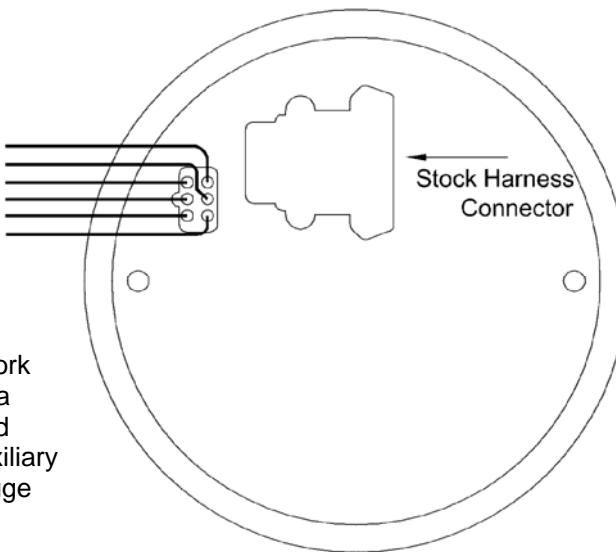**Dakota Digital**

MODEL MCL-2004(-R)
TANK MOUNT SPEEDOMETER/TACHOMETER

Wiring Diagram

oil warning indicator (-) BROWN
neutral indicator (-) WHITE/GREEN
high beam indicator (+) PURPLE
temp sensor ground BLACK
temp sensor signal BLUE
pressure sensor GRAY

Stock Harness Connector

The MCL-2004(-R) gauges will work on 2004 and newer models. It is a direct plug in on these models and requires no additional wiring. Auxiliary indicators can be wired to the gauge

IMPORTANT NOTE!   This gauge has an odometer preset option that is only available for the first 100 miles (160km) of operation. See "preset odometer" for instructions.
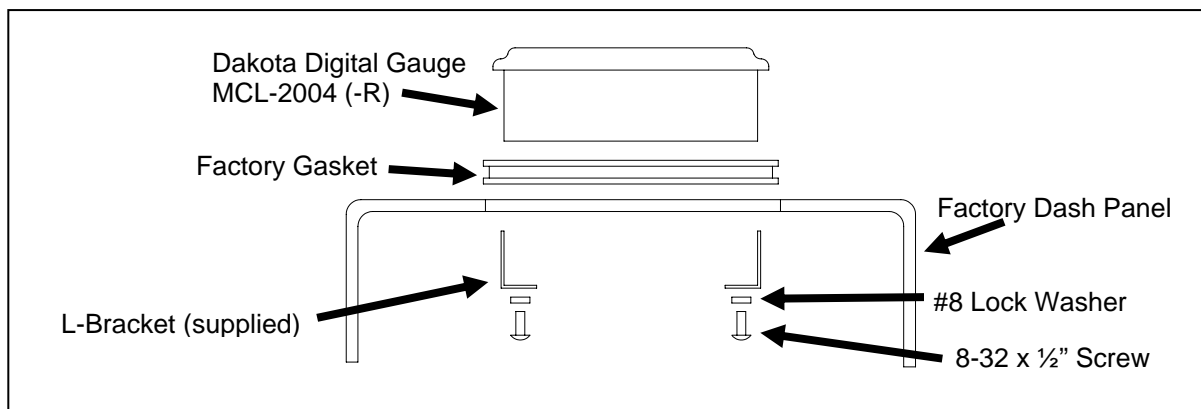
Mounting:
The MCL-2004(-R) is designed to fit in the "Fat Bob" style five inch diameter dash mount gauge openings.

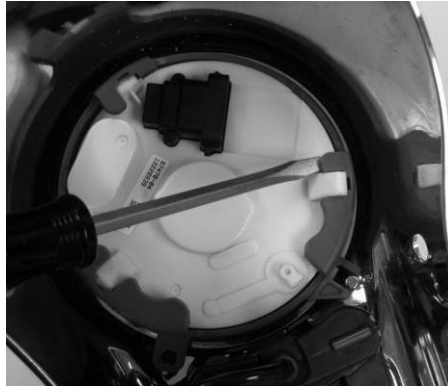**For all models except Deuce**
NOTE: The supplied ABS mounting ring is not used for these applications and can be discarded

Dakota Digital Gauge
MCL-2004 (-R)

Factory Gasket

Factory Dash Panel

L-Bracket (supplied)

#8 Lock Washer

8-32 x ½" Screw

- Remove the dash
- Unclip and unplug the factory gauge
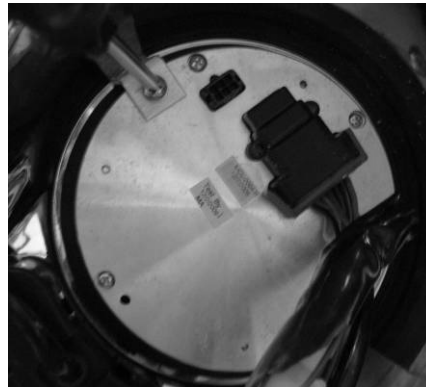
- Insure that the rubber gasket is still in the dash   or
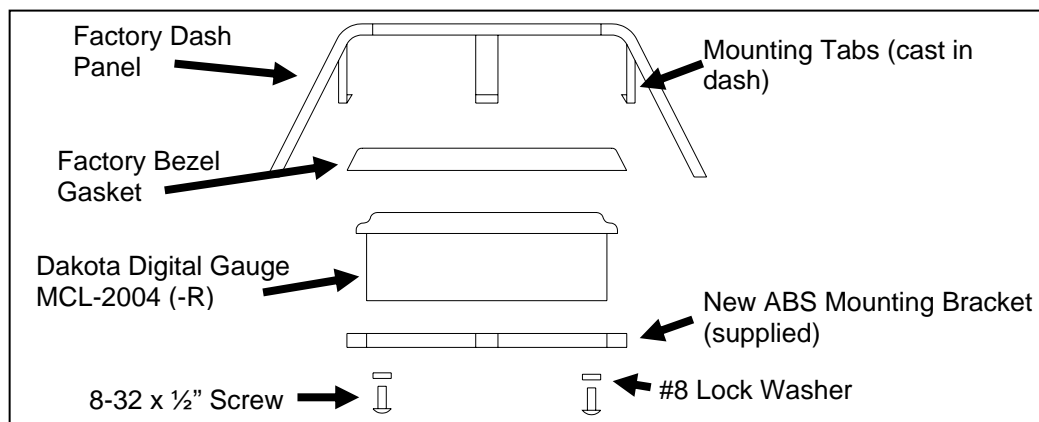 remove from factory gauge and place back on
  dash

- Insert new gauge from front of dash

- Plug in and turn on so you can straighten
  the gauge in the dash

- Use supplied L-brackets along with the 8-32 screws
   and lock washers to secure the gauge

- Reinstall the dash

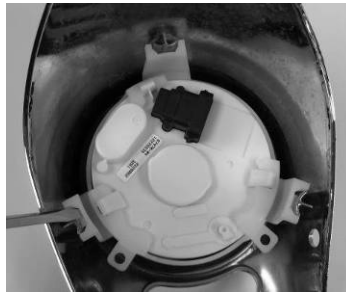**Deuce mounting**
NOTE: The supplied L-bracket mounting pieces are not used for this application and can be discarded
Since the Deuce gauge mounts from under the dash, mounting requires use of the supplied ABS bracket.

Factory Dash
Panel

Mounting Tabs (cast in
dash)

Factory Bezel
Gasket

Dakota Digital Gauge
MCL-2004 (-R)

New ABS Mounting Bracket
(supplied)

8-32 x ½" Screw

#8 Lock Washer

- Remove the dash
- Unclip and unplug the factory gauge

- Remove the rubber gasket from the factory gauge bezel

- Install gasket over the bezel of the Dakota Digital   gauge.
  The gasket doesn't cover the entire bezel, there should
  be some chrome showing when the gasket is installed

- Screw the ABS mounting bracket to the back of the
   gauge with the two 8-32 screws and lock washers.
  The smooth side of the ABS should go down towards
   the back of the can this will align the gauge properly
  in the dash.
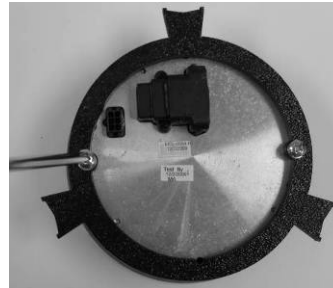
- Snap the gauge into the dash starting with one tab in and then working in
  a clockwise direction snapping the other two tabs in one at a time. The
  tabs are tight so it takes a fair amount of pressure to snap them in make
  sure they are seated under the tabs in the dash once locked in

- Plug in the connector and reinstall the dash.
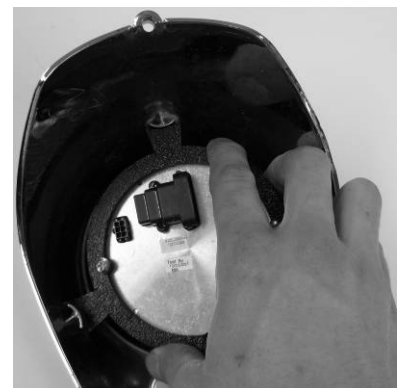
Wiring

The gauge is a direct plug in on 2004 and newer bikes. The only wiring, which is optional, is for the indicator lights and auxiliary pressure/temp gauges if you choose.

POWER

Constant battery power and key switched power are supplied by the stock harness.

GROUND

Ground is supplied by the stock harness.

STATUS AND WARNING INDICATORS

An extra 6 pin harness is supplied for the indicators not found in the stock speedometer harness connector.

The high beam indicator is activated by 12 volts at the purple wire. The turn signals can be activated by the data bus on most models.

The neutral and low oil indicators are activated by ground at their respective hook-up wires. These can be connected to the same wires that the stock indicator lights would be connected to. The low oil wire is gray and the neutral wire is blue.

Several indicators are supplied on the stock wiring harness. Some of these may not be active on your motorcycle. These include the security, engine, ABS, low fuel, and cruise control. All of these indicators have a fixed color except for the cruise control. This will be red or blue when the cruise switch is on and change to green when the cruise is engaged.

LOW VOLTAGE WARNING

When the voltage drops below the warning limit with the engine running, "LO" and your current voltage will be displayed. (default warning limit is 11.0V)

SPEEDOMETER

The speedometer is read from the engine control module (ECM) data bus. This can be calibrated to allow for differences in tires or gearing. Calibration is discussed in a later section.

TACHOMETER

The tachometer is read from the ECM data bus.

The bar displays rpm x1000 with a range of 350 – 7000 rpm. The rpm can also optionally be shown on the message display.

CLOCK

The clock uses a 12 hour format and can be set by pressing and holding the switch while the clock is displayed. After the switch is held for a few seconds the hours will begin flashing. Momentarily pressing the switch will change the hours, holding the switch will move to the minute set and the minutes will begin flashing. Momentarily pressing the switch will now change the minutes. Holding the switch will exit the clock set mode.
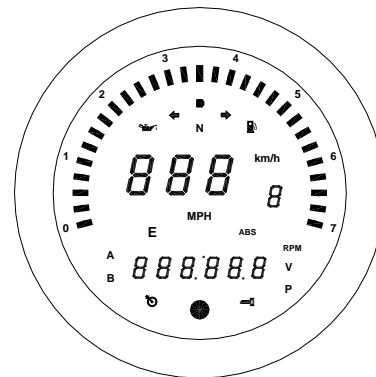
GAUGE SETUP AND CALIBRATION

The setup menus are entered by holding the switch in while turning the key on. The menus are as follows:

Menu	Description
d IA9	read diagnostic codes
AdJUSt	adjust calibrate speed
un It	select speed unit (MPH or km/h)
S SEt	miles to service setting
PErF	turn on/off performance displays
n I9Ht	turn on/off automatic night dimming
UPdAtE	set digital rpm update rate
WArn RPM	set rpm shift warning point
COLOr	select rpm bar graph color, red or green
WArn V	set low volt warning point
SEndEr P	select pressure sender type
WArn P	set pressure warning points
SEt FC	select temperature sensor and unit
H I FC	set temperature warning point
9EAr	transmission gear display selection
FUEL	low fuel light setup
CL CAL	adjust clock calibration
InFO	display gauge revision code on speedometer
-odoM	one-time odometer preset

SPEEDOMETER SETUP

Press and hold the switch while turning the key on and starting the engine. Once the engine is running, release the switch. Press and release the switch to change the menu selection.

d IA9 Diagnostics mode for checking/clearing trouble codes
- Press and release the switch until "d IA9" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The display will show "En9 InE", "SECurE", "AbS", or "donE".
- Press and release the switch to change the selection, press and hold the switch until " - " is displayed to begin reading the stored codes for the particular system.
- Release the switch. The display will show the current codes, "nonE", or "no rSP". Press and release the switch to move to the next stored code. After all codes are displayed the module part number will be scrolled across the screen. To clear codes, press and hold the switch when "end" is displayed. Consult a service manual for trouble code descriptions.

SPEED CALIBRATION

The speed calibration is not required unless you have changed out the rear pulley, sprocket, stock transmission or stock tires.

AdJuSt *Adjust*
- Press and release the switch until "AdJuSt" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The display will show "FASt" or "SLObb". Fast will allow you to increase the speedometer reading, slow will allow you to decrease the speedometer reading.
- Press and release the switch to change, press and hold the switch to continue. The display will change to "CL" and a number from 0.75 to 1.25. This is the calibration ratio that is applied to the reading that the ECM is providing. 1.10 will be 10% faster, 0.90 will be 10% slower.

$$\frac{\text{Actual speed}}{\text{speedometer reading}} \times \text{ current Cal ratio (1.00 by default)} = \text{ new Cal ratio}$$

- Press and release the switch to change the cal ratio. When the desired cal ratio is shown, press and hold the switch to save it.

un It *Speed unit*
- Press and release the switch until "un it" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The display will light up the current speed unit (MPH or km/h).
- Press and hold the switch to keep the current unit or press and release the switch to change the unit.

S SEt *Miles to Next Service setup*

The service mileage is a countdown mile meter. The service mile display can be disabled or can be set to count down from 500 – 7500 miles. If the service mileage is enabled and it gets to 0 miles it will display "S -duE" each time the key is turned on. If the push button switch is pressed and held while "S -duE" or "S" and a mileage is displayed, the service miles will be reset to your preset value.
- Press and release the switch until "S SEt" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The current setting will be displayed, "OFF" or a mileage from 500 - 7500.
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed.

PErF *Performance menu setup*

The performance readings can be turned on or off. When they are turned off the odometer will only toggle through the mileage readings.
- Press and release the switch until "PErF" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The current setting will be displayed (on or oFF).
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed.

n I9Ht *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 setup menu as described above and select "n9t" (night). Press and release the function switch to select "OFF" instead of "on".   Press and hold the function switch to save the new setting.
- Press and release the switch until "n I9Ht" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The current setting will be displayed. (On, OFF).
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

TACHOMETER SETUP

The digital tachometer update rate can be adjusted between slow, mid, and fast. The rpm warning/shift point can be adjusted from 2000 – 7500 RPM. The bar graph color can also be changed from green with a red warning to red with a green warning.

uPdAtE *Display update setup*

The display update will select how quickly the digital tachometer reading will respond.
- Press and release the switch until "*uPdAtE*" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The update setting will be displayed. (*1*=slow, *2*=mid, *3*=fast).
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

uJArn RPM *Rpm warning setup*
- Press and release the switch until "*uJArn* RPM" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The current warning point will be displayed on the bar graph.
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

Col or RPM *Bar graph color selection*
- Press and release the switch until "*Col or* RPM" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The tach bar will light up in the current color (green or red).
- Press and release the switch until the desired color is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

uJArn V *Voltage warning setup*
- Press and release the switch until "*uJArn* V" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The current warning point will be displayed (*9.0 – 12.1*).
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

5EndEr P *Pressure sender setup*
The gauge can use the following Dakota Digital pressure sensors: SEN-1031 (0-150 psi), SEN-1032 (0-75 psi), or SEN-1035 (0-400 psi)
- Press and release the switch until "*5EndEr* P" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The current sender type will be shown (75, 150, or 400).
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

uJArn P *Pressure warning setup*
- Press and release the switch until "*uJArn* P" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. *Lo* and number from 5-36 will be displayed for the low pressure warning point.
- Press and release the switch until the desired value is displayed.
- Press and hold the switch until " - " is displayed to go on to the high warning.
- Release the switch. *HI* and number from 37-75, 75-150, or 150-300 will be displayed for the high pressure warning point depending on the sender type selected.
- Press and release the switch until the desired value is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

5Et FC *Temperature sender setup*
The temperature gauge can read the stock head temperature sensor from the ECM or it can use the following Dakota Digital temperature sensors: SEN-1043 (400F/200C) or SEN-1044(302F/151C)
- Press and release the switch until "*5Et FC*" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The current sender type will be shown with its unit. (HEAD F, HEAD C, 400F, 200C, 302F, or 151C).
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

HI F-C *Temperature warning setup*
- Press and release the switch until "*HI F-C*" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. *H* and number from 200F – 350F or 93C – 176C will be displayed.
- Press and release the switch until the desired value is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

ꞬEAr *Gear Indicator setup*

This gauge has a single digit display for gear position. The gauge can learn the gear ratios based on speed and rpm so no sensors are needed, just what you've already connected. It will work with 4, 5, 6, or 7 speed transmissions. To program the gear positions, begin at a section of road where you can gradually shift through all of the gears. Press and hold the switch while turning the key on and starting the engine. Once the engine is running, release the switch.

- Press and release the switch until "ꞬEAr" is displayed, press and hold the switch until " - " is displayed.
- The message will show "LO ECH" if the engine rpm is below 1500, or "LO SPd" if the vehicle speed is below 5 mph.
- Begin driving in 1st gear. The display should show ꞬEAr 1 and the " 1" should be flashing. Drive at a steady speed until the " 1" stops flashing, it should only take about 20 seconds if the speed and RPMs are steady.
  - ➤ *Optionally: If the gear does not stop flashing you can manually override and jump to the next gear by pressing and releasing the switch to store the gear position quicker.*
- Shift to 2nd gear and drive at a steady speed. The display will change to a flashing "2".
- Wait until the "2" stops flashing. Shift to the next gear and a "3" should start flashing.
  - ➤ *Optionally: If the gears do not stop flashing 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 or press and hold the switch until the display shows "SEEuP" and then release it.
- Turn the key off and then on again to restart the gauges in normal operation, verify the gear position by riding through each gear and checking if positions agree.

FUEL *Low fuel light setup*

- Press and release the switch until "FUEL" is displayed, then press and hold the switch until " - " is displayed.
- The display will show "OFF" or "on". Press and release the switch to change to the desired setting.
- Press and hold the switch until " - " is displayed to save the setting.

CL CAL **CLOCK SETUP**

- Press and release the switch until "CL CAL" is displayed, then press and hold the switch until " - " is displayed.
- The display will show "CAL" and a number from -8 to 7. This allows the clock to be adjusted +/- seconds per day.
- Press and release the switch to change the CAL value, press and hold the switch to save this and exit the clock setup.

InFO *Info menu*

Displays the current software revision on the speedometer display. (No changes can be done in this menu)

odoM *Odometer preset*

The odometer can be preset by the customer within the first 100 miles. Once the speedometer has more than 100 miles the menu option will no longer be displayed. Make sure you have correctly selected the units to be either MPH or km/h first. The odometer will be set in the selected units. Once you have preset the miles you cannot change it again.

- Press and release the switch until "-odoM" is displayed, then press and hold the switch until " - " is displayed.
- The current miles will be displayed with the left most digit flashing.
- Press and release the switch to increment the digit. Press and hold the switch to move to the next digit to the right.
- Continue until the right most digit has been set. Press and hold the switch and the speed display will show "no".
- Press and hold the switch while "no" is displayed to go back and continue changing the odometer display. Turn the key off to cancel any changes.
- Press and release the switch to change to speed display to "YES". Press and hold the switch while "YES" is displayed to save the current odometer reading.

FUNCTION SWITCH

The function switch on the side of the dash panel allows access to all of the mileage, rpm, and performance information. Pressing and releasing the function switch toggles through the different displays. Press and holding the switch will reset the current display. The display sequence is as follows:

CLOCK	>	*12:00*	12 hour clock
ODOMTR	>	*000000*	odometer mileage
TRIP A	>	^{A} *000. 0*	trip meter mileage A
TRIP B	>	$_B$ *000. 0*	trip meter mileage B
SERVIC	>	*5 0000*	miles since last service (if programmed)
KPH	>	*======*	metric speed conversion (to mph if metric unit is selected)
* HI SPD	>	*H1 00*	high speed recall
* 0-60 T	>	*60 00. 0*	0-60mph time (0-100kph)
* QUARTR	>	*25 00. 0*	quarter mile time
* QT MPH	>	*25 00*	quarter mile speed
RPM	>	*0000* ^{RPM}	rpm reading in alpha display
* HI RPM	>	*H 0000*	high rpm recall
VOLTS	>	*00. 0* ^{V}	displays voltage to gauge
PRESSURE	>	*00* $_P$	pressure reading (only shown if sender is connected)
TEMP	>	*000 F*	temperature reading, "C" if metric (only show if sender is connected)
* HOURS	>	*Hr 0. 0*	re-settable hour meter

The 0-60 and ¼ mile timers are zeroed by pressing and holding the switch while that timer is displayed. The timer will not restart until the speed reaches zero and then you start driving again.

Display functions with a '*' in front of them are only shown with performance readings turned on.

WIRING COLOR CODE FOR GAUGE:

MCL-2004	Stock harness color	Function
BLUE		temperature sensor signal
BLACK		temperature sensor ground
PURPLE	WHITE	high beam indicator(+)
WHITE/GREEN	TAN	neutral indicator(-)
GRAY		pressure sender
BROWN	GREEN/YELLOW	oil warning indicator(-)

Troubleshooting guide

Problem	Possible cause	Solution
Gauge will not light up.	Orange/White wire does not have power.	Inspect and repair stock harness.
	Brown/Gray wire does not have power.	Inspect and repair stock harness.
	Black wire is not getting a good ground.	Inspect and repair stock harness.
	Gauge is damaged.	Return gauge for repair. (see instructions)
Clock resets when key is off.	Brown/Gray wire does not have constant power.	Inspect and repair stock harness.
Gauge lights up, but speed will only show zero.	No data from ECM.	Check engine trouble codes.
	Sensor is not sending a speed signal.	Check wiring and test sensor.
Speed reading is incorrect.	Gauge is not calibrated correctly.	Gauge must be calibrated (see instructions).
Gauge lights up, but tach will only show zero.	No data from ECM.	Check engine trouble codes.
Gauge will not dim.	Auto dimming is disabled.	Check setting under "night" menu.
Gauge remains dim at all times.	Light sensor is covered.	Make sure the bottom center of the gauge lens is clean and not obstructed.
High beam, Left turn, Right turn or Security indicator does not work.	Loose or incorrect connection to indicator wire.	Check that the appropriate indicator wire has about 0 volts when the indicator should be off and about 12 volts when the indicator should be on.
Neutral, low oil, or cruise indicator does not work.	Loose or incorrect connection to indicator wire.	Check that the appropriate indicator wire has about 12 volts when the indicator should be off and about 0 volts when the indicator should be on.
Pressure reading does not show up.	Pressure sender is not connected.	Sender must be connected before the reading will be displayed.
	Sender wire is loose or broken.	Check all wire connections and inspect wire for breaks.
	Sender is not grounded.	The sender grounds through its mounting threads. Make sure the threads are clean and tight.
Temperature reading does not show up.	Temperature sender is not connected.	Sender must be connected before the reading will be displayed.
	Wrong temp sender is selected.	Check setting under "SET FC" menu.
	'Run' switch is not on.	'Run' switch must be on to get temperature data from ECM.
	Sender wire is loose or broken.	Check all wire connections and inspect wire for breaks.
	Sender is not grounded (SEN-1043).	The sender grounds through its mounting threads. Make sure the threads are clean and tight.
Pressure or temperature reading shows "- -".	Sender is shorted to ground.	Inspect wire for bare insulation or pinching.

WARRANTY

All DAKOTA DIGITAL instruments are warranted free of defects in material and workmanship for two years from the date of purchase. In the event of a problem with one of our products within the warranty period, DAKOTA DIGITAL will replace or repair the instrument at no charge. (The decision to repair or replace is solely that of DAKOTA DIGITAL. DAKOTA DIGITAL is not responsible for shipping costs of products returned under warranty or for labor charges for product installation and removal.) This warranty becomes invalid if the product is misused, altered or installed incorrectly.

For warranty coverage, you must first call to receive an RMA#. Ship the product transportation prepaid via UPS or insured Parcel Post. A copy of the original invoice or dated bill of sale along with a description of the defect is also required. Make sure that the RMA number is clearly visible on the outside of the package as well as inside on the paper work. **A note or letter must be included describing the problem.**

The above warranties, both expressed and implied, do not cover damages caused by improper installation, misuse, abuse, fire, unauthorized modifications, floods or acts of God, or reimbursement of customer or shop time. The extent of the warranty is limited only to the product and does not cover any loss or damage to vehicle, equipment, or non-DAKOTA DIGITAL products.

SERVICE AND REPAIR

DAKOTA DIGITAL offers complete service and repair of its product line. In addition, technical consultation is available to help you work through any questions or problems you may be having installing one of our units. You can contact our technicians at 605-332-6513 or by email at dakotasupport@dakotadigital.com.

Should you ever need to send the unit back for repairs, please package the product in a good quality box along with plenty of packing material. Ship the product by UPS or insured Parcel Post. **Be sure to include your RMA#, a complete description of the problem, your full name and address (street address preferred), and a telephone number where you can be reached during the day.** A return authorization number (RMA#) for products being return for repair is required. Do not send any money. We will bill you for the repair charges.

Dakota Digital

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