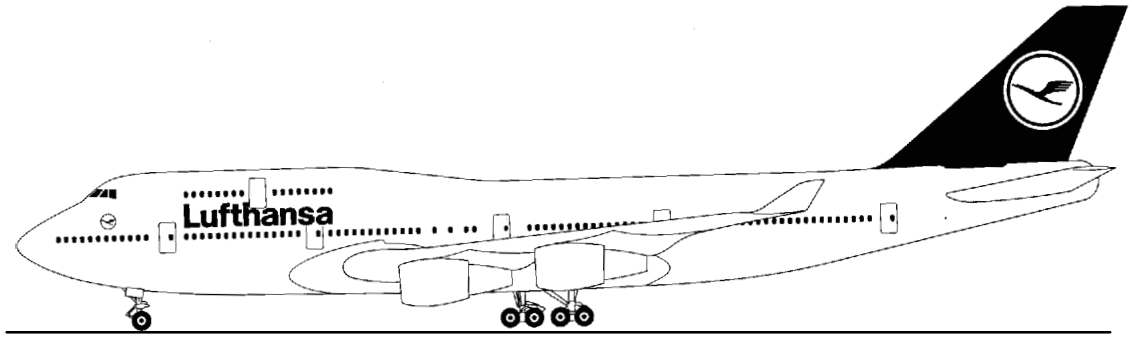
Lufthansa Technical Training

Training Manual B 747-400



ATA 34-25
STANDBY ATTITUDE INDICATION

ATA Spec. 104 Lvel 3

Book No:

Lufthansa
Technical Training GmbH
Lufthansa Base

Issue: Nov 2001

Lufthansa Technical Training

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

ATA 34-25 STANDBY ATTITUDE INDICATION

STANDBY ATTITUDE REFERENCE SYSTEM INTRODUCTION

The standby attitude reference system provides a backup source of attitude for the flight crew at all times during flight.

The standby attitude reference system operates independently of the primary attitude system and main airplane power.

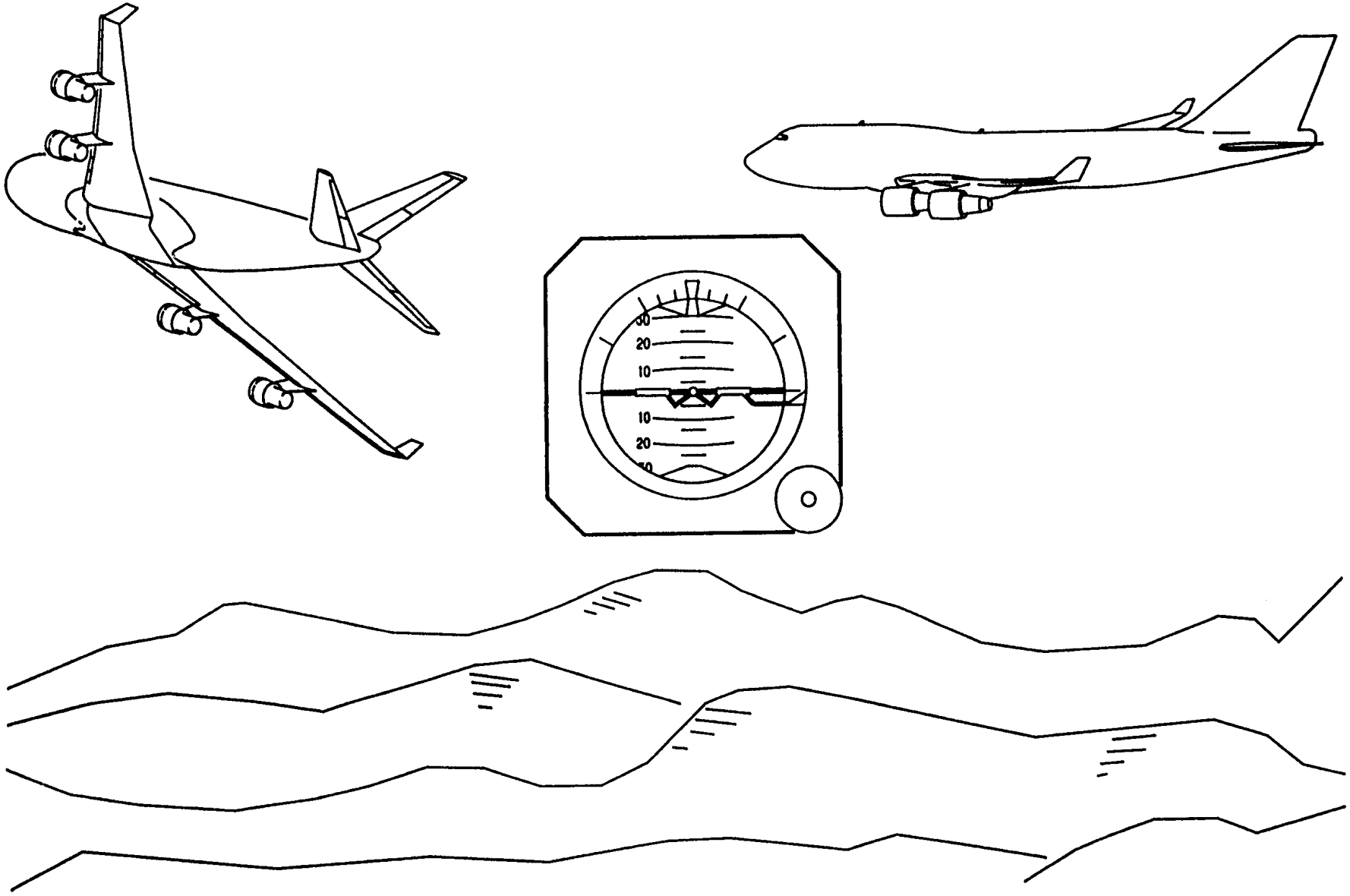


Figure 1 STANDBY ATTITUDE REFERENCE SYSTEM INTRODUCTION

STANDBY ATTITUDE REFERENCE SYSTEM

System Description

The standby attitude reference system is an alternate source of airplane pitch and roll attitude data. The system consists of a standby attitude indicator and one power circuit breaker.

Operation

A vertical gyro connected to a sphere-type roll and pitch attitude play provides the flight crew with standby attitude. The display can indicate 107 degrees in climb, 63 degrees in dive and 360 degrees of roll. A cage knob mechanically accelerates the erection of the vertical gyro. A gyro fault flag shows for incorrect gyro speed or power.

Power

The main batter bus provides 28v dc to the standby attitude indicator through a circuit breaker on the overhead CB panel.

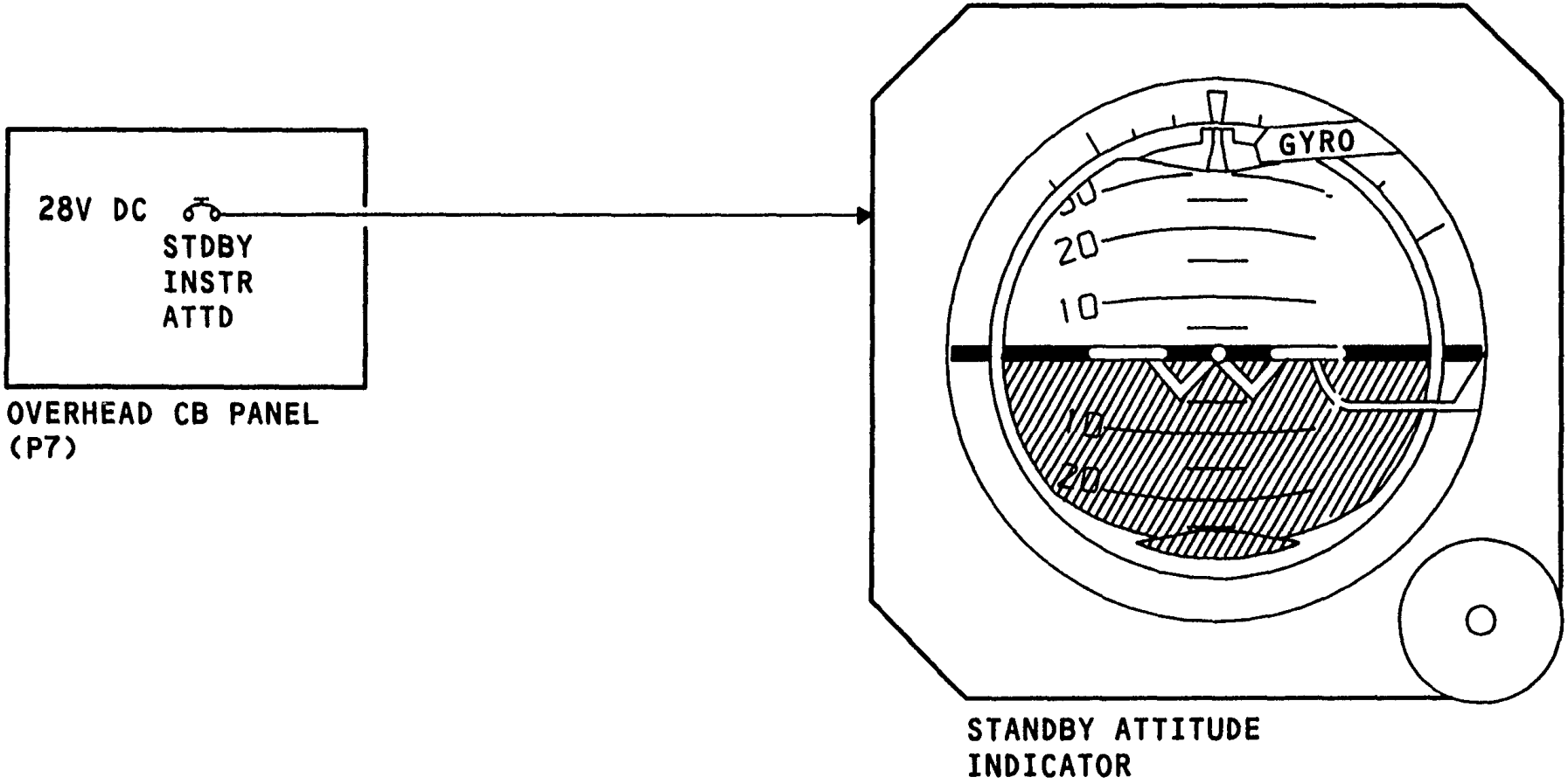


Figure 2 STANDBY ATTITUDE REFERENCE SYSTEM

COMPONENT LOCATIONS

The standby attitude reference system components are:

- Standby attitude indicator
- Standby attitude reference system circuit breaker

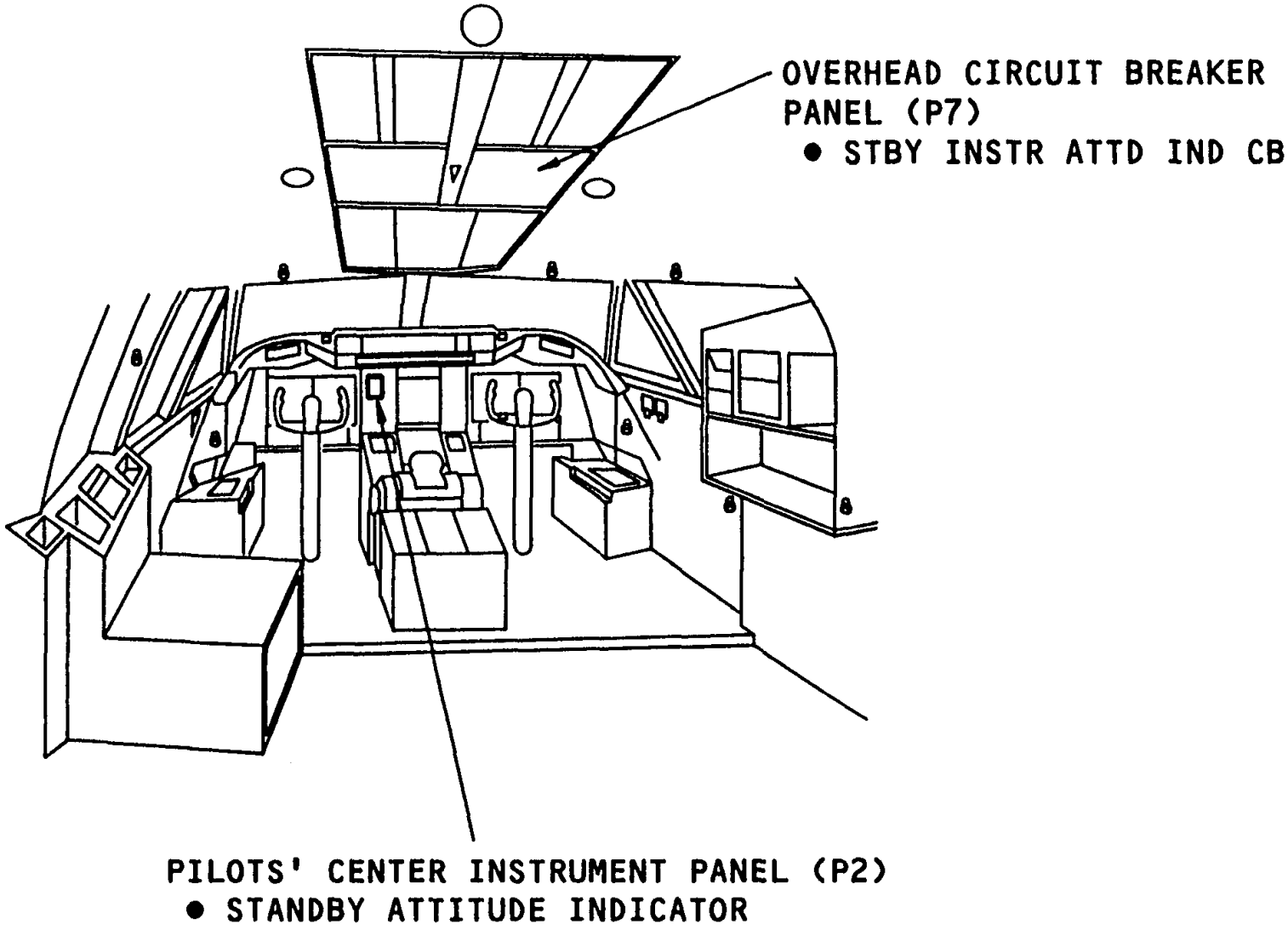


Figure 3 COMPONENT LOCATIONS

INTERFACE DIAGRAM

System Interface

The standby attitude reference system receives 28v dc power from a standby instrument circuit breaker in the pilot's overhead circuit breaker panel.

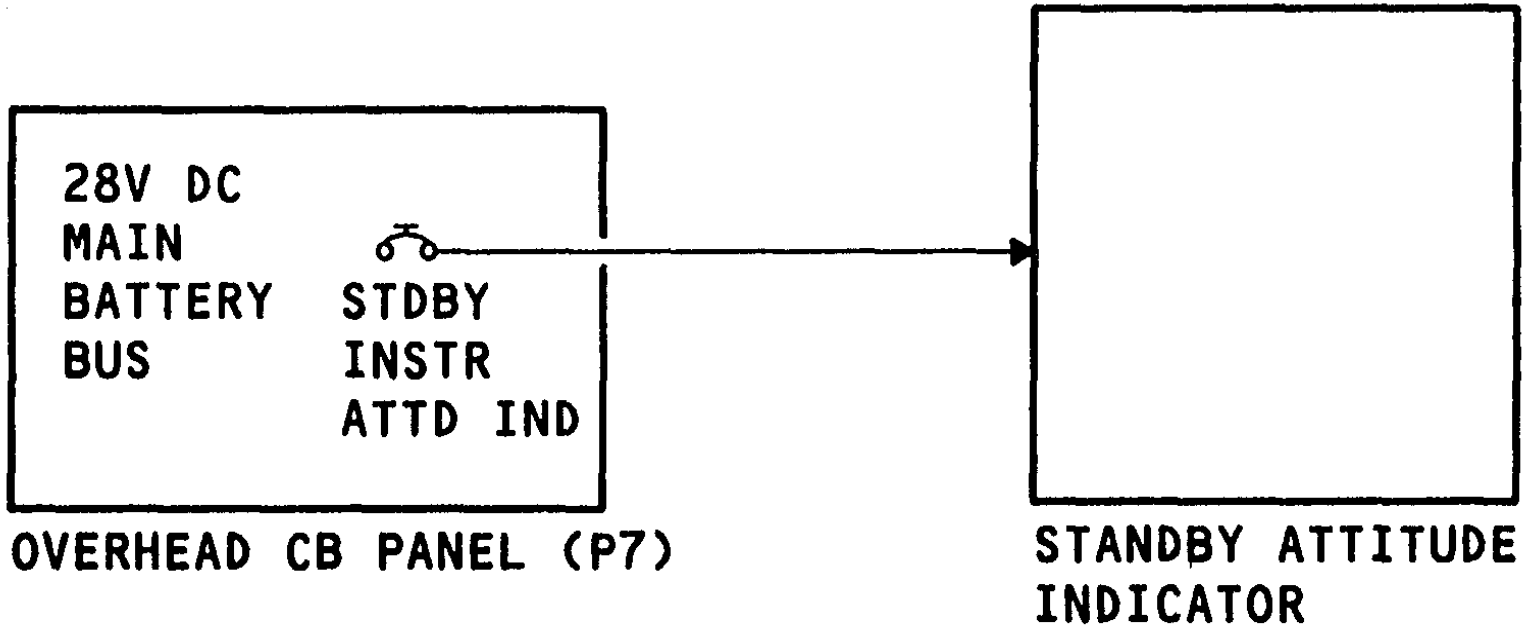


Figure 4 INTERFACE DIAGRAM

STANDBY ATTITUDE INDICATOR

General

The standby attitude indicator has a gyro stabilized sphere that provides a horizon reference. The roll scale is on the top half of the case front. Bank indication is shown with marks at 0˚, 10˚, 20˚, 30˚, and 45˚. The pitch scale appears on the face of the attitude sphere. Pitch angle is shown with marks every five degrees and numerals every ten degrees. The airplane symbol is attached to the case of the indicator and does not move.

Control

The standby attitude indicator gyro can be erected in two ways:

- Automatically: when the gyro erects at a rate of three degrees per minute after power is applied
- Manually: when the gyro spins for thirty seconds, and then the cage knob is pulled out and held for a few seconds, the sphere will stabilize to a zero pitch and zero roll indication

Characteristics

The standby attitude indicator can display:

- pitch attitude (+107˚ climb, -63˚ dive)
- roll attitude (+/-360 degrees)
- gyro failure

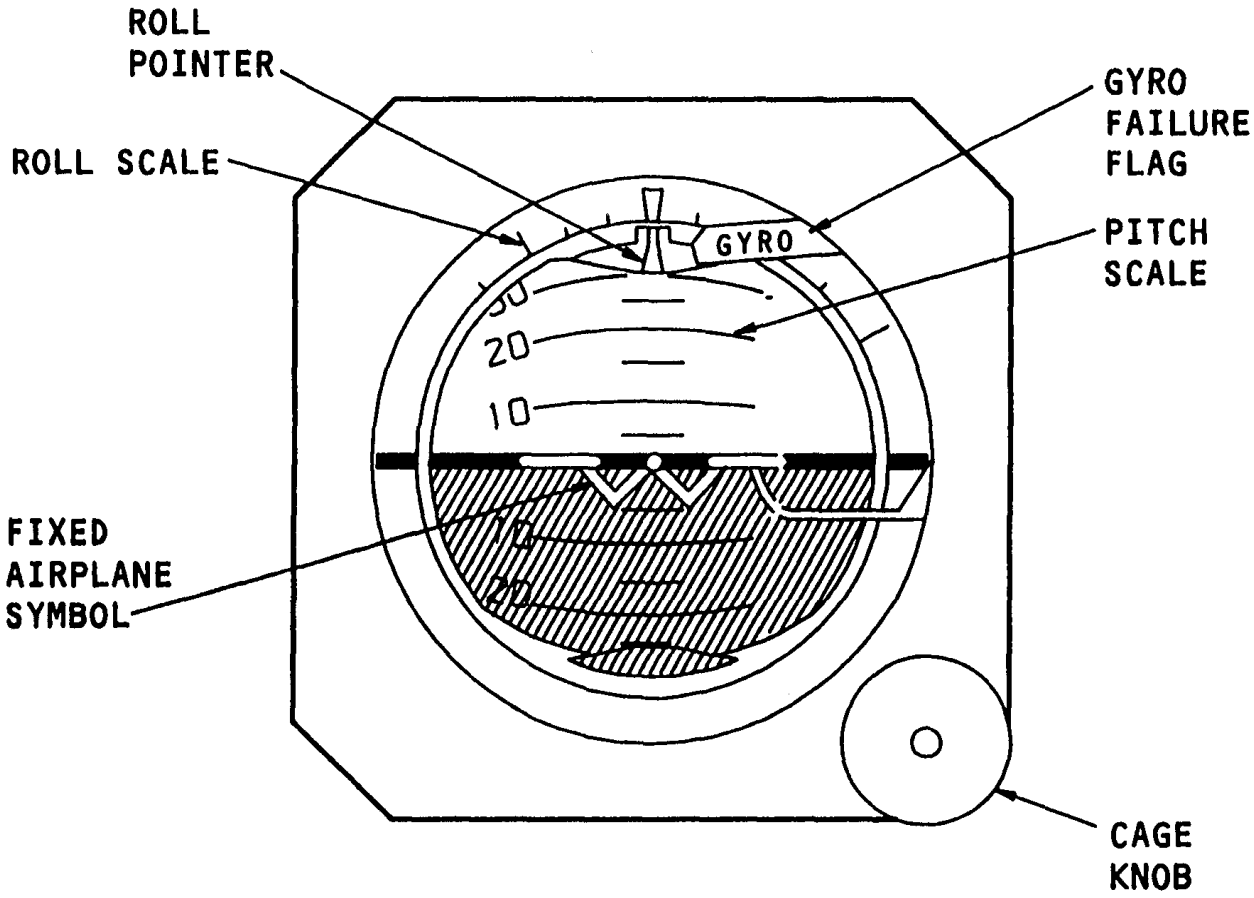


Figure 5 STANDBY ATTITUDE INDICATOR

ATTITUDE SCHEMATIC

The standby attitude reference system uses a gyro-stabilized attitude sphere to show airplane attitude.

The gyro will start the stabilization erect on process at power-up. The gyro normally erects at a rate of three degrees per minute, or it is fast erected in a few seconds when the cage knob is pulled. The gyro rotor spins at a speed of 18,000 rpm and thus requires approximately nine minutes to run down prior to removal.

A 28v dc to ac inverter provides 20v ac, three-phase 400 Hz power to the gyro motor. A gyro current-sensing circuit causes a gyro flag to come into view when the gyro power is detected as being incorrect.

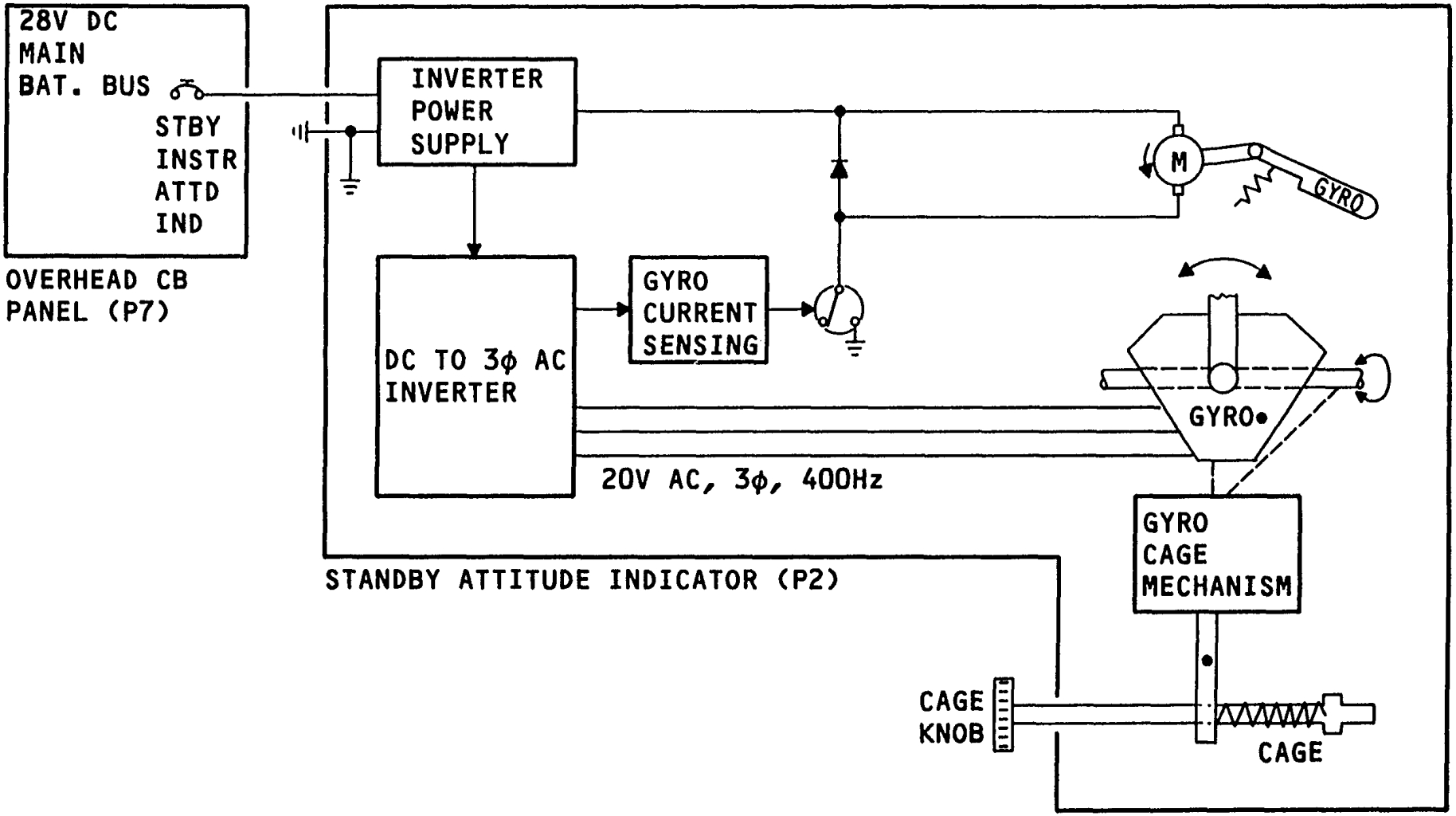


Figure 6 ATTITUDE SCHEMATIC

TABLE OF CONTENTS

TABLE OF FIGURES