



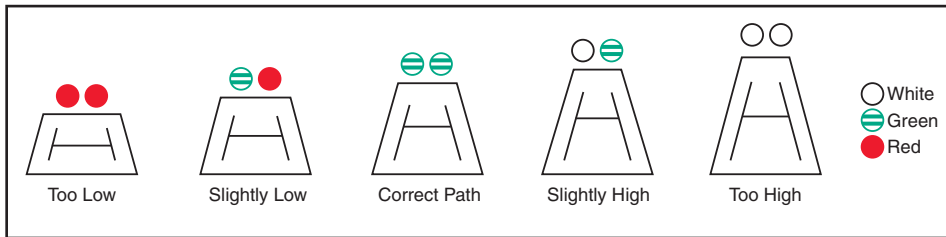
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Flight Light/ALSTOM
CHAPI

Heliport Approach Path Indicators
ZA757 and ZA737

Read the Right Glide Slope From Over Ten Miles Out!



Four legs equipped with frangible floor flanges provide extra stability.

The heliport approach path indicator (CHAPI) provides the pilot with a safe and accurate glide slope on final approach to the helipad. A row of CHAPI light housing assemblies (LHAs) placed perpendicular to the approach path are seen by the pilot in combinations of red, green, and white to indicate a path that is too high, too low or correctly on slope.

The CHAPI system has a filter inserted between the white and red filters of each lens to provide a 2° wide green sector that, when visible from both units, signals the proper glide slope angle of 6°. Angle deviations that are too high show one or two white lights, and those that are too low show one or two red lights.

Configuration Options

The CHAPI uses only two LHAs and provides simplified glide slope information. The CHAPI can be configured to read white/green/red for use on heliports. The LHAs use either 2 lamps (ZA757) or 3 lamps (ZA737). The 3 lamp configuration permits normal operation with one lamp out.

Power Options

Three energy styles are available:

Style A operates from a 240VAC (120V is also available), single phase, 60 Hz power supply. 120V and 50Hz are also available.

Style B is current powered and operates on 6.6 amp series circuits from an L828 constant current regulator. Lamp brightness is controlled by the output setting on the regulator.

Style C is a 48V system powered by auto batteries. This style is of particular value on remote airstrips where it would be uneconomical to bring in power lines.

Operating Conditions

CHAPIs are manufactured to meet two temperature standards: Class I for normal operation to as low as -35° C, and Class II, with lens heaters, for temperatures to -55° C.

Photometrics

Flight Light/ALSTOM CHAPIs have the most reliable photometrics in the industry. On a normal day a 2-lamp CHAPI unit is visible from over 10 miles out. Light distribution curves far exceed FAA requirements. For FAA style units, a tilt-switch in each CHAPI shuts down the entire system if any unit becomes misaligned.

CHAPI: Cramp's Helipad Approach Path Indicator

The 'C' in CHAPI stands for 'Cramp', the name of person who invented the system 40 years ago to help train pilots returning from Vietnam. Dave Cramp was a training captain for Bristow Helicopters in Dubai, "I was tasked with training ex-Vietnam pilots we had just employed. They were all very experienced pilots, but they had problems flying in a civilian environment where they weren't being fired at. My job was to 'civilianize' them. The big problem was getting them to fly steep approaches instead of coming in very low with a big flare just before 'crashing' on to the helipad. I needed a way to get them to see and adopt a 6 degree slope. Hence the CHAPI. It was originally made of wood with a slot at the front. My next prototype was constructed out of a plastic water container. I used this for 3 years before a company in Rugby, UK offered to further develop the device. The first commercial sale was to Aberdeen Airport in Scotland in 1982 and it is still being used there today."

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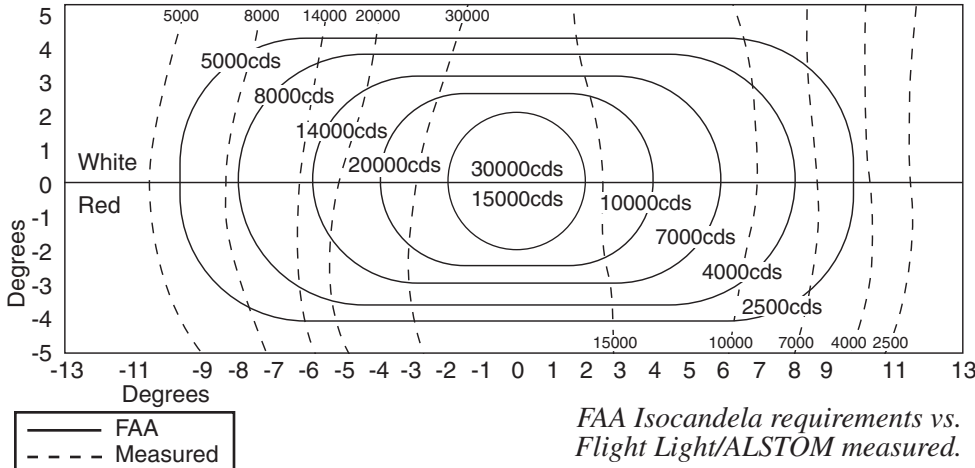
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Superior Light Distribution for ZA757 (2 lamp) CHAPI



FAA Isocandela requirements vs. Flight Light/ALSTOM measured.

Acquisition Range

	ZA737 (3-lamp unit)	ZA757 (2-lamp unit)
Clear Weather		
Normal Day	11.8 miles (19 km)	10.6 miles (17 km)
Bright Day	5.4 miles (8.7 km)	4.6 miles (7.4 km)

The CHAPI projects a distortion free beam of uniform intensity over ten degrees of azimuth and is effective to within 1000 ft. of touchdown.

Features

Performance Advantages

- Outstanding photometric performance. Pilots say they see this CHAPI before they see any competing brand.
- Four-leg design makes each light housing assembly very stable, resulting in fewer shut-downs for realignment thereby reducing maintenance and increasing airfield utilization. (EMT legs not included with domestic orders.)
- LED indicator identifies tilt switch circuit fault.
- **Quartz halogen average rated lamp life is 1200 hours!**
Competitor's lamps rated at only 1000 hours.

Maintenance Advantages

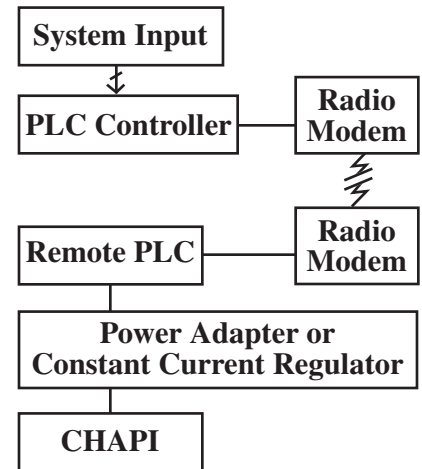
- Dust proof LHA is standard. Enhances lamp life, improves photometric performance and reduces maintenance cost.
- No optical bench or special tools required for servicing. Special access doors speed lamp changes in the field.

- Off-the-shelf lamps reduce life-cycle costs.
- Circuit breaker and on/off switch in power adapter (Style A) and in each LHA (Style B) protect equipment at all times.
- Extremely reliable power adapter features WAGO terminal blocks, gas-tight ferrelled connections and Teflon wire.

Options

- Custom configured remote control uses radio modems instead of hard wiring to control CHAPIs.
- Aiming device kit (with spirit level) simplifies setting tilt switch and azimuth angles. Lamps are adjusted to the correct glide slope angle ($\pm 3'$ of arc).
- ICAO version (no tilt switch)
- Field setup and alignment training by Flight Light technicians.
- International packing - four 2" EMT legs per LHA with all units and hardware double boxed.

Custom Configured Remote Control



A wireless remote control system obviates the need for long runs of control wire to distant CHAPIs. Where control wire must circle runways or control several devices, a radio modem remote system is a very cost effective alternative. Call for details.

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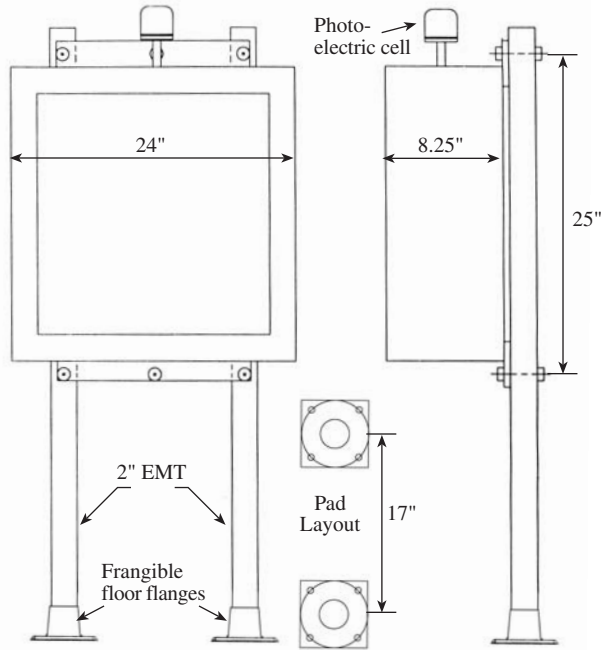
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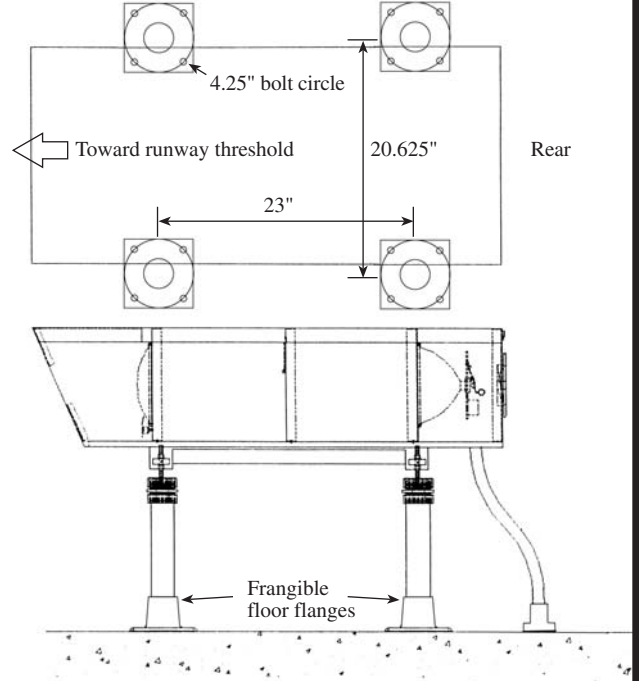
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Power Adapter



The power adapter is mounted on 2" EMT legs (not supplied) or wall mounted. A photoelectric control sensor adjusts the CHAPI's brightness in response to ambient light conditions. Frangible floor flanges are included.

ZA757 CHAPI LHA (2 lamp) Unit



The CHAPI light housing assembly (LHA) is supported by 2" EMT legs (not included). Flexible, water tight conduit and wiring (48"), frangible floor flanges and mounting hardware are provided. L867 bases and baseplates are sold separately.

Installation and Maintenance

Manual: Style A (15-PAPI-AIM)
 Style B (15-PAPI-BIM)

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Features and Characteristics

- Fully gasketed dust proof light housing assembly (LHA) improves performance and reduces maintenance (**standard feature**).
- Large lens overhang and optional heaters forward of the lenses allow continuous operation under severe arctic conditions.
- Input power:
2-Box CHAPI 1,000 VA
- Standard input voltage: 240 VAC, $\pm 10\%$
- Lamps: 200 watts, 6.6 amp quartz halogen
- Rated lamp life: 1,200 hours
- Environmental operating conditions:
Class I: +55° to -35° C (+131° to -31° F)
Class II: +55° to -55° C (+131° to -67° F).
Humidity: 0% to 100%
Wind: 100 mph (161 km/hr).
- Easy to maintain and relamp.

Common Renewal Parts

Part Description

Lamps: 200 W 6.6A quartz
Frangible cast aluminum floor flange
Tilt switch assembly
Photo control 208-277 VAC
Filter glass, red - ZA757/4
Filter spring - ZA757/4
Reflector assembly - ZA757/4
Resistor - 25 W, 0.47 ohm (lens heater Class 2 only)
Relay, contactor - 30 amp DPDT, 240 VAC
Tool for WAGO terminal blocks
Timer, D-O-B adjustable - 24 VAC/DC
Photo control base
Precision spirit level, 6"

Part Number

LA-6373
15-FFF2X425
15-201TSA
77-104FAANTD
80-019035
80-021253
80-021254
77-RH25.47
77-W199AX-15
77-777-310
77-RTE-P21
77-TB20199
77-#98-6

Packing Specifications

Description	ZA757	ZA737
Number of lamps	2	3
Net weight in lb.	42	55
Gross weight in lb.	53	75
Length in inches	48	48
Width in inches	22	32
Height in inches	15	15
Volume in cubic yd.	0.34	0.50
Lamp	2x200W/6.6A	3x200W/6.6A
Type	LA-6373	LA-6373
Transformer	2x200W/6.6A	3x200W/6.6A

Ordering Codes

Num. of Systems	Num. of Aiming Dev.	Designation	Unit	Style	Voltage (Style A only)	Class	Aiming Device Glide Slope
Specify	Specify	FL881: (2 LHAs)	ZA757: (2 lamps) ZA737: (3 lamps)	A: (voltage) B: (6.6 Amp) C: (48VDC)	1: (240V, 60Hz) 2: (120V, 60Hz) 3: (220V, 50Hz)	1: (-35°C) 2: (-55°C)	6°: Standard Specify

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