

PERFORMANCE SPECIFICATIONS

H A P I - P L A S I 2000 HELICOPTER APPROACH PATH INDICATOR FOR HELIPORTS

The HAPI-PLASI (Helicopter Approach Path Indicator) is a ground-installed, self-contained device which, without any aircraft installed devices, visually provides vertical glide path information which includes: Above course, On course, Below course, and Well Below course. The pilot receives this information with minimum need for analysis and interpretation. Minimum range of 2 miles is sufficient for each aircraft to adjust to a steady-state glide position for desired touch down.

The HAPI-PLASI meets the current ICAO (International Civil Aviation Organization) HAPI (Helicopter Approach Path Indicator) specification as defined in the Aerodromes Annex 14.

Signal Format

The HAPI-PLASI generates and projects four (4) horizontal bands of light, only one of which can be seen from the landing pilot's view at any given instant in approach. The Signal format is as follows:

The UPPER band or Above Course is a PULSING GREEN Signal. This signal is a 2.5 degrees high angular wedge, and 24 degrees wide

The Upper Center band or On Course is a STEADY GREEN Signal. This signal is a 0.75 degrees high angular wedge, 24 degrees wide.

The Lower Center band or Below Course is a STEADY RED signal. This signal is a 0.25 degrees high angular wedge, 24 degrees wide.

The Lower band of or Well below Course is a PULSING RED Signal. This signal is a 5.0 degrees high angular wedge, 24 degrees wide.

The visual presentation is accomplished through the use of optical components, a moveable shutter, and green and red filters. One (1) tungsten Halogen Lamp is positioned behind the condenser lens. For reliability, an

automatic lamp changer which holds three extra bulbs, inserts a new lamp if the one in use fails.

Glide Path: The glide path is defined as the vertical angle established between the center plane of the steady green light and the landing surface. This glide path can be preset at any angle between 1 and 12 degrees to accommodate the desired approach path, considering obstructions, type of aircraft, and applicable regulations. (See Figure 1)

Range: The range at which the signal is visible is at least three (3) miles under day and five (5) miles under night conditions.

Pulsing Frequency: The above-glide path green and below- glide path red pulse at approximately 2 pulses per second.

Environment: PLASI meets the environmental conditions as specified in FAA Advisory Circular 150/5345-52 dated June 21, 1988. The operating systems are enclosed in a sealed composite case.

Power Requirement:

Permanent Installations: Power required at the HAPI-PLASI unit shall be a nominal 115VAC to 120VAC, with a frequency of 50 or 60 hertz, single phase alternating current. To improve the service life of the BVA lamps, a voltage limiter unit is used to provide stabilized voltage to the lamp. Maximum power required is 1567 Watts.

Temporary Installations: A portable generator of 2.5 KVA minimum can be used for a power source when PLASI is set up as a temporary installation.

Display Panel: The alphanumeric display located on the control module inside the HAPI-PLASI cases will assist in trouble shooting operational problems by indicating what, if any, component has failed.

Night Dimming: A photo detector, in conjunction with the control module, and a manually variable voltage control, in the voltage limiter control unit, sets the desired night brightness. NOTE: The manual control sets the night voltage by visual trial. Once this has been established for the particular environmental locations, the light sensor automatically controls the day-night voltage.

Automatic Lamp Changer: A rotating lamp changer containing four 900W tungsten halogen lamps automatically moves a new lamp into operating position when the operating lamp fails. A current sensor in the control module controls changer operation.

Remote Control (Optional): Remote control can be accomplished by wire or radio. FAA-L-854 receiver and decoder connected to the controller can be used to control the “on-off” function. Radio control can be accomplished at a tower or operations office or can be controlled by keying the transmitter of an aircraft.

Powered Turntable (Optional): If a wide Azimuth or multiple approaches are a must, the automatic rotating powered turntable is available. This system can be activated by hard wire and/or by remote control via a radio receiver controller. This option allows the pilot to select up to three approach headings by using his or her UHF radio. These headings are specified by the user and programmed in the turntable prior to shipment. If required, these headings are changeable in the field. Upon activating the powered turntable, the unit will rotate to the selected position, turn on and continue to operate for approximately 15 minutes and then automatically turn off.

Heater Kit: The heater circuit installed inside the HAPI housing maintains the components at operating temperatures during periods when the HAPI is used intermittently, and when the ambient temperature is near freezing. This permits the HAPI to operate immediately when turned on by remote control and eliminates any need for a “warm up” period for the unit.

Safety Devices: A **tilt switch** will automatically turn off the unit should it be jolted in such a way as to move the beam vertically 0.50 degrees up or 0.50 degree down. A time delay relay prevents the tilt switch from responding to short period transient disturbances of the unit or surrounding terrain. Three **temperature sensors** monitor HAPI temperatures. These sensors will turn the unit off if the temperature reaches above 180 degrees F. The sensors also control the cooling fans, turning them off when not needed. The HAPI-PLASI 2000 is a **fail safe design** which ensures that any malfunction of beam projection will not result in a hazardous situation for approaching aircraft.

Lamp Saving Device: All HAPI-PLASI 2000's are manufactured with a voltage limiter, which allows the operator the option to power the lamp at 108 or 100 volts. By operating at 100 volts, the lamp life should be approximately double that of the 108 volt setting. A HAPI operating at 100 volts should use approximately 6 to 8 lamps per year in continuous operation (24 hours a day, 7 days a week).

