Stratomaster Maxi Single

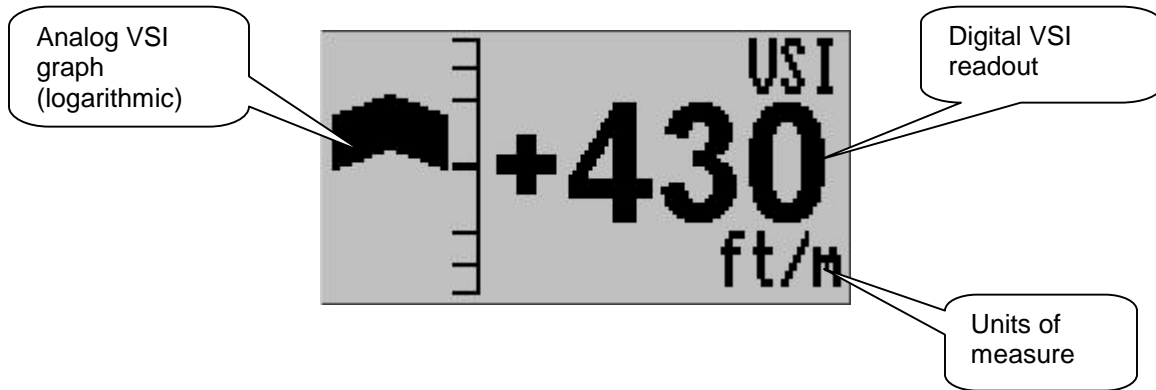## VSI-2

Wide range digital VSI

The VSI-2 vertical speed indicator is a 3.5" instrument able to show true, altitude compensated vertical speed in either feet/minute or meters/second.

Offering a digital readout with a wide range from +/-20 ft/min to as high as +/-10.000 ft/min, it also offers a logarithmic analog display with a +/-2000 ft range.

The VSI-2 can be calibrated by the user once the instrument has been installed in the aircraft.

The main display

Analog VSI graph (logarithmic)

Digital VSI readout

Units of measure

Setting up the VSI-2

Press the Menu key to enter the menu. You can move forward and backwards in the menu by using the + and – keys. To change or select a menu item, move the highlight to the desired item and then press the Select key. To end an edit or function, press the Menu key again.

To exit the menu and continue normal operation, press Menu again.
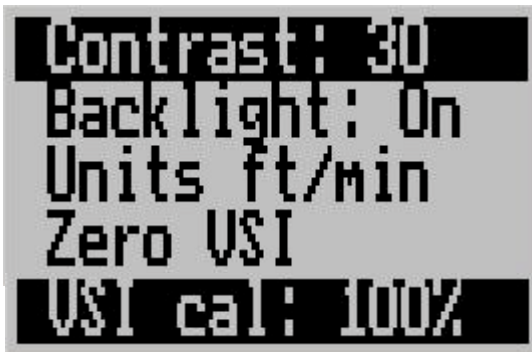
Contrast …

This function allows you to change the display contrast to your liking. You can select values from about 20 to 45. (can vary depending on display type).

Backlight …

This function allows you to switch the display backlight on or off.

Units …

Select if you want your VSI readout in feet/minute (ft/m) or meters/second (m/s). Note: meters/second will be shown with two decimals, example: "1.23".

Zero VSI

This function is used to set your VSI to read exactly 0ft/min. This is similar to setting the needle on a mechanical VSI to point to zero by turning the adjustment knob on such a VSI.
The electronic VSI generally has much less drift compared to a mechanical VSI and this function will only be used very occasionally. Ensure that you perform this function when no pressure changes due to wind or other reasons are occurring.

VSI cal

This is a technical function that is used to calibrate your VSI to read exact rates of climb or decent. This function works as a percentage of initial reading. The default setting for this function is 100%. Increasing this value increases the VSI reading and decreasing the value decreases the reading.

Suggested calibration method.
After you have installed the instrument, perform a calibration flight. This should be done in very calm conditions. Turbulence and thermal activity will make accurate calibration impossible. Many areas have ideal conditions during early mornings or late afternoons.

Place the instrument in "feet" units mode for ease of calibration.
Take your aircraft to a few thousand feet above ground and start a glide with a low power setting. Take a stopwatch and when the glide is stable (stable VSI reading) start the stopwatch. Take note of your altimeter reading at the same time.
Continue the stable glide for one minute exactly. After the minute has finished, take another reading of your altimeter.

Example:
VSI reading during stable glide: -400 ft/min
Start altitude: 2500 ft.
End altitude: 2050 ft.

In the above example the VSI is under reading by about 12%. Set your VSI calibration to 112% to cancel out the error.

ADC

This function is for technical personal. It is not used for ordinary operation of the unit. This function can be accessed if the instrument is switched on and both "+" and "-" keys are held at the same time.

Technical specifications:

Display temperature range (operational): -20 to +80 degrees C
Supply voltage: +8 to +18V. +24/28V with optional pre regulator.
Supply current: 35mA/70mA (backlight off/on)
Digital VSI range: +/-20ft/m to +/-10.000ft/m
Digital VSI resolution: 10ft.
Analog VSI range: +/-2000 ft/m, logarithmic scale.
Measurement accuracy: +/- 2%, relative to calibration.
Weight: 90 grams.

Warranty:
MGL avionics warrants their products for a period of one year from date of purchase against faulty workmanship. Warranty is limited to the replacement of faulty components and includes the cost of labor. Shipping costs are for the account of the purchaser.

Note for operation on supplies with inductive loads:

Any operation of electronic instrumentation on power supplies that are subject to high voltages caused by operation of inductive loads (starter motors, solenoids, relays) are required to be fitted with suitable protection.
All Smart Singles are guaranteed to withstand temporary over voltage up to 40V without additional protection. We recommend that measures are taken to prevent voltage transients in excess of this limit.
MGL Avionics recommends the fitment of a fuse in line with a 33V transorb (available from MGL Avionics at low cost) to protect electronic instruments, radios and intercom systems. Only one such arrangement is required for a cluster of instruments.
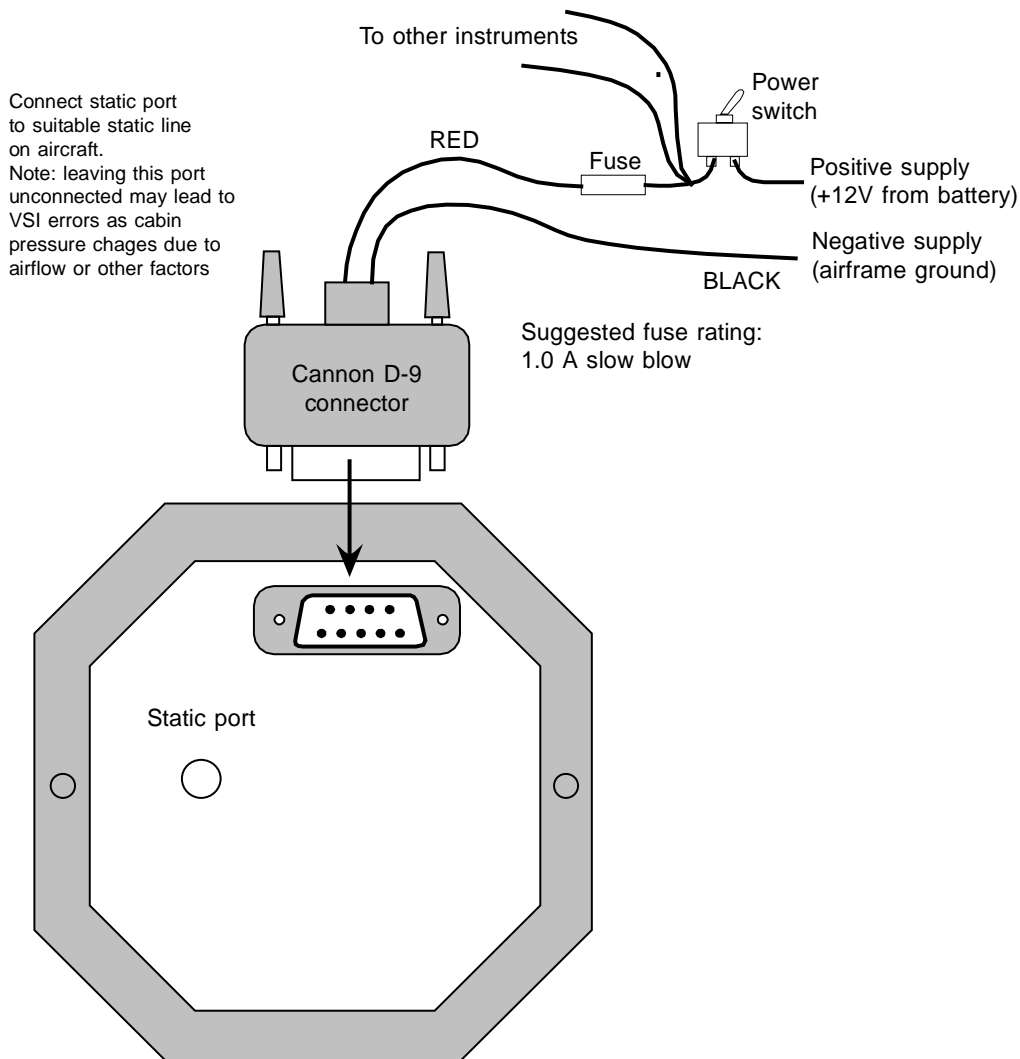Please note that product warranty excludes damages caused by unprotected, unsuitable or incorrectly wired electrical supplies.

This instrument is not certified by the FAA. Fitting of this instrument to certified aircraft is subject to the rules and conditions pertaining to such in your country. Please check with your local aviation authorities if in doubt.
This instrument is intended for ultralight, microlight, homebuilt and experimental aircraft.

Operation of this instrument is the sole responsibility of the pilot in command (PIC) of the aircraft. This person must be proficient and carry a valid and relevant pilots license. This person has to make him/herself familiar with the operation of this instrument and the effect of any possible failure or malfunction. Under no circumstances does the manufacturer condone usage of this instrument for IFR flights.

Installing the VSI-2

To other instruments

Connect static port
to suitable static line
on aircraft.
Note: leaving this port
unconnected may lead to
VSI errors as cabin
pressure chages due to
airflow or other factors

RED

Fuse

Power
switch

Positive supply
(+12V from battery)

Negative supply
(airframe ground)

BLACK

Suggested fuse rating:
1.0 A slow blow

Cannon D-9
connector

Static port

Installing the VSI-2 is quite simple.
Connect the supply terminals to your aircraft's power supply (you need a dropping resistor or pre-regulator for 24/28V systems).
Install suitable power supply protection if you have a supply that can contain large voltage transients such as can be created by starter motors and solenoids.

Ensure that the supply voltage will not drop below 8V during operation as this may result in incorrect VSI readings.

Connect the static port to a suitable static air pressure line. If you have a slow aircraft or an aircraft were the internal cabin pressure does not change during flight and is equivalent to the outside air pressure you may find that it is not required to connect a static port.

For installations in typical ultralight aircraft pods, be aware of possible pressure changes inside the pod during flight caused by ram air or suction effects. This may lead to a false indication of vertical speed. Often these effects are dependent on the current angle of attack of the airflow around your pod. You will need to install a suitable static port in these cases.