

Aerostat Inc Mark V  
Plastic Sphere Dispenser  
and  
PSDS Inc Plastic Sphere  
Problems

# Introduction

- Aerostat Inc. aerial ignition equipment is no longer approved for Interagency purchase.
- Many Mark V plastic sphere dispenser (PSD) machines have defects or are missing components
- PSDS Inc. plastic spheres have defects
- This presentation highlights known issues and provides guidance for working with existing Mark V's and PSDS plastic spheres.

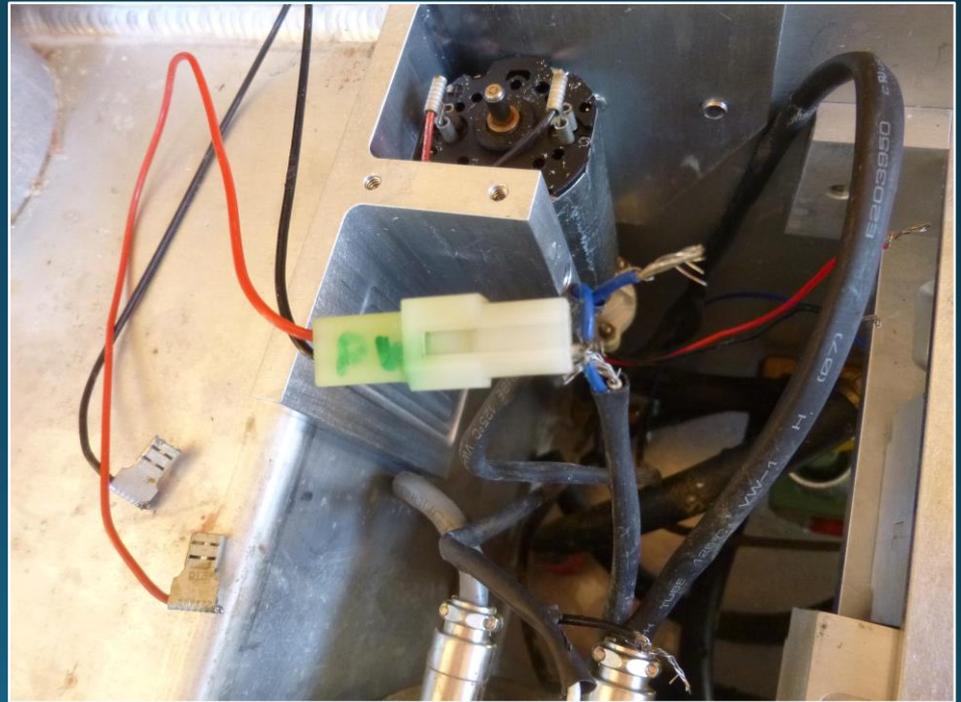
# Aerostat Mark V

- Mark V is removed from approved list in the NWCG Standards for Aerial Ignition (PMS 501)
- Continued use allowed
- There is no service center to work on them
- Improvements listed in this presentation are acceptable to be performed by the local unit



# Aerostat Mark V

- Poor quality wiring
  - Power cable wired incorrectly
- Check wire secureness and reconnect with crimp-on splices, solder, or equivalent connectors. Replace higher gauge wires with 18 gauge wire.
- Wire the power cable according to FS/OAS A-16 (see next slide)



## Helicopter 9 Pin Connectors

#1. Two wire type connectors (remote hook, bucket, helltorch and seeders)

- D Aircraft ground
- E +28 VDC (bucket/hook open & torch/seeders on)

#2. Three wire type connectors with Additional Telemetry Unit (ATU) support (remote hook, bucket, helltorch and seeders)

- D Aircraft ground
- E +28 VDC (bucket/hook open & torch/seeders on)
- G ATU bucket ground connection

Connectors on helicopters shall be secured to the airframe by a wire lanyard or other acceptable method. Any method must ensure the connector's electrical wiring shall not carry any physical load when the connector is disconnected.

Mating connectors on buckets, remote hook, etc., must have the threaded locking ring removed.

Power to the Helicopter 9 Pin Connector typically requires a 50 ampere circuit breaker (see contract specifications)

### Parts for Helicopter 9 Pin Connectors

Connector on helicopter: In-line type MS3101E24-11S  
 Bulkhead type MS3102E24-11S  
 Mating connector (on device) MS3107B24-11P  
 Dust cap for Helicopter connector (optional) MS25043-24D  
 Dust cap for Mating connector (optional) MS25042-24D

## Auxiliary 3 Pin Power Source Connector (AUX)

Connector used as a general power source for a wide range of equipment. Only two pins shall be operational.

- A +28 VDC (used on 28 volt aircraft only)
- B Aircraft ground
- C +14 VDC (used on 14 volt aircraft only)

Each AUX connector shall have its own dedicated circuit breaker (see contract specifications for required amperage). The amperage of the circuit breaker is typically 10 amperes in fixed wing aircraft and 5 amperes in helicopters.

### Parts for AUX Connector

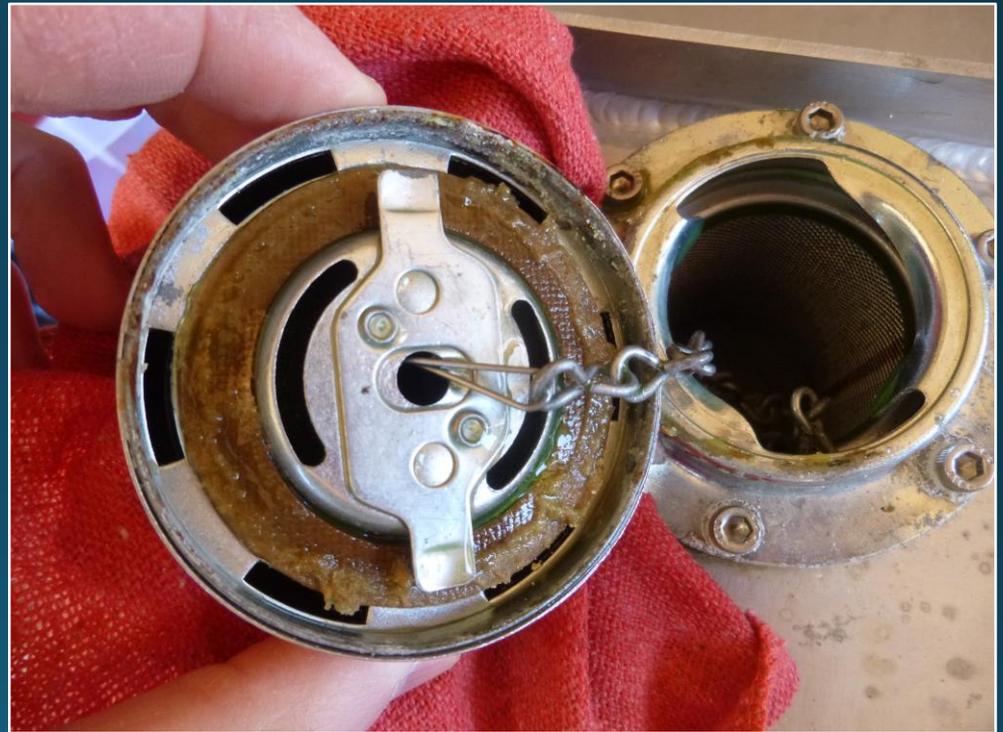
AUX Connector: Bulkhead type MS3112E12-3S  
 Mating connector (on device) MS3116F12-3P  
 Dust cap for AUX connector (optional) MS3181-12C

FS/OAS drawings are available at:  
[www.nifc.gov/NIICD/documents.html](http://www.nifc.gov/NIICD/documents.html)

RevNo	Revision note	Date	Initials	Checked	National Interagency Fire Center (NIFC)				Avionics (208) 387-5648	
1	Specified connector cap and added AUX-FM & AUX power connectors	02/10/1988	Unknown	Unknown	Designed by VIRGIL	Checked by UNKNOWN	Approved by - date UNKNOWN	Filename 120003C	Date 02/02/2017	Scale NONE
A	Consolidated connector listing	02/08/2000	FAS	BC	<b>U.S. FOREST SERVICE</b>				<b>STANDARDIZED CONNECTORS</b> FS/OAS A-16	
B	Revised connector information	02/01/2017	FAS	Group						
C	Consolidated information onto one page	02/02/2017	FAS	Group						
					<b>U.S. FOREST SERVICE</b>				Revision C	Sheet 1/1

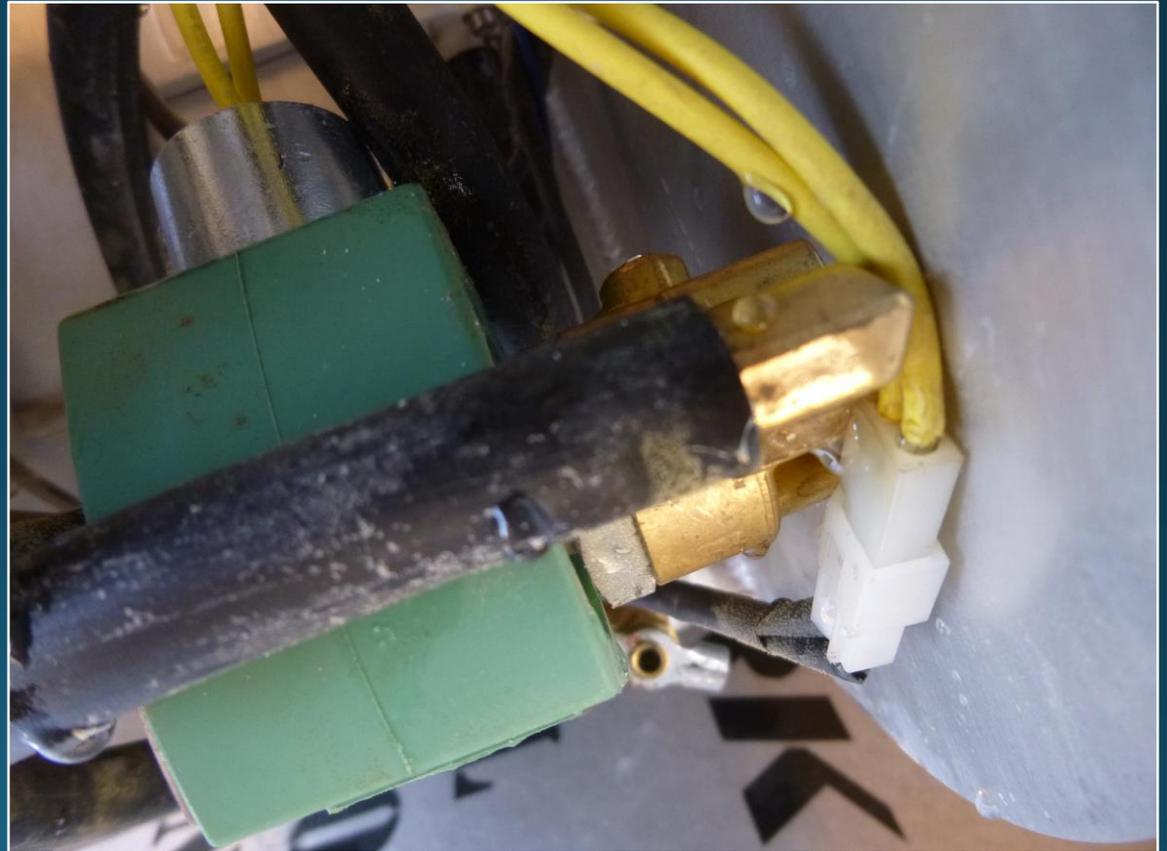
# Aerostat Mark V

- Deteriorating cardboard gaskets
- Replace with cork or buna-n gasket material
  - 1/32 inch thick
  - 2 inch outside diameter
  - 1-1/2" inside diameter



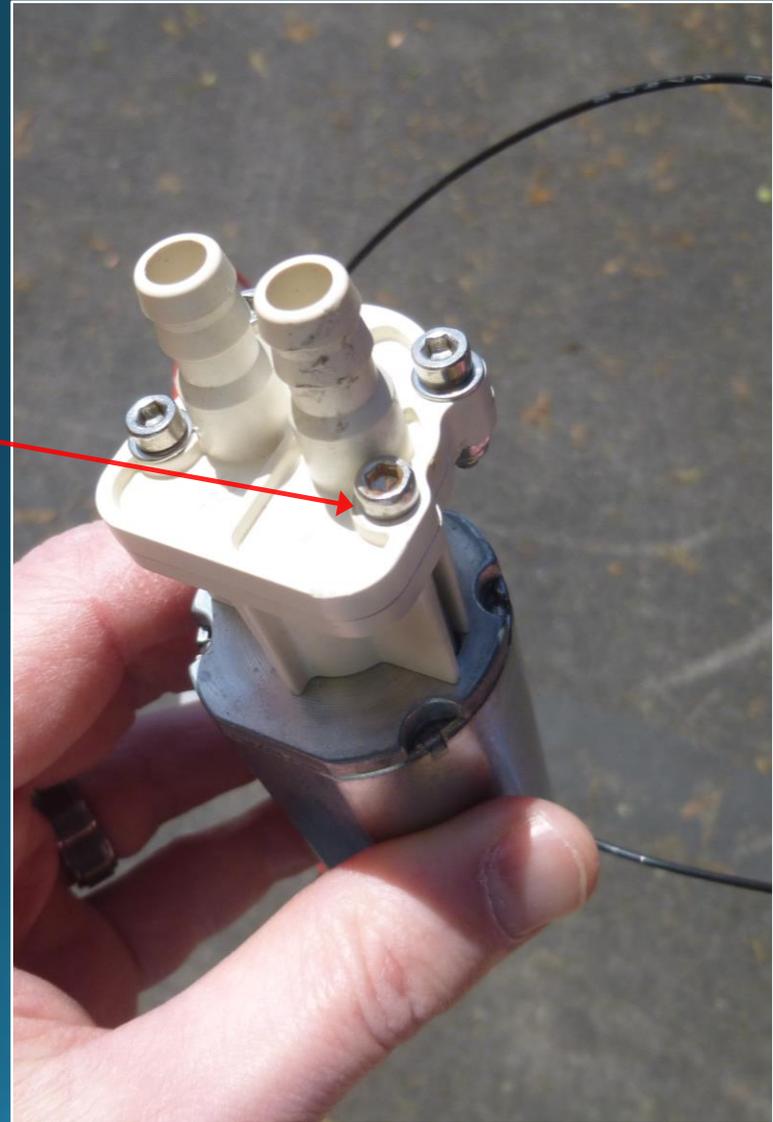
# Aerostat Mark V

- No hose clamps
- Install worm-drive hose clamps for 1/2" outside diameter hose on all hose connections



# Aerostat Mark V

- Pump missing a washer which caused malfunction
- Install new washer if missing, matching the thickness of the other washers



# Aerostat Mark V

- Hopper side rails not provided
  - Stuck plastic spheres
- Be aware of the problem, may add a thick pad of moleskin or other material on the hopper sides to push spheres off the ridge



Side rails installed



No side rails installed allows spheres to jam on the flats and sometimes break

# PSDS Inc Plastic Spheres

- Low or no potassium permanganate
- Spheres may not ignite, remove from box when found



# PSDS Plastic Spheres

- Loose sphere halves
- Inspect each box and remove sphere halves



# PSDS Inc Plastic Spheres

- Inspect them and remove half spheres !



# Conclusion

- This presentation highlights known issues and provides guidance for working with existing Mark V's and PSDS plastic spheres.
- It is acceptable to perform repairs listed above if comfortable and within the local unit's skill capability
- Report equipment and plastic sphere issues through the use of Safecom