

## USS George Washington (CVN-73) Moriah Wind System

### OVERVIEW

The Moriah Wind System (MWS) is designed to replace current wind measuring units and displays on selected ships, craft and shore facilities. The system is comprised of the following components:

- Wind Sensor Units (WSUs).
- Wind Processor Unit (WPU).
- 8.4" Low End Displays (LEDs).
- 15" High End Displays (HEDs).

The WPU centralizes WSU selection and the distribution of data throughout the ship. There are HEDs and LEDs to replace current onboard analog wind indicators. The MWS updates the current wind measuring system to a solid-state system with no moving parts. There is an overall increase in accuracy of measurements. The WSUs have a much higher reliability than the existing analog devices. The digital displays are far more versatile than the original analog synchro displays. They can display wind speed, wind direction, crosswind and head wind information for vessels and land based wind indicating systems that have an Air-Ops requirement. Figure 1 provides a system diagram of the MWS. Figure 2 shows the preliminary system interconnect drawing. Figure 3 shows the program timeline.

### Wind Processor Unit (WPU) Overview

The MWS provides and displays wind information and indications for use across a Naval ship and at various land based applications. The following critical information is calculated using information provided by the MWS:

- Flight performance envelopes for various aircraft
- Dynamic Interface requirements
- Catapult and Arresting gear, wind over deck (WOD) limitations

### Wind Sensor Unit (WSU) Overview

The processor shall receive un-filtered wind speed and direction data from the WSUs. The sensor selection shall be controlled by the WPU. The information from the sensors shall then be processed and the information distributed around the ship or system. The WSUs receive two +24VDC (nominal) supplies via their RS422 cable. In cases where the WSU is mounted further away from the WPU than the maximum distance stated in 81164.EPS then a local +24VDC (nominal) supply may be used to power the heaters.

## **High End Display (HED) Overview**

The MWS High End Display shall receive wind and meteorological data from the processor.

The HED shall display data of the following formats:

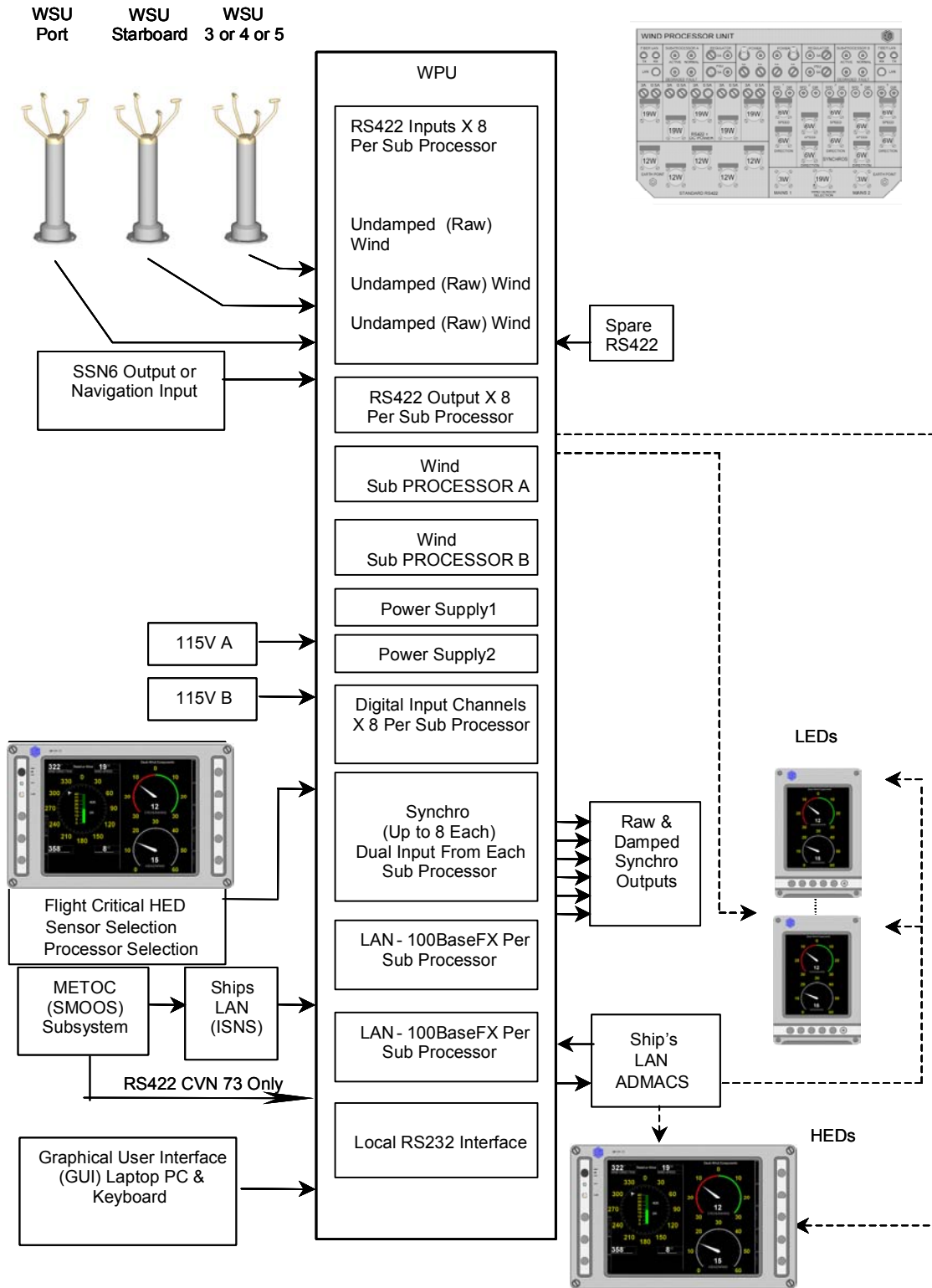
- Relative / True Wind Speed and Direction
- Deck Crosswind and headwind (single deck ships)
- Angled / Straight Deck Crosswind, Headwind and Tailwind (for CV ships)
- Ship's Speed and Course
- Fox Corpen data
- Meteorological and Oceanographic data

## **Low End Display (LED) Overview**

The MWS Low End Display shall receive wind and meteorological data from the processor.

The LED shall display data of the following formats:

- Relative / True Wind Speed and Direction
- Deck Crosswind and headwind / tailwind (single deck ships)
- Angled / Straight Deck Crosswind, Headwind and Tailwind (for CV ships)
- Ship's Speed and Course
- Meteorological and Oceanographic data



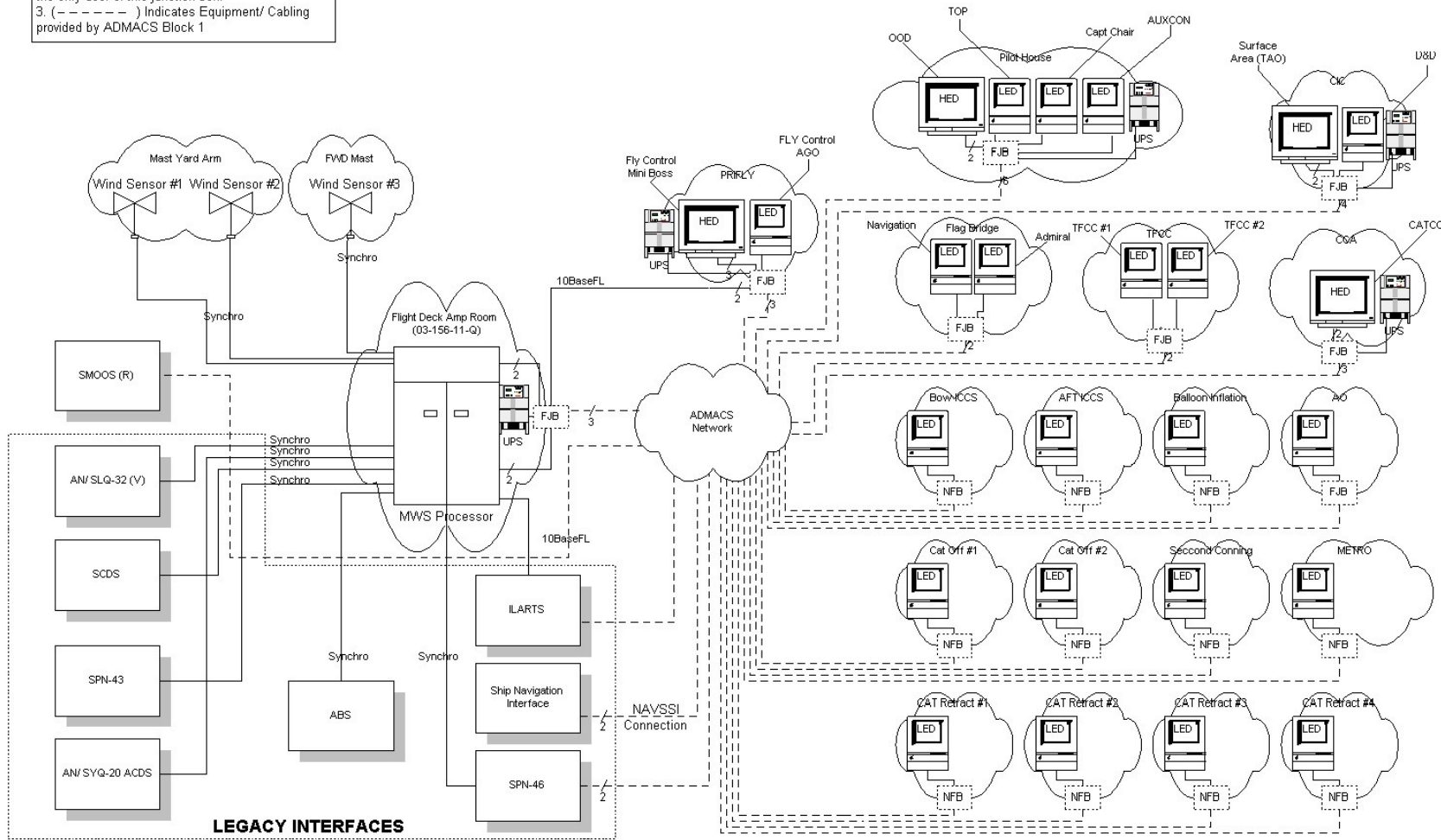
**Figure 1. MWS Diagram**

**NOTES:**

1. FJB (Fiber Junction Box)
2. NFB (Node Fiber Box) refers to a new junction box located near and MWS LED display. MWS is the only user of this junction box.
3. (-----) Indicates Equipment/ Cabling provided by ADMACS Block 1

**MWS Interconnect Drawing  
CVN-73**

"CVN-73 Interface Diagram.vsd"  
11-JUL-02 Brian Luch



**Figure 2. CVN-73 MWS Interconnect Drawing**

ACTIVITY	FY 2000				FY 2001				FY 2002				FY 2003				FY 2004				FY 2005				FY 2006				FY 2007			
	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
ACQN PHASE									SDD				PROD & DEPLOY																			
MILESTONES									△ MS B				MS C △																			
PROGRAM EVENTS					Draft RFP ▲ RFP ▲				△ AWD △ PDR				△ CDR				FRP △				IOC △											
TEST & EVAL													MWS DT/OT □ OPEVAL																			
													Moriah DT/OT □ OPEVAL																			
DELIVERY SCHEDULE													△ PRM								Deliveries											

Figure 3. MWS Program Timeline