

Dakota Digital

VACUUM FLUORESCENT DIGITAL DASHBOARD

*The latest in digital dashboard technology
for the street rodder and car enthusiast.*

Installation and Operation
Manual

MODEL STR3A & STR6A

Dakota Digital
3412 Hovland Drive
Sioux Falls, SD 57107
Phone: (605) 332-6513
FAX: (605) 339-4106

Thank you for purchasing the Vacuum Fluorescent Digital Dashboard from Dakota Digital, the leader in custom automotive electronics. Representing the latest electronics dashboard technology for the street rodder and car enthusiast alike, the digital dashboard uses state of the art vacuum fluorescent display technology to give the driver up to date and accurate information on the operation of his or her vehicle. As used in several production automobiles, vacuum fluorescent displays give superior performance and visual appeal over LCD or LED display systems. Emitting a blue/green light that can be filtered to a wide variety of colors, the VFD system boasts excellent daytime visibility, and while under computer control, automatically dims for nighttime driving. Using microprocessor technology, the digital dashboard gives the driver additional features and benefits not typically found on dashboard system. Digital accuracy and solid state reliability will give you, the driver, quality service for miles down the road.

DISPLAY SYSTEM MOUNTING

* **WARNING** *
* *The vacuum fluorescent displays are made of glass and should be handled* *
* *with care. Use extreme care around the glass evacuation tubes (small* *
* *tubes at the bottom of each display) as bumping them may cause breakage* *
* *and render the display useless. The RTV at the bottom of each lower display* *
* *is designed to protect the tube. Do not remove it.* *

SYSTEMS WITH SUBPANELS

On dashboards with the display systems mounted to a lexan subpanel, begin by removing the subpanel from the aluminum. Cut an opening in the dash just smaller than the outer dimensions of the aluminum panel. Remove all nuts and washers from the studs on the back side of the panel and insert into the hole. Next, install four washers or clips and secure with a nut on each. This is what holds the panel to the dashboard. Now, install a nut on each stud and set the display panel in place over the studs. If the studs were bent slightly inward from securing the aluminum panel, you may have to bend them outward to line up with the holes on the plexiglass subpanel. Always lay the display panel aside when doing them to avoid accidentally damaging the displays. Once aligned, secure with an additional four nuts. Leave a gap of at least 1/8" between the display glass and the front panel plexiglass. Be careful not to compress the glass against the front plexiglass. Again, note that the displays are glass and should be handled with care. Use extreme care around the glass evacuation tubes (small tubes at the bottom of each display) as bumping them may cause breakage and render the display useless.

SYSTEMS WITH DISPLAYS MOUNTED TO ALUMINUM

Cut an opening into the dashboard if necessary and secure the entire panel with displays into the dash with the appropriate mounting hardware. Some panels are set into the front of the dash while others are placed in from the rear. The exact mounting configuration will depend on what year car and panel you are installing.

SYSTEMS BUILT INTO ORIGINAL BEZELS

This systems will install very close to the way the original system did. On some panels requiring additional modification, you may need to slightly modify the dashboard and/or its mounting points to obtain a proper fit. Use a little ingenuity and care here and you will easily achieve good results.

CONTROL BOX

Once the display panel is in place, mount the control box within the connecting cable's distance (approximately 4 feet) and secure to the underside of the dashboard. This case does not have to be mounted to metal, but doing so will provide a better ground to the unit. When connecting the display cable to the unit, be very sure to pay attention to the "up" side of the connector. Align the connector in the socket and press firmly into the control box.

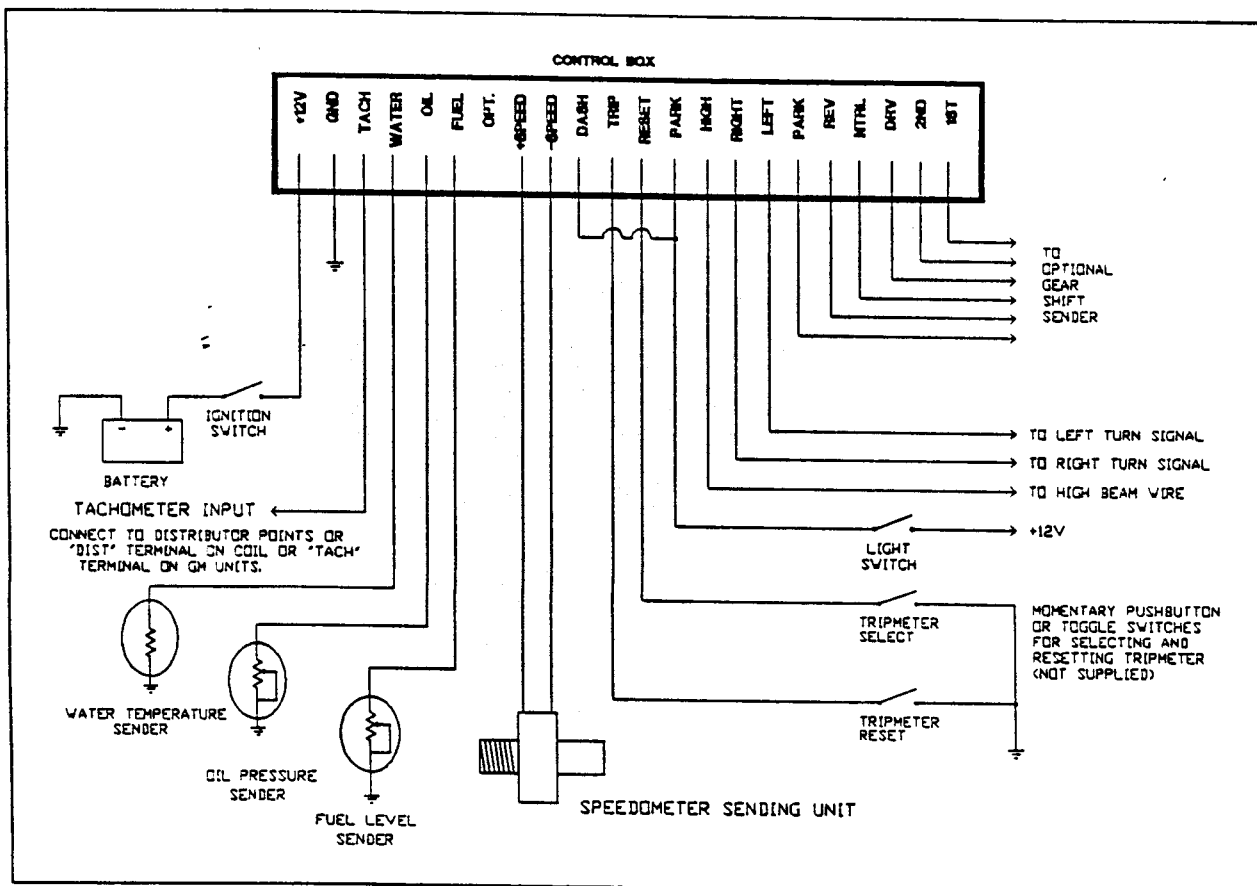
SPEEDOMETER CONNECTION - The speedometer sender is mounted directly to the transmission in the case of the GM turbo 350, 400, and R700. For Ford, the sending unit is secured to the end of a standard Ford cable. Connect each of the speedometer sending unit leads to one of the terminals marked "SPEED". The polarity of the wires is not important.

TACHOMETER CONNECTION - The tachometer signal is connected to the terminal marked "TACH". Run a single wire from the control box to the engine's ignition system. On Fords or vehicles using a separate ignition coil, the wire connects to the terminal marked "DIST" on the distributor or the one going to the breaker points or electronic ignition module. On GM vehicles, connect the tach wire to the terminal marked "TACH". Do not connect the wire to the secondary or high voltage side of the ignition coil. *To ensure that the ignition system signal does not interfere with any other dashboard functions, do not run the wire close to the other hookup lines, especially the speedometer input. Also, DO NOT USE solid core ignition wires with this dashboard system.*

OIL & WATER SENDERS - Using the oil pressure and water temperature senders included, mount these to the motor using any necessary adapters and wire up to the control box location. Also, find the fuel sender wire and bring it to the same location. Refer to the wiring diagram when making the connections to these terminals.

WIRING POWER TO THE UNIT - The +12V terminal should be connected to a circuit that is on only when the key is in the "ON" position. The "GND" terminal is connected to the vehicle's ground. Connect each sending unit to the appropriate terminal on the control box, connecting the water temperature sender to the "WATER" terminal, the oil pressure sender to the "OIL" terminal, and the fuel sender to the "FUEL" terminal. The terminal labeled "OPT" will be used for optional accessories available in the future.

In order to use the automatic dimming feature of the dashboard, the "PARK" terminal must be connected to the park light circuit. This tells the dashboard to dim as soon as you turn your lights on. If you wish to have the light switch dimmer control the dash intensity, connect the "DASH" terminal to the dash lamp circuit. *NOTE: The dash lamp circuit must have some incandescent lights connected to it in order to develop a voltage drop across the rheostat in the headlight switch. Without this voltage drop, the dashboard's intensity will not be varied by turning the brightness control on the headlight switch.* If you do not plan on using this feature, a jumper must be connected from the "DASH" terminal to the "PARK" terminal to enable the dimming feature.



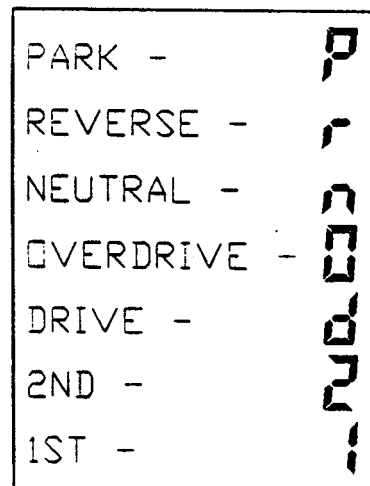
DIGITAL DASHBOARD WIRING DIAGRAM

TRIPMETER - As an optional feature, the digital dashboard possesses a fully functional resettable tripmeter. To use this, two pushbutton switches need to be connected to the "TRIP" and "RESET" terminals. These can be connected to either momentary pushbutton or toggle switches. The tripmeter operates as follows:

Pressing the "TRIP" switch will activate the tripmeter. Here, the odometer reading is replaced by the tripmeter reading. Both the odometer and tripmeter readings are updated, even though only one is being displayed. Pressing the "TRIP" button again will return the display back to the odometer reading. This switch essentially toggles between the two readings, odometer and tripmeter. When in the tripmeter mode, pressing the reset button will reset the tripmeter to a reading of "000.0". As shown in the wiring diagram, the switches used will only need to connect these terminals to ground for activation.

The "TRIP" terminal is also used to invoke the built in demonstration routine for show purposes. With power applied to the dashboard, press the button connected to the "TRIP" terminal and hold it for a minimum of 7 seconds. The control unit will then switch into the demonstration mode, which runs through a real world scenario. To reactivate the normal dashboard functions, press and release the trip button. The dashboard will return to normal in a few seconds.

OPTIONAL INDICATORS - High beam and turn signal indicators may also be connected. Just connect the vehicle's high beam wire to the terminal marked "HIGH", and connect the vehicle's turn signal wires to the terminals marked "RIGHT" and "LEFT". An optional gear shift indicator is also available. This uses a Ron Francis Wirework's sending unit which is easily connected to the control box terminals labeled "PARK", "REV", "NTRL", "DRV", "2ND", and "1ST". Refer to the information card supplied with the sender for more specific instructions, and to the wiring diagram. Call for current pricing information, or check with your local Dakota Digital distributor.

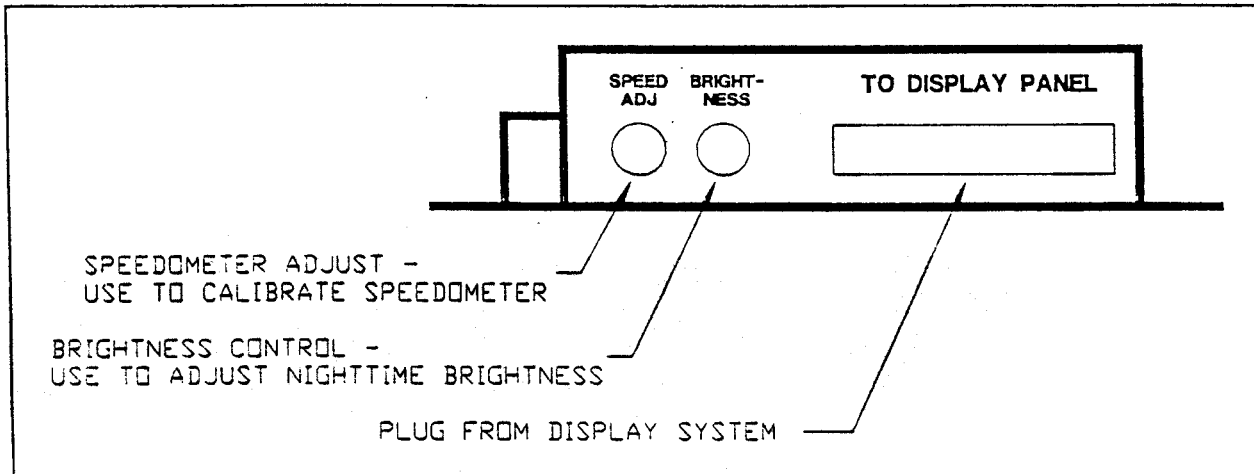


Gear shift indicator readings.

SETTING UP THE CONTROL BOX

SPEEDOMETER CALIBRATION - is accomplished by adjusting the "SPEED ADJ" control on the side of the control box. To accommodate different rear end ratios and tire sizes, the digital dashboard has a wide range of calibration. Merely drive down the road with a vehicle going at a constant, known speed, and have someone adjust the pot until the speedometer reads correctly. This adjustment also calibrates the odometer to give accurate mileage readings.

BRIGHTNESS ADJUSTMENT - During normal operation, the dashboard displays are at full intensity. When the vehicle's lights are turned on, the intensity of the displays can be adjusted by the "Brightness" control, which is located on the side of the control box. This should be done at night with the lights on to activate the dimming circuit.



INTERNAL ADJUSTMENTS

While there are no user adjustable pots on the inside of the unit, there is, However, a bank of eight small switches which are used to set the dash up for different configurations. Your dashboard was set up at the factory for your particular configuration, but can easily be adapted to different engines or fuel senders by simply setting these switches. To set the DIP switches (as they are called), remove the four screws on the top cover and slide the cover up and off. Note the location the switches and the numbering on each. They are numbered from 1 to 8. Switches 1, 2, and 3 perform the function of setting the system up for a particular fuel gauge. Turn the dashboard off before making any changes to the switch settings. After resetting any DIP switches, carefully replace the cover, being sure to line it up properly on the edges.

The fuel sender selection is as follows:

Switch 1	2	3	sender
OFF	OFF	OFF	VDO, 10-180 ohms
OFF	OFF	ON	Ford, 73-10 ohms
OFF	ON	ON	Stewart Warner & Sun, 240-33 ohms
OFF	ON	OFF	GM, 0-90 ohms
ON	ON	OFF	GM, 0-30 ohms

***** IMPORTANT NOTE : *****

The control boxes are normally configured for the Stewart Warner setting. If the fuel gauge does not operate properly, check the DIP switch settings.

The tachometer range is selected as follows:

Switch 4	range
OFF	0 - 6000 RPM
ON	0 - 8000 RPM

Engine selection is as follows:

Switch		# of cylinders
5	6	
OFF	OFF	4 cylinder
OFF	ON	6 cylinder
ON	OFF	8 cylinder

Switches 7 and 8 are for factory testing only. They should not be changed.

WARNING SYSTEM

The digital dashboard system incorporates an "idiot" light warning system that alerts the driver to any dangerous conditions or conditions that may indicate vehicle trouble. The fuel reading begins flashing when the reading gets below 10%. Voltage levels below 11 volts will prompt a warning as will water temperatures above 250 degrees Fahrenheit. If the oil pressure drops below 10 PSI with the engine running, the reading flashes to warn the driver of possible serious engine trouble. These levels are built into the software and are not user changeable.

NOTE: A reading of "--" or "---" on any of the displays indicate that the particular sending unit is not connected.

WARRANTY

All Dakota Digital Instruments are warranted free of defects in material and workmanship for the life of the vehicle in which they are originally installed. In the event of a problem with one of our products, Dakota Digital will replace or repair it 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.

The above warranties, both expressed and implied, do not cover damages caused by improper assembly, 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, free technical consultation is available to help you work through any questions or problems you may be having installing one of our units.

Should you ever need to send the unit back for repairs after the warranty period, 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 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 or evening (please specify). An authorization number for product return is not needed. Do not send any money. We will bill you for the repair charges.