

Pins-5, 6, and 13:

These pins are normally not used and should be left open.

This timing bias feature should only be used for research on special application engines and always in conjunction with a timing display. In this case, a 10k linear potentiometer can be installed per the output connector diagram to bias the existing timing by +/- 5 degrees when the engine is operating at or near the mid-point of its timing range. The potentiometer cannot expand the Plasma CDI 's normal 22 degrees of timing range. For this reason, the timing cannot be retarded further during take-off since the system is already near the minimum timing advance. Similarly, on the advanced end of the timing range, you cannot increase the total advance during a low power descent.

Pins-2, 3, and 4:

These pins are millivolt outputs for RPM, Timing Advance, and Manifold Pressure. Typically, these outputs are used with LSE's prewired Simpson timing display. Alternatively, a handheld mV meter can display these outputs within 0.01" MAP, 0.01 degrees Timing, and 1 RPM resolution, when connected per the output connector diagram. During startup this display would typically read 00.00 degrees timing, at high power conditions it will show approx.. 25 degrees and during low power operations it will show as much as 42 degrees of timing advance.

2.8 MANIFOLD PRESSURE LINE

Connect the manifold pressure line to your Plasma box. If you have a MP gauge in the cockpit, you can tee into that line. An 1/8" ID Tygon tube is recommended. On Lycoming engines, any one of the 1/8" pipe thread ports in the intake can be used as a source for manifold pressure information. Most other engines have a designated port near the carburetor. If the manifold pressure is left open or becomes disconnected, the Plasma CDI will operate safely but with less timing advance.

2.9 GENERAL INSTALLATION INSTRUCTIONS**Electrical System Requirements**

All Plasma CDI systems can be used with 12 or 24-volt electrical systems. Input voltages above 32 volts or reversed polarity can cause system damage if the required 5 Amp (4-cyl.) or 7.5 Amp (6-cyl.) circuit breaker is not installed.

It is mandatory that all aircraft using Plasma CD ignitions are equipped with over-voltage protection in their alternator charging system(s). Over-voltage protection is a requirement for certified aircraft. Power connection must be directly to the **battery terminals** to avoid voltage spikes and electrical noise and for best reliability. Aluminum should never be used as an electrical conductor for the Plasma CDI. Use only the supplied aircraft quality stranded wire.

Minimum supply voltage for starting is 6.5 Volts.
Minimum operating voltage is 5.5 Volts.

5.3 ELECTRICAL OPERATING INSTRUCTIONS

No operational limits or special procedures are necessary during normal use. You can either hand start your engine or use your electrical starter. All Plasma CDI systems retard timing to TDC during start and advance timing optimally for all flight conditions based on manifold pressure and rpm.

- In case of a charging system failure, it is recommended that you land at the nearest safe airport and repair the charging system before further flight.
- If you are using Dual Plasma CD Ignition, you can turn one system off, together with all other electrical loads not essential for flight, to maximize your range with your remaining battery capacity.
- Dual Systems only: If you have installed an aux battery per the LSE supplied drawing, monitor your voltmeter and do not switch to the aux battery until the supply voltage of the main battery is below 6.5 Volts or the engine is not running smoothly. After switching to the aux battery, your voltmeter will read the voltage remaining in your aux battery.
- Do not switch your main alternator breaker in flight to avoid potentially damaging voltage spikes. This does not apply to the alternator field breaker.

THIS INFORMATION SHOULD BE CONTAINED IN THE AIRCRAFT OPERATING MANUAL.

YOU ARE NOW READY TO FLY!

HOWEVER, FIRST READ THE REMAINDER OF THIS MANUAL, SO THAT YOU HAVE A THOROUGH UNDERSTANDING OF YOUR LSE *PLASMA* CDI SYSTEM.