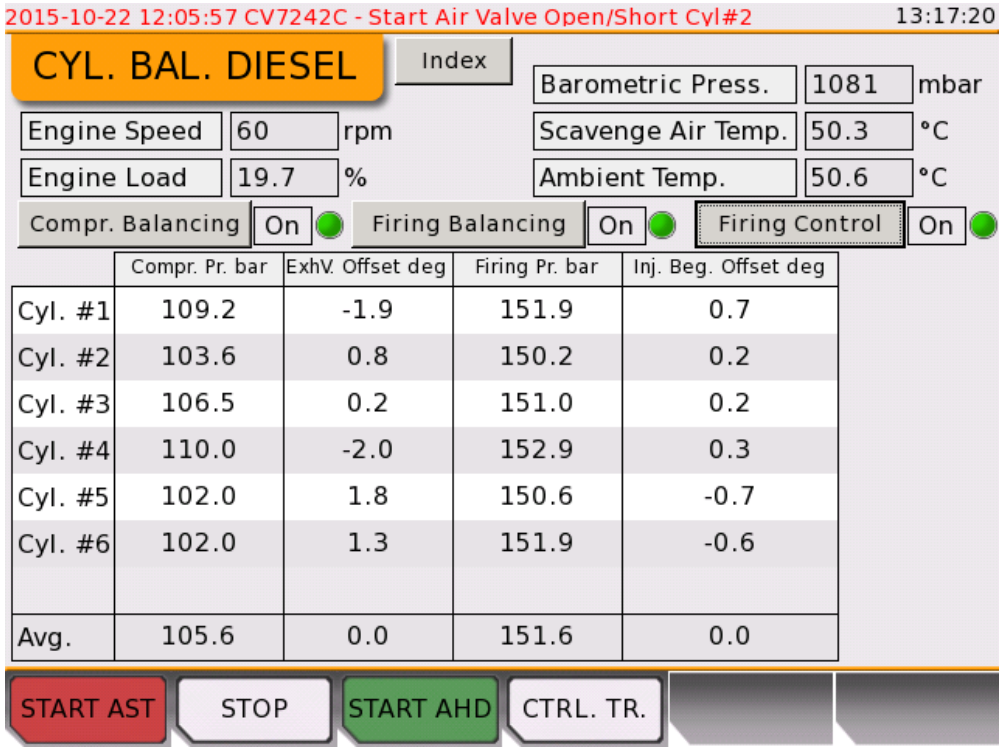
CA Sensor Status



Cylinder Balancing



	Compr. Pr. bar	ExhV. Offset deg	Firing Pr. bar	Gas Dem. Offset %	Fir. Pr. Status
Cyl. #1	86.62	-0.5	143.19	0.0	Normal
Cyl. #2	85.73	0.4	141.37	0.0	Normal
Cyl. #3	89.73	0.0	141.00	0.0	Normal
Cyl. #4	87.00	-0.5	141.69	0.0	Normal
Cyl. #5	88.29	1.1	137.94	0.0	Normal
Cyl. #6	86.07	-0.3	138.91	0.0	Normal
Avg.	87.17	0.0	140.69	0.0	



	Compr. Pr. bar	ExhV. Offset deg	Firing Pr. bar	Inj. Beg. Offset deg
Cyl. #1	109.2	-1.9	151.9	0.7
Cyl. #2	103.6	0.8	150.2	0.2
Cyl. #3	106.5	0.2	151.0	0.2
Cyl. #4	110.0	-2.0	152.9	0.3
Cyl. #5	102.0	1.8	150.6	-0.7
Cyl. #6	102.0	1.3	151.9	-0.6
Avg.	105.6	0.0	151.6	0.0

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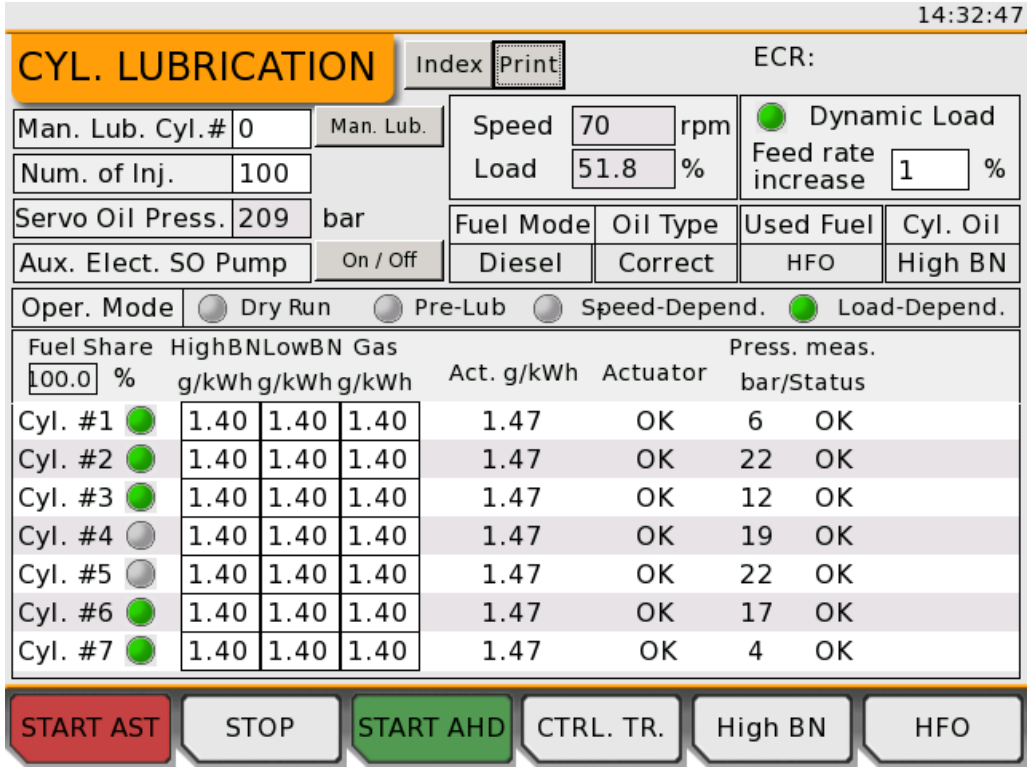
Cylinder Lubrication

- The feed rate can be adjusted for each cylinder individually
- Fuel Mode and oil type indication
- Manual lubrication to a specific cylinder
- Selecting cyl. #100, manual lubrication applied to all cylinders
- Feed rates can be adjusted between 0.4 and 1.2 g/kwh with LFR bush and “Low” pump volume setting. To Achieve a feed rate more than 1.2g/kwh, bush for flexLub pump need to be changed from LFR to HFR depending on CMCR and set “High” pump vol. on LDU.
- Green indication shows the unit lubricating at that moment



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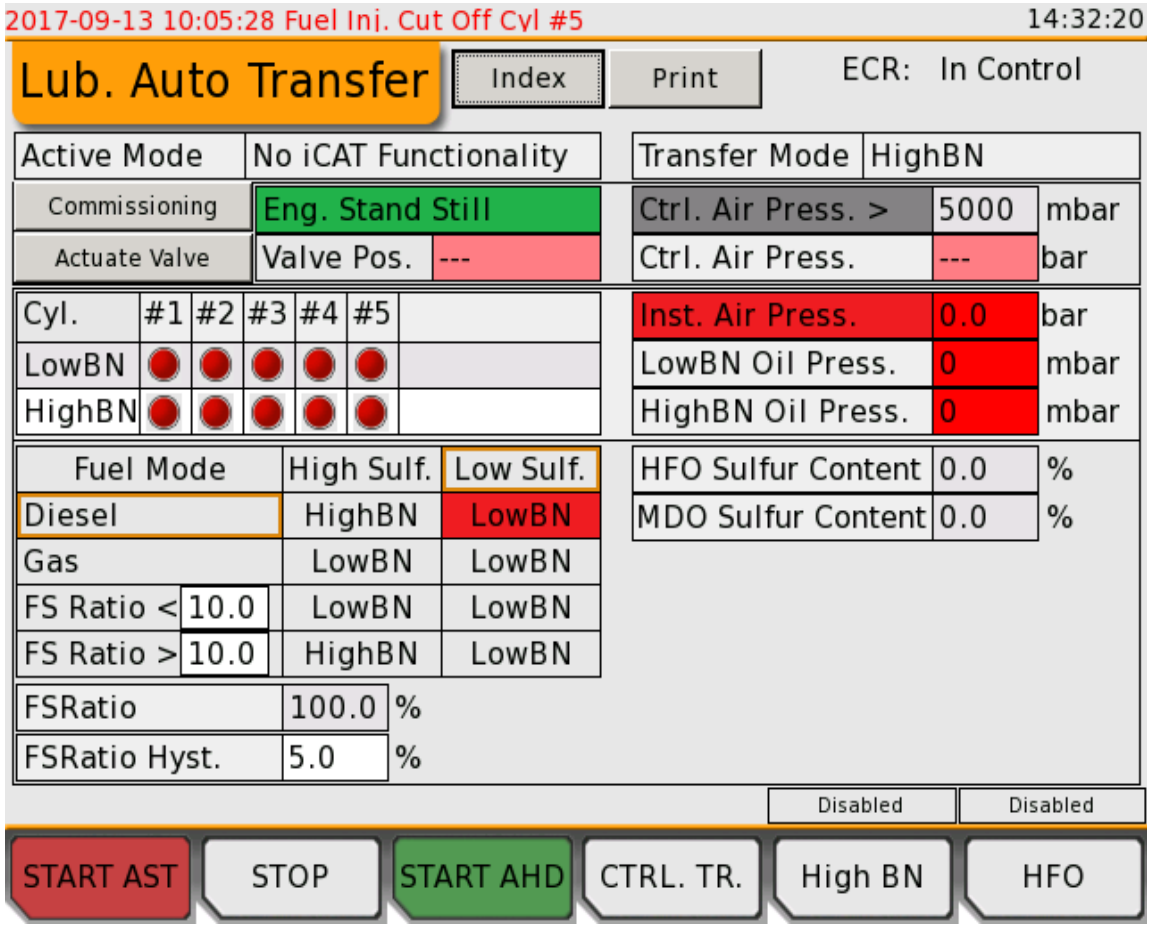
Cylinder Lubrication Auto Transfer

- At fuel sharing, the cylinder oil type between HighBN and LowBN changes automatically.
- Cylinder oil transfer is depending on fuel sharing ratio and type of fuel in use.



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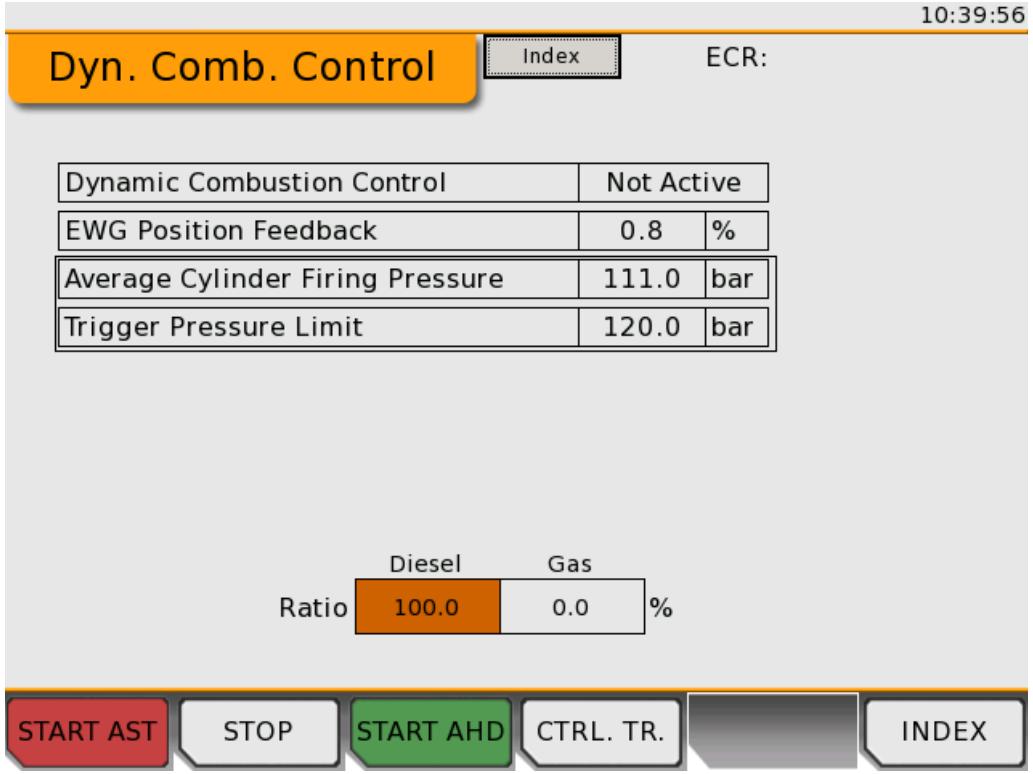
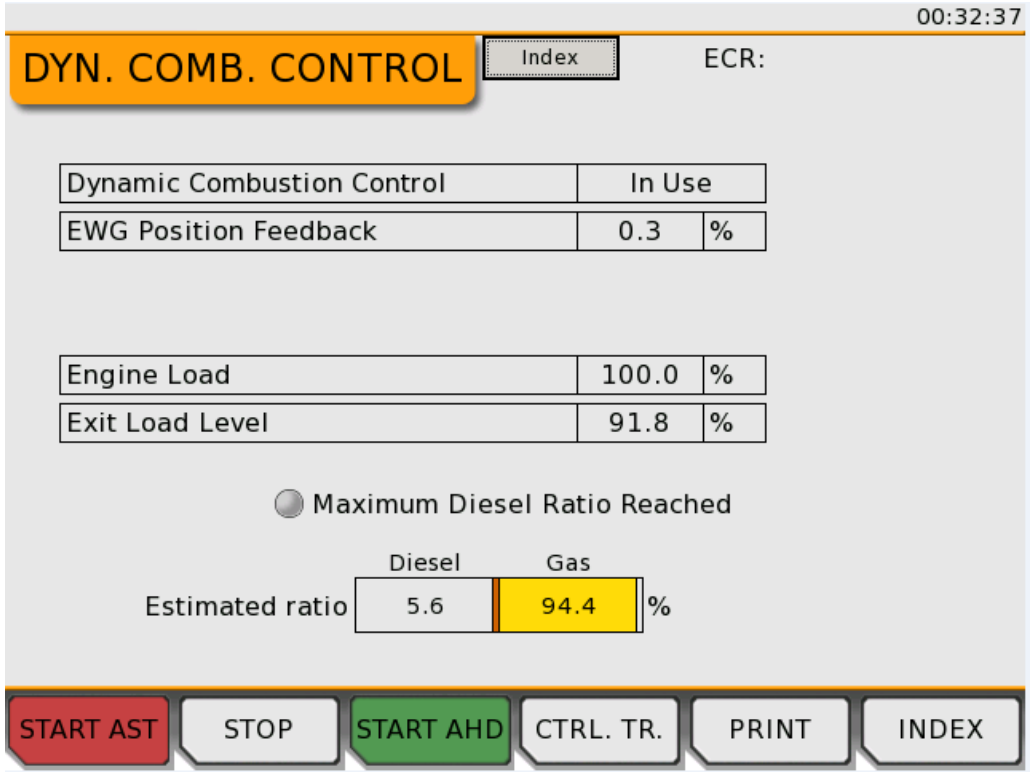
DCC

Dynamic Combustion Control





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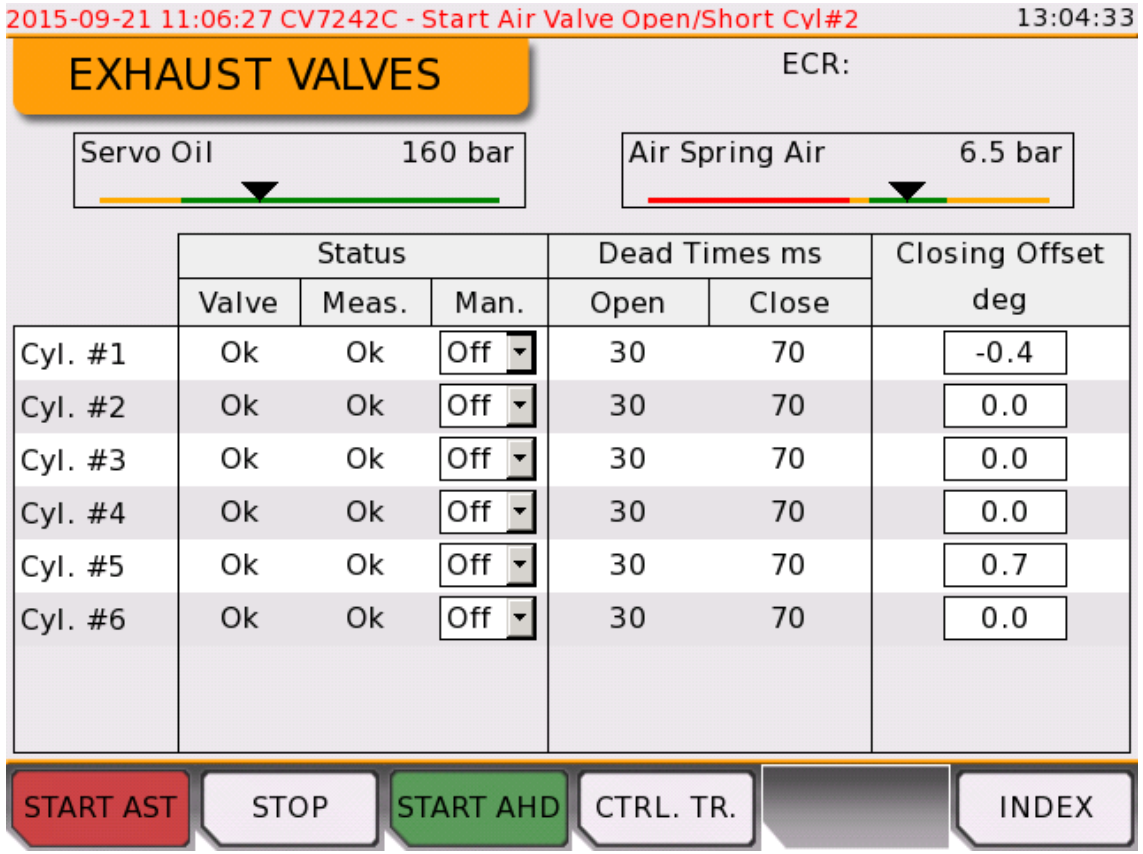
Exhaust Valves

- Manual exhaust valve operation will only work if air spring pressure is available and servo oil pressure provided by servo oil service pump

- To open the exhaust valve for testing or venting servo oil system, the cursor has to be moved on the respective text field and the rotating button pressed to enter editing mode.
- Value “On” manually open, “Off” to set it back to automatic mode equal to closing at standstill



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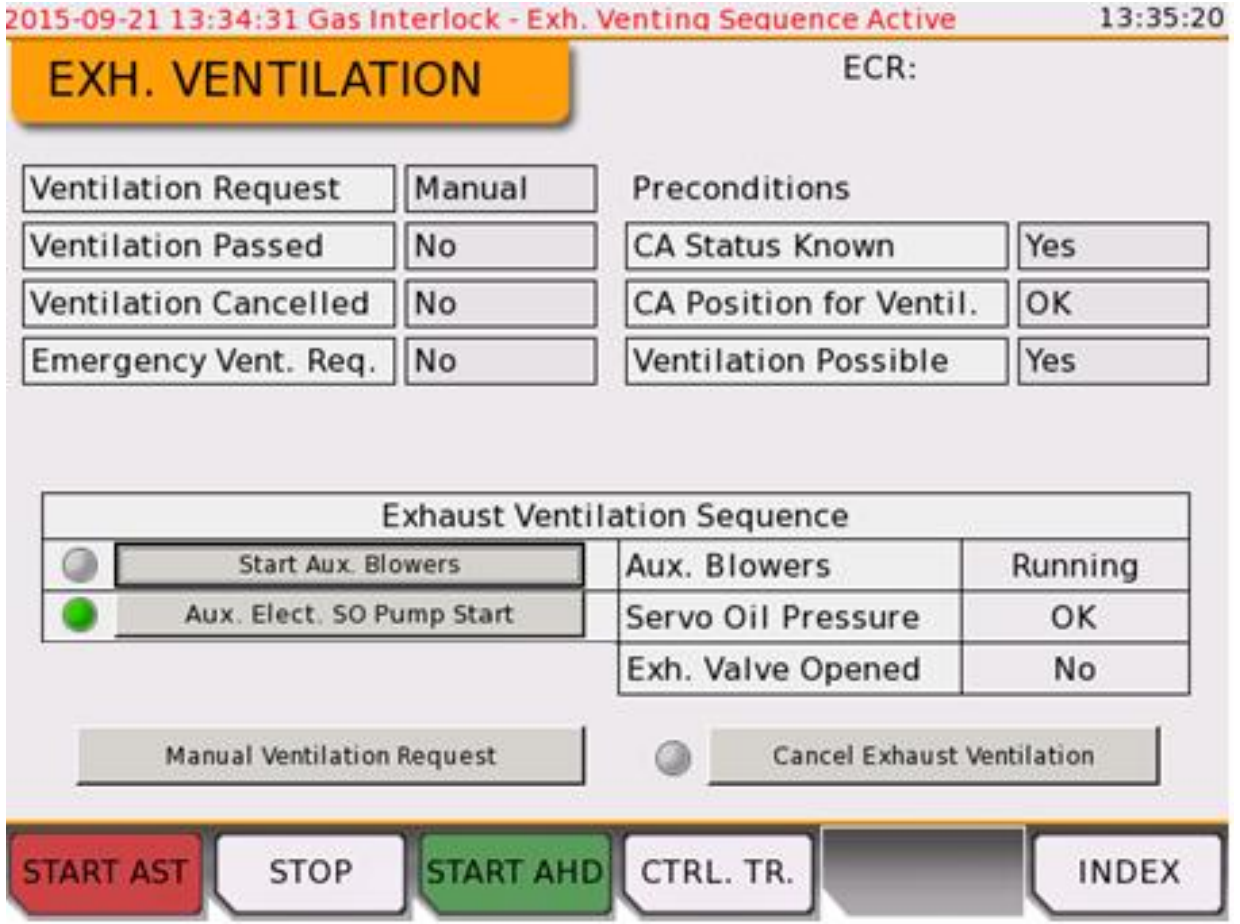
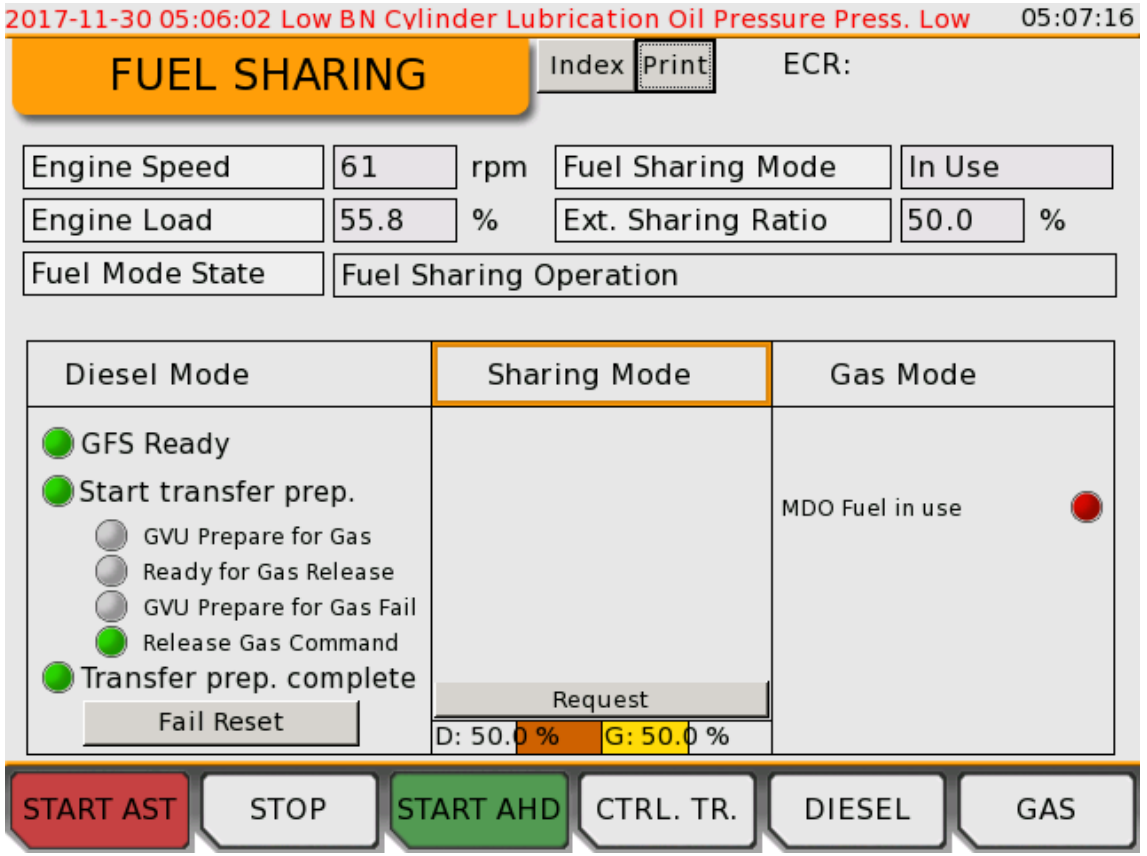
Exhaust Gas Ventilation



Fuel Sharing (Optional)

- Fuel Sharing Mode can be requested from LDU and RCS
- Fuel sharing Ratio(Liquide/Gas ratio) can be set in RCS
  - FS demand limit between 5% ~ 50%

- **Fuel sharing mode available**
  - Fuel Cmd Mode Inactive
  - No heavy sea mode
  - No external Gas Trip
  - No Astern/Stop
  - Load/speed in range
    - Speed 10~124 rpm
    - Load 50~80 % (Diesel to FS)
      50~100% (Gas to FS)



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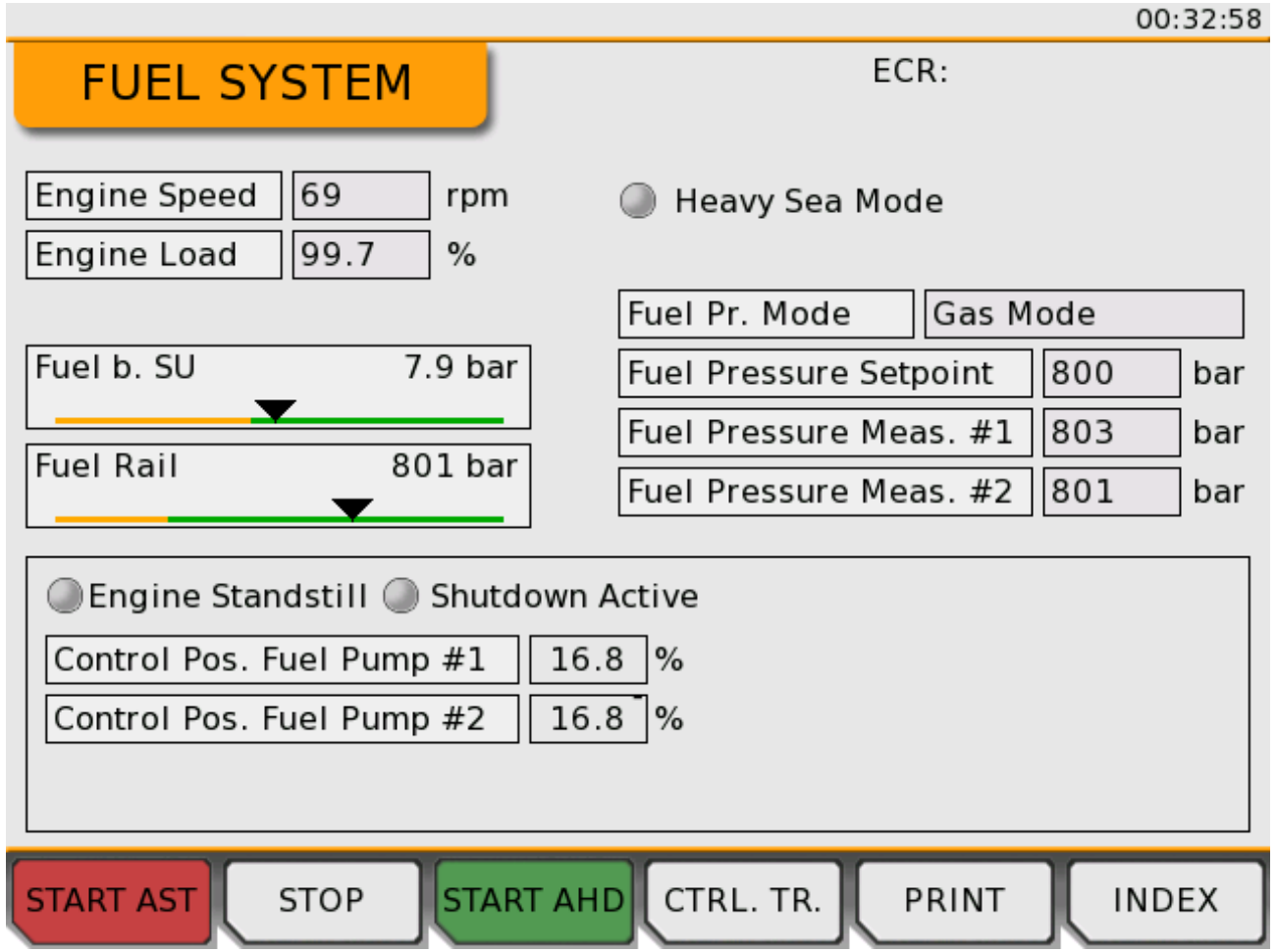
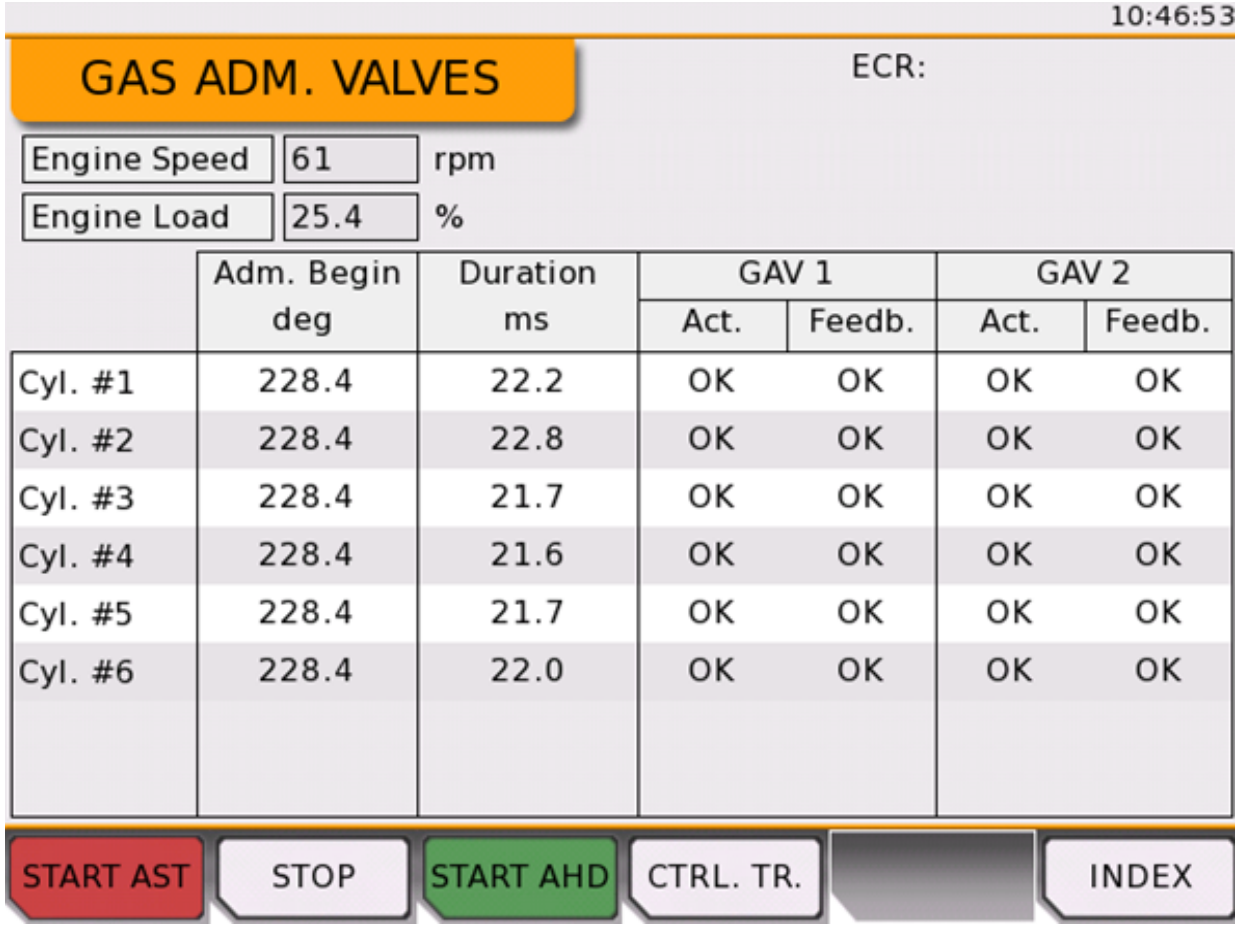
Fuel System

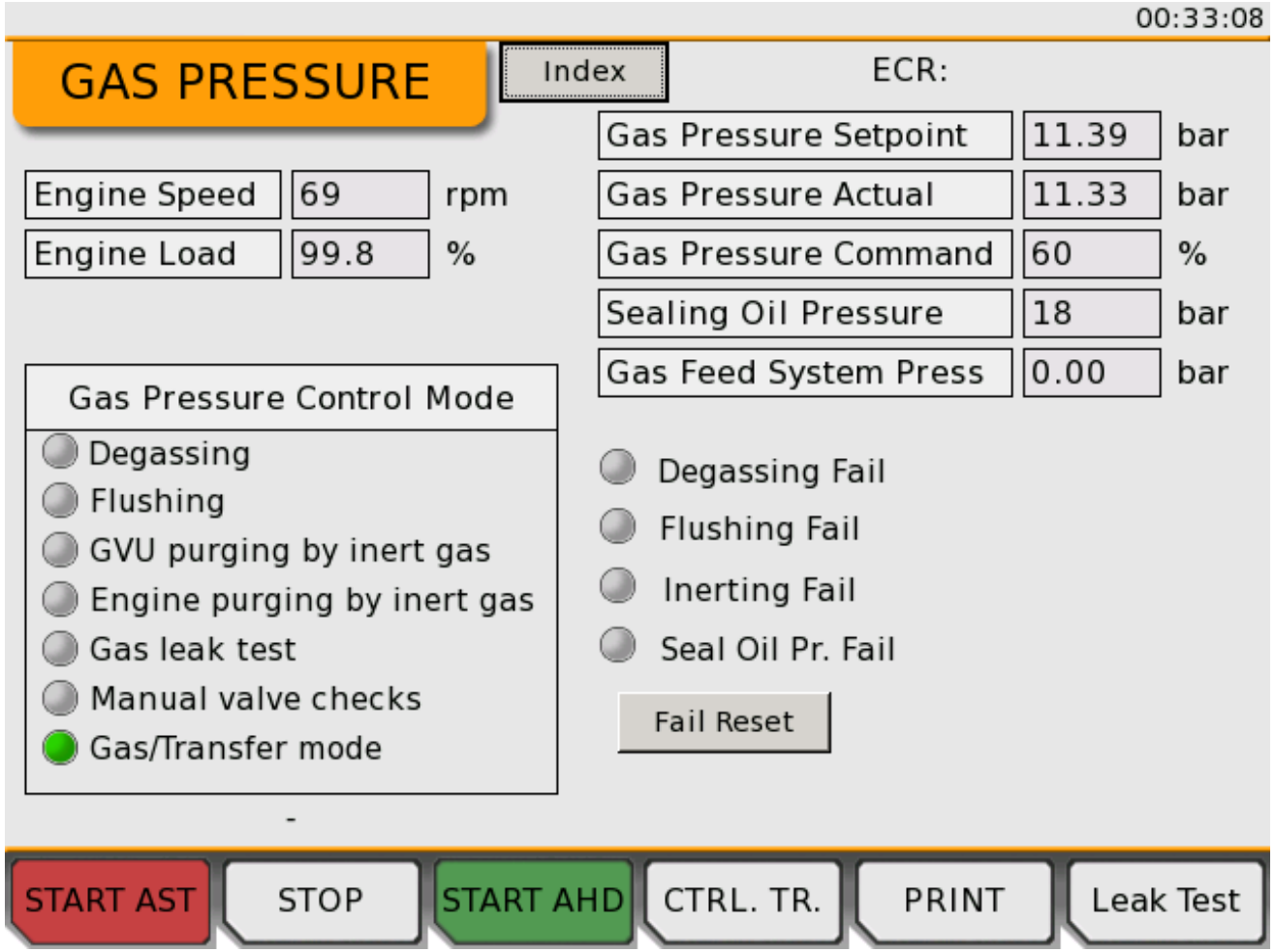


Gas Admission Valves

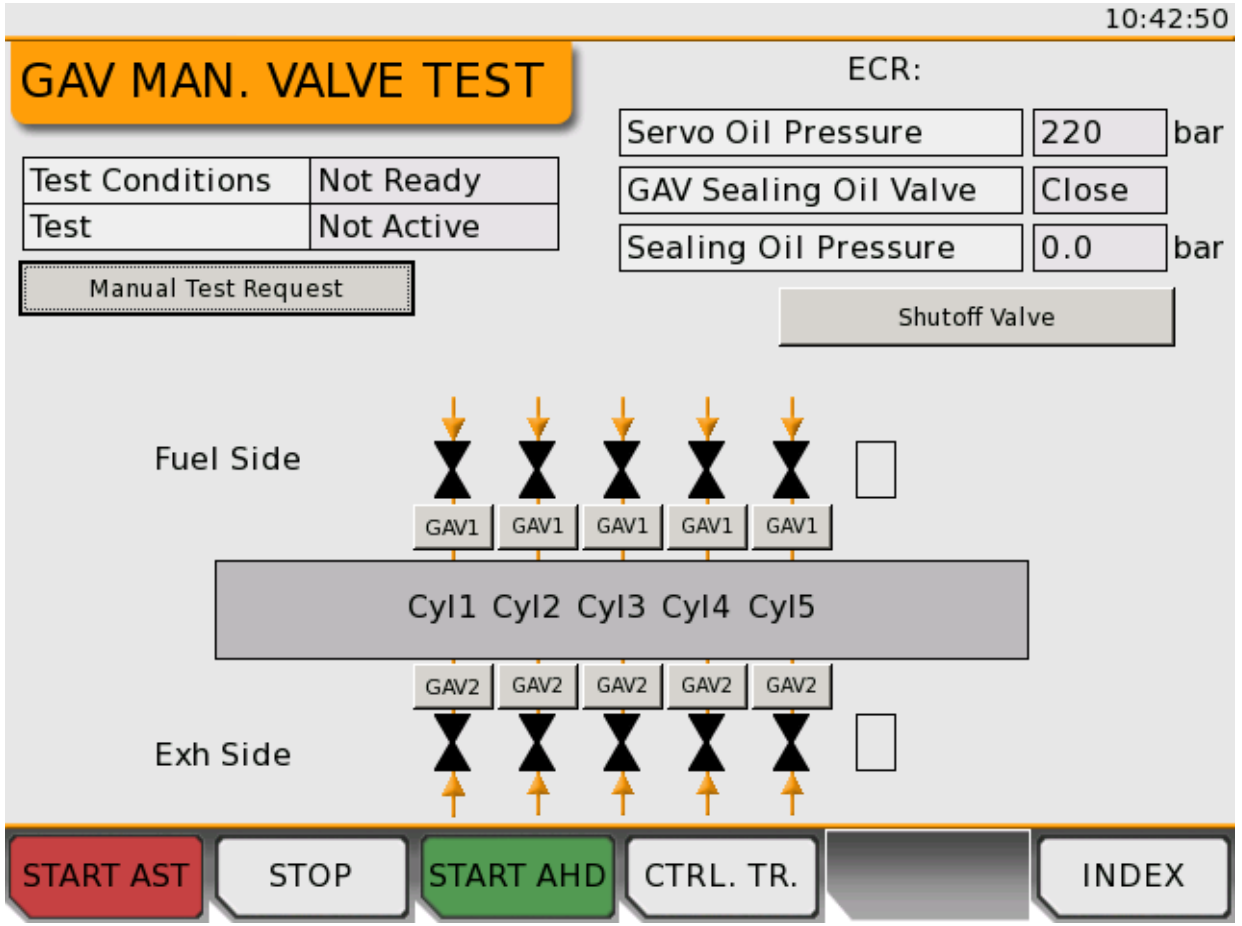


	Adm. Begin deg	Duration ms	GAV 1 Act.	GAV 1 Feedb.	GAV 2 Act.	GAV 2 Feedb.
Cyl. #1	228.4	22.2	OK	OK	OK	OK
Cyl. #2	228.4	22.8	OK	OK	OK	OK
Cyl. #3	228.4	21.7	OK	OK	OK	OK
Cyl. #4	228.4	21.6	OK	OK	OK	OK
Cyl. #5	228.4	21.7	OK	OK	OK	OK
Cyl. #6	228.4	22.0	OK	OK	OK	OK

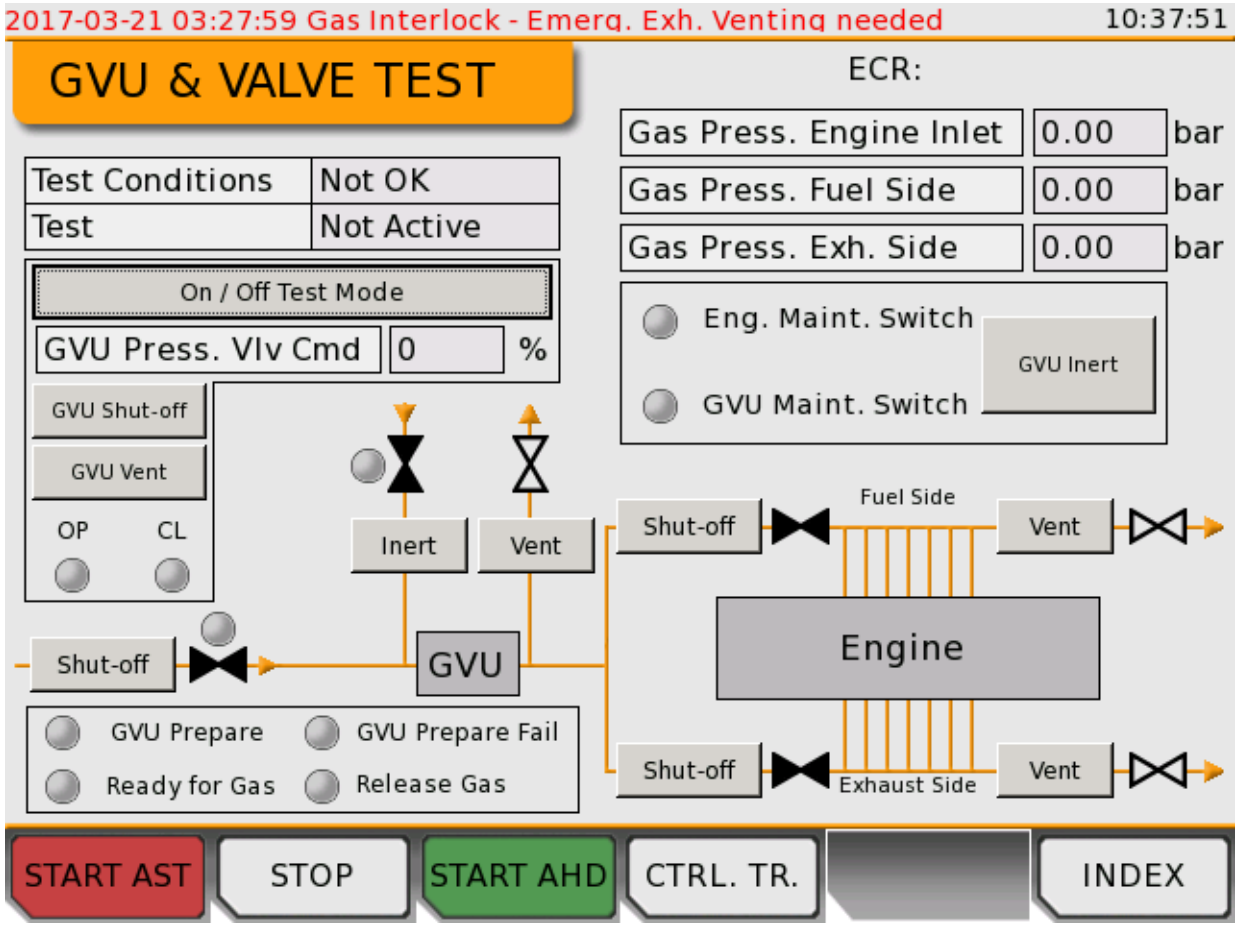
Gas Pressure



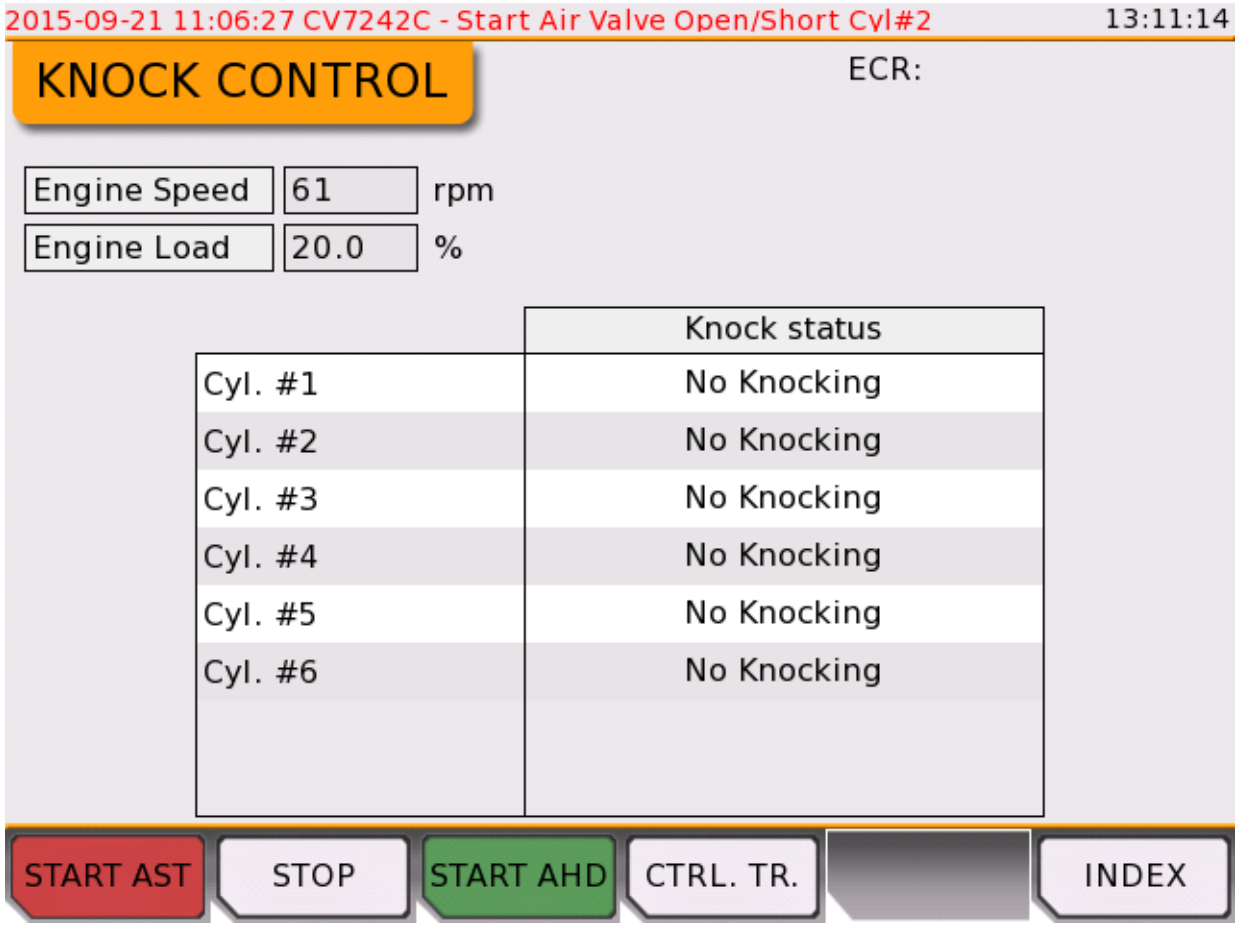
GAV Manual Valve Test



GVU Valve Test

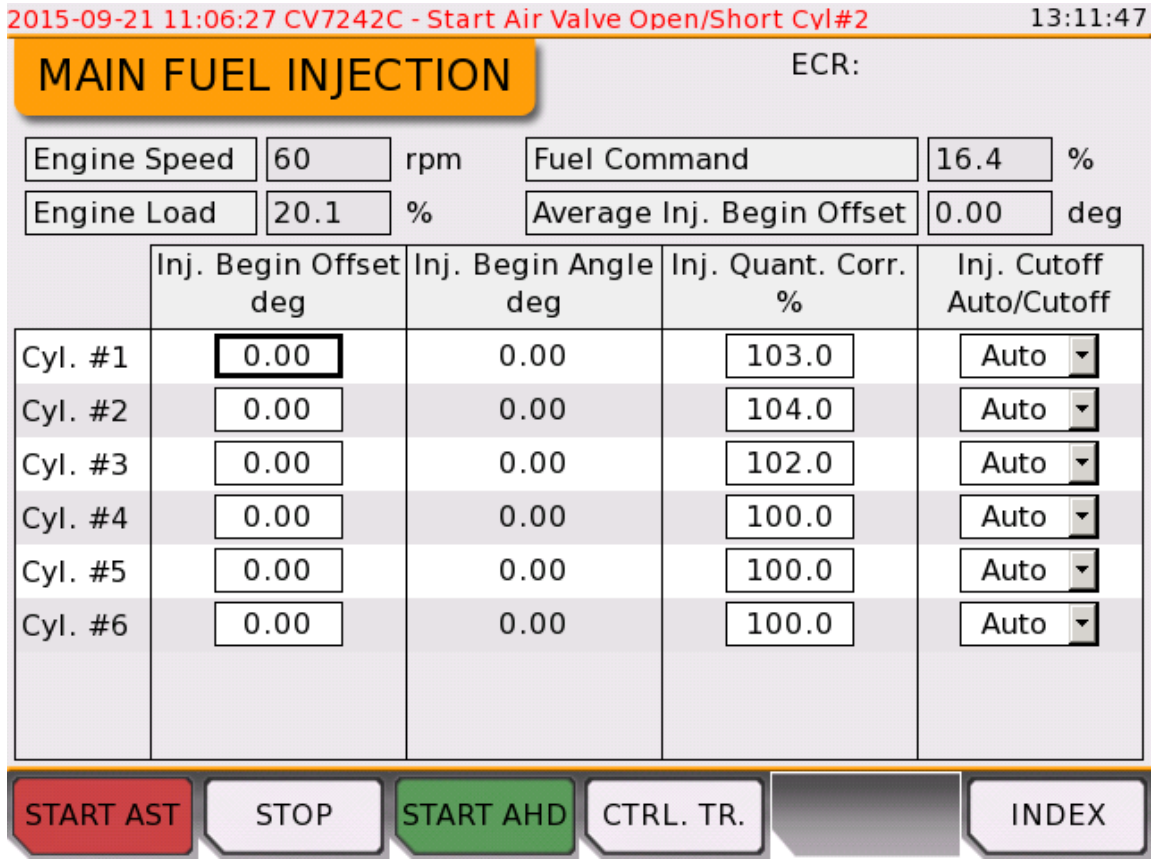


Knock Control



Main Fuel Injection

- Select and adjust the value by turning the rotating button
- Injection beginning offset can be adjusted individually
  - Injection beginning offset can be adjusted by +/- 1.5°
  - positive angles mean later (retarded) injection
  - negative angles lead to earlier (advanced) injection
- Injection cut-off
- Adjusting of amount of injected fuel on individual cylinders (80 – 110 %)



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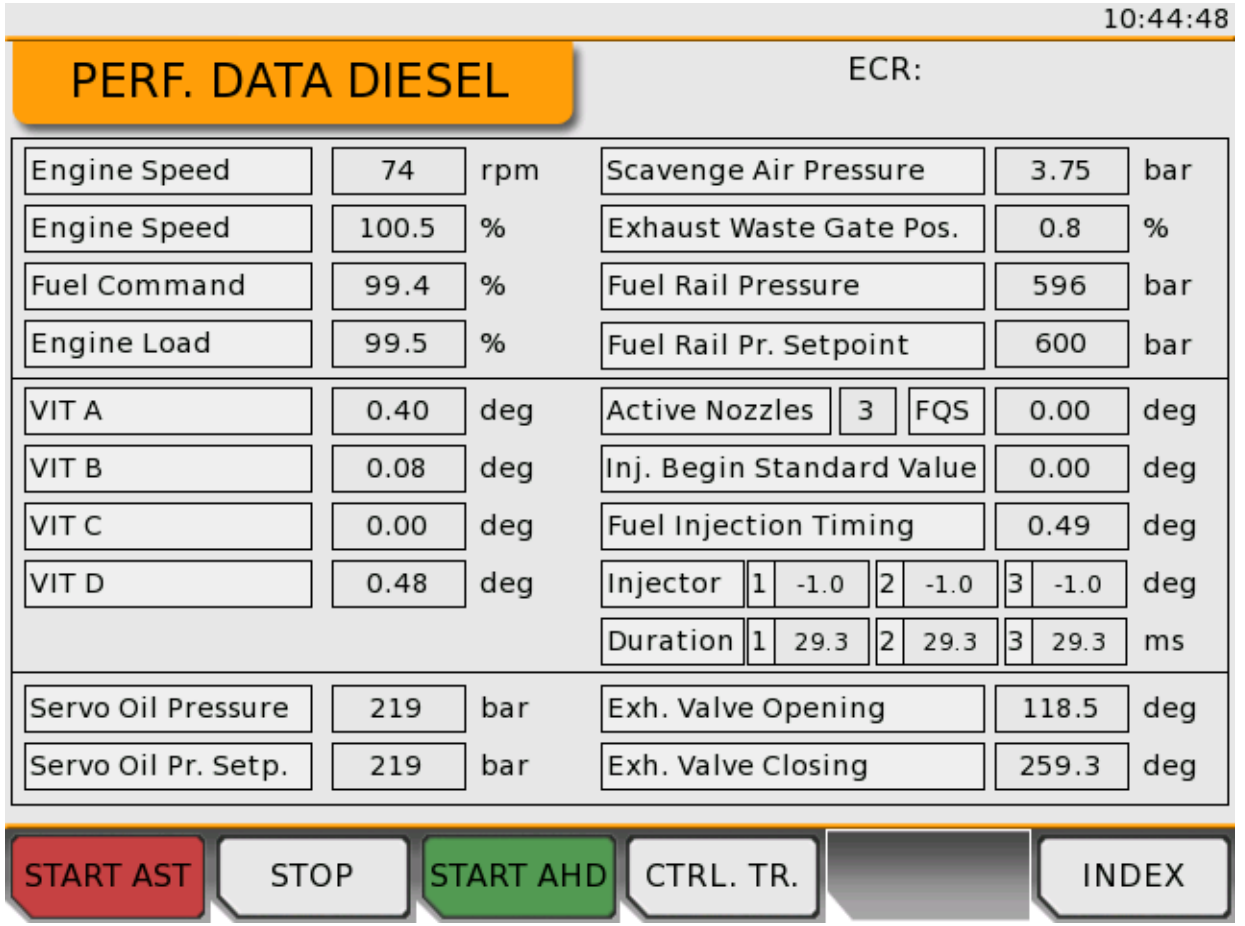
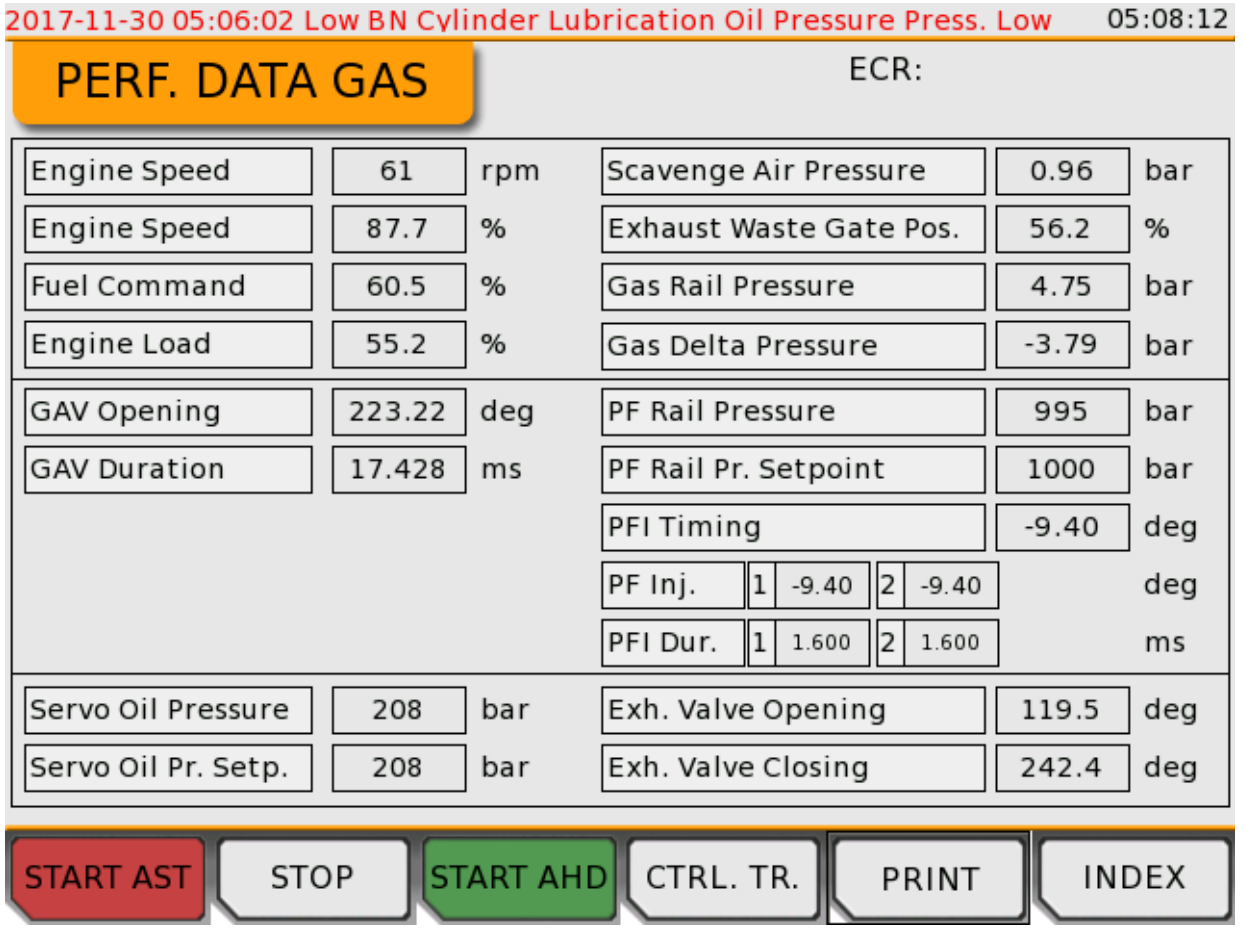
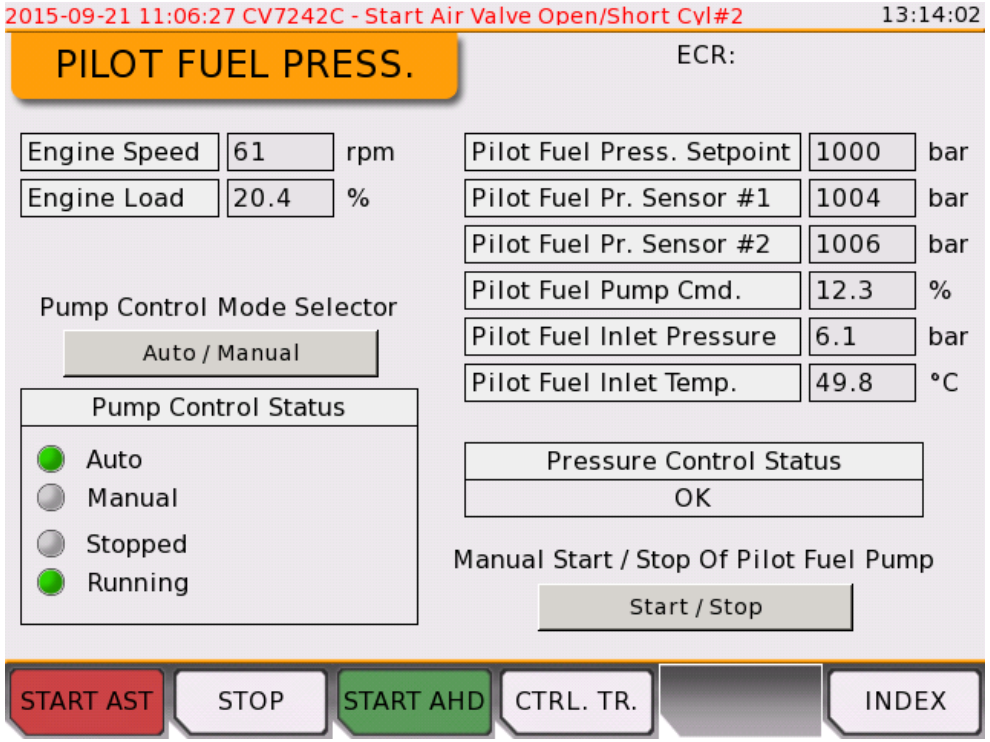
Performance Data DIESEL

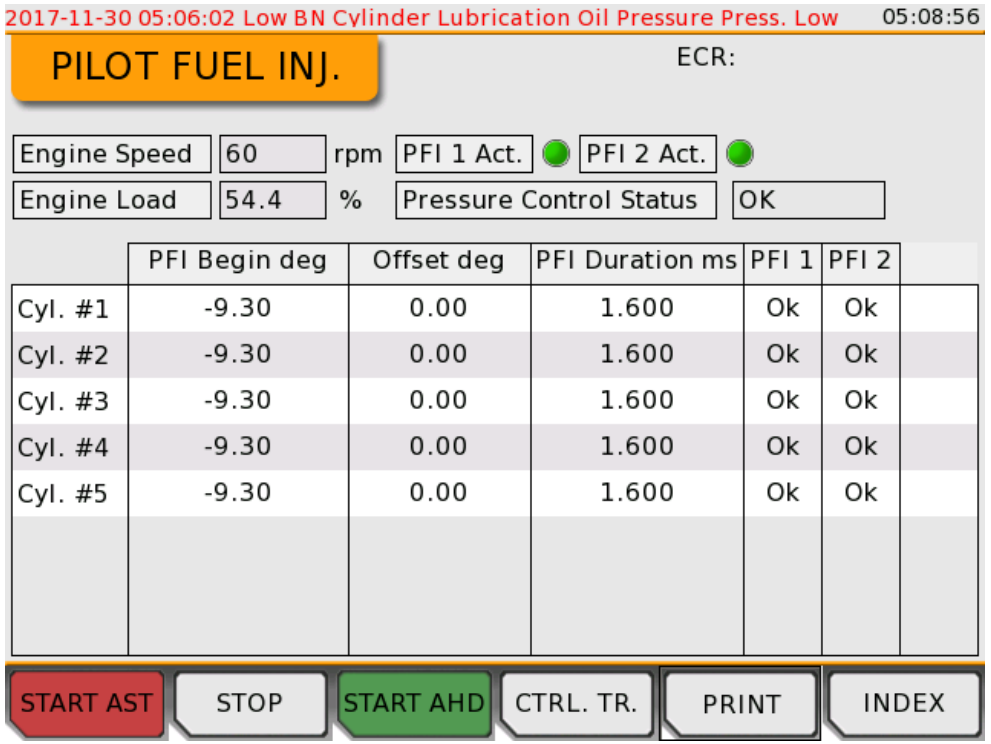


Performance Data GAS

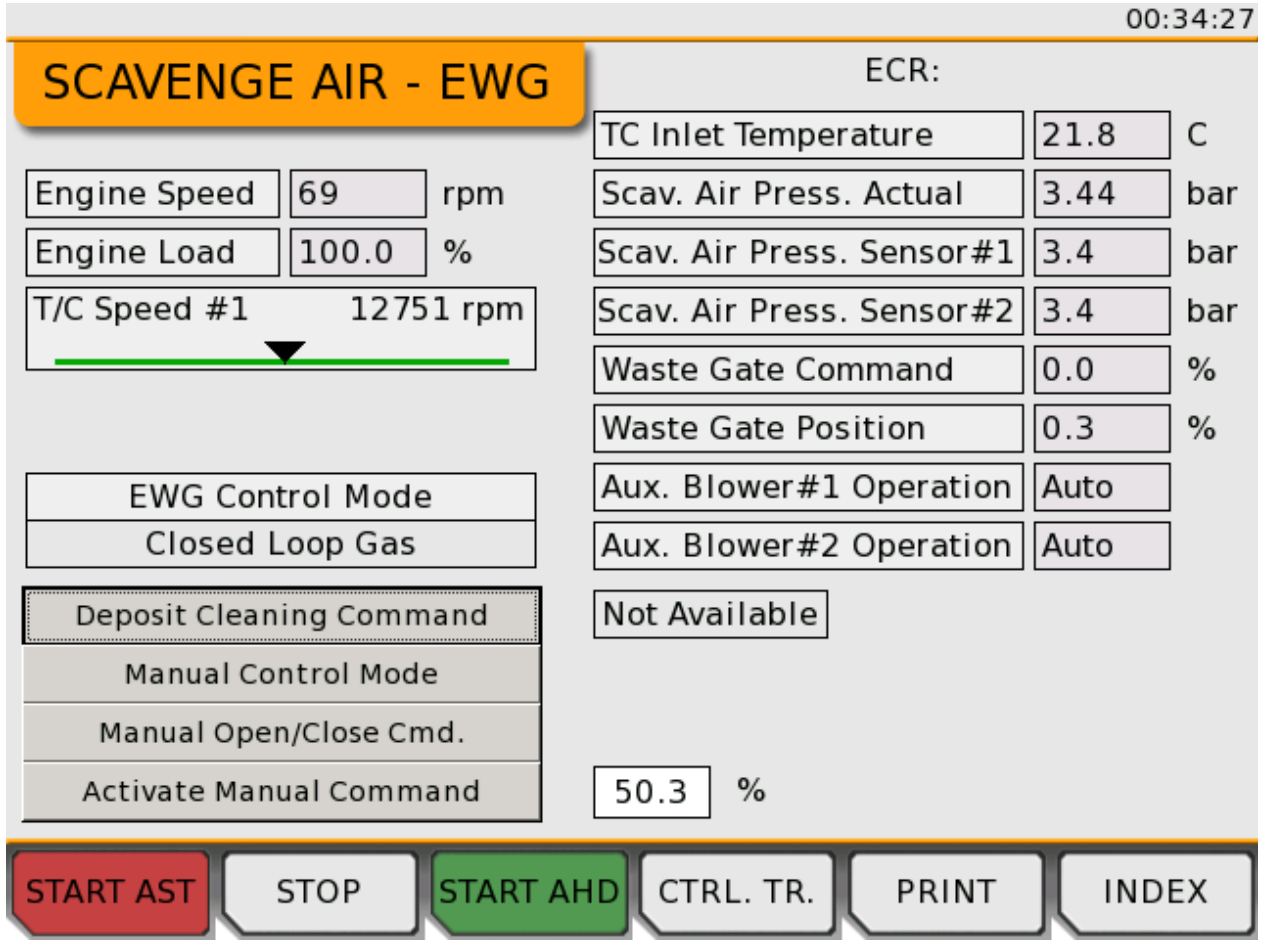


Pilot Fuel Inj/Pilot Fuel Pressure





Scavenge Air – Exhaust Waste Gate (EWG)



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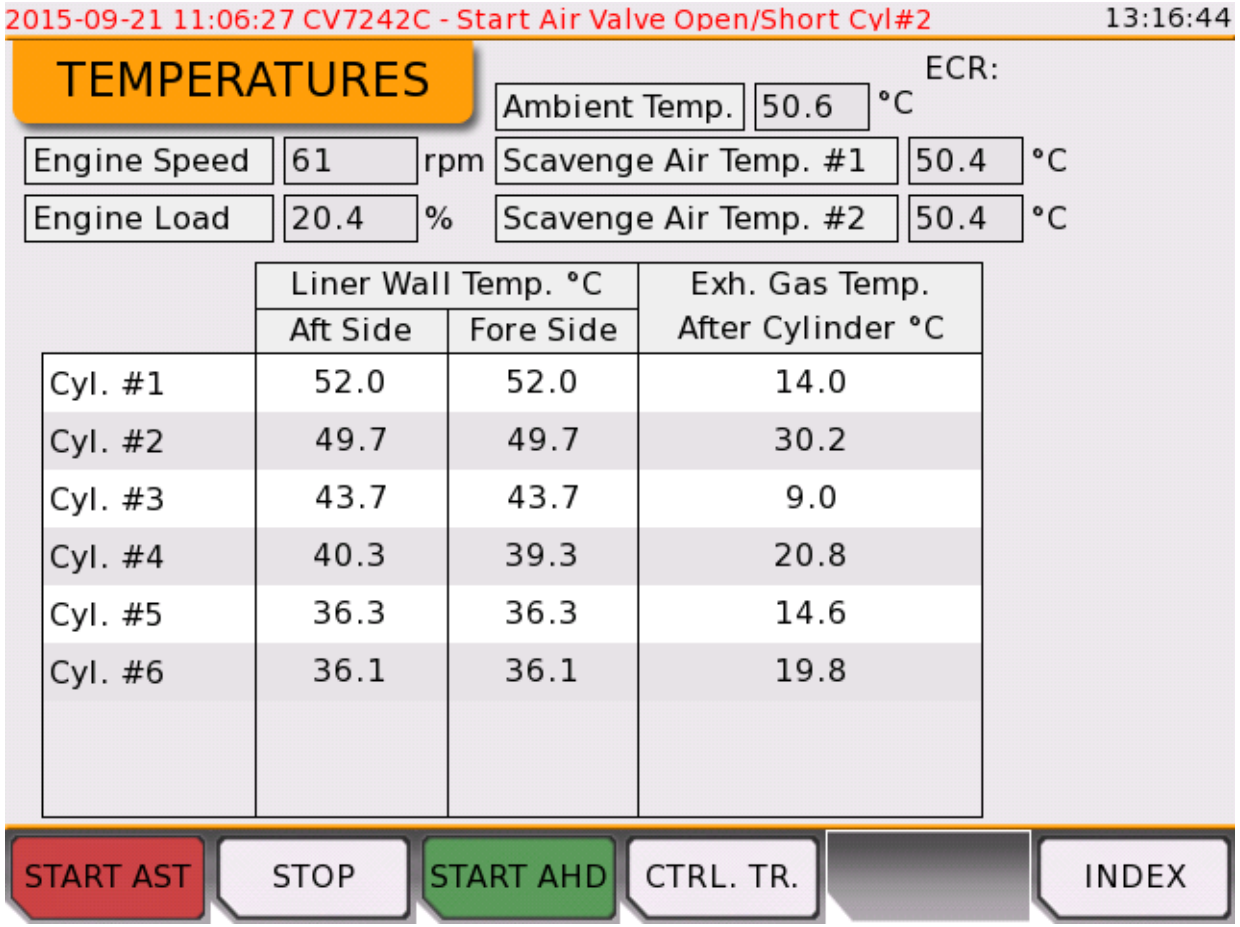
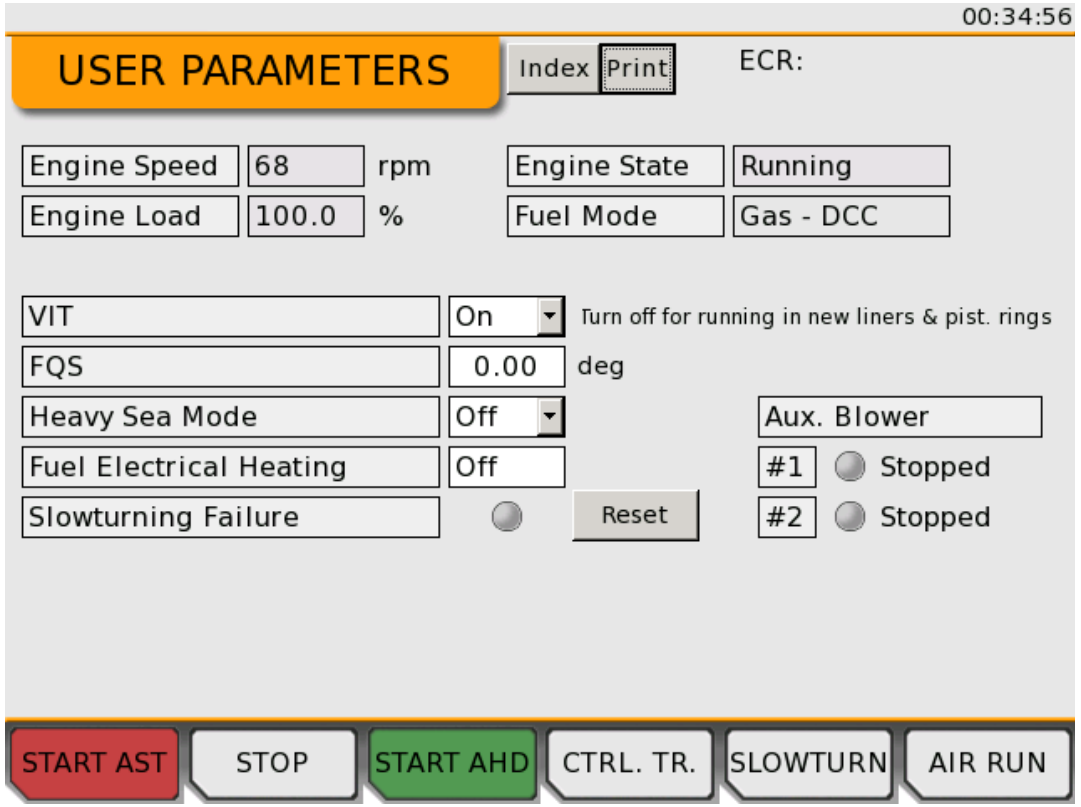
Temperatures



User Parameters

- VIT can be switched on/off
- FQS adjustment in degree +/- 3.0° for manual firing pressure control
- Fuel Electric Heating On/Off



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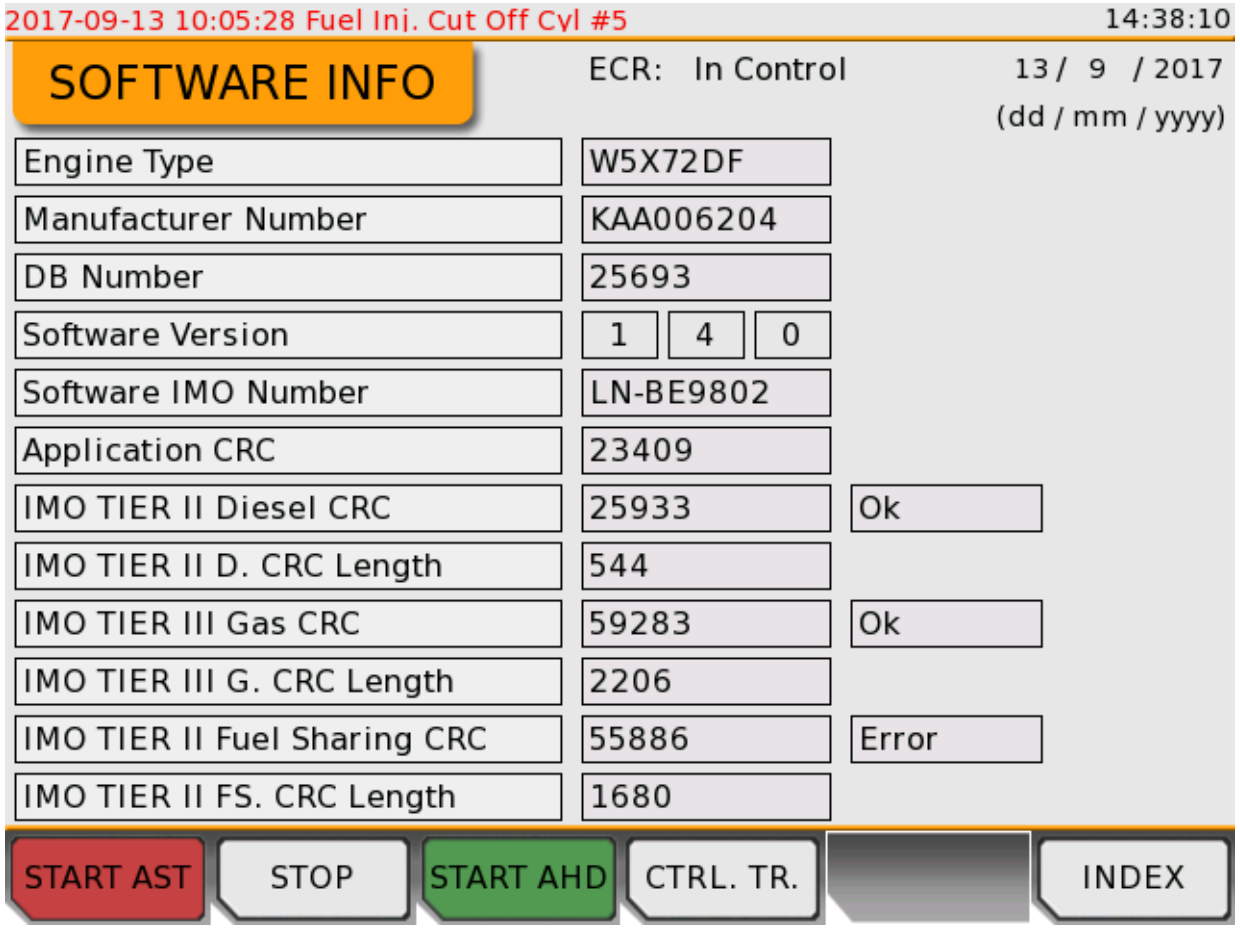
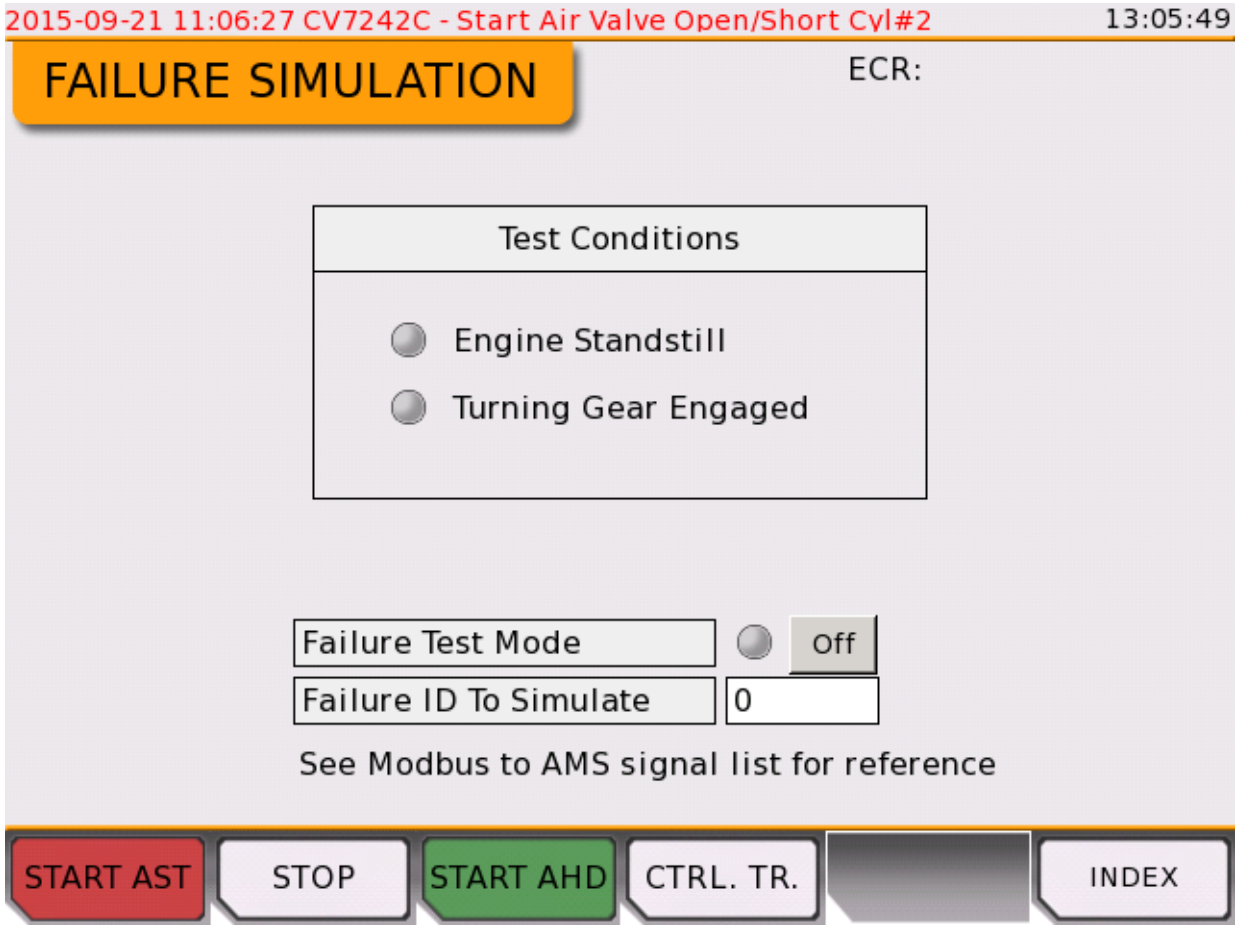
Software Info

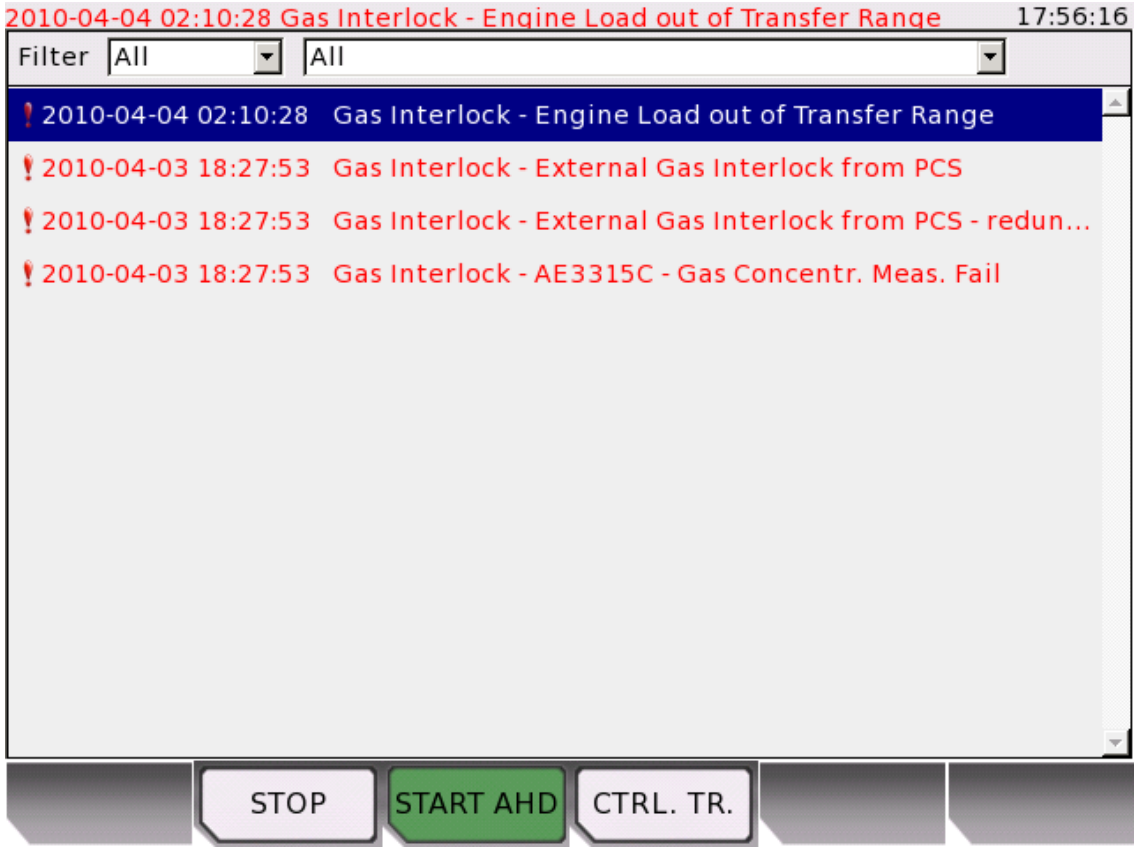


Failure Simulation



Failure Logs

- The last, still pending alarm is displayed on top of the screen
- The Failure Log screen shows all pending alarms
- Alarms can be filtered by type and category



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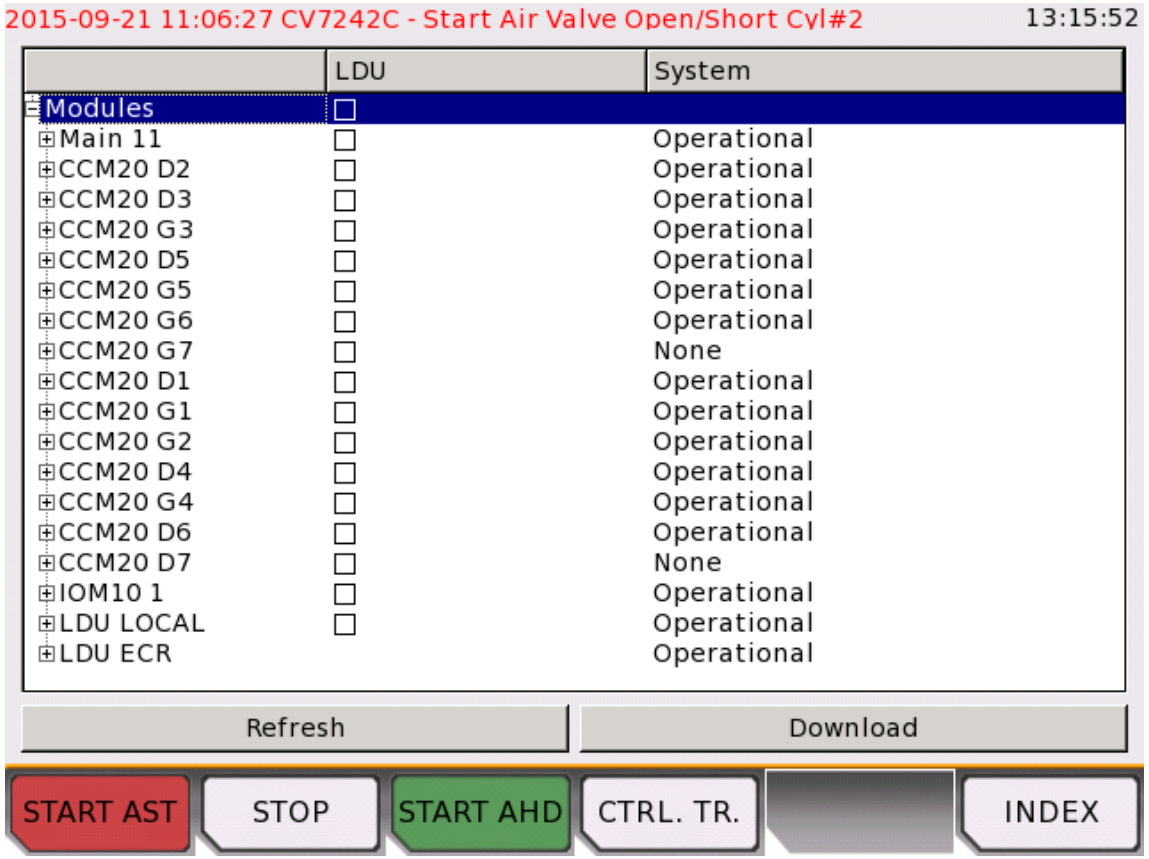
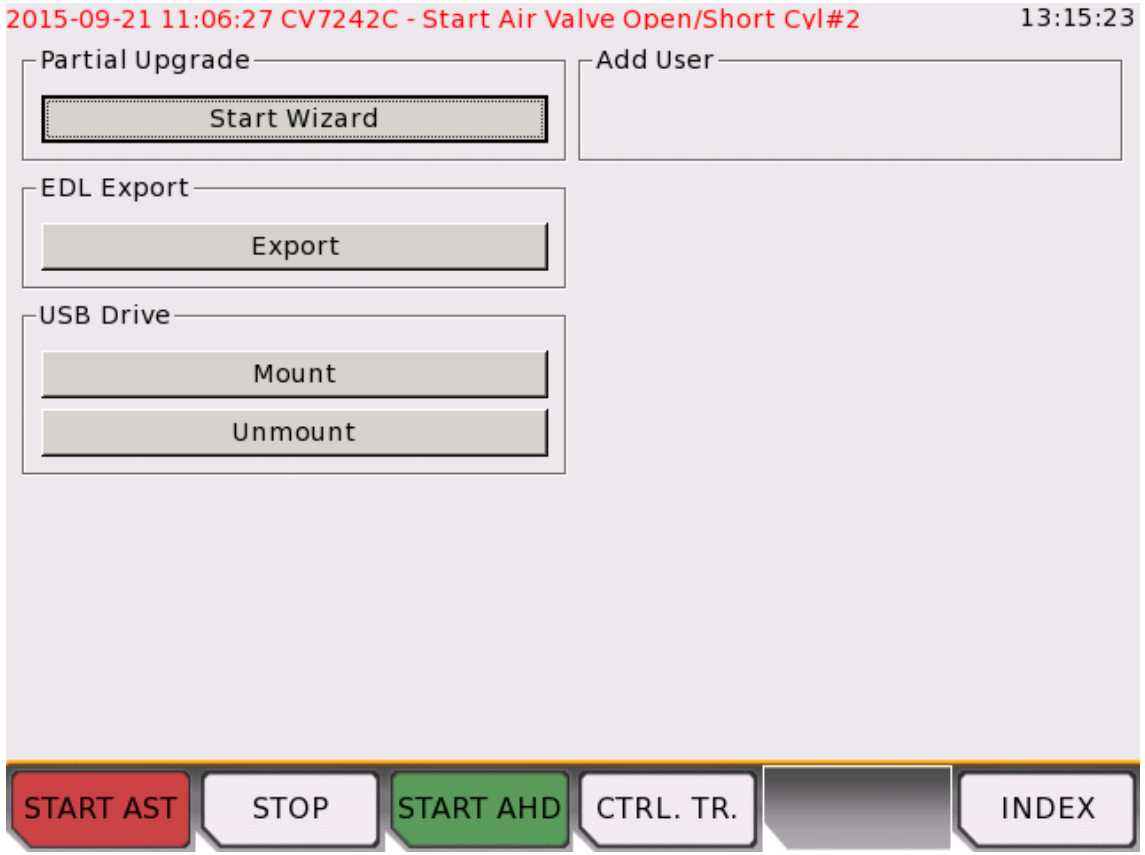
System Status

- The LDUs contain a complete backup of all application and configuration files for all modules
- Starting up a CCM module, all files are compared with the backup files in the LDU
- If version different, it is marked with red colour in the status list
- To synchronise press “Download”
  - “Yes” starts the download
  - “No” cancels the process



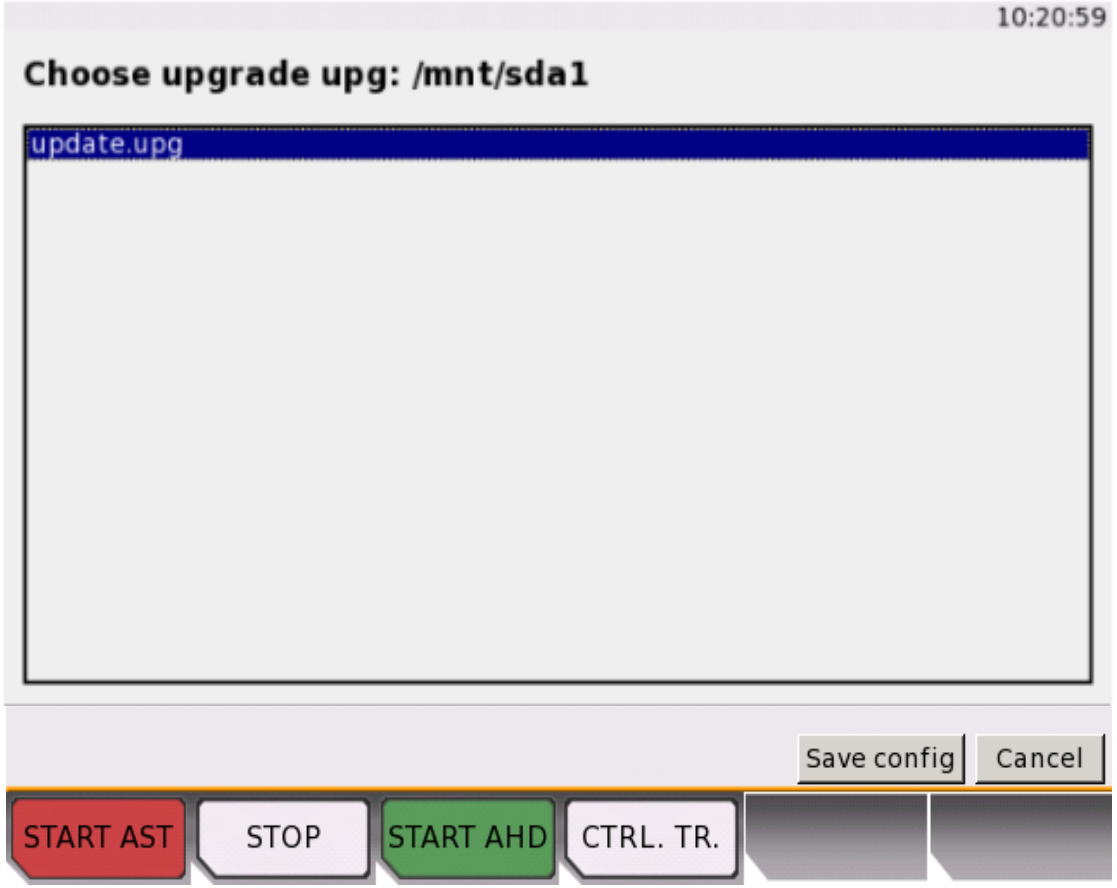
Software Tools

- Although operators on board have no access to “Expert Parameters”, necessary adjustments can be done via “Partial Upgrade Wizard”
- An “update.upg” file supplied on a USB drive by WinGD
- Selecting “Start Wizard” displays another screen that shows the available upgrade packages and guides through the upgrade process
- The complete system log can be saved on an external USB drive
- Pushing the “Export” button, the file EDLExport YYYYMMDD_hhmmss.wxml will be saved on the USB drive
- It can be sent to WinGD for troubleshooting



Partial Upgrade Wizard

- Shows the available upgrade packages on the USB drive
- Follow the instructions through the upgrade process

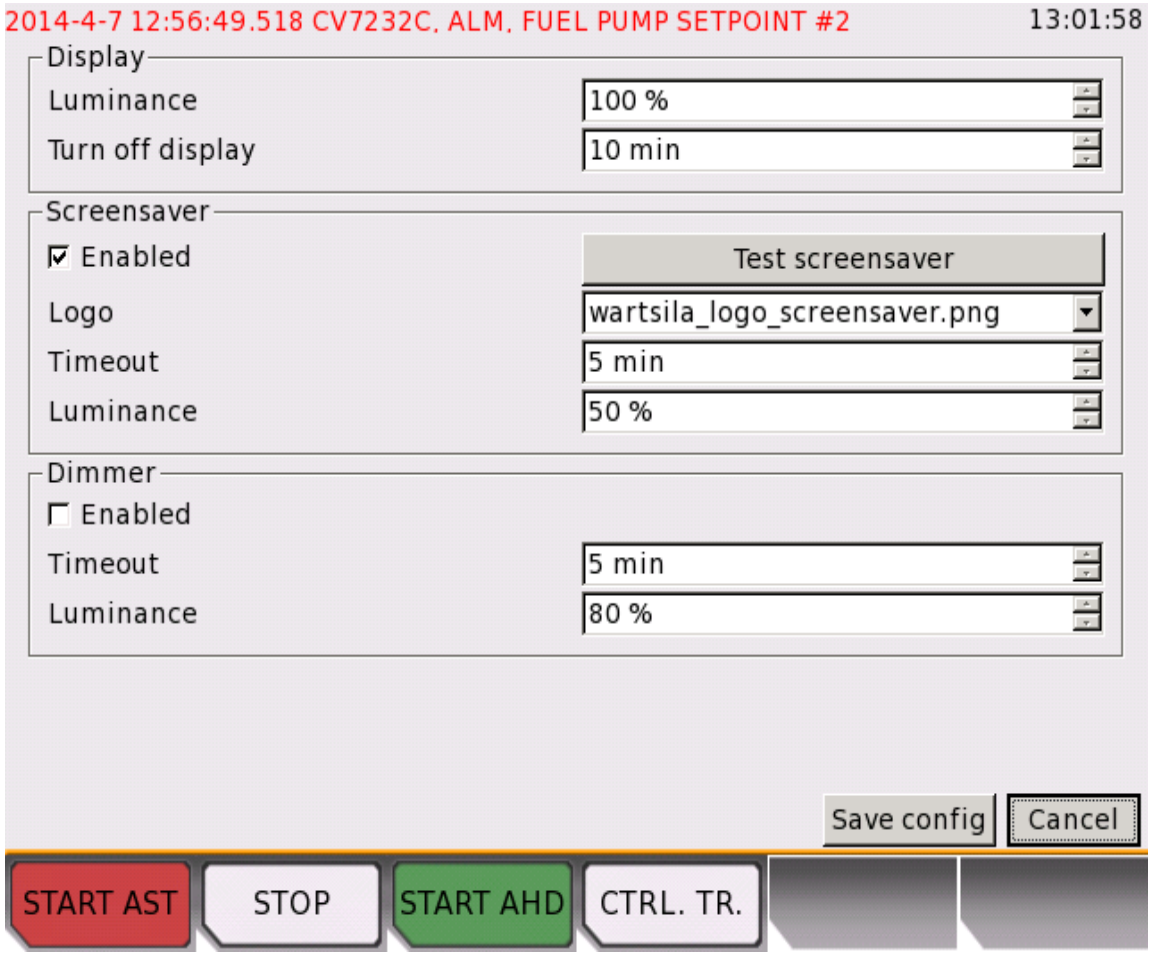


Display Settings

The system settings contains 3 subpages for adjusting LDU-20 settings

User specific settings of display appearance

- Brightness
- Screensaver
- Dimmer



Ethernet

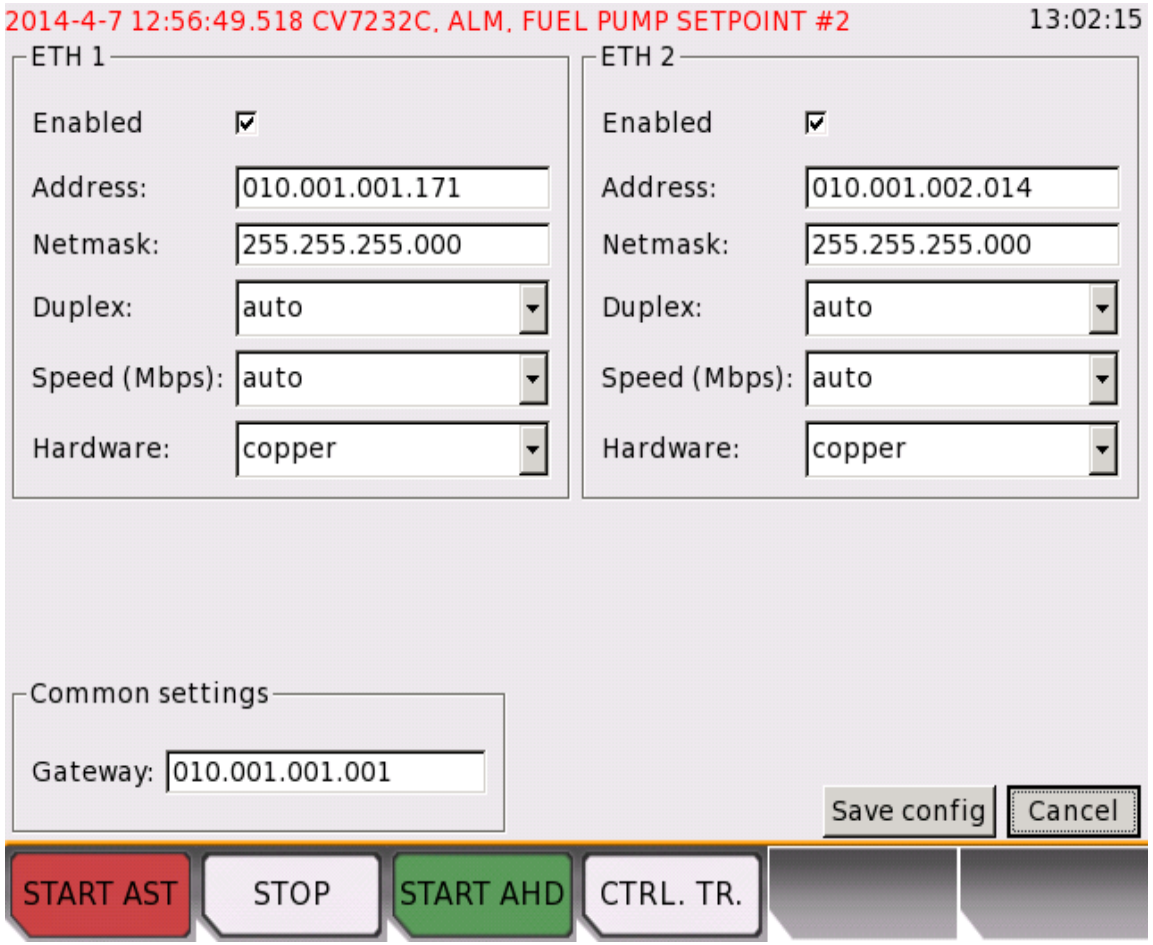
- Settings for Ethernet communication have to be set for local and ECR panel
- Configure TCP/IP address for each Ethernet port with these settings:

  LDU Local: eth0 = 10.1.1.**171**
  eth1 = 10.1.2.14

  LDU ECR: eth0 = 10.1.1.**173**
  eth1 = 10.1.2.14

- Common settings:

  Enabled: both must be enabled
  eth0 = plug X31
  eth1 = plug X32
  Netmask: 255.255.255.000
  Duplex: auto
  Speed: auto
  Hardware: copper
  Gateway: 010.001.001.001



Date & Time

- Date and time can be adjusted
- It is recommended not to change the local time at changing the time zone to avoid overwriting data
- UTC time zone is preferred