ACK *TECHNOLOGIES INC*

March 12, 1989

CALIBRATION NOTES MODEL A-30 ALTITUDE ENCODER

ENCODER CALIBRATION

Any time an encoder or transponder is newly installed or removed for maintenance or repair a correspondence check must be preformed as required by 91.36b. If used for IFR flight a correspondence check must be preformed every two years. For VFR flight there is no requirement to do further correspondence checks unless the encoder or transponder is removed for service or repair.

AC 43-6A prescribes an acceptable method of complying with the requirements of FAR 91.36 and 91.172 the calibration methods prescribed in our manual are meant to assist the installer in performing the procedures prescribed by AC 43-6A which should be the primary reference when installing the encoder.

ALTITUDE ENCODER ACCURACY WHEN USED WITHIN THE ATC SYSTEM

The air traffic control system standards require that the mode C altitude information be verified by the controller and is within +- 300 feet of the reported altitude before it can be used for air traffic control separation purposes. Controllers are required to direct the pilot of an aircraft that indicates more than +- 300 feet of the reported altitude to disable the altitude reporting capability of the transponder. A properly functioning and calibrated encoder may report altitude deviations of up to +/- 200 feet to ATC. This is caused by a number of factors which are inherent to both ATC and aircraft systems. Variations of barometric pressure over the ATC facility sector which their computer system does not correct for, errors in setting the barometric pressure correction by the pilot, altimeter/encoder correlation error all contribute to an overall system error of +/- 200 feet. Much wasted time and effort has been spent in the field trying to achieve perfect correlation of the aircraft altimeter/encoder when used in the ATC system. The proper criteria to use for determining weather the system needs repair or re-calibration is an instruction from ATC to "Stop Altitude Squawk."