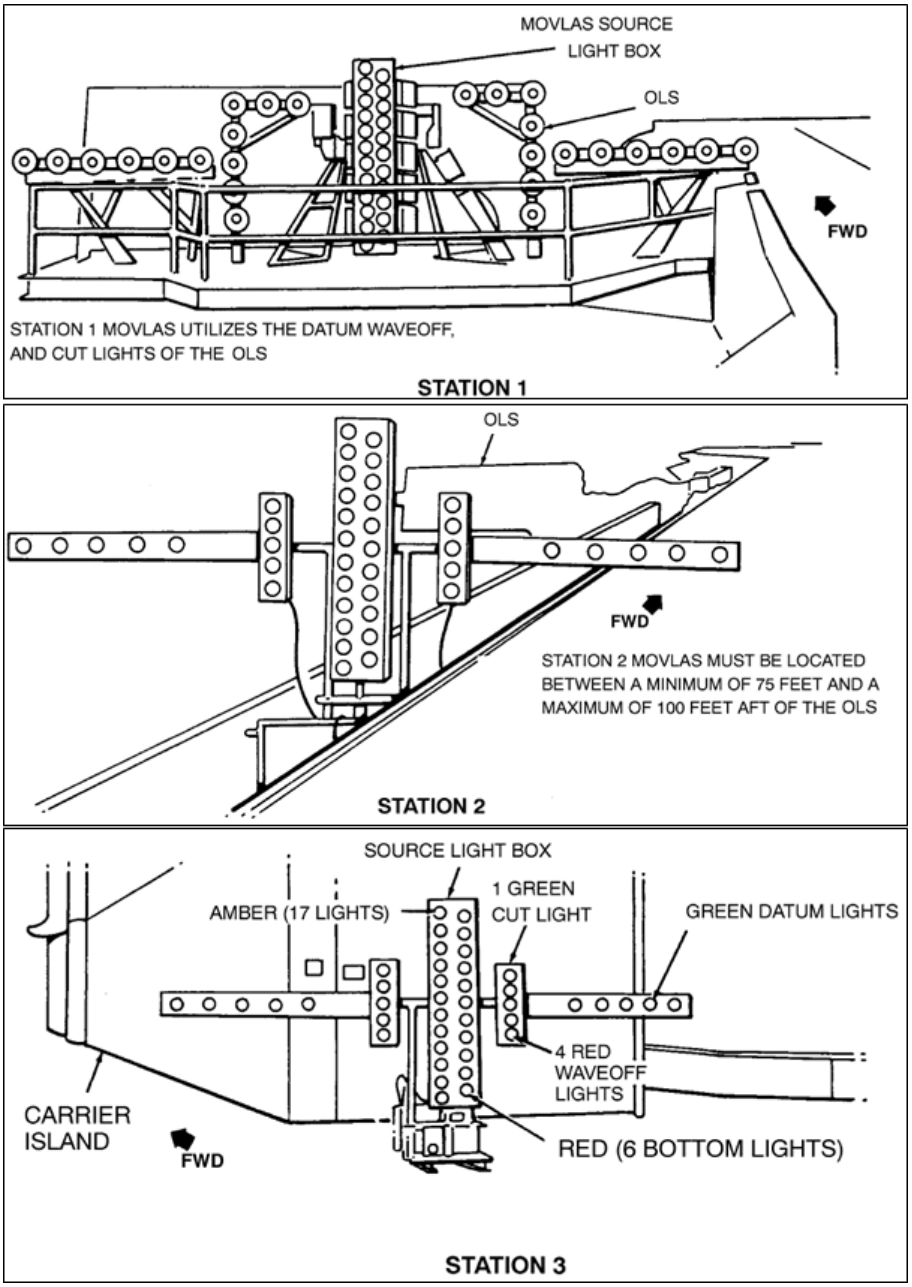
Manually Operated Visual Landing Aid System (MOVLAS) for Aircraft Carrier

Introduction

- Manually Operated Visual Landing Aid System (MOVLAS) is a backup shipboard visual landing aid system that is used when the primary Optical Landing System (OLS) is inoperable, when stabilization limits are exceeded, or for pilot/LSO training.
- The system presents glideslope information in the same visual form presented by the OLS system.
- The MOVLAS is an emergency system to be used when OLS is inoperable. The MOVLAS source light is operated by the LSO using a special controller.

The various installation modes of MOVLAS on aircraft carrier are:

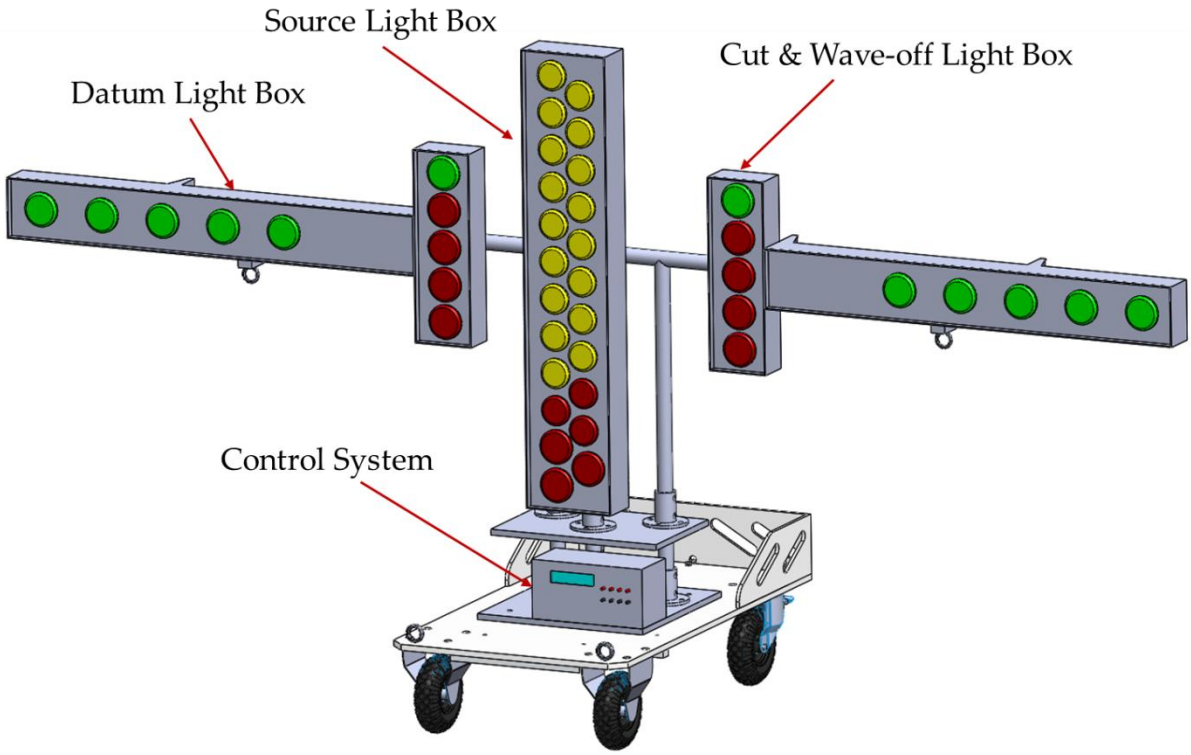
- **Station 1:** Installation of Light Box directly in front of OLS lens assembly as a substitute for the normal meatball presentation, but still utilizing the datum, wave-off, and cut lights of the OLS.
- **Station 2:** Installation completely independent of the OLS. When installed independently, it should be located approximately 50 feet aft of the inoperable system.
- **Station 3:** Installation completely independent of the OLS It is mounted on a base stand assembly located on the flight deck on the starboard side.



Sub-Systems

The MOVLAS majorly comprises of following sub-systems:

- **Source Light Box**
  - The light box contains 23 vertically mounted lights that provide the meatball display.
  - The bottom six lamps are red similar to OLS low cell (No flash).
  - Two toggle switches mounted on the LSO controller disable the lower and uppermost three lamps. With either switch in the disabled position, the controlling LSO can indicate to the pilot a glideslope position beyond the limits of the normal OLS.



- **Datum, Wave-off & Cut Light Box:**
    - Datum, wave-off & cut light box unit is mounted on each side of the light box and contains five separate datum lamps, four wave-off lamps, and one cut lamp.
    - Datum lights presents a horizontal row of green lamps used to give the pilot a reference against which he may judge his position relative to the glide slope.
    - Wave-off lights, a mandatory signal, red in colour, are switched-on in case the deck is not ready for landing or the pilot is too low on glideslope that it may hit the deck.
    - Cut lights provides green colour signal to the approaching pilot to indicate different things based on where the approaching aircraft is in its approach. Early in a no-radio or "zip-lip" approach (which is routine in modern carrier operations), it is flashed for approximately 2–3 seconds to indicate that the aircraft is cleared to continue the approach. Subsequent flashes of the Cut lights are used to prompt the pilot to add power. The longer the system is left on, the more power should be added.
- **LSO Controller**

- A handle on LSO controller (located at LSO workstation) enables the LSO to select the position of meatball.
- The pickle switch is attached to the end of the controller handle to control wave-off & cut lights.
- Handle on LSO controller is moved up/down, to light 3 or 4 consecutive lamps in light box, presents LSO controlled meatball.
- Independent controls are provided for intensity adjustment of the datum and source lights, with a combined control for the cut and wave-off lights.

Features

- An emergency system to be used when OLS is inoperable. Source light is operated by the LSO using a special controller.
- MOVLAS source lights comprise 23 lights (17 Amber & 6 Red) arranged in two closely spaced vertical rows.
- Three lights at adjacent heights are operated to form the source lights.
- As the controller handle is moved upward or downward, the source lights are switched on progressively towards the top or bottom in clusters of three.
- This gives an approaching pilot the signal to increase or decrease his elevation to achieve the proper glideslope as directed by the LSO.
- The MOVLAS is provided with 10 green datum lights, 8 red wave-off lights, and 2 green cut lights.

Specifications

Source Lights	23 Nos.	
	Upper 17 lights: Amber	Lower 06 lights: Red
	Light Intensity: 22,500 cd	
	Control through Handle (manual switch) on LSO Controller in 3-4-3-4-3-3-3 pattern	
	Used in all the three installation modes, i.e. Station 1, 2 and 3	
Datum Lights	10 Nos. (05 Nos. on either side – Green); Light Intensity: 6,000 cd	
	Always ON (Control through Datum control box)	
	Used in Station 2 and 3 installation modes	