MODEL MLX-9X04 series

HARLEY J1850 SPEEDOMETER/TACHOMETER

(Not for: CAN bus, non-H-D motorcycles, H-D motorcycles without an ECU)

Please read this before beginning installation or wiring.

IMPORTANT NOTE! **This gauge has an odometer preset option that is only available one time within the first 100 miles (160 km) of operation. See ODOMETER PRESET MENU for instructions.**

MAN #650777A

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MOUNTING

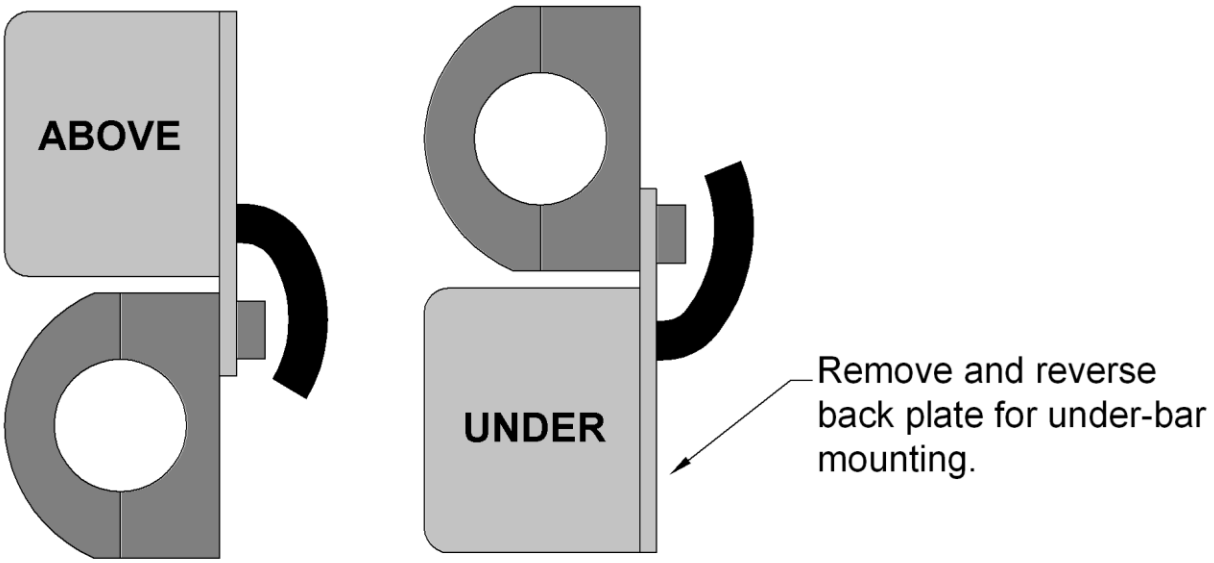
A mounting bracket must be purchased for your application.

- ❖ Any BKT-50xx series, (bar or riser type), or the BKT-7020 bracket may be used.
- The bar mount brackets can be used for above-the-bar mounting, or below-the-bar mounting.
- The 35° triple-tree mounts are only available for above-the-bar mounting. The triple-tree mounting bracket replaces the original handle bar mount on certain bikes.
- The gauge attaches to the back side of the bracket with the supplied screws.
    - DO NOT attempt to clamp the gauge tabs between the two bracket halves
- The bar mount brackets have a curved front bracket and two rear brackets.
    - The longer screws attach the gauge to the back side of the bracket and the shorter screws go into the recessed openings on the rear brackets.
    - The mount fits tight and will need to be pulled together by the screws.

To mount the gauge under the bar:

1. Remove the rear plate by unscrewing the four screws.
2. Rotate the rear plate so the mounting tab is on the top.
3. Reattach the rear plate using the four screws.
4. Place bar mount bracket on the handle bars so that the recessed screw holes are on the top.
5. Using the long screws, secure the gauge to the bottom side of the bar mount bracket.

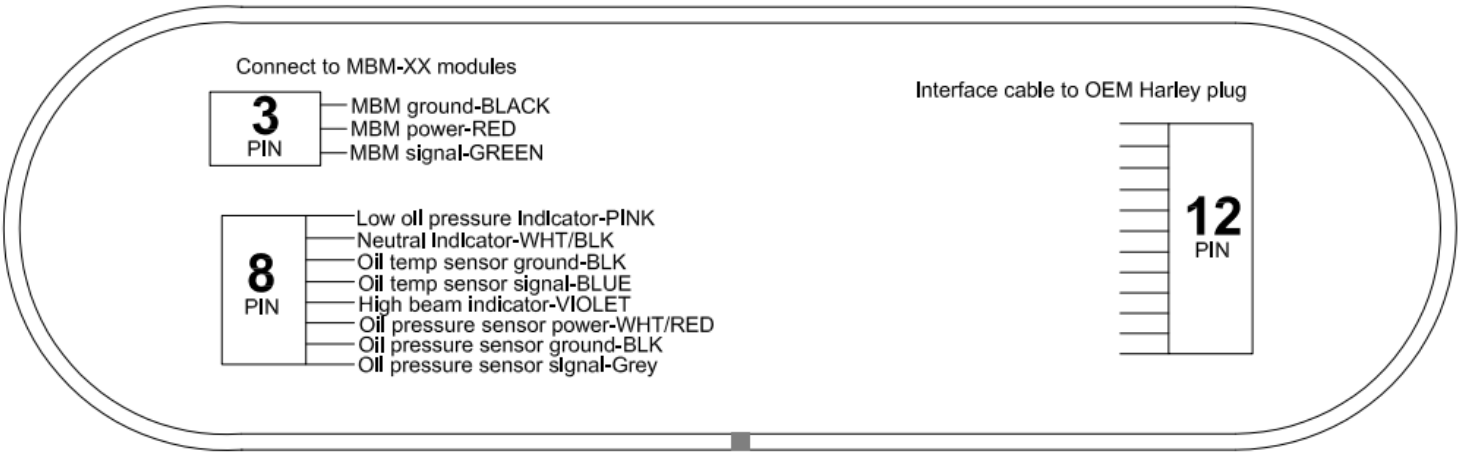
Sample diagrams for using bar mount brackets above the bar and below the bar:



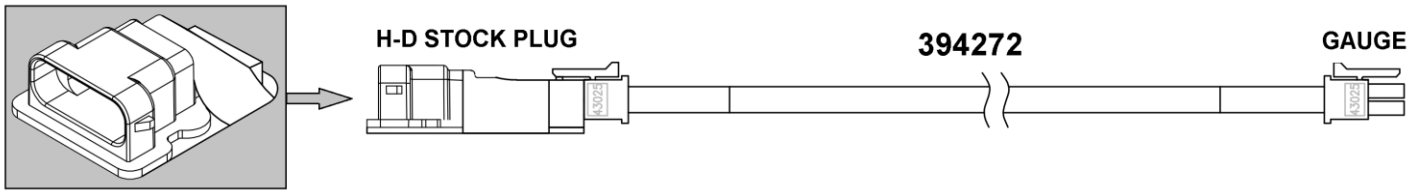
Wiring

Diagrams

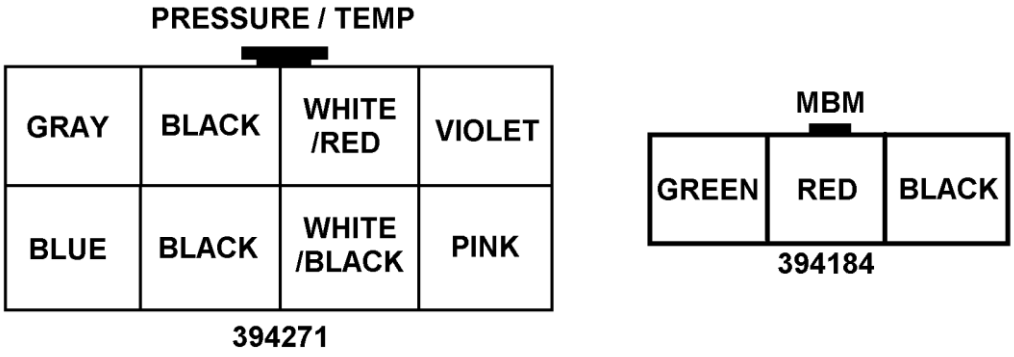
Plug layout in back of gauge



The interface harness allows the stock H-D data bus harness to adapt to the MLX-9x04

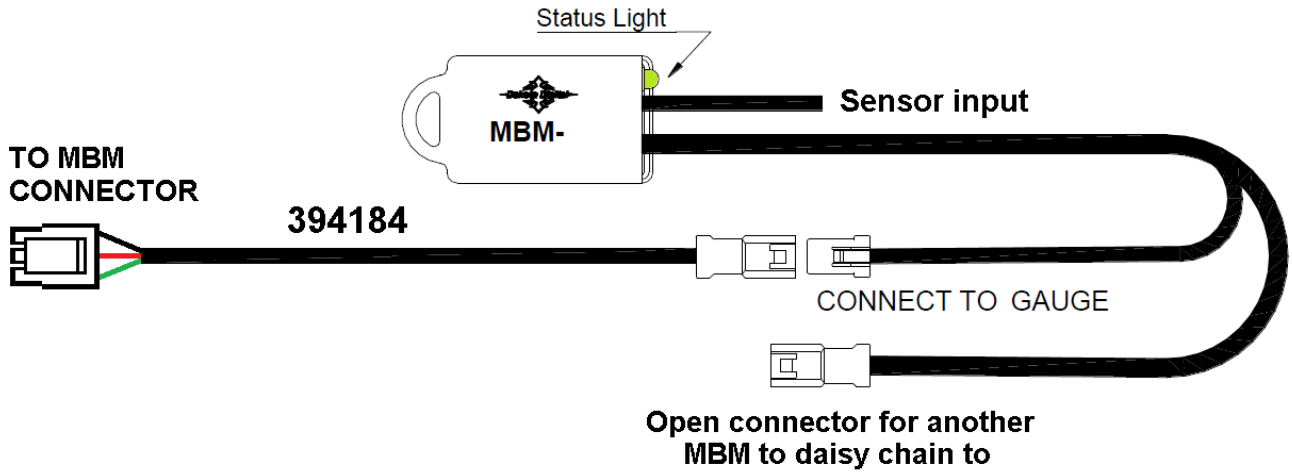


Wire color of accessory plugs looking into the plug with the wire.
An 8-pin input harness is for the optional Oil pressure and Oil temp sensors (supplied).



OPTIONAL MBM HARNESS 394184

MBM harness interfaces direct to Dakota Digital Motorcycle Bus interface Modules



ADDITIONAL AND OPTIONAL INPUTS 8 PIN CONNECTOR 394271

GRAY wire	**Optional oil pressure sensor signal (SEN-1039)**
BLACK wire (top row)	**Optional oil pressure sensor ground (SEN-1039)**
WHITE/RED wire	**Optional oil pressure sensor power (SEN-1039)**
VIOLET wire (+)	**High beam indicator**
BLUE wire	**Optional oil temp sensor signal**
BLACK wire (bottom row)	**Optional oil temp sensor ground**
WHITE/BLACK wire (-)	**Neutral indicator**
PINK wire (-)	**Low oil switch indicator (Dyna & Sportster)**

LOW OIL PRESSURE SWITCH - PINK

Dyna and Sportster models are equipped with a low oil pressure switch, and may have fed a dash light. Connect the **PINK** wire to the lead from the low oil switch. Referring back to service manuals may be needed.

NEUTRAL INDICATOR - WHITE / BLACK

Virtually every motorcycle has a neutral safety switch to indicate when the transmission is in neutral. Usually, the switch is a one terminal switch that goes to ground when in neutral.
Neutral safety switches (typically a 2-wire) are not the same and do not wire to the MLX-9x04.
Connect the **WHITE / BLACK** wire to the lead from the neutral switch. Referring back to service manuals may be needed.

HIGH BEAM – VIOLET

Most motorcycles are required to have operational head lights.
When wiring the **VIOLET** wire for high beam, be certain that you do not connect to the Low headlight power. Referring back to service manuals may be needed.

The display gauge wire colors may not match the wire colors in your electrical wire harness. Consult a service manual to determine the color code and location of the motorcycle wires.

NIGHT DIMMING

Your display system has a dimming feature that dims the display intensity automatically at night. Normally the system is at full brightness for daytime viewing. To have the system at full brightness all of the time, go into the DIM setup menu and select OFF instead of AUTO. The gauge also offers a sunlight mode which will turn the background white, and text black for maximum contrast in direct sunlight.

ADDITIONAL AND OPTIONAL INPUTS 8 PIN CONNECTOR - CONTINUED

OPTIONAL SENDER OPTIONS

Most motorcycles have a low oil pressure switch and have no means to monitor oil temperature.
With the MLX-9X04 series, we offer optional sensors to read oil pressure and oil temperature.

OPTIONAL OIL PRESSURE

To read actual oil pressure, the Dakota Digital part number SEN-1039 must be used.

Street Glide & Road Glide: replace the stock 60 PSI sensor with our SEN-1039 pressure sensor.
(The MLX-9x04 CANNOT read the stock resistive 60 PSI sender found in Street Glide and Road Glide models)
Optional > Dyna & Sportster: replace the stock low oil pressure switch with our SEN-1039 pressure sensor.
The **PINK** "Low Oil Warning" wire will not be used with the SEN-1039, the gauge has a low-pressure warning point.

MLX-9X04	SEN-1039
WHITE/RED	Red wire from sensor
BLACK	Black and Bare wire from sensor
GRAY	White wire from sensor

OPTIONAL OIL TEMPERATURE

To read oil temp of the engine, the Dakota Digital part number SEN-1043 or SEN-1044 must be used.
The SEN-1043 is a one-wire sender with 1/8" NPT threads.

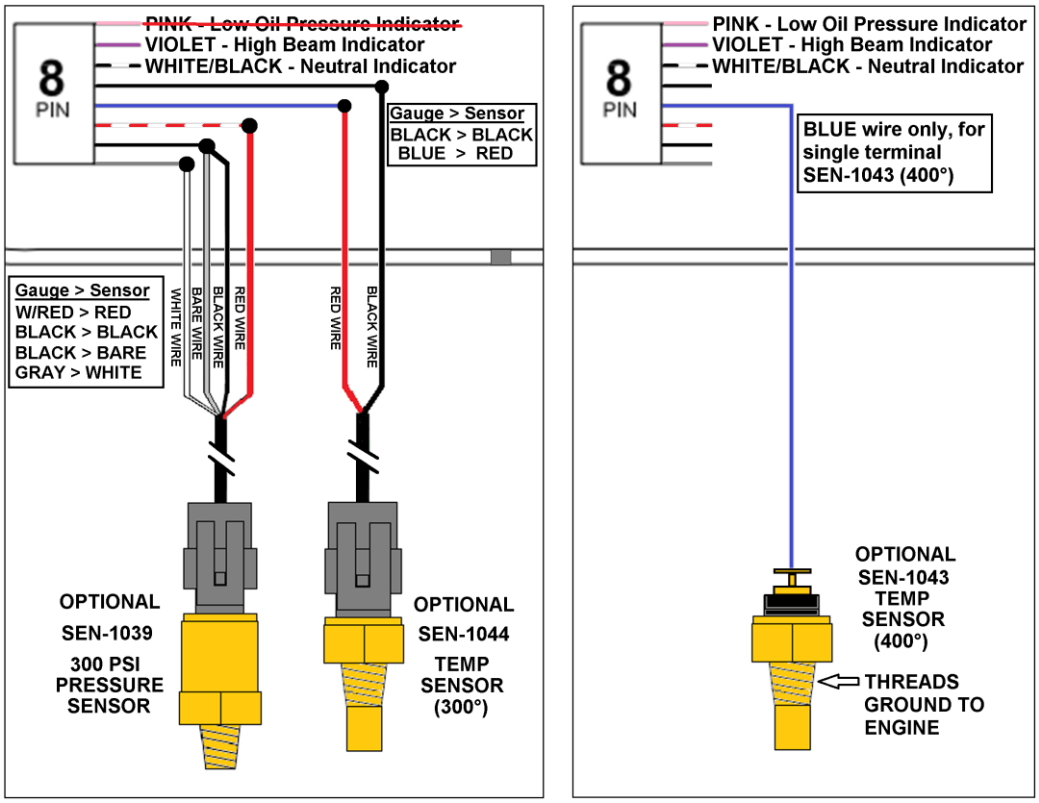
- Connect the terminal on the end of the sensor to the indicator harness BLUE wire.
- Because this sensor grounds through its body, ensure the sender threads are able to make a metal-to-metal threaded connection to complete the ground.

The SEN-1044 is a two-wire sender with 3/8" NPT threads.

- The black lead is an internal ground to the sensor so thread sealant may be used.

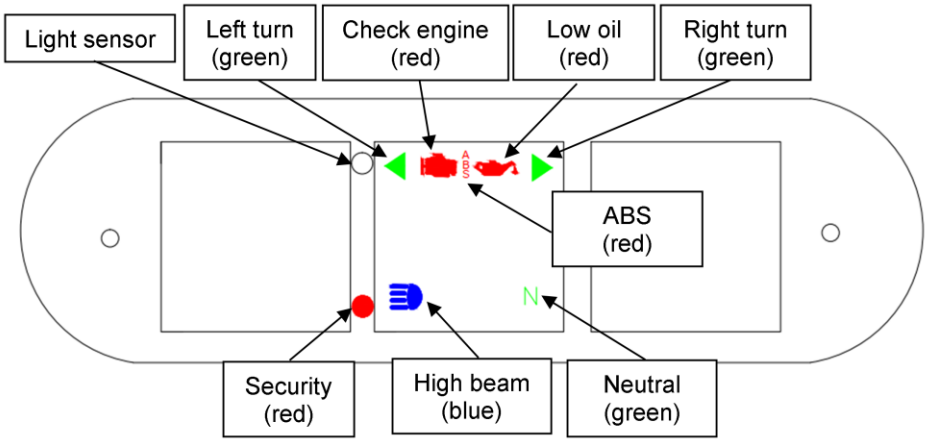
Either sensor needs to be mounted to the oil pan or oil reservoir.

MLX-9X04	SEN-1044 (300°)	SEN-1043 (400°)
BLUE	Red wire from sensor	To top terminal with spade connector
BLACK	Black wire from sensor	Not used – cap off



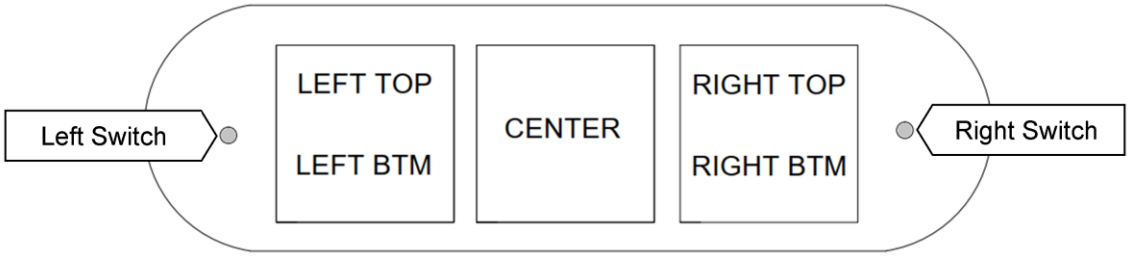
SYSTEM FEATURES

INDICATORS



INFORMATION DISPLAYS

There are 5 reading locations available to display information. They are labeled LEFT TOP, LEFT BTM, CENTER, RIGHT TOP, RIGHT BTM, respectively. The center location has 3 selectable readings that can be displayed, speed, tach or gear. The other locations can show any of the information readings listed below.



Right or Left side display readings	**Description**
ODOMETER	Odometer reading (0-999,999)
TRIP A	Trip A odometer reading (0-9999.9)
TRIP B	Trip B odometer reading (0-9999.9)
SERVICE (when enabled)	Distance to next service (0-7500.0 or when “SERVICE DUE”)
TRIP HR	Hours gauge has been on with engine running HH:MM (00:00 to 99:59)
SPEED km/h	Alternate speed unit conversion
RPM	Digital or Bar RPM reading (0-15,990)
OIL TEMP (with optional sender present)	Engine oil temperature
OIL PSI (with optional sender present)	Engine oil pressure
VOLTS	System voltage
GEAR/CLOCK	Gear position and 12-hour clock display
FUEL	Digital or bar displayed when using sender
DISTANCE TO E.	Distance to empty miles (with fuel set and range was learned)
CRUISE	Will momentarily flash CRUISE ON or CRUISE OFF

Performance readings	
HIGH MPH	High speed recall
0-60 TIME	0-60 mph time in seconds
Quarter mile speed/time	Speed at end of ¼ mile (trap speed) and ¼ mile time from standing start
HIGH RPM	High RPM recall

Center display readings (changed only within setup)	
MPH/km/h	Speed
RPM	Digital or Bar RPM reading (0-15,990)
GEAR	Gear position

MBM (Motorcycle Bus interface Module)	
MBM displays (optional)	Readings for connected modules

Operation, Clock Set, Service Reset

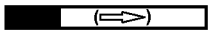
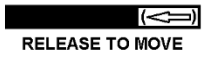
FUNCTION SWITCHES

The function switches seen on the face of the gauge serve multiple purposes.

- In normal operating mode, the switches can change what is displayed on the outer LCDs.
- They can also reset a tripmeter mileage, or performance data.
- Data will not be repeated in other screens. You will see only one clock, or one trip A, etc..
- The switches are also used to enter setup mode and step through the setup menus.

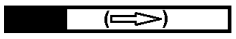
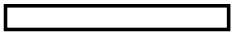
The center LCD can only be changed in setup with limited options, with speed as default.

The outer LCDs can display a variety of options as one taps either the left or right switch.
The outer LCDs are also split to show data in the upper and lower halves of each display.
A small arrow points to the half of the display that you can change what is displayed.
To move an arrow, or "focus" point, follow these steps below:

Press and hold either switch to display a bar graph labeled "MOVE LINE". The bar will begin to fill from left to right.	
When the bar graph is full, it begins to move back to the left. The words "RELEASE TO MOVE" are on the bottom of the bar. You can release the switch now, and the arrow will move.	
If the arrow was pointing to a TRIP MILE screen the bar graph will look like this, with "HOLD TO CLR" at the top. You can release the switch now, and the arrow will move.	

Function switches can also clear warning messages or reset a trip mileage.
The operation is just holding the switch down until the word "RELEASE" appears above the empty bar, then you may release the button when instructed.

Warnings such as "FUEL OPEN", or "OIL TEMP OPEN" cannot be cleared as it is a wiring fault.

Hold function switch. Bar starts to fill.	Keep holding. Bar starts to empty.	Release function switch. Release to clear.
		

The focus arrow must be pointing to the item to clear on the outer LCD.

If a function switch is pressed while the key is in the off position, the clock and odometer will be displayed.

SETTING THE CLOCK

The clock uses a 12-hour format and can be set with the key on by holding the function switch while the focus arrow is next to the clock. If the clock is not shown, Tap either function switch until the clock appears; keep in mind you may need to move to another message location.

- Hold the switch until "RELEASE" is displayed -  ; the hours will begin flashing.
- Tap switch to change the hours, hold the switch to save until "RELEASE" is displayed.
- Tap either switch to change 0 to 5 of the minutes; hold the switch to save until "RELEASE" is displayed.
- Tap either switch to change 0 to 9 of the minutes: hold the switch to save until "RELEASE" is displayed.
    - The last step will exit clock setup.

SERVICE RESET

"SERVICE DUE" may appear at start up in a red box, indicating your preselected service time is due.
In time, the screen will go back to the last display shown.

- To clear the service odometer, (after your service was completed), Tap either function switch until the highlighted "SERVICE DUE", appears in either left or right LCDs
- When "SERVICE DUE" is displayed, hold the same function switch until "RELEASE" is displayed.
    - The Service countdown odometer will display distance after being reset.

Programming

SETUP MENU

The MLX 9X04 series can also be setup using the Apple© or Android 'Dakota Digital Motorcycle' app. The gauge MUST be in setup before using the app, (only Android must be paired before opening the app).

The function switches are used to enter setup mode.
To enter setup, you have two options:

1. Press and hold either switch while turning the key on.
2. Press and hold **both** switches **after** the system is already powered up.

- Tap either switch to advance through the menus below
  - ❖ **Left** switch moves down the menu - **Right** switch moves up the menu.
- Press and **hold** to enter each menu, and to select/save.

Main Menu	Sub Menu		Description
BLUETOOTH	STATUS CHECK		Bluetooth ID and current connection status
	OFF		Disable Bluetooth connections
	SETUP ONLY		Allow Bluetooth connections only while in setup
	ALWAYS ON		Allow Bluetooth connections when key is on
	BACK		
DIAGNOSTICS	ENGINE		Read diagnostic codes from engine module
	SECURITY		Read diagnostic codes from security module
	ABS		Read diagnostic codes from ABS module
	BACK		
LIGHTING	COLOR THEMES		Set factory defined color themes
	SET ALL COLOR		Set all areas to one color
	DISPLAY COLOR		Set display readout colors
	LABEL COLOR		Set colors for all labels
	MESSAGE COLOR		Set message location colors
	BAR COLOR		Set tach/fuel bar color
	DIMMING		Set dimming method
		OFF	
		AUTOMATIC	Uses built in sunlight sensor to increase or decrease Backlight
	SUNLIGHT		Set sunlight brightness method
		OFF	
		NORMAL	Increases backlight intensity when in direct sunlight
		INVERT	Increases backlight intensity and changes background white and text black for highest contrast.
	RESET		Returns all colors and settings to factory default
		YES	
		NO	
	BACK		
SPEED	ADJUST		Adjust speed reading up or down by percentage
	UNIT		Select MPH or km/h unit
	SERVICE RESET		Set miles to service due value or turn off
	PRESET ODO		Odometer preset (*Can only be set within the first 100 miles*)
	BACK		
TACH	HIGH WARNING		Set high RPM warning point
	DISPLAY		Set tach display to digital or bar reading
		DIGITAL	Tach will be displayed in a digital number format
		BAR	Tach will be displayed in a fill bar format
		8,000 RPM	Maximum RPM bar size
		16,000 RPM	Maximum RPM bar size
		BACK	
	BACK		
OIL TEMP	UNIT		F° or C°
	ON		
		SENDER	Select sender being used or turn off
		SEN-1043	400° one wire sensor
		SEN-1044	300° two wire sensor
		HIGH WARNING	Set high warning point
		TEST	Display sender resistance for troubleshooting
		BACK	
	OFF		Turn Oil temp option off
	BACK		

Main Menu	Sub Menu		Description
OIL PSI	ON		Enable/Disable option oil pressure reading
		LOW WARNING	Set low warning point
		TEST	Display sender voltage for troubleshooting
		BACK	
	OFF		Turn Oil PSI option off
	BACK		
FUEL	SENDER		
		OFF	
		HD 2004	04 to 07 Street/Road Glide
		HD 2008	08 to 13 Street/Road Glide
		DYNA 04	04 to 07 Dyna with tank gauge
		DYNA 08	08 to 11 Dyna with tank gauge
		CUSTOM	Programable custom fuel curve
		FAT BAGGER	Fat Bagger Inc. tank/sensor
		SPORTSTER	04 to 13 Sportster (XL)
	RANGE TO EMPTY		
		ON	
		LEARN RESET	Begins Fuel Range learning
		OFF	
	DISPLAY		
		BAR	Display will show a fill bar for fuel reading
		DIGITAL	Display will show a percentage reading for fuel
	TEST		Display sender resistance for troubleshooting
	BACK		
VOLT	LOW WARNING		Set low warning point
	BACK		
DISPLAYS	LEFT TOP		Show/hide performance readings in left top screen location
	LEFT BTM		Show/hide performance readings in left top screen location
	CENTER		Select speed, tach or gear to be displayed in center screen
	RIGHT TOP		Show/hide performance readings in left top screen location
	RIGHT BTM		Show/hide performance readings in left top screen location
	MBMS		Show connected MBM's and set warning points
	BACK		
GEAR	PRESET		Preset for Street/Road Glide & Dyna models
	TRIKE		Preset for Tri-Glide models
	P-1200		Preset for Sportster 1200
	P-883		Preset for Sportster 883
	LEARN		Learn gears based on speed and RPM
	BACK		
FACTORY RESET	NO		
	YES		Resets all settings except odometer to factory defaults
VERSION			Displays software codes of each controller
EXIT SETUP			

Entering Setup

Setup can be entered by a couple of means:

- Press and hold either switch and turn the power on.
- Hold both switches at the same time **after** the power is on.
- For LEARNING Gears, engine must be running while in setup mode.
  - **Entering setup for gear learning – two methods:**
  1) **Hold either switch in before turning the key on and then start the bike.**
     [Or]
  2) **Start the bike, then hold both switches as the bike is running.**

Release the switch(s) after "RELEASE SETUP" is displayed in the bottom of the center display.
Tap the left switch to move down through the different setup menus.
Tap the right switch to move up through the different setup menus.
Press and hold either switch to enter a setup menu.
Press and hold either switch to save a selected option.
Current selections within a sub menu are denoted with an asterisk (*).

Exiting Setup

At the end of every setup section, steps must be taken to properly exit the setup and return to normal operation.
When a section in this manual says "**BACK – exit menu**", please refer to these steps.

- Tap ether function switch until you see "> BACK".
- Press and hold either switch until you see "RELEASE", and release the switch.
- Some menus may require moving to "> BACK" a few times to get to the main menu
- Tap either function switch until you see "> EXIT SETUP".
- Press and hold either function switch until you see "RELEASE", then release the switch.

Setup Menus

BLUETOOTH - Bluetooth menu

- Used to reference the Bluetooth ID when pairing with an Android device.
- The app can aid in setup and also read real time data on your device.

- When "> BLUETOOTH" is displayed, hold until "RELEASE" is displayed, and release the switch.
  - Under the word BLUETOOTH the Bluetooth ID will be shown.
  - For Android users, this is the ID that you pair to, in Settings/Bluetooth, prior to opening the app.
- The Bluetooth menu options are: "STATUS CHECK", "OFF", "SETUP ONLY", "ALWAYS ON", and "BACK".
- STATUS CHECK – Press and hold until "RELEASE" to enter
  - Shows the unit is either "WAITING" for connection, or "CONNECTED" with the app, or "OFF".
  - Lower half of display will show Bluetooth ID.
  - Tap either button to return to the Bluetooth menu.
- OFF: turns off the Bluetooth – Press and hold switch until "RELEASE" to select.
- SETUP ONLY: Bluetooth is only active in setup – Press and hold switch until "RELEASE" to select.
- ALWAYS ON: default mode – Press and hold switch until "RELEASE" to select.
  - Allows for real time readings on your smartphone or tablet.
  - Gauge must be in SETUP mode to access the setup section of the app.
- **BACK - exits menu**.

DIAGNOSTICS - Diagnostics mode for checking/clearing trouble codes

- **The "run/kill" switch on the bike MUST be ON prior to running diagnostics.**
- When "> DIAGNOSTICS" is displayed, hold either switch until "RELEASE" is displayed, and release the switch.
- The setup options are: "ENGINE", "SECURITY", "ABS" "RADIO", and "BACK".
- Tap either switch to change the selection.
- Press and hold either switch until "RELEASE", then release the switch.
- Each section will show either the current codes, "NONE", or "NO RESPONSE".
    - "NONE" means no codes exist.
    - "NO RESPONSE" means either that module is not active or the run switch is off.
- If a code is shown, tap to move on to the next code, or to the end of the list.
    - Consult a service manual for trouble code descriptions.
- After all codes have been displayed, the display will show "> YES" and "NO".
    - To leave the codes, press and release the switch to move to "> NO".
    - Press and hold until "RELEASE", then release the switch.
- To clear codes, when the display shows "> YES", hold either switch until "RELEASE" is display, then release.
    - "Done" will momentarily display and then the part number of the module will be displayed.
    - Press and release the switch to exit back to the Diagnostic menu.
    - If "NO" codes exist, press and release the switch to show the module part number and again to exit.
- Tap either switch to move to move to the next section.
- **BACK – exits menu.**

LIGHTING - Lighting menu for color changes

- When "> LIGHTING" is displayed hold until "RELEASE" is displayed, and release the switch.
- The color menu options are: "COLOR THEMES", "SET ALL COLOR", "DISPLAY COLOR", " LABEL COLOR", "MESSAGE COLOR", "BAR COLOR", "DIMMING" , "SUNLIGHT", "RESET" or "BACK".
- Since the color options are so expansive the selection process is the same in all sections.
    - Tap either switch to change the selection.
    - Hold the function switch to enter the selected setup menu, until "RELEASE", and release the switch.
    - The displays will show the available options. Tap either switch to move through the available options.
        - An asterisk* will appear next to the option indicating it's set as the current setting.
    - Press and hold to select an option, until "RELEASE" is displayed.
    - BACK - exits menu.
- COLOR THEMES: offers preset colors for the LCD color, label colors, message colors, tach bar, and tach warning.
- SET ALL COLOR: can set the entire gauge to one of 31 color choices.
- DISPLAY COLOR: independently sets the numerical readout colors to one of 31 color choices.
- LABEL COLOR: independently sets the label color to one of 31 color choices.
- MESSAGE COLOR: independently sets the warning message area color to one of 31 color choices.
- BAR COLOR: independently sets the color of the tach bar, or fuel bar, up to the warning point, to one of 31 color choices.
- DIMMMING: offers two options, AUTOMATIC night dimming, or "OFF".
- SUNLIGHT: special feature to enhance viewing of the TFT LCD in *bright daylight* with a high contrast display.
  This works independently from the night dimming
  If enabled, this will temporarily override the color choices made, to offer a visible display during the day.
  The color will revert back when the sunlight is less intense, (light overcast days can trigger this mode).
    - NORMAL: in daylight, the background will stay black and the speed and messages will turn white.
    - INVERT: in daylight, the background will turn white and the speed and messages will turn black.
    - OFF: your color choices will not change.
- RESET: This will reset all color choices and options back to original factory colors.
- **BACK - exits menu**.

SPEED - Speed setup menu

- Tap either function switch until "> SPEED" is displayed.
- When "> SPEED" is displayed, hold until "RELEASE" is displayed, and release the switch.
- The selectable options are: "ADJUST", "UNIT", "SERVICE RESET", "PRESET ODO", or "BACK".
- Tap either switch to change the selection. Press and hold either switch to select it.

ADJUST Speed Calibration

- ❖ The speedometer is obtained from the engine computer, the displayed speed can be adjusted within the gauge.
- ❖ The adjustment is set a value from 75% to 125%, in 1% increments, with 100% being no change.
- ❖ Extreme modifications (tires or pulleys) to the bike may offset the speed more than 25%.
- When "> ADJUST" is displayed, then press and hold either switch until "RELEASE", then release.
- The display will show the current calibration value, default is "> *100".
- Tapping the left switch will increase the value, the right switch will decrease the value.
  - The percentage will roll over whether increasing or decreasing through the percentages.
  - If you calculate that you need to reduce speed by 10%, click the switch until 90% is shown.
- Press and hold the switch until "RELEASE", to save the currently displayed value.

UNIT MPH / km/h Selection

- **It is very important to set the speed unit PRIOR to setting the odometer!**
- When "> UNIT" is displayed, press and hold the switch until "RELEASE" is displayed, release the switch.
- The display will show UNIT and "> *MPH" for miles and "km/h" for kilometers.
- MPH is default. Tap either switch to choose between MPH or km/h.
- Hold the switch until you see "RELEASE" and release the switch.

SERVICE RESET miles or km to next service setup

Service is a countdown odometer. The service odometer display can be disabled or can be set to count down from 500 – 7500 miles, (800 to 12,000 kilometers). If the service odometer is enabled and display reaches 0 miles/km, one LCD will display "SERVICE DUE" in red, each time the key is turned on.

- Tap either function switch to display "> SERVICE RESET".
- When "> SERVICE RESET" is displayed, press and hold either switch until "RELEASE" is displayed and release the switch.
- The current setting will be displayed. The default is "> *OFF", but it could be a value in miles or kilometers.
  - The miles begin at 500 and go up to 7,500 miles in 500 mile increments.
  - The kilometers begin at 800 and go up to 12,000 KM in 800km increments.
- To change the service odometer, Tap the left switch to increase the service odometer.
  - Tapping the right switch will decrease the service odometer.
- To save: press and hold either switch until "RELEASE" is displayed, then release the switch.

PRESET ODO Odometer preset

- ❖ The odometer starts at zero, but can be preset by the customer within the first 100 miles (161 km) of riding.
- ❖ After riding more than 100 miles (161 km), the menu option will no longer be displayed.
- ❖ **Correctly select the unit to be either MPH or km/h *FIRST*, as the odometer will be set in the selected units**.
- ❖ The preset is in full miles or kilometers only, ***no*** tenths.
- ❖ The odometer preset can be reset multiple times within the first 100 miles (161 km) of riding.
- Tap either function switch to display "> PRESET ODO".
- When "> PRESET ODO" is displayed, press and hold either switch until "RELEASE" is displayed, then release.
- The current miles will be displayed (default – 000000).
  - The left most digit will be flashing (the100,000 miles digit).
- Do not start changing the odometer with the first flashing "0" unless the bike has 100,000 or more miles.
- Press and hold either button until "RELEASE" to move to the next number right.
  - Move as many times as needed to start with the correct number.
  - Example: 7,654 miles will start with the third flashing number in from the left "00**0**000".
- **To change the flashing number.**
  - Tap the left switch to increase the number.
  - Tap the right switch to decrease the number.
- **To move to the next digit to the right.**
  - Press and hold either switch until "RELEASE" is displayed, then release.
- Repeat the process until the right most digit has been set.
- When the far-right number is flashing, **STOP – verify the odometer matches to what you want!**
  - Example: 7,654 miles should read as "00765**4**", ***NOT*** "76450**0**".
- If the odometer is **incorrect**: press and hold either switch and the display will show "> SAVE? NO".
  - The odometer will be displayed below "> SAVE? NO".
- Press and hold either switch until "RELEASE" is display, and release.
  - This will start the odometer preset over again with far-left number flashing
  - Turning the key off at any time will also discard any attempted odometer settings.
- If the odometer is correct: press and hold either switch and the display will show "> SAVE? NO".
  - The odometer will be displayed below "> SAVE? NO".
- Tap either switch to change the display to "SAVE? YES".
- When "> SAVE? YES" is displayed, press and hold either switch until "RELEASE" is displayed and release.
- **BACK - exit menu**.

TACH - Tachometer warning setup

- When "> TACH" is displayed, press and hold either switch until "RELEASE", then release the switch.
- Since the engine computer feeds a tach signal on a data line, no tach configuration is required.
- The High Warning and Display are optional items.

HIGH WARNING - (shift light) setup

- When "> HIGH WARNING" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The display will show the current high RPM warning with a *.
- The default is *5,500 but is selectable from 2,200 to 8,200 RPMs.
  - Values change in increments of 100 RPMs.
- Tap either switch to change the RPM warning point.
  - Left switch increases the value. Right switch decreases the value.
- Press and hold either switch until "RELEASE" is displayed, and release.
- **BACK - exit menu**

DISPLAY setup

- When "> DISPLAY" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The display will show "DIGITAL", "BAR" AND "BACK" as selectable options.
  - Upper right display will show a sample of the Digital or Bar readout.
- Tap either switch to change to display the RPMs in numbers, or in a bar graph.
- Press and hold either switch until "RELEASE" is displayed, and release.
- When selecting "BAR", two more options will be available: the max RPM of the bar.
  - Select between "8,000" and "16,000".
- Press and hold either switch until "RELEASE" is displayed, and release.
- **BACK - exit menu**.

OIL TEMP - Engine oil temperature setup menu

❖ **Only valid to use when optional SEN-1043 (400°) or SEN-1044 (300°) is used.**

- When "> OIL TEMP" is displayed, press and hold either switch until "RELEASE" is displayed.
- The options are "UNIT", "ON", "OFF" and "BACK". **Factory default is "*OFF" (no temp displayed)**
- Tap either switch to change the selection. Press and hold either switch until "RELEASE" to select an option.

UNIT Temperature setup

- When "> UNIT" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- Tap either switch to select "F", "C" or "BACK".
- Press and hold either switch on the selection, until "RELEASE" is displayed, and release.

ON - Enabling Temperature Sender

- To enable oil temp, when "> ON" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The new submenu selections will be "SENDER", "HIGH WARNING", "TEST", or "BACK".
- Tap either switch to change the selection, press and hold either switch to select it.

SENDER Temperature sender selection

- When "> SENDER" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The display options are "SEN-1043", "SEN-1044" and "BACK".
- Tap either switch to match to the optional sender you purchased from Dakota Digital.
- Press and hold either switch on the selection, until "RELEASE" is displayed, and release.

HIGH WARNING High oil temperature warning setup

- When "> HIGH warning" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The display will show a high temp warning (factory default "> *300").
- The high temperature warning points range from 225 to 375F, (107 to 190C).
- Tap either switch to change the change the high temp warning point.
  - Left switch increases temp. Right switch decreases temp.
  - Temps are in increments of 5 degrees.
- Press and hold either switch until "RELEASE" is displayed, and release.

TEST Resistance test

- When "> TEST" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The display will give a resistance (ohm) reading of the sender.
  - If the display reads "OPEN", it means there is an open connection to the sender.
    - At least one message display will show 32 degrees.
  - If the sender wires are shorted the test will read a near 0 resistance.
    - At least one message will display "OIL TEMP SHORT" in red.
- To exit, press and hold either switch until "RELEASE" is displayed, and release.

BACK - exit menu.

OIL PSI - Engine oil pressure setup menu

- **Only valid when optional SEN-1039 pressure sender is purchased from Dakota Digital.**
- When "> OIL PSI" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The options are "ON", "OFF", and "BACK". ***OFF is the default for when a low oil switch is used.**
- Tap either switch to change the selection. Press and hold either switch until "RELEASE" to select an option.

ON - Enabling Oil Pressure Sender

- To enable oil PSI, when "> ON" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The ON option selections will be "LOW WARNING", "TEST" and "BACK".

LOW WARNING - Low oil pressure warning setup

- When "> LOW warning" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The low-pressure options will range from 0 to 30 PSI.
- Tap either switch to change the change the low oil pressure warning point.
  - **LEFT** increases pressure warning. **RIGHT** decreases pressure warning.
  - Changes are made in 1 PSI increments.
- To save and exit, press and hold either switch until "RELEASE" is displayed, and release.

TEST - Sensor voltage test

- When "> TEST" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The display will give a good voltage return from the sender of 0.4 or 0.5 volts at zero PSI.
- 0.0 volts means the sensor is not connected.
  - An open power or signal wire will also display "OPEN OIL PSI" in red.
  - An open ground lead will display about 3.5 volts and a steady pressure over 200 PSI
- To exit, press and hold either switch until "RELEASE" is displayed, and release.

BACK - exit menu.

FUEL - Fuel level setup menu

With a sender - the fuel window will turn red when the percentage is under 10% or show a low fuel bar in red.
With a Dyna or Sportster - "FUEL LO" will be displayed when the fuel is low.

- When "> FUEL" is displayed, then press and hold the switch until "RELEASE", then release the switch.
- The options to select between are "SENDER", "RANGE TO EMPTY", "TEST", and "BACK".
- Tap the switch to change the selection; press and hold the switch to select it.

SENDER Fuel sender selection

- When "> SENDER" is displayed, press and hold the switch until "RELEASE", then release the switch.
- The options to select between are "OFF", "HD 2004", "HD 2008", "DYNA 04", "DYNA 08", "CUSTOM", "FAT BAGGER" and "SPORTSTER".
- Tap the switch to change to the proper sender.
  - **OFF** – no sender.
  - **HD 2004** – 2004 to 2007 Street Glide and Road Glides (FLH / FLT models).
  - **HD 2008** – 2008 to 2013 Street Glide and Road Glides (FLH / FLT models).
  - **DYNA 04** – 2004 to 2007 Dyna models (FXD / FLD models).
  - **DYNA 08** – 2008 to 2011 Dyna models (FXD / FLD models).
  - **CUSTOM** – Custom calibration for non-standard fuel senders.
  - **FAT BAGGER** – For Fat Baggers Inc. tanks/senders.
  - **SPORTSTER** – 2004 to 2013 Sportster low fuel switch (XL models).
    - Range to empty will NOT work with Dyna nor Sportster models.
    - Fuel display will only show "FUEL OK" when there is enough fuel in the tank.
    - Fuel display will show "FUEL LO" in red when the low fuel switch is triggered.
- Press and hold the switch until "RELEASE", then release the switch
- **Exit fuel setup to confirm fuel selection**

CUSTOM - is only for rare occasions if a stock sender is not being used!

- **Will not work with thermistor senders found in some bikes, nor "sonar" sensors in V-Rods.**

- If CUSTOM is selected, you will be prompted to Program.
- When "> PROGRAM" is displayed, press and hold until "RELEASE", then release the switch
- The display will show "SET EMPTY"
- With an empty tank, press and hold until "RELEASE", then release the switch
- The display will show "SET 1/3"
- Add fuel to 1/3 of a tank
- Press and hold until "RELEASE", then release the switch
- The display will show "SET 2/3"
- Add fuel to 2/3 of a tank
- Press and hold until "RELEASE", then release the switch
- The display will show "SET FULL"
- Top off the tank
- Press and hold until "RELEASE", then release the switch.
- **Exit setup to confirm fuel selection.**

FUEL - Fuel level setup menu (continued

RANGE TO EMPTY Distance to empty (fuel) setup

- ❖ The range to empty option will calculate an estimate of miles until empty with true fuel senders.
  - ***Will NOT work with Dyna or Sportster models.***
- ❖ This will vary on riding conditions and will change as it continually monitors fuel usage and speeds.
- ❖ When the system is working, the DIST TO E screen will have a countdown odometer.
- ❖ When the DIST TO E odometer reaches 35 miles or 56km, it shows a “RANGE LOW” warning.
- ❖ ***The process must begin with a full tank, and with the proper sender selected.***
  - ***Will NOT work with Dyna or Sportster models.***
- When “> RANGE TO EMPTY” is displayed, then press and hold either switch until “RELEASE”, and release the switch.
- The options to select are “ON”, “OFF”, and “BACK”.
- Tap either switch to select an option. Press and hold either switch until “RELEASE”, then release the switch.
- If **ON** is selected, the next options are “LEARN RESET” and “BACK”.
- “> LEARN RESET” will tell the gauge to learn fuel usage while riding. It can be reset again if the process failed.
  - Once the fuel tank is full, you may select “LEARN RESET”.
  - Press and hold either switch until “RELEASE”, then release the switch.
  - **BACK - Exit setup**
  - Cycle the ignition then you may ride until fuel is less than 25%.
    - Do not do partial refills.
    - Can ride over multiple days.
  - Only when the sender reads below 25%, you may refill the tank, to complete the process.
  - Once full again, the process will complete itself automatically.
    - Filling and refilling must be done the same way, either both times on kick stand or upright.

DISPLAY - Fuel display options

- ❖ This can change the fuel to be displayed in percentage, or in a bar graph.
- Tap switch until “> DISPLAY” is displayed, then press and hold until “RELEASE”, then release.
- DISPLAY options are “BAR”, “*DIGITAL”, and “BACK”.
- Tap either switch to select an option.
  - Upper right display will show a sample of the Digital or Bar readout.
  - Not an option for Dyna or Sportster sender option
- Press and hold either switch until “RELEASE”, then release the switch.
- **BACK - exit menu.**

TEST Measuring resistance of fuel sender

- ❖ Works with Street / Road Glides, Custom senders (non-H-D), and Fat Baggers.
- ❖ Not designed to troubleshoot switches found in Dyna and Sportster models.
- Tap either switch until “> TEST” is displayed, then press and hold either switch until “RELEASE” is displayed.
- The display with show “FUEL TEST”, and “xxx OHMS”.
  - The “xxx” will be a value in numbers.
  - If not connected “OPEN” will appear.
  - If the fuel wire is shorted to ground, the test will show “0 OHMS”, and the display may show “FUEL SHORTED”.
  - Tap either switch to exit test mode.
- **BACK - exit menu**.

DISPLAYS - Message display option menu

❖ Refer to graphic on page 6 for indicator and message locations.

- When "> DISPLAYS" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The display will show "LEFT TOP", "LEFT BTM", "CENTER", "RIGHT TOP", RIGHT BTM", "MBMs", or "BACK".
- Tap either switch to change the selection, press and hold either switch until "RELEASE" is displayed, and release.
  - ➢ The outer LCDs have the same menu option in setup:
    - PERFORMACE SHOW, or PERFORMANCE HIDE
    - The performance menu includes:
      - HIGH SPEED (MPH – km/h), 0-60 TIME, ¼ MILE SPEED with ¼ MILE TIME, and HIGH RPM.
  - ➢ Use the "LEFT TOP" steps below for the other corner locations as the two options are the same.

LEFT TOP message screen information

- When "> LEFT TOP" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The selectable options are "PERFORM HIDE", "PERFORM SHOW", and "BACK".
- PERFORM HIDE: disables the five performance options to display while riding.
- PERFORM SHOW: turns on the above options, which can be toggled through while riding.
- Tap either switch to change the change the option.
- Press and hold either switch until "RELEASE" is displayed, and release.

LEFT BTM message screen information

- See LEFT TOP, above

CENTER message screen information

- When "> CENTER" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The selectable options are "SPEED", "TACH", "GEAR" and "BACK".
- Tap either switch to change the change the option.
- Press and hold either switch until "RELEASE" is displayed, and release.

RIGHT TOP message screen information

- See LEFT TOP, above

RIGHT BTM message screen information

- See LEFT TOP, above

MBMS Display which MBMs are connected and adjust warnings

❖ If a pressure or boost sensor is not connected or failed, the display will show "FAIL", "TOO LOW".

❖ If no MBM is attached but the display shows a blank value, click through the displays to remove it.

- When "> MBMs" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The screen will display what MBM modules are attached and more than one input if it exists.
- The screen will show "NONE" if there are no MBMs present.
- Tap either switch to move through the MBMs attached.
- Press and hold either switch until "RELEASE" is displayed on the MBM setting to modify.
  - See the separate MBM manual for additional details.
- **BACK - exit menu**.

VOLT - Low voltage warning setup

- When "> VOLT" is displayed, press and hold either switch until "RELEASE" is displayed, and release.
- The low voltage warning points will range from 9.0 to 12.1 volts.
- Tap the switch to change the low voltage warning point.
- Press and hold the switch until "RELEASE" is displayed, and release.
- Exit setup.

GEAR - Gear indicator setup

- ❖ No gear indication will show until programming is done.
- ❖ Gear readout will display with clock on the LCD location of your choice.
- ❖ This feature will work with various transmissions up to seven speed models.
- ❖ The factory preset will work with Street/Road Glide and Dyna models with a stock 5 or 6 speed drive train.
- ❖ With a stock 6 speed, there will be a slight delay the first time you shift to sixth gear as the system verifies the gear.
- ❖ The gauge can 'learn' the gear ratios based on speed and RPM, no additional sensors are needed.
- ❖ When "learning" the gear positions, you will need a stretch of road to gradually reach highway speeds with no interruptions.
- ❖ Each gear will need the speed to be held steady, until instructed to speed up and shift up.
- ❖ **Gear learning must have the engine running before continuing**
  - **Entering setup for gear learning – two methods:**
  - **3) Hold either switch in before turning the key on and then start the bike.**
    [Or]
  - **4) Start the bike, then hold both switches as the bike is running.**
- Tap either switch until "GEAR" is displayed
- Tap the switch until "GEAR" is displayed.
- Press and hold the switch until "RELEASE" is displayed, then release the switch.
- The display will show "PRESET", "TRIKE", "P-1200", "P-883", "LEARN", or "BACK".
  - "PRESET" set the gear reading to factory gearing and tire size
    - Street Glide, Road Glide and Dyna models
  - "TRIKE" preset gear to factory gearing and tire size for a Tri-Glide
  - "P-1200" preset gear to factory gearing and tire size for a 1200cc Sportster
  - "P-883" set the gear reading to factory gearing and tire size for a 883cc Sportster
  - "LEARN" starts the leaning process of speed and RPMs to calculate your gear reading.
- To reset the gear to not be displayed select "> PRESET".
  - Press and hold the switch until "RELEASE" is displayed, then release the switch.
  - Press and hold again to return to Gear menu.
- To start learning gears, tap the switch until "> LEARN" is displayed, then press and hold the switch.
  - The message will show "NO RPM" if the engine RPM is below 1500.
  - The message could also say "LOW SPEED" if the vehicle speed is below 5 MPH.
- Begin riding in 1st gear. The display should show "WAIT 1".
- Ride at a steady speed and steady RPM until the message changes to "SHIFT TO 2".
- It should only take about 20 seconds if the speed and RPMs are steady.
  - *Optional: If the message continues to say "WAIT 2", you can manually override and jump to the next gear by pressing and releasing the switch to store the gear position quicker.*
- Upshift to 2nd gear and ride at a steady speed. The display should change to "WAIT 2".
- Ride until the message changes to "SHIFT TO 3". Shift to 3rd gear.
  - *Optional: If the message continues to say "WAIT 3", you can manually override and jump to the next gear by pressing and releasing the switch to store the gear position quicker.*
- Repeat this through each gear.
- When you are done, come to a complete stop.
  - You may also press and hold the switch, while riding, until the display shows "MOVE LINE" and then release it.
- The gears will now show up to the left of the clock display only.

- ➢ **When downshifting, the gear position may jump up momentarily as the RPM is higher than expected.**
- ➢ **Also, the gear position reading may drop to "N" or a "0" when you pull the clutch in coming to a stop.**
- ➢ **The position will begin reading as the bike begins to move in gear**.

FACTORY RESET

- In the event you would like to start over with your settings, preferences and display locations, this will reset all settings back to the out-of-the-box configuration.
- This includes message locations, color selections and speedometer calibration but **DOES NOT** include the odometer.
- When you see "> FACTORY RESET", press and hold the switch until "RELEASE" then release the switch.
- The options will be "NO" and "YES".
- By pressing and holding on "> NO" it will exit the reset menu.
- When you select "> YES", press and hold the switch until "RELEASE" is displayed, then release the switch.
- The screen will "YES" and "RESET". Tap the switch once to return to the main menu.

VERSION

- For technical support assistance, this screen can display the model number, and the software versions loaded for the processors.

EXIT SETUP

- Exits the setup menu and returns to normal gauge operation.

Troubleshooting guide

Problem	Possible cause	Solution
Gauge will not light up	Accessory fuse blown No battery power on stock Orange wire No power on stock White/Orange wire Gauge damaged	Check and replace accessory fuse Inspect stock harness, test Brown wire on DD 12 pin for volts Inspect stock harness, test Blue wire on DD 12 pin for volts Return gauge for service (see page 20)
Gauge display is white (black text)	Sunlight mode is set to “Invert” mode	Default for sunlight is “Invert” for visibility in day The display can be modified in Lighting > Sunlight menu (pg 11)
Clock resets to 12:00 at startup	Gauge is seeing battery power drop at start	Charge battery, clean battery contacts
Gauge lights, but speed stays at 00	No data from engine computer ECU is not seeing speed signal (engine stalls)	Verify ECU is turning on – check for codes Verify “Run” switch is ON Test stock speed sensor – check for codes
Gauge lights, but tach stays at 00	No data from engine computer ECU is not seeing tach signal	Verify ECU is turning on – check for codes Verify ECU is getting tach signal – check for codes
Speed reading is incorrect	ECU is seeing incorrect speed	Adjust speed calibration in gauge (page 12)
Speed is jumpy or erratic	Poor electrical connections Electrical interference Speed sensor spacing incorrect	Verify speed connections to ECU are good Verify tach/coils are not near speed sensor wires Use resistive plugs and EMI shieled plug wires Use scan tool to verify ECU is seeing jumpy speed Verify sensor is clean and sensor gap is at 1/8”
Tachometer erratic or jumpy	Electrical interference	Use resistive plugs and EMI shieled plug wires
Gears not displayed with clock	Gear option not programmed	Program gears (page 17)
Gears not shown on LCD	LCD screen not changed to display gear/clock	Tap either button to display gear/clock
Neutral indicator not working	Poor wiring connection Connected to wrong wire	Soldering connections is best Verify correct wire from bike service manual
Low fuel not turning on	Incorrect setting or turned off	Set fuel sender to match the year and model of the bike
Low fuel turning on early or late	Incorrect setting	Set fuel sender to match the year and model of the bike
Low oil indicator not working	Poor wiring connection Wrong wire used Wrong sensor being used Configured incorrectly	Soldering connections is best Only Pink wire is for low oil switch – Verify stock color lead Works only with low pressure switch, not pressure sensor Turn Oil PSI to OFF in setup
Oil pressure not reading	Incorrect setup Incorrect wiring LCD screen is not set to display oil PSI Poor wiring connections	When using SEN-1039, turn oil PSI ON in setup SEN-1039 uses dedicated wires, Pink is not used (page 5) Tap either button to change display to show Oil PSI Soldering connections is best Follow test procedure (see page 14)
Oil psi warns OIL PSI FAIL LOW	Poor wiring connections of SEN-1039	Check for open connections on Red or White wires
Oil pressure reads about 200+ PSI with key on only	Poor wiring connections of SEN-1039	Check for open connection of Black Ground wire
Oil temp not reading	Incorrect setup LCD screen is not set to display oil temp	Set Oil Temp to ON in setup Tap either button to change display to show Oil Temp
Oil temp not reading correctly	Incorrect setup Improper mounting	Set oil temp sender to match type of sender used (page 13) Make sure the sender is mounted so that it is in the oil. Bushing or elbows that move it out of the oil, causing high readings
Oil temp reads 32 all the time	Open leads from sensor	Verify temp leads are properly connected
Oil temp warns OIL TEMP SHORT	Shorted sensor wire	Verify sensor wire is not shorted to ground
Engine Indicator not working	No data from ECU	Check engine computer
Engine indicator always on	ECU has error code	Check error codes in gauge setup and clear codes

Speed sensor voltage check:	All checks should be made with the sensor connected to the ECU and the key on Checks should be done with a volt meter and not a test light.
Stock 3-wire speed sensor:	Follow the service manual instructions to test the signal wire. Signal wire colors vary from year to year, and model to model. Consult a service manual for your year and model. Using a non-stock speed sensor may not feed the correct speed to the ECU and the engine may stall at stops.

NOTES:

SERVICE AND REPAIR

DAKOTA DIGITAL offers complete service and repair of its product line. In addition, technical support is available to help you work through any questions or problems you may be having installing one of our products. Please read through the Troubleshooting Guide. There, you will find the solution to most problems.

For additional support, please visit www.dakotadigital.com. A "**Product Support**" link will be found at the bottom of the home page.

Should you ever need to send the unit back for repairs, please call our technical support line, (605) 332-6513, to request a Return Merchandise Authorization number.

- Package the product in a good quality box along with plenty of packing material.
- Ship the product by a common carrier with tracking abilities.
- Be sure to include the RMA number on the package.
- Include a complete description of the problem, with RMA number, your full name and address (street address preferred), and a telephone number where you can be reached during the day.
- Any returns for warranty work must include a copy of the dated sales receipt from your place of purchase.
- Send no money. We will contact you for payment.

Dakota Digital 24 Month Warranty

DAKOTA DIGITAL warrants to the ORIGINAL PURCHASER of this product that should it, under normal use and condition, be proven defective in material or workmanship within 24 MONTHS FROM THE DATE OF PURCHASE, such defect(s) will be repaired or replaced at Dakota Digital's option.

This warranty does not cover nor extend to damage to the vehicle's systems and does not cover removal or reinstallation of the product.

This Warranty does not apply to any product or part thereof which in the opinion of the Company has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident.

This Warranty is in lieu of all other expressed warranties or liabilities.

Any implied warranties, including any implied warranty of merchantability, shall be limited to the duration of this written warranty.

Any action for breach of any warranty hereunder, including any implied warranty of merchantability, must be brought within a period of 24 months from date of original purchase.

No person or representative is authorized to assume, for Dakota Digital, any liability other than expressed herein in connection with the sale of this product.

⚠**WARNING:** This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov

4510 W. 61st St. North
Sioux Falls, SD 57107
www.dakotadigital.com
dakotasupport@dakotadigital.com

Phone (605) 332-6513
Fax (605) 339-4106