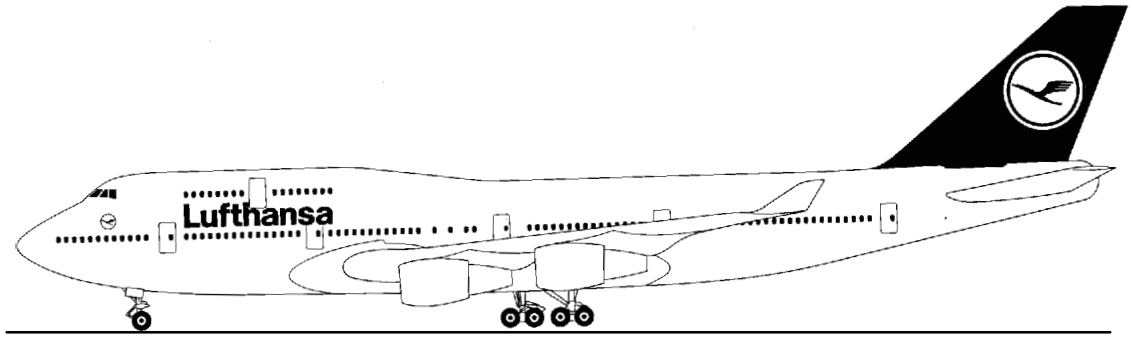
Lufthansa Technical Training

Training Manual
B 747-400



ATA 23-41
SERVICE INTERPHONE
ATA Spec 104 Level 3

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23-41 SERVICE INTERPHONE SYSTEM

SERVICE INTERPHONE SYSTEM INTRODUCTION

The service interphone system allows communication between ground crew members at different locations on the airplane.

The service inter hone system can connect to the flight interphone system to allow communication between ground crew members and the flight deck.

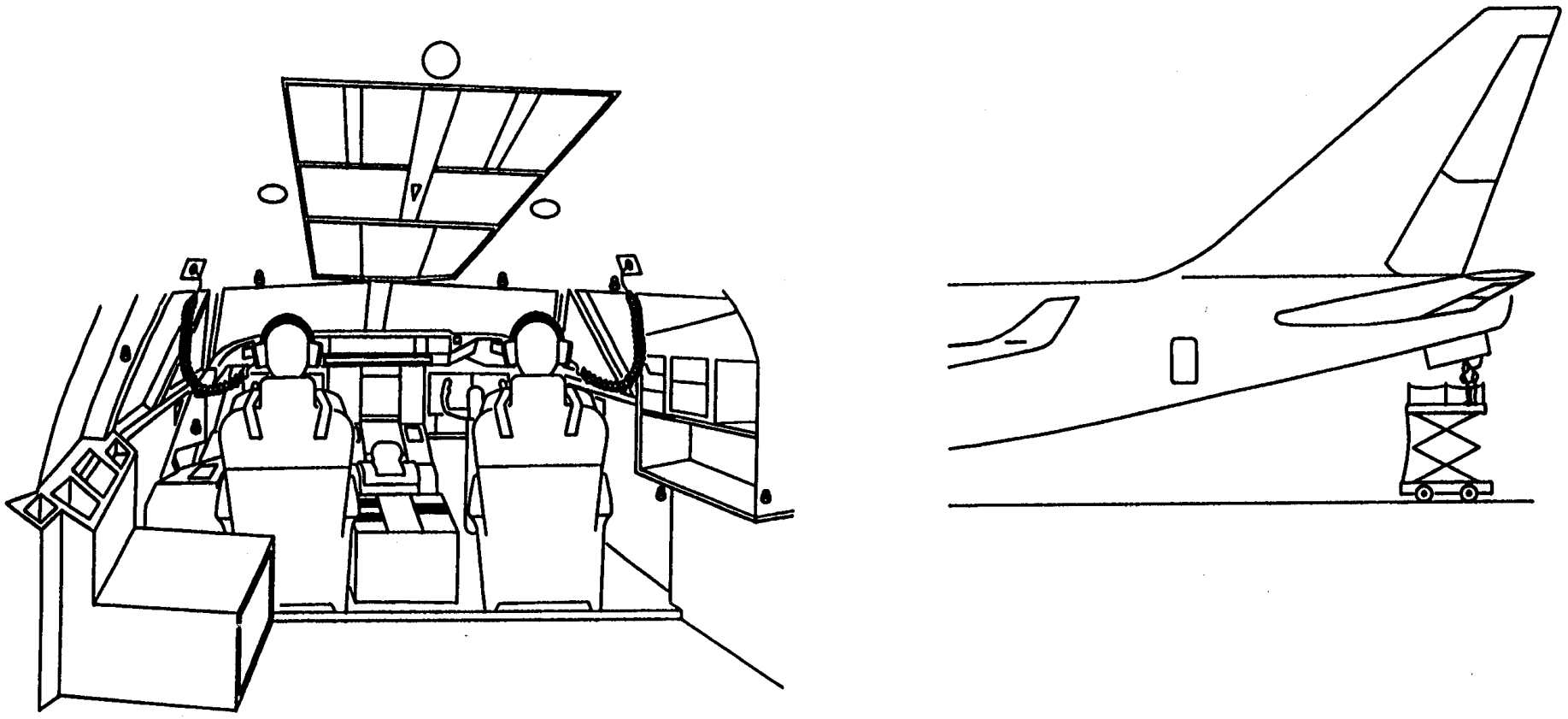


Figure 1 SERVICE INTERPHONE SYSTEM INTRODUCTION

SERVICE INTERPHONE SYSTEM

The service interphone jacks are divided into three groups:

- Forward service interphone
- Mid service interphone
- Aft service interphone

The microphone inputs in each group are tied together, which gives three audio inputs to the audio management unit (AMU).

The AMU combines the three service interphone microphone inputs, amplifies them, and sends them back to each group.

The service interphone audio is combined with flight interphone audio if the service interphone switch is set to the ON position.

The AMU sends fault status to the central maintenance computer system (CMCS).

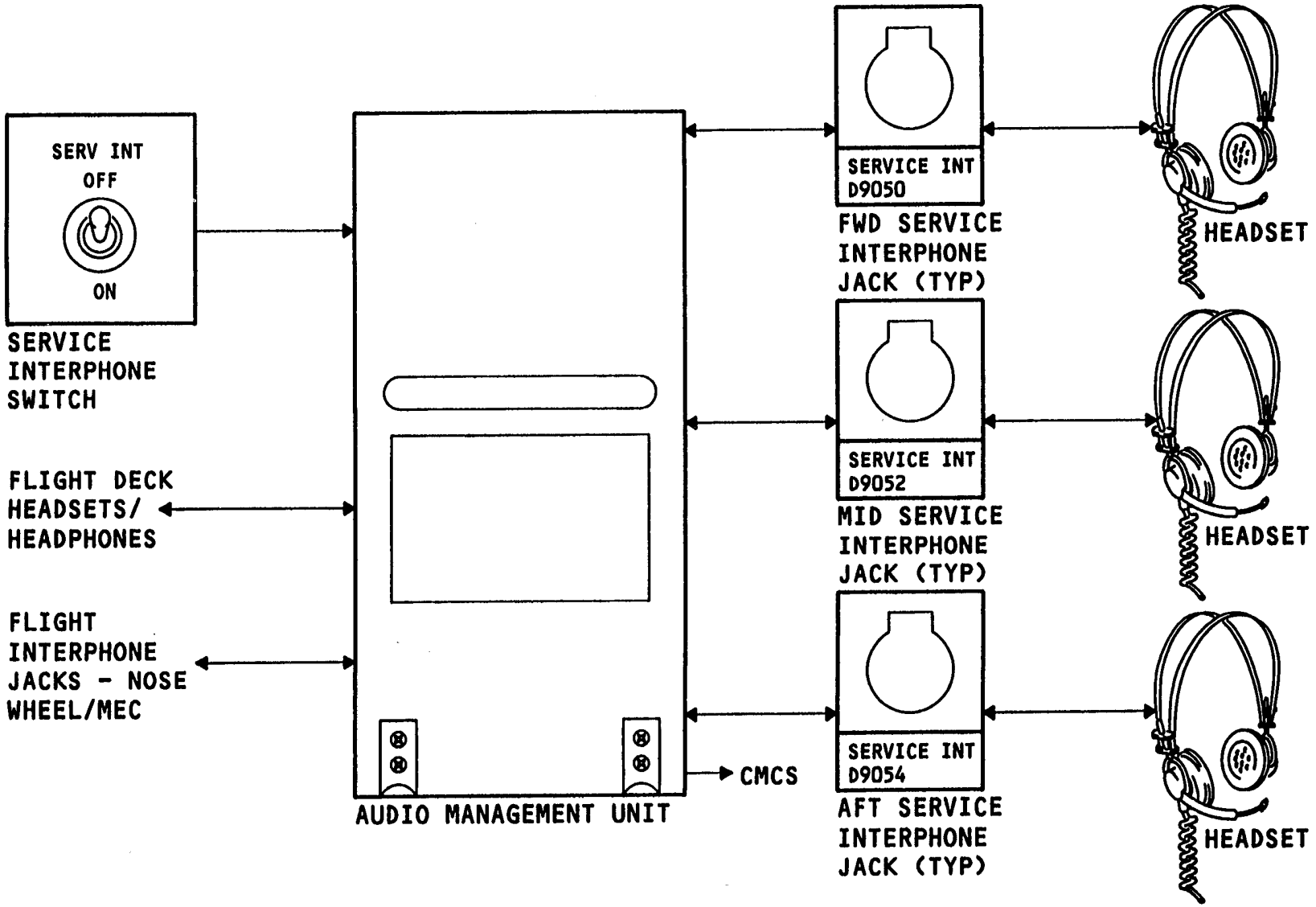


Figure 2 SERVICE INTERPHONE SYSTEM

BACK
MSCM
AMU
TOC
TOF
NEXT

COMPONENT LOCATIONS

These components are located in the flight deck:

- Service interphone switch (miscellaneous switch control module)
- Service interphone circuit breaker

The audio management unit (AMU) is located in the main equipment center.

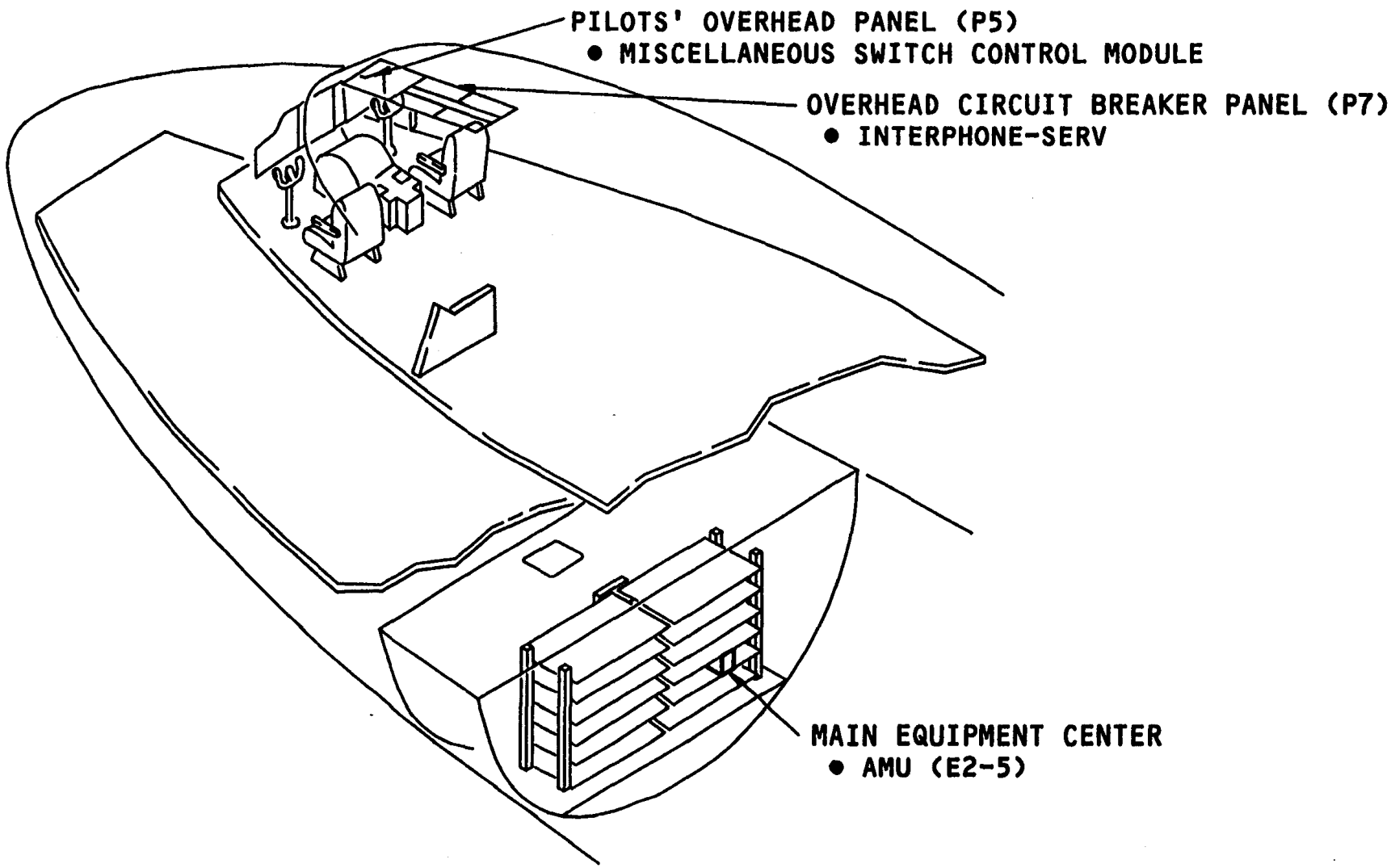


Figure 3 COMPONENT LOCATIONS

INTERFACE DIAGRAM

The service interphone system gets power from either a circuit breaker on the overhead circuit breaker panel or a circuit breaker on the DC power distribution panel through the towing transfer relay. This powers the service interphone amplifiers and circuits.

There are twenty service interphone Jacks located at the various servicing stations around the airplane. The Jacks are divided into these three groups:

- Service interphone 1 (forward section)
- Service interphone 2 (mid section)
- Service interphone 3 (aft section)

Service interphone communication can be extended to these places if the service interphone switch on the miscellaneous switch control module is in the ON position:

- Flight deck: flight interphone
- Nose wheel well control panel flight interphone Jack
- Main equipment center flight interphone Jack

The AMU sends fault status to the central maintenance computer system (CMCS).

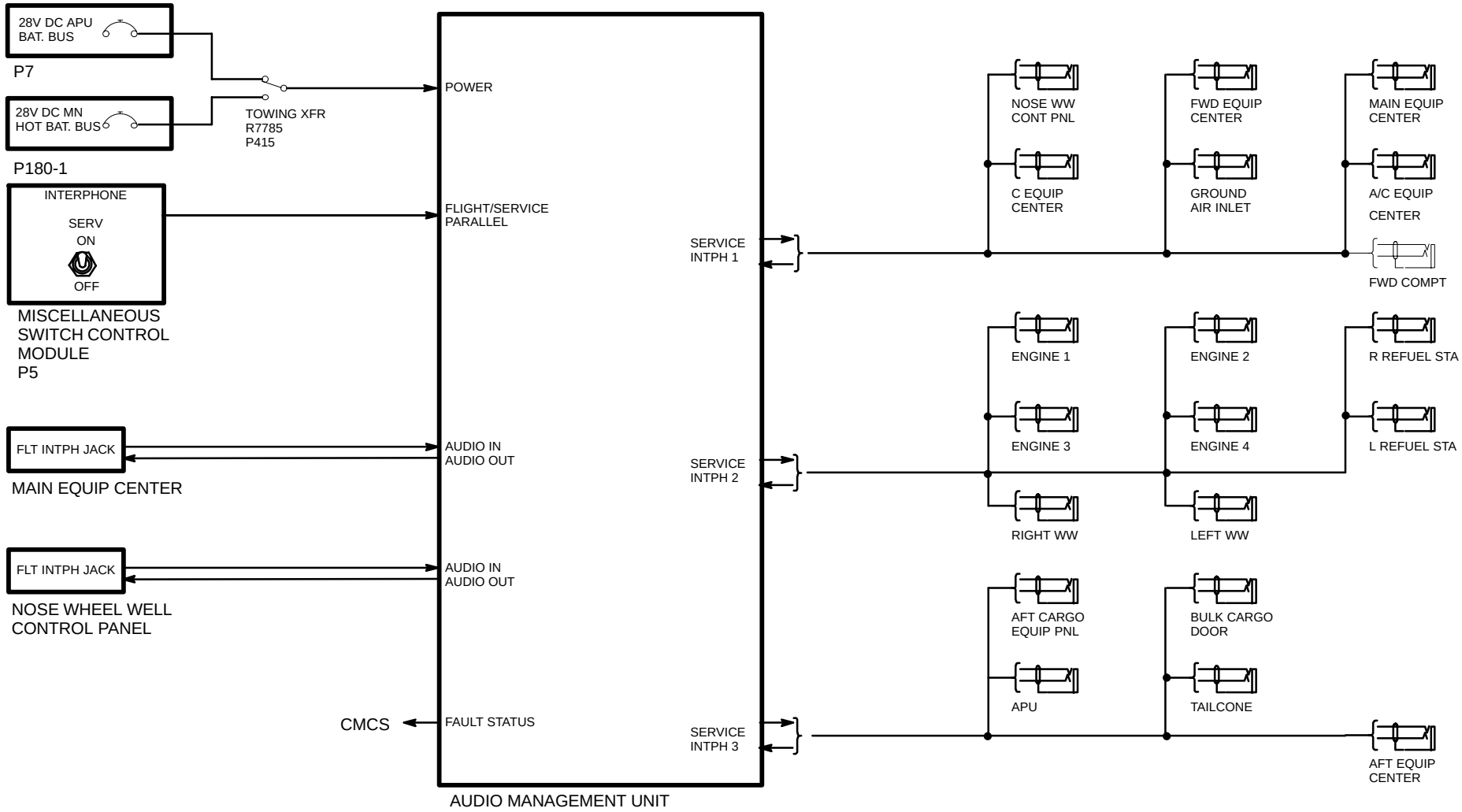


Figure 4 INTERFACE DIAGRAM

JACK LOCATIONS

The service interphone jacks are located on the airplane as follows:

A. Forward equipment center (INTERNAL)
B. Nose wheel well panel P-37 (EXTERNAL)
C. Main equipment center (INTERNAL)
D. Forward cargo compartment (INTERNAL)
E. Center equipment center (INTERNAL)
F. Air conditioner equipment bay (EXTERNAL)
G. Ground air inlet (EXTERNAL)
H. Engine 4 nacelle (EXTERNAL)
I. Engine 3 nacelle (EXTERNAL)
J. Engine 2 nacelle (EXTERNAL)
K. Engine 1 nacelle (EXTERNAL)
L. Right wheel well (EXTERNAL)
M. Left wheel well (EXTERNAL)
N. Right refuel (EXTERNAL)
O. Left refuel (EXTERNAL)
P. AFT cargo equipment panel (INTERNAL)
Q. AFT equipment center (INTERNAL)
R. Tailcone (INTERNAL)
S. APU (INTERNAL)
T. Bulk cargo door (INTERNAL)

WARNING: DO NOT USE ENGINE NACELLE INTERPHONE JACK ON ENGINE WHICH IS TO BE STARTED OR IS IN OPERATION. PERSONNEL NAY BE INJURED BY ENGINE INLET SUCTION OR EXHAUST BLAST.

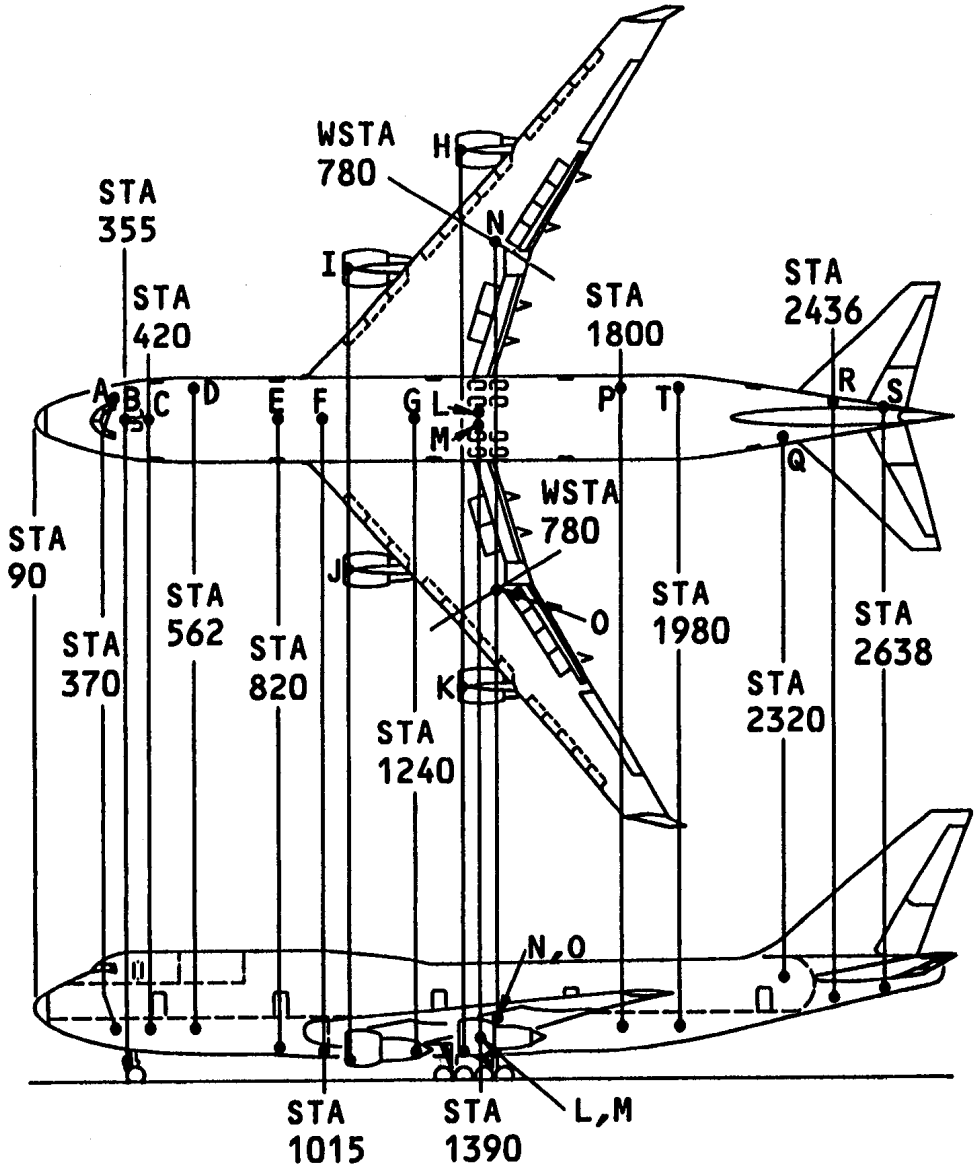


Figure 5 JACK LOCATIONS

SERVICE INTERPHONE SWITCH

When the service interphone switch is in the ON position, it combines service interphone audio with the flight interphone audio.

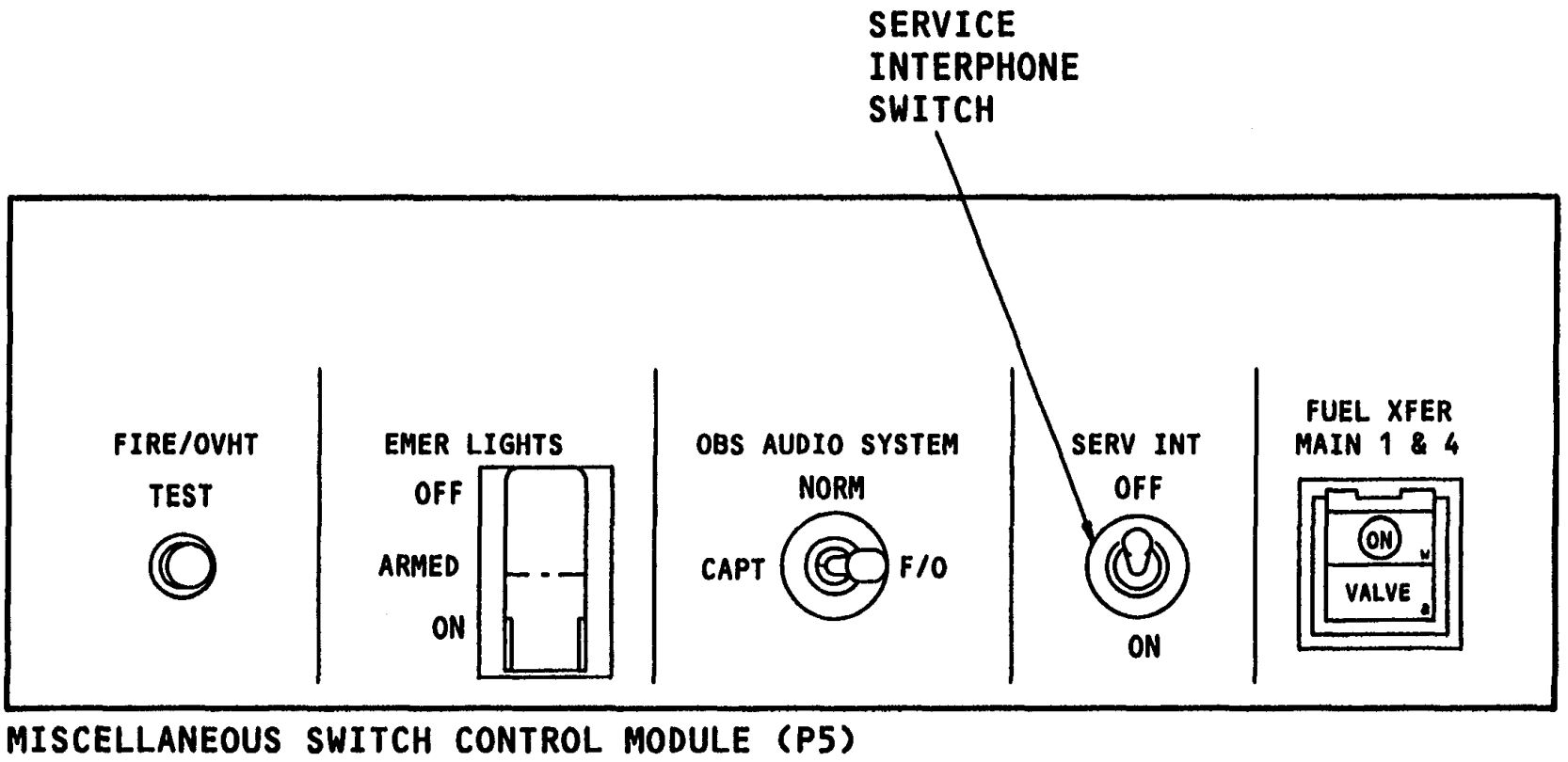


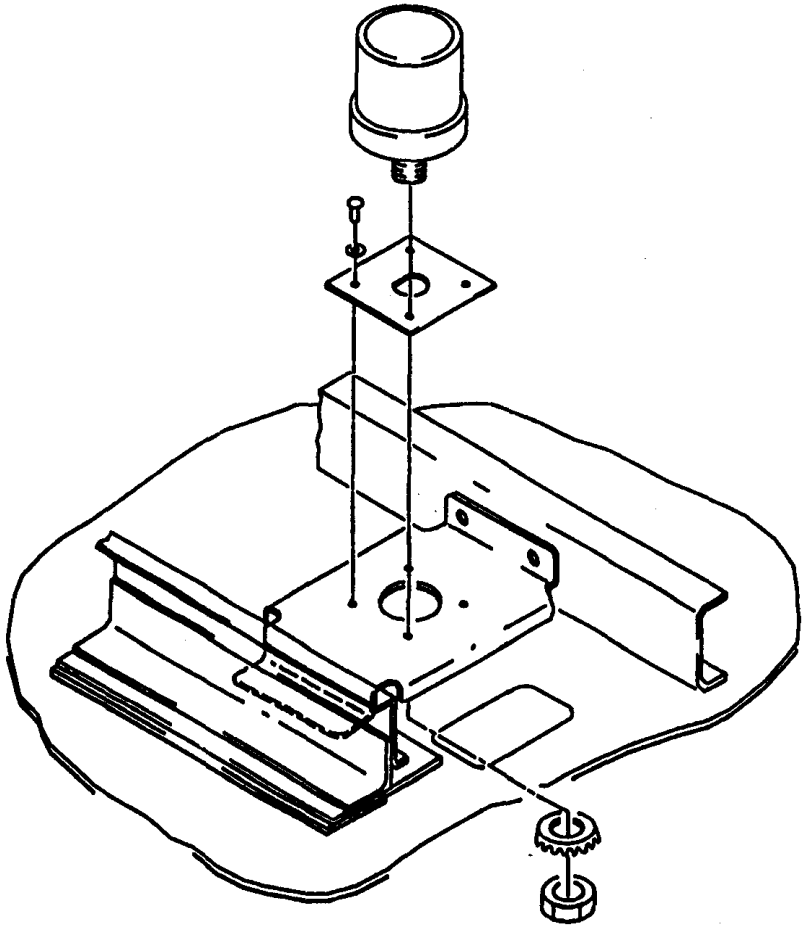
Figure 6 SERVICE INTERPHONE SWITCH

JACK AND HEADSET

The service interphone jacks let ground crew connect a headset and communicate through the service interphone. The jacks are secured to their mounting location by a nut and washer.

The service interphone headset is a combination boom MIC and headphone that allows hands free operation.

WARNING: DO NOT WORK ON ENGINE NACELLE INTERPHONE JACK ON ENGINE WHICH IS TO BE STARTED OR IS IN OPERATION. PERSONNEL MAY BE INJURED BY ENGINE INLET SUCTION OR EXHAUST BLAST.



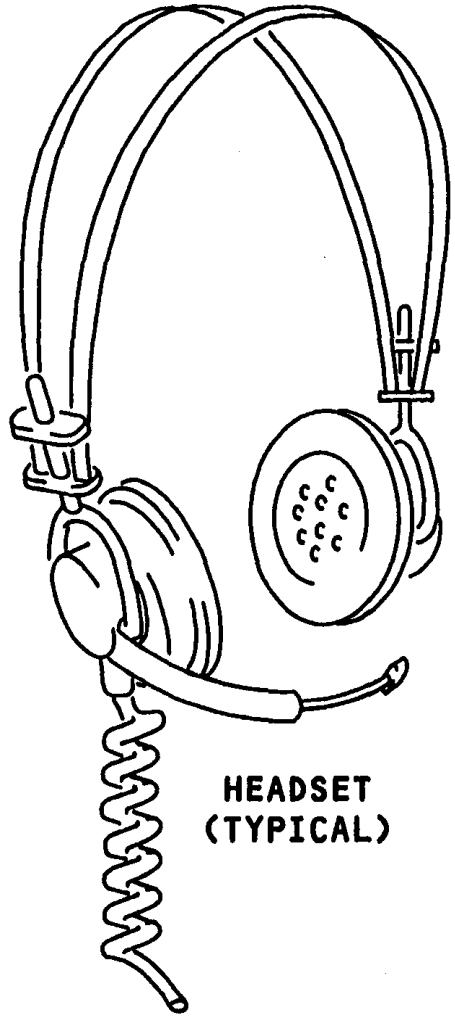


Figure 7 JACK AND HEADSET

AUDIO MANAGEMENT UNIT

Purpose

The audio management unit (AMU) contains circuits for both the service and flight interphone systems. Service interphone circuits consist of amplifiers for input and output audio. Switching is done based on the input from the miscellaneous control module.

Characteristics

The AMU has the following five circuit cards (four crew interface cards and one general interface card):

- Captain’s card
- First officer’s card
- First observer’s card
- Second observer’s card
- AMU interface card

Service interphone circuits are on the AMU interface card.

CAUTION: STATIC SENSITIVE. DO NOT HANDLE BEFORE READING PROCEDURE FOR HANDLING ELECTROSTATIC DISCHARGE SENSITIVE DEVICES (REF 20-41-02/201). CONTAINS DEVICES THAT CAN BE DAMAGED BY STATIC DISCHARGE.

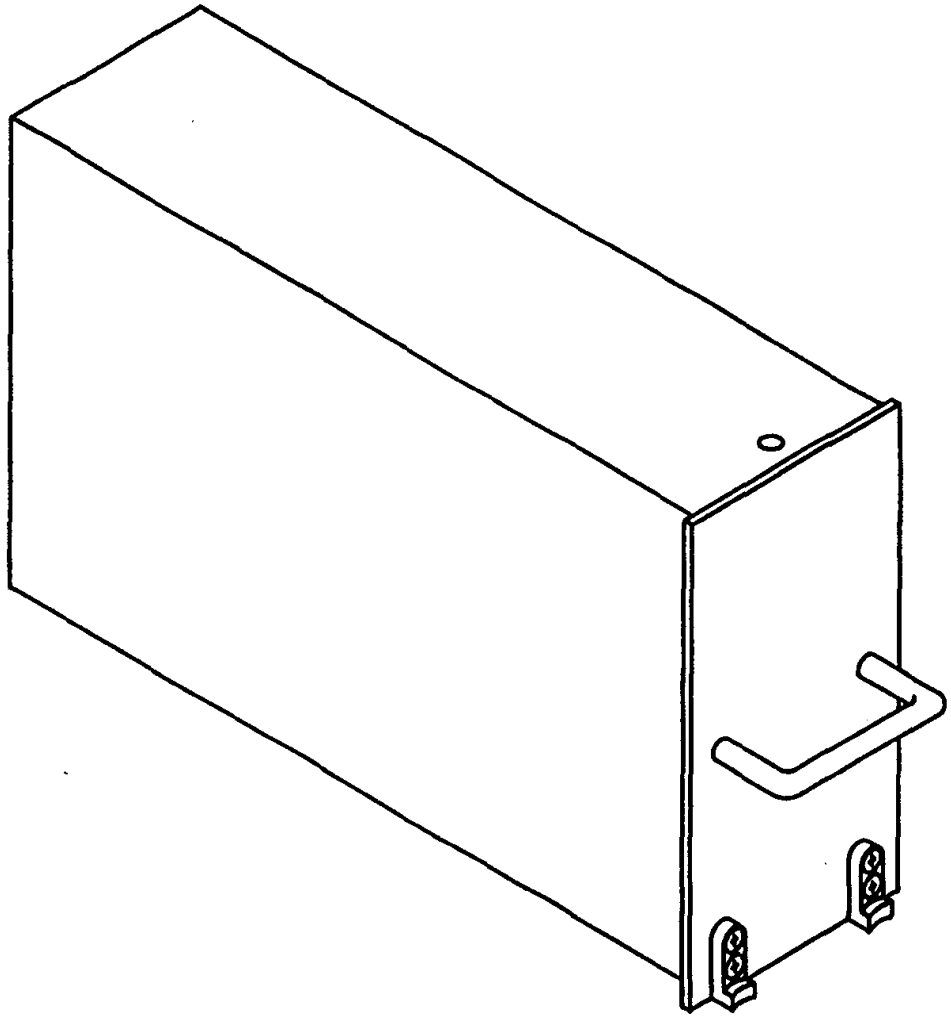


Figure 8 AUDIO MANAGEMENT UNIT

SCHEMATIC DIAGRAM

Power

The 28v dc service interphone circuit breaker powers a voltage regulator in the audio management unit (AMU). The voltage regulator provides +15v dc for:

- Mic excitations
- The service interphone amplifiers in the AMU

Operations

The three service interphone mic inputs are summed and amplified in the AMU. The amplified outputs are routed back to the various service interphone jacks through three service interphone audio outputs.

Flight interphone audio is connected with the service interphone audio when the service interphone switch is in the ON position.

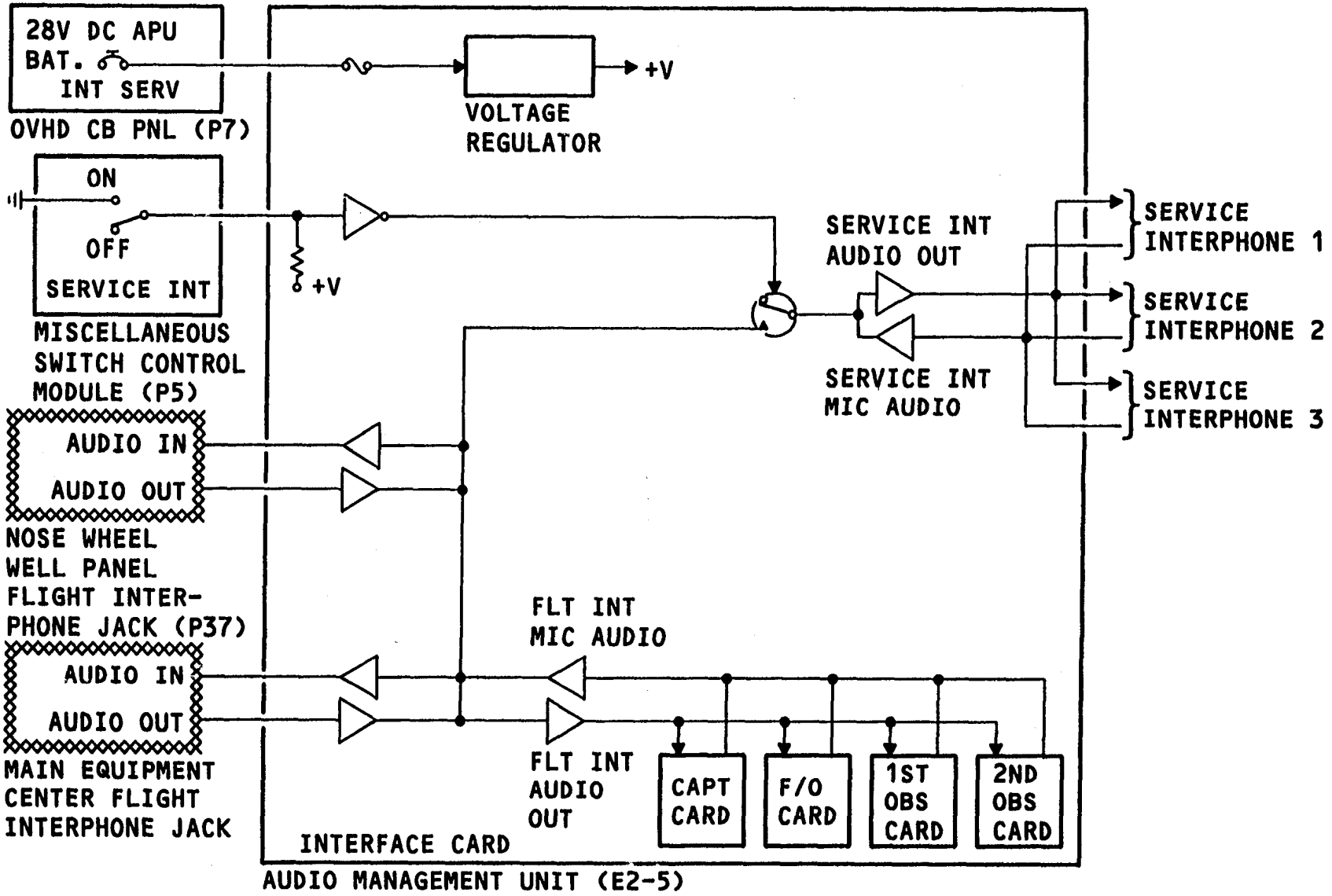


Figure 9 SCHEMATIC DIAGRAM

FLIGHT DECK EFFECTS AND CMCS MESSAGES

Flight Deck Effects

There are no maintenance related flight deck effects for the service interphone system.

Interface Fault Messages

The central maintenance computer system (CMCS) has logic to monitor the combination of interface faults reported to the CMCS. This logic determines the messages that show. The CMCS fault message associated with interface faults is:

- AUDIO MANAGEMENT UNIT-
- CMC BUS FAIL

FLIGHT DECK EFFECTS	TYPE	DESCRIPTION
THERE ARE NO FLIGHT DECK EFFECTS FOR SERVICE INTERPHONE		

CMCS MESSAGES

INTERFACE FAULT MESSAGES:

AUDIO MANAGEMENT UNIT ~ CMC BUS FAIL

Figure 10 FLIGHT DECK EFFECTS AND CMCS MESSAGES

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