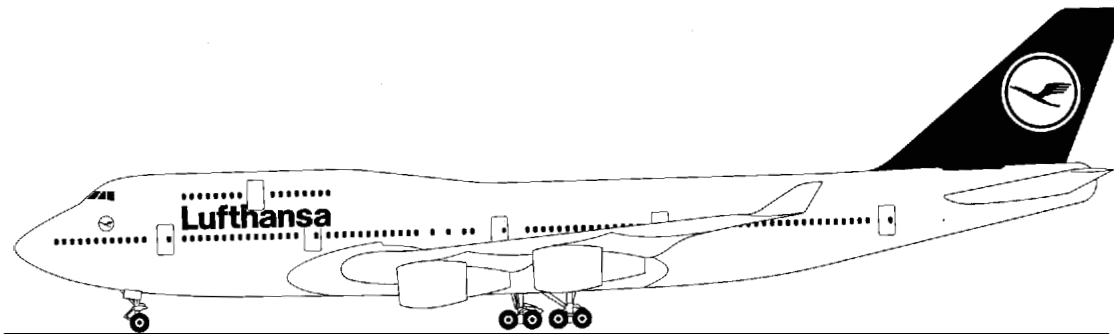




# **Lufthansa Technical Training**

## **Training Manual B 747-400**

### **ATA 23-43 GROUND CREW CALL** ATA Spec 104 Level 3





# **Lufthansa Technical Training**

For training purpose and internal use only.

Copyright by Lufthansa Technical Training GmbH.

All rights reserved. No parts of this training manual may be sold or reproduced in any form without permission of:

## **Lufthansa Technical Training GmbH**

### **Lufthansa Base Frankfurt**

D-60546 Frankfurt/Main

Tel. +49 69 / 696 41 78

Fax +49 69 / 696 63 84

### **Lufthansa Base Hamburg**

Weg beim Jäger 193

D-22335 Hamburg

Tel. +49 40 / 5070 24 13

Fax +49 40 / 5070 47 46

## GROUND CREW CALL



# GROUND CREW CALL SYSTEM

## GROUND CREW CALL SYSTEM - INTRODUCTION

The ground crew call system alerts:

- Flight deck personnel to a call from the ground.
- Ground personnel to a call from the flight deck.
- Ground personnel to critical power or equipment cooling failures.

## GROUND CREW CALL SYSTEM

To call the flight deck, the ground crew pushes the flight deck call switch. This causes visual indications on the pilots call panel (PCP) and the audio control panel. It also causes the modularized avionics and warning electronics assembly (MAWEA) to sound a chime in the flight deck.

To call the ground crew, the flight deck uses the pilots call panel. This causes the ground crew call horn to sound. The horn also sounds when:

- There is an equipment cooling failure (on the ground).
- Any inertial reference unit is on and ac power is not applied to the airplane (on the ground).

## GROUND CREW CALL

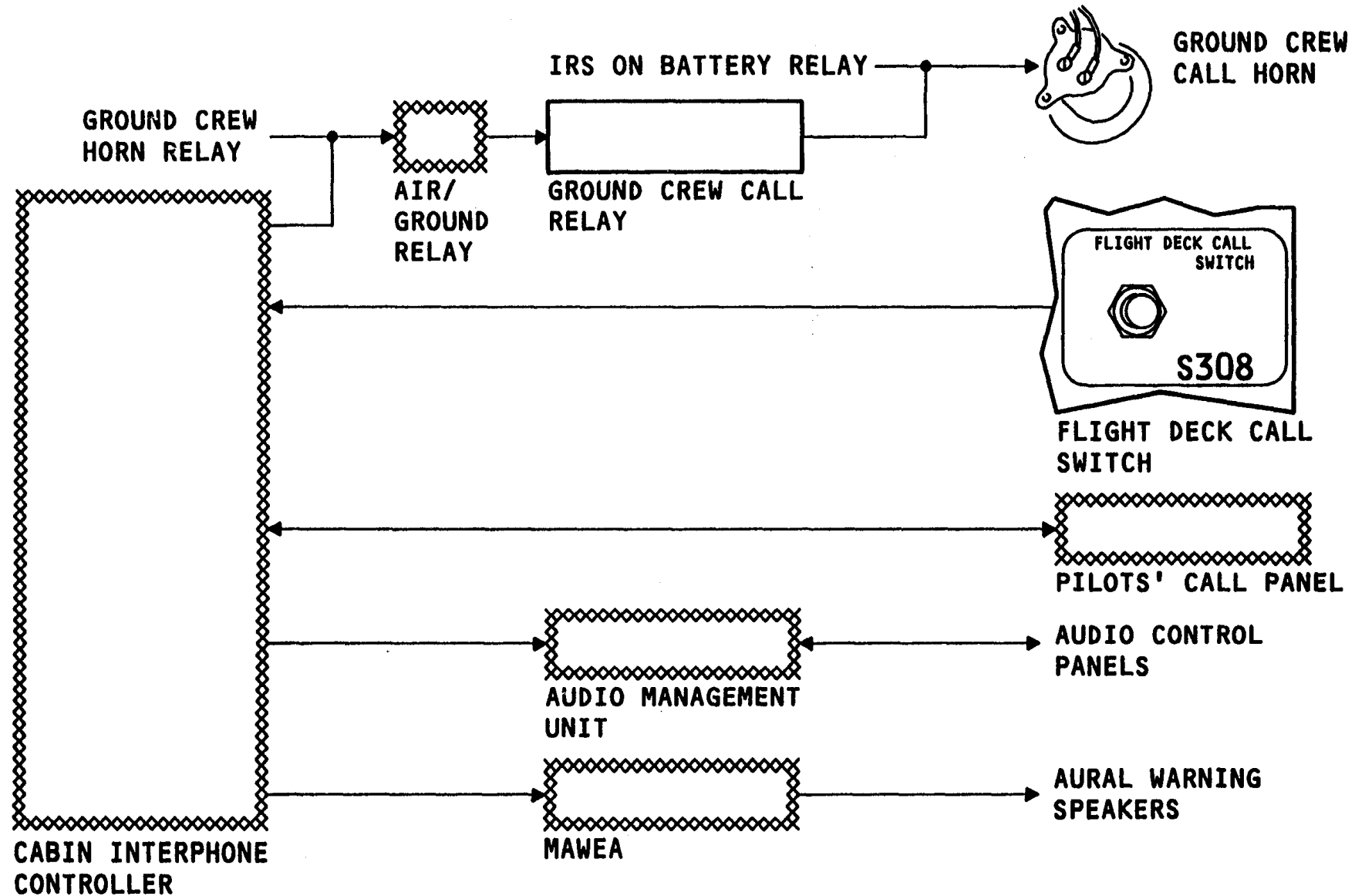


Figure 1 GROUND CREW CALL SYSTEM

## GROUND CREW CALL



**Lufthansa  
Technical Training**

**B747 - 400**

003.01

**23-43**

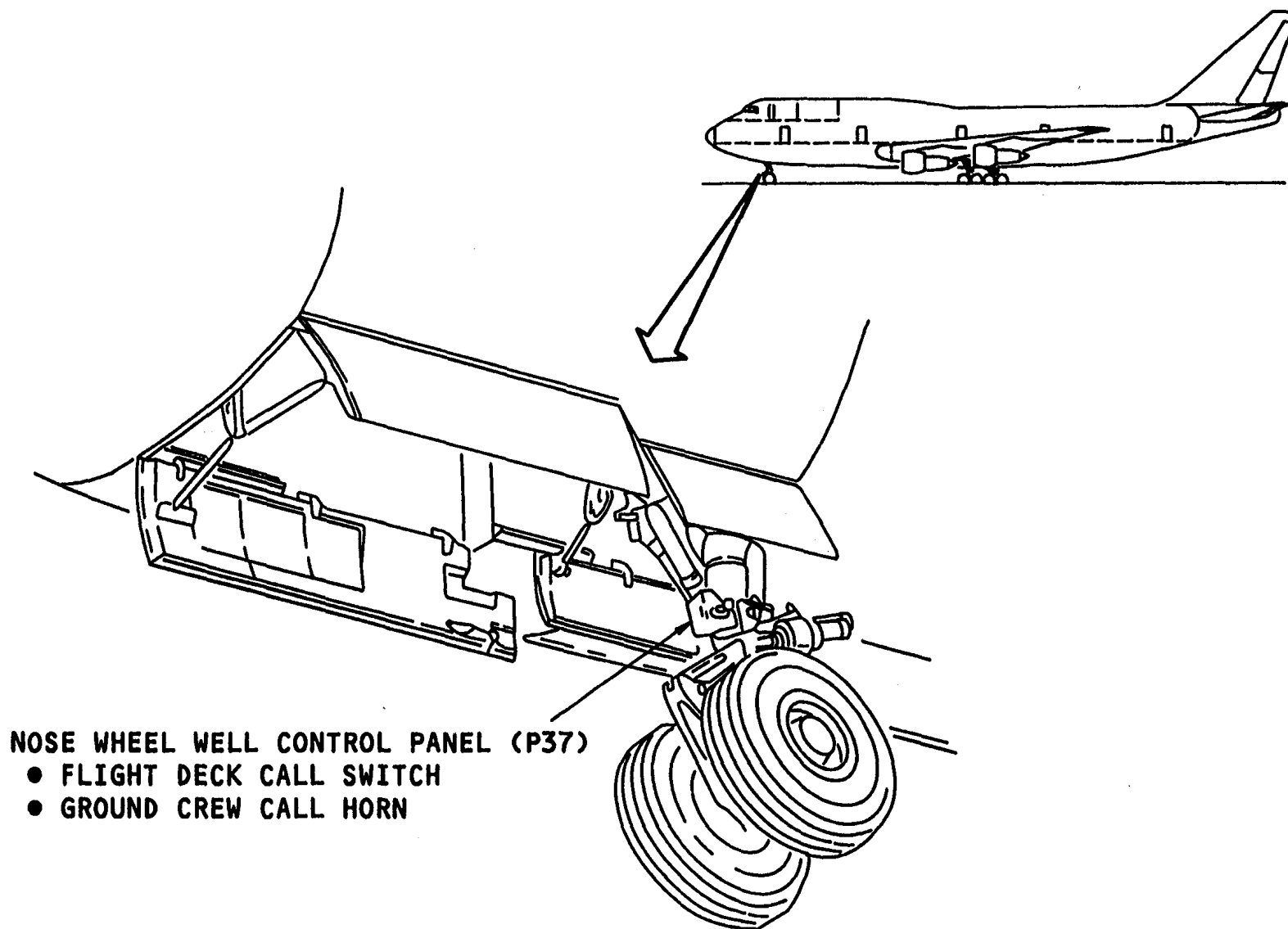
---

### **COMPONENT LOCATIONS - NOSE WHEEL WELL**

The ground crew call horn and the flight deck call switch are on the nose wheel well control panel (P37).

**GROUND CREW CALL****Lufthansa  
Technical Training****B747 - 400**

003.01

**23-43****Figure 2 COMPONENT LOCATIONS - NOSE WHEEL WELL**

## GROUND CREW CALL



**Lufthansa  
Technical Training**

**B747 - 400**

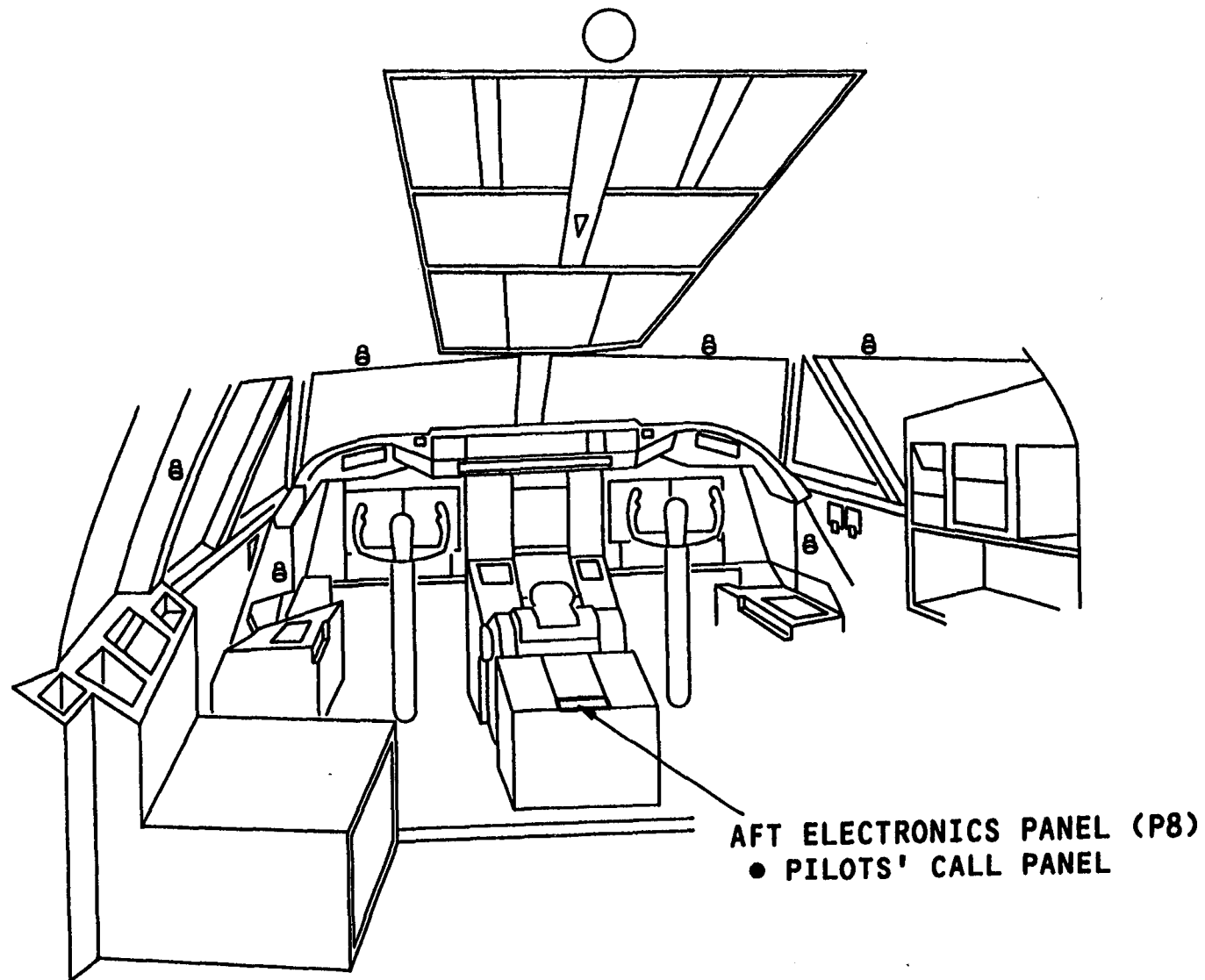
004.01

**23-43**

---

### **COMPONENT LOCATIONS - FLIGHT DECK**

The pilots' call panel is on the aft electronics panel.



**Figure 3 COMPONENT LOCATIONS - FLIGHT DECK**



## GROUND CREW CALL



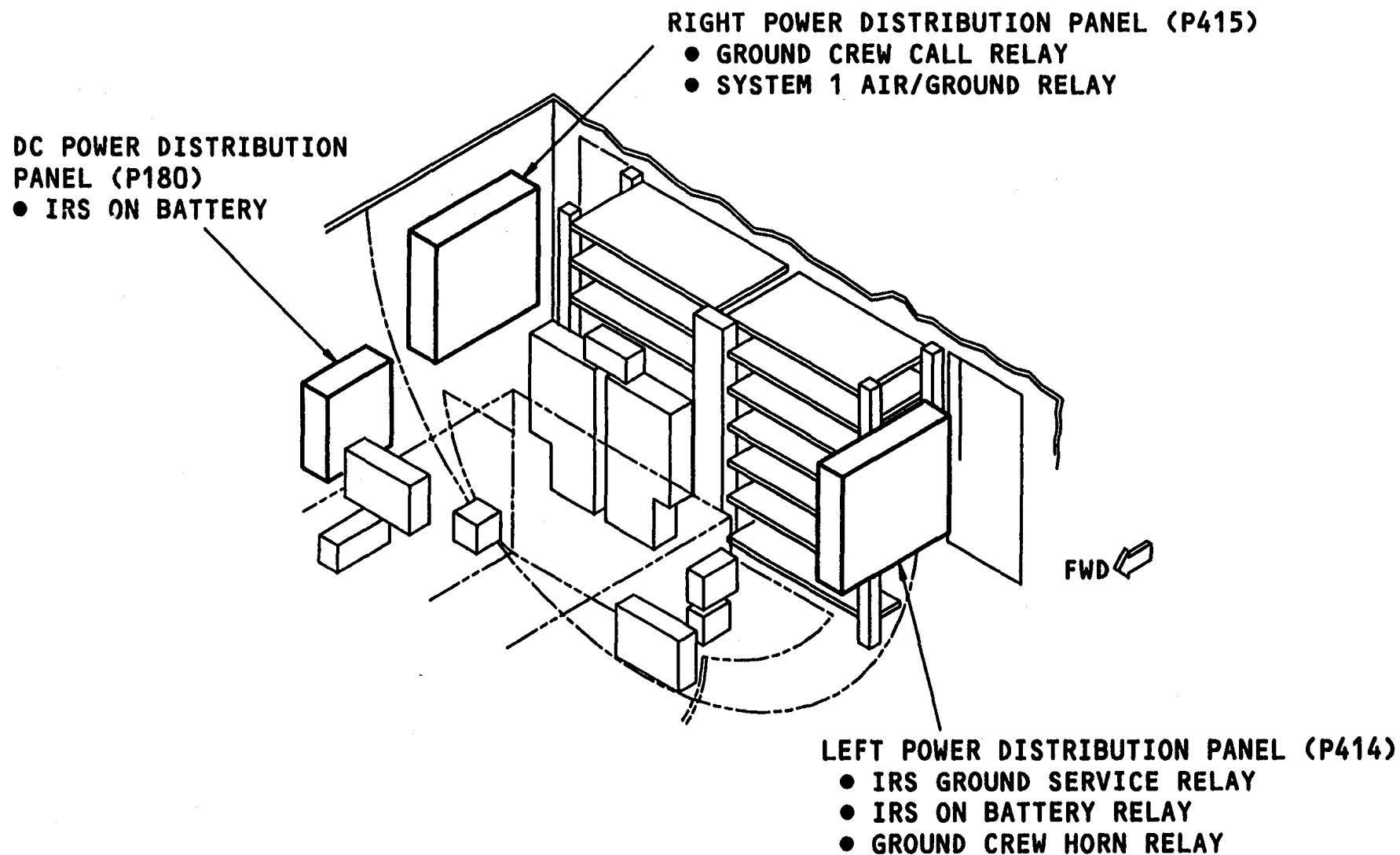
---

### **COMPONENT LOCATIONS - MEC**

The ground crew call system component and interfacing components in the main equipment center are:

- IRS ON BAT circuit breaker
- System 1 air/ground relay
- Ground crew call relay
- IRS ground service relay
- IRS on battery relay
- Ground crew horn relay

# GROUND CREW CALL



**Figure 4 COMPONENT LOCATIONS - MEC**

## GROUND CREW CALL



### INTERFACE DIAGRAM

The IRS ON BAT circuit breaker sends 28v dc to the:

- IRS ground service relay
- Ground crew call relay
- Ground crew horn relay

The IRS ground service relay sends a ground-Service-bus-off output to the IRS on battery relay.

The system 1 air/ground relay sends an air/ground output to the ground crew call relay.

The ground crew horn relay sends a NO COOLING output to the system 1 air/ground relay.

These components send outputs to the ground crew call horn:

- The IRS on battery relay
- The ground crew call relay

The pilots' call panel has a digital interface with the cabin interphone controller. The cabin interphone controller sends a ground crew call discrete to the system 1 air/ground relay. It also sends:

- A call light discrete to the flight interphone system
- A chime request discrete to the modularized avionics and warning electronics assembly (MAWEA)

The flight deck call switch sends a discrete to the cabin interphone controller.

## GROUND CREW CALL

Lufthansa  
Technical Training

B747 - 400

006.01

23-43

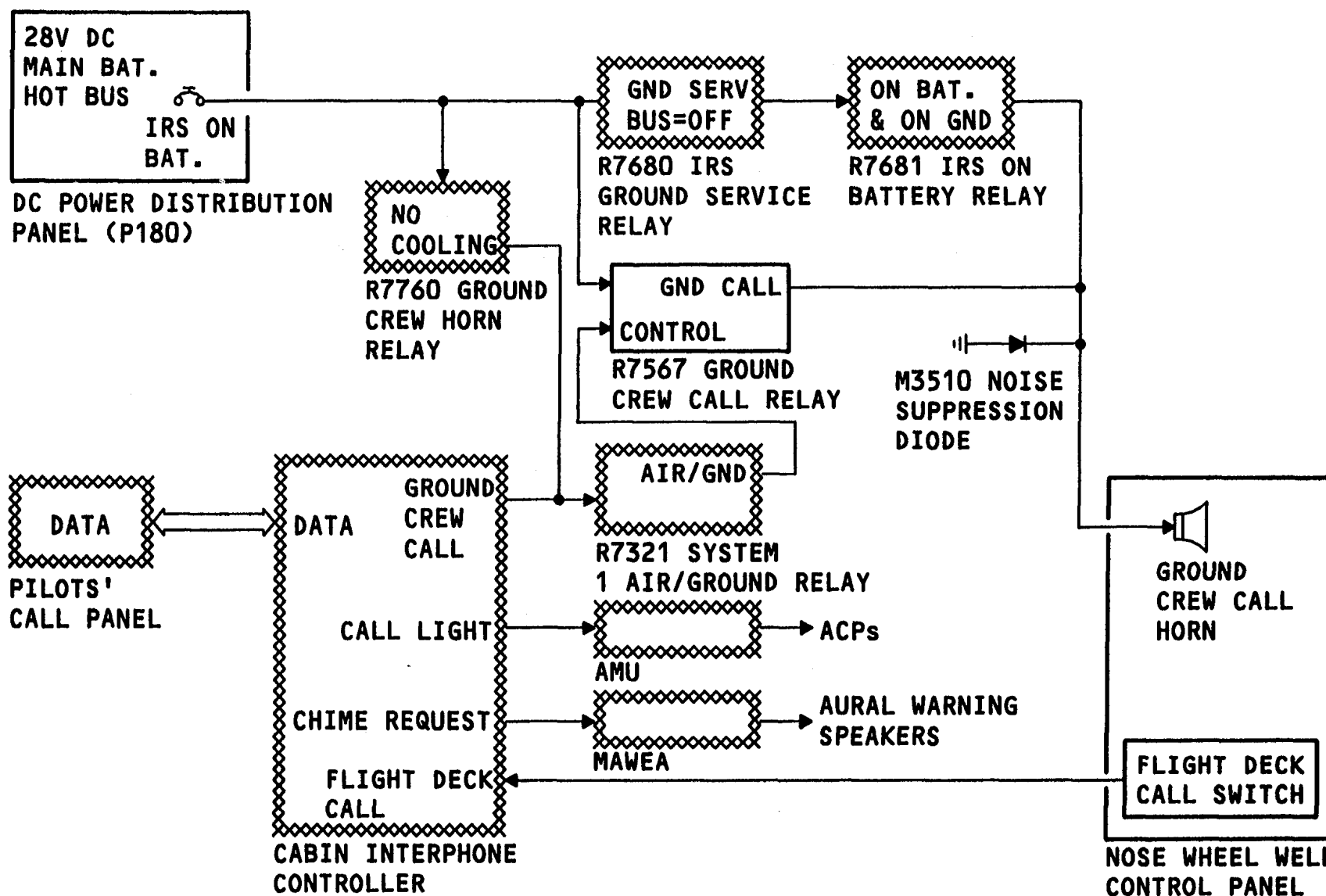


Figure 5 INTERFACE DIAGRAM



## GROUND CREW CALL



### GROUND CREW CALL HORN

#### General Description

The ground crew call horn sounds for 3 seconds when there is a call from the flight deck. The horn sounds continuously when there is a critical power or equipment cooling failure. The horn also sounds as long as the wheel well switch on the loadmaster amplifier panel is pushed.

The ground crew call horn puts out a 100 db signal of 2700 Hz.

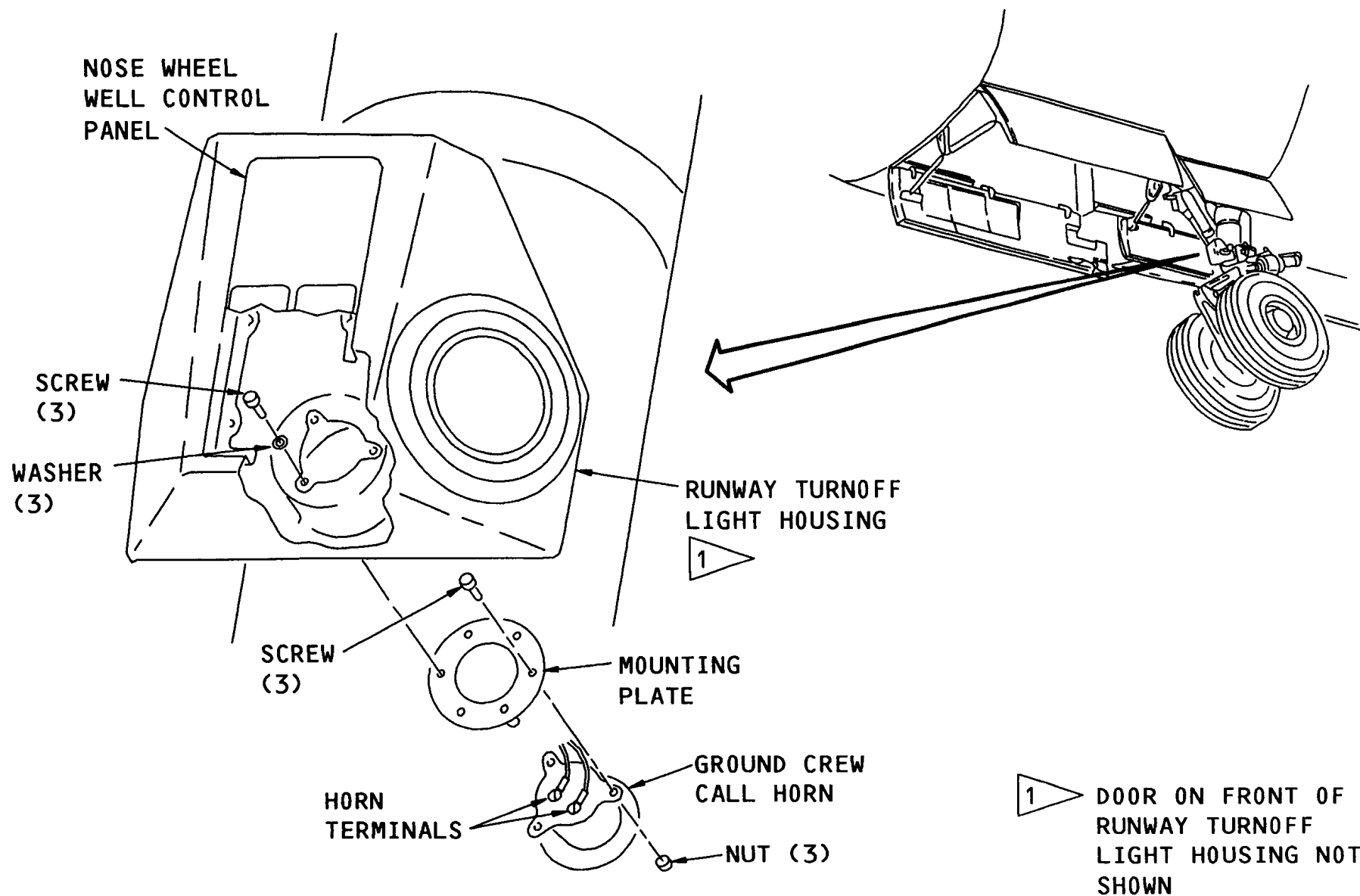
#### Access

To access the ground crew call horn:

- Open the door on the front of the runway turnoff light housing.
- Remove the nose wheel well control panel.

**WARNING:** WARNING: REFER TO MM 32-00-30/201 FOR LOCK INSTALLATION PROCEDURE. RAPID ACTION OF DOORS MAY INJURE PERSONNEL OR DAMAGE EQUIPMENT IF LOCKS ARE NOT PROPERLY INSTALLED.

# GROUND CREW CALL



**Figure 6 GROUND CREW CALL HORN**

## GROUND CREW CALL

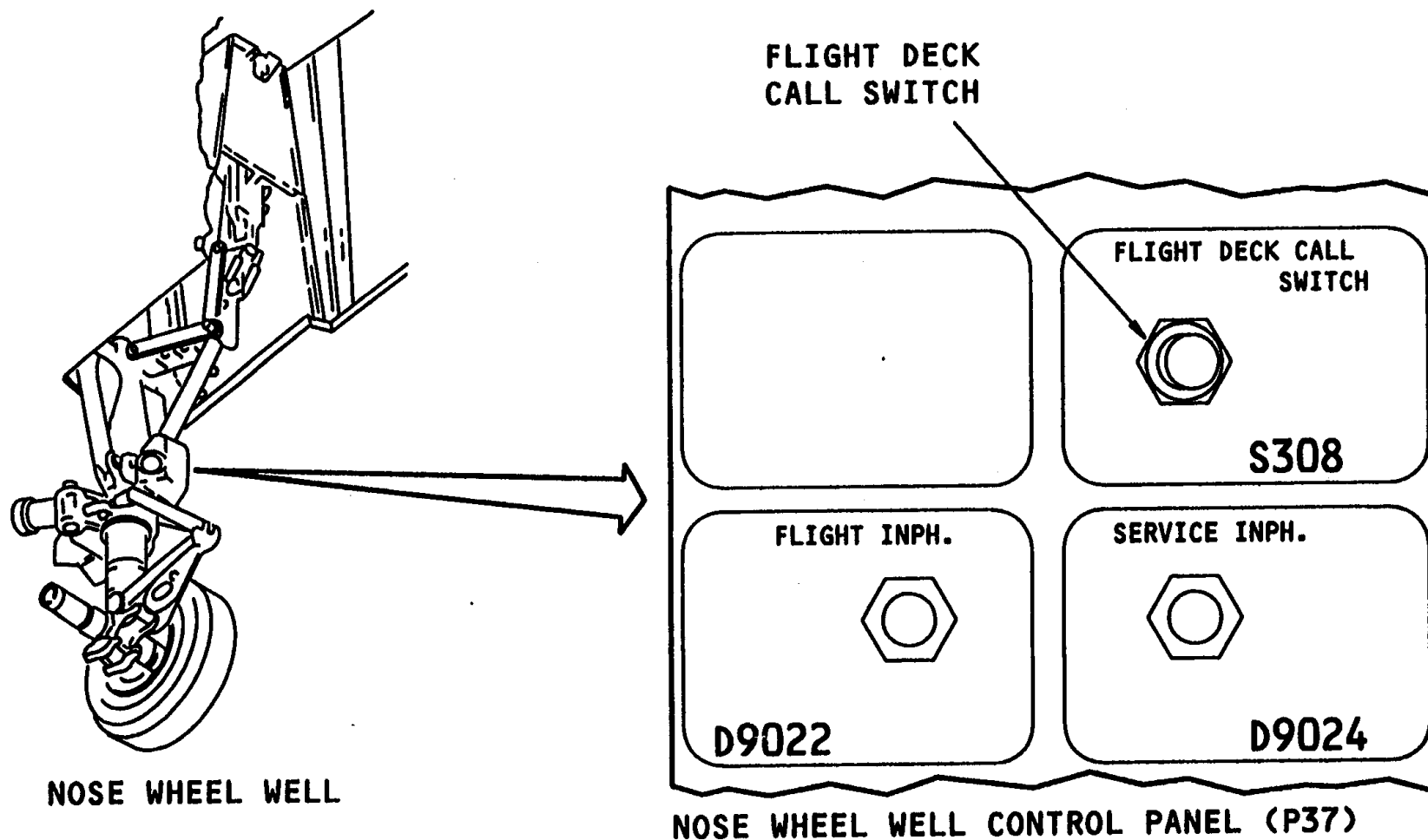


### FLIGHT DECK CALL SWITCH

The flight deck call switch on the nose wheel well control panel alerts the flight crew.

Push the momentary flight deck call switch to cause these three indications in the flight deck:

- A single low chime sounds.
- Each FLT call light on the audio control panels comes on.
- The pilots' call panel shows the message GND CREW CALL.



**Figure 7 FLIGHT DECK CALL SWITCH**



## GROUND CREW CALL



**Lufthansa**  
**Technical Training**

**B747 - 400**

009.01

**23-43**

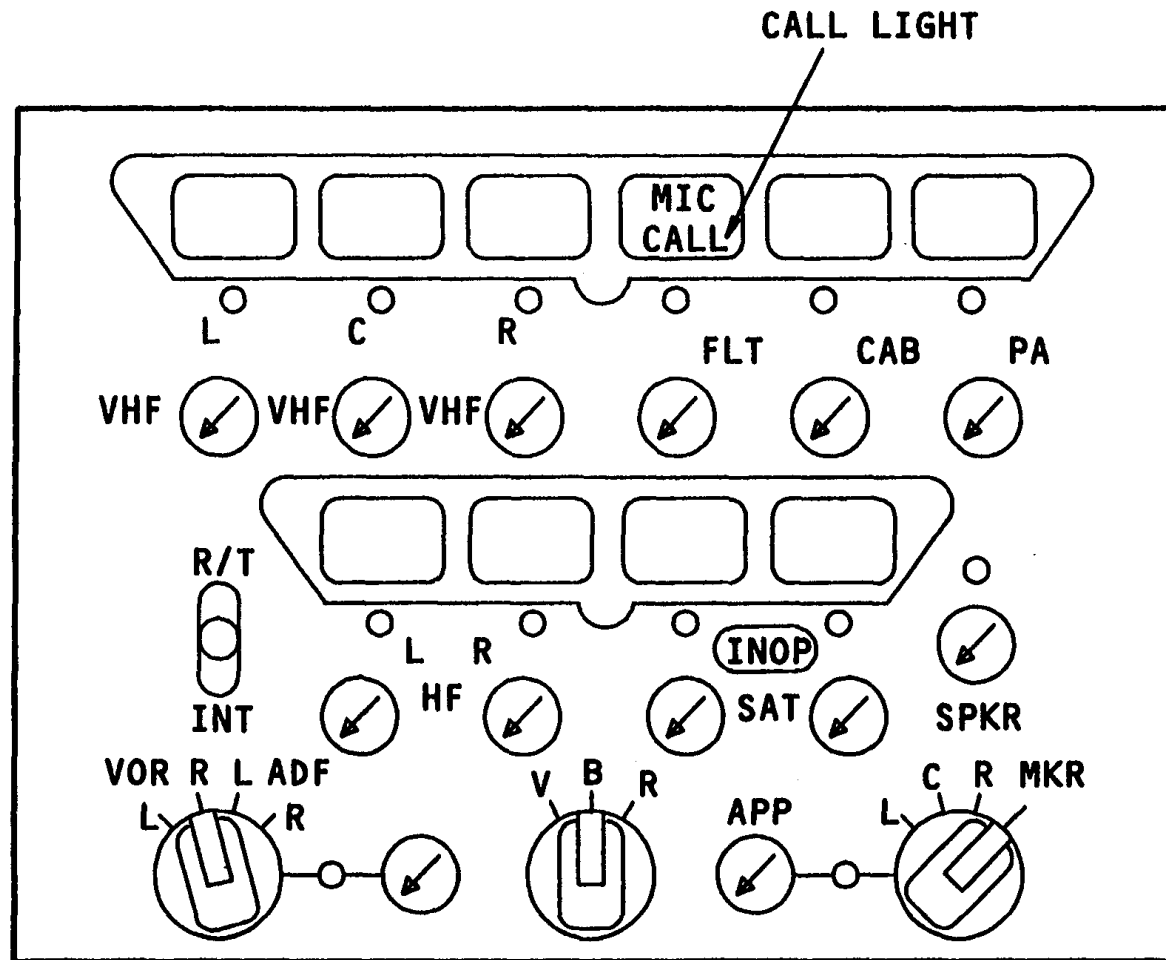
---

### **AUDIO CONTROL PANEL**

The audio control panel provides call annunciations.

The audio control panel FLT call light shows CALL when the flight deck call switch on the nose wheel well control panel is pushed.

# GROUND CREW CALL



**Figure 8 AUDIO CONTROL PANEL**

## GROUND CREW CALL



### **PILOTS' CALL PANEL**

The pilots' call panel (PCP) has a keypad. The keypad lets the flight crew enter codes to call various locations. The PCP also has a display which shows either the station called or the station from which a call comes.

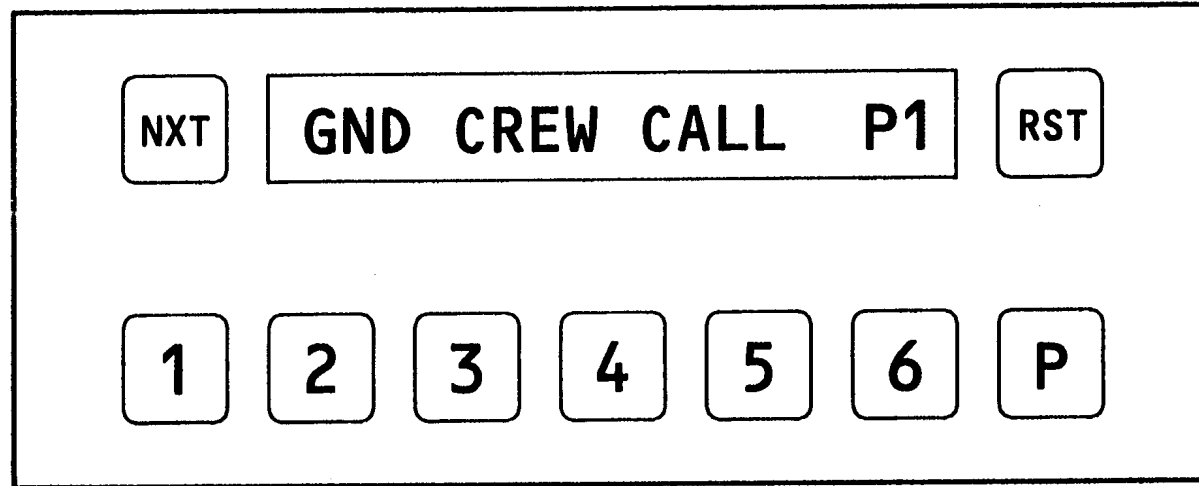
To make a ground crew call, push P1 on the pilots' call panel. This causes:

- The ground crew call horn to sound for 3 seconds.
- The message GND CREW CALL P1 to show on the pilots' call panel.

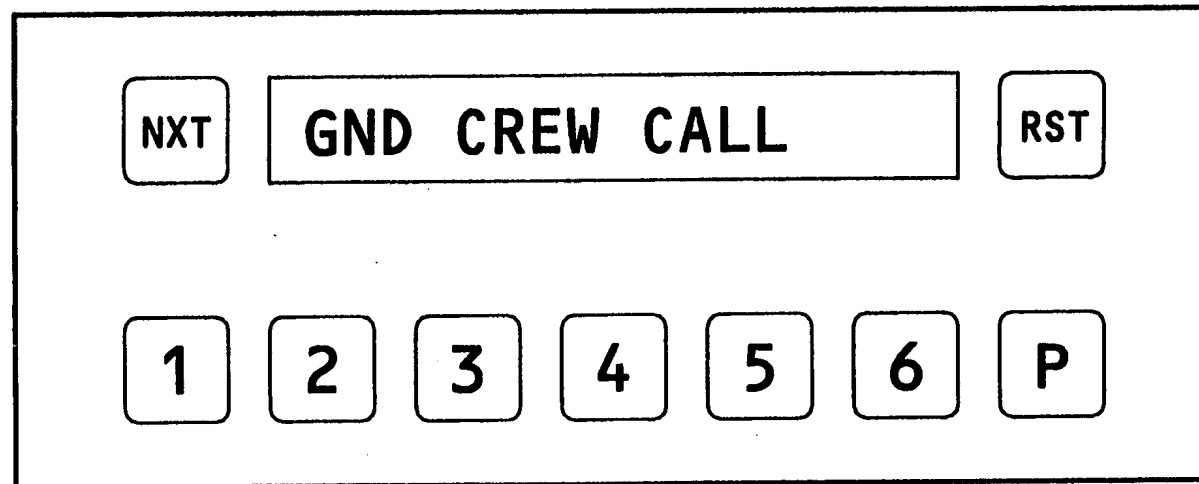
To repeat a call, push P1 on the keypad again.

The message GND CREW CALL shows when there is a call to the flight deck.

## GROUND CREW CALL



GROUND CREW CALL (FROM THE FLIGHT DECK)



FLIGHT DECK CALL (FROM THE NOSE WHEEL WELL)

Figure 9 PILOTS' CALL PANEL



## GROUND CREW CALL



**Lufthansa  
Technical Training**

**B747 - 400**

011.01

**23-43**

## GROUND CREW CALL

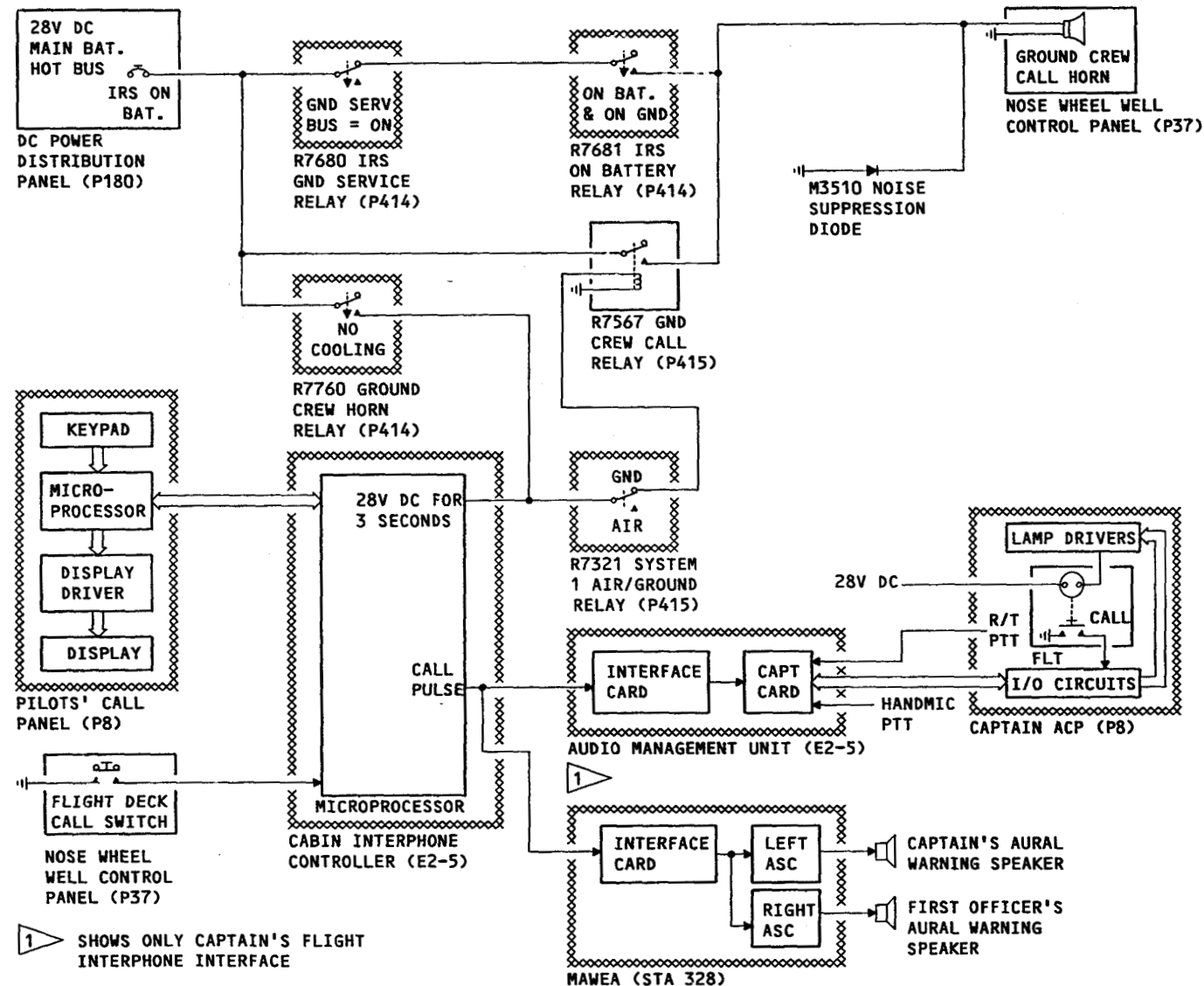


Figure 10 GROUND CREW CALL SYSTEM SCHEMATIC



## GROUND CRWE CALL



### **HORN OPERATION**

#### **General Description**

The ground crew call horn comes on when:

- There is a ground crew call from the flight deck.
- The inertial reference system (IRS) is on without ac power.
- There is an equipment cooling failure.

#### **Operation**

When P1 is pushed on the pilots' call panel (PCP), the microprocessor tells the cabin interphone controller (CIC) to call the ground crew. The CIC tells the PCP to show GND CREW CALL on its display.

It also sends a 28v dc discrete for 3 seconds to the system 1 air/ground relay.

If the airplane is on the ground, the discrete energizes the ground crew call relay. This relay

sends 28v dc from the IRS ON BAT circuit breaker to the ground crew call horn. Since the CIC sends the discrete for 3 seconds, the horn sounds for 3 seconds.

When there is no power on the ground service bus, the IRS ground service relay relaxes. When the airplane is on the ground and the inertial reference system (IRS) does not get ac power ("IRS on battery"), the IRS on battery relay energizes. This sends 28v dc from the IRS ON BAT circuit breaker through the IRS ground service relay and the IRS on battery relay to the ground crew call horn. This causes the horn to sound continuously.

If equipment cooling fails, the ground crew horn relay closes. This sends 28v dc from the IRS ON BAT circuit breaker to the system 1 air/ground relay. If the airplane is on the ground, the 28v dc goes through the air/ground relay and energizes the ground crew call relay. This relay sends 28v dc from the IRS ON BAT circuit breaker to the ground crew call horn. The horn sounds continuously.

## GROUND CREW CALL



**Lufthansa**  
Technical Training

B747 - 400

012.01

23-43

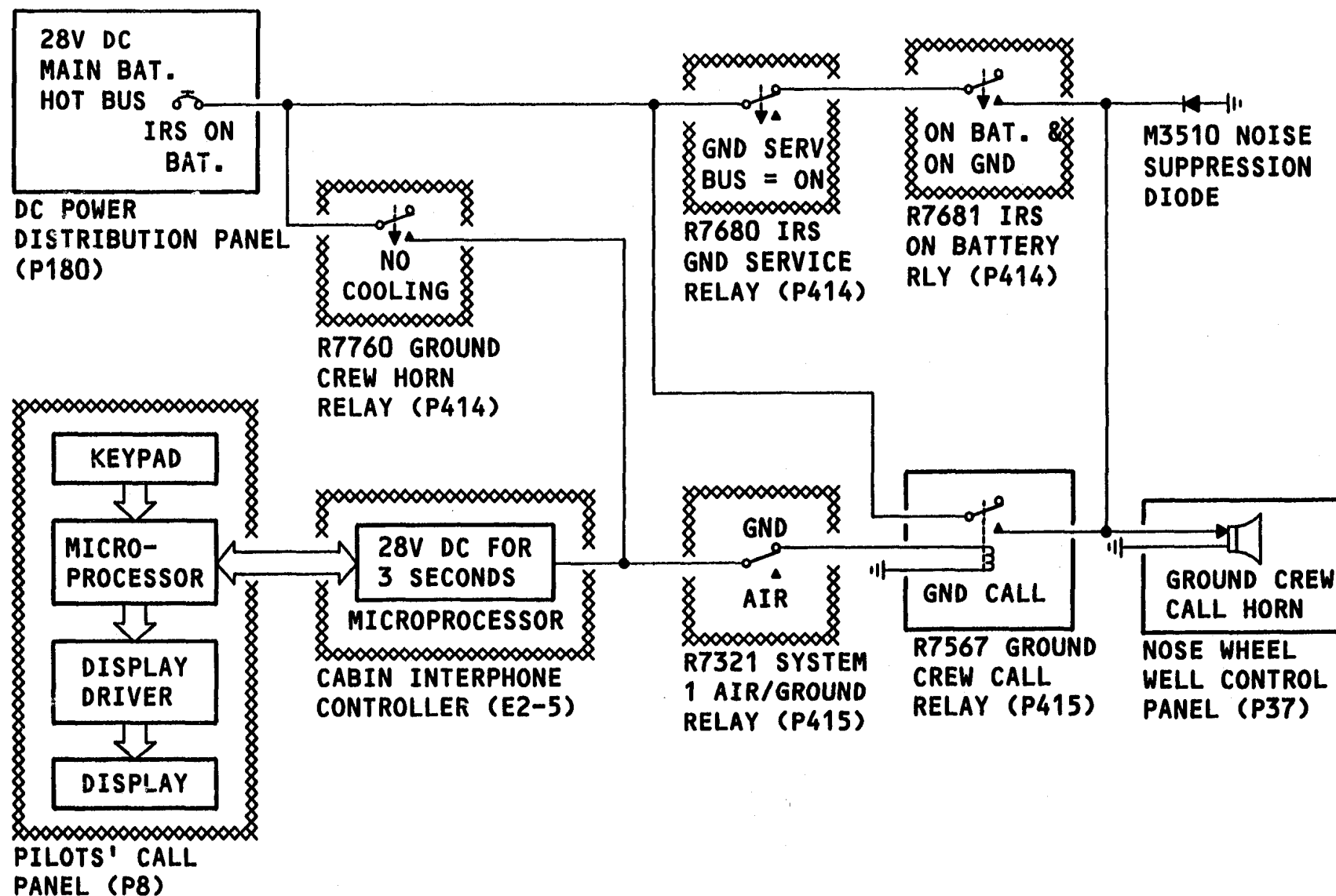


Figure 11 HORN OPERATION





## GROUND CREW CALL



## FLIGHT DECK CALL

### General Description

Push the flight deck call switch to cause:

- The CALL light on the flight interphone transmit switch on each audio control panel (ACP) to come on.
- A chime in the flight deck.
- The pilots' call panel (PCP) to show the message GND CREW CALL.

### Operation

When the flight deck call switch is pushed, it sends a ground discrete to the microprocessor in the cabin interphone controller (CIC). This causes the microprocessor to send the message GND CREW CALL to the microprocessor in the PCP. This microprocessor tells the display driver to show the message on the display. The message shows until One minute passes or until the PCP needs to show another message.

The microprocessor in the CIC also sends a call pulse to the interface card in the audio management unit (AMU). This card sends the pulse to all the crew members' cards. Each card sets a digital discrete on its output to its ACP. The input/output (I/O) circuits in each ACP tell the lamp drivers to make the CALL light for flight interphone (FLT) come on. The transmit switch resets the CALL light. A PTT can also reset the CALL light.

The call pulse from the CIC also goes to the crew alerting card in the modularized avionics and warning electronics assembly (MAWEA). This card tells the left and right aural synthesizer cards (ASCs) to generate a chime. These cards send a low chime to the captain's and first officer's aural warning speakers.

## GROUND CREW CALL

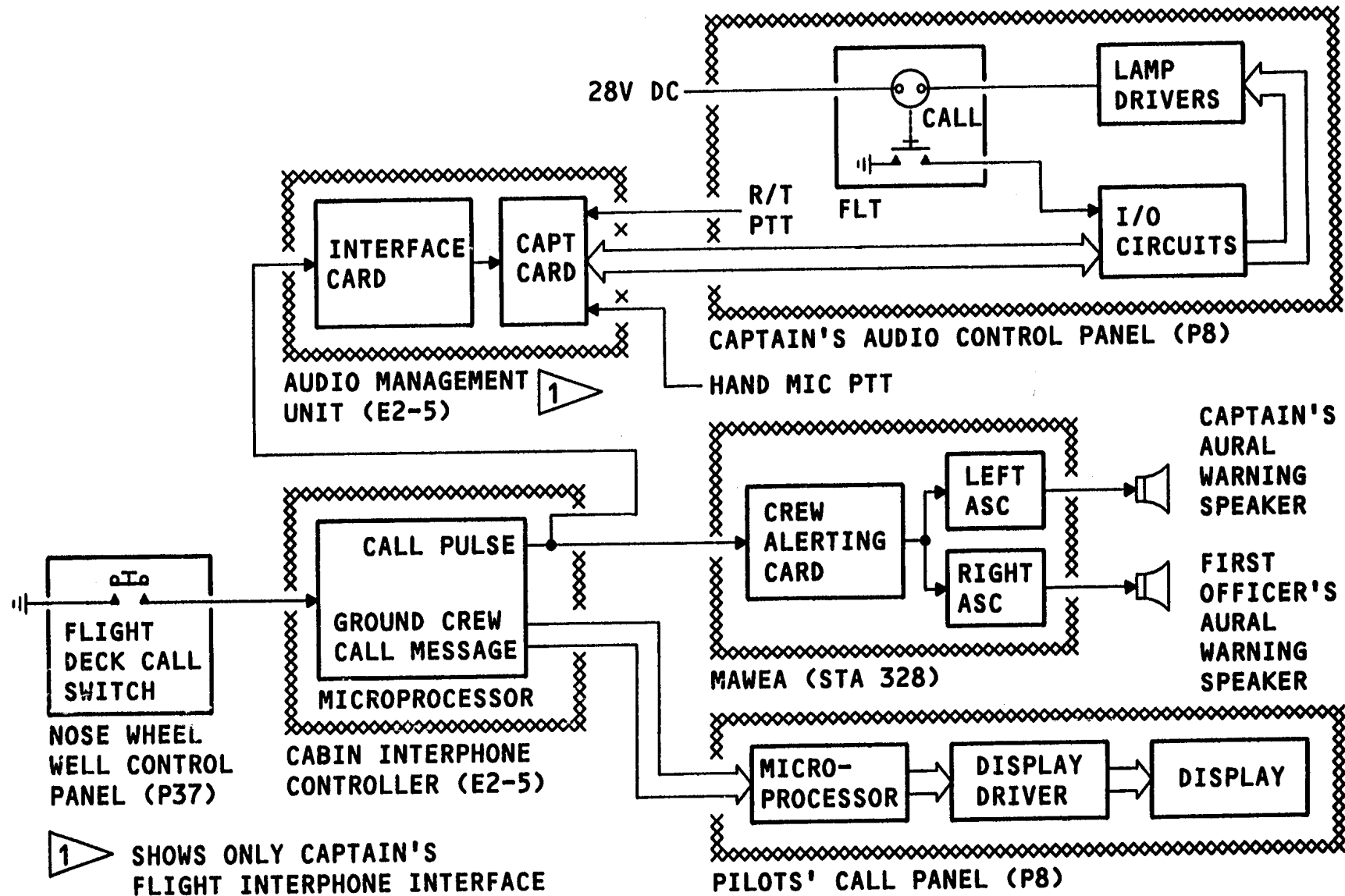


Figure 12 FLIGHT DECK CALL



## **TABLE OF CONTENTS**

<b>ATA 23-43 GROUND CREW CALL .....</b>	<b>1</b>
GROUND CREW CALL SYSTEM - INTRODUCTION .....	2
GROUND CREW CALL SYSTEM .....	4
COMPONENT LOCATIONS - NOSE WHEEL WELL .....	6
COMPONENT LOCATIONS - FLIGHT DECK .....	8
COMPONENT LOCATIONS - MEC .....	10
INTERFACE DIAGRAM .....	12
GROUND CREW CALL HORN .....	14
FLIGHT DECK CALL SWITCH .....	16
AUDIO CONTROL PANEL .....	18
PILOTS' CALL PANEL .....	20
HORN OPERATION .....	24
FLIGHT DECK CALL .....	26

## ***TABLE OF FIGURES***

Figure 1	GROUND CREW CALL - INTRODUCTION .....	3
Figure 2	GROUND CREW CALL SYSTEM .....	5
Figure 3	COMPONENT LOCATIONS - NOSE WHEEL WELL ..	7
Figure 4	COMPONENT LOCATIONS - FLIGHT DECK .....	9
Figure 5	COMPONENT LOCATIONS - MEC .....	11
Figure 6	INTERFACE DIAGRAM .....	13
Figure 7	GROUND CREW CALL HORN .....	15
Figure 8	FLIGHT DECK CALL SWITCH .....	17
Figure 9	AUDIO CONTROL PANEL .....	19
Figure 10	PILOTS' CALL PANEL .....	21
Figure 11	GROUND CREW CALL SYSTEM SCHEMATIC .....	23
Figure 12	HORN OPERATION .....	25
Figure 13	FLIGHT DECK CALL .....	27



