

# DCS GUIDE

## F-86F SABRE (SERIES 35)

By Chuck

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# PART 1 – CONTROLS SETUP



THESE CONTROLS SHOULD BE MAPPED TO YOUR JOYSTICK AND ARE ESSENTIAL. NAMES ON LEFT COLUMN ARE WHAT YOU SHOULD LOOK FOR IN THE "ACTION" COLUMN OF THE CONTROLS SETUP MENU IN DCS. DESCRIPTION OF ACTION IS ON THE RIGHT COLUMN.

• MICROPHONE BUTTON	ALLOWS YOU TO USE RADIO MENU WHILE FLYING
• FLAPS DOWN	DEPLOYS YOUR FLAPS
• FLAPS UP	RETRACTS YOUR FLAPS
• GUN FIRE	FIRES YOUR .50 GUNS
• WEAPON RELEASE	FIRES ROCKETS OR DROPS ORDNANCE (BOMB/TANK)
• LANDING GEAR UP/DOWN	RAISES OR DEPLOYS YOUR LANDING GEAR
• AIRBRAKE ON	DEPLOYS YOUR AIRBRAKE
• AIRBRAKE OFF	RETRACTS YOUR AIRBRAKE
• A-4 SIGHT ELECTRICAL CAGING BUTTON (ON THROTTLE)	ELECTRICALLY CAGES A-4 GUNSIGHT
• A-4 SIGHT MANUAL RANGING CONTROL (THROTTLE TWIST GRIP) CCW/INCREASE	INCREASES GUNSIGHT RADAR RANGE
• A-4 SIGHT MANUAL RANGING CONTROL (THROTTLE TWIST GRIP) CW/DECREASE	DECREASES GUNSIGHT RADAR RANGE
• NOSEWHEEL STEERING BUTTON	CONTROLS YOUR NOSEWHEEL STEERING
• TRIM DOWN/UP/LEFT/RIGHT (4 BUTTONS)	TRIMS AIRCRAFT IN EACH DIRECTION
• ZOOM IN SLOW	ALLOWS YOU TO ZOOM IN
• ZOOM OUT SLOW	ALLOWS YOU TO ZOOM OUT



# PART 1 – CONTROLS SETUP



ASSIGNING PROPER AXIS IS IMPORTANT. HERE ARE A COUPLE OF TIPS.

SYSTEM CONTROLS GAMEPLAY AUDIO MISC. SPECIAL

Aircraft: F-86F Real All Category: Clear category Save profile as Load profile

Action	Keyboard	Saitek Pro Flight Controller	Joystick - HOTAS War	Throttle - HOTAS
A-4 Sight Bombing Altimeter Index Altitude Handle - CCW/Decrease				
A-4 Sight Bombing Altimeter Index Altitude Handle - CW/Increase				
A-4 Sight Bombing Altimeter Target Altitude Knob - CCW/Decrease				
A-4 Sight Bombing Altimeter Target Altitude Knob - CW/Increase				
A-4 Sight Electrical Caging Button (On Throttle)			JOY_BTN5	
A-4 Sight Filament Selector Switch			JOY_BTN5	
A-4 Sight Manual Ranging Control (Throttle Twist Grip) - CCW/Increase	:			
A-4 Sight Manual Ranging Control (Throttle Twist Grip) - CW/Decrease	:			
A-4 Sight Mechanical Caging Lever	LCtrl + ^			
A-4 Sight Radar Range Sweep Rheostat - CCW/Decrease				
A-4 Sight Radar Range Sweep Rheostat - CW/Increase				
A-4 Sight Radar Target Selector Button	Enter			
A-4 Sight Reticle Dimmer Control - CCW/DIM				
A-4 Sight Reticle Dimmer Control - CW/BRIGHT				
A-4 Sight Wing Span Adjustment Knob - Wing Span Decrease	,			
A-4 Sight Wing Span Adjustment Knob - Wing Span Increase	/			
AN/APX-6 IFF Destruct Switch				
AN/APX-6 IFF Destruct Switch Cover				
AN/APX-6 IFF Master Switch - CCW				
AN/APX-6 IFF Master Switch - CW				
AN/APX-6 IFF Mode 2 Switch - Down				
AN/APX-6 IFF Mode 2 Switch - Up				
AN/APX-6 IFF Mode 3 Switch				
AN/APC-27 UHF Audio Volume Knob - CCW/Down				

MODIFIERS ADD CLEAR DEFAULT AXIS ASSIGN AXIS TUNE FF TUNE MAKE HTML

TO ASSIGN AXIS, CLICK ON  
AXIS ASSIGN. YOU CAN  
ALSO SELECT "AXIS  
COMMANDS" IN THE  
UPPER SCROLLING MENU.

TO MODIFY CURVES AND  
SENSITIVITIES OF AXES,  
CLICK ON THE AXIS YOU  
WANT TO MODIFY AND  
THEN CLICK AXIS TUNE



# PART 1 – CONTROLS SETUP

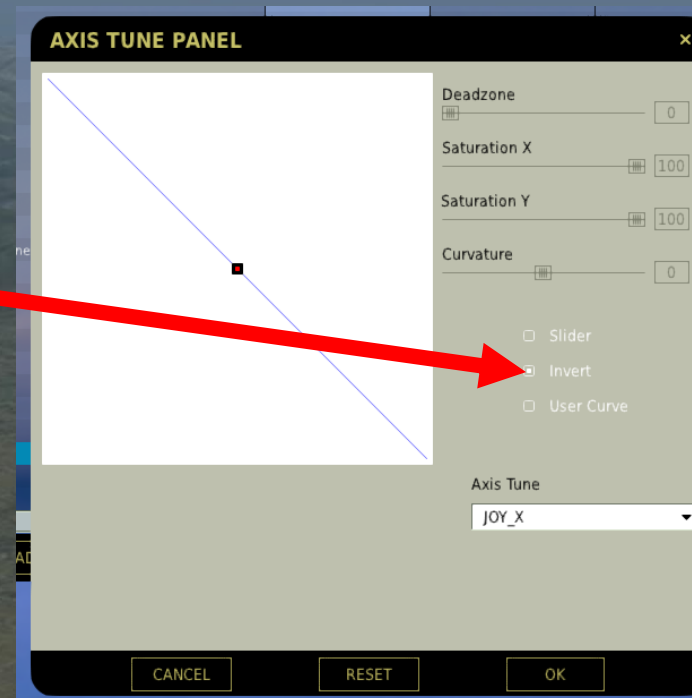


BIND THE FOLLOWING AXES:

- PITCH (DEADZONE AT 5, SATURATION X AT 100, SATURATION Y AT 100, CURVATURE AT 20)
- ROLL (DEADZONE AT 5, SATURATION X AT 100, SATURATION Y AT 100, CURVATURE AT 20)
- RUDDER (DEADZONE AT 0, SATURATION X AT 100, SATURATION Y AT 100, CURVATURE AT 0)
- THROTTLE – CONTROLS ENGINE RPM
- WHEEL BRAKE LEFT
- WHEEL BRAKE RIGHT

WHEN SETTING WHEEL BRAKE AXIS, THEY ARE NOT SET TO “INVERT” BY DEFAULT.

YOU NEED TO CLICK ON INVERT IN THE AXIS TUNE MENU FOR EACH WHEEL BRAKE.



# PART 2 – COCKPIT AND GAUGES

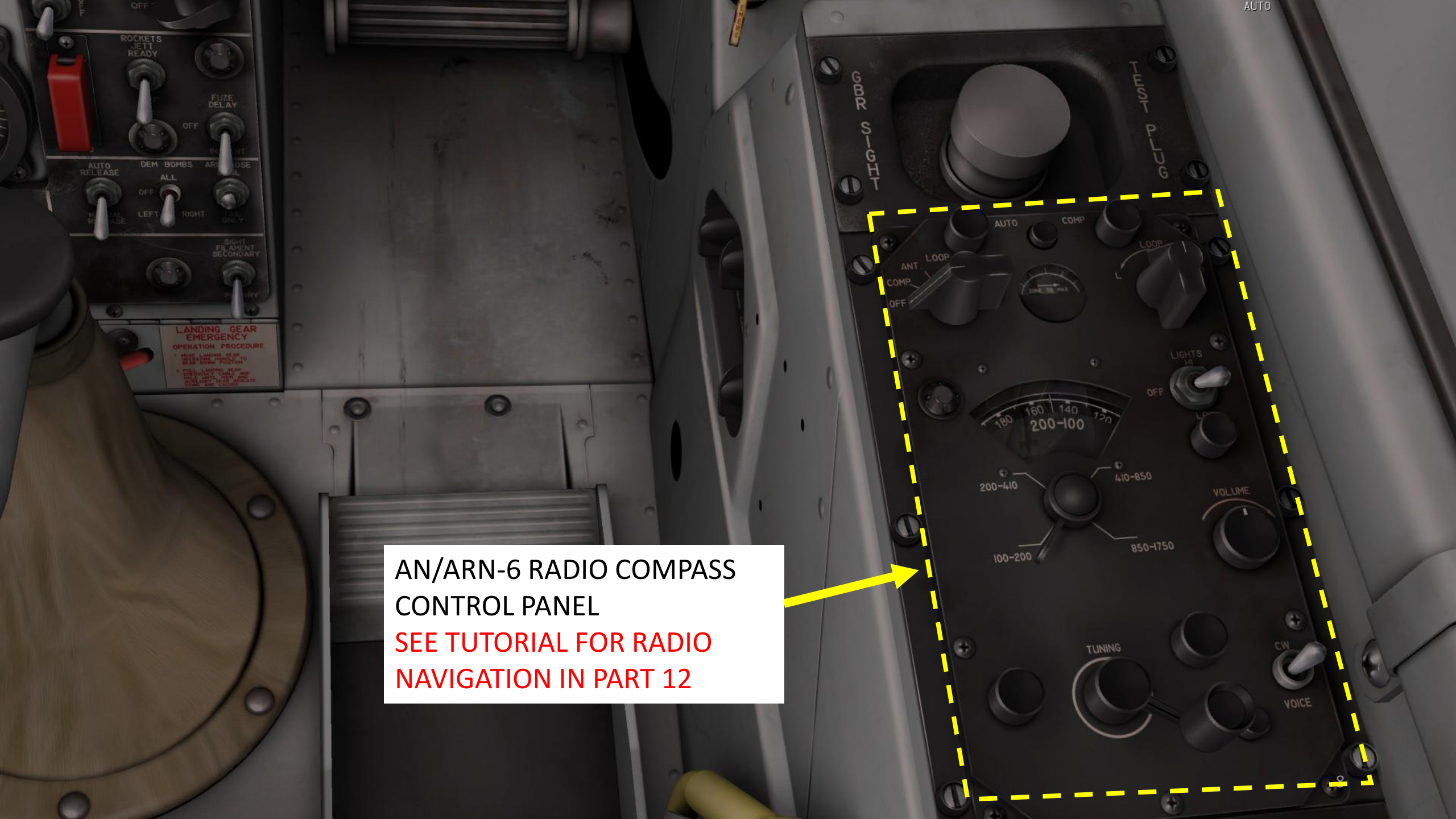




AN/ARC-27 UHF RADIO  
SEE PART 11 FOR TUTORIAL

AN/APX-6 IFF TRANSPONDER  
IDENTIFICATION RADAR  
SEE PART 13 FOR TUTORIAL  
NOTE: NOT YET IMPLEMENTED



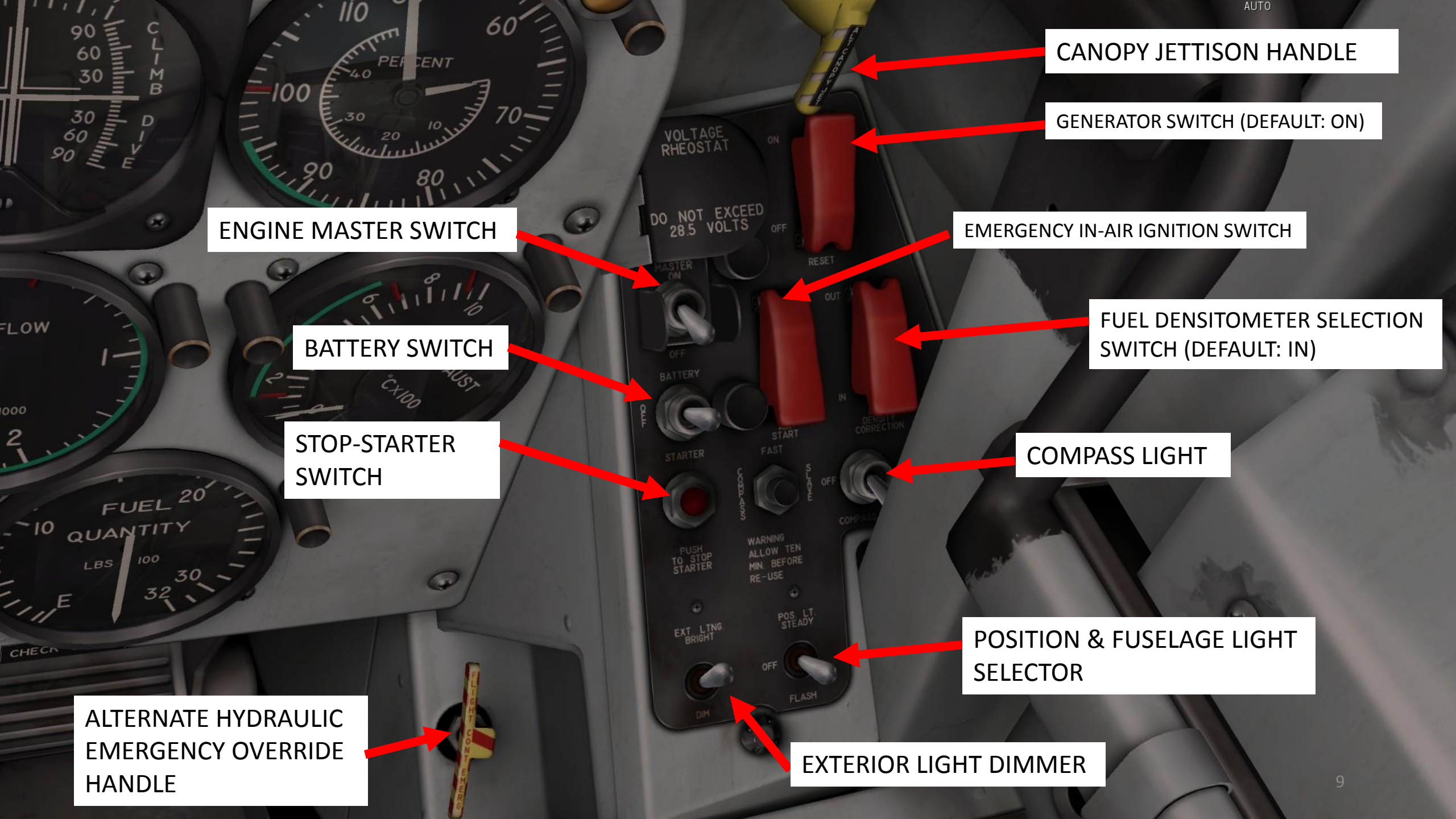


AUTO

LANDING GEAR  
EMERGENCY  
OPERATION PROCEDURE  
1. WHEN LANDING GEAR  
FAILURE OCCURS, TO  
2. WHEN LANDING GEAR  
FAILURE OCCURS, TO  
3. WHEN LANDING GEAR  
FAILURE OCCURS, TO

AN/ARN-6 RADIO COMPASS  
CONTROL PANEL  
SEE TUTORIAL FOR RADIO  
NAVIGATION IN PART 12





CANOPY JETTISON HANDLE

GENERATOR SWITCH (DEFAULT: ON)

ENGINE MASTER SWITCH

EMERGENCY IN-AIR IGNITION SWITCH

BATTERY SWITCH

FUEL DENSITOMETER SELECTION  
SWITCH (DEFAULT: IN)

STOP-STARTER  
SWITCH

COMPASS LIGHT

ALTERNATE HYDRAULIC  
EMERGENCY OVERRIDE  
HANDLE

POSITION & FUSELAGE LIGHT  
SELECTOR

EXTERIOR LIGHT DIMMER

LABS – SEE PART 9  
DIVE & ROLL  
INDICATOR

TACHOMETER  
(%RPM)

ATTITUDE  
INDICATOR

EXHAUST  
TEMPERATURE  
GAUGE (DEGC X 100)

FUEL FLOWMETER  
(X 1000 PPM)

FUEL GAUGE (X 100 LBS)

VERTICAL VELOCITY  
INDICATOR (X1000 ft/min)

CABIN PRESSURE ALTIMETER





HYDRAULIC PRESSURE  
GAUGE (X1000 PSI)

SPEED INDICATOR  
(100 KTS)

ACCELEROMETER (G)

FIRE WARNING LIGHTS

OIL PRESSURE GAUGE

EMERGENCY FUEL

MACH INDICATOR

LANDING GEAR  
EMERGENCY-UP

LANDING GEAR  
UP = UP / DOWN = DOWN

RADIO  
COMPASS

DIRECTIONAL  
INDICATOR

TURN & SLIP  
INDICATOR

ALTITUDE  
INDICATOR

VOLTMETER

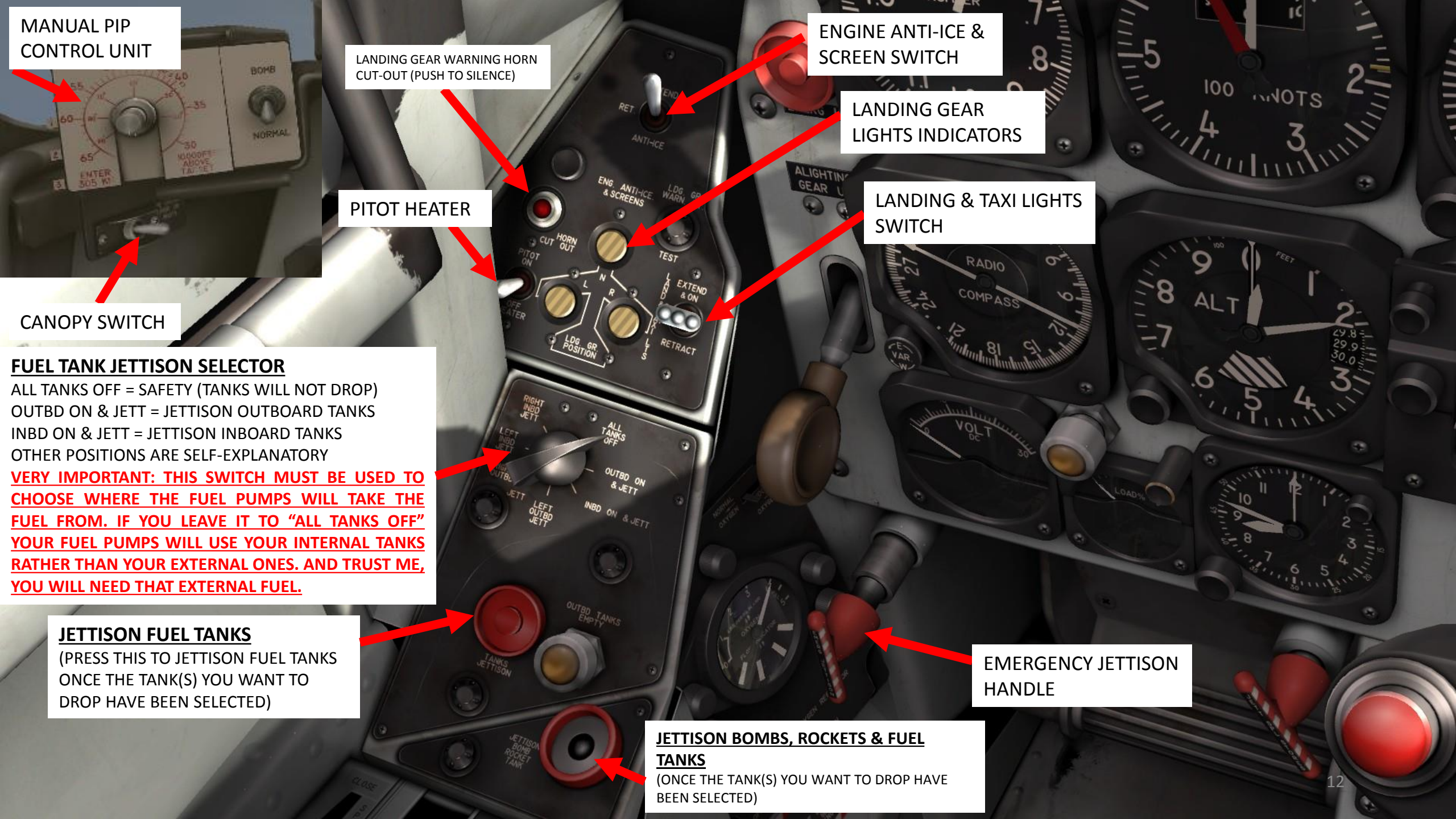
GENERATOR  
WARNING LIGHT

ELECTRICAL  
LOADMETER

CLOCK

LABS SYSTEM  
SEE PART 9





MANUAL PIP  
CONTROL UNIT

LANDING GEAR WARNING HORN  
CUT-OUT (PUSH TO SILENCE)

ENGINE ANTI-ICE &  
SCREEN SWITCH

LANDING GEAR  
LIGHTS INDICATORS

PITOT HEATER

LANDING & TAXI LIGHTS  
SWITCH

CANOPY SWITCH

### **FUEL TANK JETTISON SELECTOR**

ALL TANKS OFF = SAFETY (TANKS WILL NOT DROP)  
OUTBD ON & JETT = JETTISON OUTBOARD TANKS  
INBD ON & JETT = JETTISON INBOARD TANKS  
OTHER POSITIONS ARE SELF-EXPLANATORY

**VERY IMPORTANT: THIS SWITCH MUST BE USED TO  
CHOOSE WHERE THE FUEL PUMPS WILL TAKE THE  
FUEL FROM. IF YOU LEAVE IT TO "ALL TANKS OFF"  
YOUR FUEL PUMPS WILL USE YOUR INTERNAL TANKS  
RATHER THAN YOUR EXTERNAL ONES. AND TRUST ME,  
YOU WILL NEED THAT EXTERNAL FUEL.**

### **JETTISON FUEL TANKS**

(PRESS THIS TO JETTISON FUEL TANKS  
ONCE THE TANK(S) YOU WANT TO  
DROP HAVE BEEN SELECTED)

### **JETTISON BOMBS, ROCKETS & FUEL TANKS**

(ONCE THE TANK(S) YOU WANT TO DROP HAVE  
BEEN SELECTED)

EMERGENCY JETTISON  
HANDLE



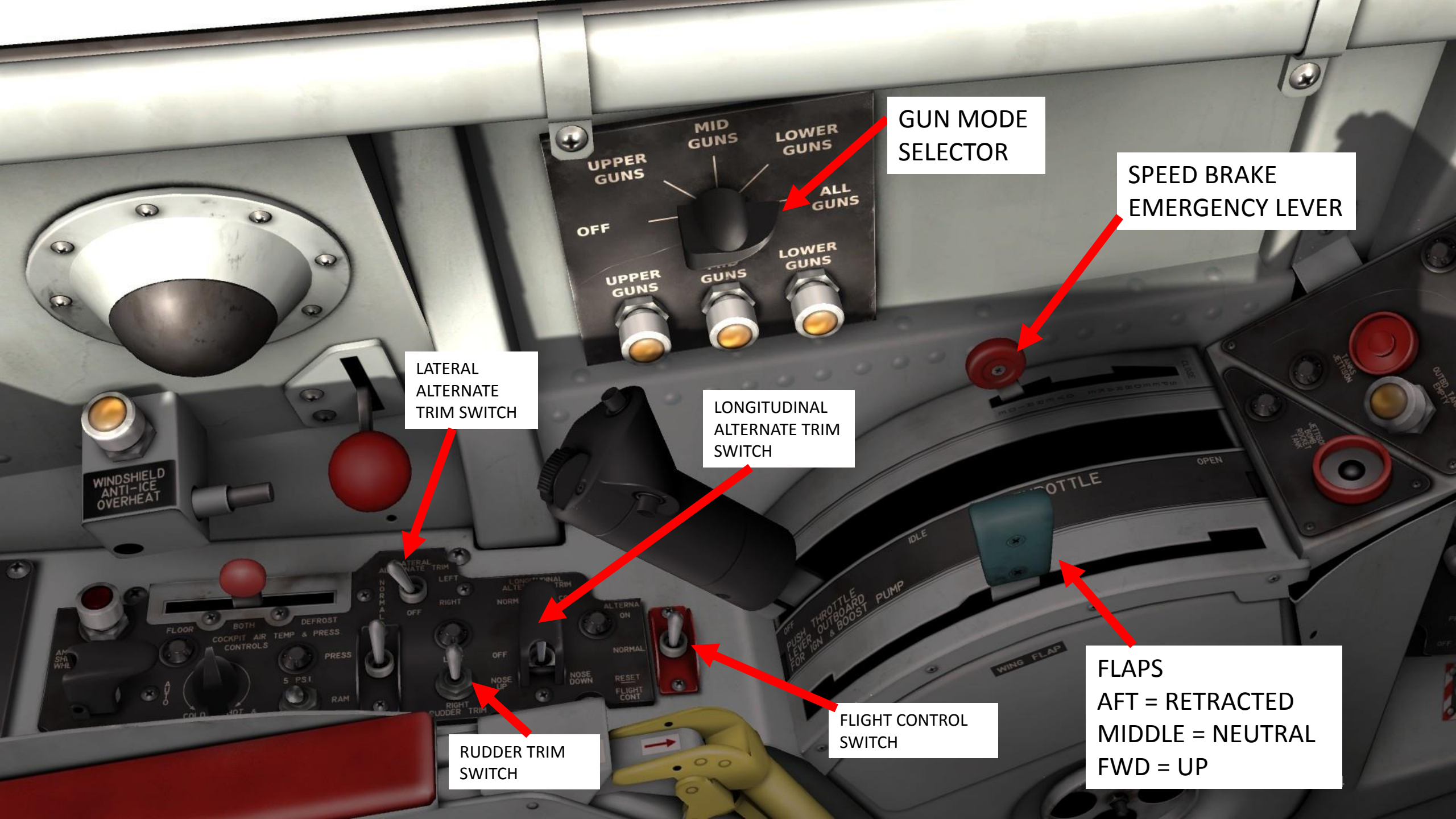
OXYGEN FLOW  
INDICATOR



OXYGEN FLOW  
VALVE SWITCH  
OPEN = ON/FWD  
CLOSED = OFF/AFT

PRESSURE DEMAND OXYGEN REGULATOR

WARNING  
DO NOT LOWER FLAPS OR  
LANDING GEAR IN EXCESS  
OF 187 KNOTS 215 MPH



GUN MODE  
SELECTOR

SPEED BRAKE  
EMERGENCY LEVER

LATERAL  
ALTERNATE  
TRIM SWITCH

LONGITUDINAL  
ALTERNATE TRIM  
SWITCH

FLAPS  
AFT = RETRACTED  
MIDDLE = NEUTRAL  
FWD = UP

FLIGHT CONTROL  
SWITCH

RUDDER TRIM  
SWITCH



ROCKET  
INTERVALOMETER

AIR OUTLET  
SELECTOR

COCKPIT AIR TEMPERATURE  
CONTROL SWITCH

WINDSHIELD  
ANTI-ICE  
OVERHEAT

ROCKET  
TO BE  
FIRED

FLOOR BOTH DEFROST  
COCKPIT AIR TEMP & PRESS.  
CONTROLS

AM HEAT  
SHUT -  
WHEN

COCKPIT AIR  
TEMPERATURE  
CONTROL  
RHEOSTAT

COCKPIT PRESSURE  
SCHEDULE  
SELECTOR SWITCH

COCKPIT AIR  
TEMPERATURE  
SELECTOR

LATERAL  
ALTER E TRIM

NORMAL  
OFF

LONGITUDINAL  
ALTERNATE

NORMAL GF

ALTERNATE  
ON

NORMAL

RESET  
FLIGHT CONT

PRESS  
5 PSI.  
RAM

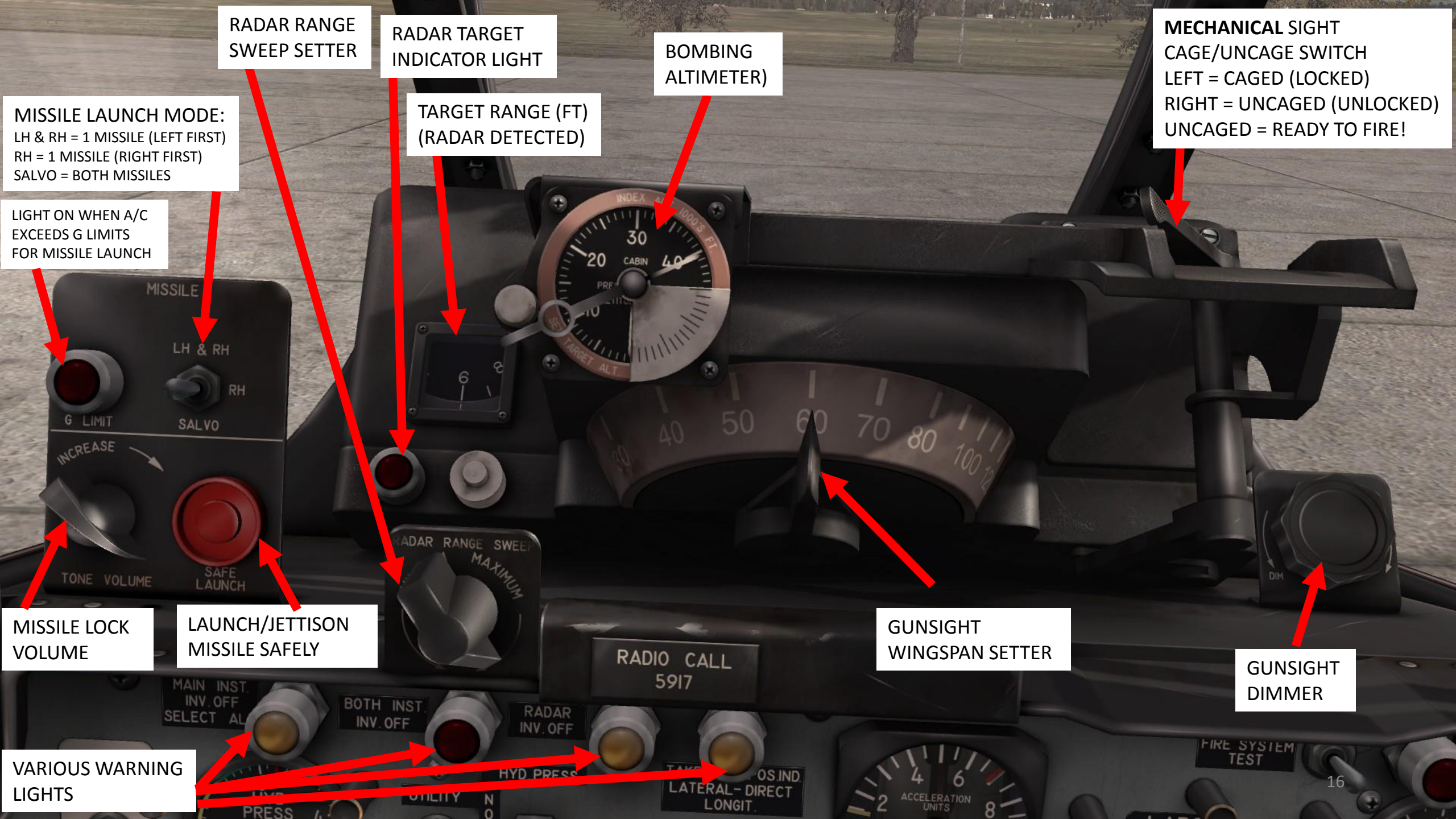
LEFT

OFF

NOSE UP

NOSE DOWN

RIGHT  
BUDDER TRIM



RADAR RANGE  
SWEEP SETTER

RADAR TARGET  
INDICATOR LIGHT

BOMBING  
ALTIMETER)

**MECHANICAL SIGHT**  
CAGE/UNCAGE SWITCH  
LEFT = CAGED (LOCKED)  
RIGHT = UNCAGED (UNLOCKED)  
UNCAGED = READY TO FIRE!

**MISSILE LAUNCH MODE:**  
LH & RH = 1 MISSILE (LEFT FIRST)  
RH = 1 MISSILE (RIGHT FIRST)  
SALVO = BOTH MISSILES

LIGHT ON WHEN A/C  
EXCEEDS G LIMITS  
FOR MISSILE LAUNCH

TARGET RANGE (FT)  
(RADAR DETECTED)

MISSILE  
LH & RH  
RH  
SALVO  
G LIMIT  
INCREASE  
TONE VOLUME  
SAFE LAUNCH

MISSILE LOCK  
VOLUME

LAUNCH/JETTISON  
MISSILE SAFELY

RADAR RANGE SWEEP  
MAXIMUM

40 50 60 70 80 100 120

INDEX ALT  
30  
CABIN  
40  
1000'S FT  
PRE  
TGT  
ALT

GUNSIGHT  
WINGSPAN SETTER

GUNSIGHT  
DIMMER

VARIOUS WARNING  
LIGHTS

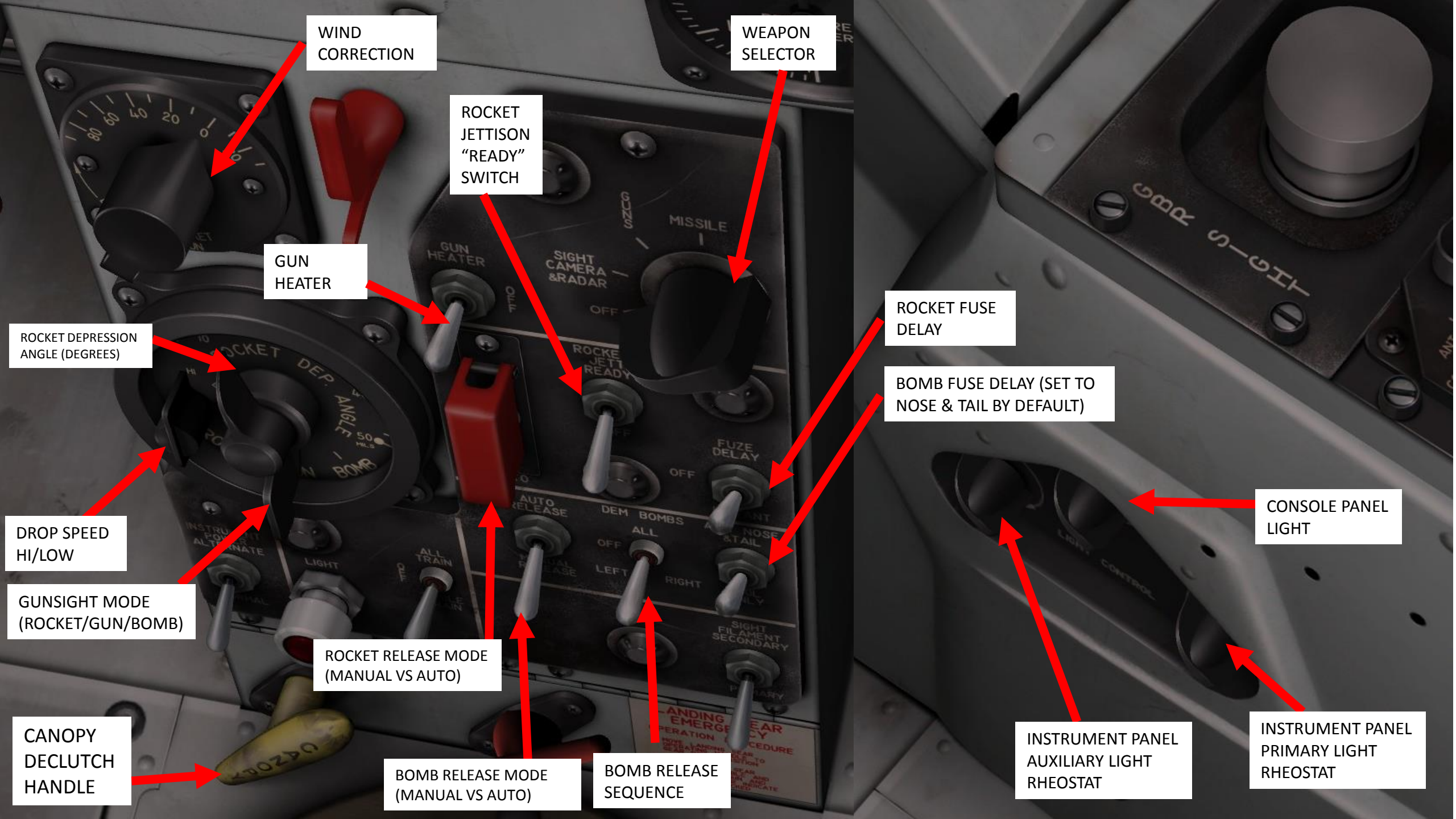
RADIO CALL  
5917

MAIN INST.  
INV. OFF  
SELECT AL  
BOTH INST.  
INV. OFF  
RADAR  
INV. OFF  
HYD PRESS  
TAKE  
OS IND  
LATERAL-DIRECT  
LONGIT.

4 6 8  
2  
ACCELERATION  
UNITS

FIRE SYSTEM  
TEST





WIND  
CORRECTION

WEAPON  
SELECTOR

ROCKET  
JETTISON  
"READY"  
SWITCH

GUN  
HEATER

ROCKET DEPRESSION  
ANGLE (DEGREES)

DROP SPEED  
HI/LOW

GUNSIGHT MODE  
(ROCKET/GUN/BOMB)

CANOPY  
DECLUTCH  
HANDLE

ROCKET RELEASE MODE  
(MANUAL VS AUTO)

BOMB RELEASE MODE  
(MANUAL VS AUTO)

BOMB RELEASE  
SEQUENCE

ROCKET FUSE  
DELAY

BOMB FUSE DELAY (SET TO  
NOSE & TAIL BY DEFAULT)

CONSOLE PANEL  
LIGHT

INSTRUMENT PANEL  
AUXILIARY LIGHT  
RHEOSTAT

INSTRUMENT PANEL  
PRIMARY LIGHT  
RHEOSTAT

INDICATED AIRSPEED LIMIT (KTS)  
(RED INDEX, DO NOT USE AS REFERENCE)

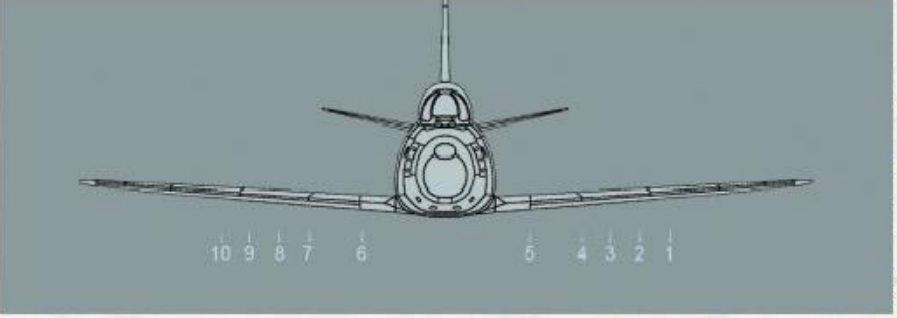
INDICATED AIRSPEED LIMIT  
(KTS) – DO NOT EXCEED  
(RED NEEDLE IS WHAT YOU  
USE AS REFERENCE)

THE ALTIMETER WOULD BE READ AS FOLLOWS:  
LONG THIN NEEDLE: @ 2 = 20000 ft  
SHORT THICK NEEDLE @ 1 = 1000 ft  
LONG THICK NEEDLE @ approx 1 = 100 ft

TOTAL ALTITUDE = 20000 + 1000 + 100 ft  
= 21100 ft







GUN AMMO  100%

FUEL  98%

TOTAL WEIGHT 19180

MAXIMUM WEIGHT 20612 LBS

SELECT LOADOUT:  
120gal Fuel\*2, 200gal Fuel\*2

10	9	8	7	6	5	4	3	2	1

FUEL TANKS ▶  
PODS ▶  
ROCKETS ▶  
Clear

(avail: 1000000) : Fuel Tank 120 gallons  
(avail: 1000000) : Fuel Tank 200 gallons



INBOARD FUEL TANK  
120 GAL

OUTBOARD FUEL TANK  
200 GAL

## • SPECIFICATIONS

**FUEL** —JP-4 (MIL-J-5624)  
ALTERNATE \*\*

**OIL** —MIL-O-6081, GRADE 1010  
ALTERNATE-MIL-O-6081, GRADE 1005  
BELOW —29°C, USE GRADE 1005.

**HYDRAULIC FLUID** —MIL-H-5606

**ALCOHOL** —MIL-A-6091

**OXYGEN** —BB-O-925

## servicing diagram



1. Battery
2. External AC Power Receptacle\*
3. Nose Gear Emergency Lowering System Accumulator
4. Flight Control Normal Hydraulic System Accumulator
5. Fuel Filter Deicing System Alcohol Tank
6. External DC Power Receptacles
7. Aft Fuselage Fuel Tank Filler
8. Flight Control Alternate Hydraulic System Fluid Level Indicator Access Door
9. Left Wing Fuel Tank Filler
10. Left Drop tank Filler
11. Oxygen Filler Valve
12. Forward Fuselage Fuel Tank Upper Cell Filler (Filled first to utilize full tank capacity)
13. Utility Hydraulic System Reservoir
14. Right Wing Fuel Tank Filler
15. Right Drop Tank Filler
16. Engine Oil Tank
17. Forward Fuselage Fuel Tank Lower Cell
18. Flight Control Alternate Hydraulic System Accumulator (Accumulators\*)
19. Flight Control Normal Hydraulic System Fluid Level Indicator Access Door



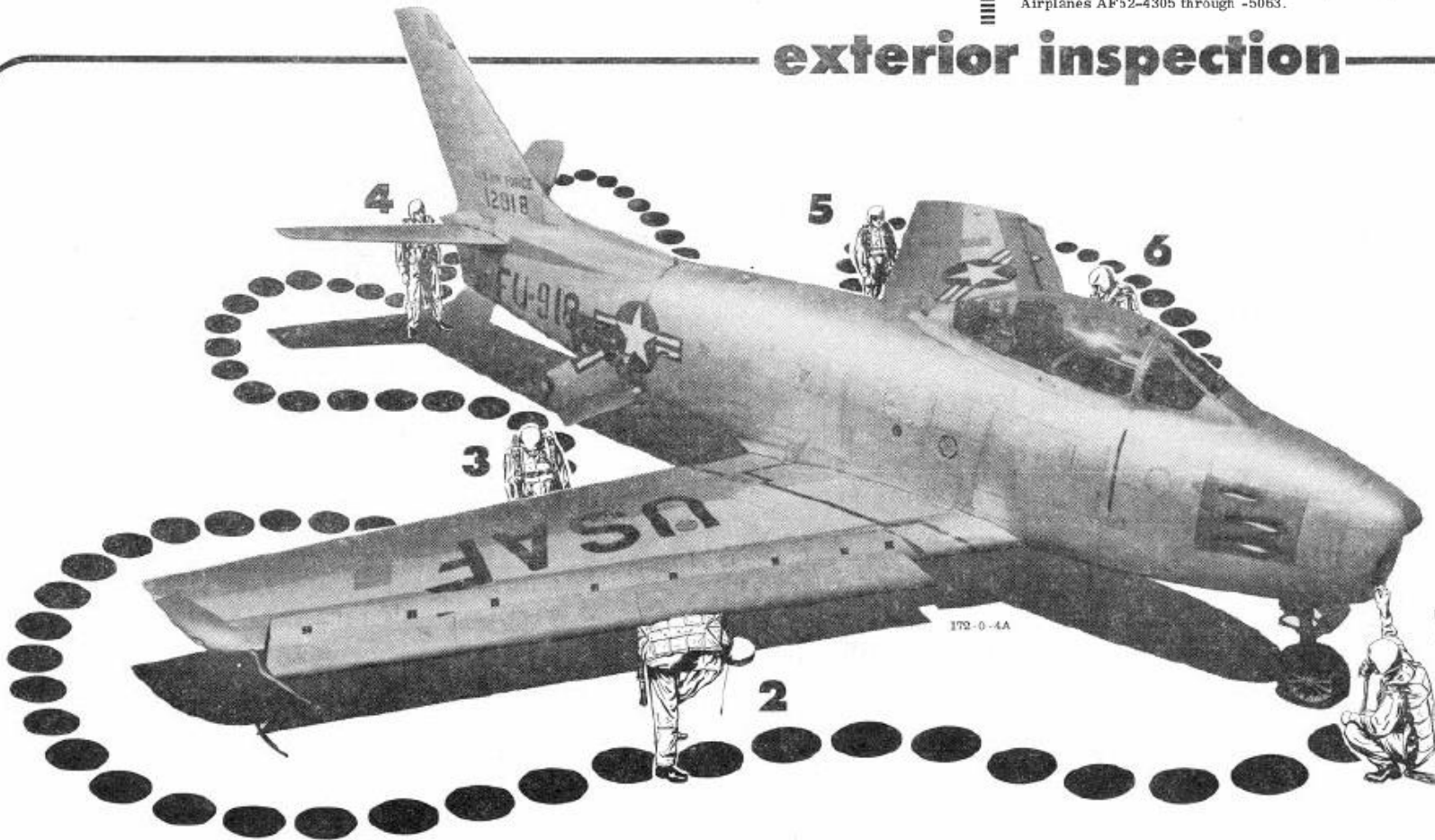
# PART 3 – START-UP

\* You may rely on your crew chief to check these items if you desire. However, if preflight inspection or servicing was performed at a base where ground personnel are not completely familiar with your airplane, you should check these items yourself.

† Some airplanes (refer to applicable text).

‡ F-86F-1 through F-86F-20 Airplanes, F-86F-25 Airplanes AF51-13170 through -13510 and AF52-5272 through -5386, and F-86F-30 Airplanes AF52-4305 through -5063.

## exterior inspection




Check surfaces for cracks, distortions, loose rivets, and indications of damage; check for signs of hydraulic fluid, fuel, and oil leaks; check tires for general condition, and proper inflation; check all access doors and panels secured; check position of gear doors, gear strut extension, and condition of wheels.

NOTE: THERE ARE NO SLATS ON THE F-86F-35

### 1 NOSE

- Nose gear ground safety lock—Removed.
- Tow pin safety cap—Tight.
- Intake duct—Clear.
- Gun port plugs—As required.
- Landing and taxi lights—Retracted.
- Nose gear accumulator gage (in nose wheel well) pressure—1200-1250 psi.
- Emergency nose gear extension control valve—Reset. (pushed full back). \*

### 2 FORWARD FUSELAGE AND RIGHT WING LEADING EDGE

- Slats †—Check.
- External stores—Check installation.
- Pitot head—Uncovered; static ports clean. 
- Position light and wing tip—Check.

### 3 RIGHT WING TRAILING EDGE AND AFT FUSELAGE

- Aileron and flap—Check.
- Drop tanks—Check fuel and caps secure.
- Main gear—Check.
- Right landing gear wheel well—Check.
- Speed brake—Check.
- Flight control alternate accumulator or accumulators‡ gage (in speed brake well) pressure—600-650 psi.
- Flight control normal compensator shaft—Check 1/4 to 1-1/4-inch extension.

### 4 EMPENNAGE

- Tail-pipe cover—Removed.
- Tail cone and position lights—Check.

### 5 AFT FUSELAGE AND LEFT WING TRAILING EDGE

- Flight control alternate compensator shaft—Check 1/4 to 1-1/4-inch extension.
- Speed brake—Check.
- Flight control alternate pump circuit breaker (within access door just forward of speed brake)—IN.
- Left landing gear wheel well—Check.
- Flight control normal accumulator gage (in left wheel well) pressure—600-650 psi:
- Landing gear door switch—CLOSE.
- Drop tanks—Check fuel and caps secure.
- Flap and aileron—Check.

### 6 LEFT WING LEADING EDGE AND FORWARD FUSELAGE

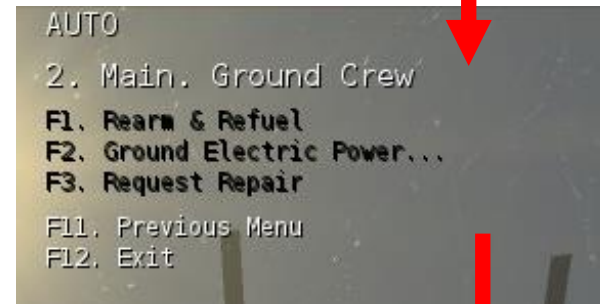
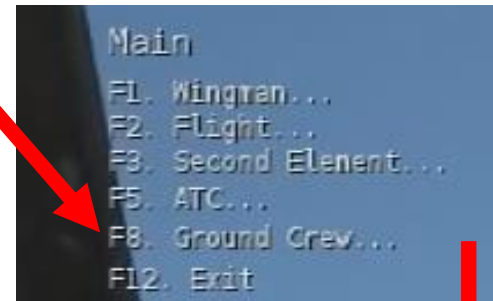
- Position light and wing tip—Check.
- External stores—Check installation.
- Slats †—Check.

# PART 3 – START-UP

1. SELECT YOUR GROUND CREW BY PRESSING “\” AND F8.
2. SELECT “GROUND ELECTRIC POWER” BY PRESSING F2
3. SELECT “ON” BY PRESSING F1 TO TURN ON GROUND POWER
4. ENSURE FLIGHT CONTROL SWITCH IS SET TO “ALTERNATE ON”



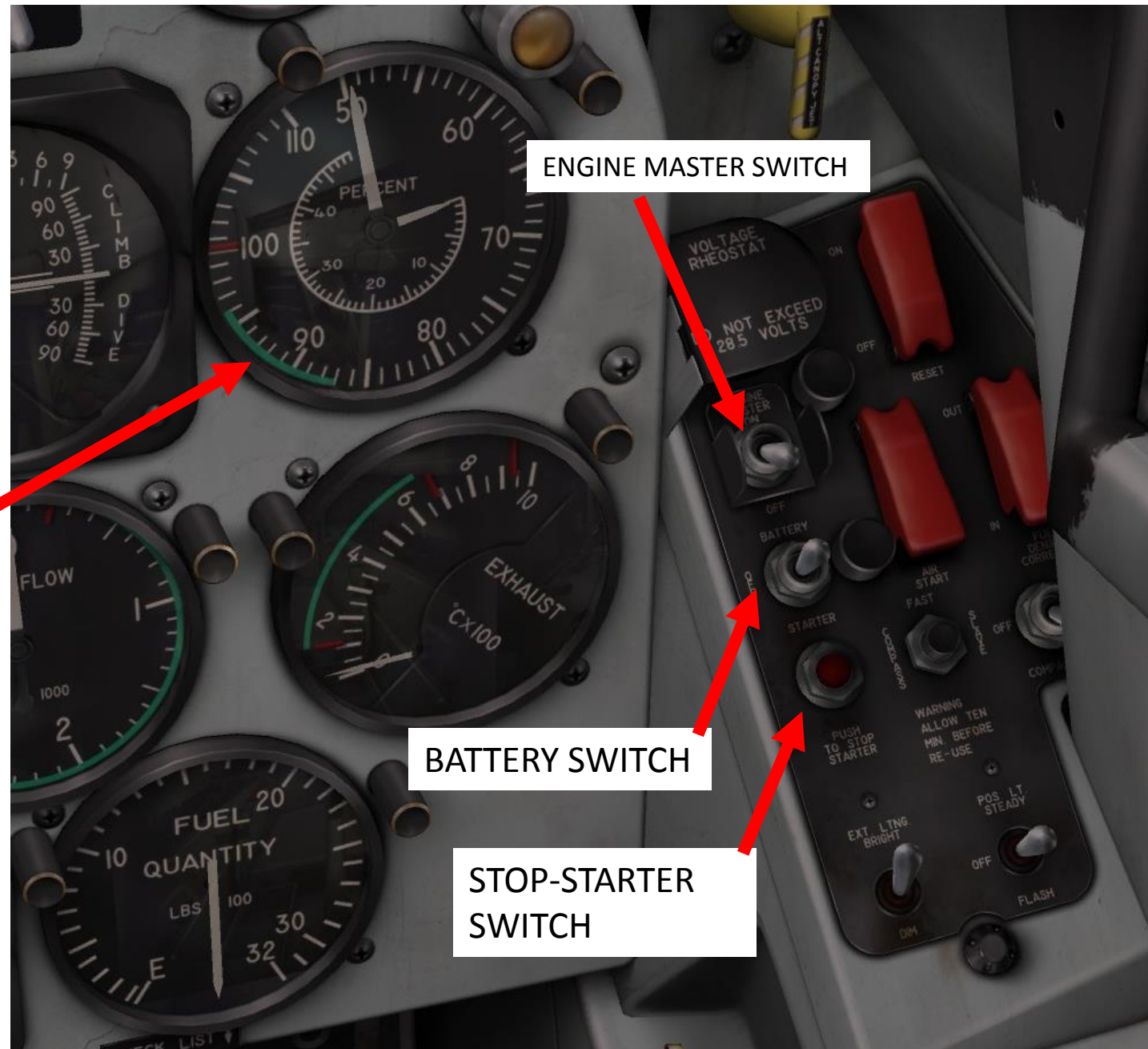
FLIGHT CONTROL SWITCH (LEFT CONSOLE)





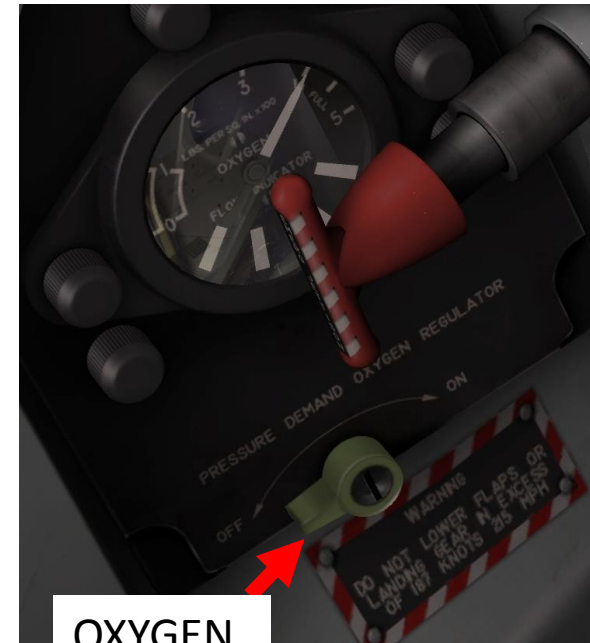
# PART 3 – START-UP

5. ENSURE THROTTLE IS SET TO “OFF” BY PRESSING “END” KEY (BY DEFAULT)
6. SET ENGINE MASTER SWITCH TO “ON”
7. SET BATTERY SWITCH TO “STARTER” (LEFT CLICK) FOR 2-3 SECONDS AND THEN TO “BATTERY” (RIGHT CLICK).
8. WAIT FOR ENGINE RPM TO REACH 3 %.
9. IF ENGINE DOES NOT REACH 3 % WITHIN 1 MINUTE, PRESS STOP-STARTER SWITCH, SET ENGINE MASTER SWITCH TO OFF AND BATTERY SWITCH TO OFF AND REPEAT STEPS 5 TO 8.
10. ONCE ENGINE REACHES 3 % RPM, SET THROTTLE TO OUTBOARD BY PRESSING “HOME” KEY (BY DEFAULT)
11. ONCE ENGINE REACHES 6 % RPM, SET THROTTLE TO “IDLE” BY PRESSING THE “HOME” KEY (BY DEFAULT) A SECOND TIME.



# PART 3 – START-UP

12. HYDRAULICS WILL NOT BE WORKING UNTIL YOU REACH 25 % RPM. ONCE YOU HAVE THAT, RETRACT AIRBRAKES.
13. SET YOUR FLAPS FULLY DOWN AND THEN IN THE NEUTRAL POSITION
14. ONCE YOU HAVE SUFFICIENT ENGINE RPM (50+ %), SET THE FLIGHT CONTROL SWITCH TO "NORMAL. YOU SHOULD SEE THE "ALTERNATE ON" WARNING LIGHT SHUT DOWN AS SHOWN IN PICTURE ON THE RIGHT.
15. YOU CAN SET YOUR TAKEOFF TRIM BY SETTING YOUR TRIM MANUALLY UNTIL YOU SEE THE "TAKE-OFF POS.IND. LATERAL-DIRECT LONGIT." LIGHT BLINK. THIS LIGHT MEANS THAT YOU ARE TRIMMED FOR TAKEOFF.
16. TURN YOUR OXYGEN ON.
17. YOU CAN TAXI AND TURN USING YOUR NOSEWHEEL STEERING KEY ("S" BY DEFAULT) AND YOUR RUDDER PEDALS (TOE BRAKES WORK TOO)
18. TURN THE GROUND POWER OFF LIKE IN STEPS 1 TO 3.
19. CLOSE YOUR CANOPY



OXYGEN



FLIGHT CONTROL SWITCH (LEFT CONSOLE)



# PART 4 – TAKEOFF

MANY PEOPLE HAVE THEIR OWN WAY OF TAKING OFF, HERE IS MINE.

1. LINE UP ON THE RUNWAY USING YOUR NOSEWHEEL STEERING DURING TURNS (BY HOLDING “S” BY DEFAULT) AND YOUR RUDDER PEDALS (TOE BRAKES WORK TOO).
2. CHECK FOR YOUR FLAPS (DOWN/DEPLOYED) AND YOUR AIRBRAKES (RETRACTED). ASK YOUR WINGMEN IF YOU HAVE BAD VISIBILITY.
3. BRAKES ON
4. SLOWLY INCREASE THROTTLE TO MAX POWER. KEEP IN MIND THAT THROTTLE IS SLOW TO RESPOND TO INPUT
5. RELEASE BRAKES AT FULL POWER
6. USE RUDDER TO MAKE SMALL ADJUSTEMENTS, BUT DO NOT USE THE NOSEWHEEL STEERING.
7. AT 120 KTS, ROTATE AND RETRACT YOUR FLAPS AND LANDING GEAR.
8. ONCE AIRBORNE, MAKE SURE YOUR FLAPS ARE SET TO “NEUTRAL”.

# minimum-run take-off... AIRPLANES WITH SLATS\*

no external load -15,000 lb

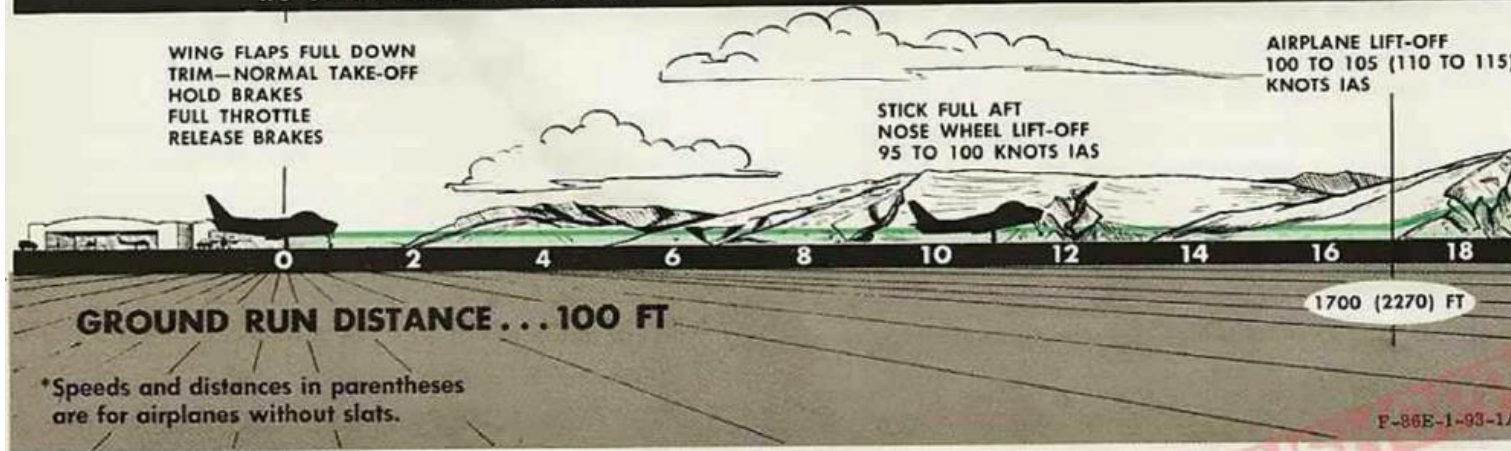
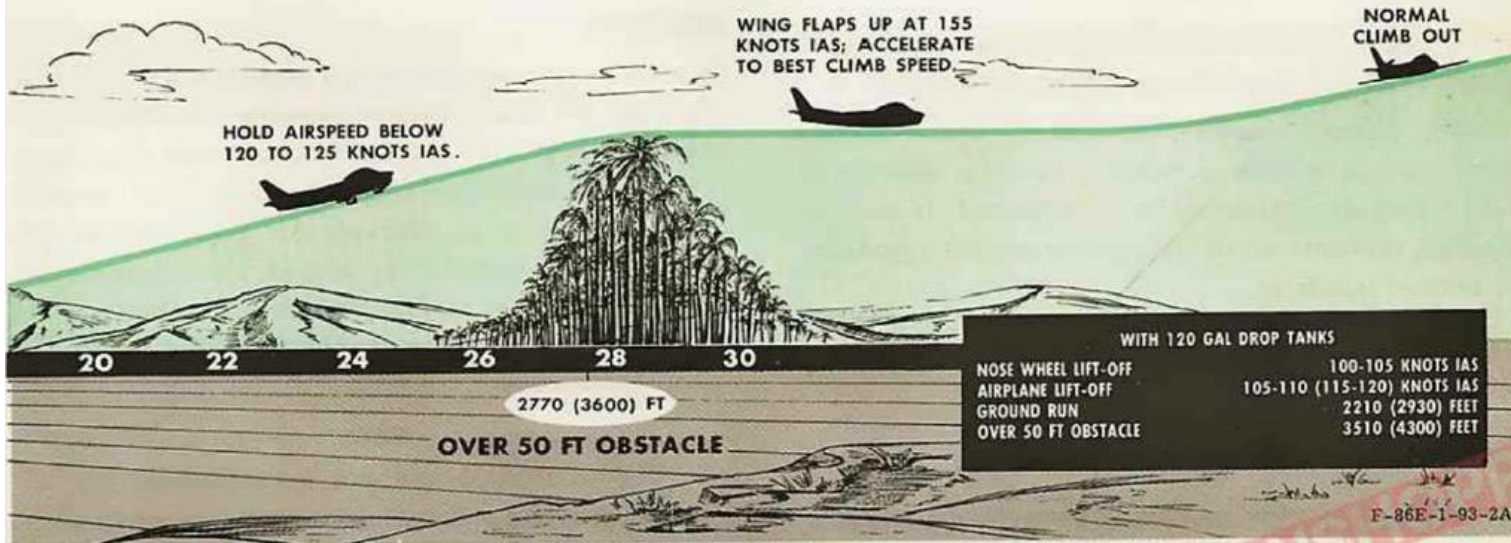


Figure 2-5

2-14



2-15



# PART 5 – LANDING

MANY PEOPLE HAVE THEIR OWN WAY OF LANDING, HERE IS MINE.

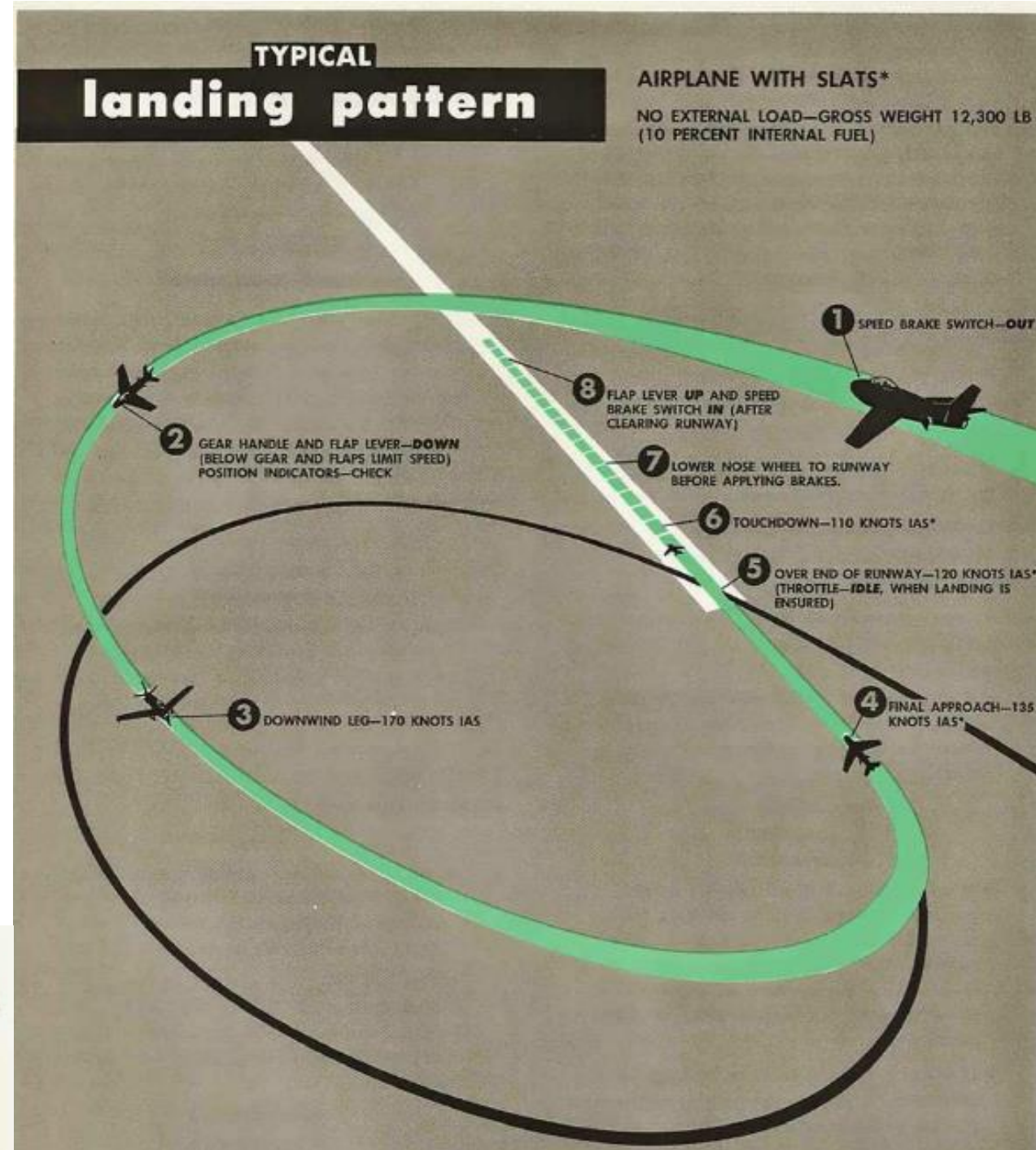
1. DEPLOY AIRBRAKES AND LINE UP ON THE RUNWAY
2. DEPLOY FLAPS AND LANDING GEAR (CHECK FOR YELLOW SPEED LIMIT ON AIRSPEED INDICATOR)
3. FINAL APPROACH AT 135 KTS
4. TOUCHDOWN AT 110 KTS (THROTTLE AT IDLE)
5. GENTLY TAP YOUR BRAKES TO SLOW DOWN
6. ONCE RUNWAY IS CLEARED, RETRACT FLAPS AND AIRBRAKES.
7. SHUTDOWN AIRCRAFT (SET THROTTLE TO "OFF" BY PRESSING 2X "END" KEY, ENGINE MASTER SWITCH "OFF", BATTERY SWITCH "OFF" AND EMERGENCY IGNITION "OFF").

**NOTE**  
Refer to landing distance charts in Appendix I for final approach and touchdown speeds at various gross weights.

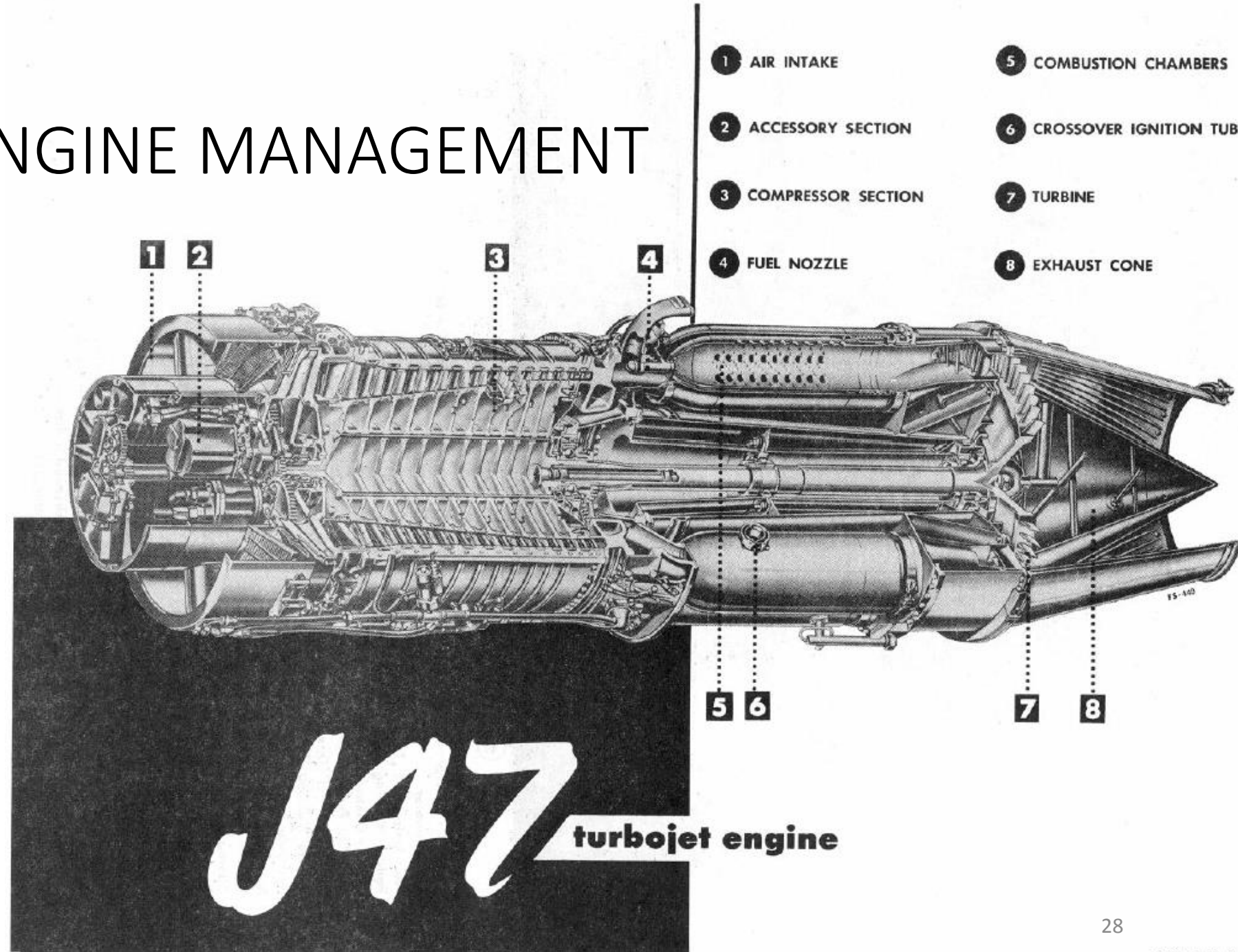
\*For airplanes without slats, add 10 knots.

F-06E-1-00-13C

Figure 2-6



# PART 6 – ENGINE MANAGEMENT





# PART 6 – ENGINE MANAGEMENT

- THE GENERAL ELECTRIC J47 ENGINE HAD A 12-STAGE AXIAL COMPRESSOR AND A SINGLE-STAGE AXIAL TURBINE.
- THE ONLY TEMPERATURE YOU NEED TO KEEP AN EYE ON IS THE EXHAUST TEMPERATURE. MAKE SURE THE TEMPERATURE IS WITHIN SERVICEABILITY & SAFETY LIMITS (GREEN). ENGINE TEMPERATURE CAN ONLY BE CONTROLLED BY REDUCING OR AUGMENTING ENGINE RPM WITH THE THROTTLE.
- MAX ENGINE EXHAUST TEMPERATURE SHOULD BE 685 DEG C AT ALL TIMES.
- RECOMMENDED ENGINE RPM SETTING DURING NORMAL FLYING IS BETWEEN 85 % AND 95 % RPM.
- KEEP AN EYE FOR EXHAUST TEMPERATURE DURING COMBAT, ESPECIALLY IF YOU GO FULL THROTTLE (100 % RPM) FOR AN EXTENDED PERIOD OF TIME. PROLONGED OVERHEATING OF THE ENGINE WILL RESULT IN CATASTROPHIC ENGINE FAILURE.
- COMPRESSOR STALL MAY OCCUR WHEN YOU MOVE THE THROTTLE TOO QUICKLY. YOU WILL NOTICE A SUDDEN LOSS IN ENGINE RPM. THE J47 ENGINE IS SLOW TO RESPOND TO THROTTLE INPUT, SO IT SHOULD BE TREATED GENTLY. IN CASE OF COMPRESSOR STALL, PULL THROTTLE TO IDLE AND SLOWLY THROTTLE UP. MAJOR COMPRESSOR FAILURE MAY RESULT IN AN ENGINE FLAME-OUT.

TACHOMETER  
(%RPM)



EXHAUST TEMPERATURE  
GAUGE (DEGC X 100)

# PART 6 – ENGINE MANAGEMENT

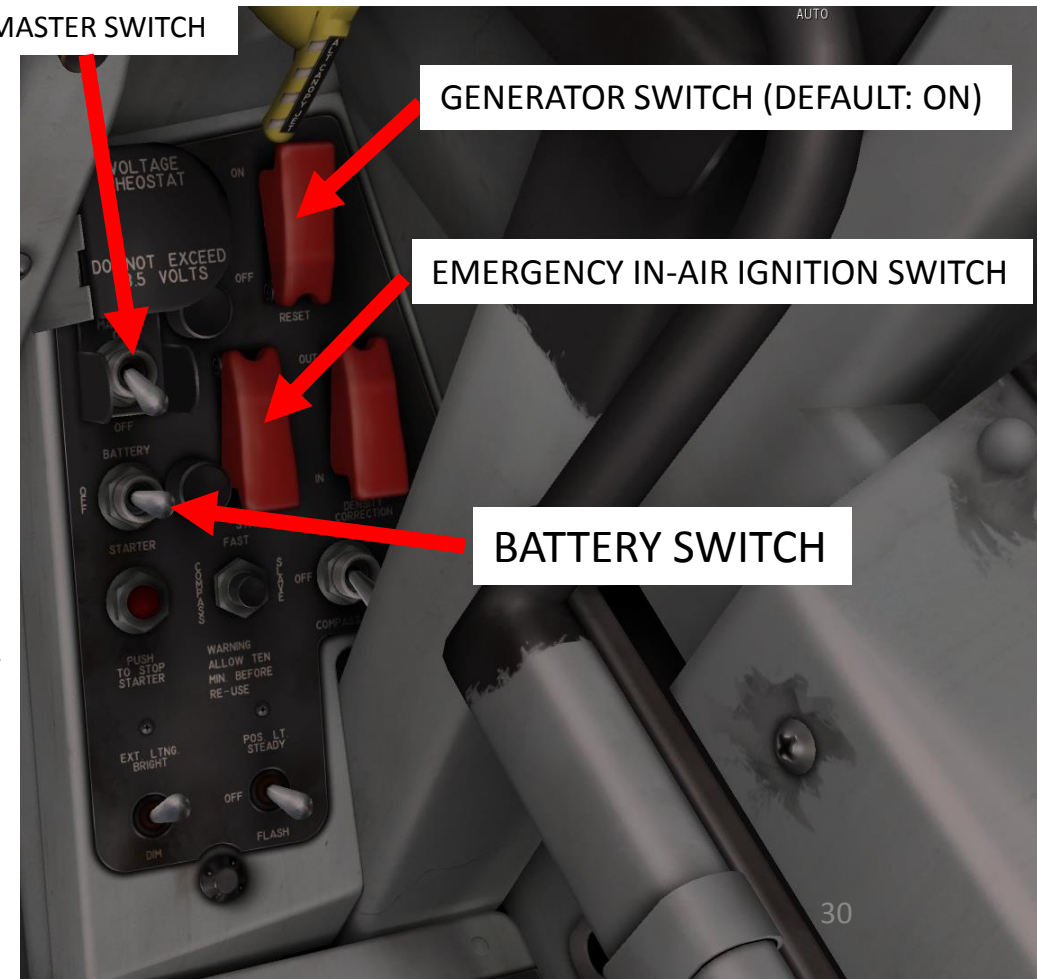
## IN CASE OF ENGINE FLAME-OUT

1. DO NOT PANIC
2. CUT THROTTLE AND SET IT TO “OFF” (PRESS “END” KEY 2 TIMES)
3. PUT THE F-86’S NOSE DOWN AND INCREASE SPEED BETWEEN 185 AND 225 KTS.
4. MAKE SURE MASTER SWITCH AND BATTERY SWITCHES ARE ON
5. SWITCH ON EMERGENCY IGNITION (LIFT RED COVER)
6. SWITCH ON EMERGENCY FUEL
7. SET THROTTLE TO IDLE POSITION (PRESS “HOME” KEY 2 TIMES)
8. ONCE ENGINE IS SPOOLING UP (90+ %), SWITCH OFF EMERGENCY IGNITION.
9. ONCE SMOOTH ENGINE OPERATION IS ESTABLISHED, SWITCH OFF EMERGENCY FUEL.



EMERGENCY FUEL

ENGINE MASTER SWITCH



GENERATOR SWITCH (DEFAULT: ON)

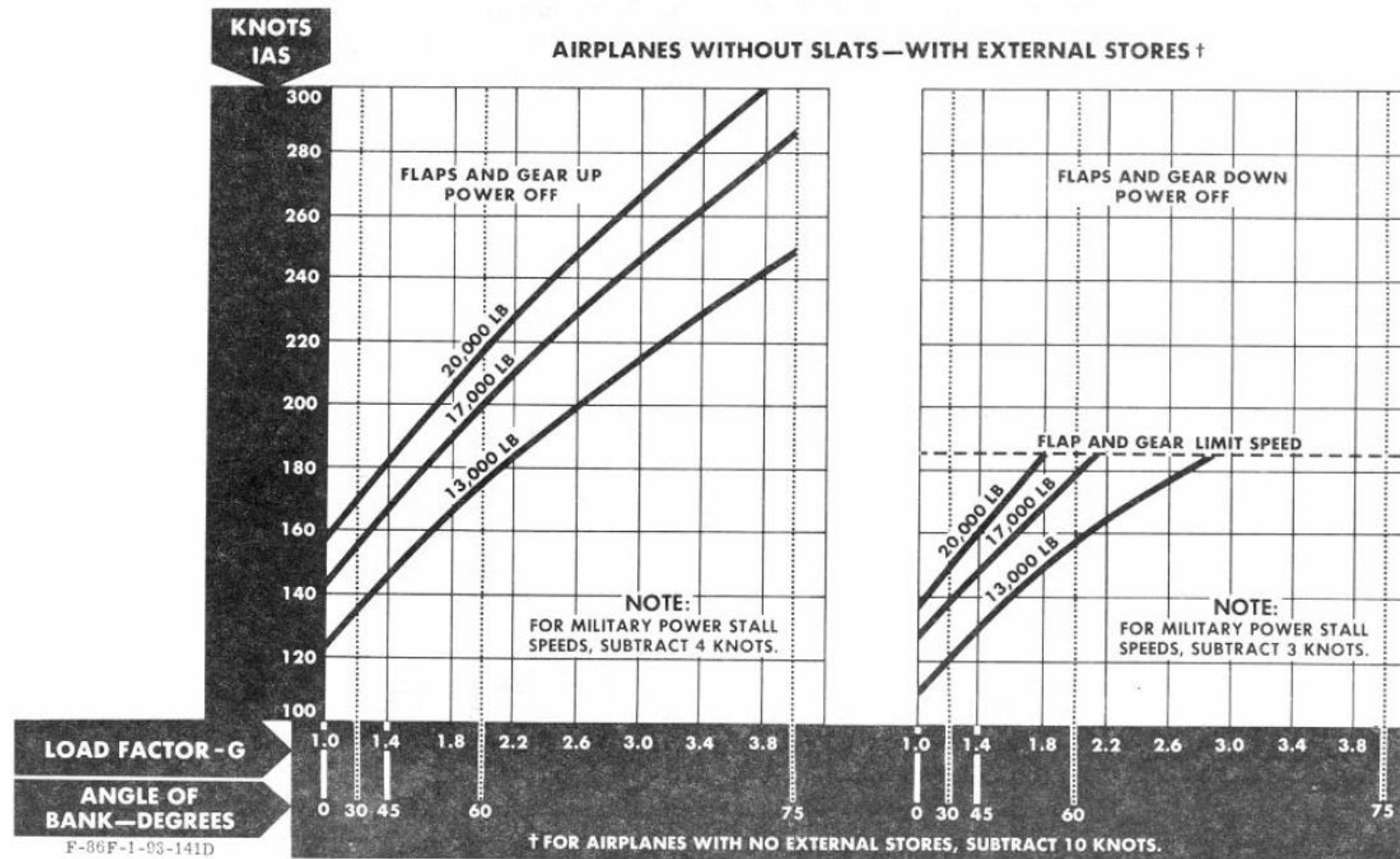
EMERGENCY IN-AIR IGNITION SWITCH

BATTERY SWITCH



# PART 7 – AIRCRAFT LIMITATIONS

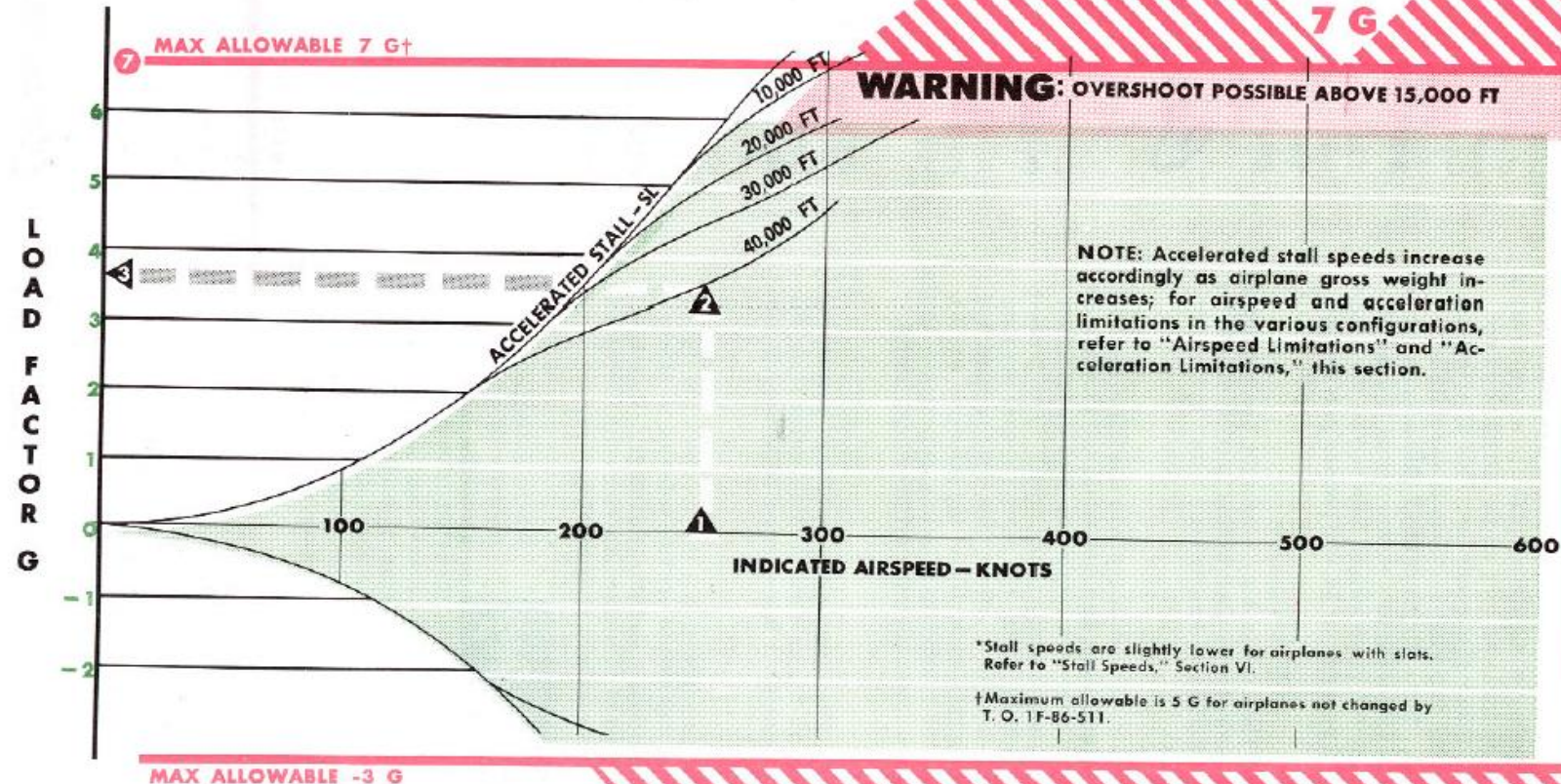
## stall speeds



# PART 7 – AIRCRAFT LIMITATIONS

## operating flight limits – airplanes without slats\* (no external load)

- HOW TO USE CHART:**
- 1 Select your indicated airspeed.
  - 2 Trace vertically to your flight altitude.
  - 3 Move horizontally to the left and find the maximum G you can pull at that airspeed and altitude before stalling.





# PART 7 – AIRCRAFT LIMITATIONS

## airspeed and acceleration limitations

ONLY THE CONFIGURATIONS LISTED  
ARE APPROVED FOR FLIGHT.

F-86F-25 AND LATER AIRPLANES


OUTBOARD STATION		INBOARD STATION		INBOARD STATION		OUTBOARD STATION		AIRSPEED LIMITATIONS	G-LIMITS
120 Gal Drop Tank		B37K-1 Bomb rack		B37K-1 Bomb rack		120 Gal Drop Tank		IF BOTH TANKS ARE TYPE I OR III Below 25,000 feet: 500 knots IAS or Mach .90, whichever is lower. Above 25,000 feet: Maximum attainable except avoid buffet regions.	TANKS WITH FUEL +5.0 -2.0 TANKS EMPTY +6.0* -2.0
								IF EITHER TANK IS TYPE II OR IV 500 knots IAS or Mach .90, whichever is lower. No abrupt maneuvers, no continuous rolls, rate of roll limited to 90 degrees per second.	+4.0 -2.0
120 Gal Drop Tank		INBOARD ROCKET STATIONS		INBOARD ROCKET STATIONS		120 Gal Drop Tank		IF BOTH TANKS ARE TYPE I OR III Below 25,000 feet: 500 knots IAS or Mach .90, whichever is lower. Above 25,000 feet: Maximum attainable except avoid buffet regions.	TANKS WITH FUEL +5.0 -2.0 TANKS EMPTY +6.0* -2.0
								IF EITHER TANK IS TYPE II OR IV 500 knots IAS or Mach .90, whichever is lower. No abrupt maneuvers, no continuous rolls, rate of roll limited to 90 degrees per second.	+4.0 -2.0

# PART 7 – AIRCRAFT LIMITATIONS

## airspeed and acceleration limitations

ONLY THE CONFIGURATIONS LISTED  
ARE APPROVED FOR FLIGHT.

F-86F-25 AND LATER AIRPLANES

						AIRSPEED LIMITATIONS	G-LIMITS
120 Gal Drop Tank	MA-3	MA-3	MA-3	MA-3	120 Gal Drop Tank	IF BOTH TANKS ARE TYPE I OR III Below 20,000 feet: Mach .80 Above 20,000 feet: Mach .90	TANKS WITH FUEL +5.0 -2.0 TANKS EMPTY +6.0* -2.0
						IF EITHER TANK IS TYPE II OR IV Below 20,000 feet: Mach .80 Above 20,000 feet: 500 knots IAS or Mach .90, whichever is lower. No abrupt maneuvers, no continuous rolls, rate of roll limited to 90 degrees per second.	+4.0 -2.0
120 Gal Drop Tank	ROCKET STATION MA-2A	B37K-1 Bomb Rack	MA-2A	MA-2A	120 Gal Drop Tank	IF BOTH TANKS ARE TYPE I OR III Below 25,000 feet: 500 knots IAS or Mach .90, whichever is lower. Above 25,000 feet: Maximum attainable except avoid buffet regions.	TANKS WITH FUEL +5.0 -2.0 TANKS EMPTY +6.0* -2.0
						IF EITHER TANK IS TYPE II OR IV 500 knots IAS or Mach .90, whichever is lower. No abrupt maneuvers, no continuous rolls, rate of roll limited to 90 degrees per second.	+4.0 -2.0

\* Positive G-limits for airplanes not changed by T.O. 1F-86F-544  
are 5.0 G for straight pull-outs and 3.3 G for rolling pull-outs.



# PART 7 – AIRCRAFT LIMITATIONS

## AIRSPEED AND ACCELERATION LIMITATIONS

ONLY THE CONFIGURATIONS LISTED  
ARE APPROVED FOR FLIGHT



### NOTE

- The missile rollerons must be pinned to prevent buffet.
- Positive G-limits for rolling pull-outs are two thirds of limits shown.
- Negative G-limit for rolling push-down is 1 G.

OUTBOARD STATION	INBOARD STATION	MISSILE STATION	MISSILE STATION	INBOARD STATION	OUTBOARD STATION	AIRSPEED LIMITATIONS	G-LIMITS
		AIM-9B MISSILE	AIM-9B MISSILE*			600 knots IAS or where wing roll is excessive.	+5.0 -2.0
NAA 200 GAL DROP TANK		AIM-9B MISSILE	AIM-9B MISSILE *		NAA 200 GAL DROP TANK	600 knots IAS or where wing roll is excessive. Avoid buffet regions. No continuous rolls.	TANKS WITH FUEL +5.0 -2.0 TANKS EMPTY +5.0 -2.0
NAA 200 GAL DROP TANK	120 GAL DROP TANK	AIM-9B MISSILE	AIM-9B MISSILE *	120 GAL DROP TANK	NAA 200 GAL DROP TANK	IF BOTH 120 GAL TANKS ARE TYPE I OR III Above 25,000 feet: Maximum attainable, except avoid buffet regions. Below 25,000 feet: 500 knots IAS or Mach .90 whichever is lower.	+4.5 -2.0
						-----	-----
						IF EITHER 120 GAL TANK IS TYPE II OR IV Above 25,000 feet: Mach .85 Below 25,000 feet: Mach .82 No abrupt maneuvers, no continuous rolls, rate of roll limited to 90 degrees per second.	+4.0 -2.0

Figure 5-3A

\* or TDU-11/B target rocket

# PART 8 – AIRCRAFT OPERATION

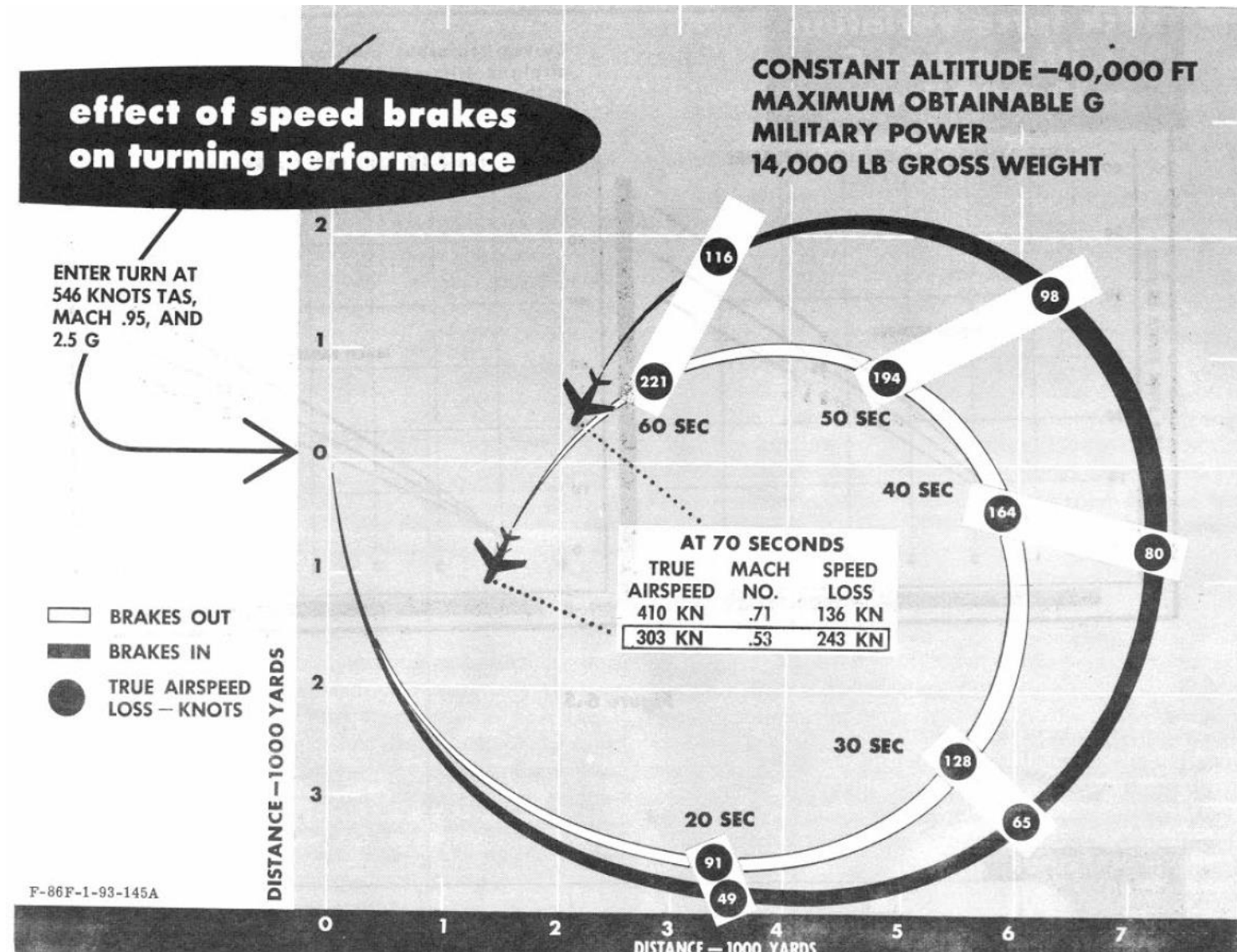
- YOUR AIRCRAFT CAN EASILY GO MORE THAN 400 KTS IN LEVEL FLIGHT, WHICH MEANS THAT YOU CAN VERY EASILY BLACK OUT IF YOU DO NOT PAY ATTENTION TO YOUR SPEED IN TURNING MANOEUVERS. BE GENTLE WITH YOUR AIRCRAFT.
- SPEED IS VERY IMPORTANT IN COMBAT, BUT ALSO DURING LANDING. PAY ATTENTION TO THE YELLOW INDEX ON THE AIRSPEED INDICATOR (SEE PAGE 18) TO KNOW WHEN YOU CAN SAFELY DEPLOY YOUR FLAPS AND LANDING GEAR. DEPLOYING THOSE AT HIGH SPEEDS WILL MAKE THEM JAM IN INCONVENIENT POSITIONS, AS SHOWN IN PICTURE ON THE RIGHT.
- DURING A NORMAL PATROL, YOU DO NOT NEED TO GO FULL THROTTLE ALL THE TIME. IT NEEDLESSLY WEARS THE ENGINE DOWN AND CAN CREATE PROBLEMS WITH FORMATION FLYING.
- AT HIGH MACH NUMBERS (BETWEEN MACH 0.95 AND 1) YOU CAN LOCK UP YOUR CONTROLS VERY EASILY (ESPECIALLY AILERONS). IF YOU WANT TO REMAIN IN FULL CONTROL OF YOUR PLANE AT ALL TIMES, IT IS BETTER TO FLY A LITTLE BIT SLOWER (MACH 0.7-0.8) BUT KEEP FULL AUTHORITY OVER YOUR CONTROLS. THIS CAN PREVENT UNFORTUNATE MID-AIR COLLISIONS WITH YOUR WINGMEN (TRUE STORY).





# PART 8 – AIRCRAFT OPERATION

- TYPICALLY IN WORLD WAR II FIGHTERS, FLAPS WERE USED TO MAKE TIGHTER TURNS IN COMBAT. HOWEVER, USE OF FLAPS DURING COMBAT IS STRICTLY PROHIBITED IN THE SABRE.
- USE OF AIRBRAKES CAN HELP YOU TURN MUCH TIGHTER. THEY COME IN VERY HANDY IN DIVE BOMBING MANOEUVERS AND DEFENSIVE MANOEUVERS, ESPECIALLY WHEN YOU HAVE A MIG-15 ON YOUR TAIL THAT YOU JUST CAN'T SHAKE OFF.
- USE AIRBRAKES ONLY WHEN YOU NEED TO. BLEEDING OFF TOO MUCH SPEED IN THE SABRE CAN QUICKLY BECOME FATAL. PLEASE TAKE NOTE THAT:
  1. THE MIG-15 OUTCLIMBS THE F-86.
  2. THE F-86 OUTDIVES THE MIG-15
  3. THE F-86 IS GENERALLY SLIGHTLY MORE MANOEUVRABLE THAN THE MIG-15
  4. THE F-86 IS VERY VULNERABLE AT LOW SPEEDS



# PART 8 – AIRCRAFT OPERATION

- IN CASE OF LANDING GEAR FAILURE, HERE IS THE **PROCEDURE FOR EMERGENCY LANDING GEAR LOWERING**.
- PLEASE TAKE NOTE THAT THE EMERGENCY LANDING GEAR HANDLE IS CURRENTLY MODELLED BUT NOT FUNCTIONAL. IT IS A BUG AND BELSIMTEK HAS CONFIRMED THAT THEY ARE WORKING ON FIXING IT.



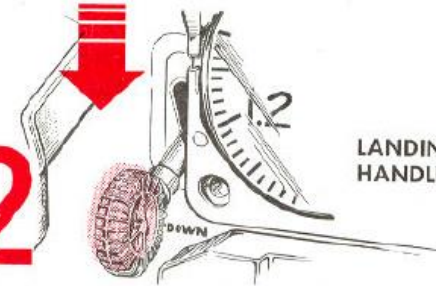
## landing gear emergency lowering

1



AIRSPEED—REDUCE TO BELOW 175 KNOTS IAS. (Otherwise, airloads may hold fairing doors closed.)

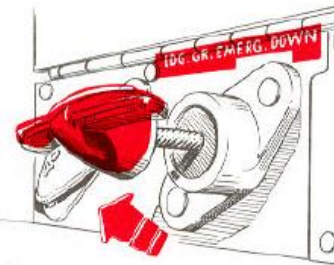
2



LANDING GEAR HANDLE—DOWN.



3



GEAR EMERGENCY RELEASE HANDLE—Pull and hold extended to lower gear.

### CAUTION

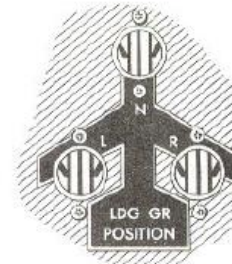
Pull emergency release handle to full extension (approximately 20 inches) to ensure release of all uplocks.

4



YAW AIRPLANE TO LOCK MAIN GEAR, IF NECESSARY.

5



LANDING GEAR POSITION INDICATORS—Check for safe gear indication; then release gear emergency release handle.



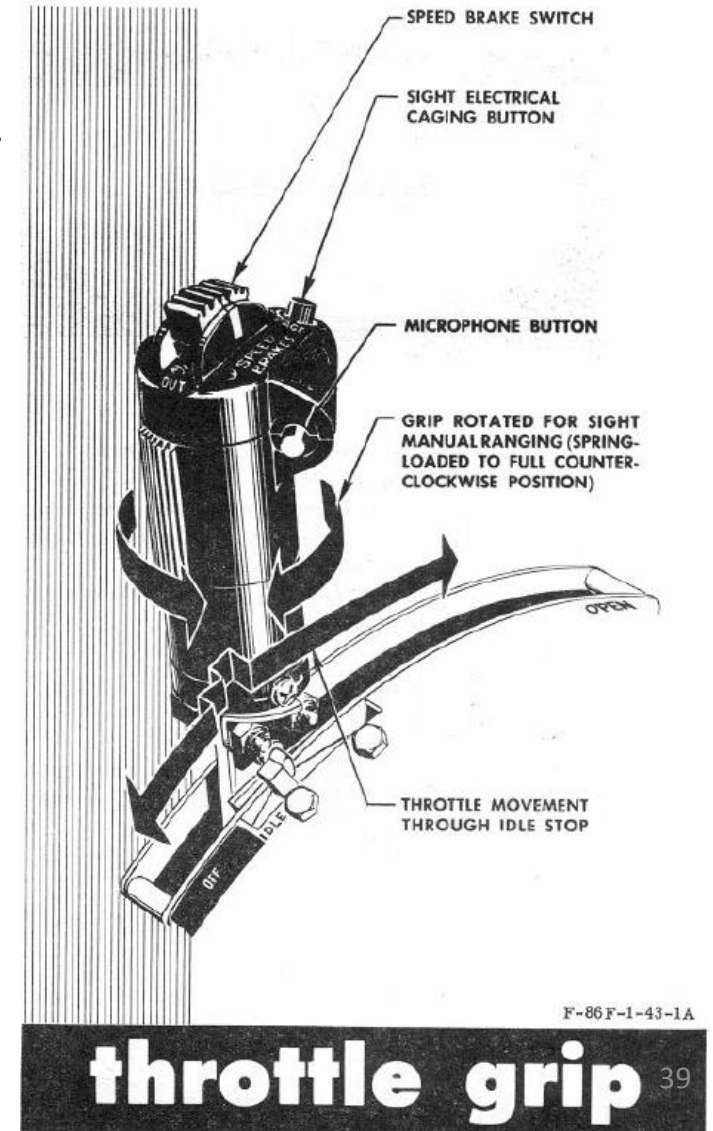
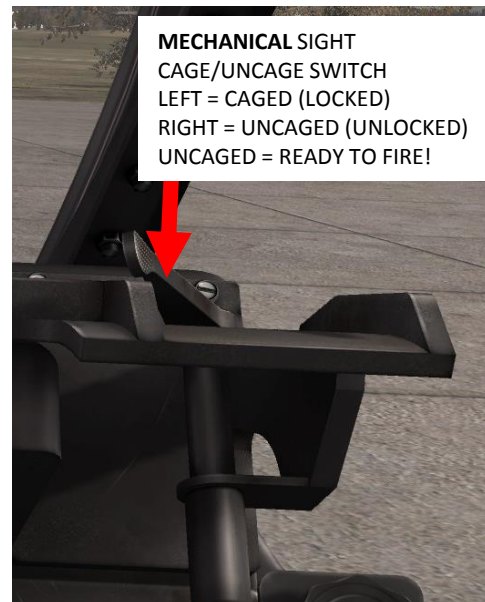
# PART 9 – HOW TO BE COMBAT READY

BEFORE WE START, I NEED TO MAKE SOMETHING CLEAR:

- THE **ELECTRICAL** CAGING SWITCH AND THE **MECHANICAL** CAGING SWITCH ARE **NOT** THE SAME THING. THEY HAVE DIFFERENT FUNCTIONS.
- THE FOLLOWING TERMINOLOGY WILL BE USED:
  - “RELEASE ELECTRICAL CAGE SWITCH” (GUNSIGHT WILL BE MOVING)
  - “HOLD ELECTRICAL CAGE SWITCH” (GUNSIGHT WILL NOT BE MOVING)
  - “UNCAGE MECHANICAL SIGHT” (RIGHT POSITION = GUNSIGHT WILL BE MOVING)
  - “CAGE MECHANICAL SIGHT” (LEFT POSITION = GUNSIGHT WILL NOT MOVE)



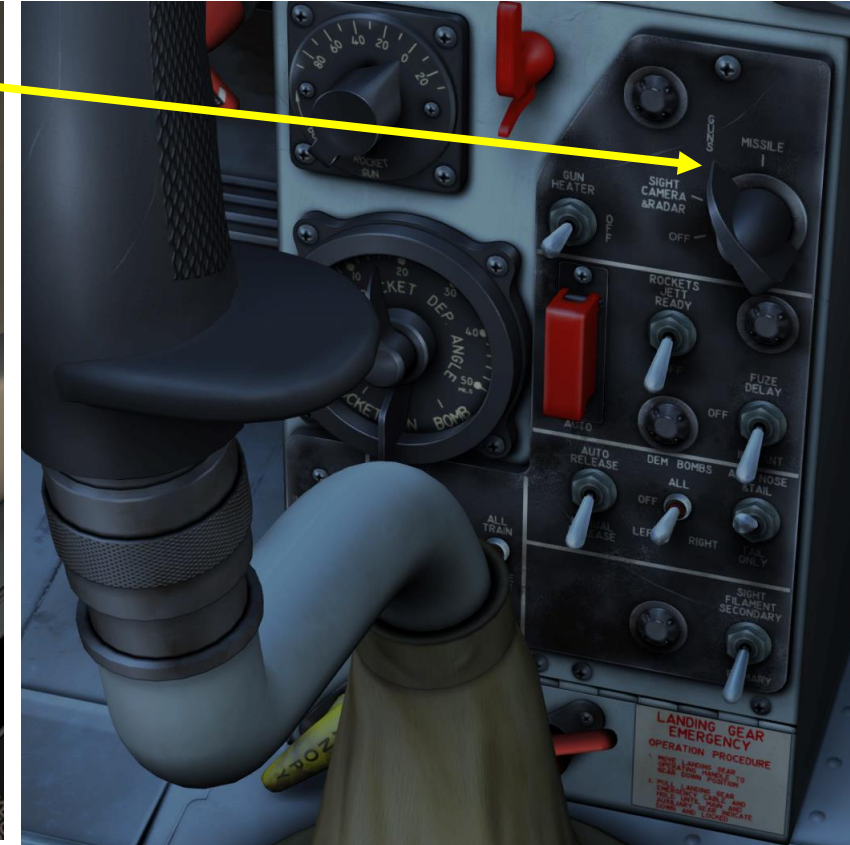
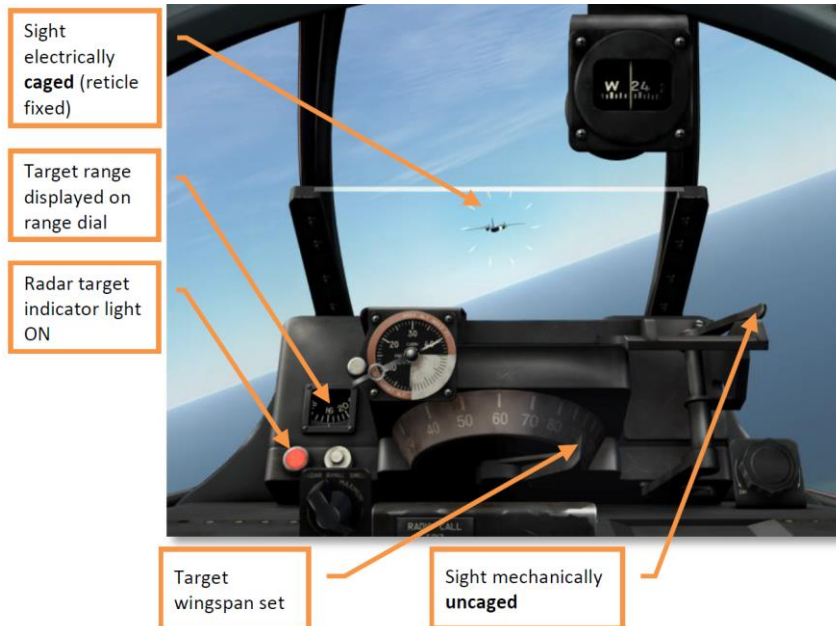
WINGSPAN OF A MIG-15BIS  
10 m = 32 ft (VALUE TO ENTER IN GUNSIGHT WINGSPAN)



# PART 9 – HOW TO BE COMBAT READY

## FOR GUNS:

- 1) SET WEAPON SELECTOR TO “GUNS” (DO IT 10 MINUTES IN ADVANCE TO LET THE A-4 GUNSIGHT SYSTEM WARM UP) AND SET YOUR GUN SELECTOR SWITCH TO “ALL GUNS”.
- 2) UNCAGE MECHANICAL SIGHT BEFORE ENGAGING AIR TARGET
- 3) CURRENT MAX RADAR RANGE IS 1600 FT. RADAR LIGHT WILL BECOME RED ONCE A TARGET IS SPOTTED AND IT MIGHT SUFFER INTERFERENCE UNDER AN ALTITUDE OF 6000 FT BECAUSE OF GROUND CLUTTER. CONTINUOUS LIGHT MEANS CONTINUOUS RADAR TRACKING, WHILE FLICKERING LIGHT MEANS THAT RADAR IS SPOTTING SOMETHING BUT NOT TRACKING IT.
- 4) HOLD ELECTRICAL CAGE SWITCH FOR A FEW SECONDS (GUNSIGHT WILL STOP MOVING) AND RELEASE IT (GUNSIGHT WILL BEGIN TRACKING). TARGET RANGE ON RANGE DIAL SHOULD STOP WOBBLING AND THE GUNSIGHT WILL START TRACKING THE TARGET’S RANGE.
- 5) FIRE ON TARGET (**GUN FIRE BTN**) WHEN PIPPER IS ON IT.

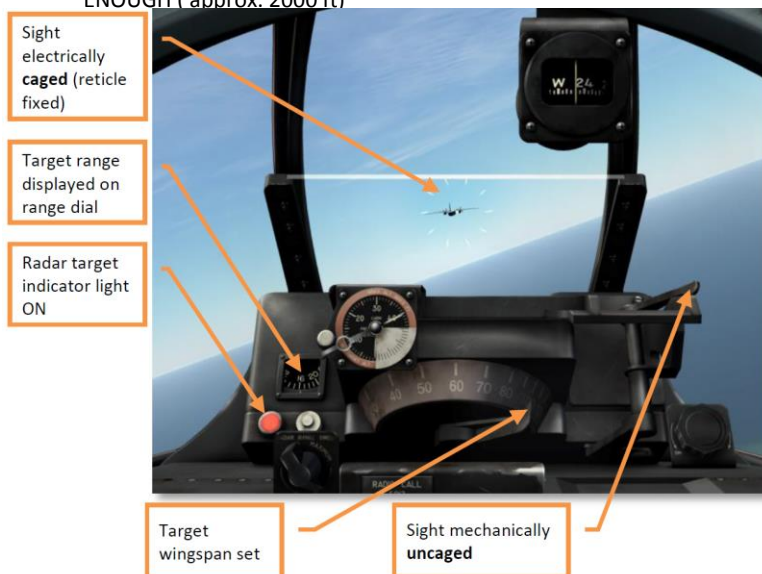




# PART 9 – HOW TO BE COMBAT READY

## FOR MISSILES:

- 1) SET WEAPON SELECTOR TO "MISSILE" (DO IT 10 MINUTES IN ADVANCE TO LET THE A-4 GUNSIGHT SYSTEM WARM UP)
- 2) UNCAGE MECHANICAL SIGHT BEFORE ENGAGING AIR TARGET
- 3) SELECT MISSILE LAUNCH MODE (TYPICALLY I USE RH BUT IT IS REALLY UP TO YOUR PERSONAL PREFERENCE). YOU WILL START HEARING THE SEEKER MISSILE GROWL.
- 4) CURRENT MAX RADAR RANGE IS 1600 FT AND IT MIGHT SUFFER INTERFERENCE UNDER AN ALTITUDE OF 6000 FT BECAUSE OF GROUND CLUTTER. RADAR LIGHT WILL BECOME RED ONCE A TARGET IS SPOTTED. CONTINUOUS LIGHT MEANS CONTINUOUS RADAR TRACKING, WHILE FLICKERING LIGHT MEANS THAT RADAR IS SPOTTING SOMETHING BUT NOT TRACKING IT.
- 5) HOLD ELECTRICAL CAGE SWITCH FOR A FEW SECONDS (GUNSIGHT WILL STOP MOVING) AND RELEASE IT (GUNSIGHT WILL BEGIN TRACKING). TARGET RANGE ON RANGE DIAL SHOULD STOP WOBBLING AND THE GUNSIGHT WILL START TRACKING THE TARGET'S RANGE.
- 6) FIRE ON TARGET (**GUN FIRE BTN**) WHEN YOU HAVE A SOLID LOCK (TYPICAL SCREECHING SOUND THAT MAKES YOUR EARS BLEED). MAKE SURE YOU ARE CLOSE ENOUGH (approx. 2000 ft)



**MISSILE LAUNCH MODE:**  
 LH & RH = 1 MISSILE (LEFT FIRST)  
 RH = 1 MISSILE (RIGHT FIRST)  
 SALVO = BOTH MISSILES

# PART 9 – HOW TO BE COMBAT READY

## ROCKETS

- 1) SET WEAPON MODE TO “GUNS”
- 2) SET GUNSIGHT MODE TO “ROCKET”
- 3) FLIP ROCKET MODE COVER
- 4) CLICK SWITCH UNDER COVER (ON NEUTRAL BY DEFAULT)

RIGHT CLICK = SINGLE ROCKET  
LEFT CLICK = AUTO ROCKET

NOTE: FIRST ROCKET TO BE FIRED IS SET WITH  
THE ROCKET INTERVALOMETER ON THE LEFT PANEL

- 5) USE GUNSIGHT AND ELECTRICAL CAGING SWITCH TO AIM AS SHOWN IN “GUNS” SECTION.
- 6) FIRE YOUR ROCKETS BY PRESSING THE “WEAPON RELEASE” BUTTON





# PART 9 – HOW TO BE COMBAT READY

## DIVE BOMBING – MANUAL MODE

- 1) SET WEAPON MODE TO “SIGHT CAMERA & RADAR”
- 2) SET FUSE MODE TO “ARM NOSE & TAIL”
- 3) SET GUNSIGHT MODE TO “BOMB”
- 4) SET RELEASE MODE TO “MANUAL”
- 5) SELECT BOMB LOADOUT TO DROP (ALL/LEFT/RIGHT)
- 6) DEPLOY AIRBRAKES AND DIVE FOR YOUR TARGET.
- 7) DROP YOUR ORDNANCE BY PRESSING THE “WEAPON RELEASE” BUTTON



# PART 9 – HOW TO BE COMBAT READY

DIVE **BOMBING** – AUTOMATIC MODE

- 1) SET WEAPON MODE TO “SIGHT CAMERA & RADAR”
- 2) SET FUSE MODE TO “ARM NOSE & TAIL”
- 3) SET GUNSIGHT MODE TO “BOMB”
- 4) SET RELEASE MODE TO “AUTO”
- 5) SELECT BOMB LOADOUT TO DROP (ALL/LEFT/RIGHT)
- 6) UNCAGE MECHANICAL SIGHT (RETICLE WILL BE MOVING)





# PART 9 – HOW TO BE COMBAT READY

## DIVE **BOMBING** – AUTOMATIC MODE

- 7) DEPLOY AIRBRAKES.
- 8) ENTER A 45-DEG DIVE AND AIM YOUR PIPPER WHERE YOU WANT THE BOMB TO GO.
- 9) HOLD ELECTRICAL CAGING SWITCH FOR ABOUT 3 SECONDS.
- 10) WHILE HOLDING THE ELECTRICAL CAGING SWITCH, HOLD YOUR WEAPON RELEASE BUTTON. KEEP PIPPER ON TARGET.
- 11) RELEASE ELECTRICAL CAGING SWITCH, BUT KEEP HOLDING THE WEAPON RELEASE SWITCH. YOU SHOULD HEAR A “SHLONK” WHEN YOUR BOMBS ARE DROPPED AUTOMATICALLY.



# PART 9 – HOW TO BE COMBAT READY

## DIVE BOMBING – MANUAL PIP BOMBING MODE

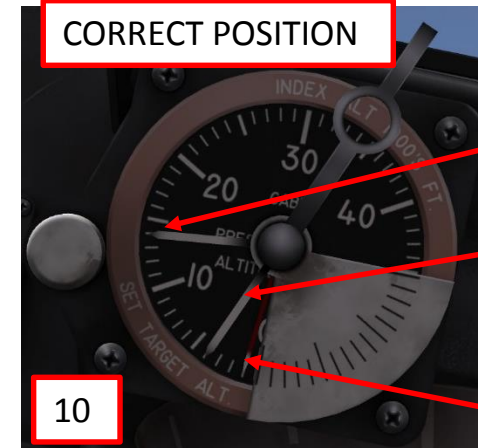
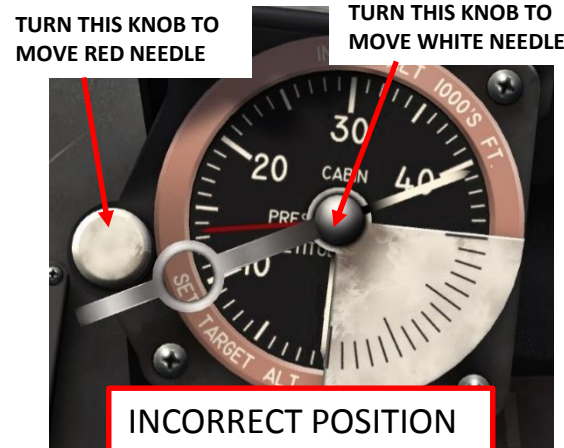
- 1) SET WEAPON MODE TO “SIGHT CAMERA & RADAR”
- 2) SET FUSE MODE TO “ARM NOSE & TAIL”
- 3) SET GUNSIGHT MODE TO “GUN”
- 4) SET RELEASE MODE TO “MANUAL”
- 5) SELECT BOMB LOADOUT TO DROP (ALL/LEFT/RIGHT)
- 6) UNCAGE MECHANICAL SIGHT (RETICLE WILL BE MOVING)
- 7) SET MANUAL PIP SWITCH CONTROL TO “BOMB”
- 8) DECIDE YOUR STARTING ALTITUDE AND SPEED. IN OUR CASE, WE WILL PICK 288 KTS ENTRY SPEED AT 15000 FT OVER TARGET, AS SUGGESTED BY THE MANUAL PIP CHART.





# PART 9 – HOW TO BE COMBAT READY

## DIVE BOMBING – MANUAL PIP BOMBING MODE



ALTIMETER NEEDLE POINTS OUR ALTITUDE: 14000 FT. KEEP AN EYE ON IT TO KNOW WHEN TO DROP YOUR BOMBS

THIS NEEDLE IS SET ON THE BOMB RELEASE ALTITUDE (4000 FT IN OUR CASE AS SUGGESTED IN STEP 9)

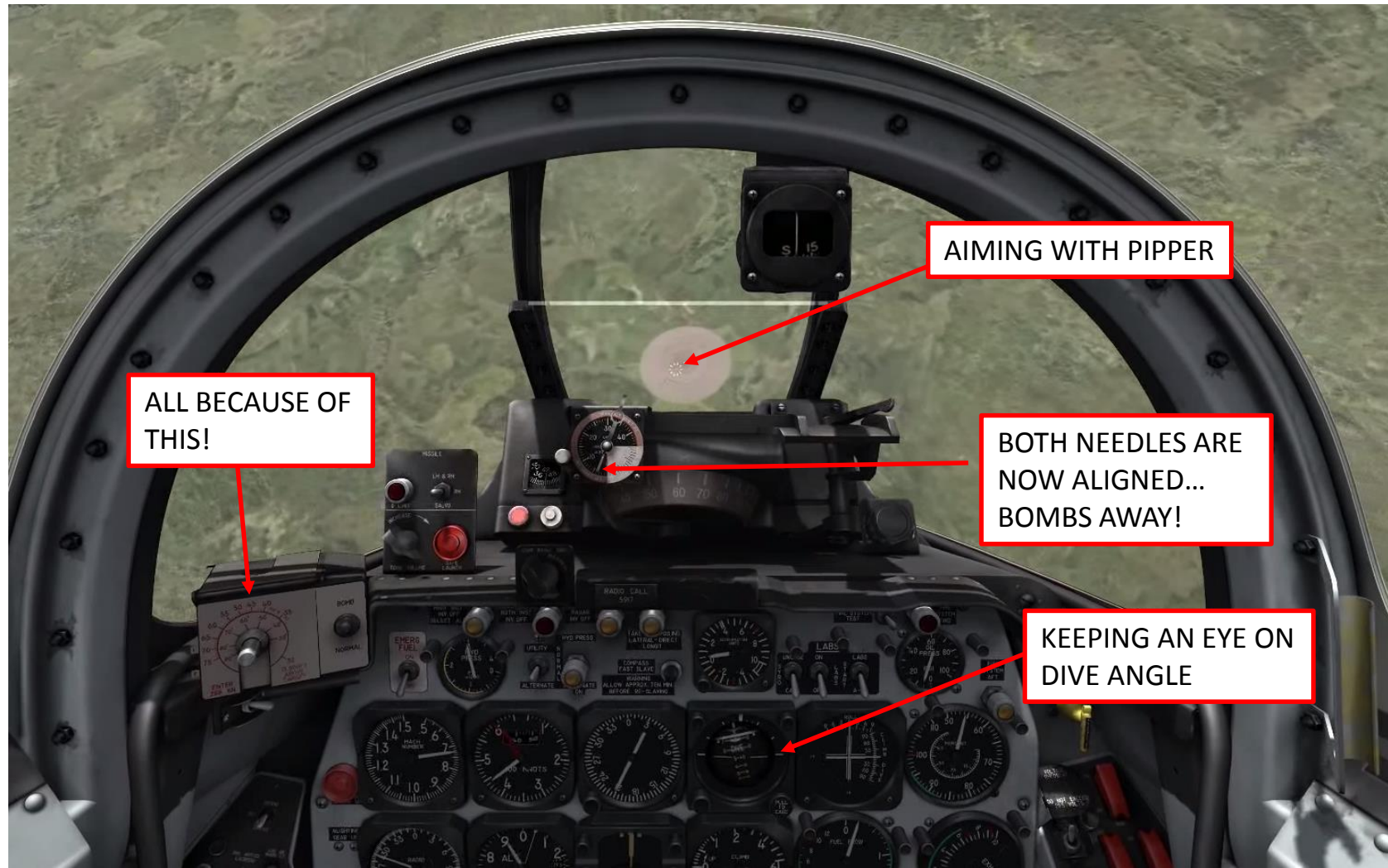
RED NEEDLE IS SET ON THE TARGET ALTITUDE (0 FT IN OUR CASE)

- 9) CLICK ON THE CENTER KNOB OF THE MANUAL PIP CONTROL AND SET THE DIVE ANGLE YOU INTEND TO TAKE. I USUALLY TAKE A DIVE ANGLE OF 50 DEG. CHECK THE ASSOCIATED NUMBER ON THE EXTERNAL CIRCLE, AND WE CAN DEDUCE THAT FOR A 50-DEGREE DIVE ANGLE, STARTING OUR DIVE FROM 15000 FT AT 288 KTS, OUR BOMB SHOULD BE RELEASED AT 4000 FT (RELEASE PARAMETER).
- 10) SINCE OUR EYES ARE GLUED ON THE PIPPER AND NOT ON THE ALTIMETER DURING THE DIVE, SOMEONE HAD THE BRILLIANT IDEA TO INCLUDE A BOMBING ALTIMETER. SET THE BOMBING ALTIMETER AS SHOWN IN THE PICTURE TITLED “CORRECT POSITION” AND TRACK THE ALTITUDE NEEDLE.
- 11) CUT THROTTLE, DEPLOY AIRBRAKES AND DIVE FOR YOUR TARGET AT A DIVE ANGLE OF 50 DEGREES. CHECK YOUR DIVE ANGLE INDICATOR FOR REFERENCE. AIM WITH THE PIPPER.
- 12) WHILE AIMING WITH THE PIPPER, WAIT FOR THE ALTIMETER NEEDLE TO MEET THE BOMB RELEASE NEEDLE AS SHOWN IN STEP 10. WHEN BOTH NEEDLES MEET, DROP YOUR ORDNANCE BY PRESSING THE “WEAPON RELEASE” BUTTON AND ENJOY THE FIREWORKS.



# PART 9 – HOW TO BE COMBAT READY

## DIVE BOMBING – MANUAL PIP BOMBING MODE





# PART 9 – HOW TO BE COMBAT READY

## L.A.B.S.



# PART 9 – HOW TO BE COMBAT READY

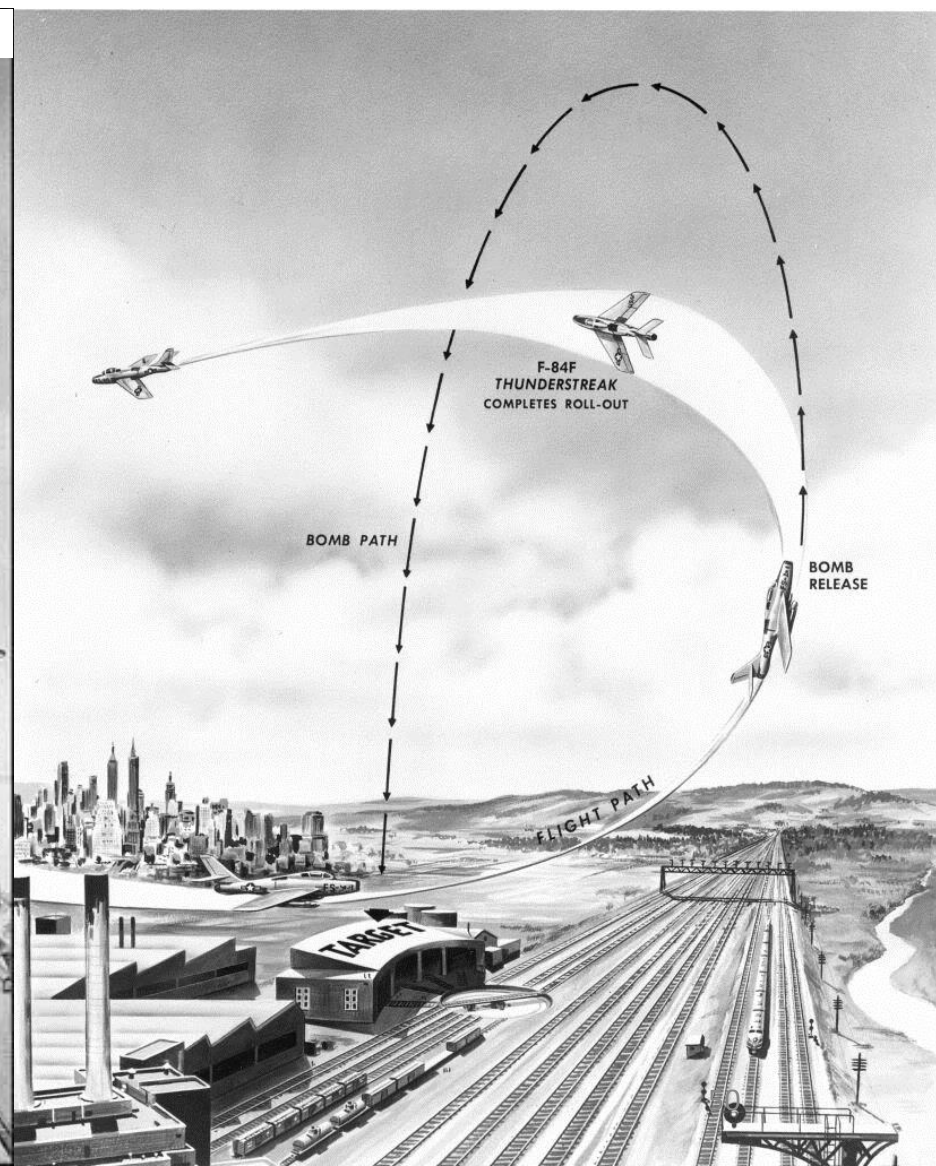
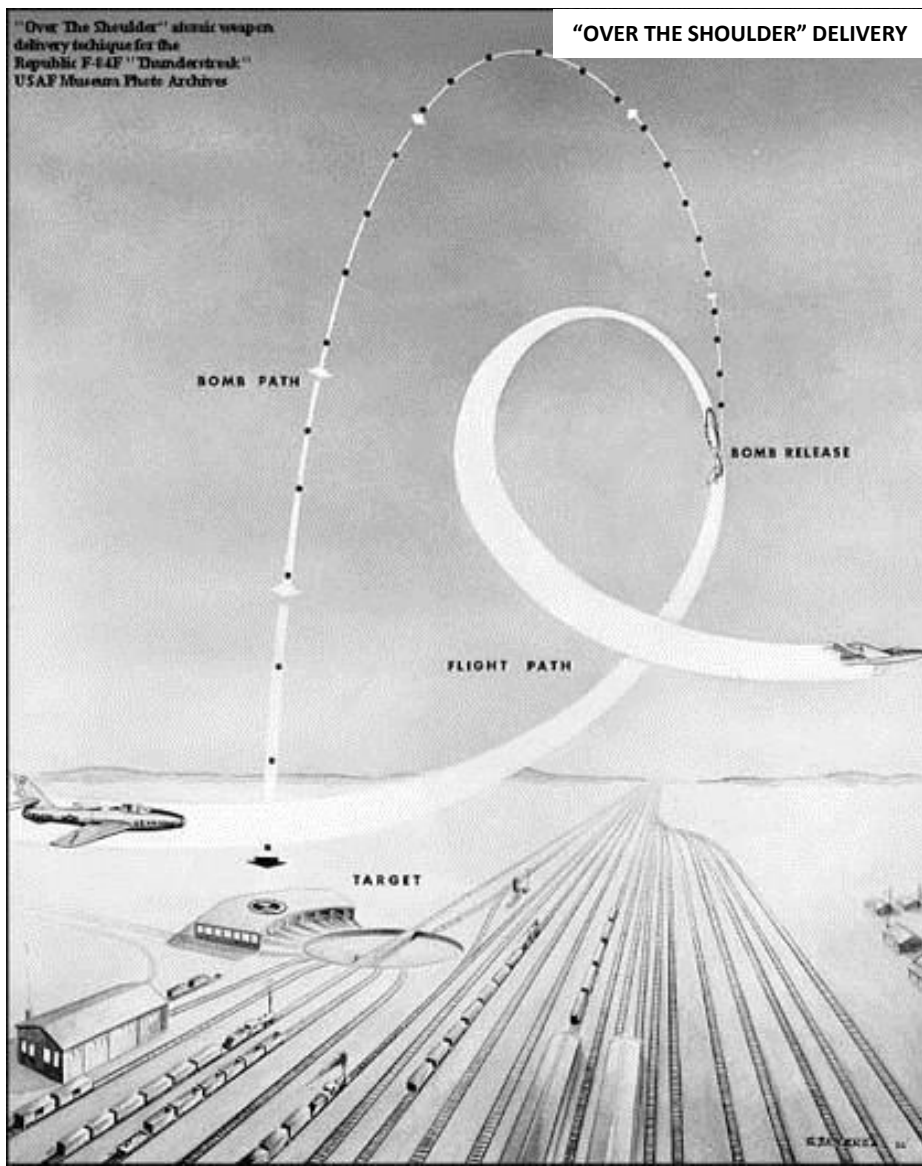
## L.A.B.S.

### LOW-ALTITUDE BOMBING SYSTEM

Toss bombing (sometimes known as loft bombing, and by the U.S. Air Force as the Low Altitude Bombing System, LABS) is a method of bombing where the attacking aircraft pulls upward when releasing its bomb load, giving the bomb additional time of flight by starting its ballistic path with an upward vector.

The purpose of toss bombing is to compensate for the gravity drop of the bomb in flight, and allow an aircraft to bomb a target without flying directly over it. This is in order to avoid overflying a heavily defended target, or in order to distance the attacking aircraft from the blast effects of a nuclear (or conventional) bomb.

However, the Sabre in DCS is not equipped with nuclear ordnance yet, so the use of the LABS system is rather impractical as the method is better suited for nuclear blasts than for precision bombing. Still, it's a cool feature so I thought I would talk about it nonetheless.





# PART 9 – HOW TO BE COMBAT READY

## L.A.B.S. LOW-ALTITUDE BOMBING SYSTEM

- 1) SET WEAPON MODE TO "SIGHT CAMERA & RADAR"
- 2) SET FUSE MODE TO "ARM NOSE & TAIL"
- 3) SET GUNSIGHT MODE TO "BOMB"
- 4) SET RELEASE MODE TO "MANUAL"
- 5) SELECT BOMB LOADOUT TO DROP (ALL/LEFT/RIGHT)
- 6) UNCAGE LABS GYRO
- 7) TURN ON LABS
- 8) SET LABS START SWITCH TO "LABS"

ACCELEROMETER



LABS GYRO



# PART 9 – HOW TO BE COMBAT READY

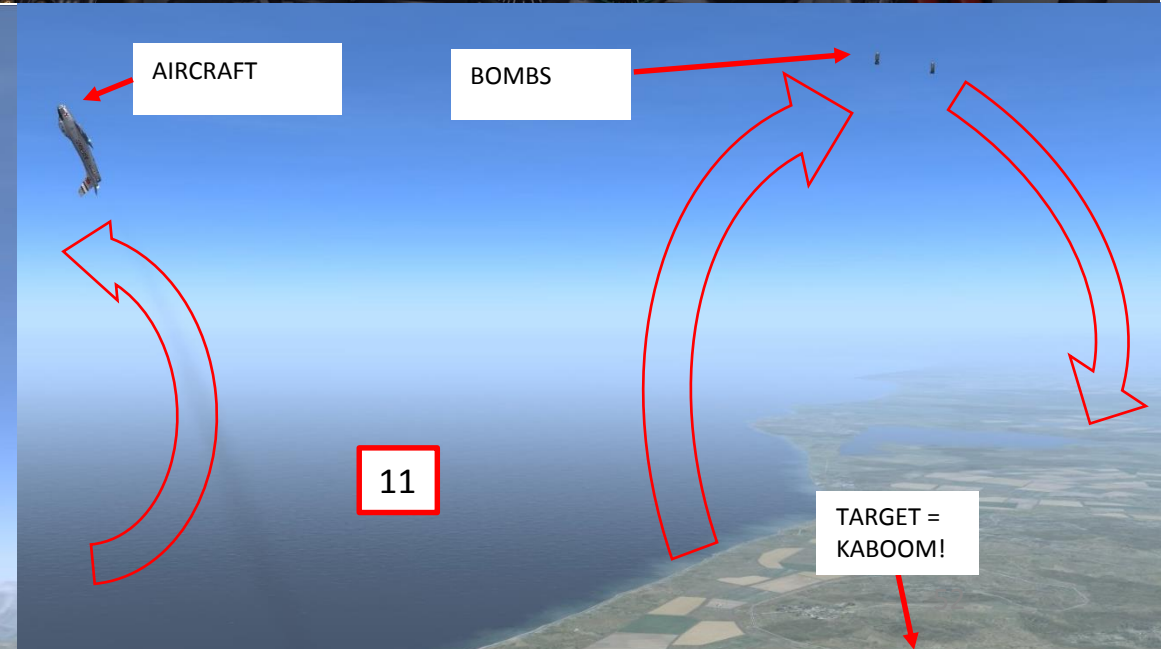
## L.A.B.S. LOW-ALTITUDE BOMBING SYSTEM

- 9) FLY LOW UNTIL YOU REACH THE TARGET.
- 10) HOLD “WEAPON RELEASE” AND START PULLING UP AT A STEADY +4G WHILE CHECKING THE ACCELEROMETER AND THE LABS GYRO TO AVOID LATERAL MOVEMENT AS MUCH AS YOU CAN.
- 11) YOUR BOMBS SHOULD BE RELEASED AUTOMATICALLY IF YOU KEEP HOLDING THE WEAPONS RELEASE SWITCH WHILE MAINTAINING +4G.

KEEP A STEADY +4G  
WHILE CLIMBING .



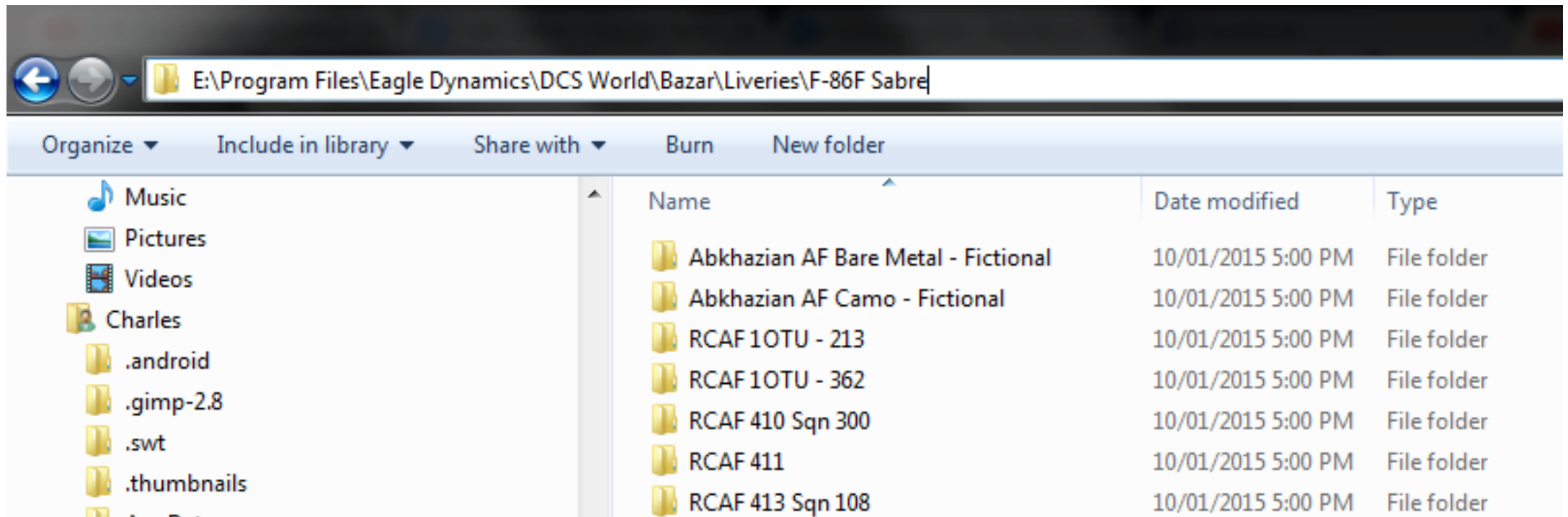
KEEP YOURSELF ALIGNED AND AVOID  
ROLLING MOVEMENT BY CHECKING THE  
LABS GYRO.





# PART 10 – SKINS

- SKINS MUST BE INSTALLED IN THE DIRECTORY SHOWN IN THE PICTURE BELOW.
- SOMETIMES THE FOLDER IS NOT THERE. CREATE ONE MANUALLY CALLED “F-86F Sabre” TO BE ABLE TO STOCK THESE SWEET SKINS.



# PART 11 – AN/ARC-27 UHF RADIO TUTORIAL

- THE AN/ARC-27 UHF RADIO OF THE SABRE HAS 19 PRESET CHANNELS GOING FROM 225 TO 400 MHz. EACH FREQUENCY IS MAPPED INDIVIDUALLY AND MANUALLY BY THE MISSION BUILDER. THE CHANNEL FREQUENCIES SHOULD BE AVAILABLE IN THE MISSION BRIEFING OR MISSION DESCRIPTION IF THE MISSION BUILDER WANTED TO MAKE YOUR LIFE EASIER.
- YOU CAN RECEIVE AND COMMUNICATE WITH A FREQUENCY BY SETTING YOUR RADIO TO “T/R” (TRANSMIT-RECEIVE) OR “T/R+G” (TRANSMIT-RECEIVE INCLUDING THE “G” FREQUENCY”).
- THE “G” CHANNEL IS AN EMERGENCY GUARD FREQUENCY (ALSO KNOWN AS CHANNEL 0).
- FOR INSTANCE, THIS PICTURES SHOWS THAT I CAN TRANSMIT AND RECEIVE INFORMATION FROM CHANNEL 10 AND RECEIVE INFORMATION FROM THE EMERGENCY GUARD FREQUENCY.
- YOU CAN CONTROL YOUR RADIO VOLUME IF IT IS TOO LOUD OR TOO LOW ROTATING THE “VOLUME” BUTTON.
- TO COMMUNICATE WITH OTHER AIRCRAFT, FLIGHTS OR CONTROL TOWERS, USE YOUR “MICROPHONE BUTTON” CONTROL MAPPED EARLIER.





# PART 12 – AN/ARN-6 RADIO NAVIGATION

- WE WILL USE A “NDB” (NON-DIRECTIONAL BEACON) FOR RADIO COMPASS NAVIGATION. THESE NDBS ARE LOCATED AT VARIOUS AIRFIELDS AND CERTAIN PLACES. TAKE NOTE THAT THEY ARE HARDCODED IN THE MAP.
- NDBS TRANSMIT A MORSE CODE ON A SET FREQUENCY THAT CAN BE HEARD WITH THE AN/ARN-6 RADIO COMPASS. THE SOURCE OF THE SIGNAL CAN BE DETECTED WITH THE RADIO COMPASS ON THE MAIN INSTRUMENT PANEL (ITS ARROW WILL TELL YOU WHERE THE SIGNAL YOU ARE RECEIVING IS COMING FROM).
- THERE CAN BE MANY NDBS TRANSMITTING AT FREQUENCIES THAT ARE VERY CLOSE TO ONE ANOTHER, SO IT CAN BE EASY TO FOLLOW ANOTHER SIGNAL BY MISTAKE.
- RADIO TUNING IS VERY PRECISE AND SENSITIVE. THE ONLY RELIABLE WAY TO KNOW IF YOU ARE TRACKING THE GOOD SIGNAL IS TO LISTEN TO THE MORSE CODE SIGNAL EMITTED BY THE BEACON AND SEE IF IT MATCHES.
- ALL BEACONS AND THEIR RESPECTIVE MORSE CODES ARE LISTED IN **LINO GERMANY’S BEACON MAP** AVAILABLE HERE:

LINK: [http://www.digitalcombatsimulator.com/en/files/588673/index.php?PAGEN\\_2=2](http://www.digitalcombatsimulator.com/en/files/588673/index.php?PAGEN_2=2)

DIRECT DOWNLOAD: <https://drive.google.com/open?id=0B-uSpZROuEd3YWJBUMZTazBGajQ&authuser=0>

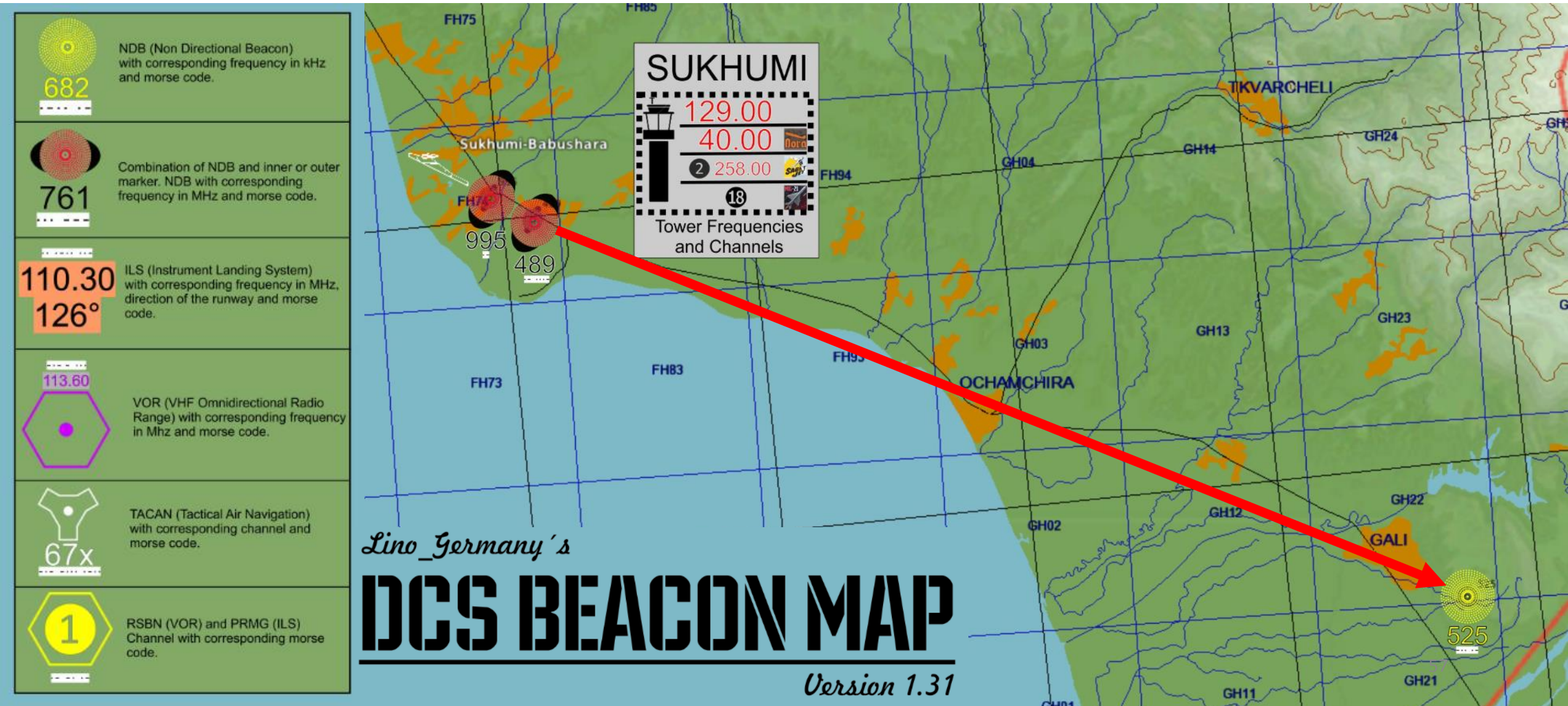
# PART 12 – AN/ARN-6 RADIO NAVIGATION

- IN THE FOLLOWING EXAMPLE, I WILL FLY FROM SUKHUMI AIRFIELD (WHICH ALREADY HAS 2 NDBS NEXT TO IT TRANSMITTING OTHER SIGNALS ON THEIR OWN FREQUENCIES)
- THE SIGNAL I WILL TRACK IS A NDB NEAR THE SMALL TOWN OF GALI. THE BEACON MAP TELLS ME THAT THE BEACON IS TRANSMITTING ON A FREQUENCY OF 525.00 MHz AND THE MORSE CODE IS – . . . –
- I CAN ASSOCIATE THE MORSE CODE WITH ONE LONG BEEP, FOLLOWED BY TWO SHORT BEEPS, FOLLOWED BY A PAUSE, FOLLOWED BY A SHORT BEEP AND FOLLOWED BY A LONG BEEP.
- TAKE NOTE THAT IF YOU FLY UNDER 6000 FT THERE MIGHT BE INTERFERENCES FROM GROUND CLUTTER.





# PART 12 – AN/ARN-6 RADIO NAVIGATION







### STEP 7

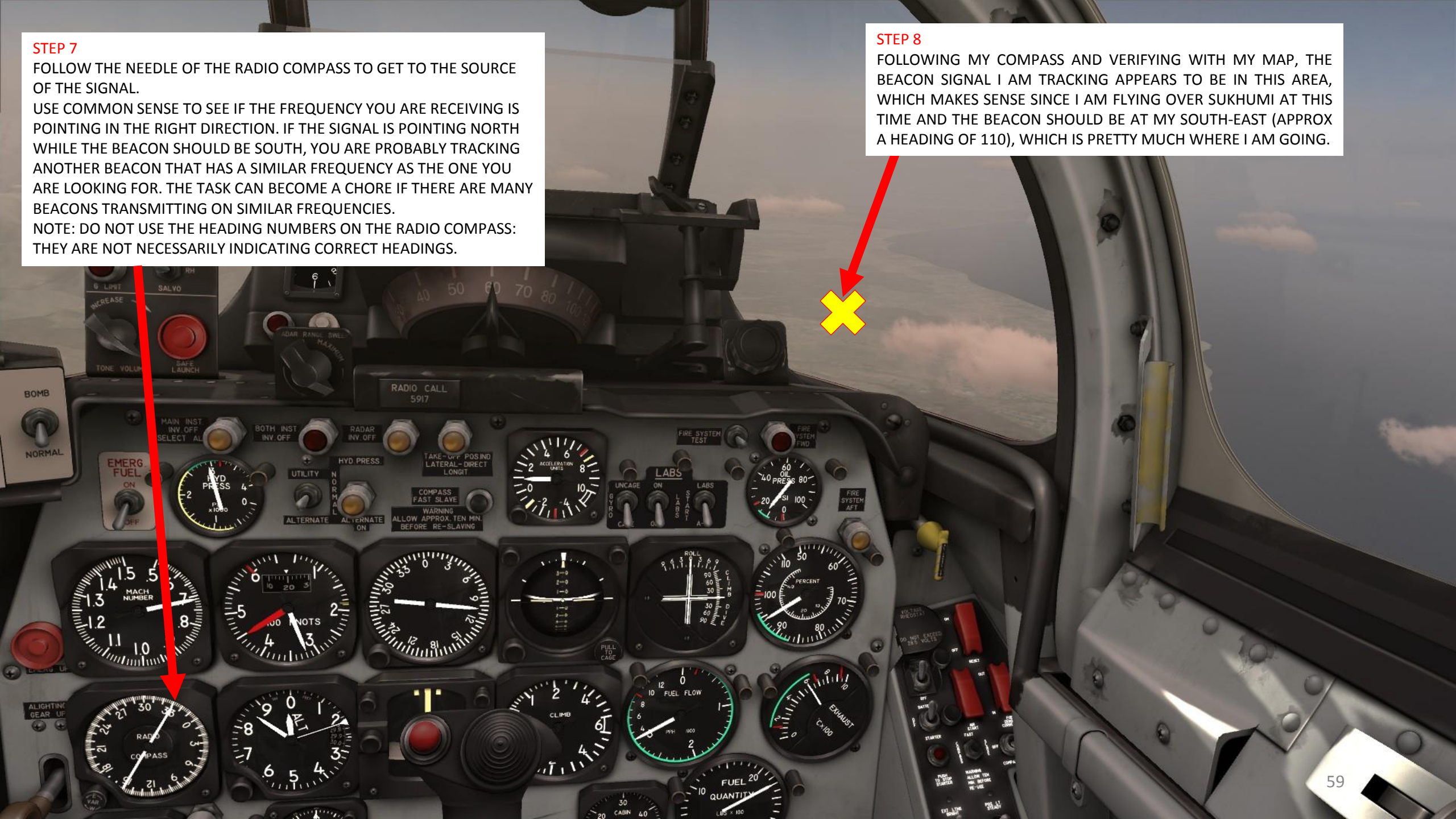
FOLLOW THE NEEDLE OF THE RADIO COMPASS TO GET TO THE SOURCE OF THE SIGNAL.

USE COMMON SENSE TO SEE IF THE FREQUENCY YOU ARE RECEIVING IS POINTING IN THE RIGHT DIRECTION. IF THE SIGNAL IS POINTING NORTH WHILE THE BEACON SHOULD BE SOUTH, YOU ARE PROBABLY TRACKING ANOTHER BEACON THAT HAS A SIMILAR FREQUENCY AS THE ONE YOU ARE LOOKING FOR. THE TASK CAN BECOME A CHORE IF THERE ARE MANY BEACONS TRANSMITTING ON SIMILAR FREQUENCIES.

NOTE: DO NOT USE THE HEADING NUMBERS ON THE RADIO COMPASS: THEY ARE NOT NECESSARILY INDICATING CORRECT HEADINGS.

### STEP 8

FOLLOWING MY COMPASS AND VERIFYING WITH MY MAP, THE BEACON SIGNAL I AM TRACKING APPEARS TO BE IN THIS AREA, WHICH MAKES SENSE SINCE I AM FLYING OVER SUKHUMI AT THIS TIME AND THE BEACON SHOULD BE AT MY SOUTH-EAST (APPROX A HEADING OF 110), WHICH IS PRETTY MUCH WHERE I AM GOING.



# PART 13 – AN/APX-6 TRANSPONDER (IFF RADAR)

- THE IFF (IDENTIFY-FRIEND-OR-FOE) SYSTEM IS FAIRLY SIMPLE: IT DETECTS WITH RADAR WHETHER OR NOT A NEARBY AIRCRAFT IS FRIENDLY OR NOT. HERE IS HOW TO USE IT:
  1. ROTATE MASTER SWITCH TO STDBY FOR 3 MINUTES (WARM-UP)
  2. ROTATE MASTER SWITCH TO NORM AFTER WARM-UP.

**NOTE: NEXT STEPS WILL COME WHEN PROPER IFF RADAR SYSTEM IS IMPLEMENTED FOR THE SABRE BY BELSIMTEK. SORRY. ☹️**



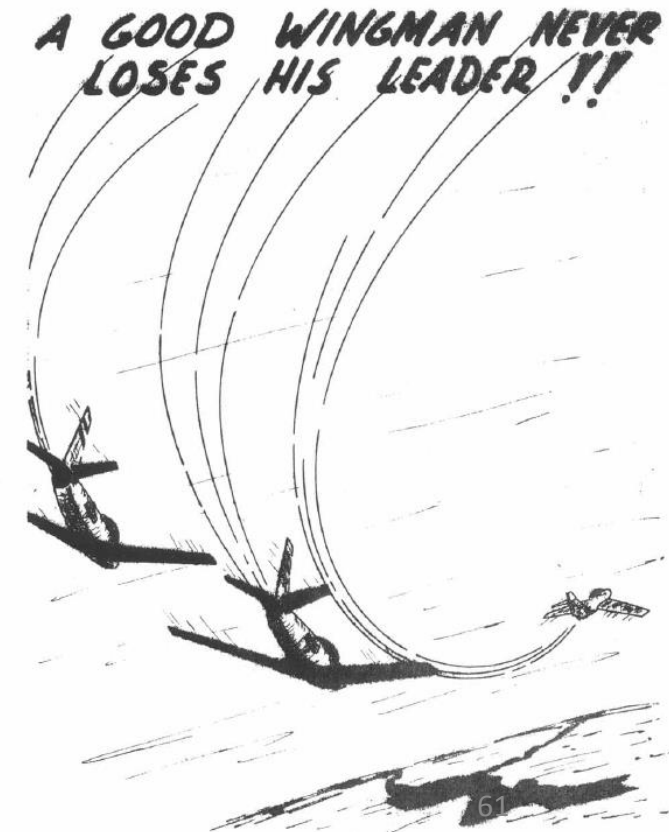
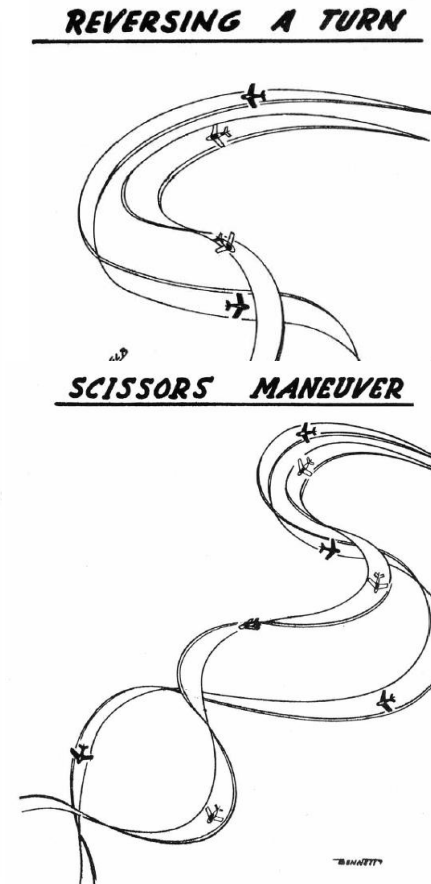
AN/APX-6 SELF-DESTRUCT BUTTON



# PART 14 – TACTICS AGAINST THE MIG-15BIS

YOU SHOULD CONSULT “**NO GUTS, NO GLORY**”, AN EXCELLENT TEXTBOOK WRITTEN BY USAF MAJOR GENERAL FREDERICK C. BLESSE (RET). IT HAS EXCELLENT INSIGHT ON HOW THE SABRE SHOULD BE FLOWN IN COMBAT SCENARIOS.

LINK: <https://drive.google.com/open?id=0B-uSpZROuEd3T1RudnIMWGZ6OVE&authuser=0>



# PART 15 – OTHER RESOURCES

- BUNYAP SIMS YOUTUBE CHANNEL
  - MAIN CHANNEL: <https://www.youtube.com/user/4023446/videos>
  - RADIO COMMS TUTORIAL: <https://www.youtube.com/watch?v=xa6TsnbG5pl>
  - MANUAL PIP BOMBING SYSTEM: [https://www.youtube.com/watch?v=tbDON\\_t\\_FZw](https://www.youtube.com/watch?v=tbDON_t_FZw)
- XXJOHNXX YOUTUBE CHANNEL
  - MAIN CHANNEL: <https://www.youtube.com/user/4023446/videos>
  - SABRE TUTORIALS: [https://www.youtube.com/playlist?list=PLs4yzB9MM2Sx\\_BSiYcQkTNtY4Ei2vtxUy](https://www.youtube.com/playlist?list=PLs4yzB9MM2Sx_BSiYcQkTNtY4Ei2vtxUy)
  - LABS TUTORIAL: [https://www.youtube.com/watch?v=uXWO\\_b\\_B5zpM](https://www.youtube.com/watch?v=uXWO_b_B5zpM)
- 504SMUDGE YOUTUBE CHANNEL
  - <https://www.youtube.com/user/504smudge/featured>
- LABS TUTORIAL: “Nuclear War: "Delivery of Atomic Weapons by Light Carrier Aircraft" 1959 US Navy Training Film”
  - [https://www.youtube.com/watch?v=3dIqfN\\_aPtY](https://www.youtube.com/watch?v=3dIqfN_aPtY)
- LINO\_GERMANY BEACON MAP
  - [http://www.digitalcombatsimulator.com/en/files/588673/index.php?PAGEN\\_2=2](http://www.digitalcombatsimulator.com/en/files/588673/index.php?PAGEN_2=2)



