

MULTI-OPTRONIC STABILIZED PAYLOAD SYSTEM

SYSTEM OVERVIEW

The Multi-Optronic Stabilized Payload (MOSP) system (**fig. 8-1**) is an airborne mission payload for surveillance and target identification. It is installed on the MQ-5B Hunter Air Vehicle (AV) and it is controlled remotely from the One System Ground Control Station (OSGCS) by the Mission Payload Operator (MPO) through the data link communication. The MOSP provides optical, real-time Infra Red (IR) image, or TV camera video image of the target area during day and night missions. The system includes an Automatic Target-Tracking and a Laser Designation/Range Finder (LDR) capabilities, depending on the system configuration.

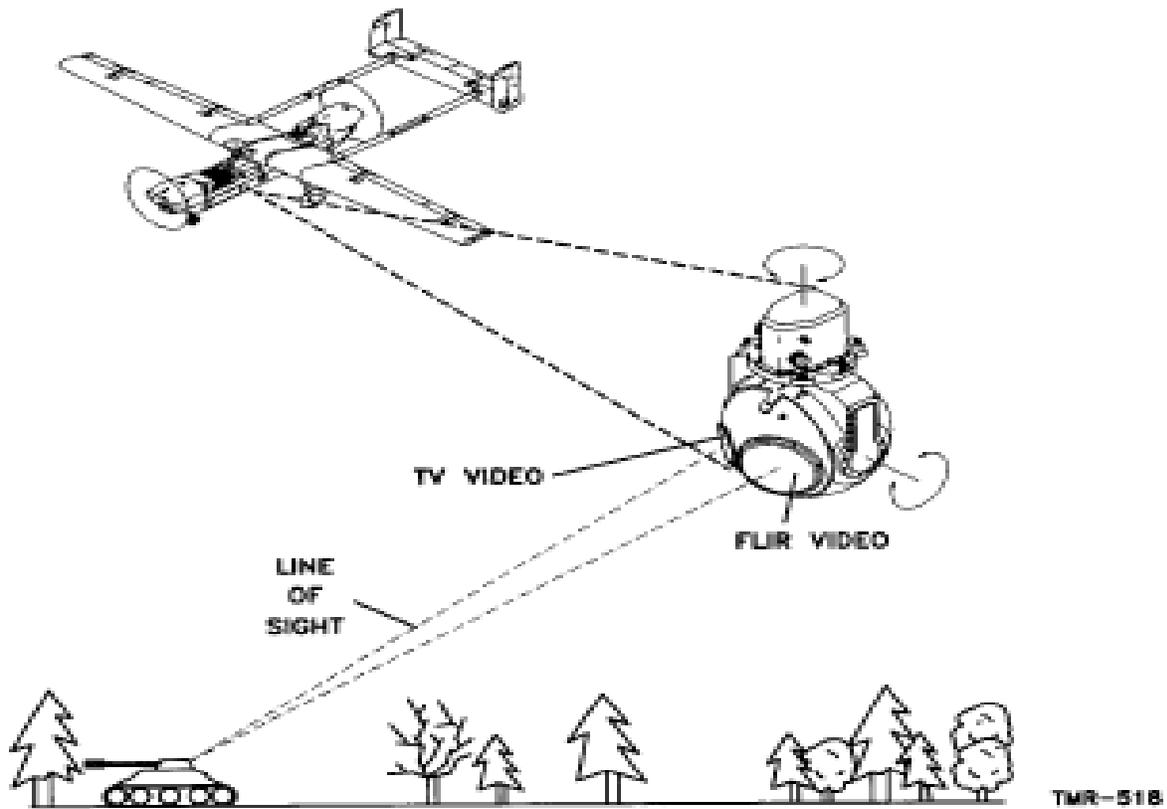


Figure 8-1. MOSP - General View.

MOSP COMPONENTS

The MOSP system consists of the following major components :

a. Stabilized Platform Assembly (SPA) includes the TV, IR cameras, and Laser sensors and the stabilization gimbal system. The SPA is installed on the payload elevator assembly.

b. Payload Control and Logic (PCL) Box is the MOSP main controller. It controls the MOSP system functions and interface with the MCPA. The PCL is installed in the AV forward compartment bay.

c. Payload Elevator Assembly carries the SPA. The Elevator Assembly is located in the AV payload compartment.

d. Yoke Electronic Assembly (YEA) controls the TSU and processes the IR signal to the TV video image. The YEA is a integral part of the SPA.

e. Harnesses and electrical cables that interface the SPA with the PCL and the AV system

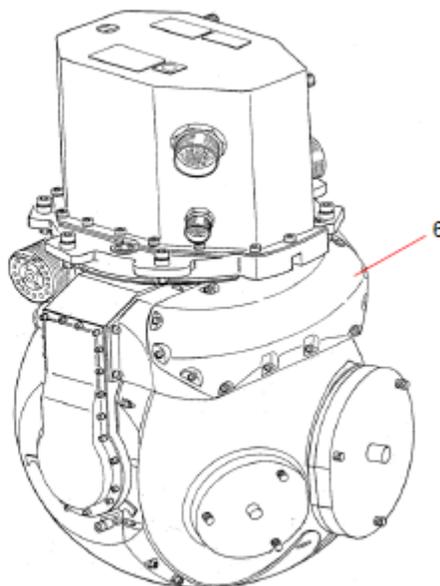
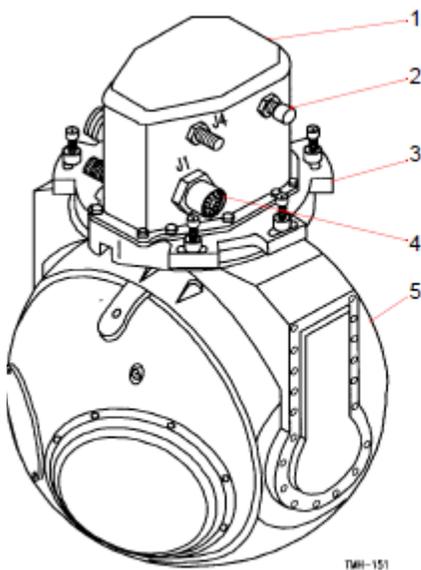


Table 8-2. MOSP System Physical Characteristics.

1. PCL		
a. Length	12.8 inches	32.5 cm
b. Width	4.7 inches	12.0 cm
c. Height	10.4 inches	26.5 cm
d. Weight	10.2 lbs	4.6Kg
(1) With Autotracker	(1) 11.1 lbs.	5.0 Kg.
(2) Without Autotracker	(2) 9.9 lbs.	4.5 Kg.
2. MOSP System		
a. MOSP w/Container Weight	215.7 lbs.	97.8 Kg
b. SPA Weight		
(1) D/N 770mm	(1) 54.3 lbs	24.6 Kg.
(2) D/L 360/L	(2) 58.3 lbs.	26.4 Kg.
(3) N/L IRL	(3) 59.3 lbs.	26.9 Kg.
c. SPA Diameter	23.9 inches	35.4 cm
d. SPA Height	21.57 inches	54.8 cm
e. Harness Set Weight		
(1) D/N 770mm	(1) 3.3 lbs.	1.5 Kg.
(2) D/L 360/L	(2) 3.3 lbs.	1.5 Kg.
(3) N/L IRL	(3) 3.3 lbs.	1.5 Kg.
3. MOSP Container Characteristics		
a. Length	30.0 inches	76.2 cm
b. Width	30.0 inches	76.2 cm
c. Height	40.0 inches	102.6 cm
d. Weight	135.5 lbs.	61.4 Kg

MOSP SYSTEM	PERFORMANCE
1. Stabilized Platform Assembly (SPA)	
a. SPA Minitune Gyro Dynamic range	
b. Pitch range	+10°±2° to Nadir ±1°
c. Pitch high rate	30°/sec±15%
d. Pitch low rate	3°/sec±20%
e. Yaw range (Azimuth)	n x 360° (unlimited)
f. Yaw high rate	30°/sec±15%
g. Yaw low rate	3°/sec±20%
h. TV Video output	RS-170 (option NTSC)
i. IR Video output	CCIR 624-4
2. Thermal Sensor Unit (TSU)	
a. TSU cooler type	Cryogenic sterling cooler, closed cooling sys.
b. TSU cooler down time	Approximately 12 minutes
c. Electronic Zoom (Super Narrow):	0.46 X 0.34°
d. Narrow FOV Lenses	
(1) Effective focal length	600 mm (23.61 inches)
(2) Electronic zoom	2:1
(3) FOV	0.92 X 0.68°
e. Medium FOV Lenses	
(1) Effective focal length	150 mm
(2) FOV	6 X 2.7°
f. Wide FOV Lenses	
(1) Effective focal length	32 mm
(2) FOV	6.5 X 12.5°
3. Camera	
a. Nominal focal length (mm)	20 ÷ 770
b. F number (Iris open)	17
c. FOVs (HxV)	
(1) Narrow (HxV)	0.92° x 0.96° ±10%
(2) Medium (HxV)	3.6° x 2.7° ±10%

(3) Wide (HxV)	16° x 12° ±5%
4. Environmental Characteristics	
a. Operating temperature	-35° to 40°C (-31°F to 104°F)
b. Storage and transportation temperature	-35° to 71°C (-31°F to 159°F)