

HS748 FLIGHT CONTROLS

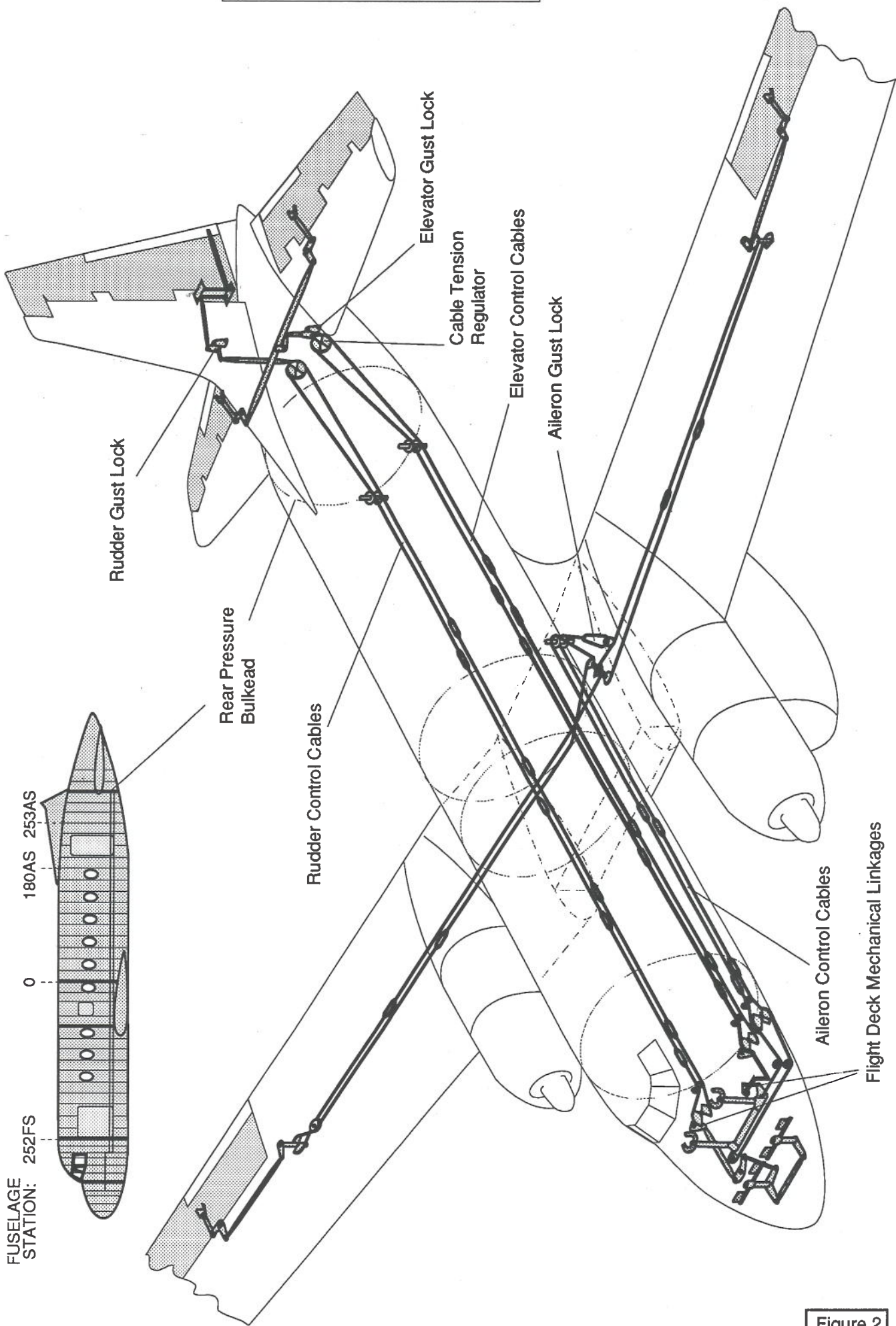


Figure 2

HS 748 GUST LOCK SYSTEM SCHEMATIC

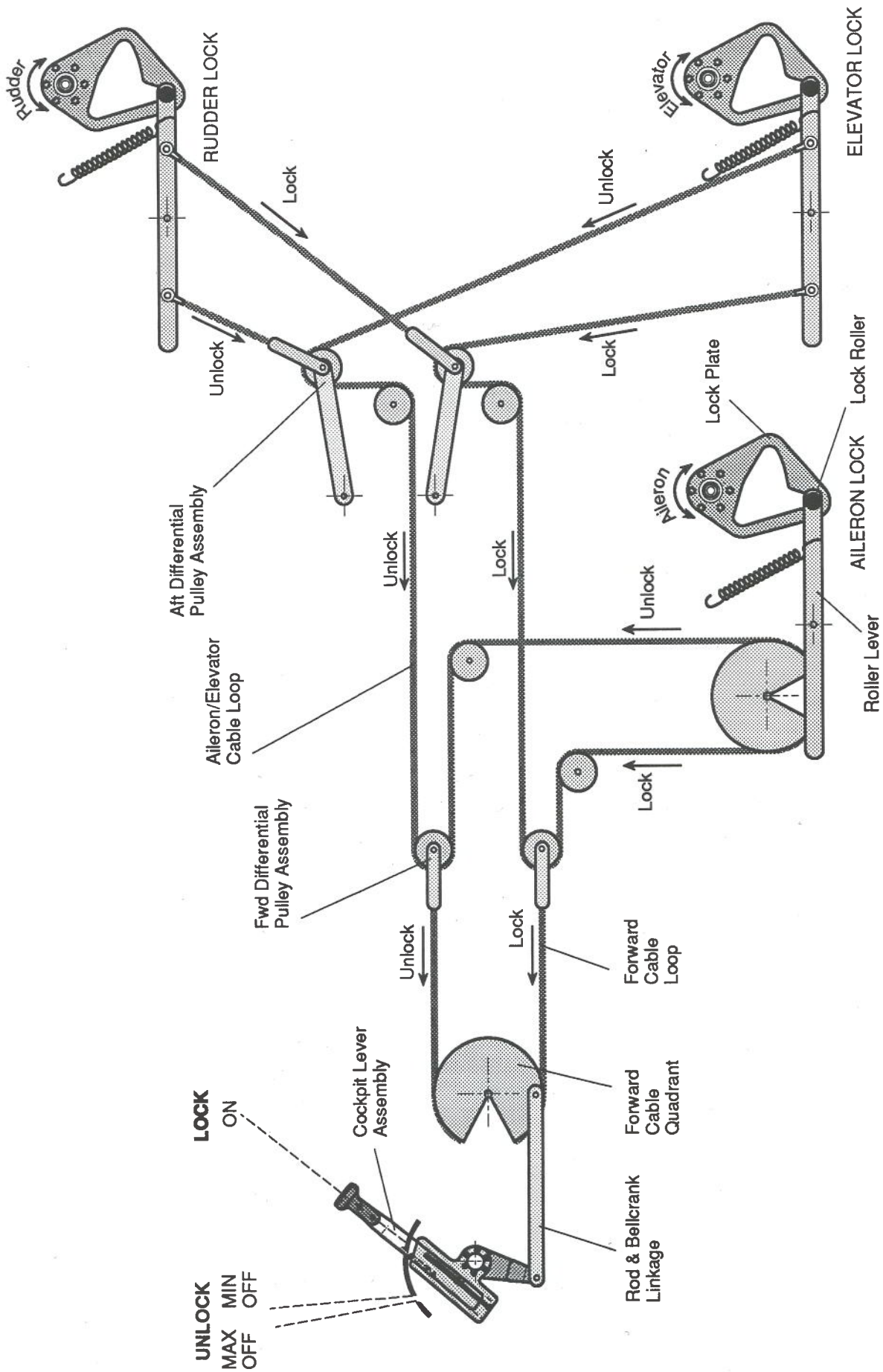


Figure 3

GUST LOCK SYSTEM - FLIGHT DECK LEVER ASSEMBLY

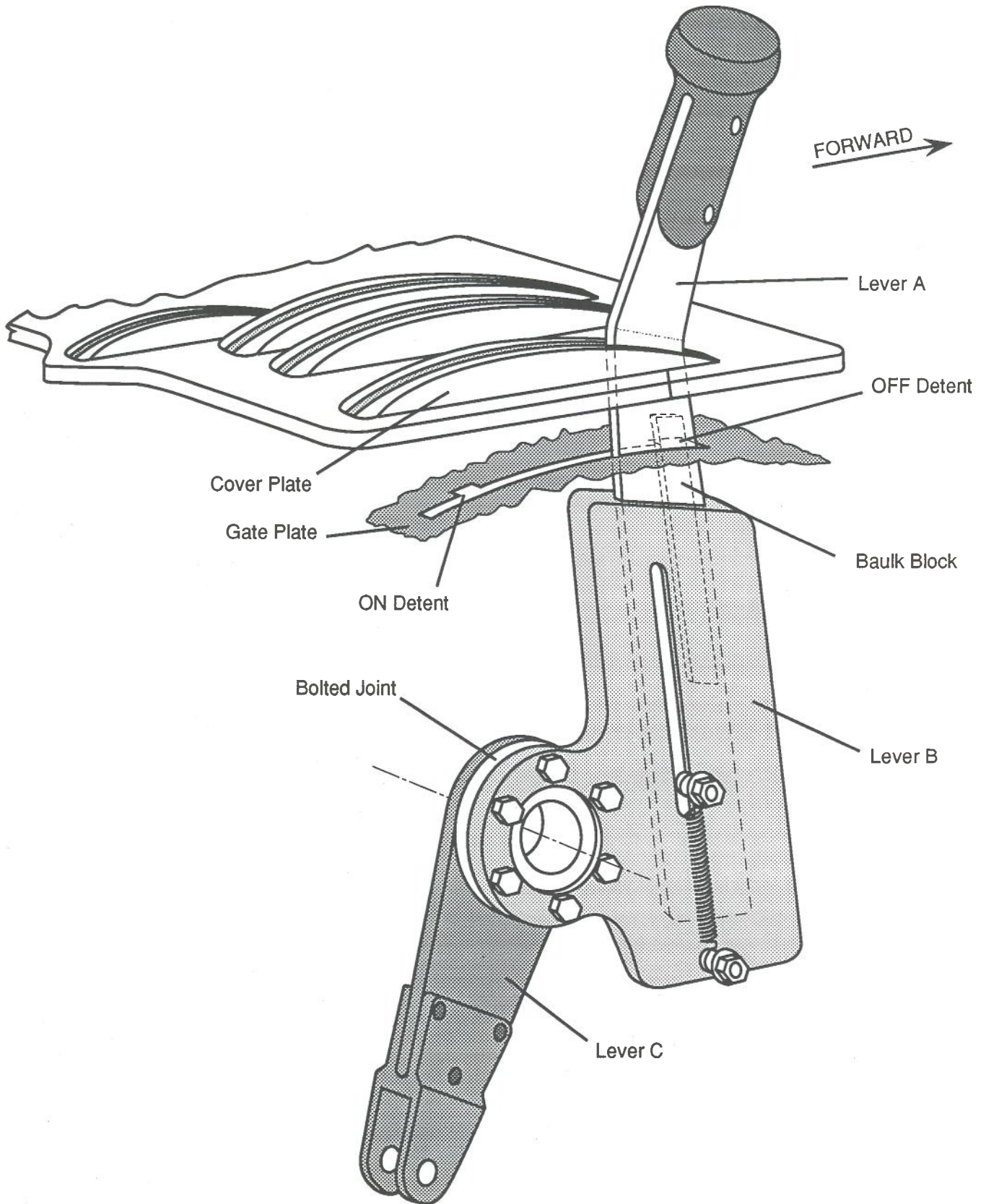


Figure 4

GUST LOCK SYSTEM - FLIGHT DECK LEVER SCHEMATIC

FORWARD →

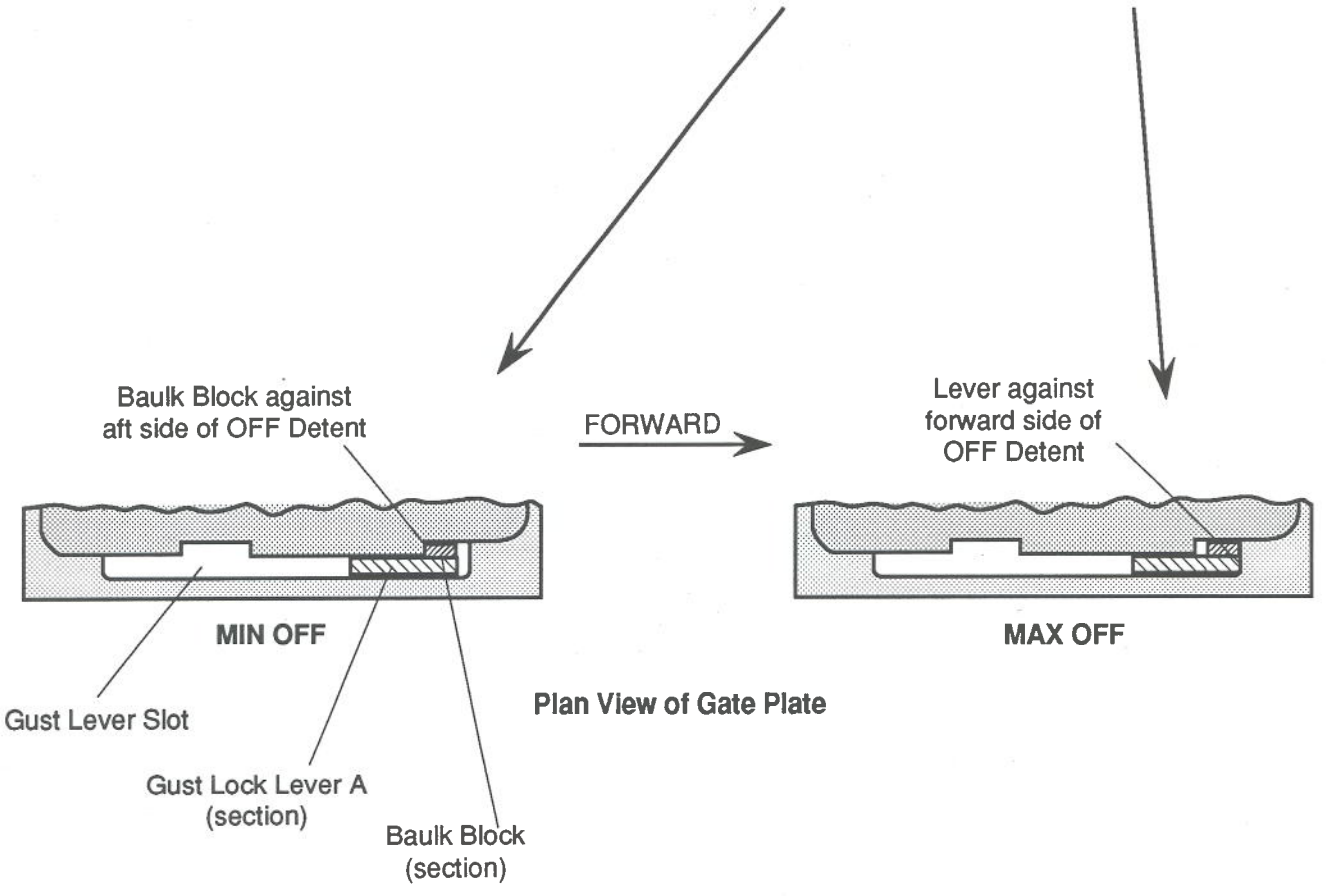
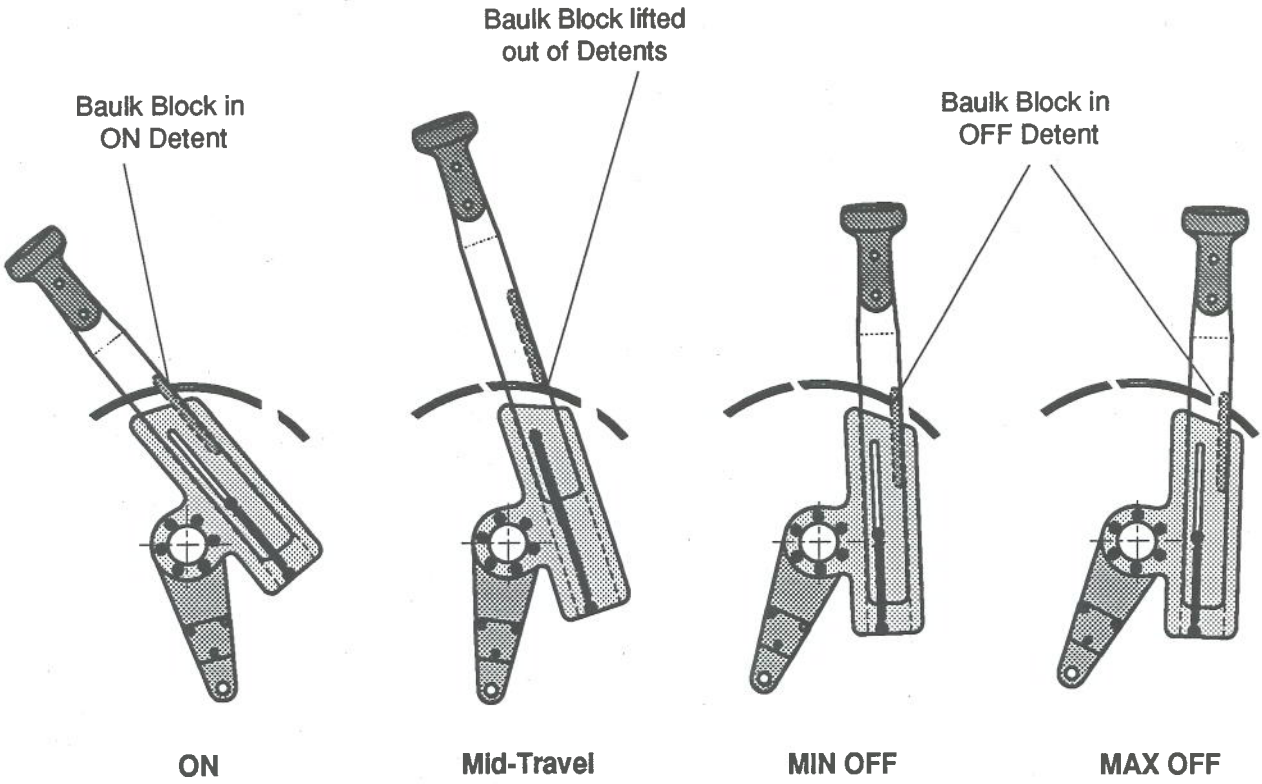


Figure 5

GUST LOCK SYSTEM - AFT DIFFERENTIAL PULLEY ASSEMBLY

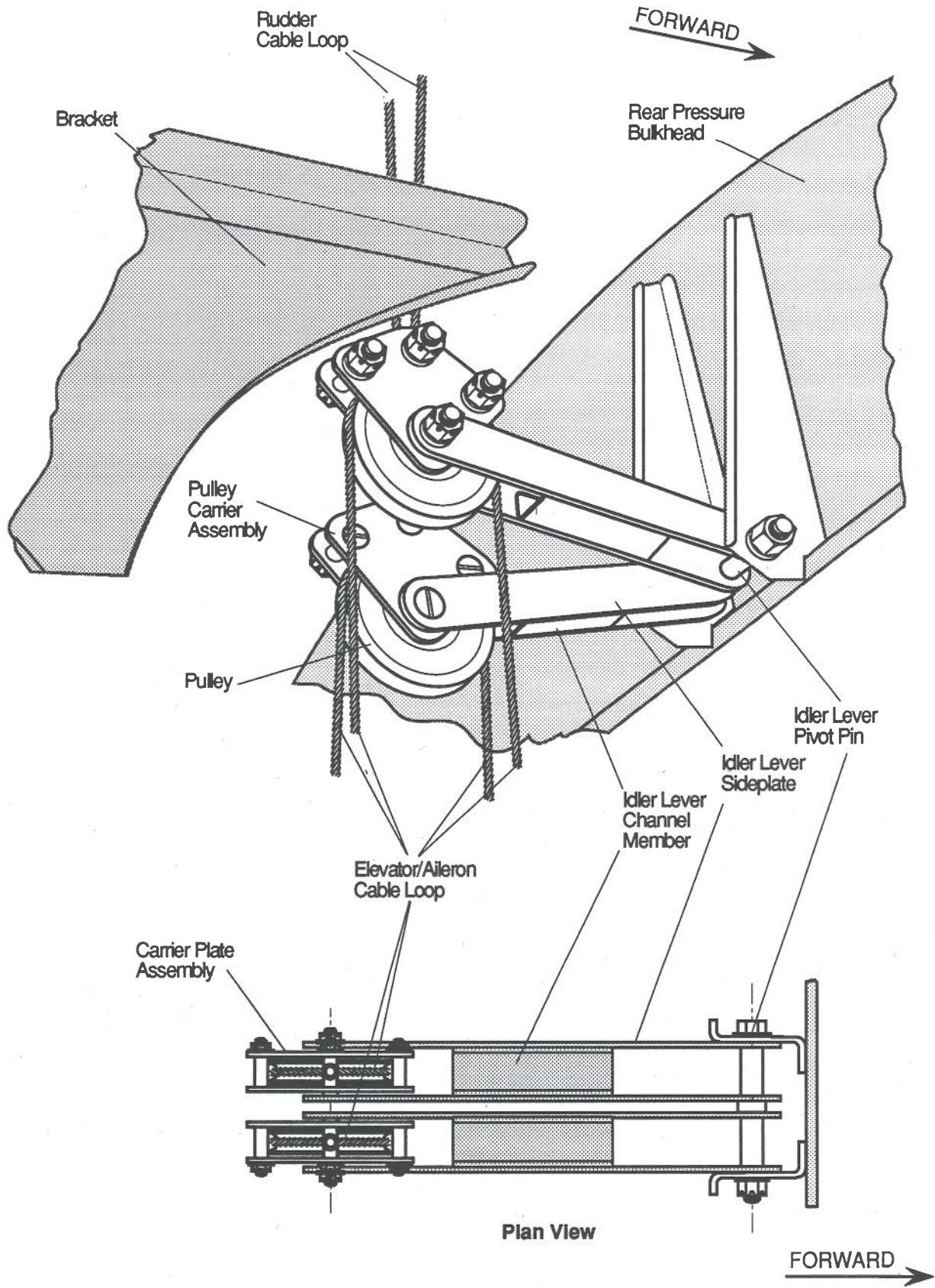


Figure 6

ELEVATOR GUST LOCK

MECHANISM

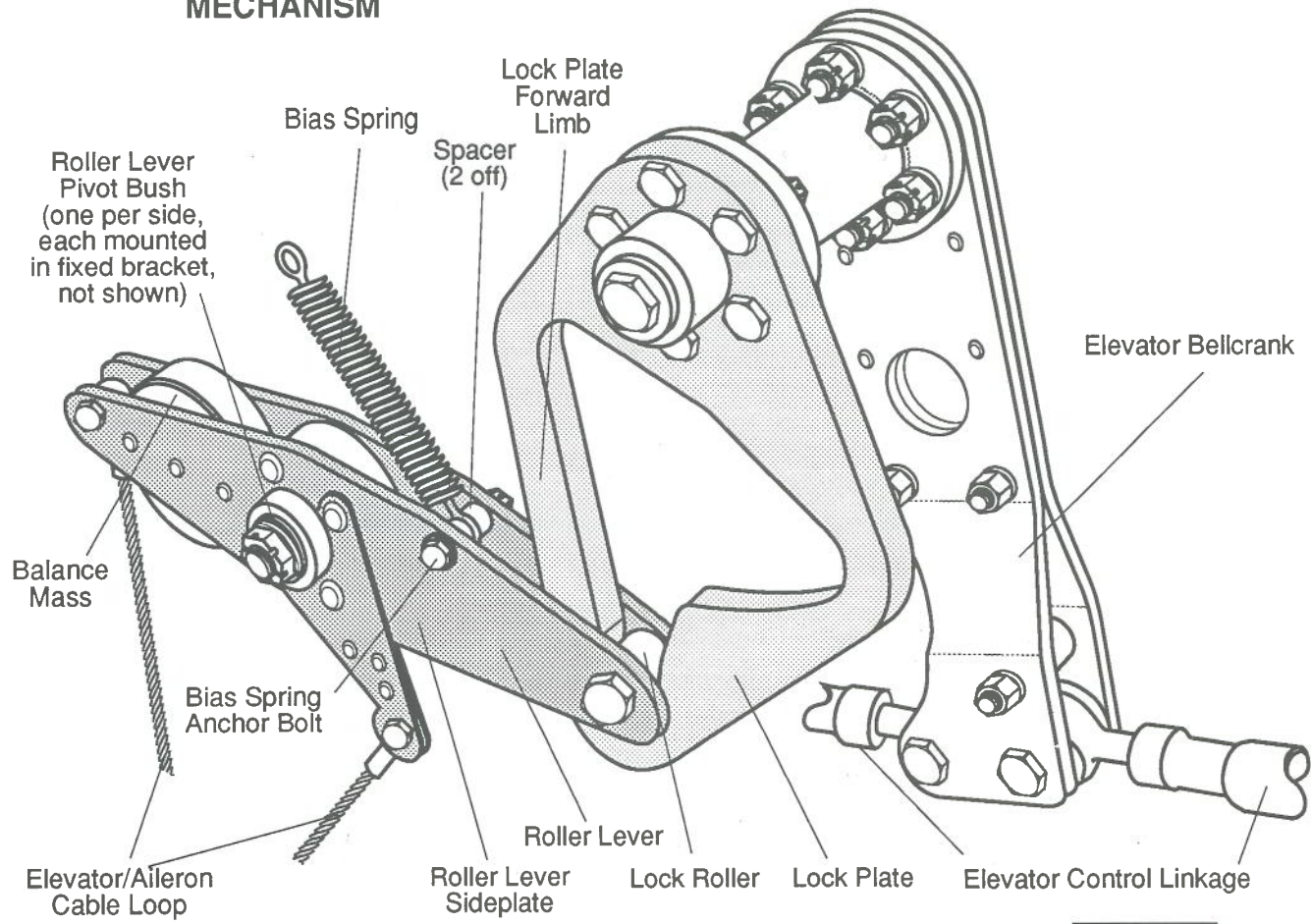
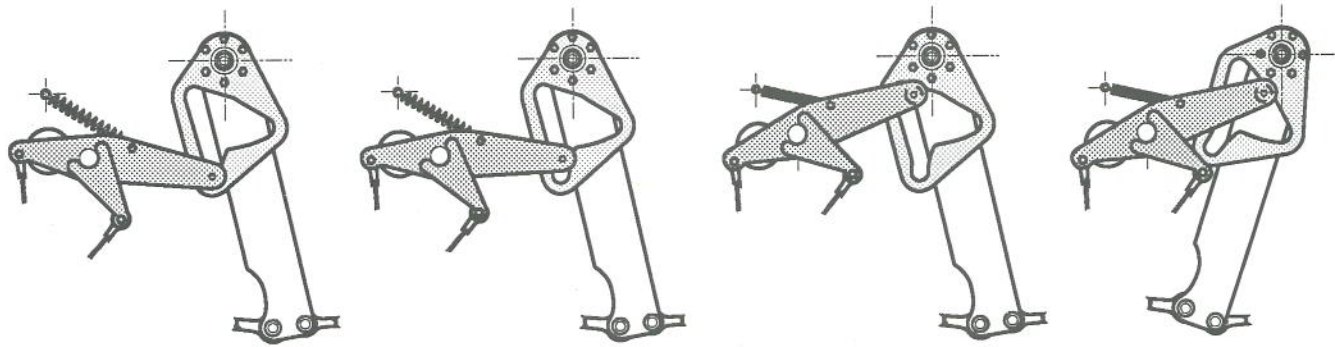


Figure 7.1

OPERATION



Fully Locked,
Elevator Down
(ie Control Column Forward)

Lock at Threshold,
Elevator Down

Unlocked,
Elevator Down

Unlocked,
Elevator Up

Figure 7.2

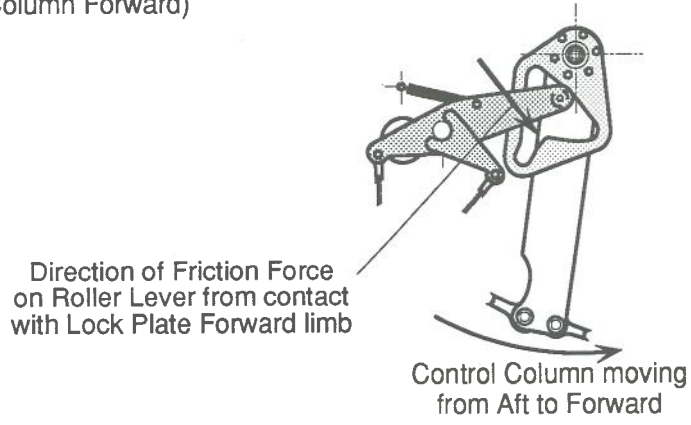
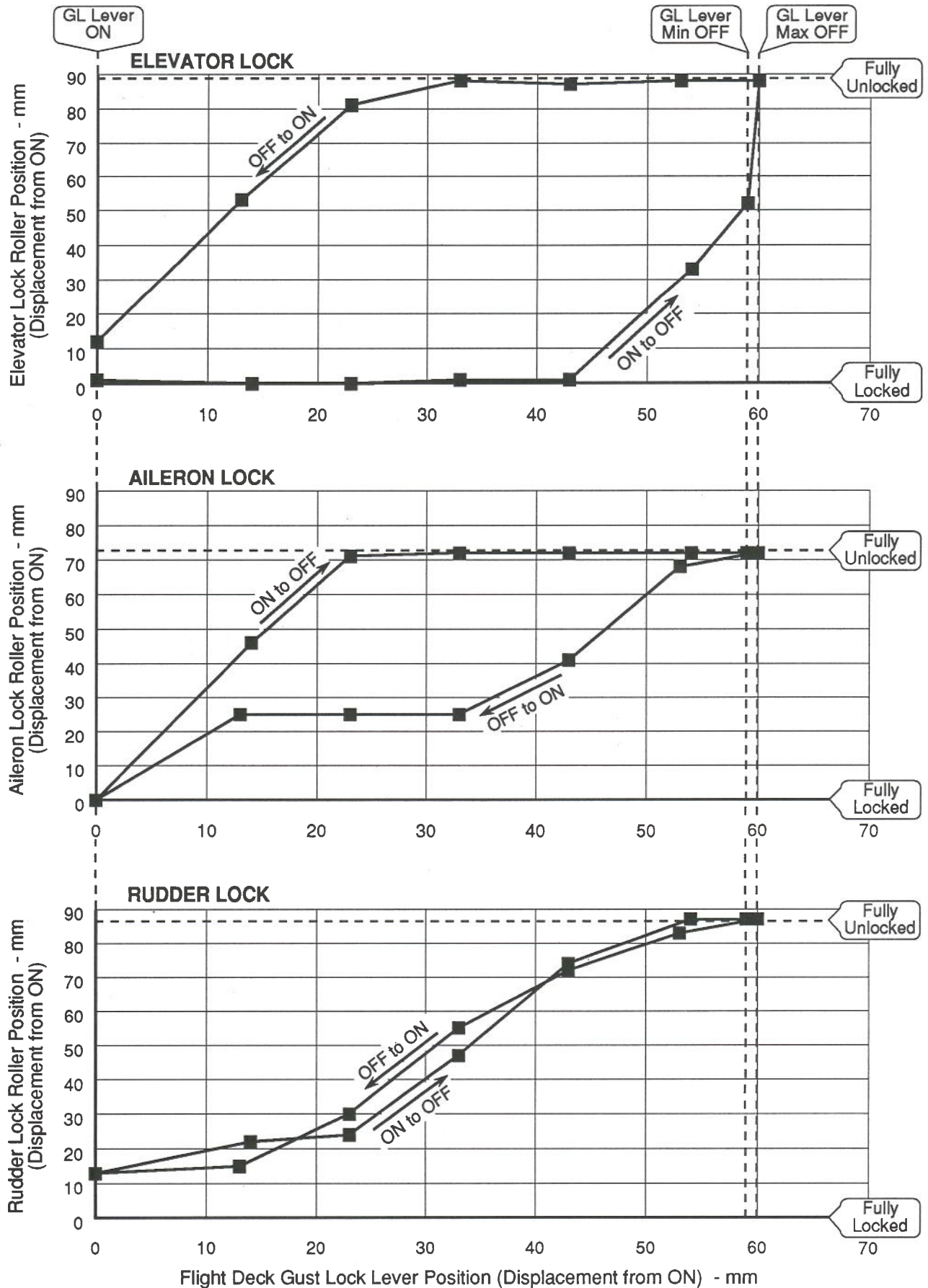


Figure 7

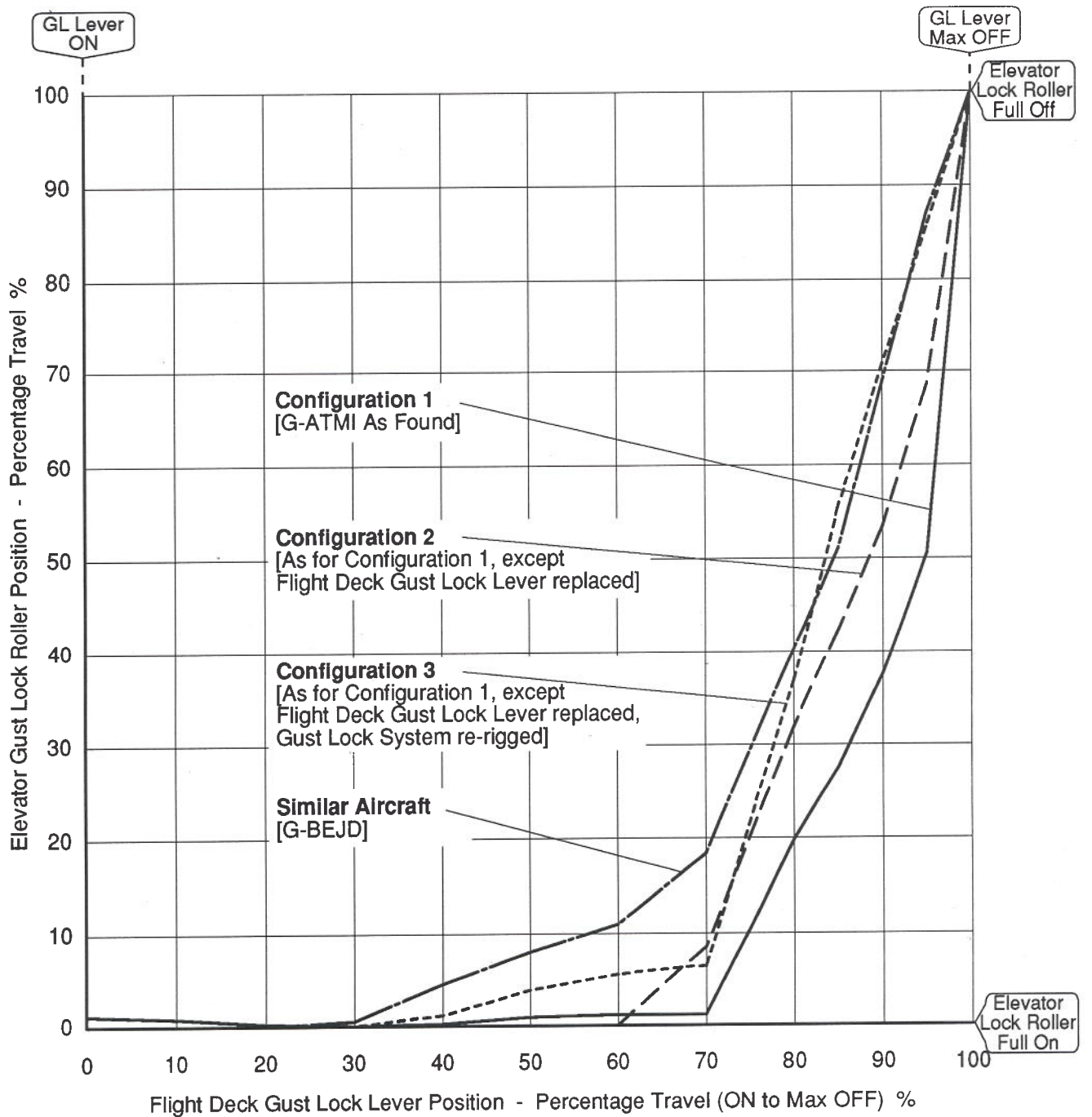
GUST LOCK SYSTEM CHARACTERISTICS



- Note:
1. Measurements for G-ATMI, Configuration 1B (system as-found, under cover).
 2. GL Lever - Pilot's Flight Deck Lever for Gust Lock System.

Figure 8

ELEVATOR GUST LOCK UNLOCKING CHARACTERISTICS



Note:
 1. Characteristics are approximate (based on interpolated straight-lined measurements).

Figure 9

**PREVIOUS HS748 ACCIDENTS AND INCIDENTS
WITH PRIMARY FLIGHT CONTROL RESTRICTION POSSIBLY
DUE TO GUST LOCK SYSTEM**

NO	DATE	REG	LOCATION	PHASE	EVENT	SUSPECTED CAUSE
1	18-5-77	G-BEBA	Leeds	Take-Off	Column jammed full forward at Vr, abort, stop 30m from Runway end.	NFF on detailed inspection, closed as 'isolated unexplained incident'.
2	31-7-79	G-BEKF	Sumburgh	Take-Off	Take-Off abort, overran Runway end into sea, 17 killed.	Suspect gust lock re-engagement.
3	21-6-80	HS-THG	Chiang Rai	Take-Off	Unable to rotate for take-off, veered off Runway.	Gust locks engaged, SB not complied with.
4	24-9-80	G-BEKE	-	Taxy	Intermittent clunk on rudder Full & Free Check.	NFF. Similar event found to be due to foul by gust lock rudder lever.
5	6-8-81	G-ATMI	Berne	Flight	Ailerons locked in neutral.	Freed by violent Gust Lock Lever movement, SB 27/88 incorporated Jan 83.
6	10-9-82	G-ARRW	Glasgow	Pre Take-Off	Unable to fully unlock Gust Lock Lever.	Believed due to gust lock system misrigging and crosswind.
7	24-7-87	PK-IHN	Jakarta	Take-Off	Take-Off abort at approximately 120 kt, over-run. Nose damaged.	Elevator jam possibly caused by mis-trim but no positive evidence.
8	30-10-89	C-GSXS	Canada	Approach	Violent pitch manoeuvre, elevator jammed in full down position.	NFF. Attributed possibly to misrigging of GL system.

Figure 10

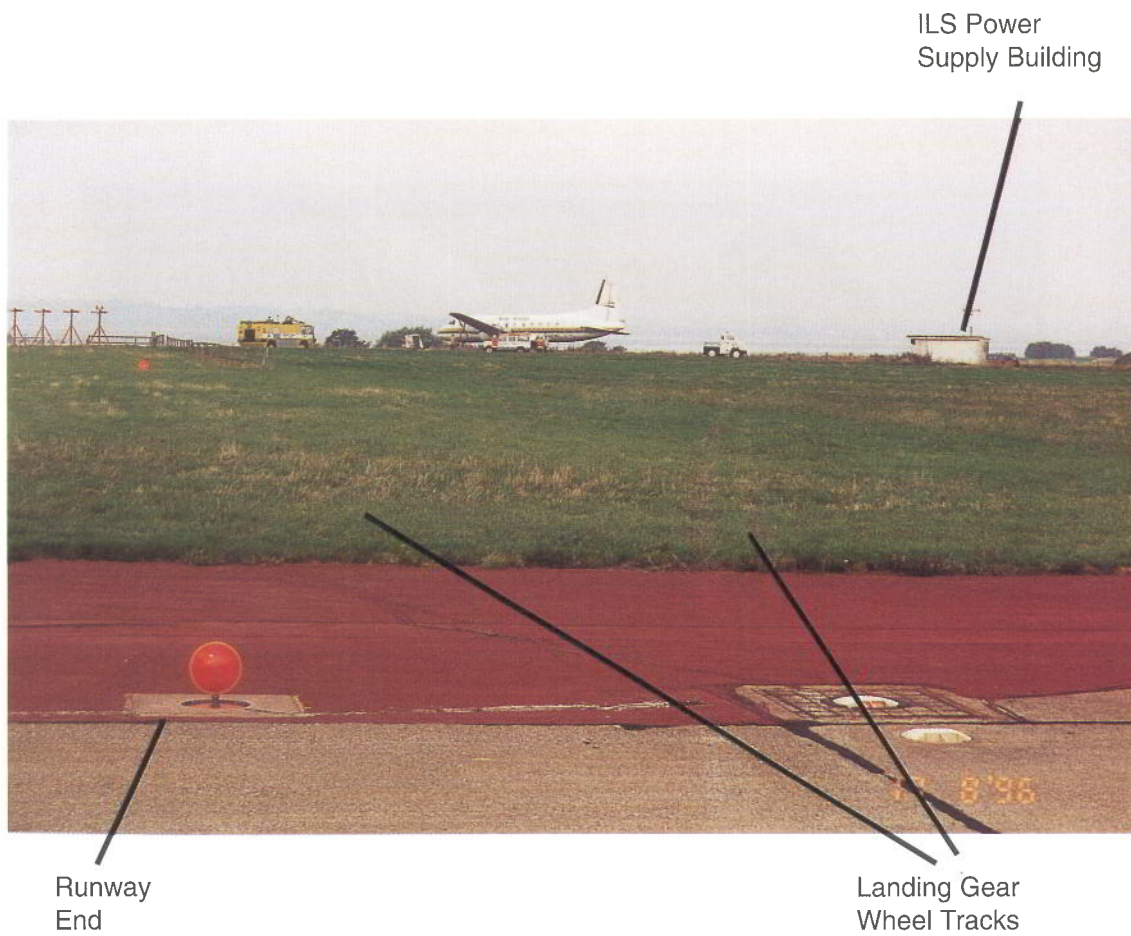


PHOTO 1.1 - RUNWAY OVERRUN AREA

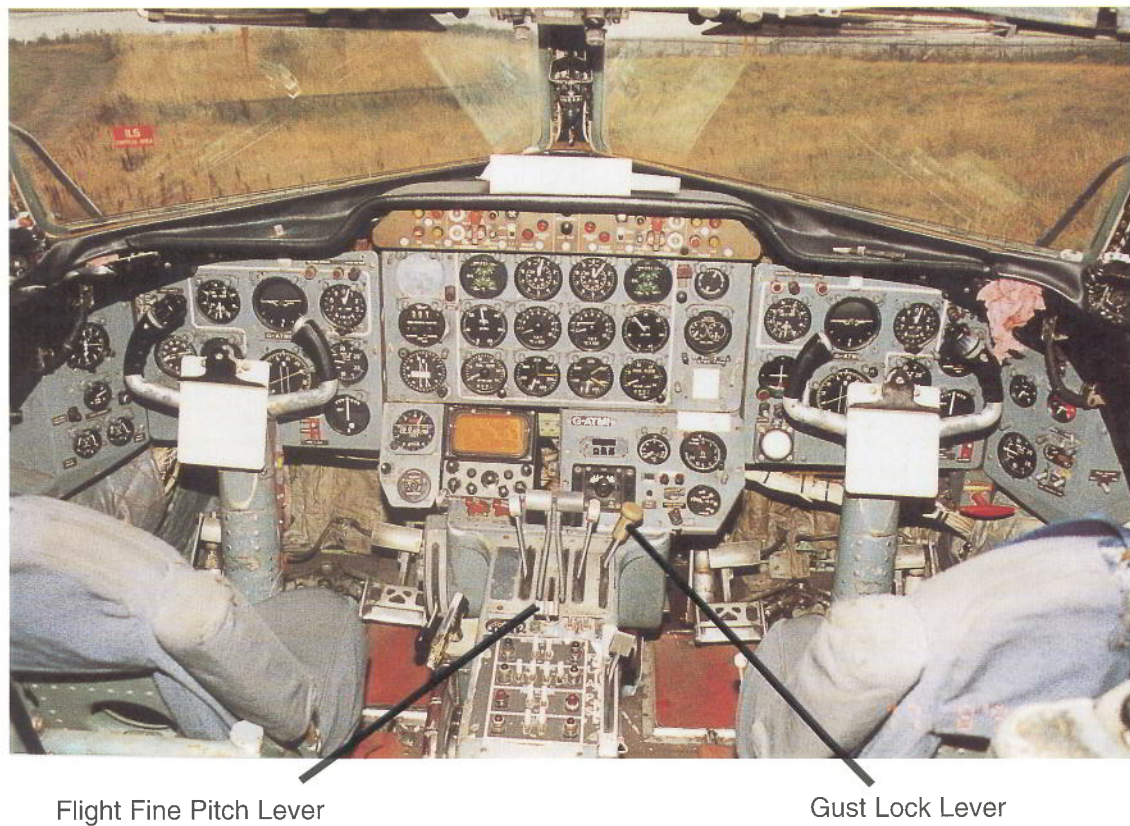


PHOTO 1.2 - FLIGHT DECK

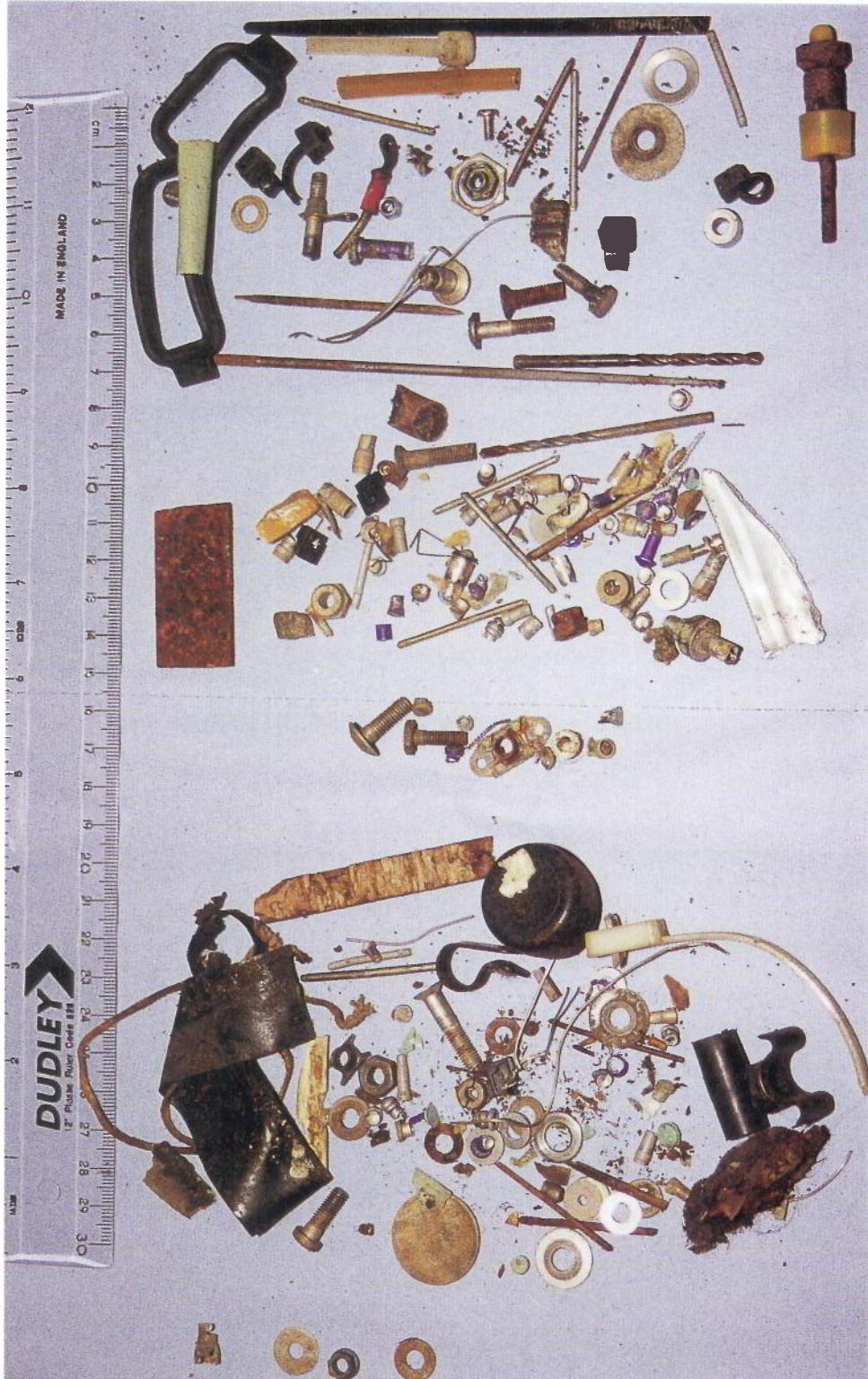


PHOTO 2 - DEBRIS RECOVERED FROM CABIN UNDERFLOOR AREA

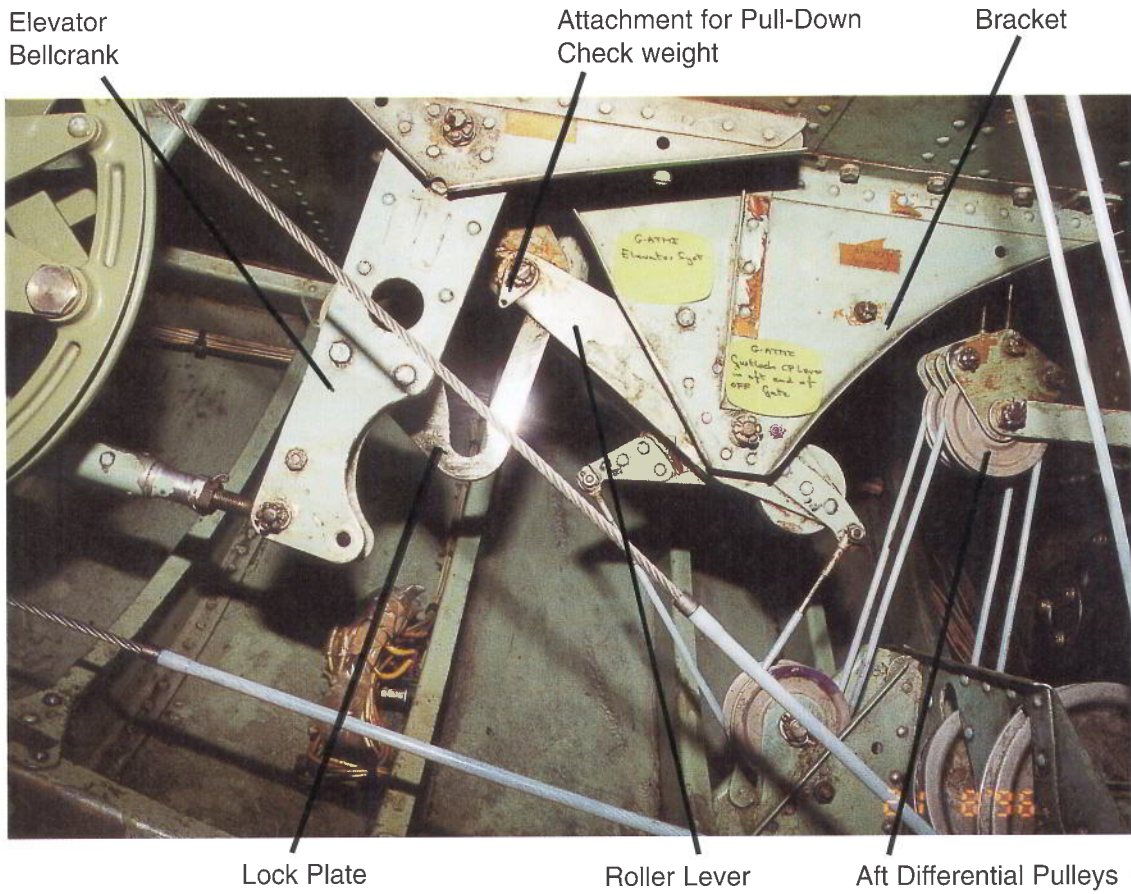


PHOTO 3.1 - ELEVATOR GUST LOCK SYSTEM IN TAILCONE



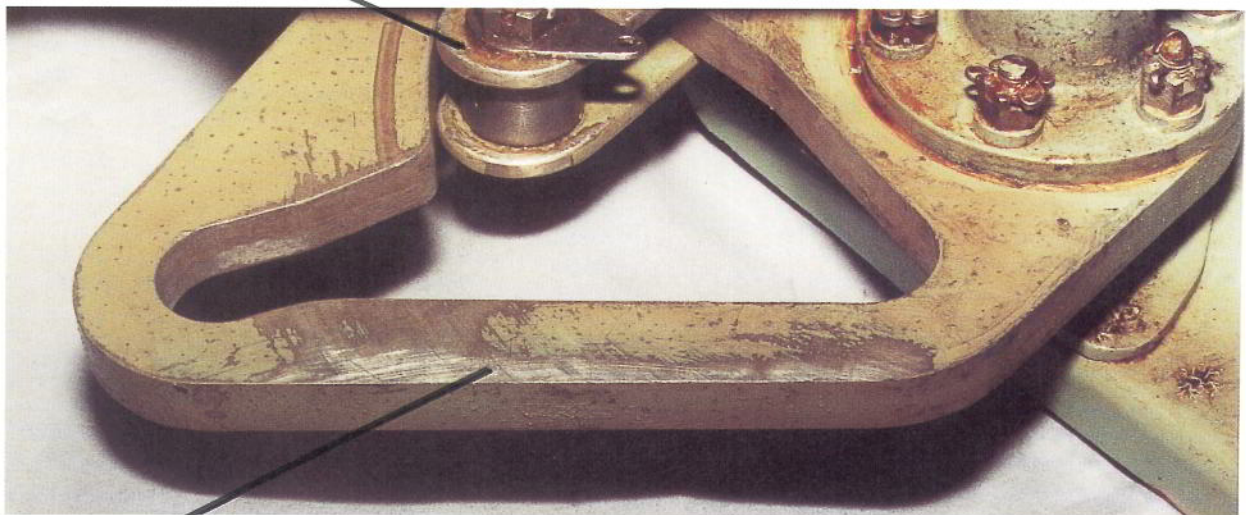
PHOTO 3.2 - AFT DIFFERENTIAL PULLEY FOUL ON BRACKET

Rub Marks from contact with Left Aft Differential Pulley Lever



PHOTO 4.1 - RIGHT AFT DIFFERENTIAL PULLEY LEVER

Roller Lever (displaced)



Rub Marks from contact with roller lever

PHOTO 4.2 - ELEVATOR GUST LOCK PLATE

Spring Deformation

Spacer

Roller Lever Sideplate

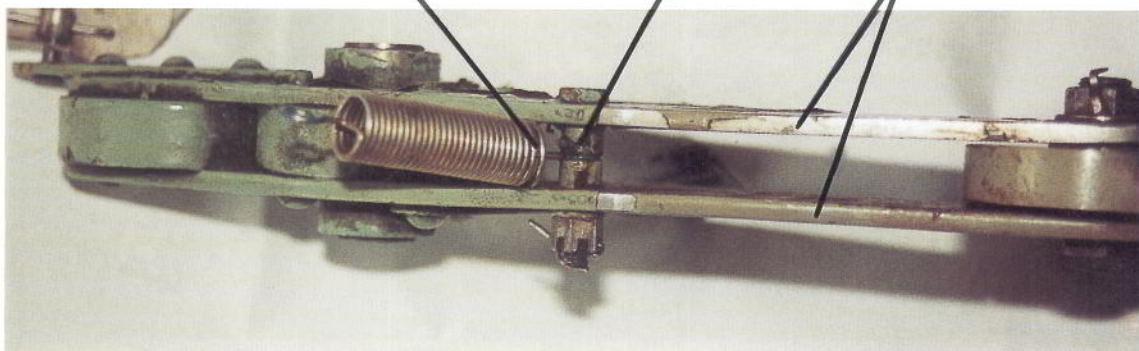


PHOTO 4.3 - ELEVATOR GUST LOCK ROLLER LEVER

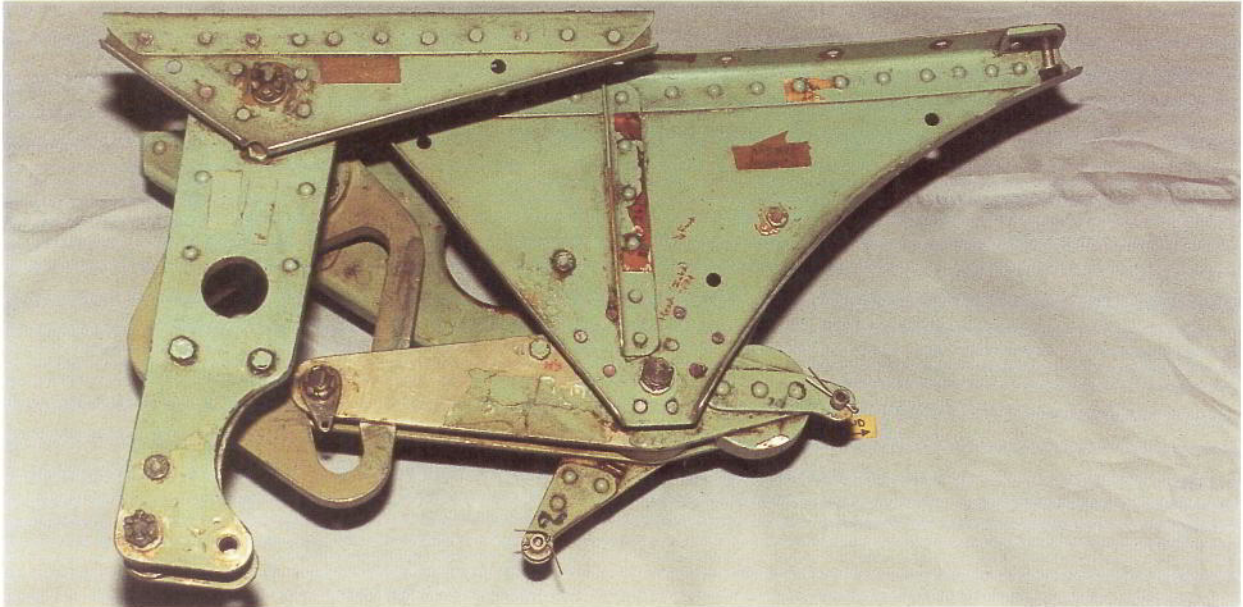
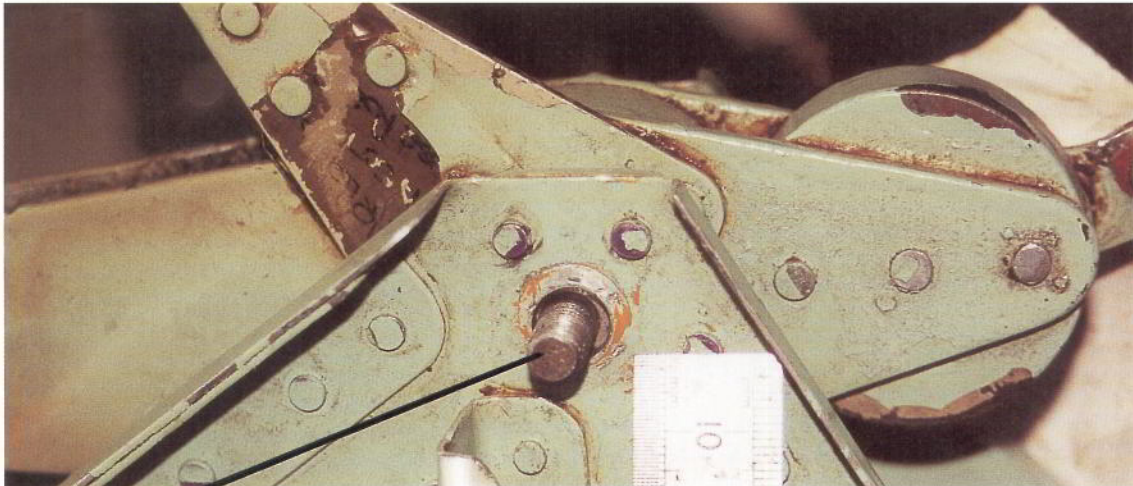


PHOTO 5.1 - ELEVATOR GUST LOCK ASSEMBLY



Roller Lever
Pivot Bolt
(bush absent)

PHOTO 5.2 - ROLLER LEVER PIVOT - LEFT SIDE



Roller Lever
Pivot Bolt Bush

PHOTO 5.3 - ROLLER LEVER PIVOT - RIGHT SIDE