CAN-COMMUNICATOR (C-COM) LIGHTBAR MESSAGE CENTER
USER GUIDE

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072-81986A Revision Table

REVISION	DATE	DESCRIPTION OF CHANGE
A	12/20/11	Initial Release

DESCRIPTION

The CAN-Communicator (C-COM) Lightbar Message Center (LMC) combines the advantages of a graphic display with a 28-telltale lightbar. This rugged and versatile message center can be used exclusively, or as a compliment, to any existing instrumentation simply by connecting it to an SAE J1939 (CAN) data bus. The LMC displays data and diagnostics, both active and stored faults from the individual ECMs, directly from the vehicle data bus.

There are 3 buttons for navigating the screens through an intuitive menu system, displaying diagnostics, parametric data and popup warnings. Diagnostic capabilities include both active and stored fault codes from the ECU. Data can be viewed in a graphical or numeric presentation.

The message center is designed for additional flexibility to the user. The setup menu screens provide customization how the data is presented, units to be switched to English or metric and set the display contrast and brightness. A service alarm can also be set for hours or service.

The graphics LCD is 340 pixels wide and 90 pixels high, providing clear, legible graphics. Backlighting can be controlled through the menu or an external dimmer. The 28 dead-fronted telltales are customizable.

LMC is sealed to IP67 specifications both front and rear of the gauge and operates from 9 to 32 volts DC. The LMC has 2 CAN J1939 data bus interfaces, analog and switched inputs, as well as switched outputs.

This user guide is intended to help you set up the C-COM LMC, understand product features and navigate the menu system.

SPECIFICATIONS

Physical Characteristics
Housing and bezel material: Black polycarbonate ABS plastic
Connector: 34-pin AMP superseal, polarized and locking

Environmental Characteristics
Temperature, humidity, shock, vibration, and salt spray: Meets or exceeds SAE #J1455-1994-08
Operating Temperature: -40 to +85°C

Electrical Characteristics
Operating limits: 9 to 32 VDC, reverse polarity protected
Transient protection: Meets or exceeds SAE #J1455-1994-08

Electrical Inputs
Battery/ignition: 9 to 32 volts
Operating current: 3 amperes maximum
Backlighting: Variable through dashlight dimmer control, CAN J1939 message or through menu selection
Discrete inputs: 8; configurable for switch to ground, switch to battery or analog
Data bus: 2; SAE J1939 (CAN), one can be used as SAE J1587 to drive NGI gauges or to communicate on the vehicle data bus

Electrical Outputs
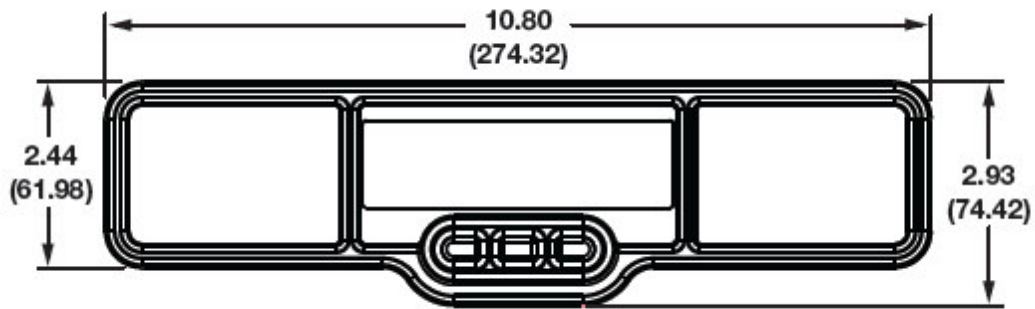Switch to ground: Two, 500 mA each

Display Characteristics
Type: 340 x 90 monochrome, graphics LCD
Viewing angle: 12:00
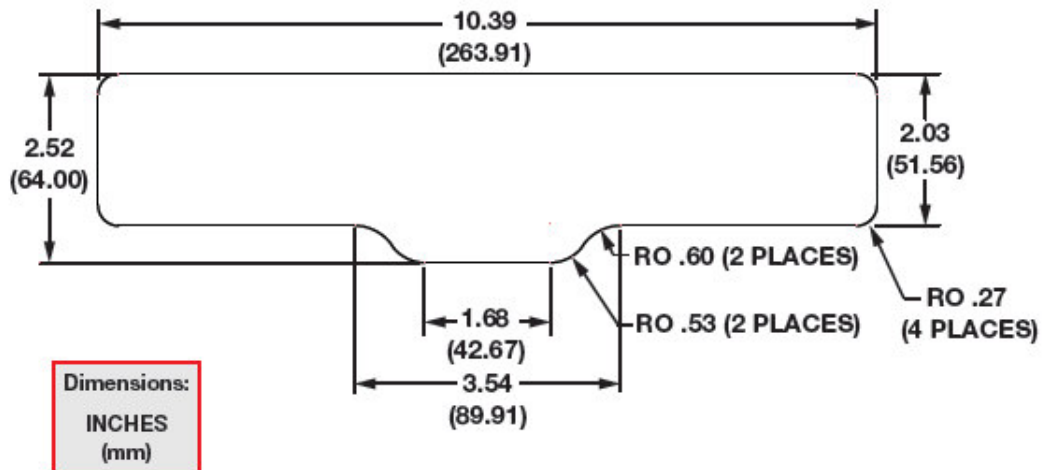Backlight color: Standard is White (can be customized to any color)

Electrical Connections

J1	FUNCTION
1	(+) Battery Power
2	GND
3	(+) Ignition Power
4	J1939 (+)
5	J1939 (-)
6	ABS
7	General Purpose Input 7
8	General Purpose Input 5
9	General Purpose Input 6
10	+7.5V
11	NGI Ground
12	J1939_2(+)
13	J1939_2(-)
14	General Purpose Input 1
15	General Purpose Input 2
16	General Purpose Input 4
17	General Purpose Input 3
18	OUT 2
19	OUT 1
20	NGI Backlight + (External Gauges)
21	NGI Backlight - (External Gauges)
22	System Backlight Input (+)
23	Analog 2
24	Analog 4
25	Analog 6
26	Left Turn
27	Right Turn
28	High Beam
29	J1708 (-)
30	J1708 (+)
31	Analog 1
32	Analog 3
33	Analog 5
34	Analog 7

Mating connector Amp 4-1437290-0

Gauge Dimensions

10.80
(274.32)

2.44
(61.98)

2.93
(74.42)

Panel Cut-Out Dimensions

10.39
(263.91)

2.52
(64.00)

2.03
(51.56)

RO .60 (2 PLACES)

RO .27
(4 PLACES)

1.68
(42.67)

RO .53 (2 PLACES)

3.54
(89.91)

Dimensions:

INCHES
(mm)

072-81986A

SCREEN MENU OVERVIEW

```
┌─────────────────────────┐
│     START UP SCREEN     │
└─────────────────────────┘
             │
             ▼
┌─────────────────────────┐        ┌─────────────────────────┐
│      DATA SCREEN        │ ─────▶ │        MAIN MENU         │
└─────────────────────────┘        └─────────────────────────┘

                                   ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
                                          WARNINGS
                                   └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘

                                   ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
                                         DIAGNOSTICS
                                   └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘

                                   ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
                                          SELF TEST
                                   └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘

                                   ┌ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┐
                                            SETUP
                                   └ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ─ ┘
```
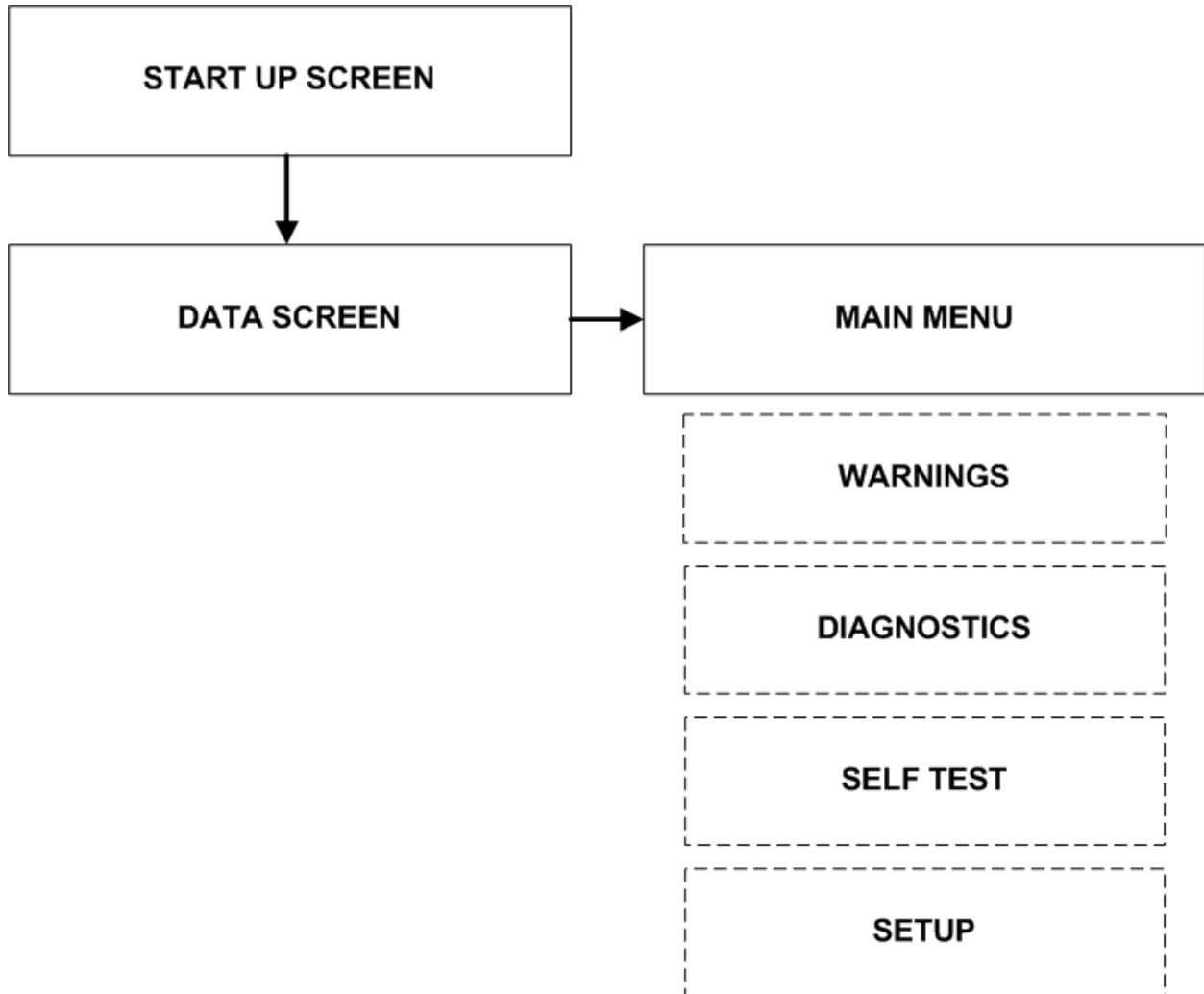
SCREEN MENU DETAIL

POWER UP

Screen Blank for
3 seconds

Logo displayed
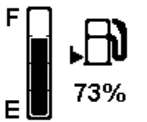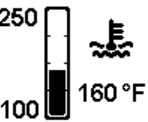for 3 seconds
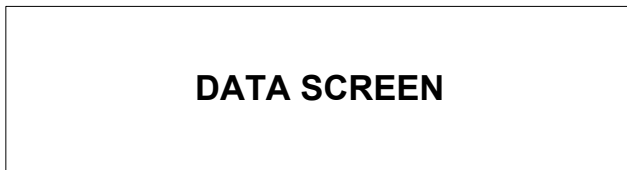
DATA SCREEN

1. When power is first applied to C-COM LMC, the display will turn on all pixels for three seconds.
2. The Ametek VIS logo will then be displayed for three seconds.
3. Data screens are now displayed, unless a popup message(s) is active, which will remain on the display until the condition goes away or the message is dismissed with a button press.
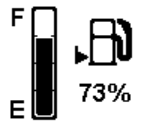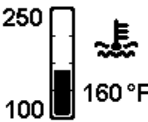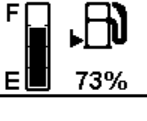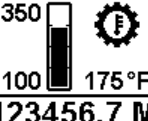
DATA

```
Odometer      123456.7 Mi
Trip 1          1234.5 Mi
Trip 2          6789.0 Mi
```
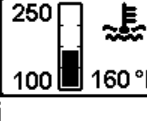
```
F          Odo       123456.7 Mi        F          Odo       123456.7 Mi
           Trans Temp  123.5 F                      Air 1        110.1 PSI
E   73%    Air 1        110.1 PSI        E   73%    Trans Temp  123.5 F
```
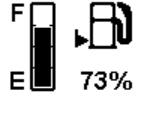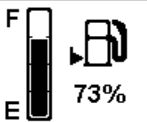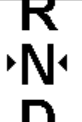
```
F          Air 1    250              F          Air 1    250
           110.1 PSI                            110.1 PSI
E   73%    123456.7 Mi  100  160°F   E   73%    123456.7 Mi  100  160°F
```
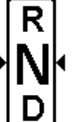
```
F      350      250              F      350      250
E  73% 100 175°F 100 160°F       E  73% 100 175°F 100 160°F
         123456.7 Mi                      123456.7 Mi
```

```
F          Air 1     R           R      Outside
           110.1 PSI ▸N◂         ▸N◂      74°F        NW
E   73%    123456.7 Mi  D         D      123456.7 Mi
```

1. Data can be displayed in various formats. Press the right button to scroll through the Data screen options. The last one selected will remain as the primary Data screen.

2. The Data screens can be added, removed and edited in the Data Setup menu, which is described in detail in the Setup Menu instructions.

3. Pressing the left button twice will proceed to the Main Menu.

MAIN MENU - OVERVIEW

DATA SCREEN

|			
Warnings	Diagnostics	Self Test	Setup
Warnings Screens	Diagnostic Screens	Self Test Screens	Setup Screens
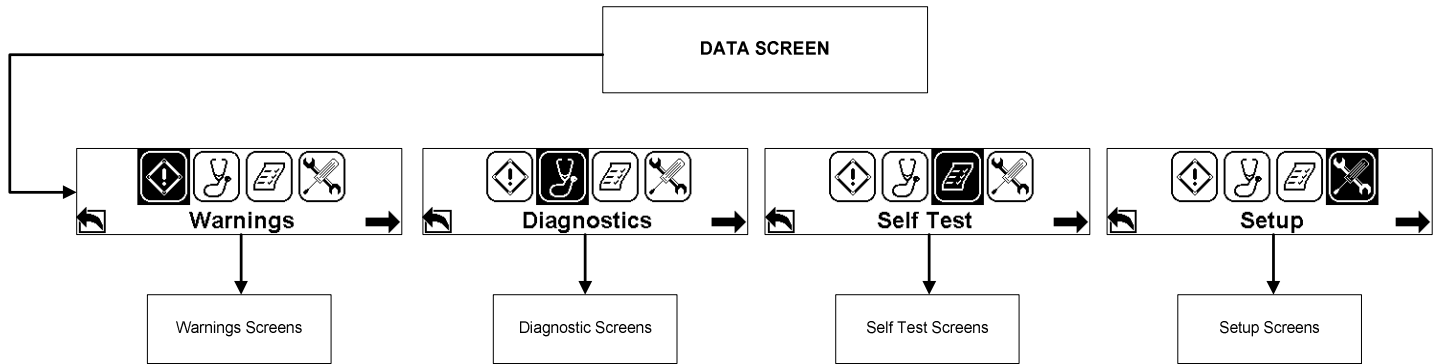
1. Press the Right button to scroll through the Main Menu – Warnings, Diagnostics, Self Test, and Setup.   The item will be highlighted as it's selected. Press the Center button to access that selection.

2. To return to the Data screen, press the Left button, with any selection.

MAIN MENU - WARNINGS

MAIN MENU -
Warnings Selected

Transmission Temp
1/5

Coolant Temp
2/5

Remainder of Warnings
/
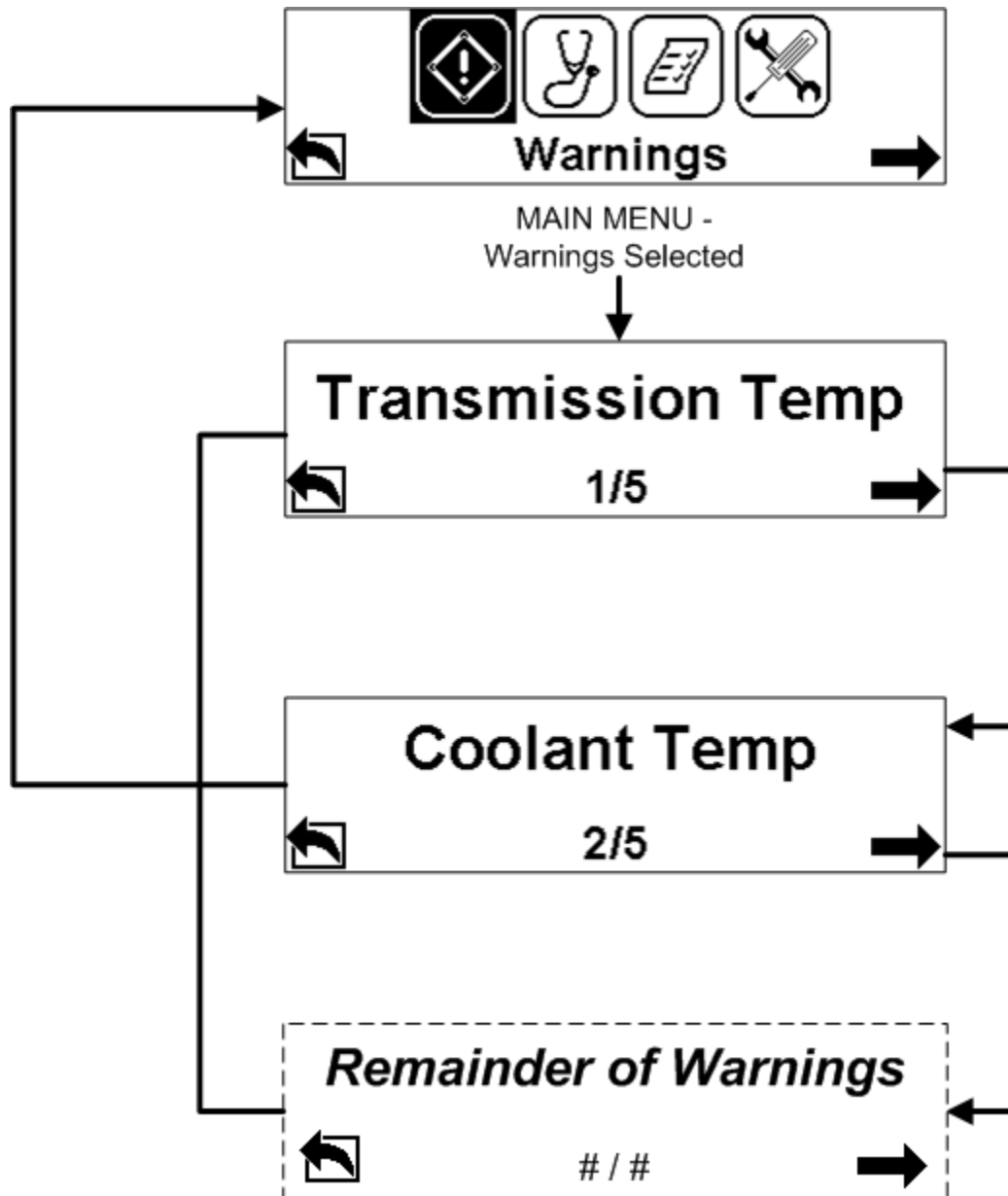
1. With the Warnings selected from the Main Menu, press the Center button to view the warnings. Press the Right button, corresponding to the right arrow prompt on the display, to view each warning message in the list. The total number of messages is shown at the bottom of the display. If there are no warning messages, "No Warnings" will be displayed.

2. Return to the Main Menu by pressing the Left button while any of the messages are displayed.

MAIN MENU - DIAGNOSTICS

MAIN MENU -
Diagnostics Selected

Active

Active Faults Screens

Stored

Stored Faults Screens
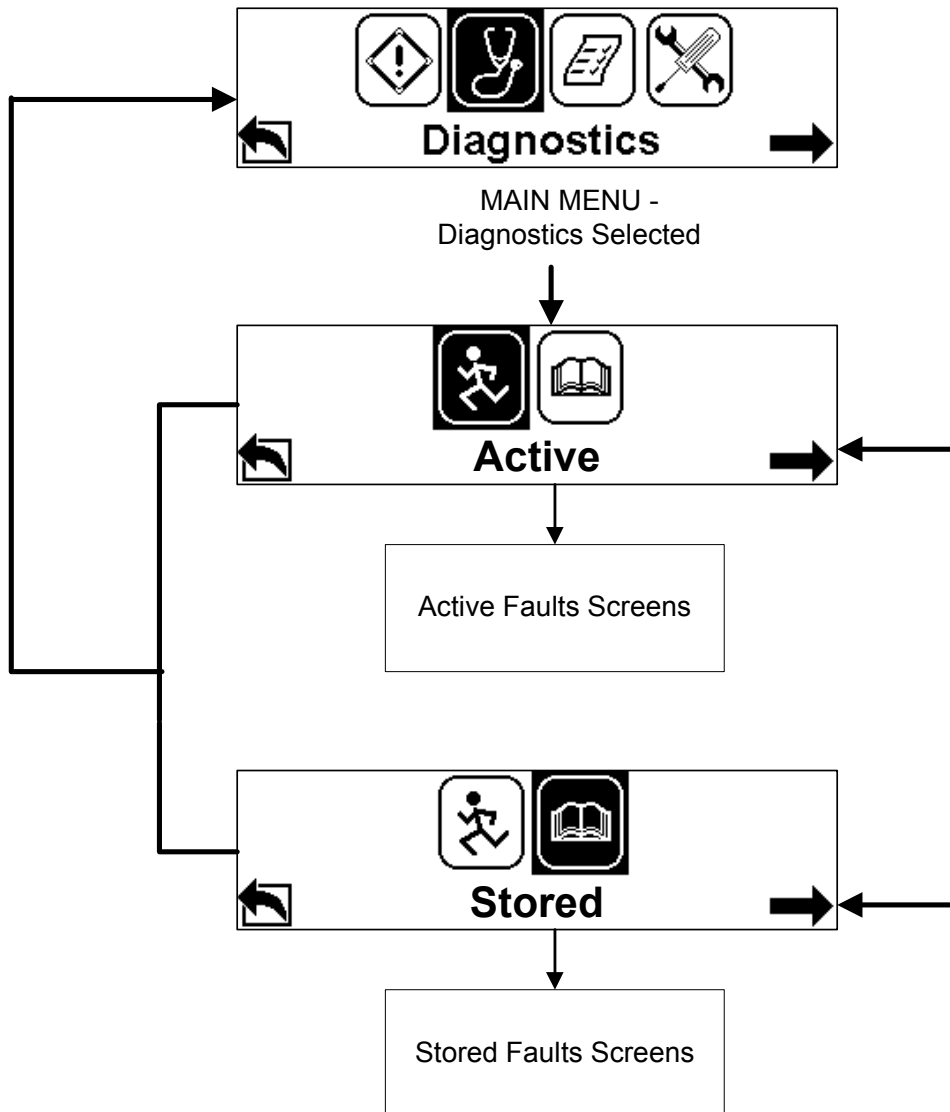
1. Once the center button is pressed to view Diagnostics from the Main Screen, Active Faults or Stored Faults can be viewed.   Press the Right button to switch between Active and Stored, then the Center button to select.   The current selection will be highlighted.

2. Press the Left button to return to the Main Menu.

Diagnostics Menu -
Active Faults Selected
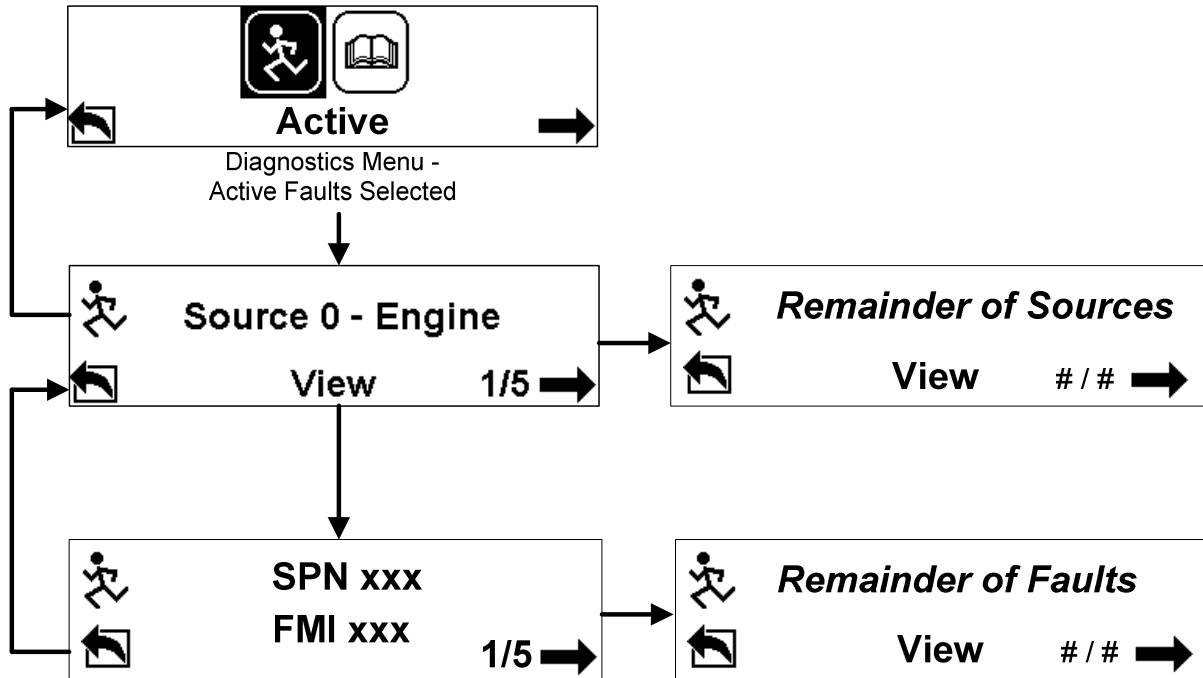
3. Upon selection of Active Faults, the Source ID will be displayed if there are Active Faults from the vehicle ECU. If there are no Active Faults, "No Active Faults" will be displayed.

4. Press the Right button to scroll through any additional Source IDs.

5. Press the Center button to view the Fault Code details. Then press the Right button to scroll through the Fault Codes.   To return to the Source ID, press the Left button. Then press the left button again to return to the Diagnostics menu.

Diagnostics Menu -
Active Faults Selected
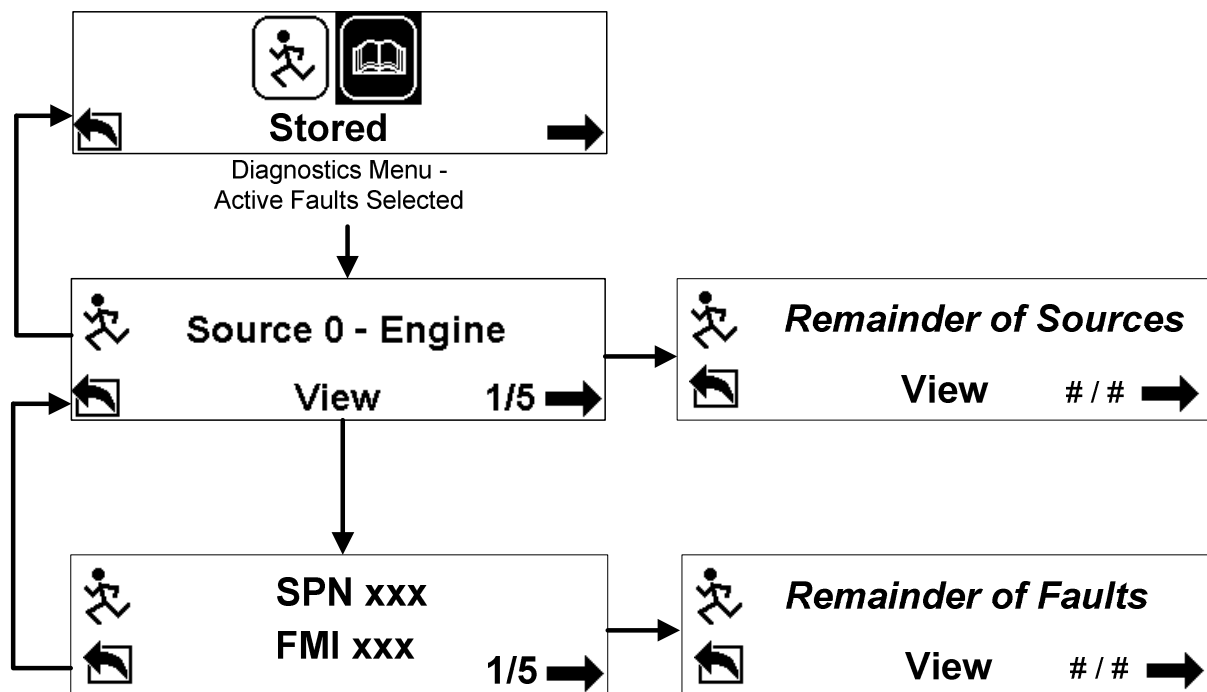
6. Upon selection of Stored Faults, the Source IDs will be displayed if there are Stored Faults from the vehicle ECU. If there are no Stored Faults, "No Stored Faults" will be displayed.

7. Press the Right button to scroll through any additional Source IDs.

8. Press the Center button to view the Fault Code details. Then press the Right button to scroll through the Fault Codes.   To return to the Source IDs, press the Left button. Then press the left button again to return to the Diagnostics menu.

MAIN MENU – SELF TEST

Main Menu -
Self Test Selected
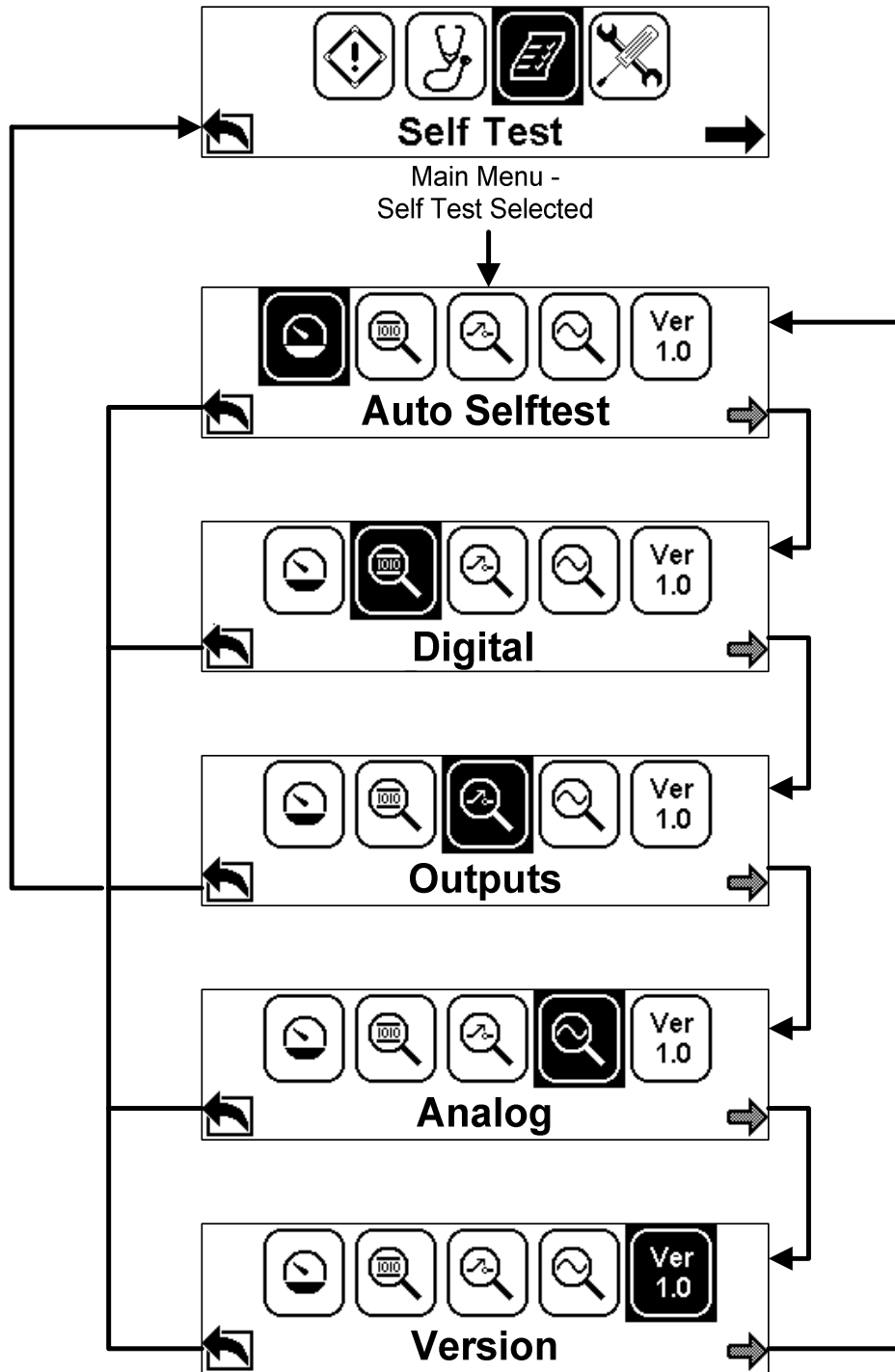
1. Once the Center button is pressed to enter the Self Test menu, there are five options to choose from – Auto Self Test, Digital Inputs, Switched Outputs, Analog Inputs, and Version. As the Right button is pressed, the current selection will be highlighted and the description will be displayed at the bottom center. To access that selection press the Center button. Press the Left button to return to the Main Menu.

MAIN MENU – SELF TEST

AUTO SELF TEST

Self Test -
Auto Self Test Selected
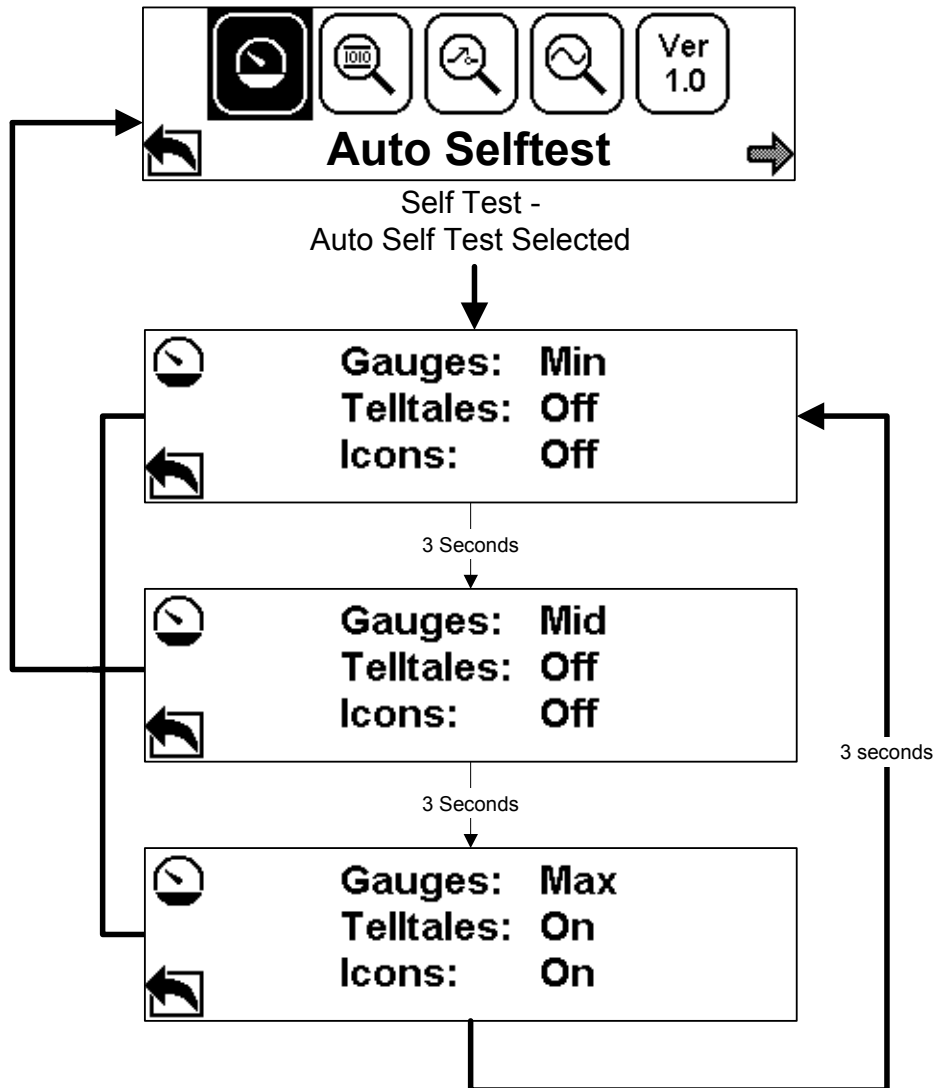
1. With Auto Selftest, the screens will scroll through automatically at 3 second intervals.   If there are gauges connected to the C-COM LMC they will self-test through min, mid and max sweep levels.   At Max level, all the C-COM telltales and gauge icons will turn on.

2. To return to the Self Test menu, press the Left button.

MAIN MENU – SELF TEST

DIGITAL INPUTS

Self Test -
Digital Inputs Selected

Right Button
Next Input
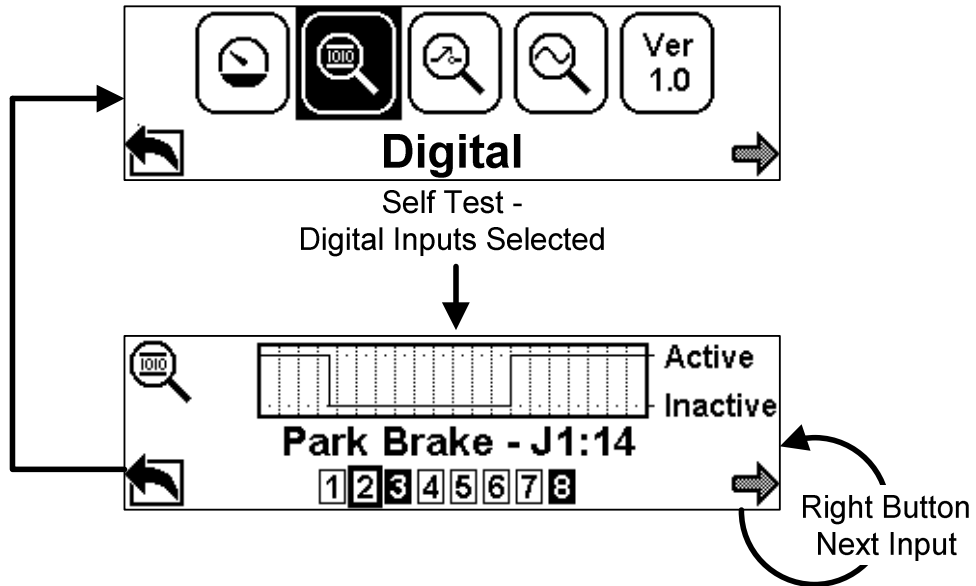
1. In the Self Test Digital Inputs menu, each digital input can be tested.   The corresponding connector, pin, and input number are displayed, as well as a real time 20 second snap shot of the activation level.

    a. The top text line is the input description (Park Brake), connector (J1), and pin number (14)
    b. The bottom text line is the digital input number. The selected input is indicated by a border around the numbered box.   If the input number has a dark background this indicates that it is currently active.

2. Press the Right button to scroll through all of the Digital Inputs.

3. Press the Left button to return to the Self Test menu.

MAIN MENU – SELF TEST

SWITCHED OUTPUTS

Self Test -
Switched Outputs Selected

Open/Close Switch

Open/Close Switch
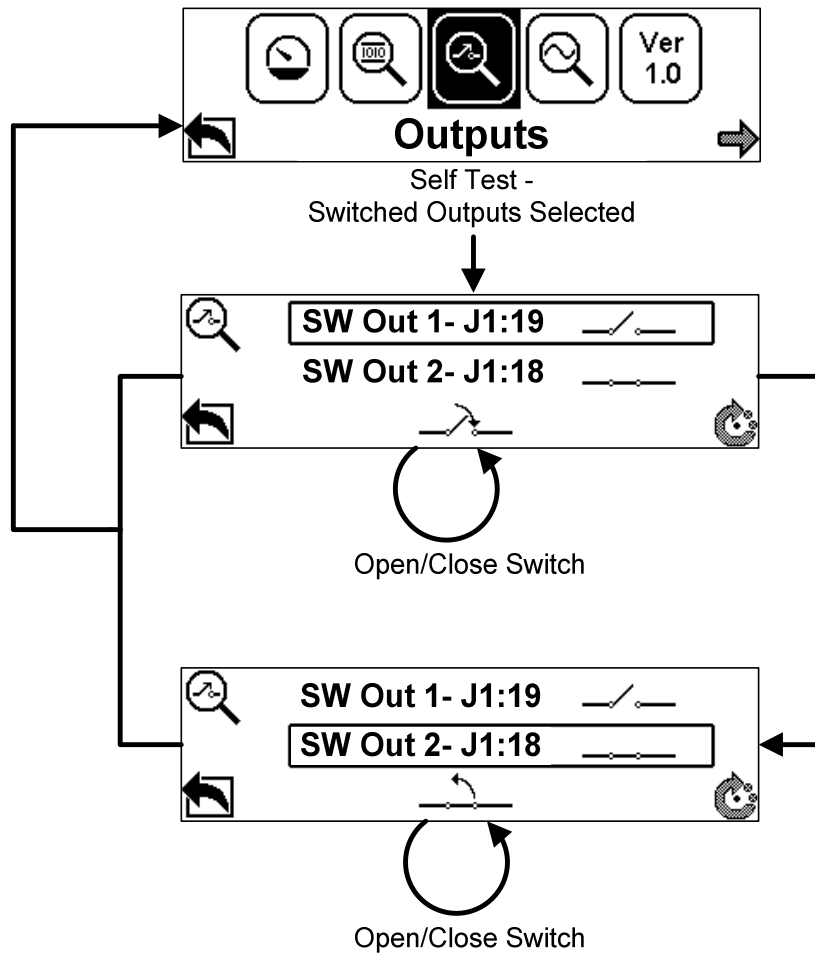
1. In the Self Test Switched Outputs screen, the Output switch can be open or closed. The current selection – Output 1 or Output 2 - is highlighted with a border. Press the Center button to open or close the switch.

2. Press the Right button to switch between Output 1 and Output 2.

3. Press the Left button to return to the Self Test menu.
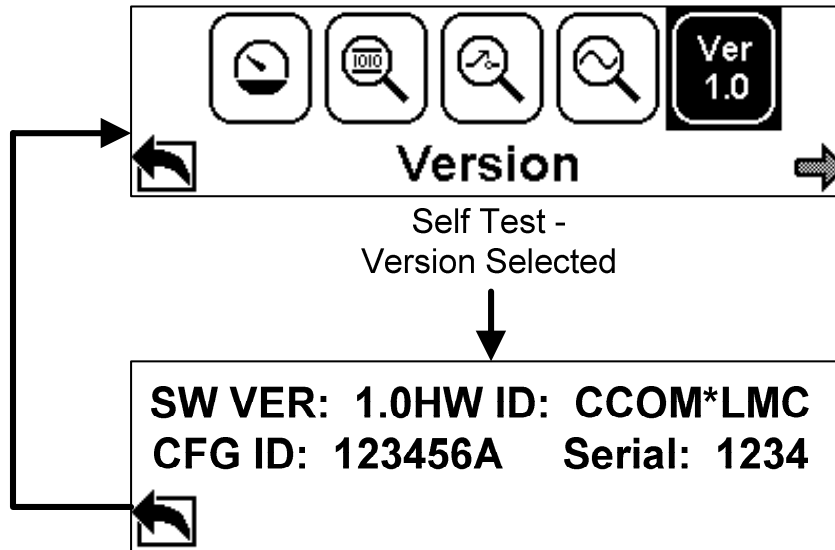
MAIN MENU – SELF TEST

ANALOG INPUTS

Self Test -
Switched Outputs Selected

Next Input
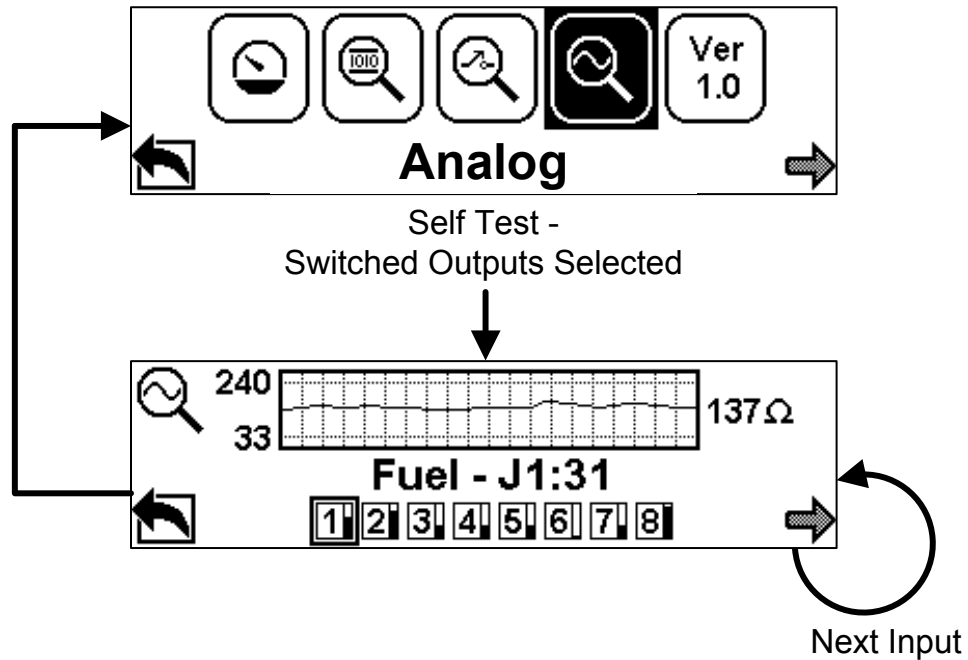
1. In the Self Test Analog Inputs screen, each Analog input can be tested. The corresponding connector, pin, and analog number are displayed, as well as a real time 20 second snap shot of the activation level.

   a. The top text line is the analog input description (Fuel), connector (J1), and pin number (31)
   b. The bottom text line is the analog input number. The selected input is indicated by a border around the numbered box.

2. Press the Right button to view the next analog input.

3. Press the Left button to return to the Self Test menu.

MAIN MENU – SELF TEST

VERSION

Self Test -
Version Selected
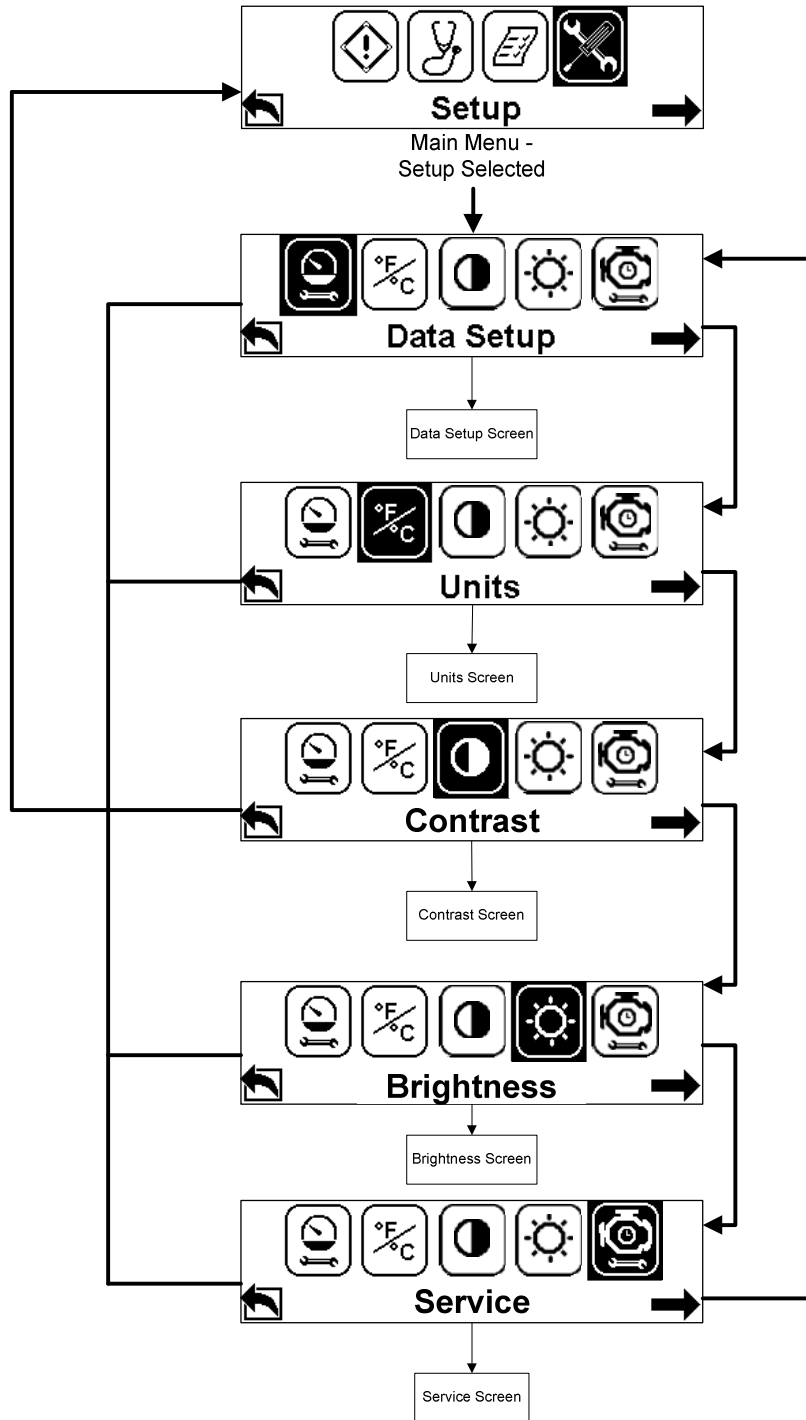
SW VER: 1.0HW ID: CCOM*LMC
CFG ID: 123456A   Serial: 1234

1. In the Version screen, the software, hardware and configuration versions are displayed.

2. Press the Left button to return to the Self Test menu.
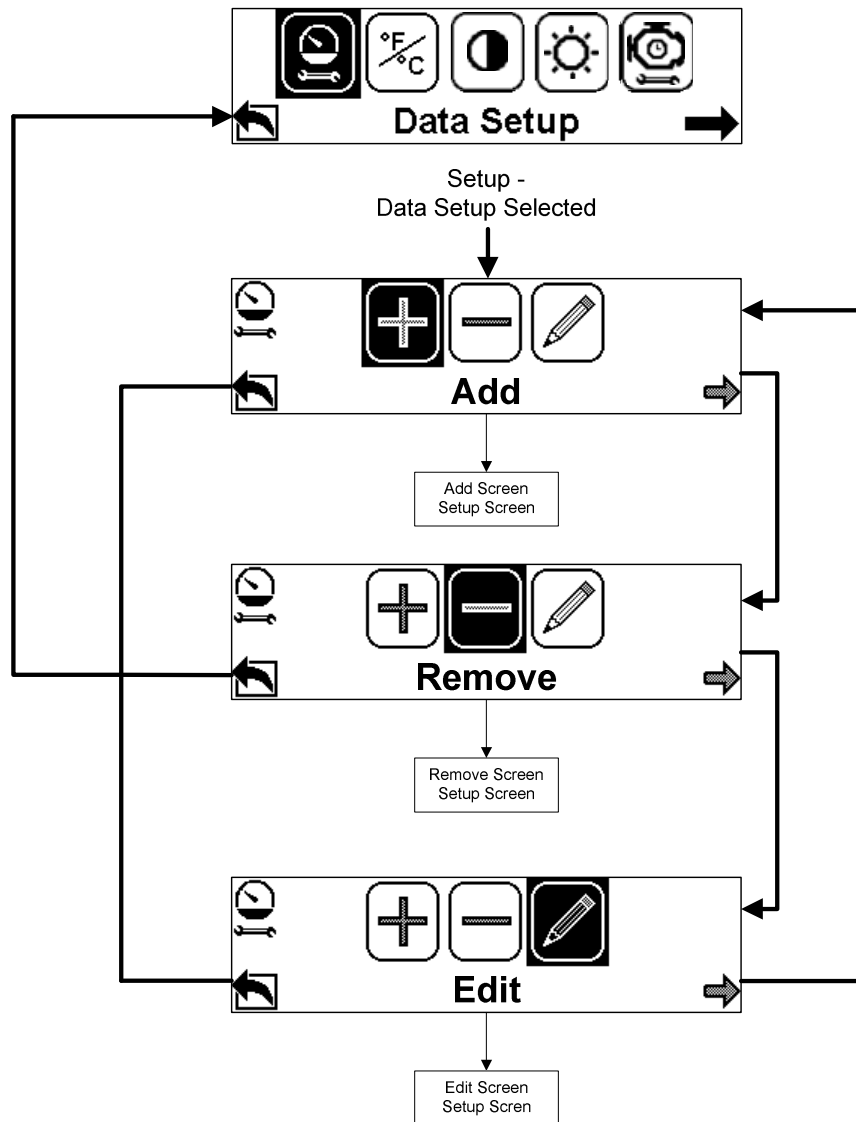
MAIN MENU – SET UP

OVERVIEW

1. Once the center button is pressed to enter the Setup Menu, there are five options to choose from – Data Setup, Units, Contrast, Brightness and Service Alarm. As the Right button is pressed, the current selection will be highlighted and the description will be displayed at the bottom center. To access that selection press the Center button.   Press the Left button to return to the Main Menu.

MAIN MENU - SETUP

DATA SETUP

Setup -
Data Setup Selected

Add

Add Screen
Setup Screen

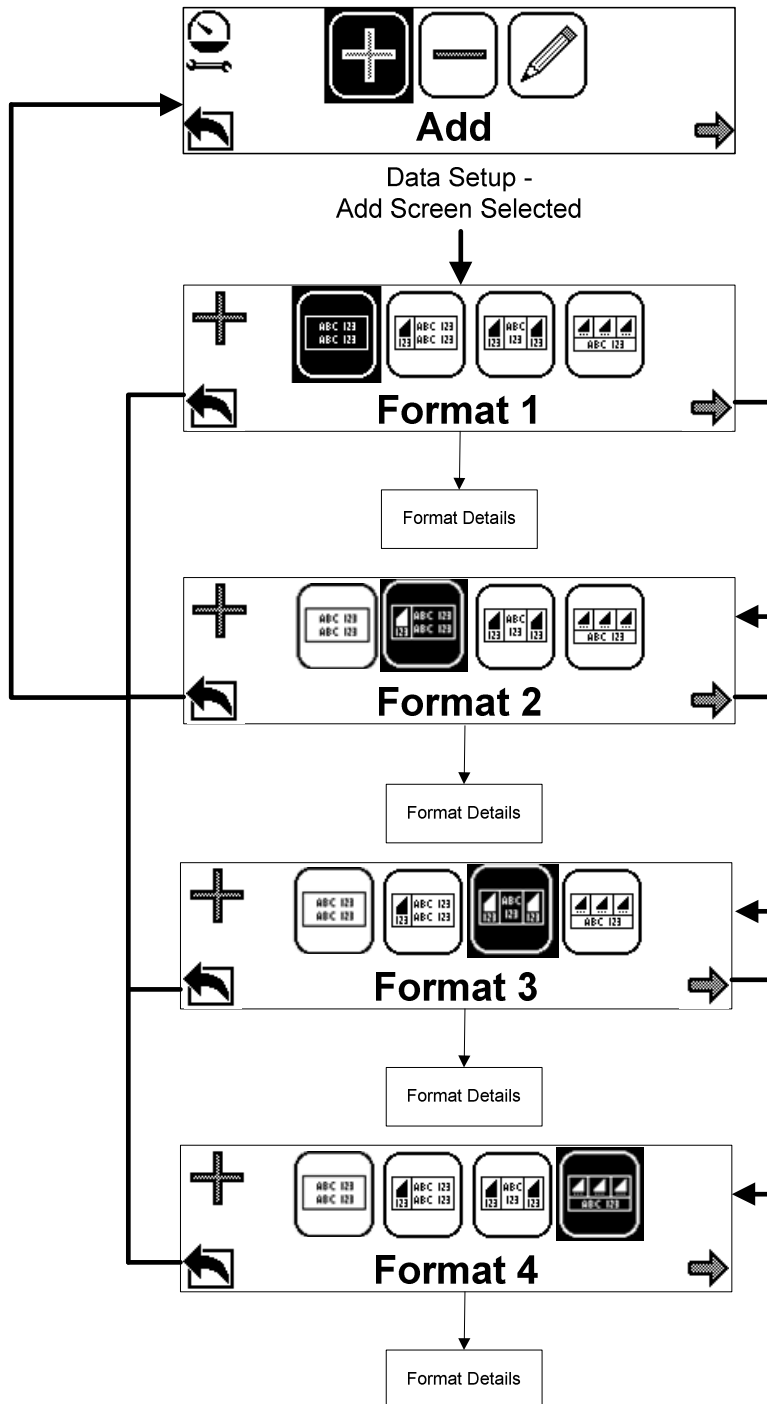**Remove**

Remove Screen
Setup Screen

Edit

Edit Screen
Setup Scren

1. In Data Setup, screens can be added, removed or edited. To scroll through these selections press the Right button. To select the highlighted action, press the Center button.

MAIN MENU - SETUP

DATA SETUP
ADD SCREEN

Data Setup -
Add Screen Selected

Add

Format 1

Format Details

Format 2

Format Details

Format 3

Format Details

**Format 4**

Format Details

1. When adding a Data screen, there are four formats to choose from. Press the Right button to scroll through the different formats and the Center button to choose the highlighted format.

Add Screen -
Format 1 Selected
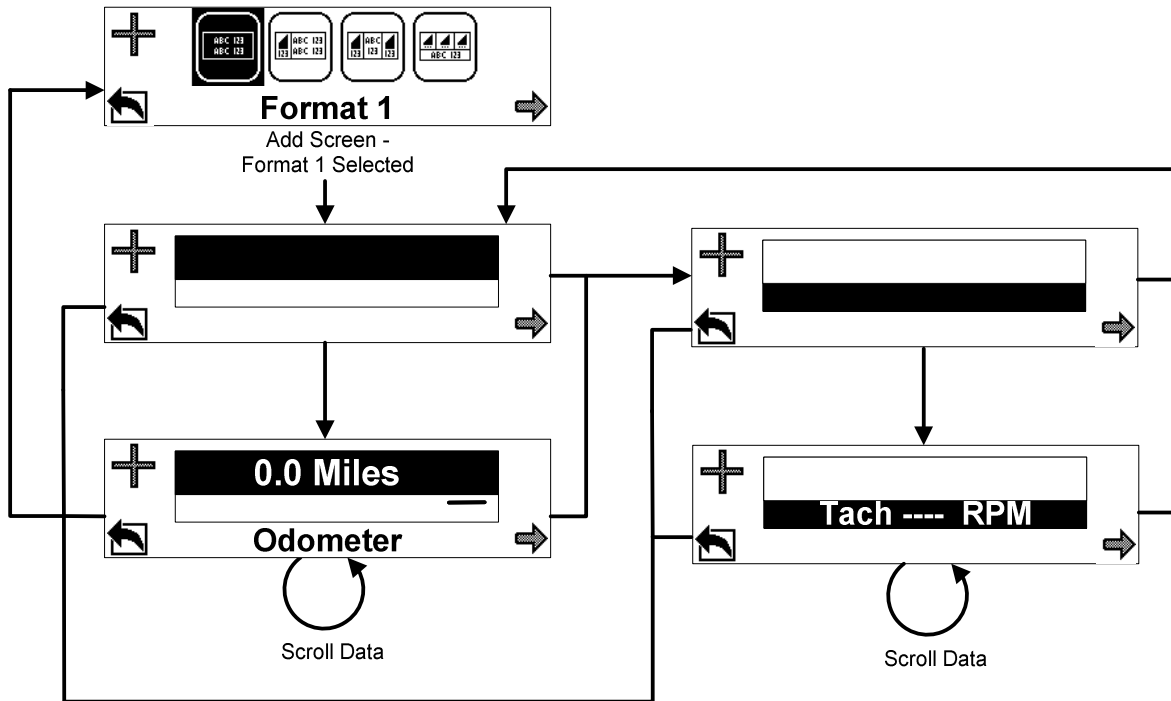
2. The current section will be highlighted. Press the Center button to scroll through the list of data that can be added.

3. Press the Right button to highlight the next section. Press the Center button to scroll through the list of data that can be added.

4. To leave either section blank, if desired, just press the Right button to proceed to the next section. Then press the Left button to return to the Add data screen menu.

5. Each of the format types can be modified in a similar fashion.   Press the Right button to select the section and then the Center button to scroll through the data.

6. The new screens will be added with the specified data when the Left arrow is pressed.   They will now be a part of the Data screens.

MAIN MENU - SETUP

DATA SETUP
REMOVE SCREEN

Data Setup -
Remove Screen Selected

Next Screen
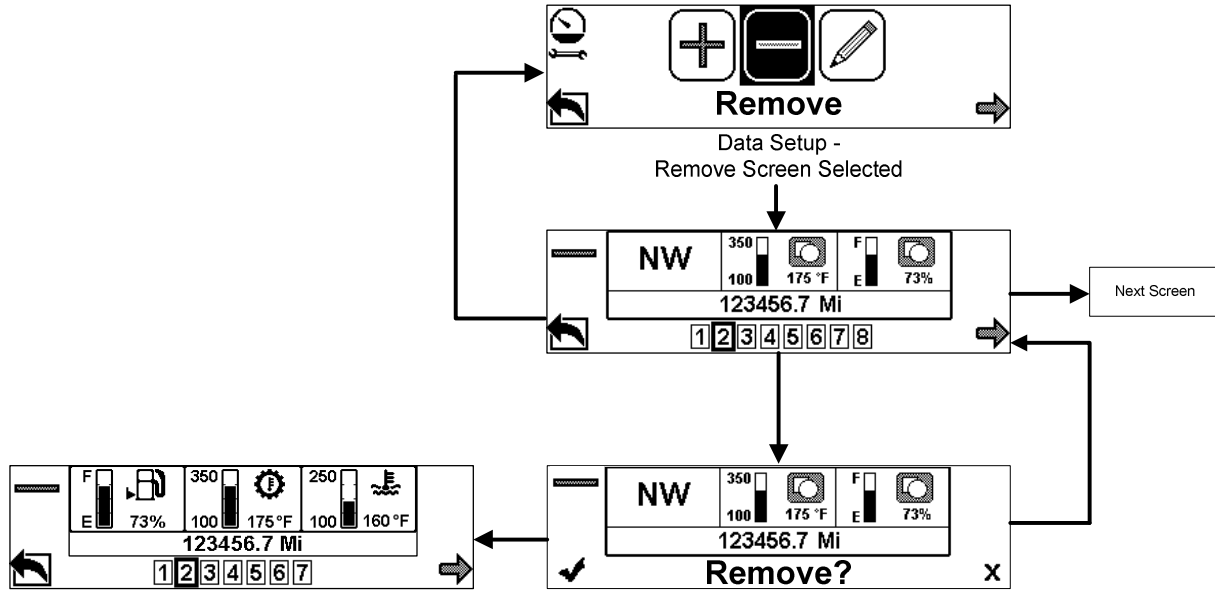
1. To remove a Data screen, press the Right button to scroll through the screens to be deleted.

2. Press the Center button to remove the screen and then a prompt will ask if the screen is to be removed. Press the Right button to cancel and return to the list of screens. Press the Left button to remove the screen and return to the list of other screens.

3. From the list of screens press the Left button to return to the Data Setup menu.

MAIN MENU - SETUP

DATA SETUP
EDIT SCREEN
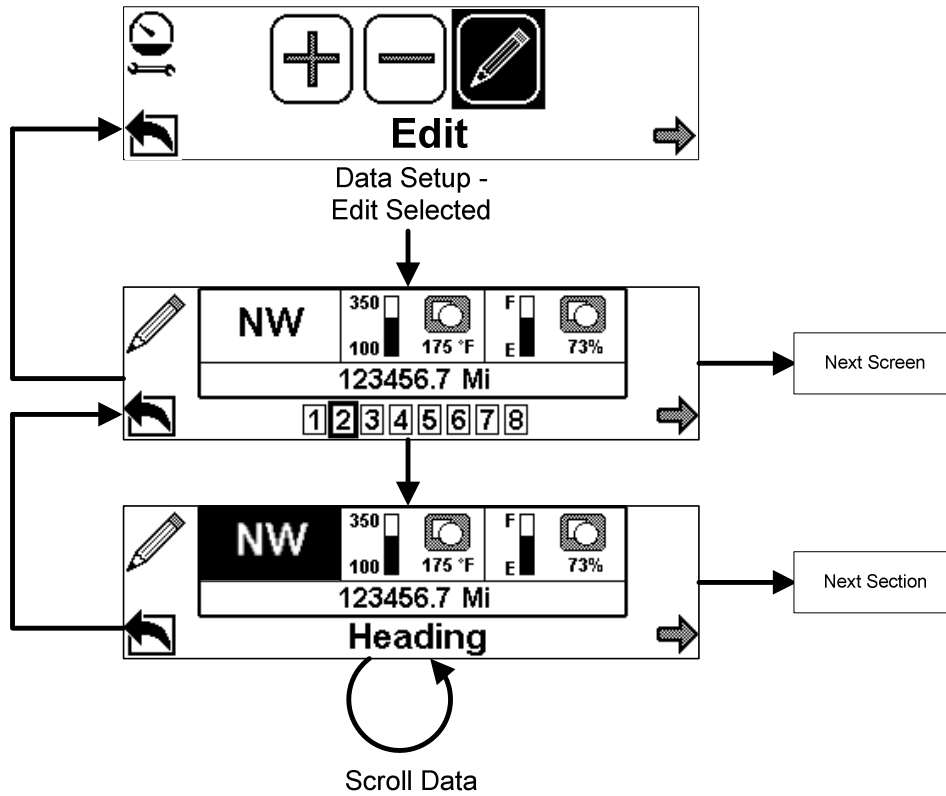
1. To edit a data screen, press the Right button to scroll through the screens to be edited. Press the Center button to select.

2. With the section highlighted, press the Center button to scroll through the data list. Press the Right button to move to the next section, and the Center button to scroll through the data list. Once the sections have been edited, return to the selection of screens by pressing the Left button.   Press the left button again to return to the Data Setup screen.
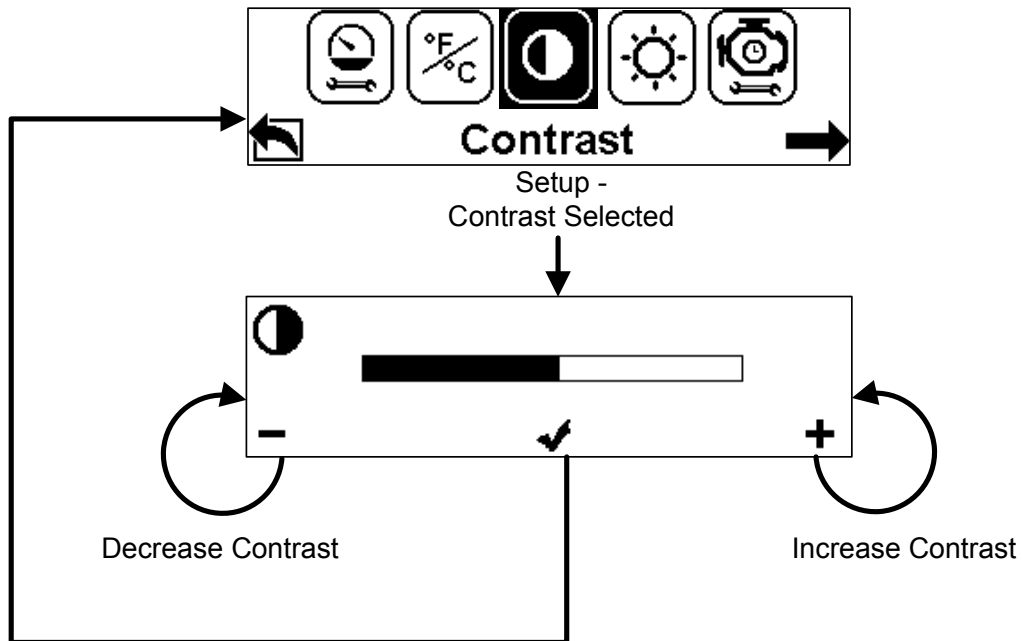
MAIN MENU - SETUP

UNITS SETUP
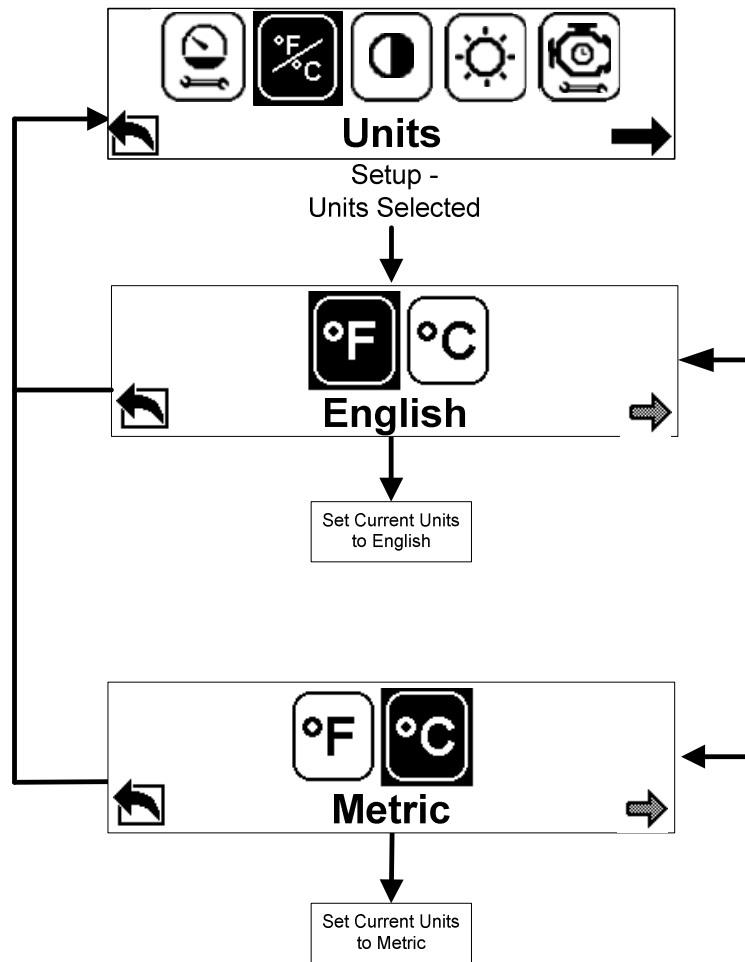
1. In the Units menu, the units can be set to English or Metric. Press the Right button to change between English and Metric.   The current selection will be highlighted.

2. Press the Center button to set the current units and return to the Main Menu. If the Left button is pressed it will also set the current units and return to the Main Menu.

MAIN MENU – SETUP

CONTRAST

Setup -
Contrast Selected
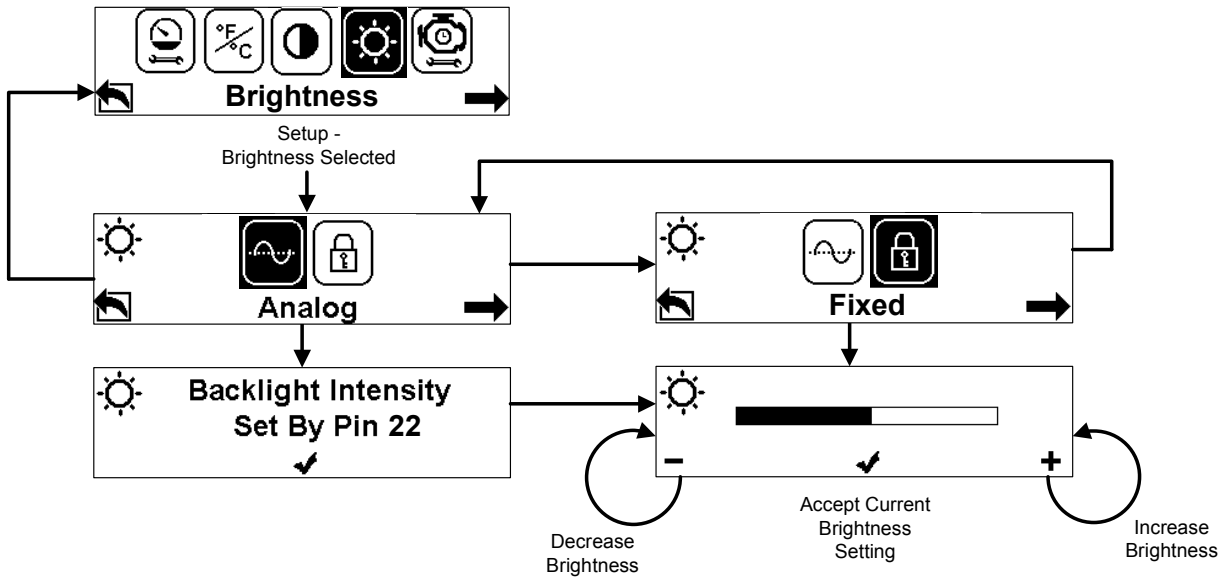
Decrease Contrast

Increase Contrast

1. In the Contrast menu, the display contrast can be changed.   Press the Right button to increase the contrast and the Left button to decrease the button.

2. Press the Center button to return to the Main menu.

MAIN MENU - SETUP

BRIGHTNESS

Setup -
Brightness Selected

Backlight Intensity
Set By Pin 22

Decrease
Brightness

Accept Current
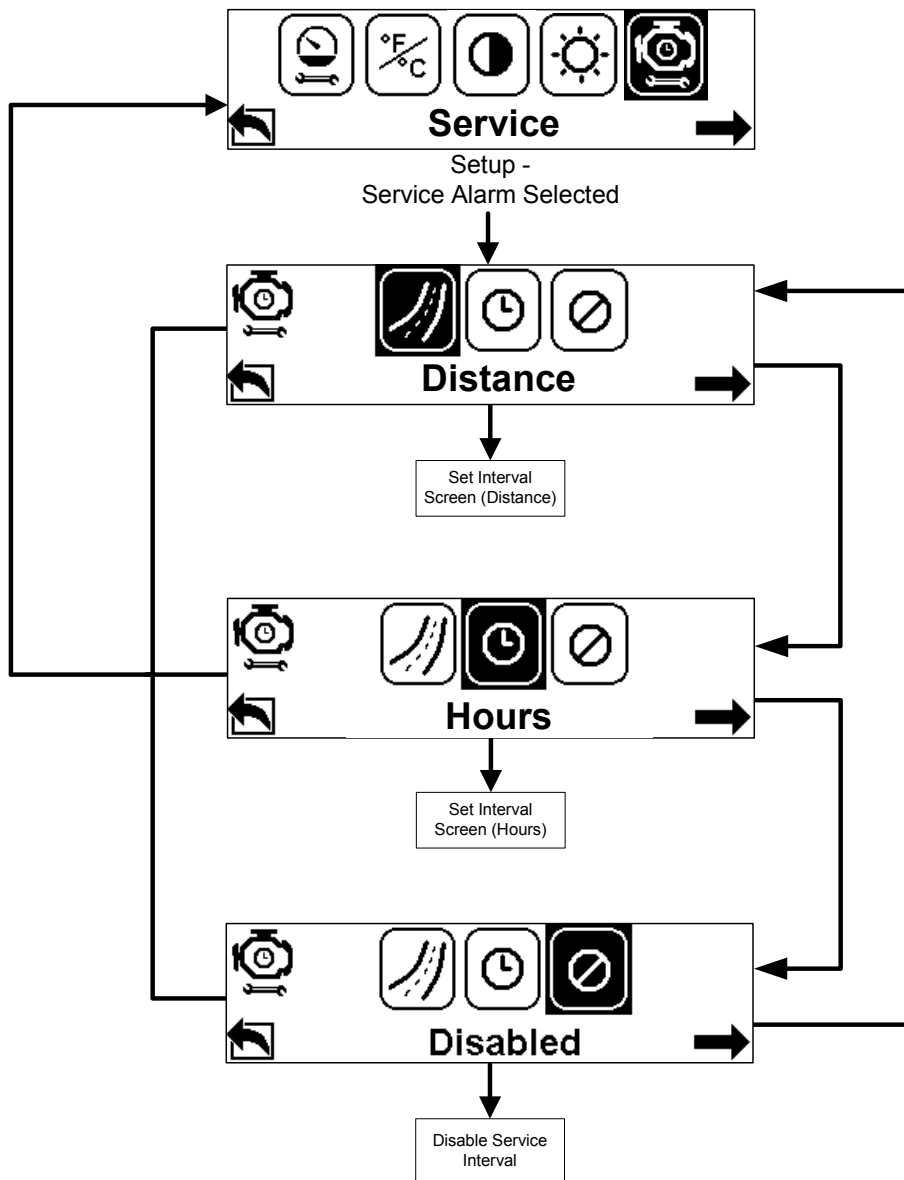Brightness
Setting

Increase
Brightness

1. In the Brightness menu, the Backlight for the display can be adjusted. Press the Right button to choose between Analog and Fixed.

2. If Analog is chosen, press the Center button to see the Pin number controlling the backlight. Press the Center button to return to the Brightness menu.

3. If Fixed is chosen, press the Center button to change the brightness level.   Press the Right button to increase the brightness and the Left Button to decrease the brightness.   The Center button will return to the Brightness Menu.

MAIN MENU - SETUP

SERVICE

Service

Setup -
Service Alarm Selected

Distance

Set Interval
Screen (Distance)

Hours
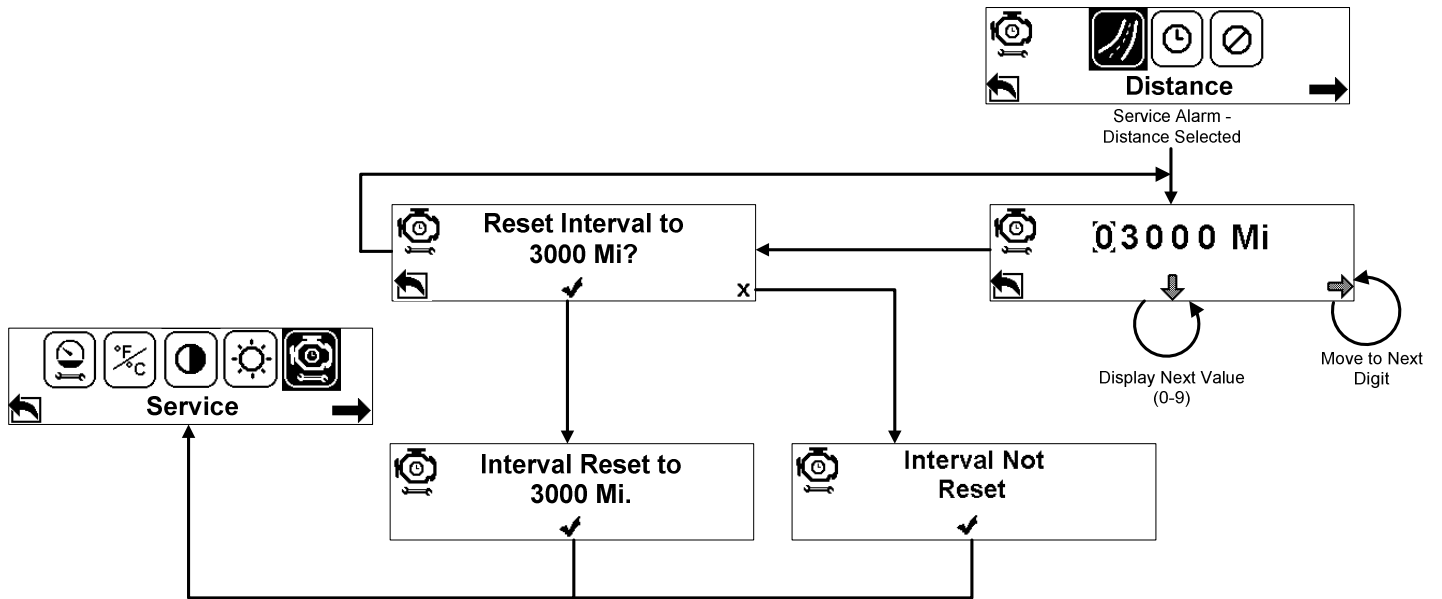
Set Interval
Screen (Hours)

Disabled

Disable Service
Interval

1. In the Service Alarm menu, the intervals can be changed or disabled. Press the Right button to select by distance, hours or disable the alarm.

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MAIN MENU - SETUP

SERVICE
DISTANCE

Service Alarm -
Distance Selected

Distance

Reset Interval to
3000 Mi?

03000 Mi

Display Next Value
(0-9)

Move to Next
Digit

Service

Interval Reset to
3000 Mi.

Interval Not
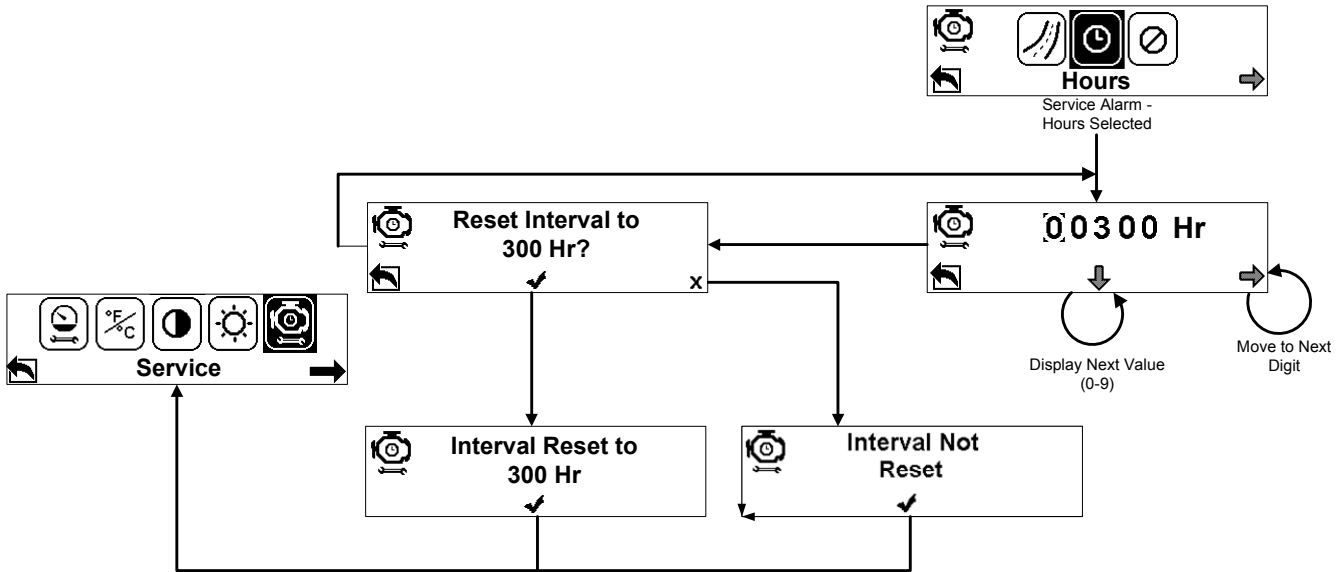Reset

1. Press the center button to set the distance interval, while this choice is selected. Press the Right button to move to the next digit. Press the Center button to display the next value, 0-9.

2. Press the Left button to reset the distance interval. A screen will then ask to verify the new value. Press the Center button to accept the new value, and the Center button again to return to the Main Menu. Press the Right button to reject the new value. The interval will remain as it was currently set to. Press the Center button to return to the Main Menu.

MAIN MENU - SETUP

SERVICE

       HOURS

1. Press the Center button to set the Hours interval, while this choice is selected. Then press the Right button to move to the next digit. Press the Center button to display the next value, 0-9.

2. Press the Left button to reset the Hours interval. A screen will then ask to verify the new value. Press the Center button to accept the new value, and the Center button again to return to the Main Menu. Press the Right button to reject the new value. The interval will remain as it was currently set to. Press the Center button to return to the Main Menu.
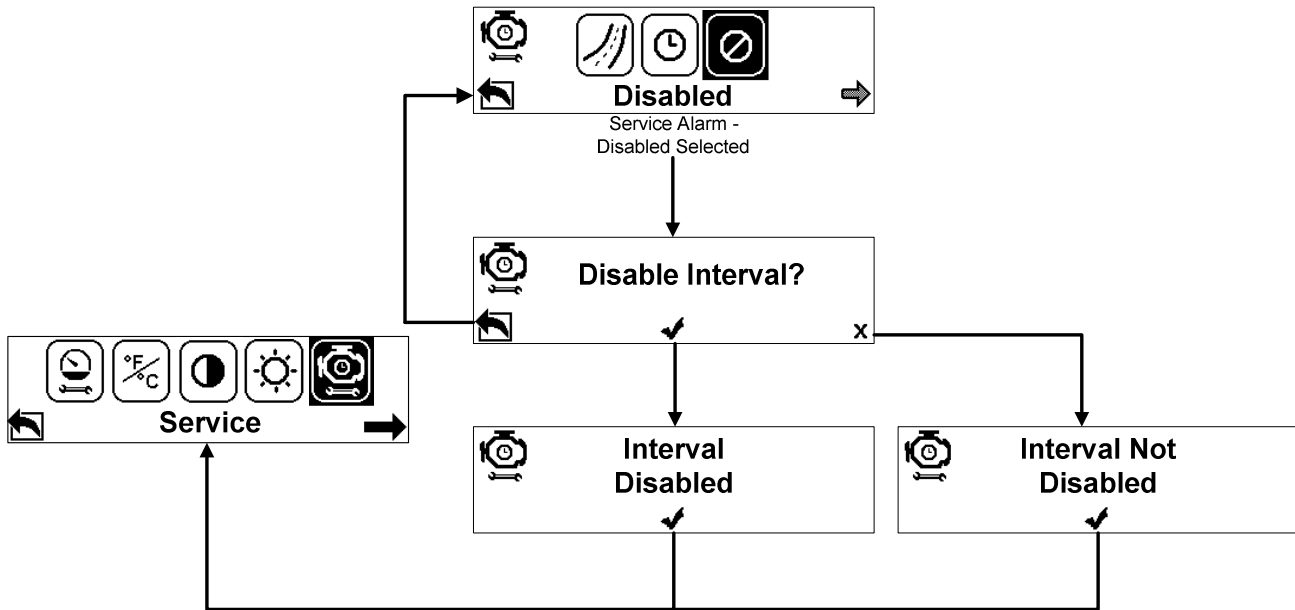
MAIN MENU - SETUP

SERVICE
       DISABLED

Disabled

Service Alarm -
Disabled Selected

Disable Interval?

✔   x

Service

**Interval
Disabled**
✔

**Interval Not
Disabled**
✔

1. Press the Center button to view the Disable Service menu. Press the Left button to return to the Service Alarm menu.

2. Press the Center button to confirm the Disable.   Press the Right button to cancel the Disable. From either choice press the Center button to return to the Main Menu.

END OF DOCUMENT