NAVAIR A1-AV8BB-NFM-500
NATOPS
POCKET CHECKLIST

AV-8B/TAV-8B
AIRCRAFT

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ADDITIONAL COPIES:

Additional copies of this manual and change thereto may be procured by submitting DD Form 1348 in accordance with NPFC 2002D.

INTERIM CHANGE SUMMARY

The following Interim Changes have been cancelled or previously incorporated into this manual.

INTERIM CHANGE NUMBER(S)	REMARKS/PURPOSE
1 thru 15, 18	Previously Incorporated
16 and 17	Cancelled

The following Interim Changes have been incorporated into this Change/Revision.

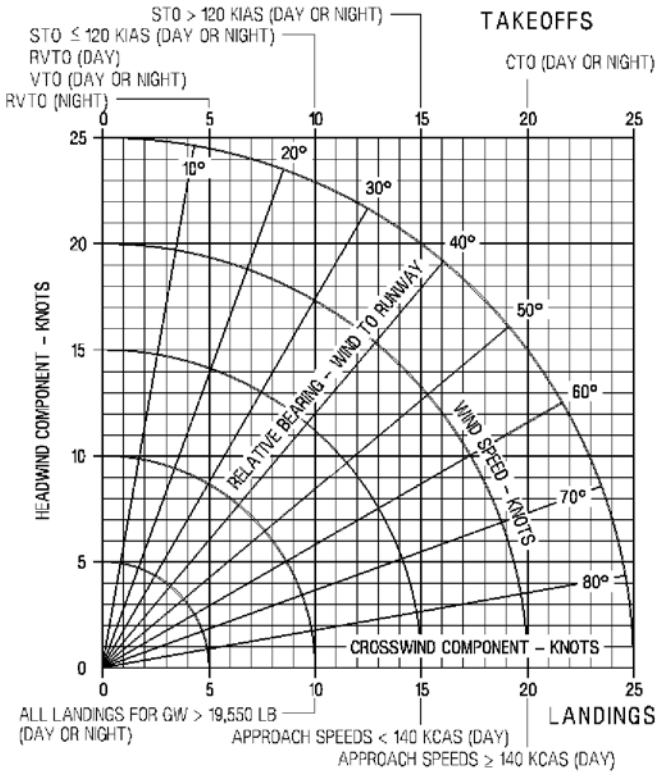
INTERIM CHANGE NUMBER(S)	REMARKS/PURPOSE
19	Emergency DC BUS Failure, L/G Fails to Extend

Interim Changes Outstanding — To be maintained by the custodian of this manual.

INTERIM CHANGE NUMBER(S)	ORIGINATOR/ DATE (or DATE/TIME GROUP)	PAGES AFFECTED	REMARKS/ PURPOSE
20	202004Z JUN 07	13,14,E42 and E43	Landing Gear EP/EAAS
21	102006Z DEC 2007	19,E1,E36	Emergency DC wiring AFC-481

INSTRUCTIONS

ENTER THE CHART WITH THE RELATIVE BEARING. MOVE ALONG THE RELATIVE BEARING TO INTERCEPT THE WIND ARC. FROM THIS POINT, DESCEND VERTICALLY TO READ THE CROSSWIND COMPONENT. FROM THE INTERSECTION OF BEARING AND WIND SPEED, PROJECT HORIZONTALLY TO THE LEFT TO READ HEADWIND COMPONENT.



NOTES

1. LANDINGS WITH STOL FLAPS PROHIBITED ABOVE 130 KCAS.
2. FOR WET RUNWAY CONDITIONS, MAXIMUM CROSSWIND COMPONENT SHALL BE REDUCED BY 5 KNOTS.
3. FOR NIGHT OPERATIONS LANDING CROSSWIND COMPONENT SHALL BE REDUCED BY 5 KNOTS.
4. MAXIMIM CRAB ANGLE AT TOUCHDOWN SHALL BE LESS THAN 10 °.
5. LATERAL DRIFT AT TOUCHDOWN SHALL BE MINIMIZED.
6. MAXIMUM ROLL ANGLE AT TOUCHDOWN SHALL BE LESS THAN 3.5 °.
7. LIMITS SPECIFIED ARE FOR SMOOTH, PREPARED, HARD SURFACES (MINIMUM WIDTH 100 FEET).

AHR604-43-1-029

WIND COMPONENT - CROSSWIND LIMITS

NATOPS BRIEFING GUIDE

MISSION STATEMENT

1. Time Hack/Mission Objectives.

ADMINISTRATIVE DATA

1. Intelligence Update:
   a. General.
      FLOT/FEBA/Force disposition.
   b. Friendly.
      Supported unit locations.
      Scheme of maneuver.
      Supporting arms locations.
      Fire control measures.
   c. Threat.
      Ground forces/EW/Fighters.
      SAM/AAA/REC (pos, coverage).
   d. IADS.
      Capability to interfere.
      System char./RWR indications.
      Vulnerability to: Maneuver.
      Expend/Jam/ARM.
   e. THREAT NOGO.
      Determination/Communication.
   f. ROE.
      Requested/Approved modifications.
2. Weather:
   a. Departure/Ingress.
   b. Target area/Egress.
   c. Recovery/divert.
   d. Note:
      Ceiling/Visibility.
      Temperature/Dew point.
      Humidity/Winds/Ducting.
      Conning/Sensor Par's.
      Sun/Moon.
   e. WEATHER NOGO.
      Takeoff/FEBA.
      Target area/CAP station.

3. Formation Composition.
   a. Aircraft loadouts:
      Evt and Msn #.
      Callsign/Crew/Aircraft.
      Weapons/Fuel/Water.
      Weight/Drag/Spot.
      Back-ups/Succession of lead.
      Bump plan/A/A TACAN plan.
   b. AIRCRAFT NOGO.
      Numbers/System status.
4. Timing:
   a. Departure/Ingress.
   b. Walk/APU/Start.
   c. Taxi/Takeoff.
   d. Range/Push.
   e. TOS-TOT/Land.
   f. Debrief.
   g. TIMING NOGO.
      Rollback options/Stop brief.
5. Fuel Management:
   a. Tiger/Joker/Bingo.
   b. MFRs/EFRs.
   c. Tanking sequence.
   d. FUEL NOGO.
      # of tankers/hoses.
6. Communications Plan:
   a. ACEOI day/Agencies.
   b. Callsigns/Colors.
   c. Channelization/Freqs.
   d. KY use.
   e. Called-uncalled freq changes.
   f. Chattermark/Get well.
   g. Brevity codes/EMCON/ZIPLIP.
   h. Authentication/IFF.
   i. ACEOI change over times.
   j. COMM NOGO.
      KY/IFF (Mode 1,2,3,4)
      One radio plan.

7. Navigation Plan:
   a. Waypoints.
      Offsets/Data source, accuracy.
   b. Overlays/Bullseye.
   c. TACANs/AWLS.
   d. NAV NOGO.
      Platform status/Radio.
      NAVAIDS.
8. Sensor Plan/Prediction:
   a. Visual.
      Sun-Moon/Flt environ assess.
      Lookout/Scan.
   b. RWR.
      Pri/Lim/Offset.
      Comm criteria.
   c. TV.
      FLTR/NITE/Avail contrast.
      Weapon effects/PAR (EO).
   d. LST.
      Code/CCM/NITE/Scan type.
      Designator availability.
      PAR (L).
   e. FLIR.
      Setup/Boresight/Cuers.
      Delta T/Expected image.
      PAR (IR).
   f. NVG.
      Set up/Eye lane.
      Moon/Albedo/Urban lights.
   g. VRS.
      Source/Titling/Management.
   h. Radar.
      Search mode/Range/Azimuth.
      Bar/Altitude/PRF.
      Channel/Mate range/Meld range.

i. EW Coverage.
Type of control/degrades.
Bullseye/Geo-ref.

j. SENSOR NOGO.
Min for aircraft.
Section/Package.

9. Flight Card Plan:
   a. Comm/Time/Admin.
   b. Brief/Misc.
10. Weaponeering:
    a. Weapon.
    Fuze-fin combination.
    Station/Preflight.
    SMC codes/Delivery mode.
    Fuzing/QTY/MULT/INTV.
    Max & Min interval.
    System Set-up.
    Site/Stby Ret/Hot Gun.
    Hot Sidearm/Tone/IR cool.
    b. Expendable Program.
    Chaff/Flare/Jammer.
    All/DECM.
    c. Rad Alt.
    BOMB/GPS/LAW/PUC.
    d. Radar Beacon Codes.
    e. Carriage.
    Release and jettison limits.
    Max asymmetry/Emergencies.
    f. WEAPON SYSTEM NOGO.
    Weapons/Computers.
    Countermeasures.
11. Airfield Procedures:
    a. Post-brief tasks.
    b. Preflight/Alignment.
    c. Alert posture/Check-in.
    d. Marshall/Taxi plan.
    e. Arming/Duty runway.

DEPARTURE

1. Takeoff Procedures:
   a. Arresting gear.
   b. Lineup order/distance.
   c. Takeoff type/interval.
   d. Communications.
2. Airfield to Rendezvous Point (RP):
   a. Route/Location/Formation.
   b. Altitude/Airspeed.
   c. NVG donning/Aircraft lighting.
   d. Timing/Fence in.
   e. Low altitude checklist.
   f. G awareness/Push off.

RECOVERY

1. RTF/SHORADIZ Procedures:
   a. Rendezvous/Formation.
   b. A/C lighting/Route/profile.
   c. C 3 procedures/IFREP/MISREP.
   d. Emitters on line/Delousing.
   e. Lame Duck/Fence out.
   f. Alternate airfields/Routing.
   g. Fuel required.
2. Landing Patterns:
   a. NVG Removal/Storage.
   b. IFR.
      Penetration.
      Recovery/NVG storage.
   c. VFR.
      Break interval/direction.
      Straight-in.
   d. Landing type.
      Primary/secondary.
      Spot/arresting gear.
   e. VSTOL performance.
   f. Order & interval.
   g. Dearm/Taxi/Updates.

MISCELLANEOUS

1. Support Assets:
   a. Tankers/EW/SEAD/ARM.
   b. Fighters/Recce/Transport.
   c. C 3.
   d. SUPPORT NOGO.
      Determination of communication.
2. Contingencies:
   a. Marginal weather.
      Ingress/Target area.
      CAP station/Egress.
   b. Fall outs.
      Before & After takeoff.
      Single A/C requirements.
   c. Threat change.
      Enroute/Target.
3. Misc./Emergencies/SAR:
   a. Abort/Immediate landing.
   b. Jettison considerations.
   c. Asymmetry/Damaged A/C.
   d. NORDO (day-night)/LCLS/HEFOE.
   e. Inadvertent IFR/Birdstrike.
   f. Low alt. Flameout/Midair.
   g. Departure/spin/Ejection (NVG).
   h. CSAR-TRAP.
      Callsign/Freqs/Procedures.
      E&E plan/Safe/areas.
      Broadcast times/Authentication.
4. Training Rules/ROC/Restrictions:
   a. Currency/Proficiency/NS req's.
   b. Crew rest/Crew day.
   c. ACM training rules.
   d. LAT rules of conduct.
   e. Tactical abort parameters.
   f. Training area/Range restrictions.
   g. Aircraft limitations.
5. Alternate Missions.

QUICK REFERENCE GROUND CHECKLIST

EXTERIOR INSPECTION

1. Complete.

BEFORE ENTERING COCKPIT

1. Seat . . . . . SAFE
2. Canopy . . . . . PINNED
3. Gear Handle . . . . . DOWN
4. Seat . . . . . CHECK
5. IGN ISO . . . . . OFF
6. DSU . . . . . LOADED

AFTER ENTERING COCKPIT

1. Steps & Release . . . . . STOWED
2. Strap-In.
3. Cockpit switches and knobs IAW NATOPS.
4. Pre-Start Batt Switch . . . . . BATT (24.5min)
5. ICS.
6. Warn and Caut Lts . . . . . TEST
7. Brakes/Accumulator . . . . . CHECK
8. Gear . . . . . 4 GREEN
9. Throttle/Ignitors . . . . . CHECK
10. EDP/Fuel Panel . . . . . BIT
11. Canopy Caut Lts . . . . . CHECK

IF EXTERNAL POWER IS TO BE USED

1. Batt Switch . . . . . OFF
2. Ext Elec Pwr . . . . . CONNECT
3. Batt Switch . . . . . BATT

IF APU POWER IS TO BE USED

1. Fire Bottle . . . . . MANNED
2. Canopy . . . . . CLOSED
3. APU GEN . . . . . ON

STARTING ENGINE

1. Fire Bottle ..... MANNED
2. Intake & Exhaust ..... CLEAR
3. Canopy ..... CLOSED
4. DECS ..... CHECK/ON
5. Ext Pwr ..... DISCONNECT
6. Parking Brake ..... ON
7. Throttle ..... OFF
8. Eng Start Switch ..... ENG ST
9. Throttle ..... IDLE
10. JPT ..... CHECK
11. HYD/BRAKE/ACCUM ..... CHECK
12. Nozzles ..... 10°
13. Warn & Caut Lts ..... TEST
14. Gear Indicators ..... 4 GREEN
15. DDI/HUD/COMM ..... ON/SET
16. ENG Page ..... CHECK
17. Canopy ..... AS DESIRED

BEFORE TAXIING

1. INS ..... ALIGN
2. DMT ..... ON
3. IFF/TCN/RADALT ..... ON/SET
4. FLIR ..... ON
5. RADAR ..... OPR
6. Trans-Rect/Boost Pumps ..... CHECK
7. JPT Limiters ..... CHECK
8. MFS ..... CHECK
9. Water Switch ..... CHECK
10. Fuel PROP Switch ..... CHECK
11. Trim ..... CHECK, 0,0,-4°
12. Standby Instruments ..... CHECK
13. Altimeter ..... SET
14. Oxygen Switch ..... ON

15. OBOGS . . . . . CHECK
16. Flaps . . . . . BIT (1 finger)
17. Flight Controls . . . . . CHECK (2 finger)
18. Stores/BIT/SMSFF . . . . . CHECK
19. Auto BIT/SAAHS . . . . . TEST (3 finger)
20. Paddle Switch . . . . . PRESS
21. DP Switch . . . . . CYCLE
22. A/R Probe . . . . . CYCLE (4 finger)
23. DDI . . . . . CHECK #'s
24. DISPLAYS/NVG'S . . . . . ADJUST
25. MDC Pin . . . . . STOWED
26. INS . . . . . STATUS

TAXIING

1. Master mode . . . . . V/STOL
2. Nozzles . . . . . 10°
3. Flaps . . . . . CRUISE
4. Trim . . . . . 0,0,-4°
5. Anti-Skid/Brakes/NWS . . . . . CHECK
6. NWS Caster . . . . . CHECK

PRE-POSITIONING CHECKS

1. CWAIVER Checks
2. Canopy . . . . . CLOSE/CHECK
3. Seat . . . . . ARMED
4. Flight and Stdby Inst . . . . . CHECK
5. APU . . . . . AS DESIRED
6. Abort #'s . . . . . CHECK
7. Altitude Switch . . . . . AS DESIRED
8. INS Knob . . . . . IFA/NAV
9. Approach Lt . . . . . ON
10. RPS . . . . . CHECK

TAKEOFF CHECKS

1. Configuration Checks (One Finger Checks).
   a. NRAS . . . . . AS REQUIRED
   b. Pitch Carets . . . . . SET
   c. STO Stop . . . . . AS REQUIRED
   d. Trim . . . . . SET
   e. Flaps . . . . . AS REQUIRED
   f. Warn & Caut Lts . . . . . OUT
2. Engine, Water, & Flight Control Checks (Two Finger Checks).
   a. Engine . . . . . CHECK
   b. Water . . . . . AS REQUIRED
   c. Nozzle/Flaps/Duct Press . . . . . CHECK

NORMAL PROCEDURES

Table of Contents

WARNING

Several Warnings, Cautions, Notes and other details have been removed from the below checklist. Pilots should be thoroughly familiar with Chapter 7 of the A1-AV8BB-NFM-000 before using this checklist.

EXTERIOR INSPECTION

The exterior inspection is divided into 19 areas. The first step is to inspect the surrounding area to ensure it is free of FOD. The inspection begins at the nose gear T-handle and continues around the aircraft in a clockwise direction. Throughout the inspection check doors and panels secure and be alert for loose fasteners, cracks, dents, leaks, corrosion, and other discrepancies.

1. Nose Section (Left Side).
   a. Nose gear selector valve T-handle . . . . . SEATED AND FLUSH
   b. Canopy and windshield . . . . . CLEAN, CRACKS/CRAZING
   c. Pitot static probe . . . . . DAMAGE/OBSTRUCTION

Radar Aircraft:

   d. AOA probe . . . . . DAMAGE/OBSTRUCTIONS, GENTLY ROTATE TO CHECK FREEDOM OF MOVEMENT

2. Nose Section (Front).

All Aircraft:

   a. Nose cone/radome . . . . . SECURE
   b. IFF antenna (top) . . . . . DAMAGE/SECURITY

c. Yaw vane . . . . . FREE TO ROTATE

d. Reaction control valve . . . . . BINDING/SCORING, BURNT PAINT, EXCESSIVE MOVEMENT, RCS BOLTS SECURE

Radar and Night Attack Aircraft:

e. FLIR lens . . . . . CLEAN

f. FLIR fairing (top) . . . . . DAMAGE/SECURITY

Day and Night Attack Aircraft:

g. DMT lens . . . . . CLEAN

h. Ground cooling fan air inlet . . . . OBSTRUCTIONS

3. Nose Section (Right Side).

All Aircraft:

a. Pitot static probe . . . . . DAMAGE/OBSTRUCTION

b. TACAN antenna . . . . . DAMAGE/SECURITY

c. RWR (bottom) antenna . . . . DAMAGE/SECURITY

d. Boarding steps . . . . . FLUSH WITH SKIN

e. Normal canopy release handle . . . . . FLUSH WITH SKIN

Failure to fully restow the external normal canopy release handle may result in canopy separation during flight.

f. Canopy and windshield . . . . . CLEAN, CRACKS/CRAZING

NORM

TAV-8B, Day and Night Attack Aircraft:

g. AOA probe . . . . . DAMAGE/OBSTRUCTIONS, GENTLY ROTATE TO CHECK FREEDOM OF MOVEMENT

4. Right Intake.

All Aircraft:

a. Boundary layer doors . . . . . BINDING
b. Intake suction doors . . . . . BINDING, FOD
c. LP blades . . . . . NICKS/DAMAGE/ENGINE RUB
d. Intake skin . . . . . LOOSE RIVETS
e. DECS T1 probe . . . . . BLOCKAGE AND INTEGRITY

5. Nose Wheel Well.
   a. Doors (L/R and aft) . . . . . DAMAGE/SECURITY
   b. Wheel well . . . . . LEAKS, ACCESS DOOR AND WEBBING SECURE
   c. Flight control cables . . . . . TIGHT, NOT FRAYED
   d. RCS tubing . . . . . DAMAGE/DISCOLORATION
6. Nose Landing Gear.
   a. NLG strut . . . . . LEAKS
   b. Nose downlock and depress pin . . . . . REMOVED
   c. Nosewheel steering system . . . . . LEAKS
   d. Approach/aux lights . . . . . DAMAGE
   e. Nose landing gear tie down ring . . . . . MOVEMENT/SPRING LOADED
   f. Tire . . . . . CHOCKED, TREAD/INFLATION (AT LEAST 2 OF 5 TIRE WEAR INDICATOR BANDS REMAINING)
   g. Wheel . . . . . DAMAGE
   h. LIDS fence . . . . DAMAGE/SECURITY; ENSURE LIDS EXTENDER REMOVED WITH GUN INSTALLED
7. Right Center Fuselage.
   a. Forward engine bay ram air intake . . . . . CLEAR
   b. Oil vent mast . . . . . LEAKAGE
   c. Fuel vent mast . . . . . LEAKAGE
   d. OBOGS vent . . . . . OBSTRUCTIONS

e. Cold nozzle ..... CRACKS, SECURITY, CHECK LP COMPRESSOR BLADES AND STATORS FOR EVIDENCE OF FOD. CHECK HP HOUSING FOR CRACKS AND BOLTS SECURE.

f. Hot nozzle ..... CRACKS, SECURITY

g. Panel 108R ..... BINDING/ DAMAGE

h. LP turbine ..... DAMAGE

i. Spider ..... DAMAGE/ SECURITY

j. Exhaust duct ..... POOLED OIL, FUEL, AND TURBINE SPLATTER

k. Jet blast deflector ..... SECURITY

l. Ammunition pak/strake .... DAMAGE/SECURITY

8. Right Wing.

a. Leading edge ..... DAMAGE, BUBBLED/ BURNT PAINT (EVIDENCE OF RCS LEAK)

b. LERX ..... SECURITY

c. Wing root air intake ..... CHECK

d. Wing drain holes .... LEAKAGE/OBSTRUCTION

e. Pylons ..... SAFE, DAMAGE

f. External stores ..... PREFLIGHT

g. TPOD VTR ..... LOADED, STBY, RECORD SERIAL NUMBER

h. Vortex generators ..... DAMAGE

i. RWR quadrant antenna .... DAMAGE/SECURITY

j. Position and formation lights ..... CRACKS

k. Reaction control valve ..... CRACKS, BURNT PAINT, SCORE MARKS, EXCESSIVE MOVEMENT, CASTELLATED NUTS COTTERPINNED

NORM

l. Fuel jettison drain . . . LEAKAGE/OBSTRUCTION

m. Flap/aileron . . . . . DAMAGE, MOVEMENT (NO SIDE TO SIDE, 1/2 INCH MAX UP AND DOWN), LESS THAN 25° FLAP DEFLECTION

9. Right WLG.

a. L/R doors . . . . . DAMAGE/SECURITY

b. WLG strut . . . . . PROPER EXTENSION

c. Strut . . . . . LEAKS

d. Downlock . . . . . REMOVED

e. Tie-Down ring . . . . CHAINS REMOVED, SPRING LOADED

f. Scissor bolt nut . . . . . ROTATION AND COTTERPINNED

g. Tire . . . . . TREAD/INFLATION

10. Main Gear.

a. Doors (L/R) . . . . . DAMAGE/SECURITY

b. MLG downlock pin . . . . . REMOVED

c. Strut . . . . . LEAKS/CHROME SHOWING

d. Brakes . . . . . LEAKS

e. Tires . . . . . TREAD/INFLATION

f. Chocks . . . . . REMOVED

g. Emergency landing gear bottle discharge indicator . . . . . FLUSH, NO RED SHOWING

h. Flight control cables . . . . . TIGHT, NOT FRAYED

i. Main wheel weapon panel access door . . . . . SECURE (FASTENERS PARALLEL TO DECK)

j. Flight control accumulator hydraulic gauges . . . . . LEAKS, 1,000 TO 1,350 PSI

k. Doors . . . . . CLOSE AFTER INSPECTION

l. Chocks . . . . . REMOVED

11. Right Aft Fuselage.
    a. Anti-collision light (lower) . . . . . DAMAGE
    b. Speedbrake . . . . . TRAIL POSITION, LEAKS, DAMAGE
    c. Ventral fin . . . . . DAMAGE
    d. Tailplane . . . . . DAMAGE, RUBBING
    e. Tailplane jack . . . . . FOD, LEAKS, COTTERPINNED, POTENTIOMETER COTTERPINNED
    f. Rear ECS exhaust vent . . . . . CLEAR
    g. Vertical stabilizer . . . . . DAMAGE
    h. Radar altimeter (forward/aft) . . . . . DAMAGE
    i. ALE - 39 Chaff/Flare dispensers/covers . . . . . DAMAGE/ SECURITY, T-HANDLE STOWED, IF LOADED - ARMING PINS INSTALLED
12. Tail.
    a. Rudder . . . . . DAMAGE/SECURITY
    b. Yaw and pitch reaction control valves . . . . . BINDING/SCORE MARKS, BURNT PAINT, ROD EYE END CONNECTIONS, AND RUDDER MOVEMENT
    c. RWR antennas . . . . . DAMAGE/SECURITY
    d. Position light . . . . . DAMAGE
13. Left Aft Fuselage.
    a. Tailplane . . . . . DAMAGE, RUBBING
    b. Tailplane jack . . . . . FOD, LEAKS
    c. Ventral fin . . . . . DAMAGE
    d. Vertical stabilizer . . . . . DAMAGE
    e. Rear ECS exhaust vent . . . . . CLEAR
    f. Speedbrake . . . . . DAMAGE, LEAKS
    g. ALE-39 chaff/flare dispensers/covers . . . . . DAMAGE/SECURITY

14. Left Center Fuselage.
    a. Gun pak/strake ..... DAMAGE/SECURITY
    b. Hot nozzle ..... POSITIONED AFT, CRACKS, SECURITY
    c. Panel 108L ..... BINDING/DAMAGE
    d. LP turbine ..... DAMAGE
    e. Spider ..... DAMAGE/SECURITY
    f. Exhaust duct ..... POOLED OIL, FUEL, AND TURBINE SPLATTER
    g. Cold nozzle ..... CRACKS, SECURITY, CHECK LP COMPRESSOR BLADES AND STATORS FOR EVIDENCE OF FOD, CHECK HP HOUSING FOR CRACKS AND BOLTS SECURE
    h. Forward engine bay ram air intake ..... CLEAR
    i. Aircraft refueling panel (door 22L) ..... CHECK OIL LIGHTS AND EFC, EMU, AND IGVC DOLLS EYE (AFC 392) NOT POPPED, SECURE DOOR 22L
    j. Aircraft refueling cap ..... SECURE
15. Left WLG.
    a. L/R doors ..... DAMAGE/SECURITY
    b. WLG strut ..... PROPER EXTENSION
    c. Strut ..... LEAKS
    d. Downlock ..... REMOVED
    e. Tie-Down ring ..... CHAINS REMOVED, SPRING LOADED
    f. Scissor bolt nut ..... ROTATION AND COTTERPINNED
    g. Tire ..... TREAD/INFLATION
16. Left Wing.
    a. Flap/aileron ..... DAMAGE, MOVEMENT (NO SIDE TO SIDE, 1/2 INCH MAX UP AND DOWN), LESS THAN 25° FLAP DEFLECTION

b. Fuel jettison drain . . . LEAKAGE/OBSTRUCTION
c. Reaction control valve . . . . . CRACKS, BURNT PAINT, SCORE MARKS, EXCESSIVE MOVEMENT, CASTELLATED NUTS COTTERPINNED
d. Position/formation lights . . . . . CRACKS
e. RWR quadrant antenna . . . . DAMAGE/SECURITY
f. Vortex generators . . . . . DAMAGE
g. Pylons . . . . . SAFE, DAMAGE
h. External stores . . . . . PREFLIGHT
i. Leading edge . . . . . DAMAGE
j. Wing drain holes . . . . LEAKAGE/OBSTRUCTION
k. LERX . . . . . SECURITY
l. Air refueling probe . . . . . DAMAGE, SECURITY, LEAKS

17. Fuselage Underside.
    a. Check for fluid leaks.
    b. Engine bleed air dual wall hose failure indicator . . . . . FLUSH
    c. Centerline pylon . . . . . SAFE, DAMAGE
    d. Centerline store . . . . . PREFLIGHT

Radar and Night Attack Aircraft:

NORM

e. TACTS antenna/plate . . . . . DAMAGE/SECURITY

All Aircraft:

18. Left Intake.
    a. Intake suction doors . . . . . BINDING, FOD
    b. Boundary layer doors . . . . . BINDING
    c. LP blades . . . . . NICKS/ DAMAGE/ENGINE RUB
    d. Intake skin . . . . . LOOSE RIVETS
    e. DECS T1 probe . . . . . BLOCKAGE AND INTEGRITY

19. Top of Aircraft.
    a. LERX panels . . . . . SECURE
    b. GTS intake/exhaust . . . . . OBSTRUCTIONS
    c. MDC cord . . . . . DAMAGE
    d. Anti-collision light . . . . . DAMAGE
    e. Rear ECS ram air intake . . . . . CLEAR
    f. Water filler cap . . . . . SECURE
    g. GPS antenna . . . . . DAMAGE/SECURITY (if applicable)

BEFORE ENTERING COCKPIT

1. Canopy . . . . . OPEN
2. Ground safety control handle . . . . . UP
3. Ground safety pins except internal emergency canopy shattering handle safety pin . . . . . REMOVED AND STOWED
4. Landing gear handle . . . . . DOWN AND LOCKED, WHEEL UPRIGHT
5. Master armament switch . . . . . SAFE
6. Ejection seat and canopy . . . . . CHECK
    a. Condition of canopy and MDC patterns.
    b. 4 bolts on top of seat headrest for rotation.
    c. Lap belt and riser webbing harness secure.
    d. SEWARS housing integrity.
    e. Elasticity of seat-man separation lanyards.
    f. Emergency restraint release handle.
    g. Emergency oxygen gage in the green.
    h. Manual emergency oxygen release ring secured.
    i. Emergency oxygen and emergency locator beacon activation lanyard connected.
    j. Leg restraint strap snubber release . . . . . LOCKED
7. IGN ISO switch . . . . . OFF
8. Load DSU and rotate to up and locked position.

AFTER ENTERING COCKPIT

1. Boarding steps and external canopy release handle . . . . . STOWED
2. Strap-in.
   a. Helmet, oxygen and communication lines . . . . . CONNECT
   b. Anti-G hose . . . . . CONNECT
   c. Leg restraint garters . . . . . CONNECT
   d. Lap belt fittings . . . . . CONNECT
   e. Lap belt straps . . . . . TIGHTEN
   f. Lap belt adjusters . . . . . CHECK (no slippage)
   g. Parachute riser fittings . . . . . CONNECT
   h. Shoulder harness locking lever . . . . . CHECK OPERATION
3. DECS enable switch . . . . . OFF
4. Fuel shutoff handle . . . . . OFF
5. Engine RPM switch . . . . . LO
6. Engine fuel control switch . . . . . POS 1
7. LIDS switch . . . . . NORM
8. Oxygen switch . . . . . OFF
9. H_2O dump . . . . . OFF
10. Exterior lts . . . . . AS REQUIRED
11. Exterior lts master switch . . . . . ON
12. A/R switch . . . . . IN
13. L/R wing dump switch . . . . . NORM
14. L/R boost pump switch . . . . . NORM

NORM

AV-8B Aircraft:

15. FUEL PROP . . . . . ON

TAV-8B Aircraft:

16. FUEL PROP . . . . . AUTO

All Aircraft:

17. Throttle . . . . . OFF
18. JPTL switch . . . . . ON
19. Manual fuel switch . . . . . OFF

AV-8B 164151 and up; also TAV-8B, AV-8B 161573 thru 164150 after AFC-328:

20. MFS EMER BATT ..... CHECK (white not visible)

All Aircraft:

21. Parking brake ..... ON
22. SAS ..... SET
    a. Pitch ..... ON
    b. Roll ..... ON
    c. Yaw ..... ON
23. Q-feel switch ..... ON
24. RPS switch ..... ON
25. Landing lt switch ..... OFF
26. ANTISKID switch ..... ON
27. Landing gear handle ..... DOWN

AV-8B 164151 and up; also TAV-8B, AV-8B 161573 thru 164150 after AFC-328:

28. LDG GEAR EMER BATT ..... CHECK (white not visible)

All aircraft:

29. Flap switches ..... AUTO/OFF
30. Water switch ..... OFF
31. MASTER ARM ..... OFF
32. Armament control panel ..... SAFE/NORM
33. IR cool switch ..... OFF
34. DDI, HUD, and COMM ..... AS DESIRED
35. Clock ..... SET

Night Attack Aircraft:

36. FLIR switch ..... AS DESIRED

Radar Aircraft:

37. LST/FLIR switch ..... AS DESIRED
38. Radar ..... OFF

All Aircraft:

39. VRS display select switch ..... AS DESIRED

SEE IC # 20

Day and Night Attack Aircraft.

40. DMT switch . . . . . AS DESIRED

All Aircraft:

41. INS mode selector knob . . . . . OFF
42. DP switch . . . . . AUTO
43. MC switch . . . . . AUTO
44. Circuit breakers (7) . . . . . IN
45. ECM control panel
    a. RWR . . . . . AS DESIRED
    b. Expendables . . . . . OFF
    c. ECM . . . . . OFF
46. Battery switch . . . . . OFF
47. Generator switch . . . . . GEN
48. V/UHF radio remote control . . . . . T/R or T/R + G
49. ACNIP panel . . . . . AS DESIRED
50. IFF . . . . . NORM
51. Internal lts panel . . . . . AS DESIRED
52. ECS panel.
    a. Temperature controller . . . . . AUTO
    b. Aft bay equip switch . . . . . ON
    c. DEFOG switch . . . . . NORM
    d. Cabin pressure switch . . . . . NORM
53. Video recorder . . . . . LOAD TAPE, STBY/REMOTE

NORM

PRE-START

1. Batt sw . . . . . BATT (24.5 volts min)

After AFC 449:

a. EAAS/MS - BATTERY and FAULT LEDs ON then OFF after 8 seconds.
   (1) If BATTERY and/or FAULT LED remain ON, refer to A1-AV8BB-NFM-600

For TAV-8B Aircraft:

(2) Rear cockpit EAAS/MS - BATTERY and FAULT LEDs ON then OFF after 8 seconds

(3) If BATTERY and/or FAULT LED remain ON, refer to A1-AV8BB-NFM-600

2. ICS . . . . . CHECK/SET
3. Warn and caut lts . . . . . TEST; MASTER CAUTION RESET
4. Brakes . . . . . CHECK Accumulator - 1,000 PSI MIN Brakes - 1,500 PSI (IF A/C NOT SECURED)
5. Landing gear indicator . . . . . 4 GREEN
6. Throttle quadrant check.
   a. Parking brake . . . . . OFF
   b. Throttle . . . . . FULL, JPT LIMITER OFF
   c. Idle stop . . . . . CHECK
   d. Throttle . . . . . OFF
   e. JPT limiter . . . . . ON
   f. Parking brake . . . . . ON
7. Igniters . . . . . CHECK (boost pump lts out)
   a. Depress airstart button.
   b. Manual fuel switch . . . . . ON; CHECK IGNITERS; SWITCH OFF
8. EDP . . . . . BIT (OBSERVE THE FOLLOWING)
   a. NOZZLE . . . . . 60° THEN FLUCTUATE
   b. OT warn lt . . . . . ON
   c. 15 SEC lt . . . . . ON
   d. Water flow lt . . . . . ON
   e. Lts OUT after BIT complete.
9. Fuel panel . . . . . CHECK QUANTITY/BIT (OBSERVE THE FOLLOWING)
   a. Left window . . . . . 1400 ±100
   b. Right window . . . . . 2400 ±100
   c. TOT window . . . . . 3800 ±200
   d. L/R fuel low level lts . . . . . FLASHING
   e. LOAD caut lt . . . . . ON
   f. BINGO caut lt . . . . . ON (if bingo fuel set above 4,000 pounds)

SEE IC # 20

g. L/R full advisory lts . . . . . FLASHING

h. All lts OUT after BIT complete.

AV-8B Aircraft:

10. Canopy caut lt switches . . . . . CHECK

a. Canopy open . . . . . CHECK CONTROL HANDLE FULL FORWARD AND CANOPY CAUT LT ON

NORM

b. Pull canopy control handle full aft with canopy open . . . . . CHECK CAUT LT OUT

c. Canopy close . . . . . CHECK CANOPY HANDLE FULL FORWARD AND CANOPY CAUT LT OUT

TAV-8B Aircraft:

11. Canopy caution light switches . . . . . CHECK

a. Rear canopy closed . . . . . CANOPY CAUT LT ON

b. Front canopy closed . . . CANOPY CAUT LT OUT

c. Rear canopy open momentarily . . . . . CANOPY CAUT LT ON

d. Rear canopy closed . . . . CANOPY CAUT LT OUT

CAUTION

Do not apply excessive fore while attempting to move the canopy from the full open position. If excessive force is required, the damper lock handle is not fully disengaged. The application of excessive force on the canopy with the damper lock engaged creates undue stress on the canopy acrylic and can lead to acrylic cracking and failure. A creaking sound as the canopy is closed should be immediately investigated by maintenance personnel.

NORM

All Aircraft:

If external power is to be used:

12. Batt switch . . . . . OFF

13. Ext electrical power . . . . . CONNECT

14. Batt switch . . . . . BATT

To energize aircraft electrical buses - TAV-8B, Day and Night.

Attack Aircraft:

15. Ground power panel switches:
    - AFT EQP ..... ALL
    - COCKPIT ..... ON
    - FWD EQP ..... ON
    - STORES ..... ACP or SMS

Radar Aircraft:

16. Ground power panel switches:
    - CNI ..... ALL (hold for 5 seconds)
    - DISP/FLT ..... ON
    - MISC ..... ON
    - STORES ..... ACP or SMS

All Aircraft If APU power is to be used:

17. Fire bottle ..... MANNED
18. Canopy ..... CLOSED(Only rear canopy required to be closed in TAV-8B)
19. APU generator switch ..... ON
20. APU Adv Lt ..... ON
21. APU GEN Lt ..... OUT
22. Canopy ..... AS DESIRED

STARTING ENGINE

1. Fire bottle ..... MANNED
2. Intake and exhaust areas ..... CLEAR
3. Canopy ..... CLOSED
4. DECS power ..... CHECK
    a. DECS enable switch ..... OFF
    b. EFC warn, EFC caut, and JPTL warn lts ..... ON
    c. DECS enable switch ..... ON
    d. EFC warn, EFC caut, and JPTL warn lts ..... OFF
    e. Fuel shutoff handle ..... ON
    f. EFC switch ..... CYCLE (EFC CAUT LT FLICKERS)
    g. EFC switch ..... POS 1

5. External power .... DISCONNECT, IF APPLICABLE
6. Parking brake ..... ON
7. Throttle ..... OFF
8. Nozzles ..... AFT TO 10°
9. Engine start switch .... SET TO ENG ST & RELEASE
   DIRECT = 5 SEC/
   TRANSLATIONAL = 10
10. Throttle ..... IDLE (AFTER IND. OF RPM)
11. Engine start switch ..... VERIFY OFF BY 15% RPM
12. Idle rpm ..... CHECK
    a. 25.8 to 26.2% (-406 engine).
    b. 28.4 to 29.0% (-408 engine).
13. JPT ..... CHECK
    a. 535°C MAXIMUM (-406 engine).
    b. 545°C MAXIMUM (-408 engine).
14. HYD 1 and HYD 2 ..... 3000 ±200 PSI
15. Brake accumulator ..... 3000 ±200 PSI
16. Brakes ..... 2700 PSI MIN
17. Nozzles ..... 10°
18. Warn/caut lts ..... TEST
19. Landing gear indicators ..... 4 GREEN
20. DDI, HUD, COMM ..... ON/AS DESIRED
21. DDI ..... SELECT ENG PAGE
    a. Check engine I.D.
    b. IGV angle ..... 31° to 39° at IDLE
    c. Reset sortie JPT.
22. Canopy ..... AS DESIRED

NORM

BEFORE TAXIING

All Aircraft:

1. INS ..... ALIGNMENT
   a. Parking brake ..... SET

Before ECP-285:

   b. DDI ..... DTX, UNBOX TRUE

After ECP-285:

c. MPCD . . . . . SDAT-DTX/OLX/GPSX

All Aircraft:

d. DDI . . . . . CHECK A/C LAT/LONG AND INPUT CORRECT POSITION IF REQUIRED

Plus:
MVAR for Gyro Align SHIP DATA for MANSEA align OMNIBUS 7 - Box MVAR if MAD input may be invalid.

e. INS Switch . . . . . GND ALIGN

f. Waypoints . . . . . CHECK/ENTER

Day and Night Attack Aircraft:

2. DMT . . . . . ON

All Aircraft:

3. AVIONICS . . . . . VERIFY

a. RADALT/IFF/TCN/LASER PER ADMN 1.

b. COMM 1/2 PER ADMN 3.

c. ALQ-164 . . . . POWER ON/BIT IAW MISC CARD

d. ALR-67 . . . . . ON

Night Attack:

4. FLIR switch . . . . . ON

Radar Aircraft:

5. LST/FLIR switch . . . . . LST/FLIR

6. RADAR switch . . . . . OPR

All Aircraft:

7. Transformer-rectifier/boost pumps . . . . . CHECK

a. L/R pump switches . . . . . OFF

(1) Pump lights . . . . . ON

b. L/R pump switches . . . . . DC

(1) Pump lights . . . . . OFF

(2) Volts stable at 27 volts.

SEE IC # 21

c. DC test switch . . . . . SET TO MAIN
(1) STBY TR caut on at 24.75 volts.
(2) Voltmeter returns to above 25.5 volts.

d. DC test switch . . . . . SET TO STBY
(1) Voltmeter drops to 25.5 volts
(2) L/R pump switches . . . . . NORM
(a) Increase of one volt for each pump.

e. DC test switch . . . . . SET TO CENTER POSITION

8. JPT limiters switch . . . . . CHECK
a. JPT limiters switch . . . . . OFF
(1) RPM rise 3.3 to 4.3% (-406), and 6.0 to 7.0% (-408).
(2) JPTL warn lt . . . . . ON
b. EFC switch . . . . . POS 2, THEN BACK TO POS 1 (EFC caution light flickers)
c. JPT limiters switch . . . . . ON
(1) RPM drop 3.3 to 4.3% (-406) and 6.0 to 7.0% (-408).
(2) JPTL warning light . . . . . OFF

9. Manual fuel switch . . . . . CHECK
a. a. Manual Fuel switch . . . . . ON
(1) Check MFS LT ON, MAINTAIN IDLE LIMITS.
b. Water switch . . . . . T/O
(1) Note steady RPM.
(2) Water switch . . . . . OFF
(3) Manual fuel . . . . . OFF (MFS OUT)

NORM

10. Water switch . . . . . CHECK
a. Water switch . . . . . T/O
(1) Note rise: 3.3 to 4.3% (-406), 6.0 to 7.0% (-408).
b. Water switch . . . . . OFF
(1) Repeat in LAND.

11. EVICS . . . . . CHECK
a. Throttle . . . . . ADJUST TO 55% CORRECTED HP COMPRESSOR SPEED AND RETURN TO IDLE

Note

- 55% corrected HP compressor speed is required for EVICS to complete its diagnostic preflight checkout.

- For TAV-8B aircraft with F402-RR-408B engine installed and OMNI 7.1 OFP, after completion of pilot checks and EVICS diagnostic checkout (above), aircrew shall have a qualified T/AV-8B Plane Captain check EVICS Dolls Eye on the external fuel panel for failure indications. If a failure is indicated by the Dolls Eye being tripped, flight is prohibited. If a qualified T/AV-8B Plane Captain is not available during a cross country flight, the pilot shall check the EVICS Dolls Eye in the ground refuel panel prior to each engine start. If a failure is indicated by the Dolls Eye being tripped, flight is prohibited.

- For AV-8B aircraft with F402-RR-408B engine installed, after completion of pilot checks and EVICS diagnostic checkout (above), aircrew shall check the readings on the IGV bit on BIT 1 page. An IGV 1 code indicates a failure of the EVICS. If IGV 1 is displayed flight is prohibited.

- Immediately report indication of failure to AV8B FST.3, (252) 464-7335, DSN 451-7335 for evaluation and further instruction.

AV-8B Aircraft:

12. FUEL PROP . . . . . CHECK
    a. PROP switch . . . . . OFF (PROP caution light ON)
    b. PROP switch . . . . . ON (PROP caution light OFF)

TAV-8B Aircraft:

13. FUEL PROP . . . . . CHECK
    a. Fuel prop switch . . . . . OFF
        (1) PROP caution light on.
    b. Fuel prop switch . . . . . DUAL
        (1) R FEED warn, PROP caut, and R FEED adv lts off.
    c. Fuel prop switch . . . . . RIGHT
        (1) R FEED adv lt on, R FEED warn lt on after delay.
    d. Fuel prop switch . . . . . AUTO
        (1) R FEED warn, PROP caut, and R FEED adv lts off.

All Aircraft:

14. Trim . . . . . CHECK, THEN SET 4° ND
15. Standby instruments . . . . . CHECK, ATTITUDE INDICATOR - UNCAGED/ERECT
16. Altimeter . . . . . SET BAROMETRIC PRESSURE
17. Oxygen switch . . . . . ON
18. On-board oxygen system . . . . . CHECK
19. Flaps BIT . . . . . INITIATE (Flaps - ON/AUTO) (1 FINGER SIGNAL)
    a. All flap caut and warn lts . . . . . ON
    b. BIT button . . . . . PRESS
        (1) Nozzle indicator . . . 50° THEN FLUCTUATES (BEFORE ECP 255 R1) or INDICATES AS SET (AFTER ECP 255 R1)
        (2) Flap indicator . . . . . FLUCTUATES
        (3) Flaps move up and down halfway through BIT.
        (4) DROOP adv lt may cycle during BIT.
    c. All lts out after BIT
    d. Flap switch . . . . . STOL
        (1) STO and DROOP lts . . . . . ON
        (2) Ailerons . . . . . CHECK DROOP

NORM

20. Flaps . . . . . CRUISE
21. Flight controls . . . . . CHECK (2 FINGER SIGNAL)
    a. Rudder . . . . . L/R
    b. Stick . . . . . FORWARD/AFT (11°↓/10°↑)
    c. Stick . . . . . L/R
22. SAAHS BIT . . . . . INITIATE (3 FINGER SIGNAL)
    a. On BIT display . . . . . SAAHS BUTTON PRESS
        (1) TEST is displayed next to SAAHS display.
        (2) AFC, PITCH, ROLL and YAW caution lights flash until MASTER CAUTION is pressed.
        (3) 40 seconds after BIT initiated, stick shakes in pitch axis.
    b. Record all failures.
    c. All lights go out after successful completion of BIT.
23. Paddle switch . . . . . PRESS, CHECK ALL THREE SAAHS AXES DISENGAGE (LIGHTS ON)
24. DDI STORES/BIT CHECK.

If carrying external stores:

Note

Do not attempt to clear BIT indications by initiating AUTO BIT. Initiating AUTO BIT prior to checking the BIT or stores pages will clear all indications on the BIT, STORES, and SMSFF pages of a possible armament system failure.

a. SMSFF . . . . . CHECK FOR TYPE SMS FUNCTION FAILURE

Note

Exiting the SMSFF page will clear the flashing WPN fail cue on the stores page, but the failed function will continue to be listed on the SMSFF page. Flight with external stores and the following SMSFF cues should not be attempted.

(1) SELECT JETT ON.
(2) SELECT JETT INOP.
(3) EMER JETT FAILED ON.
(4) EMER JETT INOP.
(5) MASTER ARM BUS ON.
(6) MASTER ARM BUS FAIL.
(7) FUS GUN SELECT ON.
(8) FUS GUN FIRE ON.

All configurations:

b. BIT page . . . . . CHECK

If IGV 1 is present, abort mission.

c. Plane Captain . . . . . CHECK THE DOLLS EYES IN THE AIRCRAFT REFUELING PANEL ((DOOR 22L) If Dolls Eyes are popped, abort mission.)

d. BIT display . . . . . AUTO

(1) Voice and/or tones sound.
(2) TEST is displayed next to equipment that is on.
(3) Failure codes (if any) are displayed next to failed equipment.

Note

On Radar and Night Attack aircraft, the FLIR will continue to cool down during AUTO BIT and will begin initiated BIT when it has completed the cool down sequence. On Night Attack aircraft, the display computer will cause the HUD to flicker and may display an incomplete HUD display head down on the right MPCD. On Radar aircraft, the HUD display will be blanked.

e. Record all failures.

f. BIT is complete when TEST is no longer displayed next to equipment.

NORM

After ECP -285:

25. STORES . . . . . PROGRAM
    a. STORES . . . . . LOP-PGRM
    b. Input per Admin 2.

All aircraft:

26. TPOD . . . . . POWER ON (Signal PC with pinky pull)
    Verify TPOD power on MPCD.
27. ATIS . . . . . RECORD INFORMATION
28. Display computer . . . . . CHECK
    a. DP switch . . . . . PRIM THEN ALTER
    b. DP switch . . . . . AUTO
29. A/R probe . . . . . CYCLE (if use is intended) (4 FINGER SIGNAL)
30. DDI . . . . . CHECK PERFORMANCE
    a. MENU, VRST . . . . . CHECK BAW, H_2O, BDI
    b. VL . . . . . CHECK OAT, FELV, GWT
    c. ODU, ENG . . . . . CHECK RJPT, JPTL, RHOV
    d. Note VL performance.
31. Displays/NVGs . . . . . ADJUST FOR SENSOR CLARITY
32. MDC pin . . . . . STOWED
33. INS . . . . . CHECK STATUS PRIOR TO TAXI

BEFORE ENTERING REAR COCKPIT

1. Canopy . . . . . OPEN
2. Ground safety control handle . . . . . UP
3. Ground safety pins except internal emergency canopy shattering handle safety pin . . . . . REMOVED AND STOWED
4. Ejection seat and canopy . . . . . CHECK:
   a. Condition of canopy and MDC patterns.
   b. 4 bolts on top of seat headrest for rotation.

c. Lap belt and riser webbing harness secure.
d. SEWARS housing integrity.
e. Elasticity of seat-man separation lanyards.
f. Emergency restraint release handle . . . . . CHECK
g. Emergency oxygen gage in the green.
h. Manual emergency oxygen release ring secured.
i. Emergency oxygen and emergency locator beacon activation lanyard connected.
j. Leg Restraint Strap Snubber release . . . . . LOCKED

AFTER ENTERING REAR COCKPIT

1. External Canopy Release Handle . . . . . STOWED
2. Load DSU.
3. Strap-in.
   a. Helmet, oxygen and communication lines . . . . . CONNECT
   b. Anti-G hose . . . . . CONNECT
   c. Leg restraint garters . . . . . CONNECT
   d. Lap belt fittings . . . . . CONNECT
   e. Lap belt straps . . . . . TIGHTEN
   f. Lap belt adjusters . . . . . CHECK (no slippage)
   g. Parachute riser fittings . . . . . CONNECT
   h. Shoulder harness locking lever . . . . . CHECK OPERATION
4. Oxygen switch . . . . . OFF

NORM

5. ICS MIC switch . . . . . AS DESIRED
6. Landing light switch . . . . . FWD
7. Front cockpit lights switch . . . . . FWD
8. FUEL PROP . . . . . FWD
9. Manual fuel switch . . . . . OFF

After AFC-328:

10. MFS EMER BATT . . . . . CHECK (white not visible)

All aircraft:

11. Throttle . . . . . OFF
12. Nozzles . . . . . AFT
13. H_2O switch . . . . . FWD
14. Flap power switch . . . . . FWD
15. Ejection sequence selector handle . . . . . AS BRIEFED
16. Emergency landing gear handle . . . . . UP

After AFC-328:

17. LDG GEAR EMER BATT . . . . . CHECK
(white not visible)

All Aircraft:

18. DDI, HUD, and COMM . . . . . AS DESIRED
19. Clock . . . . . SET
20. Interior lights . . . . . AS DESIRED
21. Warning and caution lights . . . . . OBSERVE TEST
(All caution/advisory lights are not illuminated until AC power is available.)
22. Landing gear indicator . . . . . 4 GREEN
23. Engine Display Panel . . . . . BIT
    a. Nozzle . . . . . 60°
    b. OT warning light . . . . . ON
    c. 15 SEC light . . . . . ON
    d. Water flow light . . . . . ON
    e. Lights out after BIT.
24. Canopy caution light switches . . . . . CHECK
    a. Rear canopy closed . . . . . CAUTION LIGHTS ON
    b. Front canopy closed . . . . CAUTION LIGHTS OUT
    c. Rear canopy open . . . . . CAUTION LIGHTS ON
    d. Rear canopy closed . . . . . CAUTION LIGHTS OUT

BEFORE TAXIING (REAR COCKPIT)

1. Canopy . . . . . AS DESIRED
2. Oxygen switch . . . . . ON
3. DDI, HUD, COMM . . . . . ON AND SET
4. Standby instruments . . . . . CHECK, ATTITUDE INDICATOR UNCAGED/ERECT
5. Altimeter . . . . . SET BAROMETRIC PRESSURE
6. Rear cockpit checks.
   a. Trim . . . . . CHECK
   b. SAAHS . . . . . DISENGAGE
   c. Manual fuel switch . . . . . CHECK
   d. Water switch . . . . . CHECK
   e. Prop switch . . . . . CHECK
7. MDC pin . . . . . STOWED

TAXIING

When ready to taxi:

1. Master mode . . . . . V/STOL
2. Nozzles . . . . . 10°
3. Flaps . . . . . CRUISE
4. Trim . . . . . 0,0,4 ND
5. Anti-skid . . . . . CHECK
   a. Park brake . . . . . OFF
   b. Brakes . . . . . MAINTAIN PRESSURE
   c. ANTISKID switch . . . . . TEST (BRAKE PRESS DROPS TO 110 PSI AND RETURNS TO NORMAL)
6. Brakes/NWS . . . . . CHECK

NORM

Before AFC-391:

7. Nosewheel caster . . . . . CHECK
8. Aft Seat High Gain Override . . . . . CHECK
   a. ANTISKID Switch . . . . . NWS
   b. Front C/P NWS/Undesignate Switch . . . . . PRESS AND HOLD (NWS HI in HUD)

c. Rear C/P NWS/Undesignate Switch ..... PRESS
(1) NWS HI in HUD changes to NWS.
(2) Both C/P's NWS/ Undesignate Switch ..... RELEASE

d. ANTISKID Switch ..... ON

PRE-POSITIONING CHECKS

1. CWAIVER checks.
C - Clock ..... SET
Combat thrust ..... AS DESIRED
W - Weapons programmed.
A - APG-65 ..... SET
ARBS ..... BORESIGHT
FLIR ..... SET
I - IFF ..... SET
IR cool switch ..... AS DESIRED
V - VRS ..... AS DESIRED
E - ECM (ALE/ALQ/ALR) ..... SET
R - RADALT ..... SET
2. Canopy ..... CLOSED/CHECK
a. Light out.
b. AV-8B ..... PULL BACK/CHECK VIEWPORTS
TAV-8B ... PUSH UP/CHECK MISALIGNMENT
3. Seat ..... ARMED
4. Flight and standby Instruments ..... CHECK
5. APU ..... AS DESIRED
6. ANTI-SKID ..... ON (LIGHT OUT)
7. ABORT #'s ..... CHECK
8. Altitude switch ..... AS DESIRED
9. INS Knob ..... IFA/NAV
10. Approach light ..... ON
11. Rudder pedal shaker ..... CHECK

TAKEOFF CHECKS

Configuration Checks (One Finger Checks):

1. NRAS . . . . . AS REQUIRED
2. Pitch Carets (PC) . . . . . SET
3. STO stop . . . . . AS REQUIRED
4. Trim . . . . . SET
5. Flaps . . . . . AS REQUIRED
6. Warn/caut lts . . . . . OUT

Engine, Water system, & Flight Control Checks (Two/Five Finger Checks):

7. Engine . . . . . CHECK
   a. DDI . . . . . Select Eng/Box Accel
   b. Accelerate to 55% (406) or 60% (408).
   c. Check time:

      406 engine 27 - 55% in 3.7 - 4.3 seconds.

      408 engine 35 - 60% in 2.4 - 3.1 seconds.
   d. IGVs: 8 - 19° at 55% (406) or 10 - 21° at 60% (408).
   e. (-408A or -406 engine only) Record IGV angle from Engine page and plot on card (Page ??) in relation to ambient temperature to ensure IGV angle is within the boundaries depicted on card. If the IGV angle is outside the boundary lines abort the flight and report the anomaly to maintenance personnel.
8. Water . . . . . AS REQUIRED
   a. Water switch to TO and note RPM rise.
   b. Reset RPM.
9. Nozzle/flaps/duct pressure . . . . . CHECK
   a. Nozzles to STO stop or 50°.
   b. Check flaps.
   c. Check duct pressure approximately 45 psi.
   d. Place nozzles at the takeoff position.

NORM

AFTER TAKEOFF

1. Landing gear ..... UP
2. Flaps ..... AUTO (Selection of AUTO flaps shall be made when comfortably airborne at no less than 25° nozzle angle)
3. Nozzles ..... AFT
4. Water switch ..... OFF
5. STO stop ..... CLEAR
6. VTR ..... AUTO OR RUN AS REQUIRED

10,000 FOOT CHECK

1. Fuel transfer/quantity.
2. Cabin pressure.

18,000 FOOT CHECK

1. Altimeter ..... 29.92 SET
2. Cabin pressure.
3. APU secure if conditions permit.

DESCENT CHECKS

1. STO stop ..... CLEAR
2. Weather ..... CHECK
3. Instruments ..... CHECK
4. Fuel ..... CHECK
5. Temperature ..... PREHEAT/DEFOG (as required)
6. APU ..... AS REQUIRED

IGV CHECK (-408A or -406 engine only)

This check should be performed at 5,000' MSL.

1. Set engine fan speed to 80 percent RPM.
2. Data - Record required data on card (Pages 34 and 35).
3. IGV Angle - Within bands indicated (Pages 34 and 35).
4. If IGV angle above indicated boundary execute IGV failure procedure for IGVs' stuck at high angle.
5. If IGV angle below indicated boundary execute IGV failure procedure for IGVs' stuck at low angle.

LANDING CHECKLIST

1. Gear . . . . . DOWN
2. Flaps . . . . . AS REQUIRED (nozzles 25° or greater prior to selecting STOL flap)
3. STO stop . . . . . CLEAR
4. Duct pressure . . . . . CHECK
5. Brake pressure . . . . . CHECK
6. Water . . . . . AS REQUIRED

If water is to be used:

a. Water switch . . . . . T/O (check for RPM rise)
b. Throttle . . . . . FULL
c. Check for green water flow light or W in the HUD, acceleration to short lift wet RPM and water quantity countdown.
d. Water switch . . . . . AS REQUIRED

7. VTR . . . . . RUN
8. Warning and caution lights . . . . . CHECK
9. Lts . . . . . AS REQUIRED

AFTER LANDING CHECKS

When clear of the active runway:

1. Trim . . . . . 4° ND
2. Flaps . . . . . CRUISE FOR TAXI
3. Water . . . . . OFF
4. IFF . . . . . HOLD, WAIT 10 SECONDS, THEN AS DESIRED
5. Master arm switch . . . . . OFF
6. Emergency canopy shattering handle safety pin . . . . . INSTALLED (TAV-8B both cockpits)
7. Ground safety control handle . . . . . UP (TAV-8B both cockpits)

NORM

8. Oxygen switch . . . . . OFF
9. APU . . . . . OFF
10. Landing light . . . . . OFF

When parked:

11. Nozzles . . . . . 0° to 10°
12. Parking brake . . . . . SET
13. ANTISKID switch . . . . . ON
14. Flap switches . . . . . OFF
15. Engine life and max JPT . . . . . RECORD
16. Fatigue life count . . . . . RECORD
17. MENU, BIT . . . . . RECORD FAILURES
    a. SAAHS Bit . . . . . PERFORM
       (If SAAHS failure noted)
    b. AUTO Bit . . . . . PERFORM
    c. Other Failures . . . . . RECORD
       (1) GPS (Loads/errors).
       (2) TPOD (DPFL).
       (3) ARC-210.
       (4) NAVFLIR/ARBS.
       (5) IFF.
       (6) ASE.
           (a) ALQ-164.
           (b) ALE-39.
           (c) ALR-67.
18. DP switch . . . . . CYCLE (RECORD FAILURES)
19. INS update . . . . . PERFORM/ACCEPT

Night Attack Aircraft:

20. FLIR switch . . . . . AS DESIRED

Radar Aircraft:

21. LST/FLIR switch . . . . . AS DESIRED
22. RADAR switch . . . . . OFF

All Aircraft:

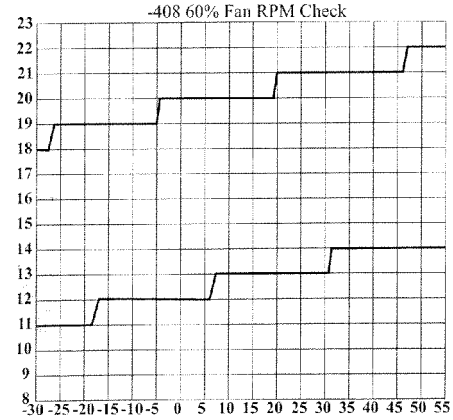
23. MENU, BIT, MAINT, INS, POST ..... RECORD INS DATA
24. INS switch ..... OFF
25. DDI, HUD, and COMM ..... AS DESIRED
26. VRS ..... LOCAL/UNTHREAD
27. SDAT ..... ERASE
28. ODU ..... ACPT
29. Aircraft ..... SECURE (chock and chain as necessary)
30. Throttle ..... OFF
31. Fuel boost pump switches ..... NORM
32. DECS enable switch ..... OFF
33. Fuel shutoff handle ..... OFF
34. Battery switch ..... OFF
35. Personal equipment ..... DISCONNECT
36. Conduct exterior inspection.

NORM

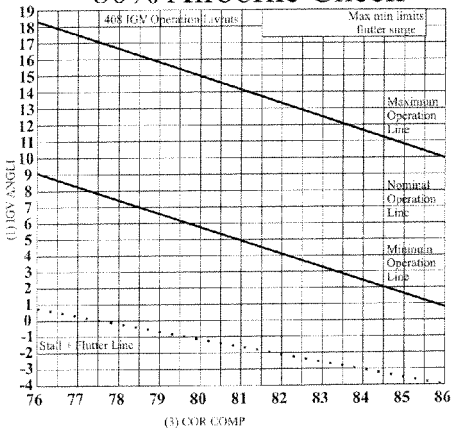
IGV CHECK CARD

Pilot:_____Date:_____Side #:_____

60% Ground Check



80% Airborne Check



MODEX_____
60% RUN UP CHECK

TEMP _____

IGV ANGLE _____

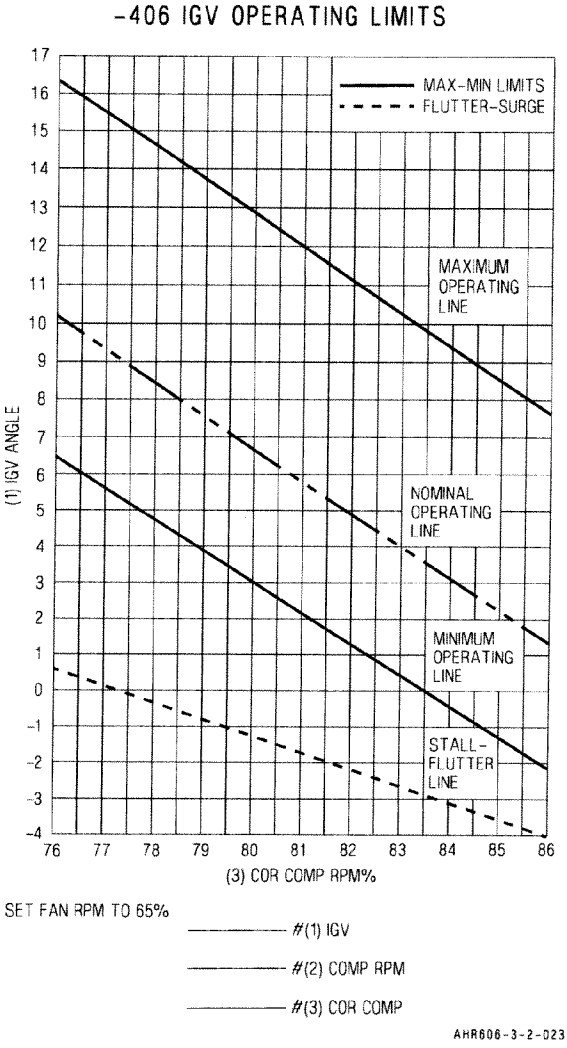
SET FAN RPM TO 80% AND RECORD

_____ #(1) IGV

_____ #(2) COMP RPM

_____ #(3) COR COMP

IGV CHECK CARD -408



NORM

IGV CHECK CARD -406

SPECIAL PROCEDURES

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SCRAMBLE OPERATION

Scramble Interior Check:

1. Harness . . . . . FASTEN (if unfastened)
2. Canopy . . . . . CLOSE AND LOCK
3. Ground safety control handle . . . . . DOWN

Scramble Engine Start:

1. Battery switch . . . . . BATT
2. Fuel shutoff handle . . . . . ON
3. DECS enable switch . . . . . ON
4. Engine start switch . . . . . ENG ST
5. Throttle . . . . . IDLE
6. Warning and caution lights . . . . . TEST
7. Inertial navigation system . . . . . ALIGN

Radar Aircraft:

8. RADAR switch . . . . . OPR

All Aircraft:

9. Inertial navigation system . . . . . NAV/IFA AS REQUIRED
10. FLAPS . . . . . ON/RESET
11. Parking brake . . . . . RELEASE

HOT REFUELING

1. Aircraft . . . . . CHECKED FOR HOT BRAKES AND UNEXPENDED ORDNANCE
2. All emitters . . . . . SECURED (TCN, RAD ALT, BCN, IFF, AWLS) OR EMCON SELECTED
3. Nozzles . . . . . 10°
4. Form Lts . . . . . OFF
5. OBOGS . . . . . OFF
6. RAM AIR . . . . . SELECTED

If equipped with an air refueling probe:

7. A/R switch . . . . . OUT

If not equipped with an air refueling probe:

8. A/R switch . . . . . IN OR OUT (NOT IN PRESS)
9. Cockpit configuration:

If seat armed:

a. Canopy . . . . . CLOSED

10. Pilot strapped-in.

If seat safe:

a. Canopy . . . . . AS DESIRED
b. Straps as desired.

11. Fuel Load . . . . . AS DESIRED
(ensure balanced) L TRANS light - signal for shut off (1 finger signal)
R TRANS light - signal for shut off (2 finger signal)

12. After Hot Refueling adjust items in steps 2 thru 8 as required.

SAR ON SCENE COMMANDER'S CHECKLIST

1. Maintain sight of survivors.
   a. Determine number of survivors.
   *b. Determine enemy activity.
2. Do not fly below parachutes (Fall rate 1,000 fpm).
   *a. Note enemy positions.
   *b. Neutralize all enemy positions.
   *c. Determine Helo ingress-egress-EM routes.
3. Squawk 7700 on IFF.
4. Switch to Guard (243.0) for initial call.
   a. MAYDAY, MAYDAY, MAYDAY, This is XXX on Guard, XXX is down on the (Radial/DME) of TACAN Channel (#). I am taking station overhead at (altitude).

5. Note Time, LAT/LONG, and Winds.
6. Switch to Controlling Agency a. Initiate SAR effort using Initial Call.
7. Switch to 282.8 for communication with survivor(s).
8. Maintain station until relieved, bingo fuel, or until SAR on scene.
9. Direct SAR effort.
   a. Number & physical condition of survivor(s).
   b. Distance to survivor(s) from ‘‘feet wet’’.
   c. Describe terrain.
   d. Pinpoint survivor(s) location.
   e. Altitude of recovery area.
   f. Windspeed & direction.
   g. Describe survivor(s) signal devices.
   *h. Known or suspected enemy locations.
   *i. Describe ingress-egress-emergency routes.
   *j. Emergency safe landing area.
10. Direct survivor(s) to:
    a. Prepare and ignite smokes.
    b. Vector Helo if necessary.
    c. Retain helmet for recovery.
    *d. Call out threatening enemy positions.

BIT Failure Indications

EQUIPMENT	FAILURE NUMERAL (WRA)	INDICATION TO PILOT
ACNIP	1	ACNIP WRA failure
ADC	0	Software compatibility problem
	1	Invalid air data parameter(s) removed from HUD
	2	AOA removed from HUD
	3	TAS not available for display on HUD when A/G selected
	4	Altitude removed from HUD
	5	Magnetic heading invalid
	6	Magnetic heading invalid
	7	Velocity Reasonableness Test Failure
1 ASPJ	1	Low band receiver failure
	2	High band receiver failure
	3	Processor failure
	4	Low band transmitter failure
	5	High band transmitter failure
7 ATHS	1	A1, Interface Assembly
	2	A2, Switch Assembly
	3	A3, Modem, A Assembly
	4	Reserved for Modem B Assembly
	5	A5, Modem C Assembly
	6	Reserved for Modem D Assembly
	10	A10, 1553 and Processor Assembly
	12	A12, 1553 I/O Assembly
	13	A13, Power Supply & Discrete Assembly

BIT Failure Indications (cont.)

EQUIPMENT	FAILURE NUMERAL (WRA)	INDICATION TO PILOT
AWLS	1	AWLS receiver failure
BCN	1	Radar beacon R/T failure
CNIDC	1	CNI data converter failure
COMM 1	1	Radio 1 failure
	2	Radio 1 antenna system failure
COMM 2	1	Radio 2 failure
	2	Radio 2 antenna system failure
DC	1	DC 1 failure
	2	DC 2 failure
[2] DDI	1	DDI failure (fwd cockpit)
	2	DDI failure (aft cockpit)
[3] DMT	1	DMT inoperable
DSS	1	Data storage set failed
	2	Incorrect DSU load
	M	DSS memory is full
	D	DSU failed checksum
[1] DVMS	1	Digital map computer failure
	2	Digital memory unit failure
EMS	1	Engine monitoring unit failure
[1] FLIR	1	FLIR electronics unit failure
	2	FLIR sensor failure
	[4] 3	FLIR power supply failure
[5] GPS	1	GPS Receiver Fail
	2	GPS Battery Fail
	3	Velocity Reasonableness Test Failure

BIT Failure Indications (cont.)

EQUIPMENT	FAILURE NUMERAL (WRA)	INDICATION TO PILOT
HUD	1	Cockpit HUD failure
		Aft cockpit HUD failure
4 IB	1	Interference Blanker Failure
6 IGV	1	Inlet Guide Failure
IFF	1	IFF R/T failure
	2	KIT-1A failure
	3	IFF antenna system failure
INS	1	Automatic reversion to AHRS mode
	2	Velocity Reasonableness Test Failure
1 MPCD	1	Left MPCD failure (fwd cockpit)
	3	Right MPCD failure (fwd cockpit)
RALT	1	Radar altimeter R/T failure
4 RDR	1	Radar target data processor
	2	Transmitter
	3	Receiver/Exciter
	4	Computer power supply
	5	Antenna
	6	Antenna electronics
	7	Transmitter flow low (indicates low liquid coolant)
	8	Waveguide pressure low
	9	Weight-on-wheels/inflight disagree
RWR	1	RWR computer inoperable
	3	Special receiver inoperable
	4	Integrated antenna array inoperable
	9	Quadrant receiver at 315° inoperable
	10	Quadrant receiver at 225° inoperable
	11	Quadrant receiver at 135° inoperable
	12	Quadrant receiver at 45° inoperable

BIT Failure Indications (cont.)

EQUIPMENT	FAILURE NUMERAL (WRA)	INDICATION TO PILOT
SAAHS	0	Software compatibility problem
	1	Invalid mode or function inoperable
	2	Loss of pitch or roll or yaw function
	3	Loss of coordinated turn function
	4	Loss of control stick steering or emergency disengage
	5	Loss of forward pitch stab aug in approach
	6	Loss of pitch stab aug
	7	Loss of forward pitch stab aug in approach
	8	Loss of roll stab aug
	9	Loss of roll stab aug
	10	Loss of rudder trim and yaw stab aug
	11	Loss of roll/yaw interconnect
	12	Loss of particular switch function, or
	13	SAAHS switches off during BIT
	14	Loss of auto pitch trim or manual trim input
	15	Loss or auto roll trim or manual trim input
	16	Forward lateral accelerometer or roll rate gyro failed
		Static inverter or contactor failed
SMS	1	SMS computer failure
	2	Armament control panel failure
	3	Station 1 controller failure
	4	Station 2 controller failure
	5	Station 3 controller failure
	6	Station 4 controller failure
	7	Station 5 controller failure
	8	Station 6 controller failure
	9	Station 7 controller failure
	1 10	Aircraft wiring

BIT Failure Indications (cont.)

EQUIPMENT	FAILURE NUMERAL (WRA)	INDICATION TO PILOT
1 TACTS	1	AISI failure
TCN	1	TACAN R/T failure

NOTES:

1 AV-8B 163853 and up.

2 TAV-8B, AV-8B Day Attack.

3 TAV-8B, AV-8B 161573 thru 164547.

4 AV-8B 164549 and up.

5 AV-8B 165384 and up; also AV-8B 161573 thru 165383, TAV-8B 162963 thru 164542 after AFC-354 Rev A/Part 2/Part 3.

6 AV-8B 165354 and up.

7 AV-8B 165305 and up; also AV-8B 163853 thru 165006 after AFC-326/Part 3.

SMS FUNCTION FAIL CUE SUMMARY

(WPN FAIL DISPLAYED FLASHING)

ITEM	DDI DISPLAY INDICATION (SMSFF OPTION SELECTED)	
	STORES STATIONS REPORTED	**FUNCTION FAILURE LEGEND**
Master operational modes (NAV, VSTOL, A/G, A/A)	Not applicable	MASTER MODE LIGHT
A/G Weapon delivery modes	Not applicable	CIP/AUT MODES INOP
	2, 3, 5, and/or 6	AGM MODE INOP
	1, 2, 3, 4, 5, 6, and/or 7	DSL MODE INOP
	1, 2, 3, 4, 5, 6, and/or 7	DIR MODE INOP
	1, 2, 3, 4, 5, 6, and/or 7	DSL 1 MODE INOP
Weapon programming	1, 2, 3, 4, 5, 6, and/or 7	WEAPON PROGRAM FAIL
Bombs	Not applicable	ELEC FUZING INOP
	1, 2, 3, 4, 5, 6, and/or 7	HIGH DRAG INOP

SMS FUNCTION FAIL CUE SUMMARY (cont.)

(WPN FAIL DISPLAYED FLASHING)

ITEM	DDI DISPLAY INDICATION (SMSFF OPTION SELECTED)	
	STORES STATIONS REPORTED	FUNCTION FAILURE LEGEND
Fuselage gun	Not applicable	FUS GUN NOT CLEAR
	Not applicable	ENG AIR VALVE INOP
	Not applicable	FUSELAGE GUN INOP
	Not applicable	FUS GUN NORM INOP
	Not applicable	FUS GUN B/U INOP
	Not applicable	FUS GUN FIRE ON
	Not applicable	FUS GUN SELECT ON
	Not applicable	[1] 1-20 RND BURST ONLY
	Not applicable	[1] LIMITED-20 RND BRSTS
Sidewinder	1, 2, 6, and/or 7	SIDEWINDER MODE INOP
	Not applicable	SEAM MODE INOP
	Not applicable	SIDEWINDER B/U INOP
Master arm	Not applicable	MASTER ARM BUS ON
	Not applicable	MASTER ARM FUS FAIL

SMS FUNCTION FAIL CUE SUMMARY (cont.)

(WPN FAIL DISPLAYED FLASHING)

ITEM	DDI DISPLAY INDICATION (SMSFF OPTION SELECTED)	
	STORES STATIONS REPORTED	FUNCTION FAILURE LEGEND
ALE-39	Not applicable	ALE-39 NORM INOP
	Not applicable	ALE-39 RWR INOP
	Not applicable	ALE-39 B/U INOP
Stores jettison	Not applicable	SELECT JETT ON
	1, 2, 3, 4, 5, 6, and/or 7	SELECT JETT INOP
	Not applicable	EMER JETT FAILED ON
	Not applicable	EMER JETT INOP

LEGEND:

[1] 1 Day and Night Attack aircraft

LIMITATIONS

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F402-RR-406

LIMITATIONS			
RATING	MAX % RPM (5)	MAX JPT °C (5)	COMBINED TIME LIMITS
SLW (1)	107.0	727	15 SEC / 1.5 MIN / 2.5 MIN (3) / 10 MIN (3) / 15 MIN
SLD	103.0	703	
NLW (1) (2)	104.5	702	
NLD (2)	100.5	684	
Combat	99.0	665	
Max thrust	99.0	625	
Max cont (2)	91.0	570	unlimited
Idle	(7) 25.8–26.2	535	unlimited
Starting (2)	–	(4) 475	momentarily

NOTES

(1) Do not use water injection below ambient temperatures of –5 °C or at altitudes above 10,000 feet.

(2) Requires pilot action to maintain limit.

(3) Each 2.5 or 10–minute period of operation at the lift or combat ratings respectively must be separated by a minimum of 1–minute maximum thrust or below.

(4) Slow or abortive starting attempts should be discontinued without waiting for JPT to reach 475 °C.

(5) Cockpit indicated JPT may vary ±5 °C.

(6) Cockpit indicated N_F may vary ±0.25%.

(7) The minimum allowable sub–idle rpm is 20%.

- Corrected fan speed is limited to 106.5% (±0.5%) below 10,000 feet MSL and 102.5% (±0.5%) above 30,000 feet.
- When manual fuel is selected, pilot action is required to maintain all engine limits.
- At high ambient temperature, with a hot engine using JP–4 fuel and rpm below 50%, an intermittent beat may be emitted by the engine. This condition should be avoided by increasing rpm until beat ceases.
- Use of full 10–minute combat rating must be monitored carefully to preclude premature engine removal for count dissipation.
- Maximum overspeed is 109.0% for 15–seconds or 110.0%.
- To compute minimum idle, a standard lapse rate of 1% rpm increase per 1,000 feet pressure altitude, starting at 1500 feet pressure altitude, is used.
- Excluding P3 limiting, normal rpm fluctuations of up to ±0.5% N_F can be experienced during operation under DECS control. Fluctuations greater than ±0.5% N_F may be indicative of a hard or impending component failure.

AHR604-9-1-029

ENGINE OPERATING LIMITATIONS F402-RR-406

F402-RR-408

RATING	MAX % RPM [6]	MAX JPT °C [5]	COMBINED TIME LIMITS
			LIMITATIONS
SLW [1]	120.0	800	15 SEC / 1.5 MIN / 2.5 MIN [3] / 10 MIN [3] / 15 MIN
SLD	113.5	780	
NLW [1] [2]	116.0	780	
NLD [2]	111.0	765	
Combat	111.0	750	
Max thrust	109.0	710	
Max cont [2]	102.0	645	unlimited
Idle	[7] 28.4–29.0	545	unlimited
Starting [2]	–	[4] 475	momentarily

NOTES

[1] Do not use water injection below ambient temperatures of –5 °C or at altitudes above 10,000 feet.

[2] Requires pilot action to maintain limit.

[3] Each 2.5 or 10-minute period of operation at the lift or combat ratings respectively must be separated by a minimum of 1-minute maximum thrust or below.

[4] Slow or abortive starting attempts should be discontinued without waiting for JPT to reach 475 °C.

[5] Cockpit indicated JPT may vary ±5 °C.

[6] Cockpit indicated N_F may vary ±0.25%.

[7] The minimum allowable sub-idle RPM is 22%.

- Corrected fan speed is limited to 116.8% (±0.5%) below 10,000 feet MSL and 110.5% (±0.5%) above 30,000 feet.
- When manual fuel is selected, pilot action is required to maintain all engine limits.
- At high ambient temperature, with a hot engine using JP-4 fuel and rpm below 50%, an intermittent beat may be emitted by engine. This condition should be avoided by increasing rpm until beat ceases.
- Use of full 10-minute combat rating must be monitored carefully to preclude premature engine removal for count dissipation.
- Maximum overspeed is 122% for 15 seconds or 124%.
- To compute minimum idle, a standard lapse rate of 1% rpm increase per 1000 feet pressure altitude, starting at 1500 feet pressure altitude is used.
- Excluding P3 limiting, normal rpm fluctuations of up to ±0.5% N_F can be experienced during operation under DECS control. Fluctuations greater than ±0.5% N_F may be indicative of a hard or impending component failure.

AHR604-9-2-029

ENGINE OPERATING LIMITATIONS
F402-RR-408

LIMITATIONS - AV-8B AIRSPEED LIMITATIONS

1. Flaps:
   STOL . . . . . 300 knots
   CRUISE . . . . . 0.87 Mach
2. Landing gear operation . . . . . 250 knots
3. Landing gear locked down . . . . . 250 knots
4. Landing gear emergency extension . . . . . 210 knots
5. Q feel disengaged . . . . . 500 knots
6. One hydraulic system inoperative . . . . . 500 knots
7. Canopy open . . . . . 40 knots
8. Wheels in contact with ground . . . . . 180 knots ground speed
9. LIDS fence extended . . . . . 200 knots
10. Air refueling probe extended . . . . . 300 knots
11. F402-RR-406 before PPC 170, sea level ambient temperature below -1 °F, and altitude below 2,500 feet - 510 KCAS.
    F402-RR-406 after PPC 170 . . . . . NORMAL LIMITS

PROHIBITED MANEUVERS (ALL AIRCRAFT)

1. VTO with asymmetric load/stores greater than 45,000 in-lbs.
2. STO with asymmetric load/stores greater than 85,000 in-lbs or CTO with asymmetric load/stores greater than 100,000 in-lbs.
3. Shipboard STO with asymmetric load/stores greater than 57,270 in-lbs.
4. AUTO flaps - SL with more than 148,000 in-lbs asymmetry; or STOL flaps - SL with more than 85,000 in-lbs.
5. VL with more than 80,000 in-lbs asymmetry.
6. Takeoff with less than 10° nozzles until wingborne.
7. Spin.
8. Under 1g for more than 15 seconds.

9. Overriding aileron high speed stop.
10. Roll over 360°.
11. In accelerating or decelerating transition:
    a. Over 15° AOA above 50 knots with landing gear down.
    b. Between 30 to 100 knots, sideslip requiring more than 1/2 lateral stick or with RPS on.
12. Rearward or sideward translation above 30 knots.
13. TVC above 20,000 feet MSL with -406 engine or 30,000 feet MSL with -408 engine at AOA above onset of stall warning/maneuvering tone or at less than 0g.
14. Over 80% rpm above 25,000 feet MSL at less than 0g (-406 engine only).
15. Flight above onset of stall warning/maneuvering tone with more than 60,000 in-lbs asymmetry.
16. Abrupt simultaneous stabilator, rudder, or aileron inputs with more than 90,000 in-lbs asymmetry.
17. Wingborne flight with more than 148,000 in-lbs asymmetry or flight above 0.88 Mach with more than 90,000 in-lbs asymmetry. For asymmetries above 90,000 in-lbs, maneuvering limit is 5g, 10° AOA or stall warning, whichever occurs first.
18. Departure above 250 knots.
19. Rudder deflection above 0.80 Mach.

PROHIBITED MANEUVERS (SAAHS OFF)

1. Departure or stall.
2. Roll over 180° above 8° AOA.
3. Abrupt input of more than 1/2 rudder.
4. More than 1/2 lateral stick beyond onset of stall warning or with flap switch in CRUISE.

PROHIBITED MANEUVERS (TAV-8B)

All those for the AV-8B as presented in this manual including:

1. Intentional stalls, tail slides, departures, spins, or flops.
2. Airspeed less than 120 KCAS in nose high conditions.
3. Rolling maneuvers in excess of 180° at more than 1g.
4. Wingborne or TVC maneuvering flight above maneuvering tone.

PROHIBITED MANEUVERS (RADAR AIRCRAFT)

All those for the AV-8B as presented in this manual including:

1. Abrupt (less than 1/2 second) lateral stick inputs to high speed stops with SAAHS - ON, above 3g for speeds greater than 475 KCAS at altitudes less than 10,000 feet MSL.
2. Abrupt (less than 1/2 second) lateral stick inputs to high speed stops with SAAHS - OFF.

AOA LIMITATIONS (SAAHS OFF)

AOA limit versus Mach number with flaps AUTO, SAS OFF and nozzles 0° is shown in Figure 4-8 (A1-AV8BB-NFM-000). The limits are coincident with the maneuvering tone. AOA is also limited to that where onset of buffet, wing rock or sideslip buildup occurs. During abrupt maneuvers, HUD AOA lags the actual AOA.

WEIGHT LIMITATIONS

The maximum gross weight for taxi and takeoff is 32,000 pounds (avoid abrupt maneuvering and hard braking at taxi gross weights above 29,750 pounds). The maximum gross weight for landing is 26,000 pounds.

ACCELERATION LIMITATIONS

1. The maximum permissible acceleration in the takeoff and landing configuration is 0.0g’s to +2.0g’s.

2. The maximum permissible acceleration in smooth air with flaps AUTO or CRUISE for aircraft with empty pylons or air-to-air loads is shown in the NATOPS Flight Manual. See Figure 4-10.
3. Wing delamination flight restrictions for some AV-8B aircraft at airspeeds greater than 450 KIAS below 5,000 feet. Refer to maintenance records for applicability.
   a. Configuration: Clean aircraft or air-to-air load with or without AIM-9's on stations 2 and 6.
      (1) At aircraft weights equal to, or less than 16,000 lbs.
         (a) Max symmetrical positive load factor: 7.0g
         (b) Max asymmetrical positive load factor: 5.6g
      (2) For weights greater than 16,000 lbs, the load factor shall be reduced by 0.1g for every 400 lbs increase in aircraft weight.
   b. For all other configurations:
      (1) At aircraft weight equal to or less than 19,000 lbs.
         (a) Max symmetrical positive load factor: 6.0g
         (b) Max asymmetrical positive load factor: 4.8g
      (2) For weights greater than 19,000 lbs, the load factor shall be reduced by 0.1g for every 400 lbs increase in aircraft weight.
      (3) Negative acceleration is limited to -1g in all aircraft configurations at airspeeds greater than 375 KIAS below 15,000 feet.
4. For any other configuration, refer to the Tactical Manual, A1-AV8BB-TAC-050 for external stores limitations.

5. Following a departure, the pilot should use the Maximum Possible Normal Load Factor chart, Figure 4-11 in the NATOPS Flight Manual, to estimate the maximum load factor (NZ) attained by the aircraft. An over-g inspection of the aircraft per the A1-AV8BB-GAI-400 maintenance manual is required if the estimated NZ exceeds the allowable structural load factor limit.

CROSSWIND LIMITATIONS

Paved runway (minimum width 100 Feet).

For wet runway operation, reduce crosswind limits by 5 knots.

TAKEOFFS

1. CTO (day or night) . . . . . 20 kts
2. STO > 120 knots day or night) . . . . . 15 knots
3. STO ≦ 120 knots (day or night) . . . . . 10 knots
4. RVTO
   Day . . . . . 10 knots
   Night . . . . . 5 knots
5. VTO (day or night) . . . . . 10 knots

LANDINGS

1. Approach speeds ≧140 knots
   Day . . . . . 20 knots
   Night . . . . . 15 knots
2. Approach speeds < 140 knots
   Day . . . . . 15 knots
   Night . . . . . 10 knots
3. Gross weights > 19,550 lbs
   All approach speeds (day or night) . . . . . 10 knots
4. Refer to NATOPS Flight Manual for crosswind landing capability. See Figure 4-12.

APU STARTING AND OPERATING LIMITATIONS

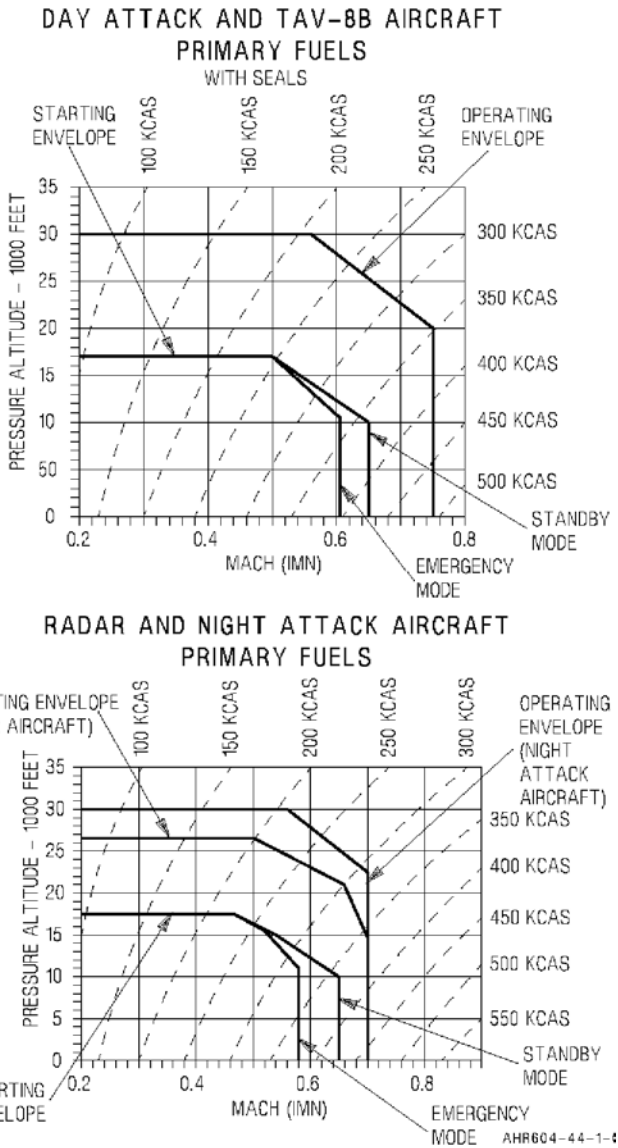
Unless an external air supply is used to cool the electric starter motor, no more than three GTS/APU start cycles (within a 20 minute period) may be made, with at least 1 minute between attempts. To prevent damage/failure to the GTS main gearbox, engine start cycle may not be repeated following a failed or aborted engine start attempt until engine HP compressor rotation completely stops and the minimum 1 minute interval between start attempts is met. Refer to Figure 4-6 for inflight APU starting and operating envelope.

ENGINE BLEED LIMITATIONS

More than 5 minutes of continuous engine bleed in hover flight is prohibited. Continuous hover flight must be followed by a cooling period (forward flight or ground operations) of the same duration.

NOZZLE/FLAP LIMITATIONS

During normal in-flight operations, with the exception of air refueling, use of STOL flaps is limited to nozzle positions greater than 25°.



APU STARTING AND OPERATING ENVELOPE

CAUTION

- If the GTS/APU inflight operating limits are exceeded, overheat damage may occur. Excessive heat damage can lead to GTS turbine failure with blade pieces exiting the GTS exhaust duct at high velocity.
- Continuous operation is affected by altitude, airspeed, AOA, and ambient air temperature. Limit maneuvers to 2 G and minimize to that required to safely recover the aircraft. If hard maneuvering is attempted near the edge of the envelope, the APU will probably over-temp with no warning or cockpit indication.
- When using alternate fuels, subtract 2,500 ft MSL (Day attack, Night attack, and TAV-8B aircraft) or 5,000 ft MSL (Radar aircraft) from GTS/APU standby start and emergency start envelopes or GTS/APU over temperature will result.

NOTES

- Emergency mode is a GTS start with main generator off line. Standby mode is a GTS start with main generator on and functioning normally.
- A successful start is controlled by many variables. The most important pilot controlled variables are altitude and airspeed. The chance of a successful start is improved by attempting a start as near the center of the envelope as possible. Repeated start attempts with the generator inoperative will reduce the battery voltage and decrease the likelihood of a successful start. A failed starting attempt is characterized by the APU failing to accept the electrical load.
- The APU requires 28 VDC bus power for starts in the standby mode or aircraft battery power for starts in the emergency mode.

AHR604-44-2-0

PERFORMANCE

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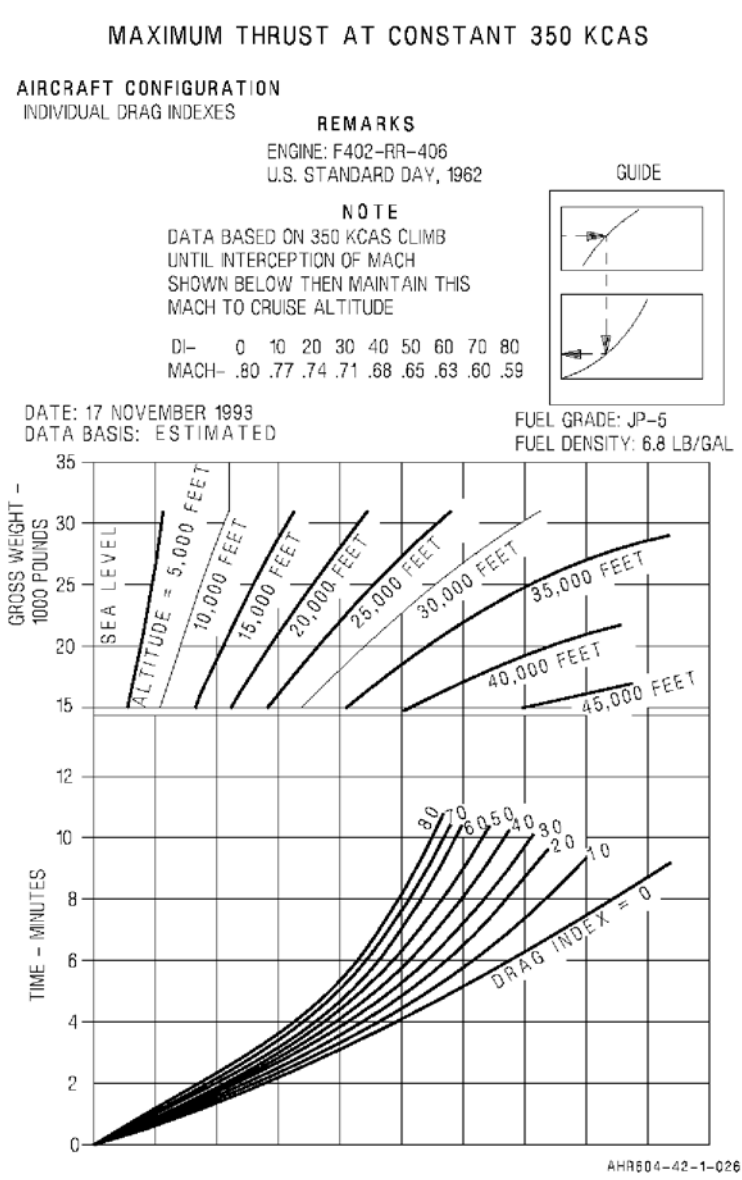
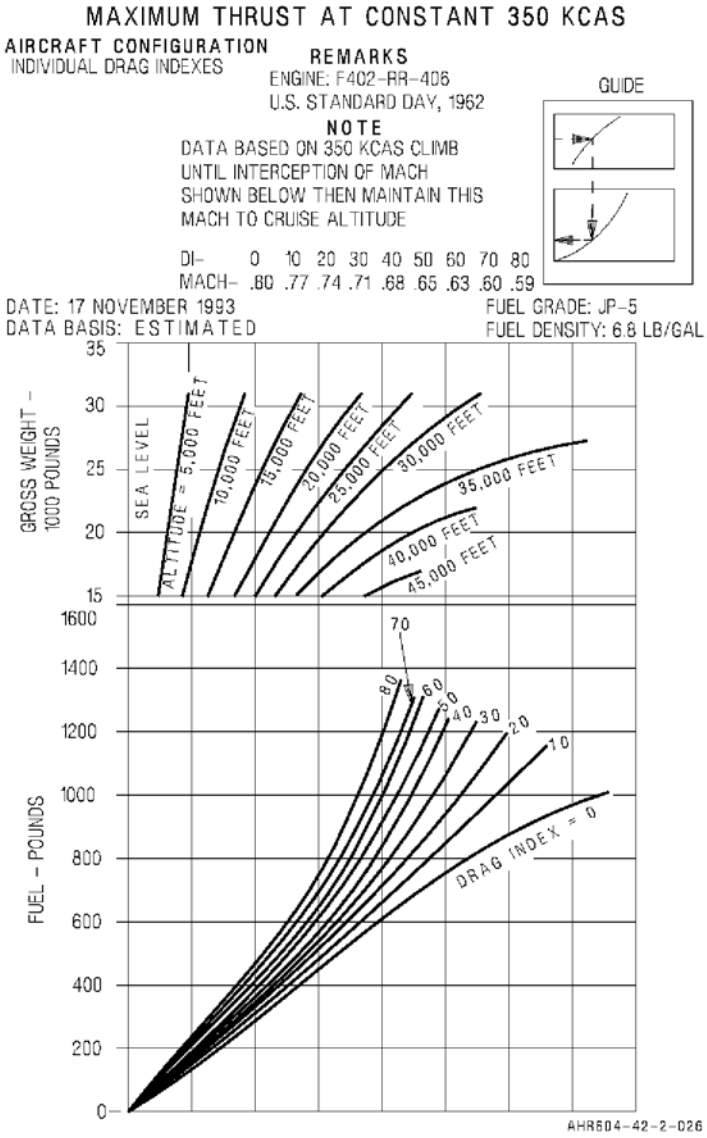
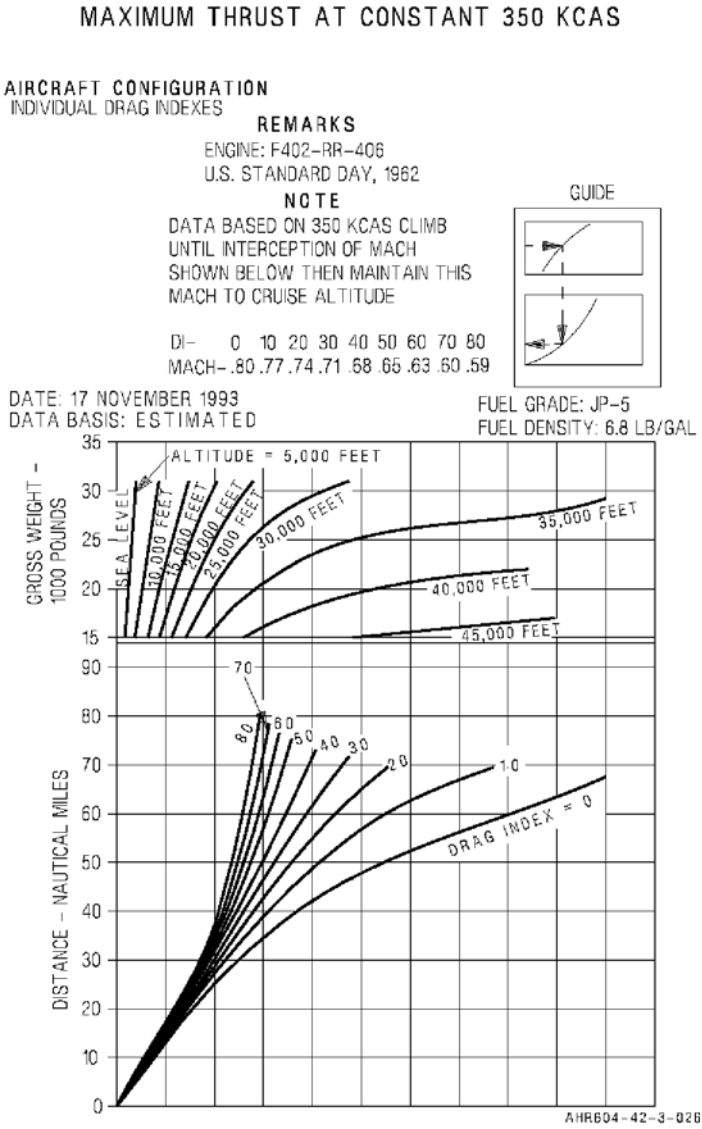
PERFORMANCE - TAV-8B WITH F402-RR-408 ENGINE



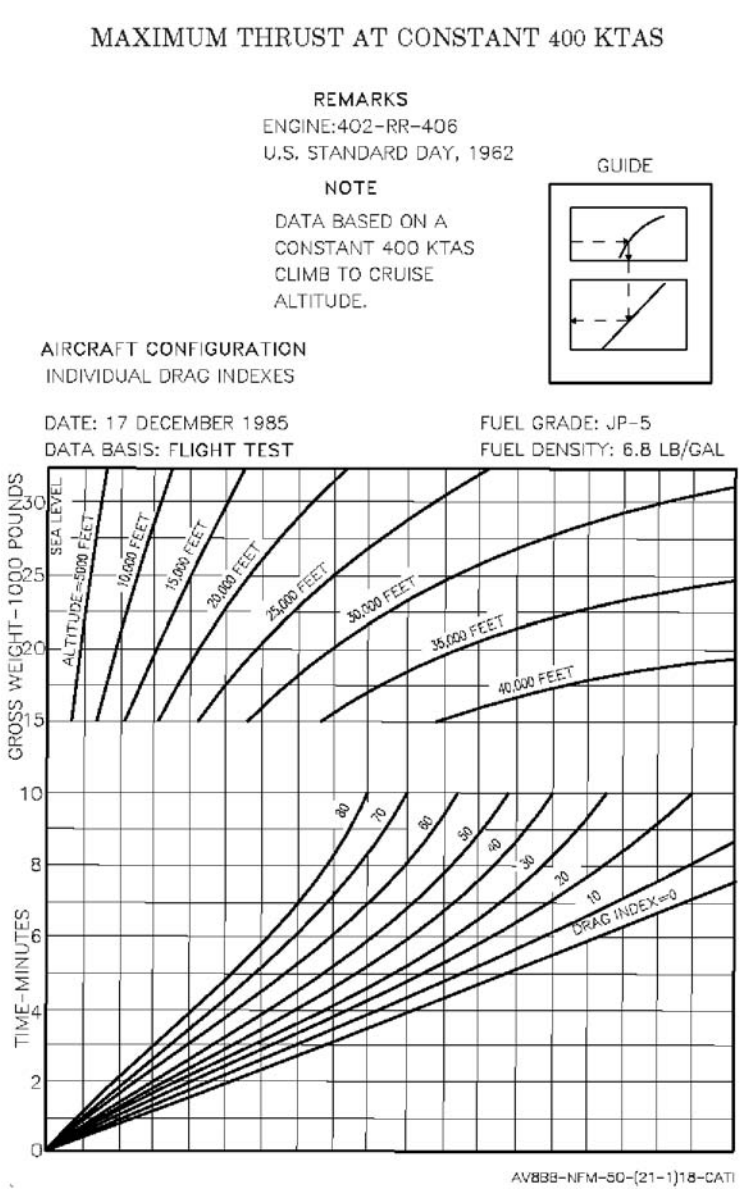
TIME TO CLIMB - 350 KCAS
AV-8B WITH F402-RR-406 ENGINE



FUEL REQUIRED TO CLIMB - 350 KCAS
AV-8B WITH F402-RR-406 ENGINE



DISTANCE REQUIRED TO CLIMB - 350 KCAS
AV-8B WITH F402-RR-406 ENGINE



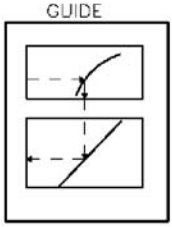
TIME TO CLIMB - 400 KTAS
AV-8B WITH F402-RR-406 ENGINE

MAXIMUM THRUST AT CONSTANT 400 KTAS

REMARKS
ENGINE:402-RR-406
U.S. STANDARD DAY, 1962

NOTE
DATA BASED ON A CONSTANT 400 KTAS CLIMB TO CRUISE ALTITUDE.

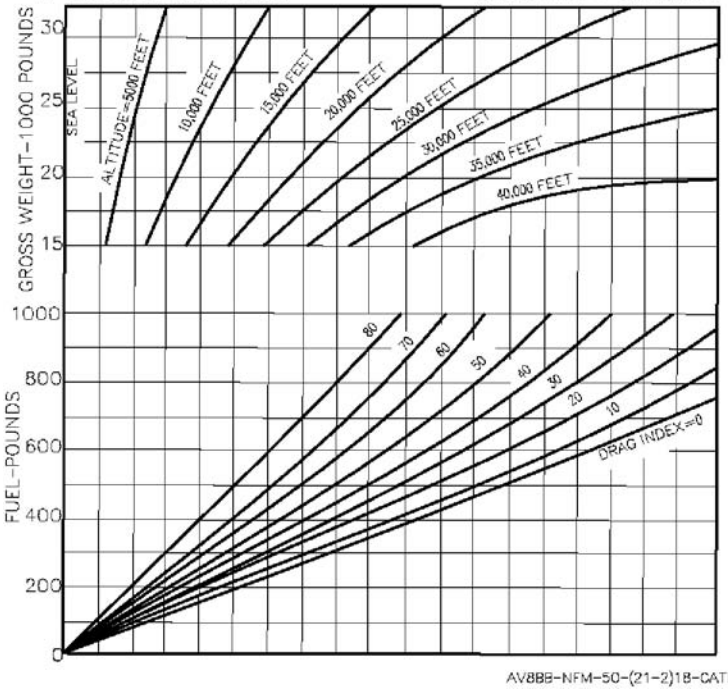
GUIDE



AIRCRAFT CONFIGURATION
INDIVIDUAL DRAG INDEXES

DATE: 17 DECEMBER 1985
DATA BASIS: **FLIGHT TEST**

FUEL GRADE: JP-5
FUEL DENSITY: 6.8 LB/GAL



AV8BB-NFM-50-(21-2)18-CATI

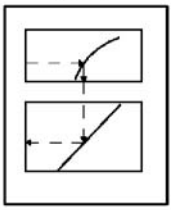
FUEL REQUIRED TO CLIMB - 400 KTAS
AV-8B WITH F402-RR-406 ENGINE

MAXIMUM THRUST AT CONSTANT 400 KTAS

REMARKS

ENGINE:402-RR-406
U.S. STANDARD DAY, 1962

GUIDE



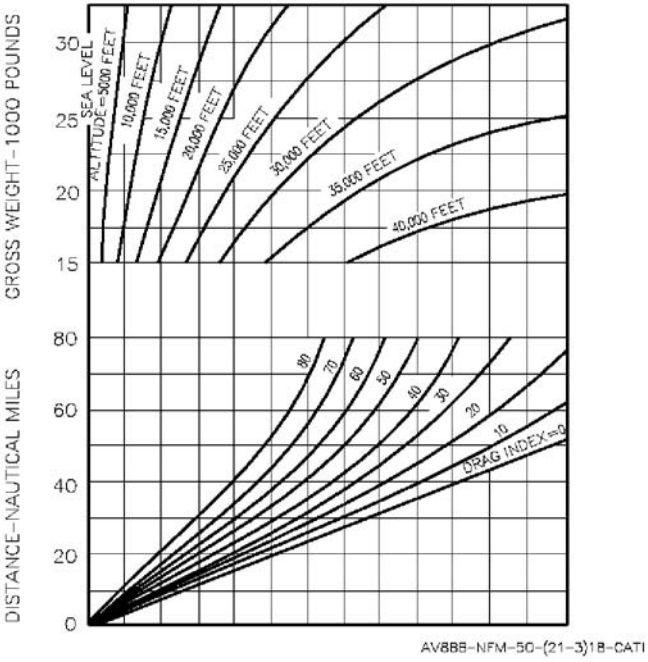
NOTE

DATA BASED ON A CONSTANT 400 KTAS CLIMB TO CRUISE ALTITUDE.

AIRCRAFT CONFIGURATION
INDIVIDUAL DRAG INDEXES

DATE: 17 DECEMBER 1985
DATA BASIS: FLIGHT TEST

FUEL GRADE: JP-5
FUEL DENSITY: 6.8 LB/GAL



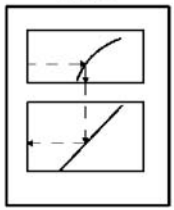
DISTANCE TO CLIMB - 400 KTAS
AV-8B WITH F402-RR-406 ENGINE

MAXIMUM THRUST AT CONSTANT 450 KTAS

REMARKS
ENGINE: 402-RR-406
U.S. STANDARD DAY, 1962

NOTE
DATA BASED ON A CONSTANT 450 KTAS CLIMB TO CRUISE ALTITUDE.

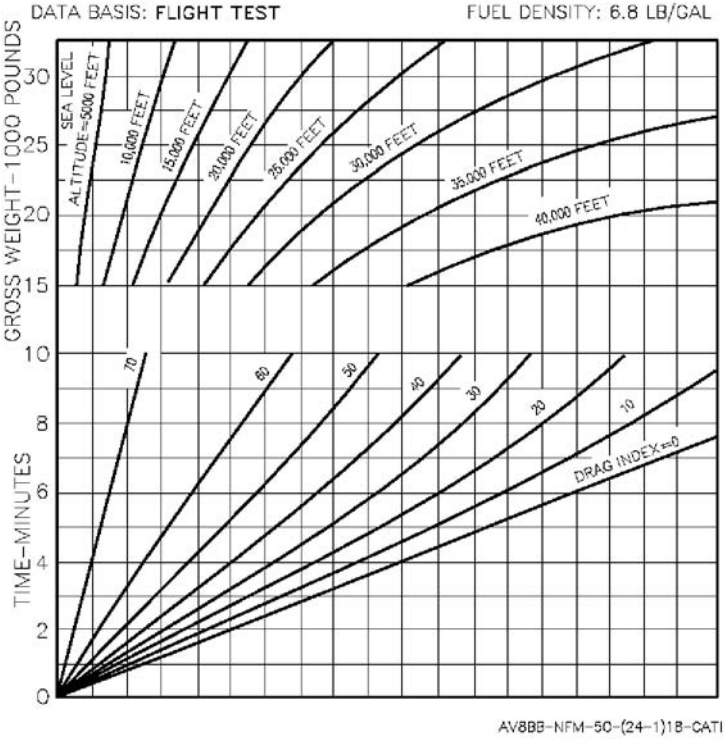
GUIDE



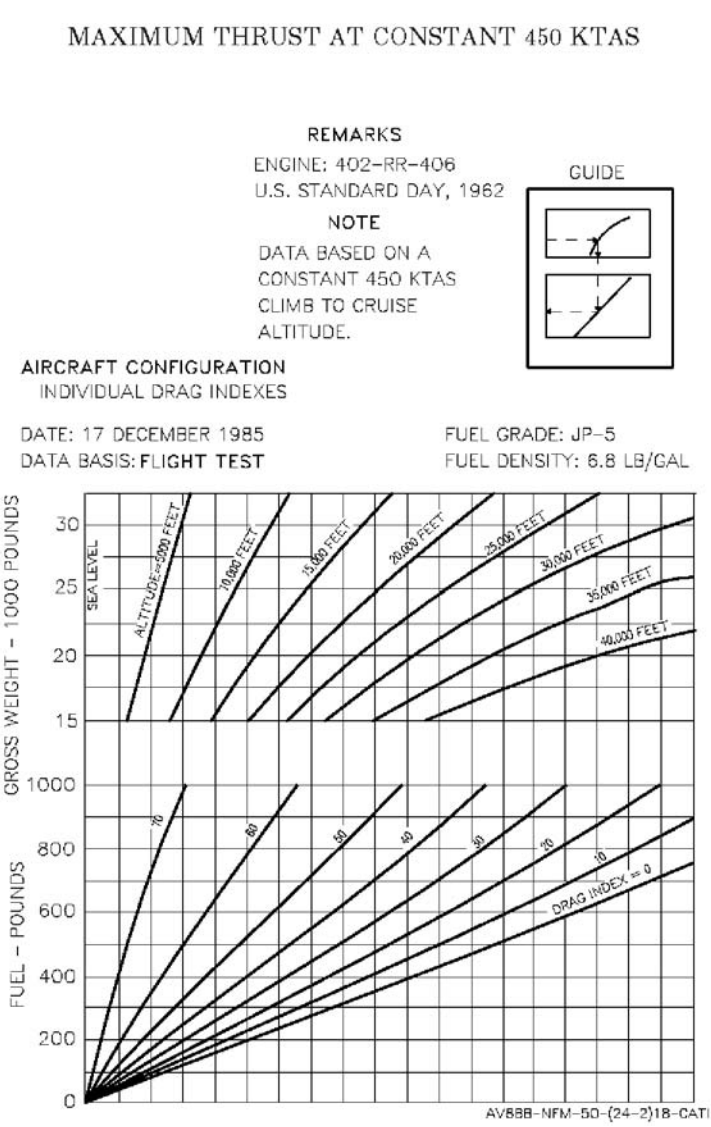
AIRCRAFT CONFIGURATION
INDIVIDUAL DRAG INDEXES

DATE: 17 DECEMBER 1985
DATA BASIS: FLIGHT TEST

FUEL GRADE: JP-5
FUEL DENSITY: 6.8 LB/GAL



TIME TO CLIMB - 450 KTAS
AV-8B WITH F402-RR-406 ENGINE



FUEL REQUIRED TO CLIMB - 450 KTAS
AV-8B WITH F402-RR-406 ENGINE

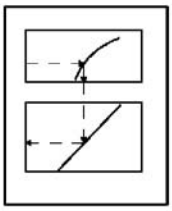
MAXIMUM THRUST AT CONSTANT 450 KTAS

REMARKS
ENGINE: 402-RR-406
U.S. STANDARD DAY, 1962

NOTE

DATA BASED ON A CONSTANT 450 KTAS CLIMB TO CRUISE ALTITUDE.

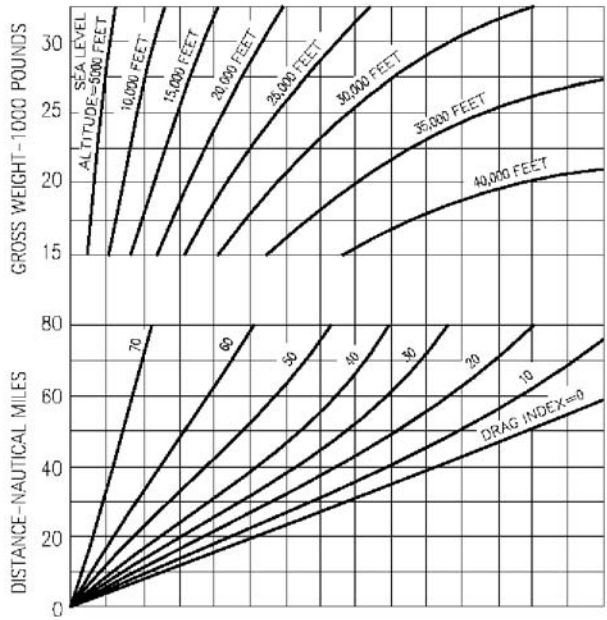
GUIDE



AIRCRAFT CONFIGURATION
INDIVIDUAL DRAG INDEXES

DATE: 17 DECEMBER 1985
DATA BASIS: **FLIGHT TEST**

FUEL GRADE: JP-5
FUEL DENSITY: 6.8 LB/GAL



AV8BB-NFM-50-(24-3)1B-CATI

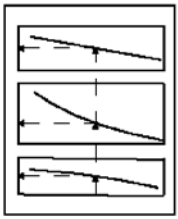
DISTANCE REQUIRED TO CLIMB - 450 KTAS
AV-8B WITH F402-RR-406 ENGINE

REMARKS

ENGINE: 402-RR-406

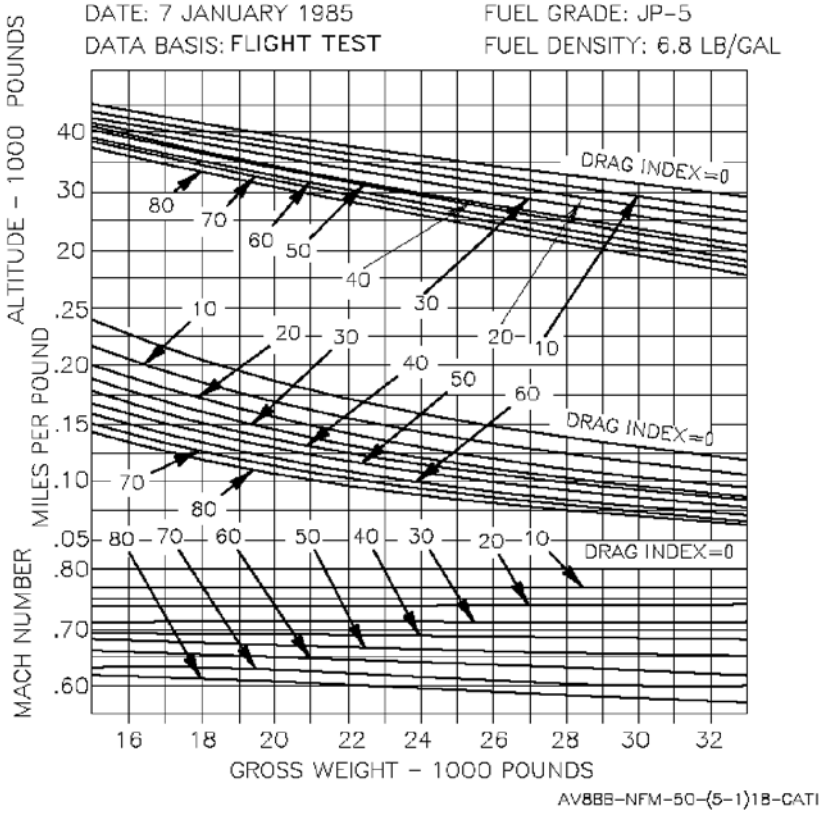
U.S. STANDARD DAY, 1962

GUIDE



AIRCRAFT CONFIGURATION

INDIVIDUAL DRAG INDEXES



OPTIMUM CRUISE FLIGHT CONDITIONS, AV-8B WITH F402-RR-406 ENGINE

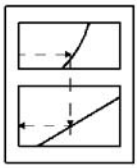
TIME REQUIRED TO DESCEND
65 % RPM - FLAPS AUTO - SPEEDBRAKE RETRACTED

REMARKS
ENGINE: 402-RR-406
U.S. STANDARD DAY, 1962

NOTE
DATA BASED ON A DESCENT SCHEDULE
OF MAINTAINING MACH SHOWN BELOW
OR 350 KNOTS WHICHEVER IS LESS.

DI-	0	10	20	30	40	50	60	70	80
MACH-	.80	.77	.74	.71	.68	.65	.63	.60	.59

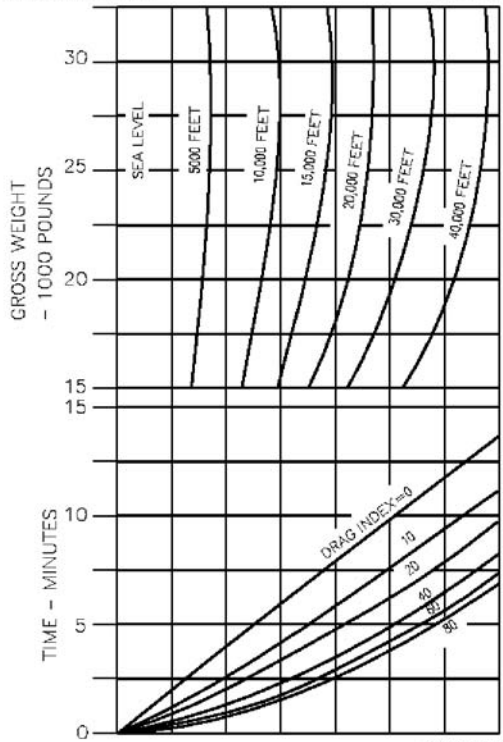
GUIDE



AIRCRAFT CONFIGURATION
INDIVIDUAL DRAG INDEXES

DATE: 7 JANUARY 1985
DATA BASIS: FLIGHT TEST

FUEL GRADE: JP-5
FUEL DENSITY: 6.8 LB/GAL



AV8BB-NFM-50-(14-1)18-CATI

TACTICAL DESCENT, AV-8B
WITH F402-RR-406 ENGINE

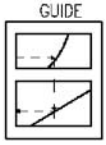
FUEL REQUIRED TO DESCEND
65 % RPM - FLAPS AUTO - SPEEDBRAKE RETRACTED

REMARKS
ENGINE: 402-RR-406
U.S. STANDARD DAY, 1962

NOTE
DATA BASED ON A DESCENT SCHEDULE
OF MAINTAINING MACH SHOWN BELOW
OR 350 KNOTS WHICHEVER IS LESS.

DI-	0	10	20	30	40	50	60	70	80
MACH-	.80	.77	.74	.71	.68	.65	.63	.60	.59

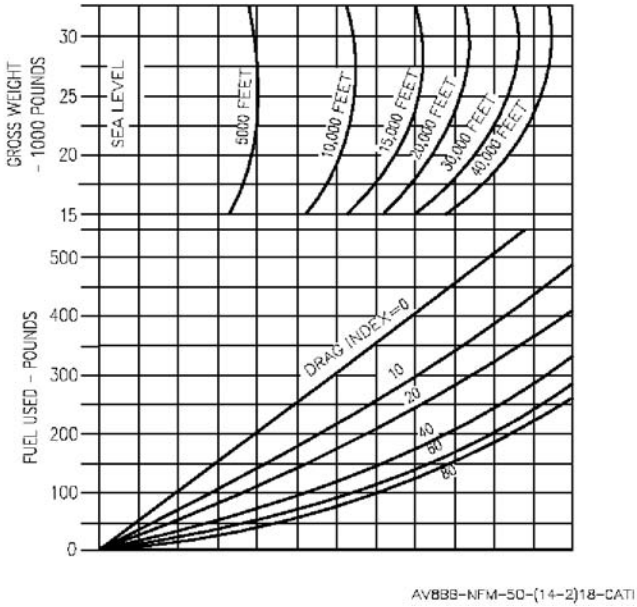
GUIDE



AIRCRAFT CONFIGURATION
INDIVIDUAL DRAG INDEXES

DATE: 7 JANUARY 1985
DATA BASIS: **FLIGHT TEST**

FUEL GRADE: JP-5
FUEL DENSITY: 6.8 LB/GAL

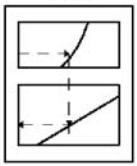


AV8BB-NFM-50-(14-2)18-CATI

TACTICAL DESCENT, AV-8B
WITH F402-RR-406 ENGINE

DISTANCE REQUIRED TO DESCEND
65 % RPM - FLAPS AUTO - SPEEDBRAKE RETRACTED

GUIDE



REMARKS

ENGINE: 402-RR-406
U.S. STANDARD DAY, 1962

NOTE

DATA BASED ON A DESCENT SCHEDULE
OF MAINTAINING MACH SHOWN BELOW
OR 350 KNOTS WHICHEVER IS LESS.

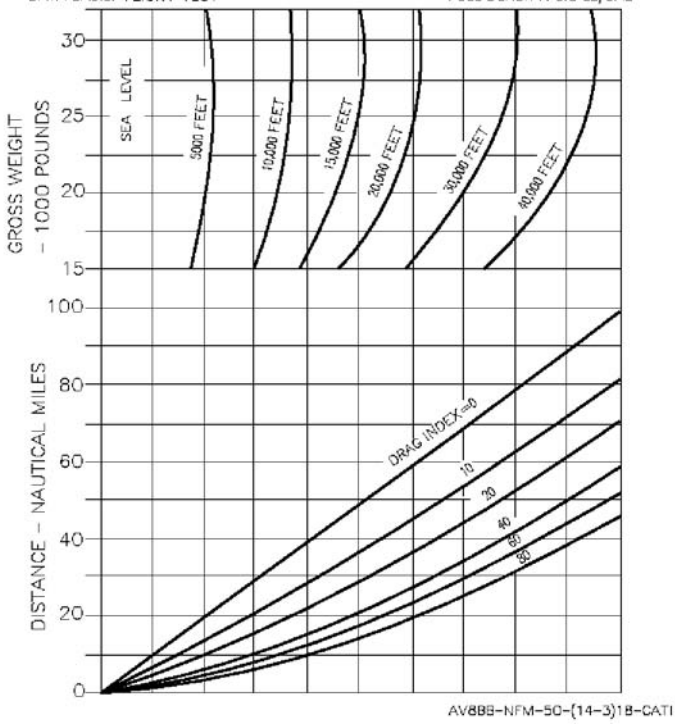
DI-	0	10	20	30	40	50	60	70	80
MACH-	.80	.77	.74	.71	.68	.65	.63	.60	.59

AIRCRAFT CONFIGURATION

INDIVIDUAL DRAG INDEXES

DATE: 7 JANUARY 1985
DATA BASIS: FLIGHT TEST

FUEL GRADE: JP-5
FUEL DENSITY: 6.8 LB/GAL



TACTICAL DESCENT, AV-8B
WITH F402-RR-406 ENGINE

MAXIMUM THRUST AT CONSTANT 350 KCAS

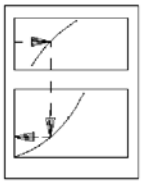
AIRCRAFT CONFIGURATION
INDIVIDUAL DRAG INDEXES

REMARKS
ENGINE: F402-RR-408
U.S. STANDARD DAY, 1962

NOTE
DATA BASED ON 350 KCAS CLIMB
UNTIL INTERCEPTION OF MACH
SHOWN BELOW THEN MAINTAIN THIS
MACH TO CRUISE ALTITUDE

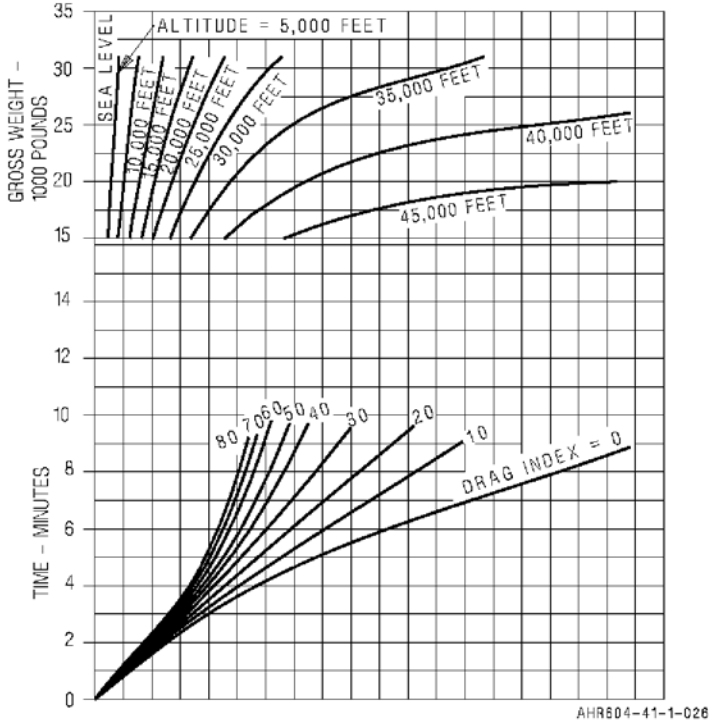
DI-	0	10	20	30	40	50	60	70	80
MACH-	.80	.77	.74	.71	.68	.65	.63	.60	.59

GUIDE

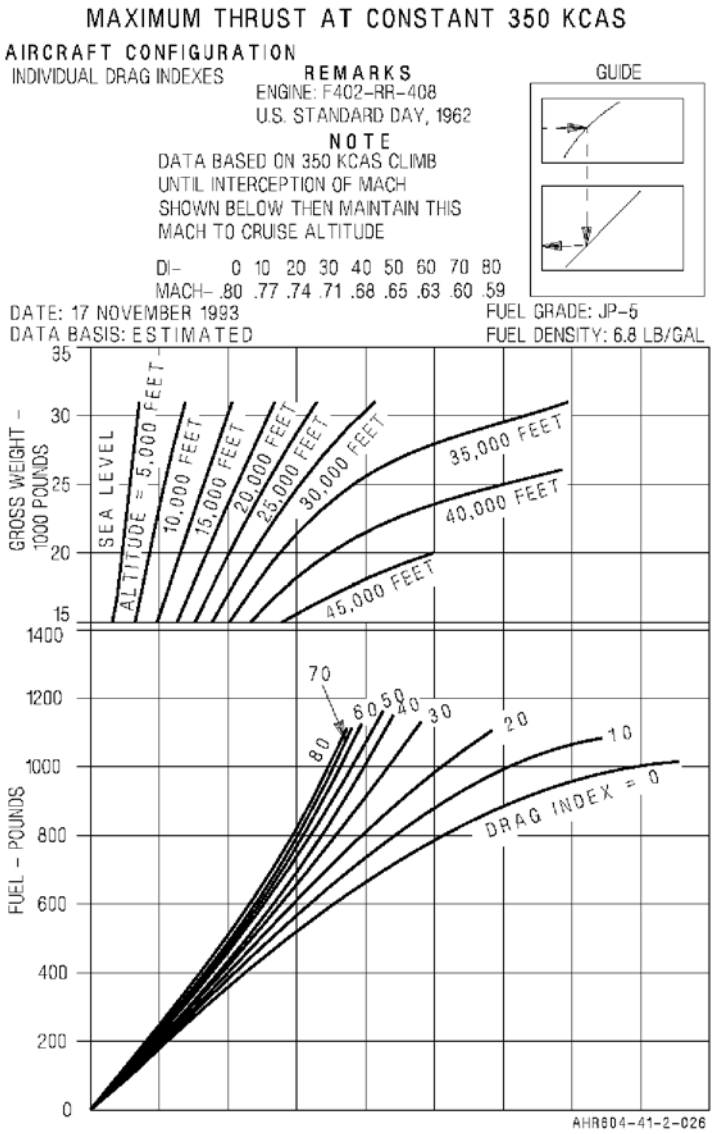


DATE: 17 NOVEMBER 1993
DATA BASIS: ESTIMATED

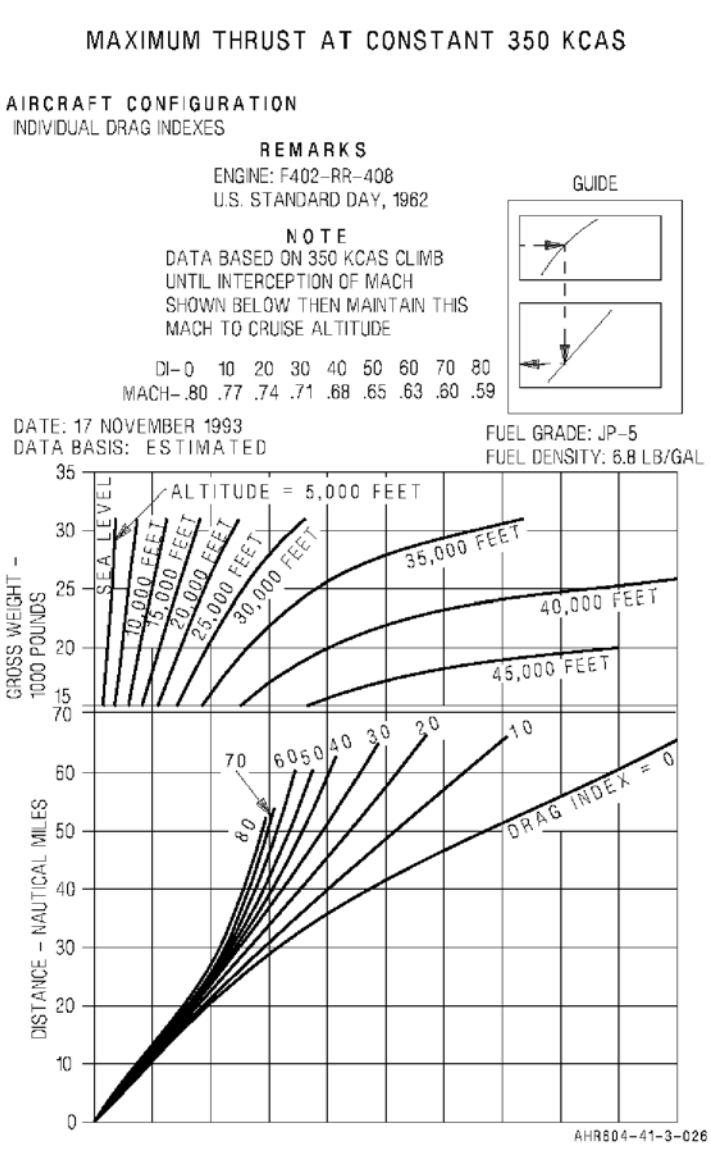
FUEL GRADE: JP-5
FUEL DENSITY: 6.8 LB/GAL



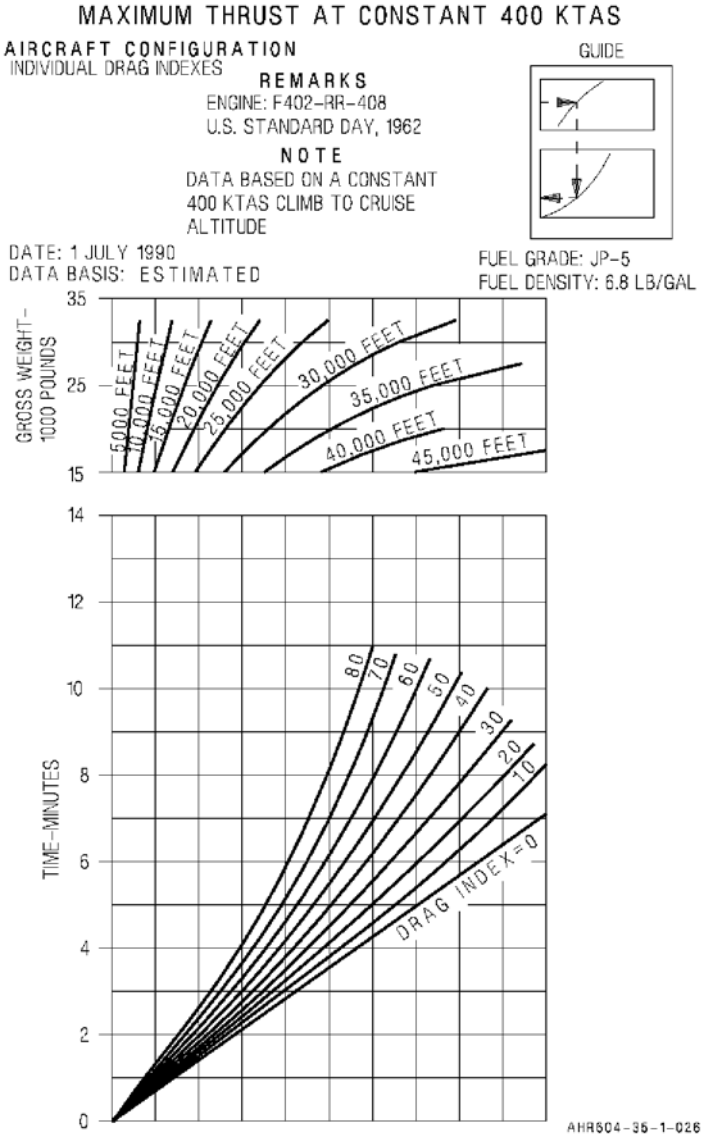
TIME TO CLIMB - 350 KCAS
AV-8B WITH F402-RR-408 ENGINE



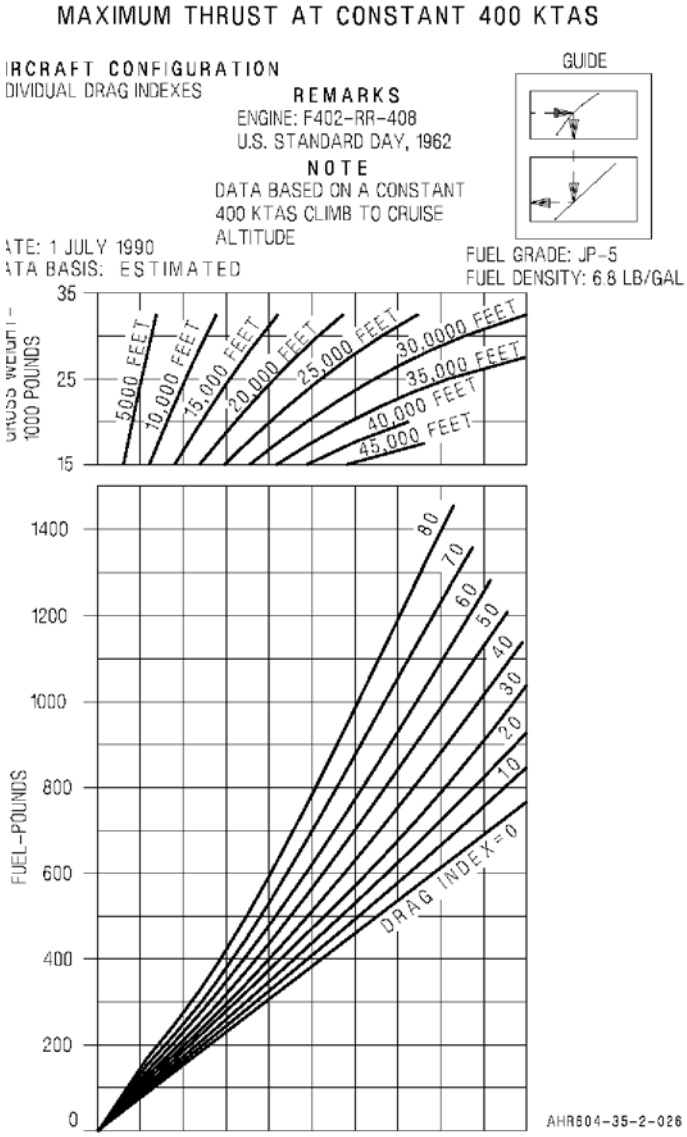
FUEL REQUIRED TO CLIMB - 350 KCAS
AV-8B WITH F402-RR-408 ENGINE



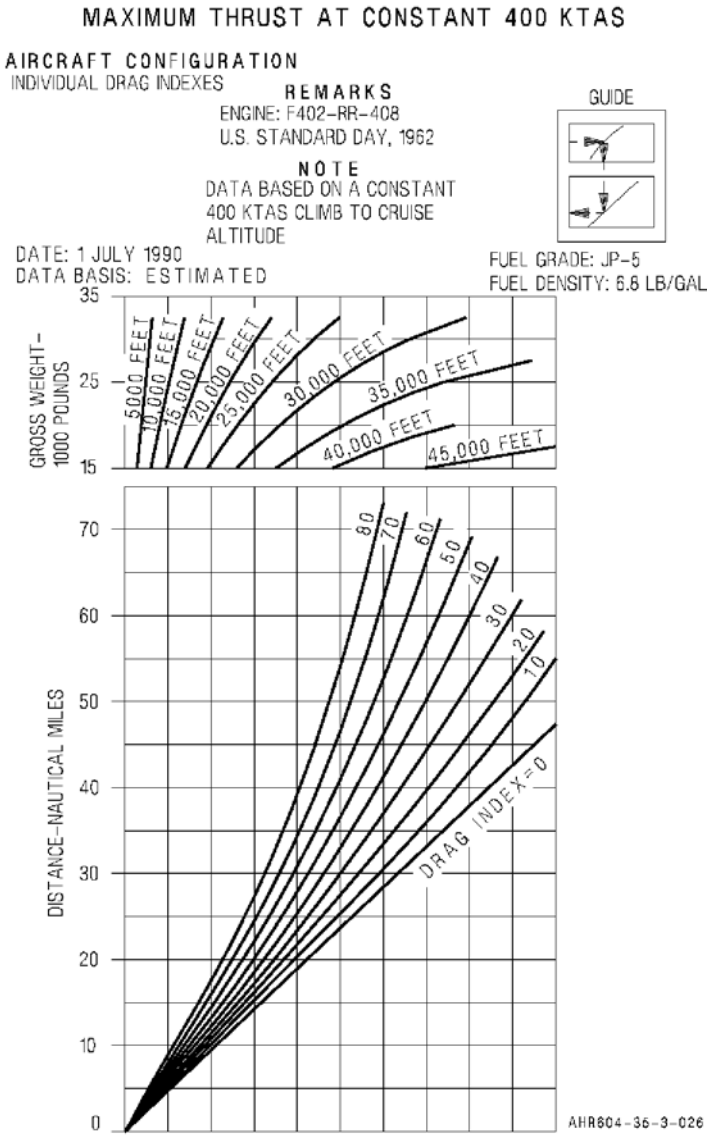
DISTANCE REQUIRED TO CLIMB - 350 KCAS
AV-8B WITH F402-RR-408 ENGINE



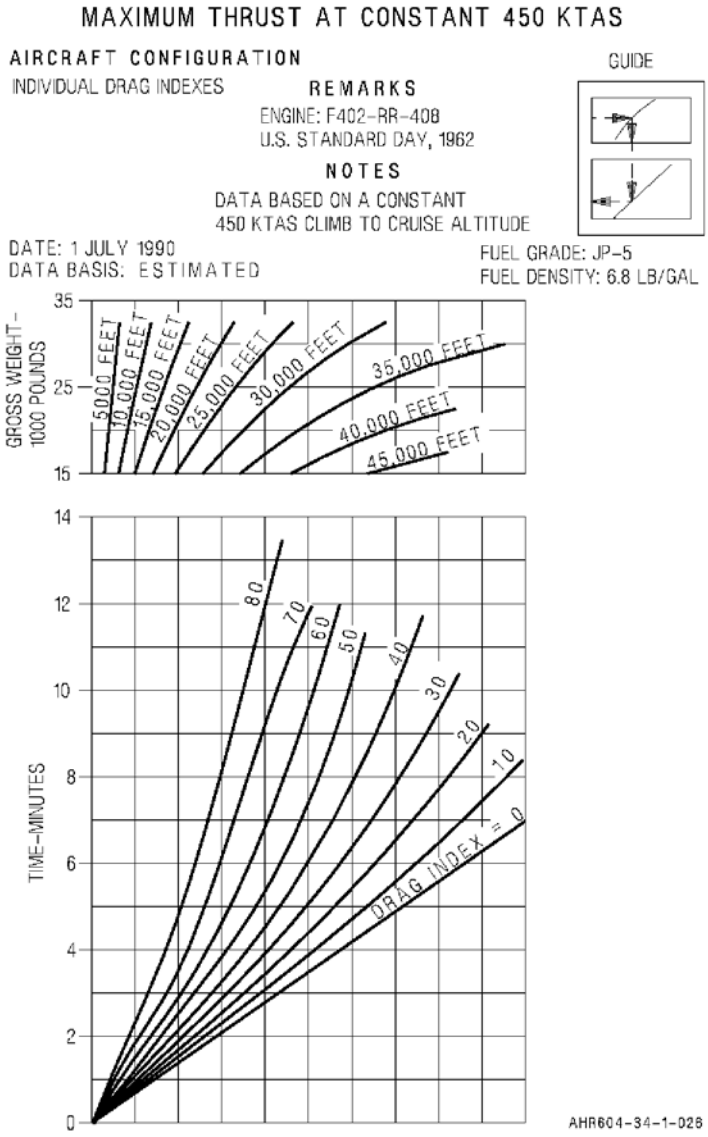
TIME TO CLIMB - 400 KTAS
AV-8B WITH F402-RR-408 ENGINE



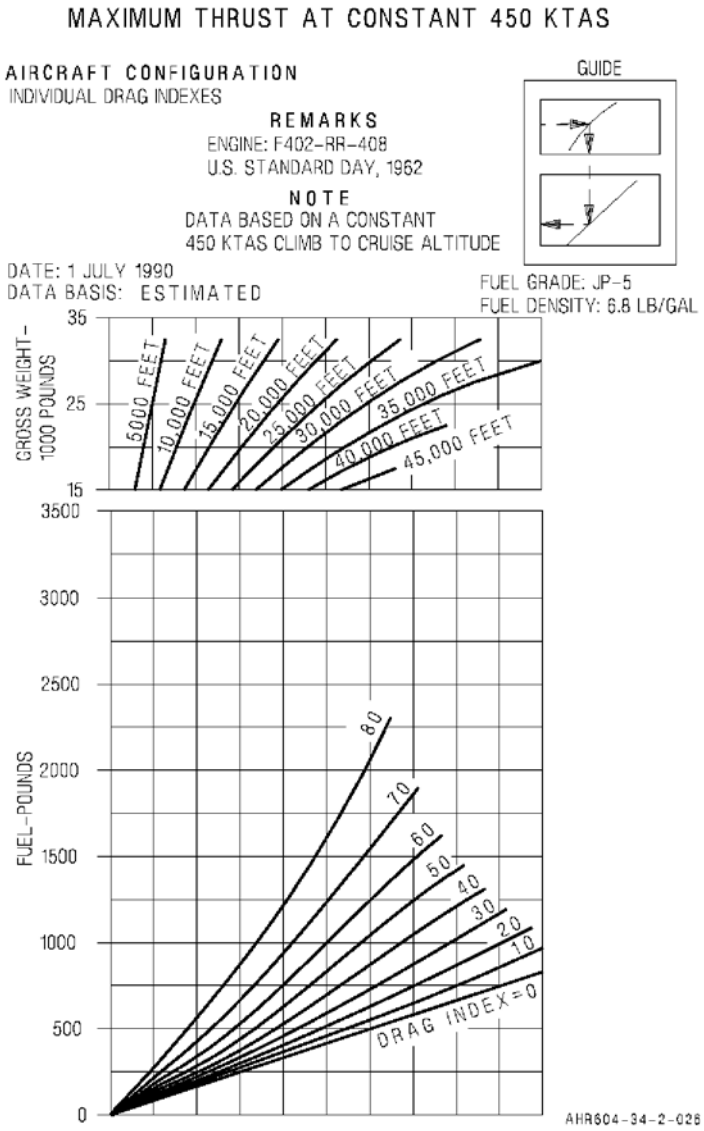
FUEL REQUIRED TO CLIMB - 400 KTAS
AV-8B WITH F402-RR-408 ENGINE



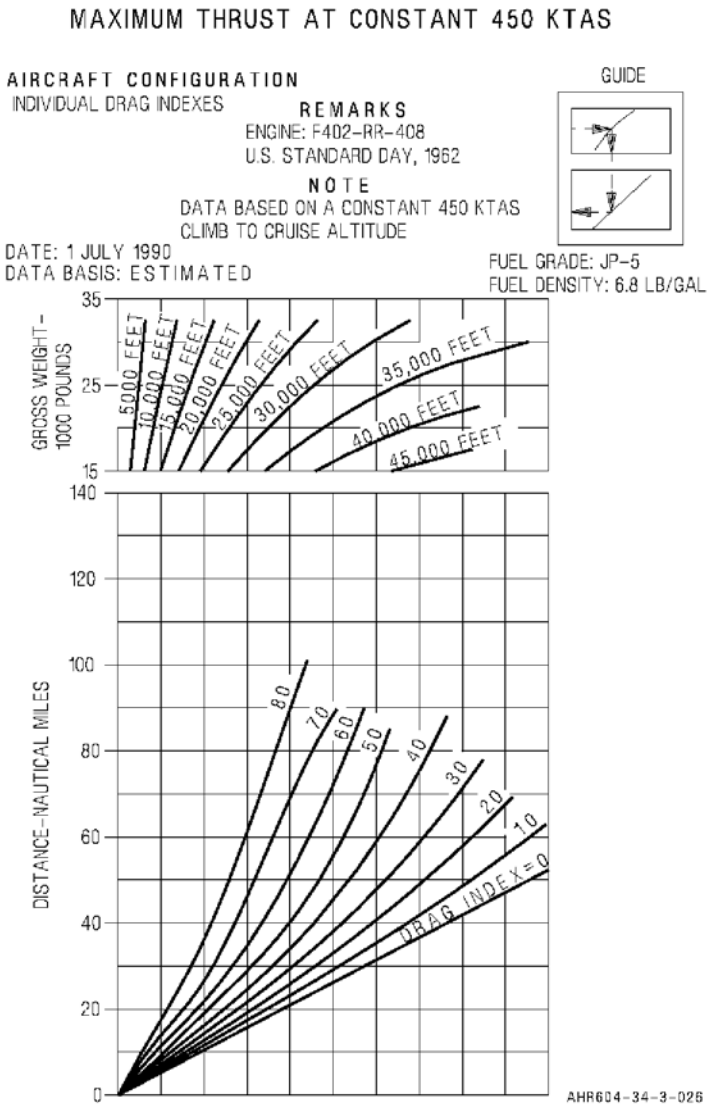
DISTANCE REQUIRED TO CLIMB - 400 KTAS
AV-8B WITH F402-RR-408 ENGINE



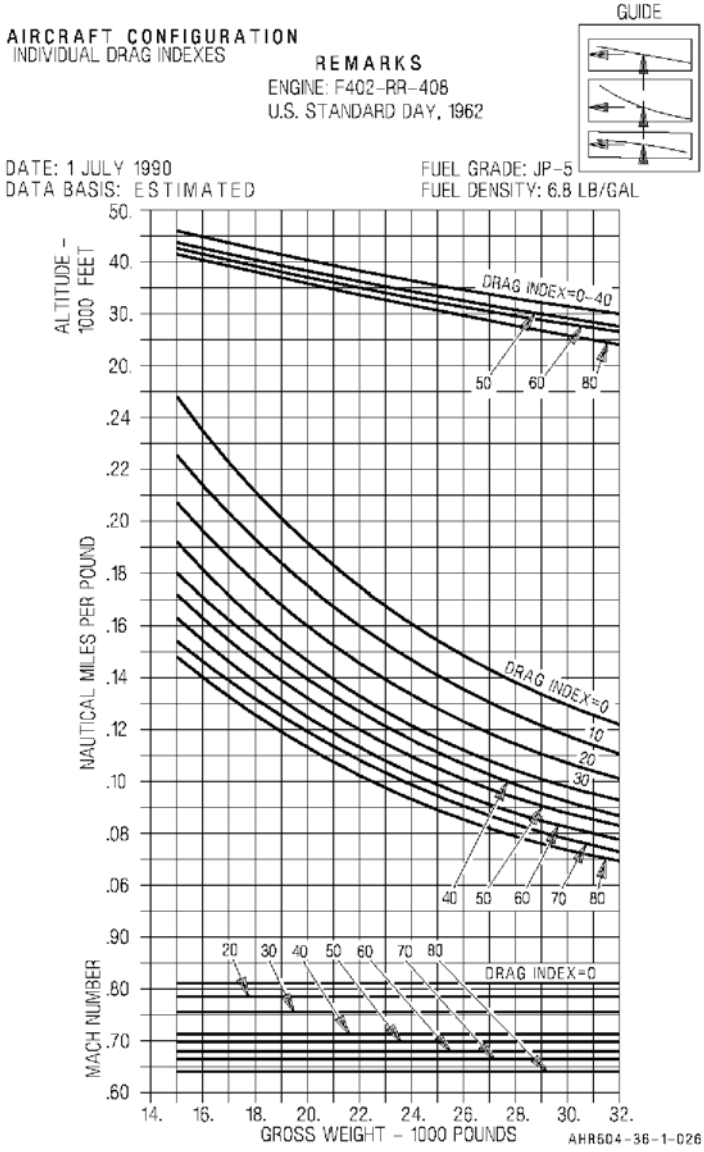
TIME TO CLIMB - 450 KTAS
AV-8B WITH F402-RR-408 ENGINE



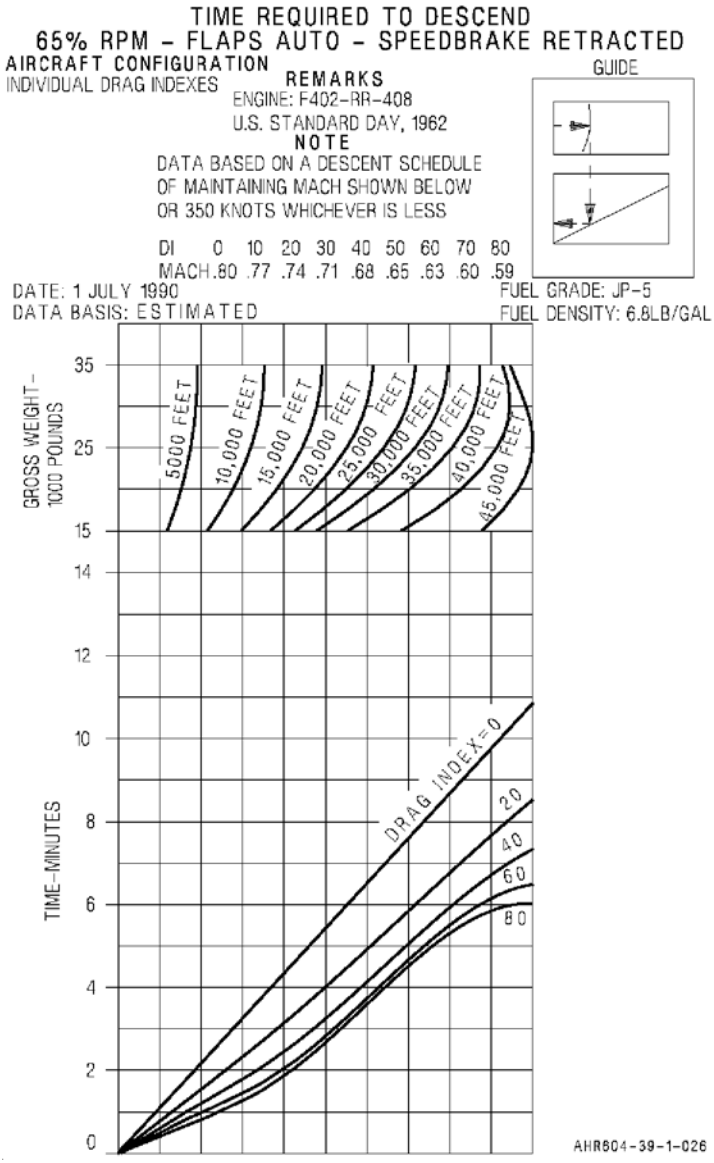
FUEL REQUIRED TO CLIMB - 450 KTAS
AV-8B WITH F402-RR-408 ENGINE



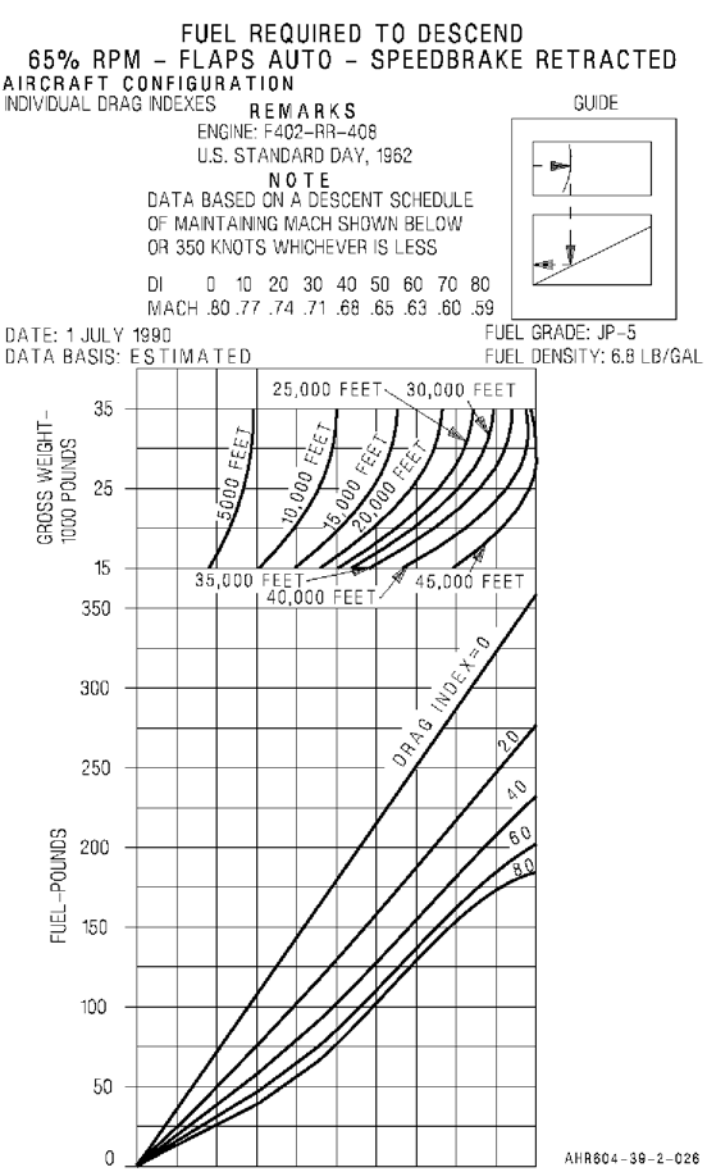
DISTANCE REQUIRED TO CLIMB - 450 KTAS
AV-8B WITH F402-RR-408 ENGINE



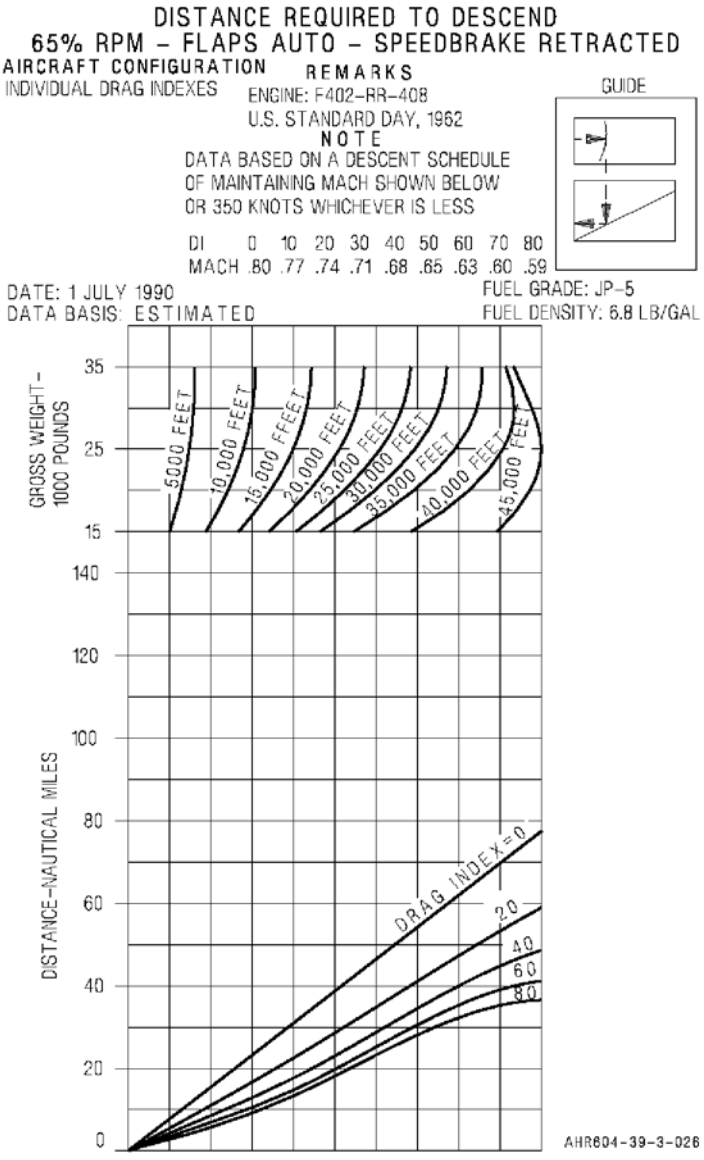
OPTIMUM CRUISE FLIGHT CONDITIONS, AV-8B WITH F402-RR-408 ENGINE



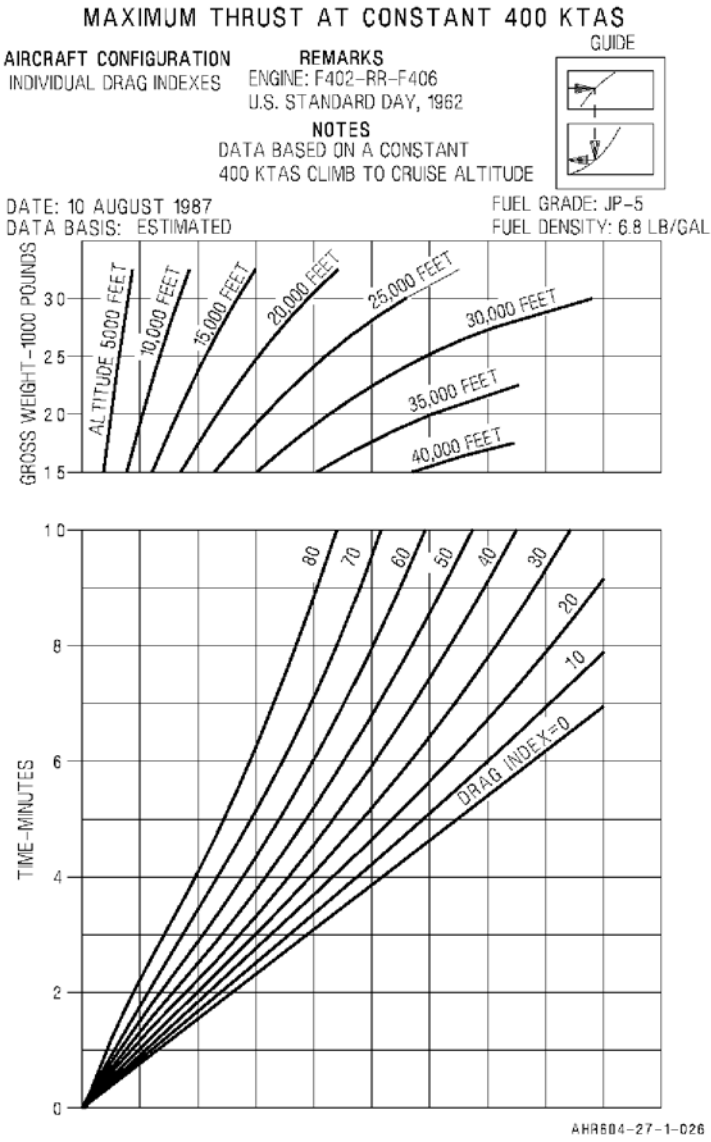
TACTICAL DESCENT, AV-8B
WITH F402-RR-408 ENGINE



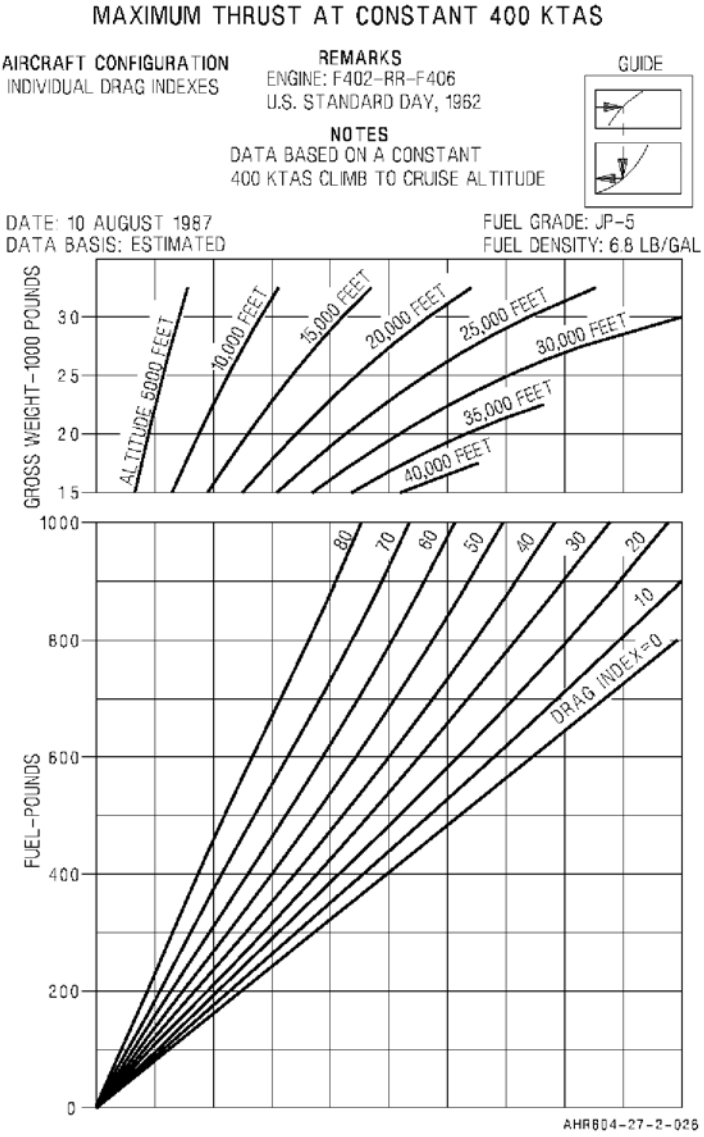
TACTICAL DESCENT, AV-8B
WITH F402-RR-408 ENGINE



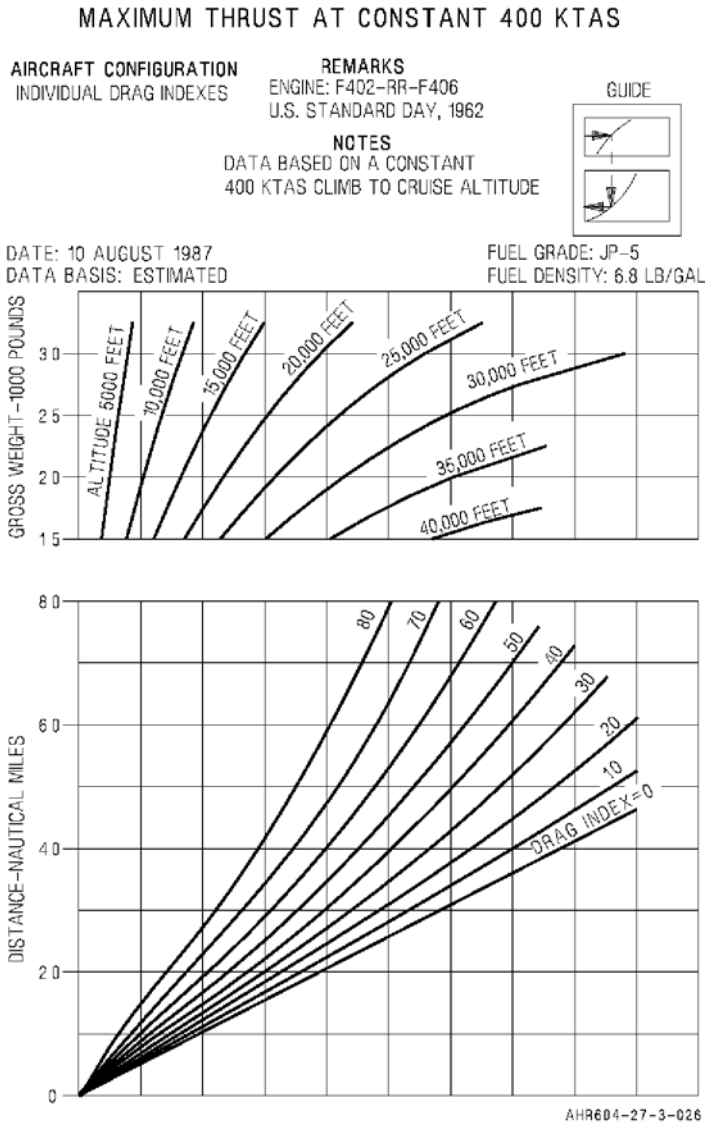
TACTICAL DESCENT, AV-8B
WITH F402-RR-408 ENGINE



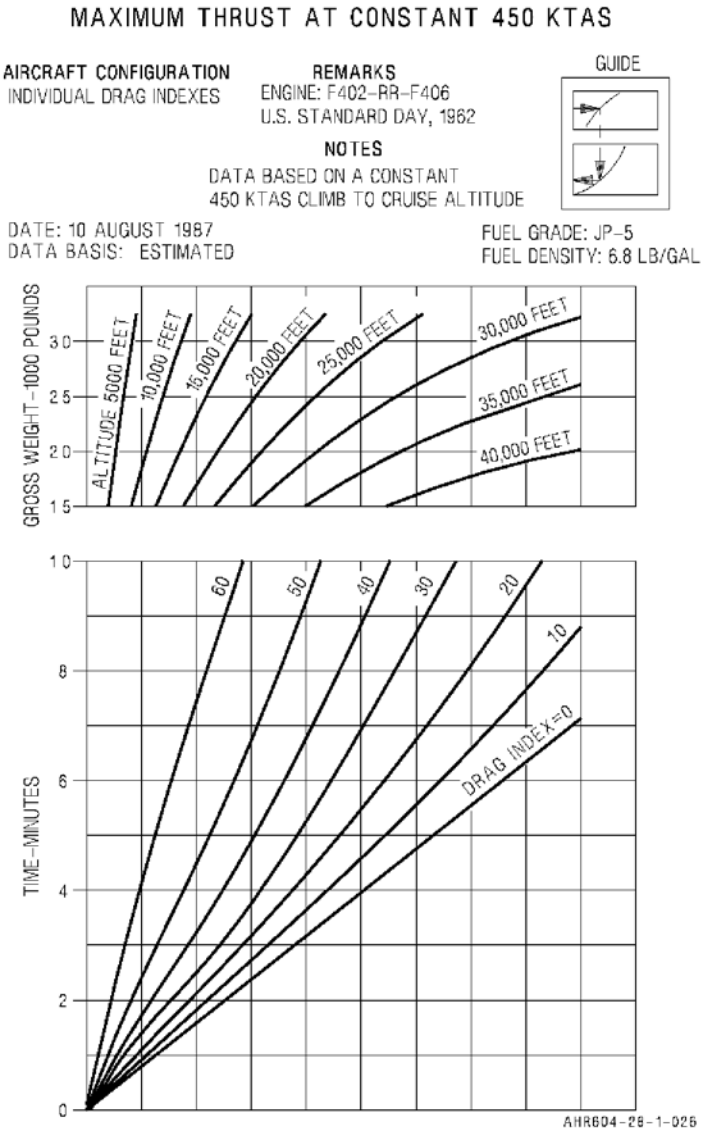
TIME TO CLIMB - 400 KTAS
TAV-8B WITH F402-RR-406 ENGINE



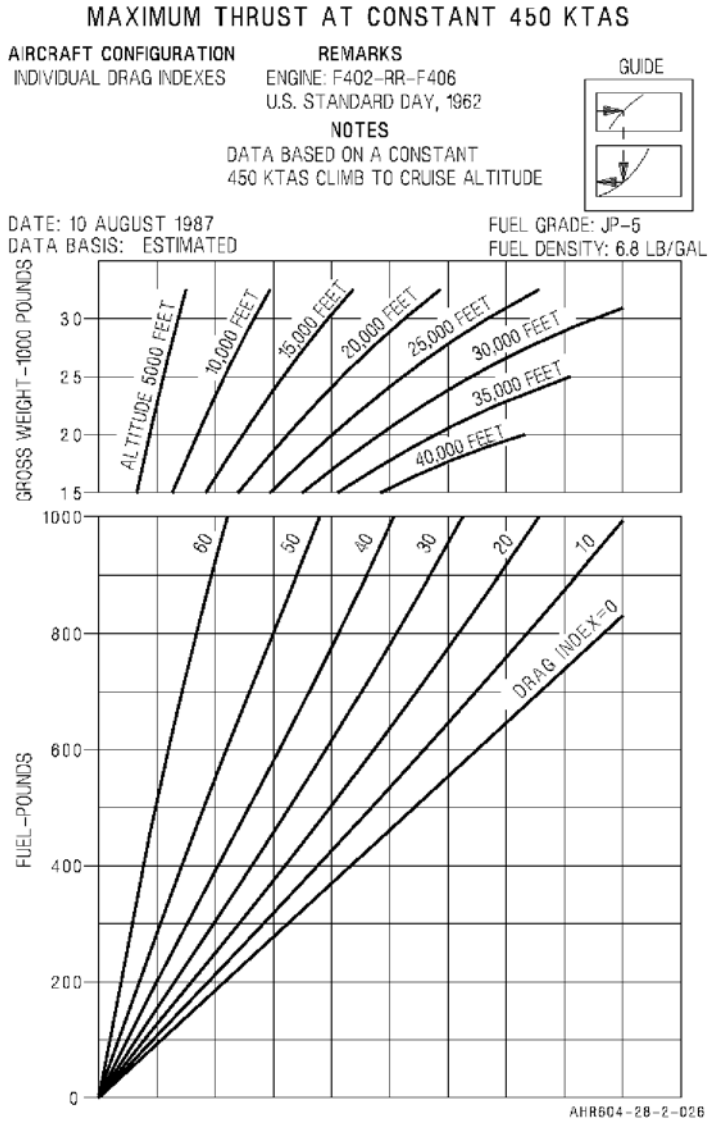
FUEL REQUIRED TO CLIMB - 400 KTAS
TAV-8B WITH F402-RR-406 ENGINE



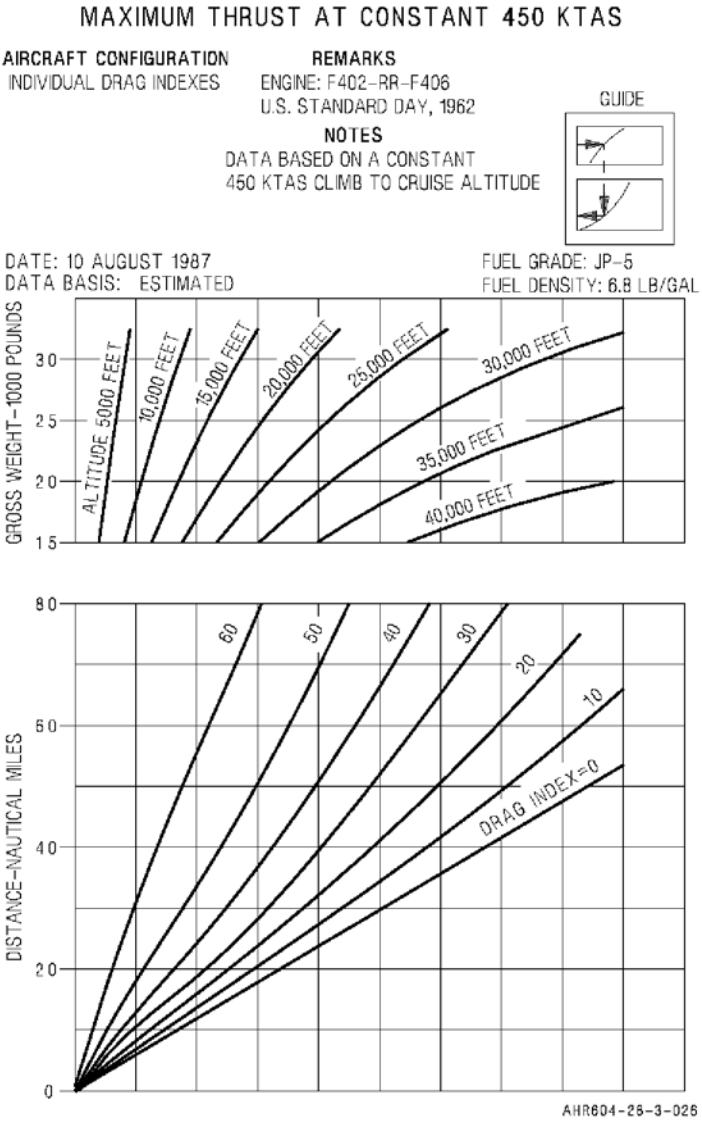
DISTANCE REQUIRED TO CLIMB - 400 KTAS
TAV-8B WITH F402-RR-406 ENGINE



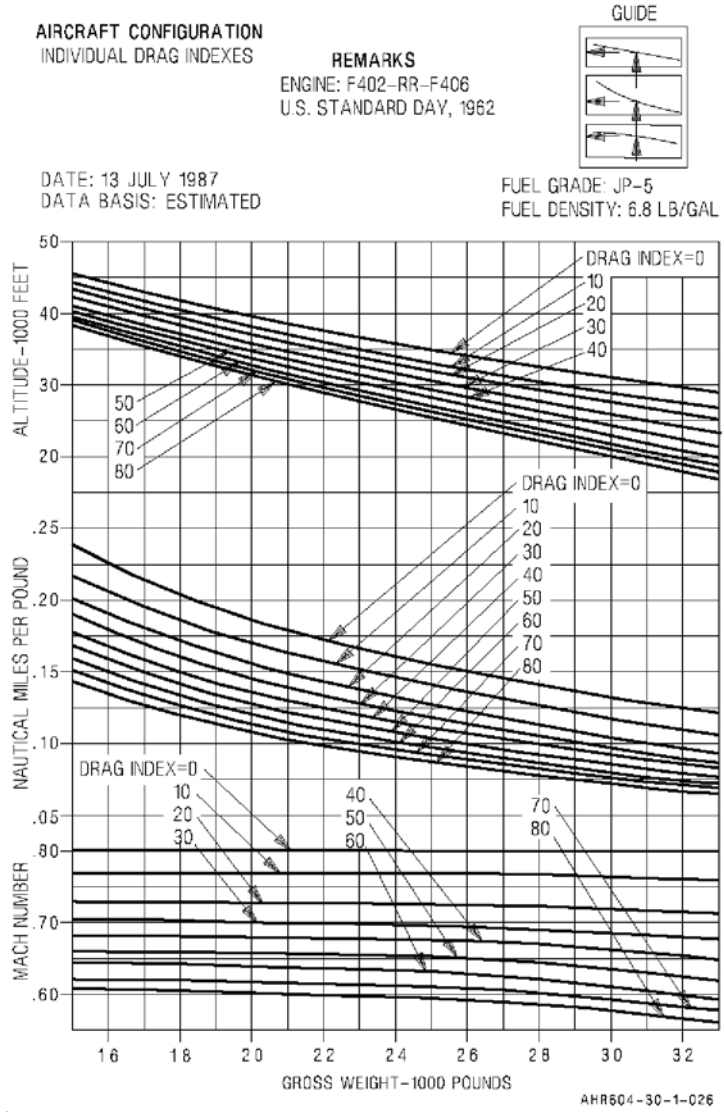
TIME TO CLIMB - 450 KTAS
TAV-8B WITH F402-RR-406 ENGINE



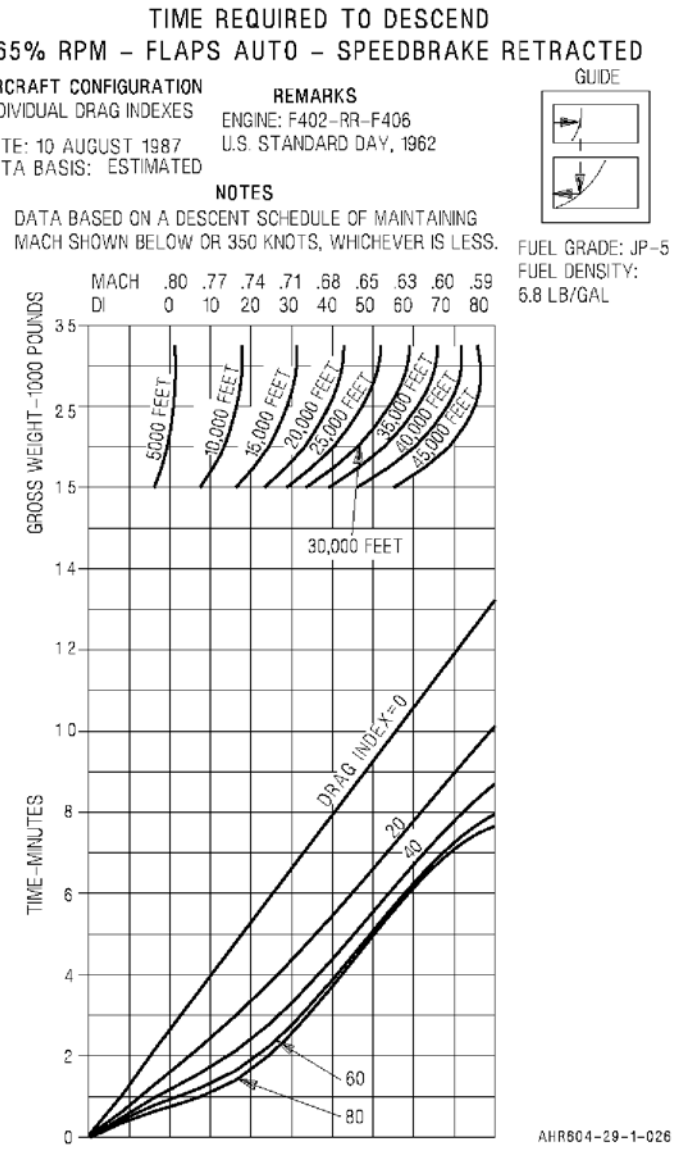
FUEL REQUIRED TO CLIMB - 450 KTAS
TAV-8B WITH F402-RR-406 ENGINE



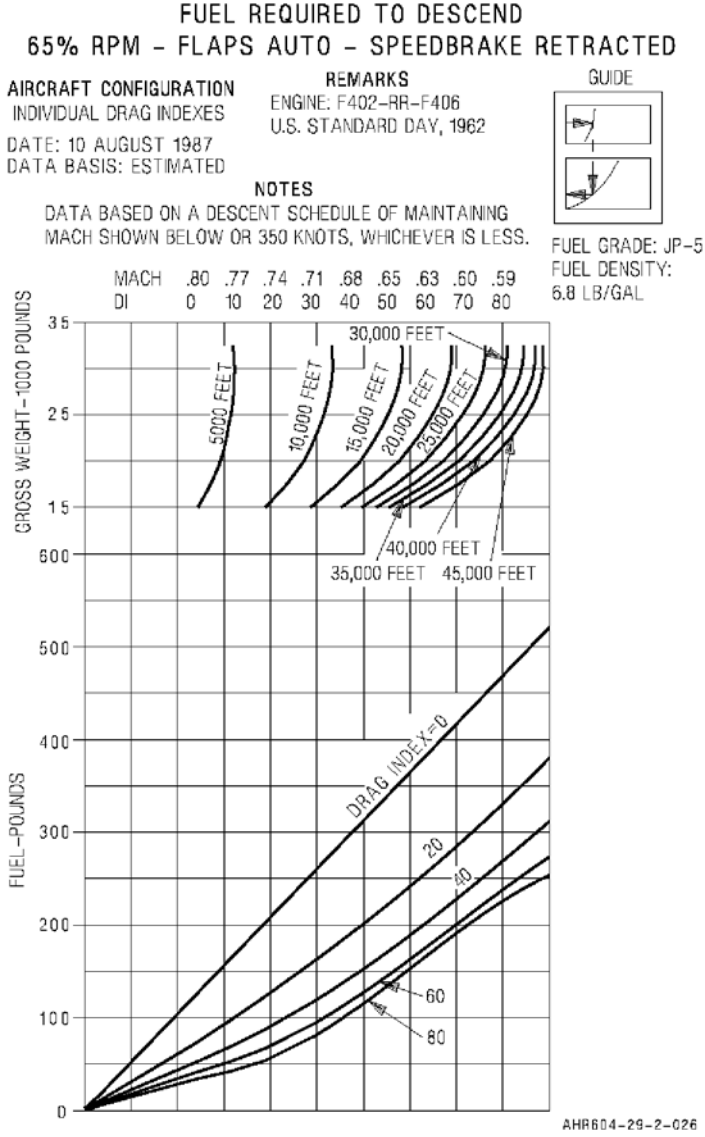
DISTANCE REQUIRED TO CLIMB - 450 KTAS
TAV-8B WITH F402-RR-406 ENGINE



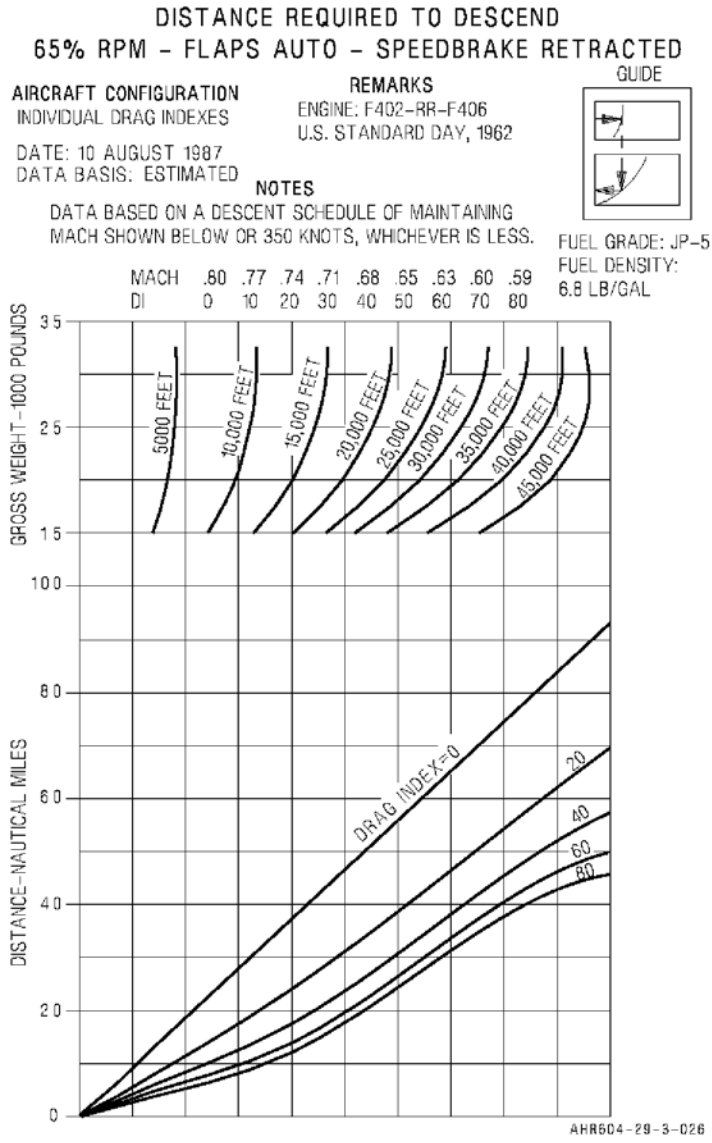
OPTIMUM CRUISE FLIGHT CONDITIONS, TAV-8B WITH F402-RR-406 ENGINE



TACTICAL DESCENT, TAV-8B WITH F402-RR-406 ENGINE

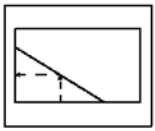


TACTICAL DESCENT, TAV-8B
WITH F402-RR-406 ENGINE

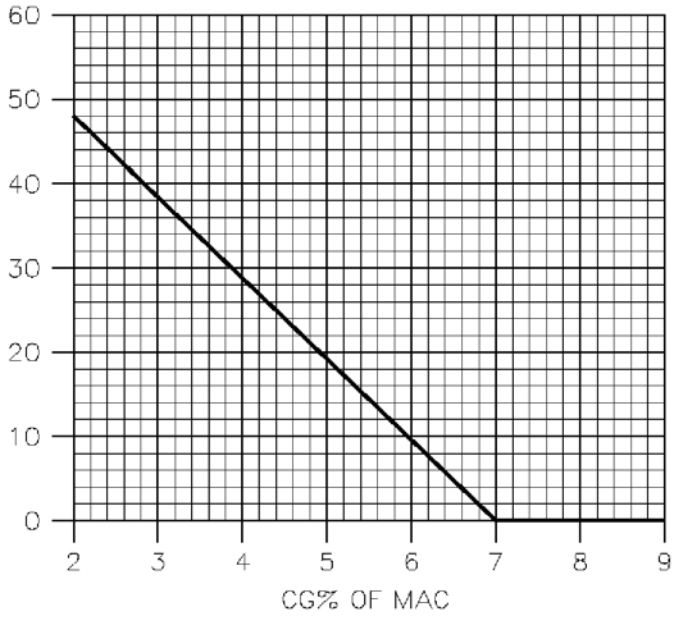


TACTICAL DESCENT, TAV-8B WITH F402-RR-406 ENGINE

GUIDE



DATA BASIS: TAV-8B FLIGHT TEST



AV8BB-NFM-50-(33-1)15-CATI

RJPT CORRECTION FOR CHANGES IN C.G.

TAV-8B (Typical)
BAW 15,000
Pilot (2 at 225 lbs)

Pylons (Station 2 and 6)
Strakes

FUEL REMAINING (LBS)	With 495 lbs. water		Without 495 lbs. water	
	CG % of MAC	RJPT	CG % of MAC	RJPT
2500	8.7	0 °C	7.3	0 °C
2000	8.1	0 °C	6.6	3 °C
1500	7.7	0 °C	6.1	8 °C
1000	6.8	2 °C	5.1	19 °C
900	6.2	8 °C	4.5	24 °C
800	5.7	12 °C	3.9	30 °C
700	5.1	19 °C	3.3	35 °C
600	4.7	23 °C	3.0	38 °C
500	4.7	23 °C	3.0	38 °C

RJPT CORRECTIONS FOR SHIFTS IN C.G. DUE TO FUEL

REMARKS

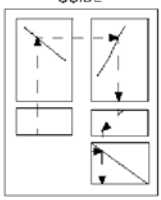
ENGINE: F402-RR-406

AIRCRAFT CONFIGURATION

ALL DRAG INDEXES

STOL FLAPS, GEAR DOWN

GUIDE



NOTE

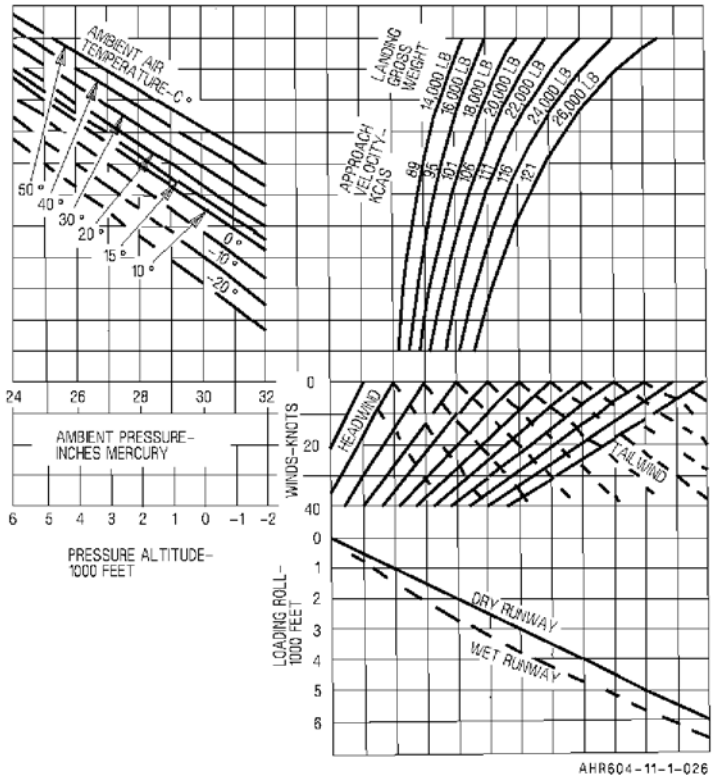
- DATA BASED ON APPROACH WITH 60° NOZZLE ANGLE, THROTTLE AS REQUIRED TO MAINTAIN -3° GLIDESLOPE. ANGLE OF ATTACK IS 11°.
- AIRBORNE DISTANCE FROM HEIGHT OF 50 FT. IS APPROX. 1000 FT.
- CHART ALSO APPLICABLE TO F402-RR-408 SERIES ENGINE.

DATE: 7 JANUARY 1985

DATA BASIS: FLIGHT TEST

FUEL GRADE: JP-5

FUEL DENSITY: 6.8 LB/GAL



SHORT LANDING MINIMUM DISTANCE

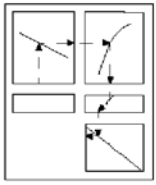
REMARKS

ENGINE: F402-RR-406

NOTE

- DATA BASED ON APPROACH WITH NOZZLES AFT, THROTTLE AS REQUIRED TO HOLD -2.5° GLIDESLOPE. ANGLE OF ATTACK IS 11°.
- CHART ALSO APPLICABLE TO F402-RR-408 SERIES ENGINE.

GUIDE

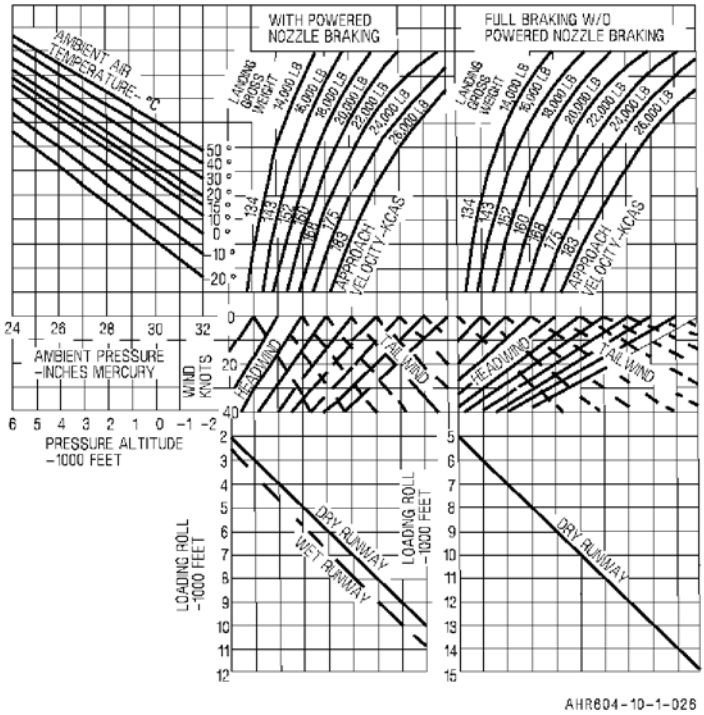


AIRCRAFT CONFIGURATION

ALL DRAG INDEXES
AUTO FLAPS, GEAR DOWN

DATE: 7 JANUARY 1985
DATA BASIS: FLIGHT TEST

FUEL GRADE: JP-5
FUEL DENSITY: 6.8 LB/GAL



AHR604-10-1-026

CONVENTIONAL LANDING DISTANCE

WET ENGINE - 82° NOZZLES

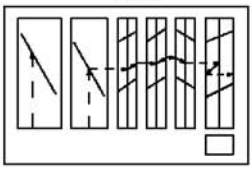
REMARKS

ENGINE: F402-RR-406

NOTE

VL PERFORMANCE BASED ON 2.5% RPM AND 25°C JPT ALLOWANCE.

GUIDE



AIRCRAFT CONFIGURATION

ALL DRAG INDEXES

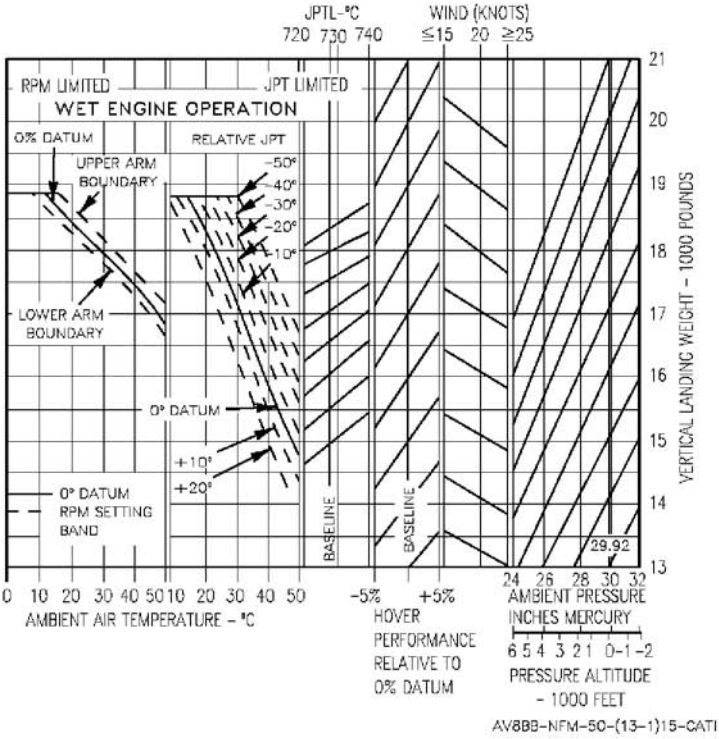
FULL FLAPS, GEAR DOWN

DATE: 7 JANUARY 1985

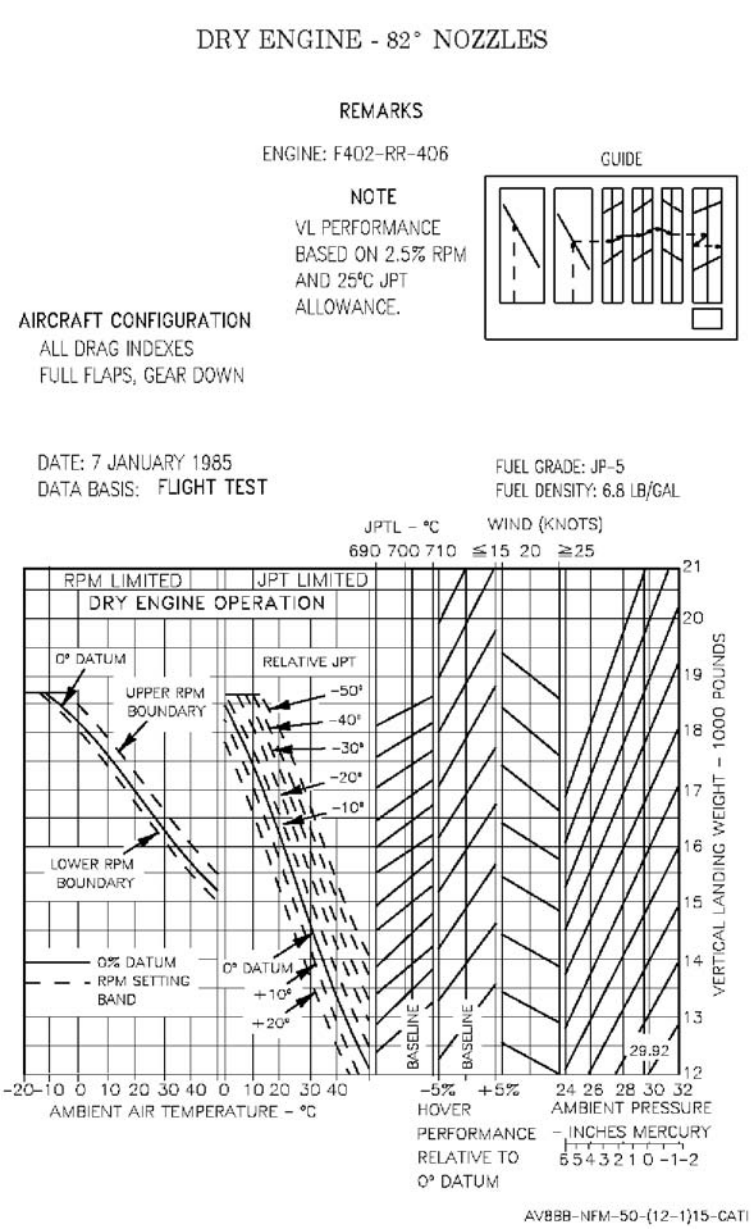
DATA BASIS: FLIGHT TEST

FUEL GRADE: JP-5

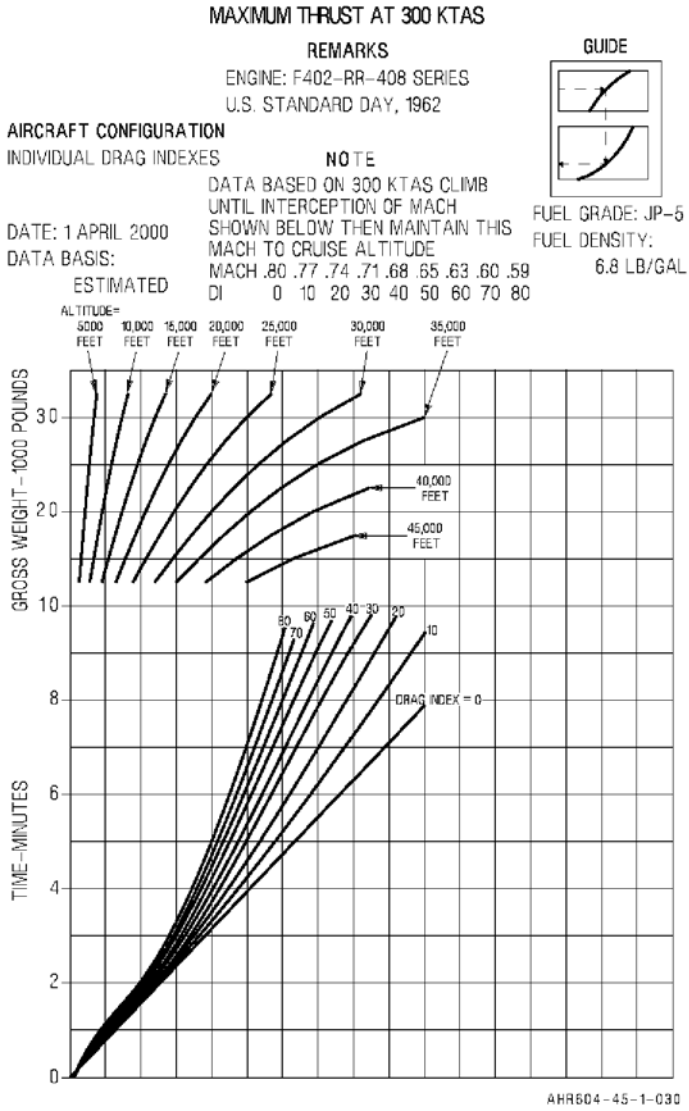
FUEL DENSITY: 6.8 LB/GAL



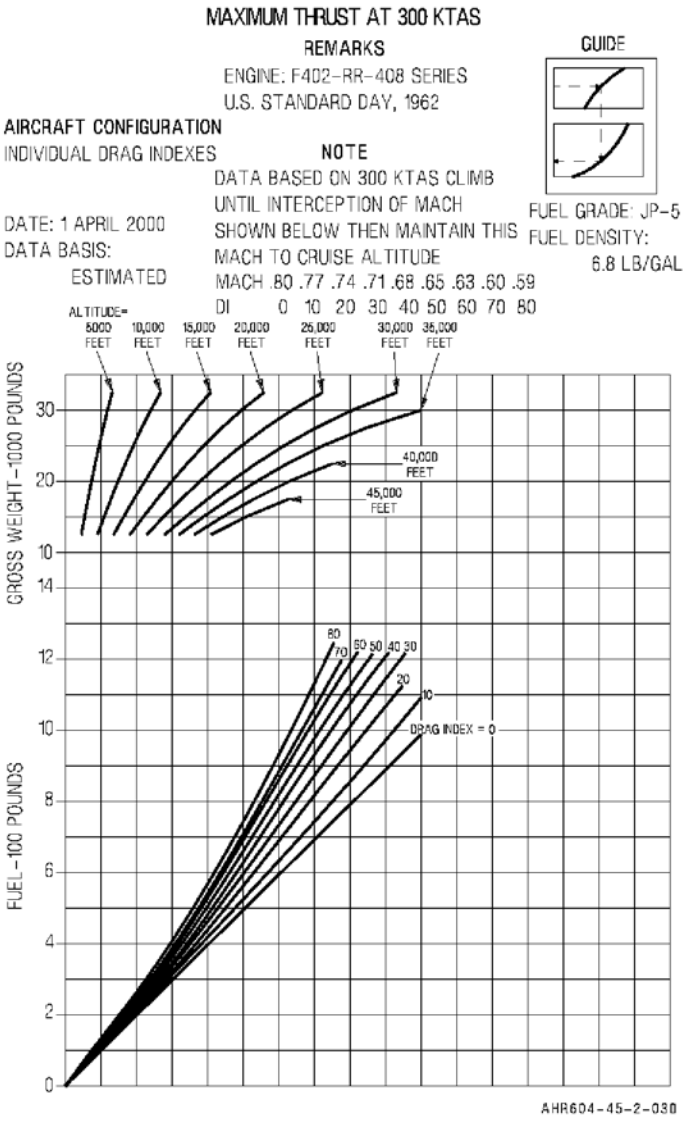
VERTICAL LANDING CAPABILITY



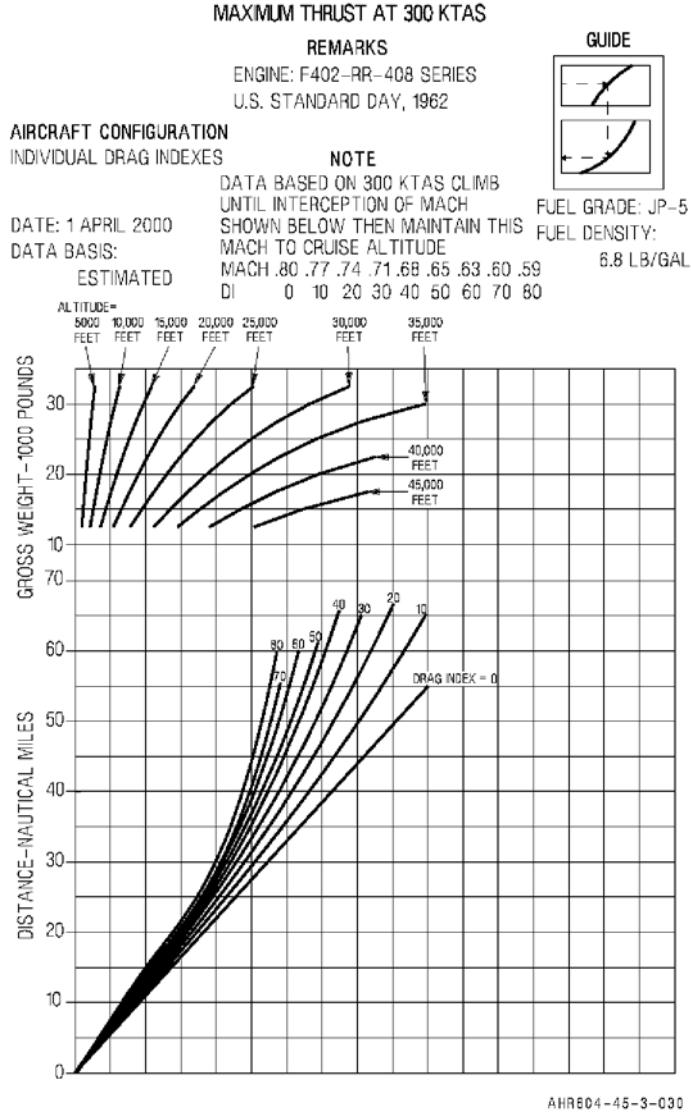
VERTICAL LANDING CAPABILITY



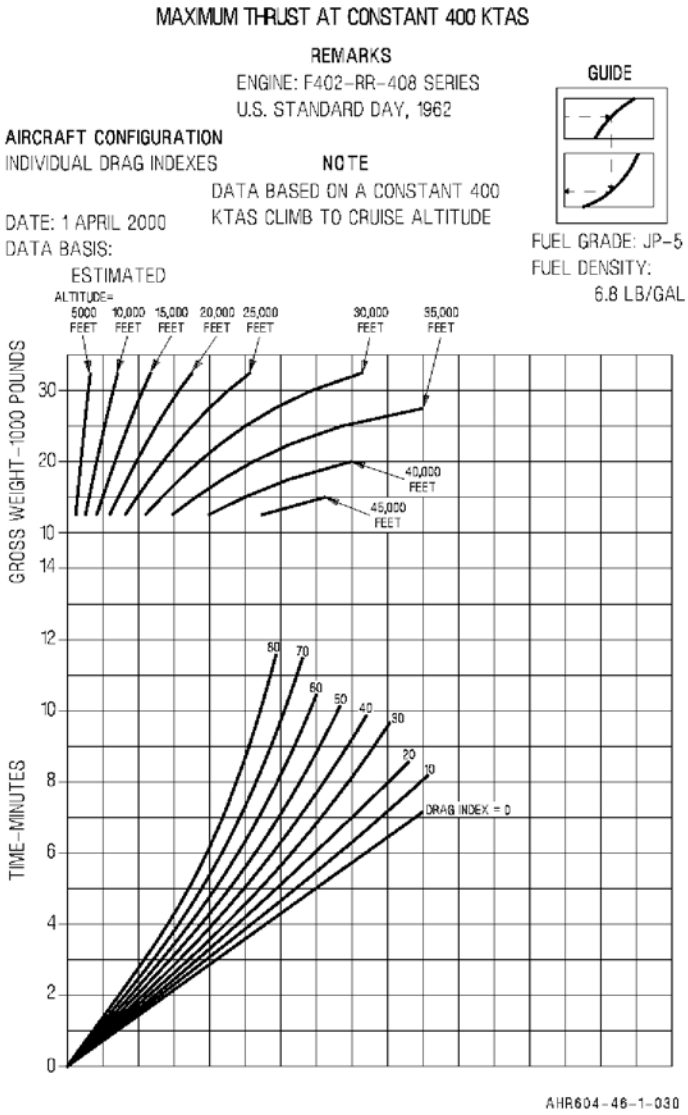
TIME TO CLIMB - 300 KTAS
TAV-8B WITH F402-RR-408 ENGINE



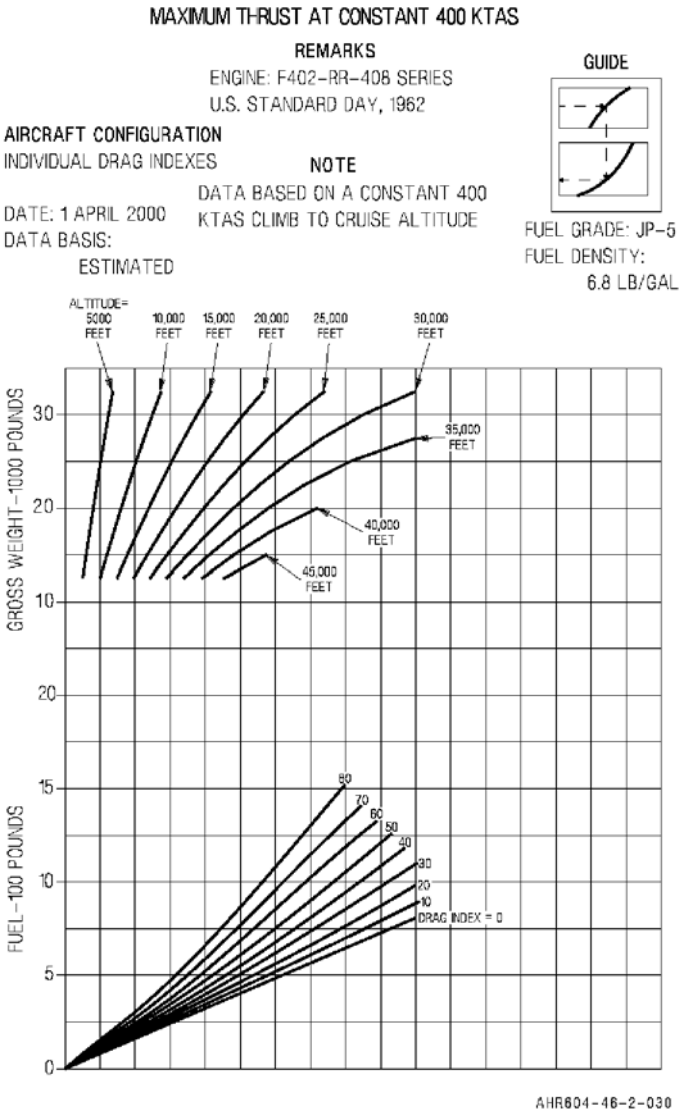
FUEL REQUIRED TO CLIMB - 300 KTAS
TAV-8B WITH F402-RR-408 ENGINE



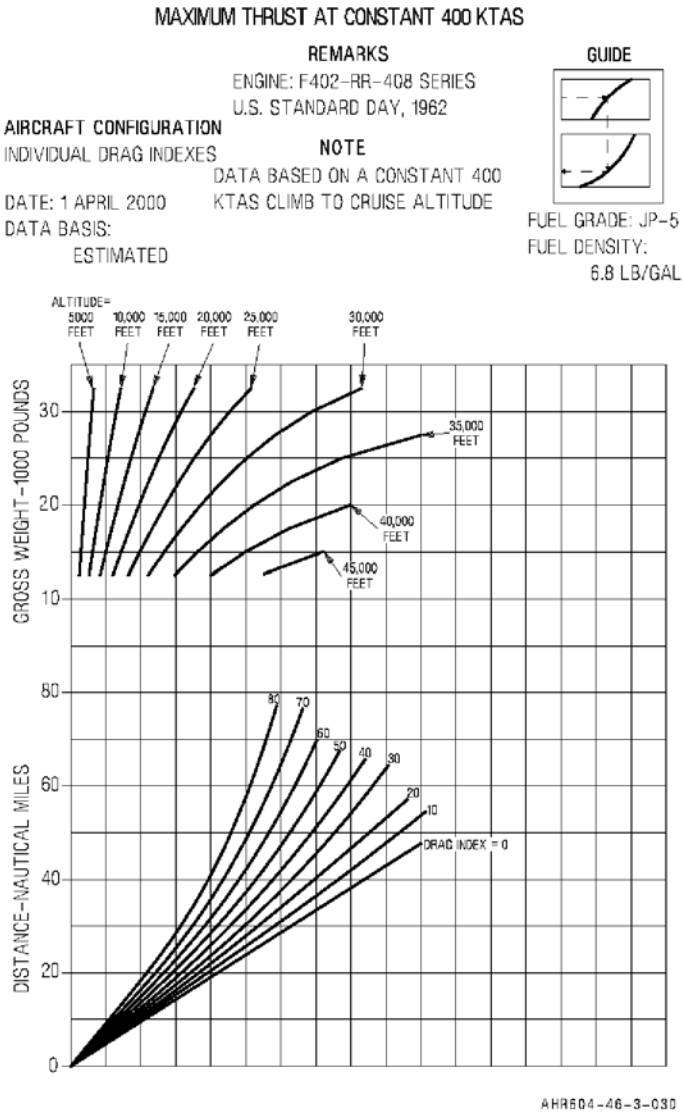
DISTANCE REQUIRED TO CLIMB - 300 KTAS
TAV-8B WITH F402-RR-408 ENGINE



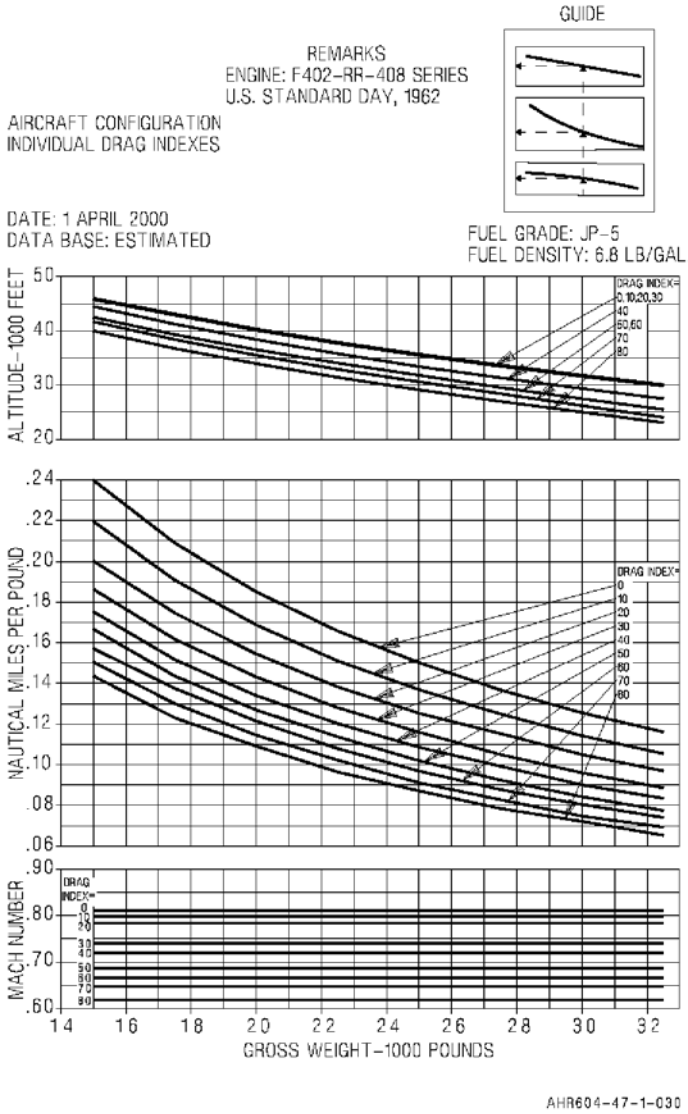
TIME TO CLIMB - 400 KTAS
TAV-8B WITH F402-RR-408 ENGINE



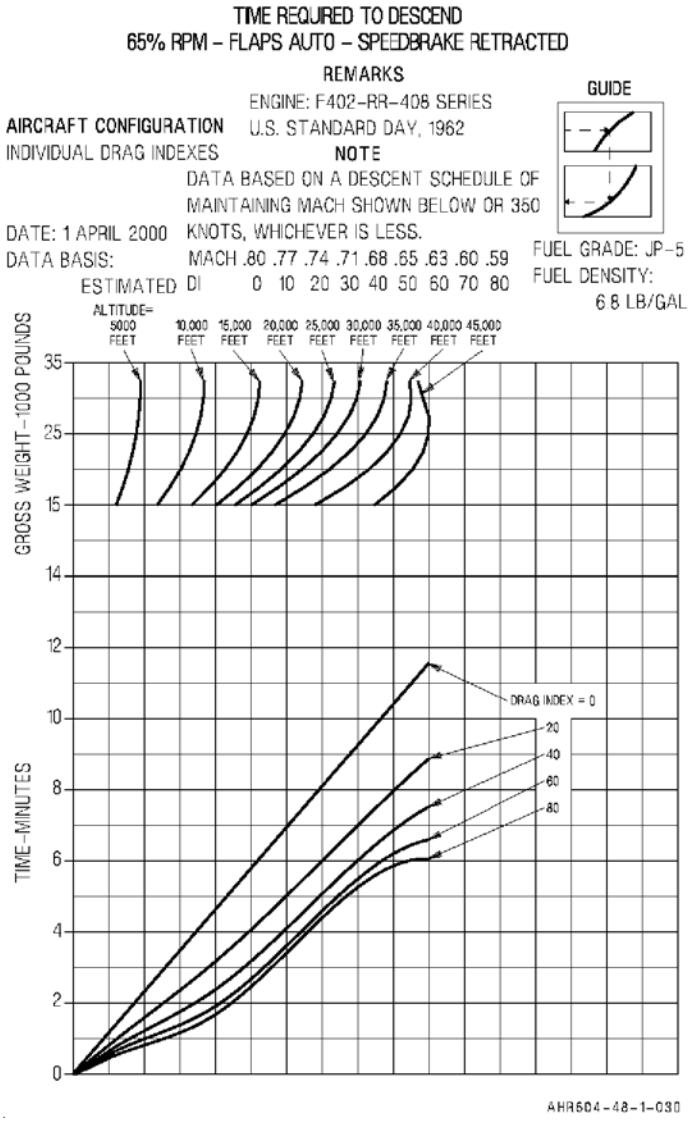
FUEL REQUIRED TO CLIMB - 400 KTAS
TAV-8B WITH F402-RR-408 ENGINE



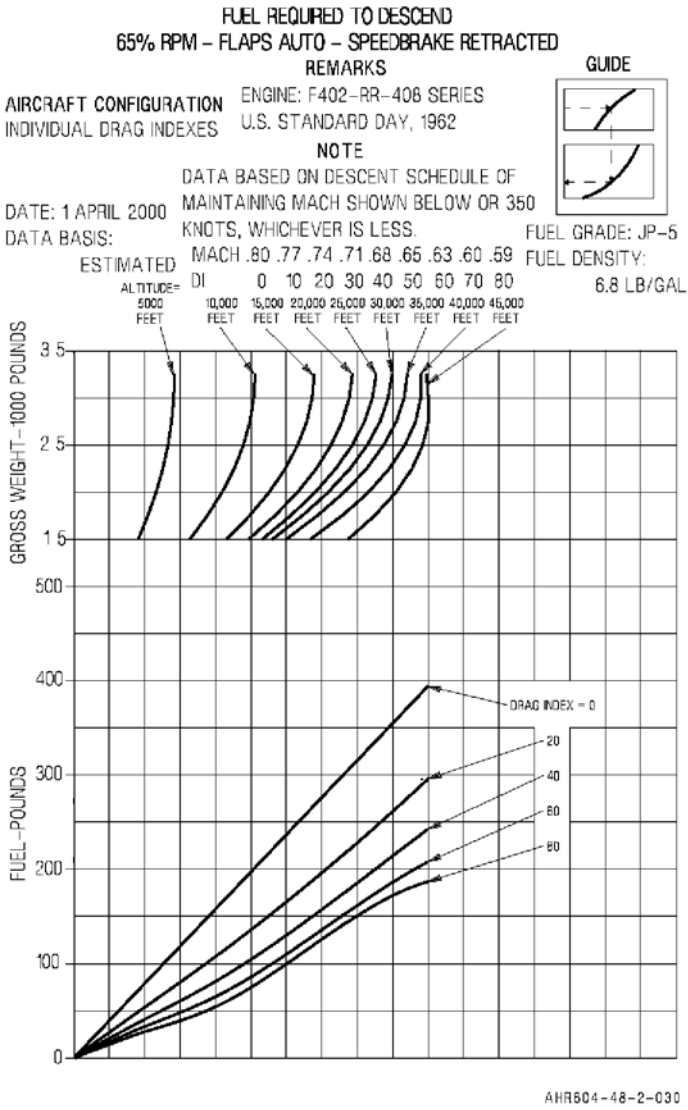
DISTANCE REQUIRED TO CLIMB - 400 KTAS TAV-8B WITH F402-RR-408 ENGINE



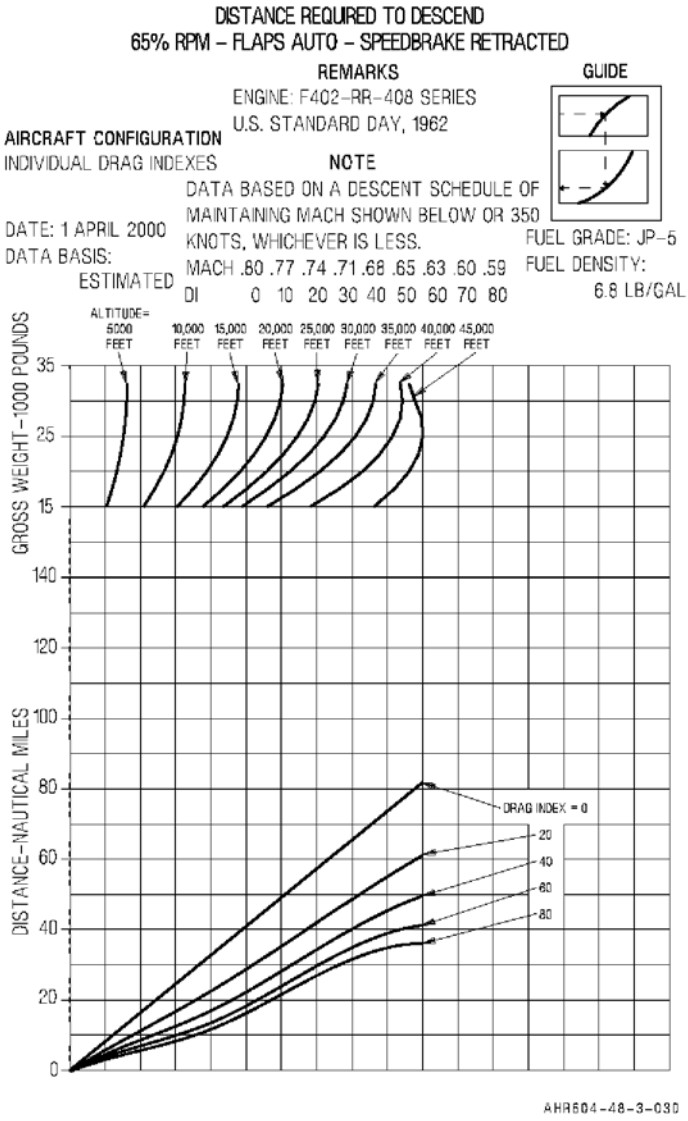
OPTIMUM CRUISE FLIGHT CONDITIONS, TAV-8B WITH F402-RR-408 ENGINE



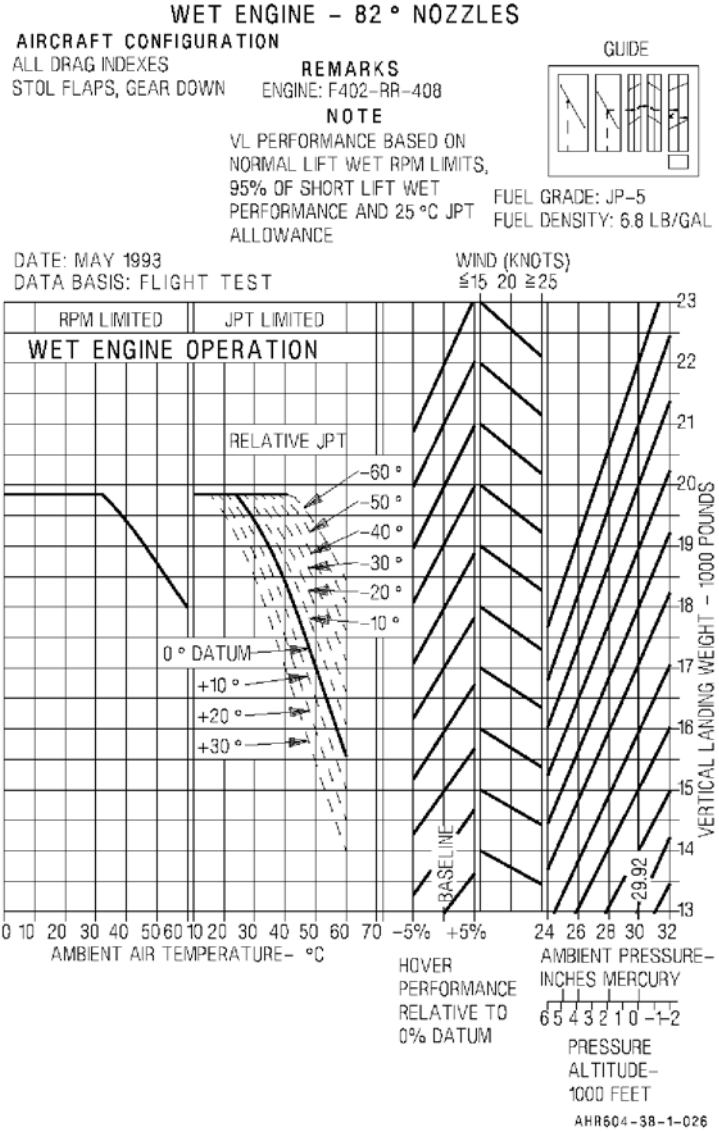
TACTICAL DESCENT, TAV-8B WITH F402-RR-408 ENGINE



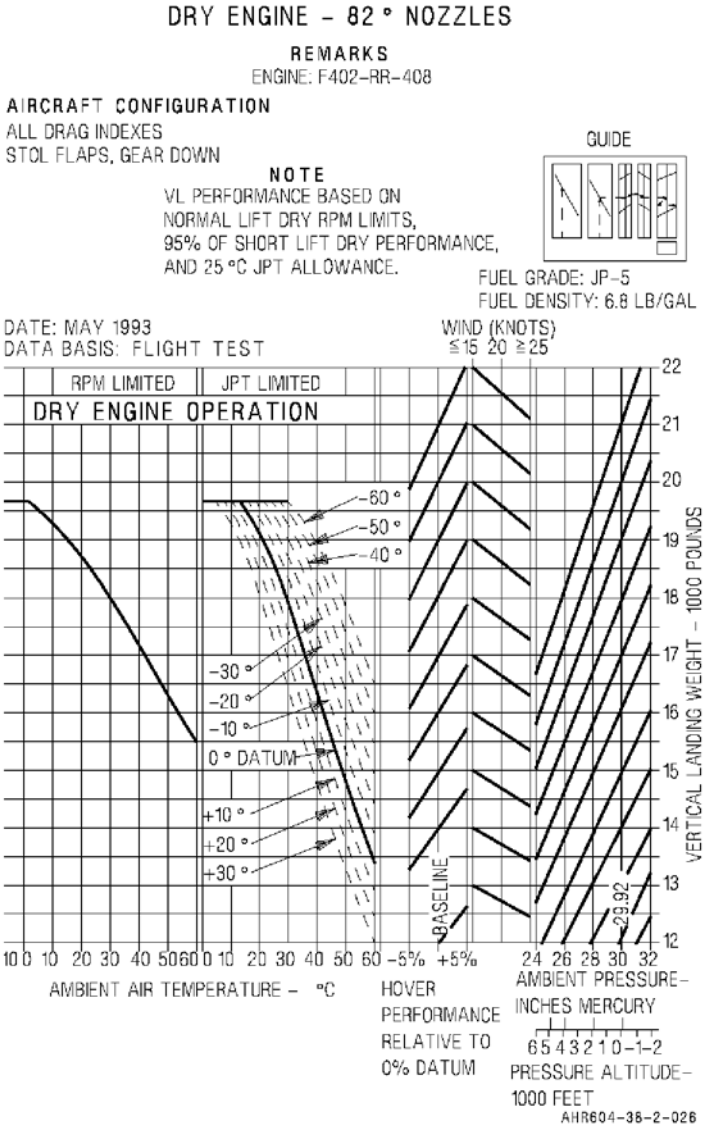
TACTICAL DESCENT, TAV-8B
WITH F402-RR-408 ENGINE



TACTICAL DESCENT, TAV-8B WITH F402-RR-408 ENGINE



VERTICAL LANDING CAPABILITY



VERTICAL LANDING CAPABILITY

NAVAIR A1-AV8BB-NFM-500

EMERGENCY PROCEDURES

01 SEPTEMBER 2006

EMERGENCIES

EMERGENCIES (Cont.)

WARNINGS/CAUTIONS

SEE IC # 21

ABNORMAL START — ENGINE GROUND

If JPT rises rapidly between 350 °C and 400 °C (hot start), or if rpm stabilizes below idle (hung start), or if engine does not light off within 10 seconds after selecting idle (wet start):

***1. Throttle ..... OFF**

If wet start:

***2. Engine start switch ..... OFF**

Perform dry cycle, if required:

3. Ignition isolate switch ..... ON

4. Engine start switch ..... ENG ST (motoring automatically stops after 40 seconds).

5. Repeat cycle as necessary.

LOSS OF ENGINE CONTROL

If engine RPM-JPT indications on EDP freeze at approximately 22% or display an abnormal indication during start, or if the voltmeter drops to zero when the DC test switch is set to STBY during standby TRU check, or during any undemanded engine acceleration:

***1. Throttle ..... OFF**

***2. Fuel shutoff handle ..... OFF**

SINGLE DECS FAILURE (EFC CAUTION LIGHT) — ENGINE INFLIGHT

1. Do not change lanes.
2. Land as soon as practical.

DUAL DECS FAILURE (EFC WARNING LIGHT) OR LOSS OF ENGINE CONTROL

IN V/STOL FLIGHT (Takeoff/Approach/Landing)

Time Critical

***1. MFS ..... SELECT**

***2. Throttle ..... AS REQUIRED**

If rpm recovers:

***3. Water switch ..... OFF**

If rpm does not recover:

***3. EJECT.**

IN CONVENTIONAL FLIGHT

***1. Throttle ..... IDLE**

***2. MFS ..... SELECT**

***3. Throttle ..... ADVANCE SLOWLY**

If engine not running:

***4. Initiate airstart.**

If unable to select MFS and sufficient power not available:

***4. EFC switch ..... CHANGE LANE**

***5. If engine control not restored ..... EJECT**

If MFS fails to restore control but sufficient power:

4. Cautiously use nozzles to control airspeed.

5. Flaps ..... AUTO

6. Land as soon as practical.

After landing:

7. Use nozzle braking as required.

8. Throttle ..... OFF

9. Fuel shutoff handle ..... OFF

EFC CAUTION AND JPTL WARNING LIGHTS ON

1. DECS enable switch ..... CHECK ON

If lights extinguish:

2. The mission may be continued at the discretion of the pilot in command.

If lights do not extinguish:

2. Execute SINGLE DECU FAILURE procedures or select MFS and perform MFS RECOVERY procedures.

MFS RECOVERY

1. Throttle ..... SMOOTHLY ADJUST (NO SLAMS) TO REMAIN WITHIN NORMAL LIMITS
2. Climbs ..... LIMIT TO 90% (-406 engine) OR 100% (-408 engine) FOR SAFETY MARGIN
3. Recommend straight in approach. Any type landing may be performed.
   a. If runway available ..... VNSL (rpm 80 to 95%)
   b. If VL essential ..... VL (Reduce aircraft weight to minimum practical and perform a smooth throttle deceleration)
4. PNB ..... ONLY IF REQUIRED USING SLOW SMOOTH THROTTLE MOVEMENT
5. Throttle ..... IDLE, MAINTAIN IDLE RPM LIMITS

RPM FLUCTUATION

IN V/STOL FLIGHT

*1. MFS ..... SELECT
*2. Throttle ..... AS REQUIRED
*3. Water switch ..... OFF

IN CONVENTIONAL FLIGHT

*1. Throttle ..... REDUCE

If fluctuation continues:

***2. Throttle ..... IDLE**
***3. MFS ..... SELECT**
***4. Throttle ..... ADVANCE SLOWLY**
5. Land as soon as practical.

COMPRESSOR STALL

***1. Throttle ..... IDLE**
***2. AOA ..... REDUCE TO LEVEL FLIGHT AOA**

If JPT continues to rise; before 590 °C:

***3. Throttle ..... OFF**
4. Emergency oxygen actuator ..... PULL
5. Initiate airstart.

If time and altitude permit following a successful airstart:

6. Slowly advance power and monitor DDI for proper IGV operation.
7. If IGV angle does not decrease as rpm increases, execute IGV failure procedure.

ENGINE MECHANICAL FAILURE/ENGINE VIBRATION

INFLIGHT

If engine flames out or surges:

1. Follow compressor stall procedures.

If engine continues to run:

1. Follow oil system failure (OIL caution light) procedures.

CONTINUED

ON GROUND

1. **Throttle ..... OFF**
2. **Fuel shutoff handle ..... OFF**

AIRSTART

*1. **Throttle ..... OFF**
*2. **Emergency oxygen actuator ..... PULL**
*3. **Battery switch ..... CHECK BATT**
*4. **MFS ..... AS REQUIRED**
*5. **Airstart button ..... PRESS AND HOLD**
*6. **Throttle ..... ADVANCE SLOWLY TO IDLE**
*7. **JPT ..... MONITOR (475 °C MAX)**

IGV FAILURE

STUCK AT HIGH ANGLE

1. **Throttle ..... IDLE, CHECK FOR SURGE**
2. **Boost pumps ..... ON**
3. **PROP ..... ON**

If locked in surge:

4. **Follow compressor stall procedure.**

If IGVs respond to throttle movement:

5. **Land conventionally as soon as practical with cautious use of engine.**

If IGVs fail to respond to throttle movement:

5. **Land conventionally as soon as possible using minimum power and slow, smooth throttle movements. Do not use nozzles. Consider reducing aircraft weight by jettisoning fuel, water and stores.**

STUCK AT LOW ANGLE

1. **Maintain maximum feasible power, avoid continuous operation below 80% rpm.**
2. **Perform fixed throttle variable nozzle slow landing as soon as practical.**
3. **Throttle . . . . . OFF (after touchdown)**

NOZZLE CONTROL FAILURE — ENGINE

DURING STO

If not enough runway remains for abort or CTO:

***1. Eject.**

DURING TRANSITION

1. **Set nozzle lever to angle shown on indicator.**
2. **Lighten aircraft to HOVER weight (if feasible).**
3. **Make landing consistent with nozzle angle.**
4. **Be prepared for possible uncommanded nozzle rotation on approach.**
5. **Throttle . . . . . OFF WHEN STOPPED**

With nozzle in braking position:

1. **Accelerate to 50 knots.**
2. **Flare to hover attitude.**
3. **Touchdown before airspeed falls to zero.**
4. **Throttle . . . . . OFF WHEN STOPPED**

DURING CONVENTIONAL FLIGHT

1. **Maintain 300 knots minimum until hover weight is reached.**

BLOWN TIRE ON TAKEOFF — TAKEOFF

If decision to stop is made:

***1. Abort.**

If takeoff is continued:

1. Leave gear down.
2. Perform VL if possible.

ABORT

ASHORE (CTO OR STO)

***1. Throttle ..... IDLE**
***2. Nozzles ..... BRAKING STOP**
***3. Throttle ..... AS REQUIRED**
***4. Brakes ..... AS REQUIRED**

If hot brakes are suspected:

5. Refer to Hot Brake procedure.

AFLOAT (STO)

***1. Throttle ..... OFF**
***2. Brakes ..... FULL**

If unable to stop:

3. Eject.

UNCOMMANDED ROLL ON VTO

If bank angle cannot be arrested or reduced by full opposite control:

***1. Land immediately or eject.**
2. Nozzles ..... AFT
3. Taxi clear & investigate.

NO LIFTOFF ON STO

ASHORE

***1. Nozzles ..... AFT**

***2. Increase speed 20 knots.**

***3. Nozzles ..... STO STOP**

AFLOAT (RPM STAGNATION/LOSS OF THRUST)

***1. MFS ..... SELECT**

***2. STO at nozzle rotation line.**

***3. Stores ..... JETTISON (if required)**

***4. Water ..... OFF**

5. Land as soon as practical.

If unable to sustain level flight:

6. Eject.

OVER ROTATION ON STO

***1. Stick ..... FULL FORWARD**

***2. Nozzles ..... REDUCE 20 DEGREES**

***3. Nozzles ..... STO STOP**

If Control Not Regained:

***4. EJECT.**

DAMAGED AIRCRAFT LANDING

1. **Proceed to a safe altitude.**
2. **Reduce gross weight to minimum practical.**
3. **Perform controllability check with gear down.**
4. **Determine if and what type of landing can be made.**
5. **If adequate control available, maintain configuration & make straight-in approach.**

ASYMMETRIC STORES LANDING

If asymmetric load over VL limit and VL required:

1. External stores ..... JETTISON

If asymmetric load over 80,000 inch-pounds:

1. Climb to safe altitude (3,000 feet AGL).
2. Slow to 250 knots.
3. Landing gear ..... DOWN
4. Flaps ..... AUTO
5. Slow to desired approach speed using nozzles (recommend 50° nozzles) and rpm to limit AOA to 12°.
6. Perform controllability check.

TO/LND EGR

If lateral control margin inadequate and stores cannot be jettisoned:

7. Eject.

Single store VL limit:

Outboard pylon - 510 pounds
Intermediate pylon - 628 pounds
Inboard pylon - 1,065 pounds

(See page E12 to calculate store asymmetry with multiple stores)

CONTINUED

ASYMMETRIC STORES CALCULATION
ASYMMETRY (INCH-POUNDS)
VL limit 80,000 inch-pounds

STORE	STATION		
	1(-)	2(-)	3(-)
	7(+)	6(+)	5(+)
AIM-9L/M[1]	29,684	24,096	—
AGM-65E[2]	—	81,594	48,109
AGM-65F[2]	—	85,291	50,289
TGM-65E	—	81,594	48,109
CATM-65F	—	85,291	50,289
TACTS[1]	19,161	15,554	—
AN/AAQ 28	—	—	39,202
CBU-78/B	76,959	62,470	36,833
CBU-99/100	79,315	64,382	37,961
Mk 20, Mod 9, 10, 11, 12	76,959	62,470	36,833
Mk 81, Conical	40,836	33,147	19,544
Mk 81, Mk 14	46,490	37,737	22,250
Mk 82, Conical[4]	80,729	65,530	38,637

ASYMMETRY (INCH-POUNDS)

VL limit 80,000 inch-pounds

STORE	STATION 1(-) 7(+)	2(-) 6(+)	3(-) 5(+)
Mk 82, Mk 15[4]	88,111	71,522	42,170
Mk 82, BSU-33[4]	81,043	65,785	38,788
Mk 82, BSU-86[4]	87,797	71,267	42,020
Mk 83, Conical[4]	—	126,470	74,569
Mk 83, BSU-85[4]	—	130,805	77,124
Mk 77 Mod 4, 5	—	69,482	40,968
Mk 36, Mk 15[4]	88,425	71,777	42,321
Mk 36, BSU-86	88,540	70,247	41,419
Mk 40, MAU-91	—	134,502	79,304
GBU-12	—	77,641	45,779
GBU-16	—	139,729	82,386
Mk 76[5]	—	26,390	15,560
BDU-33[5]	—	26,008	15,335
Mk 106[5]	—	18,741	11,050
BDU-48[5]	—	20,271	11,952
LAU-10D/A (Full w/Fairings)			
W M F[3]			
Mk63, Mk71, Mk 93	—	87,713	51,717
Mk24, Mk71, Mk188	—	82,614	48,710
LAU-61C/A (Full w/ Fairings)			

TO/LND EGR

CONTINUED

ASYMMETRY (INCH-POUNDS)

VL limit 80,000 inch-pounds

STORE	STATION		
	1(-) 7(+)	2(-) 6(+)	3(-) 5(+)
W M F(3)			
M151, Mk 4, M427	—	70,629	41,644
Mk 1, Mk 4, Any	—	63,363	37,359
M151, Mk66, M427	—	75,474	44,500
LAU-68D/A (Full w/Fairings)			
W M F(3)			
M151, Mk 4, M427	—	29,577	17,439
Mk 1, Mk 4, Any	—	26,900	15,861
M151, Mk66, M427	—	31,363	18,492
LUU-2B/B SUU-25 (full)	—	59,665	—
LAU-7A-5 (empty)	14,135	11,474	—
LAU-117A (empty)	—	17,211	10,148
BRU-42/A (ITER) (empty)	—	16,446	9,697
ADU-299A/A	—	3,060	—
SUU-25F/A (empty)	—	33,402	—
LAU-10D/A (empty)	—	17,339	10,223
LAU-61C/A (empty)	—	19,761	11,651

ASYMMETRY (INCH-POUNDS)

VL limit 80,000 inch-pounds

STORE	STATION		
	1(-) 7(+)	2(-) 6(+)	3(-) 5(+)
LAU-68D/A (empty)	—	10,837	6,389
300 Gal Tank (empty)	—	25,243	14,884
Fuel (per 100 lbs.)	—	12,700	7,500
MXU-648 (w/removable tail cone)			
(full)	—	50,500	29,800
(empty)	—	17,900	10,500
Outboard Pylon (sta. 1 and 7)	15,078	—	—
Intermediate pylon (sta. 2 and 6)	—	16,701	—
Inboard Pylon (sta. 3 and 5)	—	—	10,749

TO/LND EGR

NOTES:

(1) Does not include Launcher LAU-7A-5 or Adapter ADU-299A/A.

(2) Does not include Launcher LAU-117A.

(3) W - Warhead, M - Motor, F - Fuze.

(4) Asymmetry calculated for thermal protected bombs.

(5) Asymmetry calculated for full ITER.

ASYMMETRIC FUEL LANDING

If fuel imbalance exceeds 250 pounds:

1. **Fuel proportioner ..... OFF**
2. **Low side boost pump switch ..... OFF UNTIL FUEL BALANCED**

If fuel does not balance:

3. **Heavy side wing fuel ..... JETTISON**
4. **Low side boost pump switch ..... ON FOR LANDING**
5. **Land as soon as practical.**

If low side fuel below 850 pounds:

6. **Perform a Fixed Nozzle Slow Landing if possible.**

If total asymmetry including fuel and stores exceeds 80,000 inch-pounds:

7. **Refer to Asymmetric Stores Landing.**

(See page E17 to calculate fuel asymmetry)

ASYMMETRIC FUEL CALCULATION

To calculate asymmetry due to wing tank imbalance, enter table with fuel in each wing tank. Value is + for right wing tank; - for left wing tank. Calculate algebraic sum.

WING TANK FUEL POUNDS	ASYMMETRY INCHPOUNDS
100	11,500
200	22,200
300	32,200
400	41,000
500	49,200
600	56,500
700	63,100
800	69,100
900	75,000
1,000	80,300
1,100	85,000
1,200	89,500
1,300	93,500
1,400	97,000
1,500	100,300
1,600	103,500
1,700	106,500
1,800	109,400
1,900	112,100
2,000	114,800
2,100	117,100
2,200	119,200
2,300	120,800
2,400	122,100

TO/LND EGR

(Refer to pages E14 and E15 to calculate external tank fuel asymmetry.)

BLOWN TIRE ON LANDING

1. Perform vertical landing.

If vertical landing not feasible or tire blows during landing roll:

2. ANTISKID switch .... OFF (if main tire blown)
3. Use maximum nozzle braking.
4. Use nosewheel steering and reaction controls to maintain directional control.

If hot brakes suspected:

5. Do not set parking brake.

NOSEWHEEL STEERING/CASTER FAILURE

Before AFC-391

1. ANTISKID switch ..... NWS
2. Perform VL.

If unable to land vertically:

3. Minimize crab angle.
4. Perform RVL as slow as practical.

After AFC-391

INFLIGHT

1. Perform VL.

If unable to perform VL:

2. Determine failure mode.
3. Perform RVL as slow as practical with minimum crab angle.

TAKEOFF/LANDING ROLL OUT

*1. Attempt to get airborne.

If unable to get airborne:

***2. Determine failure mode.**

***3. If NWS on HUD . . . . . AVOID USE OF NWS BUTTON**

***4. If CAST on HUD . . . . . ENGAGE NWS BUTTON AT MINIMUM PRACTICAL GROUND SPEED**

SAAHS OFF RECOVERY AND LANDING

1. Fly a straight-in approach if possible.

If wind, runway condition, aircraft malfunction(s) allow:

2. Perform a FNSL (Select a nozzle angle that produces a 90-120 KCAS approach).

TO/LND EGR

If wind, runway condition, aircraft malfunction(s) or other conditions prevent performing a FNSL:

2. Perform RVL or VL (Recommend a flatter than normal approach and avoid excessive closure).

3. Prior to touchdown- Ensure pitch attitude is maintained on the horizon; minimize yaw and roll angle.

GROUND EGRESS — EGRESS

If possibility of structural damage exists:

1. Emergency canopy shattering handle . . PULL

To egress without survival kit:

2. Ejection Seat . . . . . SAFE

3. Fittings/connections . . . . . RELEASE

4. EGRESS.

To egress with survival kit:

5. Emergency restraint release handle . . . . PULL

6. Fittings/connections . . . . . RELEASE (except lap restraint)

7. EGRESS.

EJECTION	EJECT

IMMEDIATE EJECTION

1. Remove NVG from helmet (night attack aircraft).
2. Grasp ejection handle and pull until seat ejects.

CONTROLLED EJECTION

1. NVG . . . . . REMOVE FROM HELMET/STOW (night attack aircraft)
2. Visor . . . . . DOWN
3. Oxygen mask . . . . . TIGHTEN
4. All loose equipment . . . . . STOW
5. Airspeed-Before AFC-449:

   MODE 1: BELOW 180 KIAS, STRAIGHT AND LEVEL.
   MODE 2: BETWEEN 260 (215 KIAS WITH IACC 658) AND 400 KIAS, STRAIGHT AND LEVEL.

   Airspeed-After AFC-449:

   BETWEEN 150 AND 400 KIAS (TRADE AIRSPEED FOR ALTITUDE).

   Altitude:

   GREATER THAN 2,000 FEET AGL.
6. IFF . . . . . SELECT EMERGENCY
7. MAYDAY position report . . . . . TRANSMIT
8. Shoulder harness lever lock . . . . . LOCK
9. Altimeter . . . . . CHECK
10. Proper ejection body position . . . . . ASSUME
11. INITIATE EJECTION.

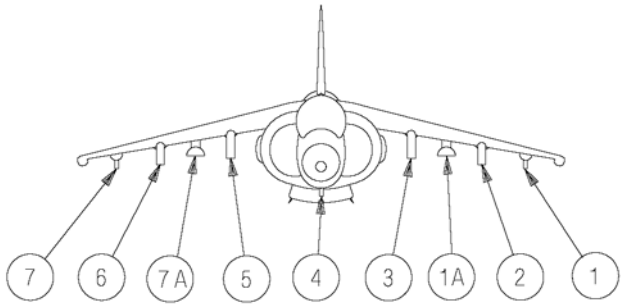
DITCHING — DITCH

BEFORE IMPACT

1. Make radio distress call.
2. IFF ..... EMERGENCY
3. External stores ..... JETTISON
4. Landing gear ..... UP
5. Flaps ..... AS REQUIRED
6. Seat ..... MID POSITION
7. Emergency oxygen actuator ..... PULL
8. Oxygen mask ..... TIGHTEN
9. NVG ..... REMOVE (if in use)
10. Helmet visor ..... DOWN
11. Shoulder harness ..... LOCKED & TIGHT
12. Lap belt ..... TIGHTEN
13. If wingborne, land parallel to swell pattern. If jetborne, land into wind.
14. Remain braced until shocks stop.

AFTER IMPACT

1. Parachute riser release fittings .... RELEASE
2. Emergency restraint release ..... SQUEEZE, PULL UP AND AFT
3. Close eyes and pull canopy shattering handle.
4. Abandon aircraft.
5. Inflate life vest.
6. Raft release ..... PULL
7. Oxygen mask ..... REMOVE
8. Inflate raft and climb in.



EXTERNAL STATION(S) (STORES JETTISONED)	GROUND INTER-LOCKS	JETTISON CONTROLS	JETTISON PROCEDURES
All Stations (Emergency Mode) (All stores and suspension equip on BRU-36 bomb racks. AIM-9s suspended from LAU-7 launchers on stations 1,1A and 7,7A are retained.)	Gear handle UP or aircraft weight off wheels*	Emergency Jettison Button	Emergency Jettison Button-PUSH
All Stations (Combat Mode) (All stores and suspension equip on BRU-36 bomb racks,except all AIM-9s are re-tained.)	Gear handle UP and aircraft weight off wheels	Selective Jett Knob and Push-button	Selective Jett Knob-CMBT Selective Jett Push-button-PUSH
2,3,5,6 (Fuel Tank Mode) (Fuel tanks dropped in pairs from 2 and 6, them 3 and 5)	Gear handle UP and aircraft weight off wheels	Selective Jett Knob and Push-button	Selective Jett Knob-FUEL Station Select Buttons-PRESS APPROPRIATE BUTTONS Selective Jett Push-button-PUSH

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External Stores Jettison Chart

EXTERNAL STATION(S) (STORES JETTISONED)	GROUND INTERLOCKS	JETTISON CONTROLS	JETTISON PROCEDURE
(Station Mode) All Selected Stas 1, 1A, 2, 3, 4, 5, 6 and/or 7, 7A (All stores, including suspension equip on BRU-36 bomb racks. AIM-9s suspended from LAU-7 launchers on stas 1, 1A and 7, 7A are retained.)	Gear handle UP and aircraft weight off wheels	Selective Jett Knob and Push-button, Sta Select Buttons	Selective Jett Knob — STA Sta Select Buttons — PRESS APPROPRIATE BUTTON(S) Selective Jett Push-button — PUSH
(Stores Mode) All Selected Stas 1, 1A, 2, 3, 4, 5, 6 and/or 7, 7A (All stores and suspension equip on BRU-36 bomb racks except: Stores mounted on ITERs are jett while retaining ITERs. AIM-9s suspended from LAU-7 launchers on stas 1, 1A and 7, 7A are retained.)	Gear handle UP and aircraft weight off wheels	Selective Jett Knob and Push-button, Sta Select Buttons	Selective Jett Knob- STOR Sta Select Buttons — PRESS APPROPRIATE BUTTON(S) Selective Jett Push-button — PUSH

EJECT DITCH

NOTES:

*1. A weight-on-wheels failure will inhibit jettison and prevent raising the gear handle. Emergency jettison can be enabled by using the DN LOCK OVRD to raise the gear handle.

2. TAV-8B utilize stations 2 and 6 only, stations 1A and 7A applicable to Night Attack only.

3. On the Day Attack/TAV-8B aircraft, if emergency jettison is selected in A/G master mode with a weapon selected, SMS lock up will result. The weapons will be jettisoned, but weapon inhibit symbology will appear in the HUD and WPN FAIL will be displayed on the DDI. The STRS page will not show cleared and VRST calculations will be affected. Selection of other master modes will not be possible until DSL-1 on the ACP is selected by rotating the MAN Knob from NORM to N/T and selecting NAV or VSTOL master mode.

External Stores Jettison Chart

EMERGENCY SHUTDOWN — FIRE

*1. Throttle ..... OFF
*2. Fuel shutoff handle ..... OFF
*3. Engine start switch ..... OFF
*4. APU GEN ..... OFF
*5. Battery switch ..... OFF
*6. Egress.

GROUND FIRE

If a fire is suspected or is indicated by ground crews:

*1. Execute Emergency Shutdown.

ELECTRICAL FIRE

*1. MFS ..... SELECT
*2. Generator switch ..... OFF
3. Cabin pressure switch ..... RAM
4. Limit airspeed as follows:

   Below 5,000 feet - 0.4 Mach.
   5,000 to 10,000 feet - 0.6 Mach.
   10,000 to 15,000 feet - 0.7 Mach.

5. All electrical switches ..... OFF

If fire persists:

6. Battery switch ..... OFF
7. Emergency oxygen actuator ..... PULL
8. Descend below 10,000 feet cockpit altitude.
9. Land as soon as practical.

ELIMINATION OF SMOKE & FUMES — SMOKE FUMES

1. Emergency oxygen actuator . . . . . PULL
2. Cabin pressure switch . . . . . RAM
   (requires DC power)
3. Limit airspeed as follows:

   Below 5,000 feet - 0.4 Mach.
   5,000 to 10,000 feet - 0.6 Mach.
   10,000 to 15,000 feet - 0.7 Mach.
4. Descend below 10,000 feet MSL.

If unable to clear smoke:

5. Slow aircraft . . . . . PULL MDC RING
   (eyes closed and visor down)

EXTERNAL FUEL TANK TRANSFER FAILURE — FUEL

1. Wing tank (failed side) ..... BURN USABLE FUEL
2. Dump switch (failed side) ..... DUMP (hold if necessary)

When fuel starts to dump from dump mast:

3. Dump switch ..... NORM
4. Fuel quantity ..... MONITOR FOR TRANSFER INDICATION
5. Repeat procedure, as required, to use external fuel.

If fuel does not transfer from external tank:

6. Balance internal wing tank fuel to minimize asymmetry for landing.

FUEL LEAK

1. Minimize maneuvering.
2. Air refueling switch ..... OUT
3. Boost pumps ..... OFF
4. Fuel flow proportioner ..... OFF
5. Execute Inflight Fire procedure.

AIR REFUEL PROBE FAILS TO RETRACT

1. A/R switch ..... CYCLE-IN

If probe remains out:

2. Do not exceed 300 knots.

If L/R TRANS caution light(s) come on:

3. A/R switch ..... PRESS

MISSION COMPUTER FAILURE — AVIONICS

If backup display appears on the HUD and DDI:

1. MC switch ..... OVRD

If normal operation not restored:

2. MC switch ..... OFF

AIR DATA COMPUTER FAILURE

If ADC failure suspected:

1. BIT display ..... CHECK FOR ADC FAILURE (ADC 1)

CAUTION

- No aileron high speed stops.
- Max landing gear extension 200 kts.
- Select STOL flaps below 165 kts.

INS FAILURE

1. Use the standby attitude indicator for attitude reference.
2. INS switch ..... OFF (5 seconds - ASN-139/ 3 minutes - ASN-130)
3. Maintain straight and level flight.

If attempting an in-flight alignment (IFA):

4. INS switch ..... IFA
5. Make any required turns using greater than 30° AOB.
6. EHSD ..... MONITOR ALIGNMENT TIME AND QUALITY
7. Alignment complete when HUD attitude information returns. (GPS IFA with good satellite data may take up to 10 minutes).

If attempting a radar IFA:

4. Master mode ..... NAV
5. Radar mode ..... LAND OR SEA BASED ON TERRAIN

6. INS switch ..... IFA
7. Make any required turns using greater than 30° AOB (see note).
8. GPS data page ..... RIFA
9. EHSD ..... Monitor alignment time and quality after two minutes
10. INS caution ..... Verify extinguished (may take up to 20 minutes)
11. INS switch ..... NAV

If IFA is unsuccessful, attempt a GYRO recovery:

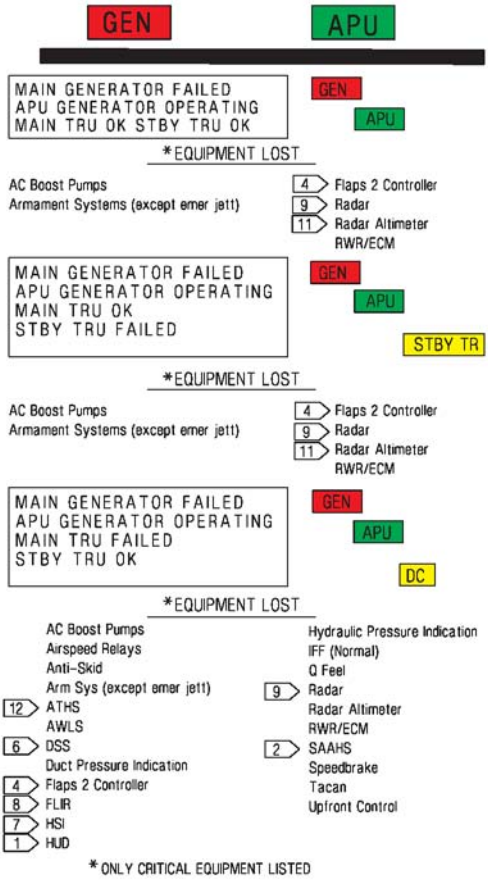
1. INS switch ..... OFF (5 seconds - ASN-139/ 3 minutes - ASN-130)
2. INS switch ..... GYRO

TOTAL ELECTRICAL FAILURE (GEN, APU GEN, DC, STBY TRU)	ELEC

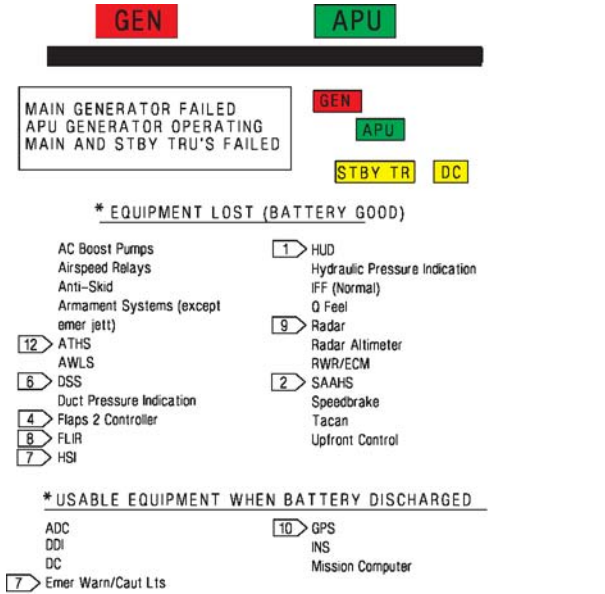
1. MFS ..... SELECT (before dc voltage depletes below 16 volts)
2. Landing gear ..... DOWN (below 200 knots before dc power loss, if not fuel critical)
3. Nonessential dc power equipment ..... OFF

If VMC:

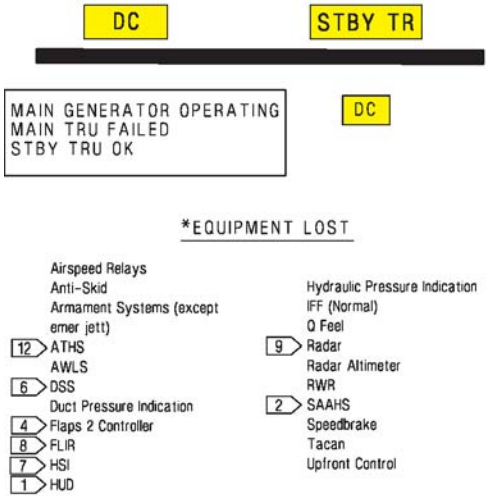
4. Battery switch ..... ALERT (if necessary reattempt communications)



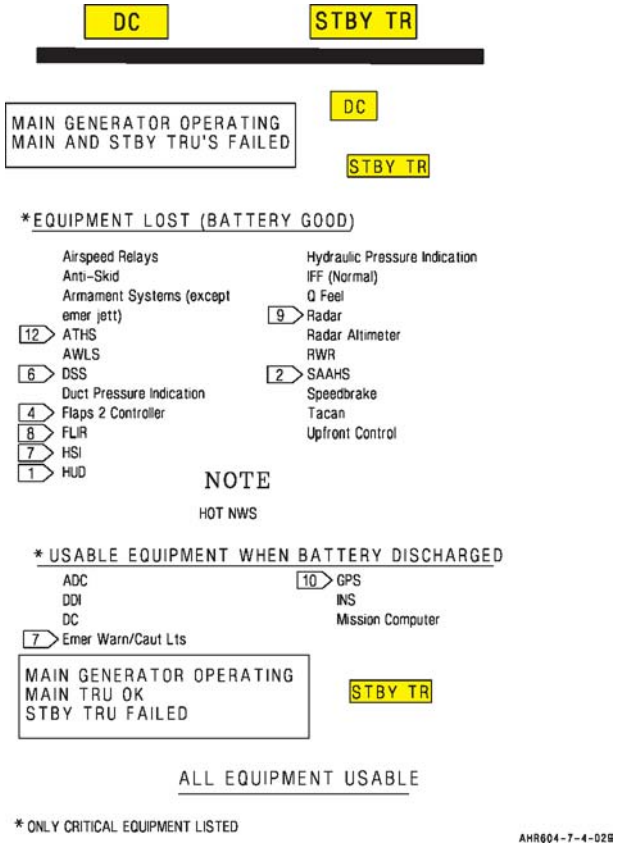
Emergency Power Distribution
Main Generator Failed - APU Generator Operating



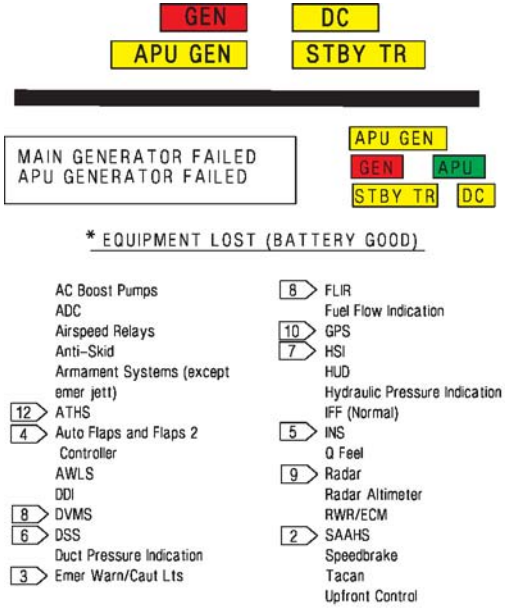
Emergency Power Distribution Main Generator Failed - APU Generator Operating (Cont)



Emergency Power Distribution
TRUs Failed - Main Generator Operating



Emergency Power Distribution
TRUs Failed - Main Generator Operating (Cont)



Emergency Power Distribution
Main and APU Generators Failed

SEE IC # 21

NOTES

1. HUD information available on DDI.
2. If failure occurs above 0.4 Mach and 8 AOA, equipment remains usable until aircraft goes below 0.4 Mach or 8 for more than 30 seconds.
3. If airborne, all lights good. With weight-on-wheels, except for FIRE light, lights not operational until COMP/LT TEST switch is activated to TEST.
4. Flaps 2 controller operative after RESET of flap power switch.
5. If interrupted ac power is restored within 90 seconds, INS may not be lost.
6. AV-8B 163176 and up; TAV-8B 163180 and up.
7. AV-8B 161573 thru 163852, TAV-8B.
8. AV-8B 163853 and up.
9. AV-8B 164549 and up.
10. AV-8B 165384 and up; also AV-8B 161573 thru 165383, TAV-8B 162963 thru 164542 after AFC-354 Rev A/Part 2/Part 3.
11. AV-8B 163853 thru 164547, TAV-8B 164113 thru 164542 before AFC-368.
12. AV-8B 165305 and up; also AV-8B 163853 thru 165006 after AFC-326/Part 3.

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Emergency Power Distribution
Main and APU Generators Failed (Cont)

EMERGENCY DC BUS FAILURE

Initial evidence of an EMERGENCY DC BUS Failure is indicated by the following:

1. **Loss of communications.**
2. **Loss of Hydraulic pressure indications (barber pole) . . . . . READS ZERO**
3. **Loss of Brake pressure indications (barber pole) . . . . . READS ZERO**

CONTINUED

4. Loss of warning, caution and advisory lights (confirm with lights test).
5. Loss of fuel flow indications.
6. Loss of fuel quantity indications .... Fuel quantity will not be valid/current. Fuel quantity indication will be frozen at amount when failure occurred.
7. Loss of RPM, JPT and PMI indications in HUD.
8. Stabilator Trim INOP.
9. Yaw SAS INOP.

IF EMERGENCY DC BUS FAILURE SUSPECTED

If above 10,000 ft cabin pressure:

*1. Emergency oxygen actuator ..... PULL
*2. Descend below 10,000 ft cabin pressure.

WARNING

Activating emergency oxygen with an emergency DC BUS Failure does not guarantee flow of 100% emergency oxygen to the mask. Failure to achieve 10,000 ft. cabin pressure altitude immediately increases the possibility of hypoxia.

With emergency oxygen activated or below 10,000 ft cabin pressure:

*3. DC test switch ..... SET TO STBY

If power is regained:

4. DC test switch ..... LEAVE IN STBY
5. Land as soon as practical.

SEE IC # 21

If power is not regained:

*4. DC test switch . . . . . SET TO MAIN

5. BATT VOLTS indicator. . . . . VOLTS slowly decrease to 24. (two to three minutes)

If power is regained:

6. DC test switch . . . . . LEAVE IN MAIN

7. Land as soon as practical. If required, battery can be recharged by temporarily setting DC TEST switch to center position.

If power is not regained:

6. DC test switch. . . . . SET TO CENTER POSITION

ELEC

SEE IC # 21

CONTINUED

7. Fuel state ... Begin to calculate elapsed time for fuel quantity. Fuel quantity displayed will not be valid/current. Fuel quantity indication will be frozen at amount when failure occurred.

If radio communication required:

8. Battery switch ..... ALERT to restore communications

Note

When battery switch is in BATT voltage will read zero.

Prior to voltmeter reaching 16V:

9. Battery switch ..... BATT to charge batteries. Return to ALERT for communications as required.

Prior to landing:

10. LANDING GEAR UNSAFE/FAILS TO EXTEND procedures ..... PERFORM

Note

Landing gear indication lights and the approach light are inoperative. TAV-8B only will have landing gear indication lights but no approach light.

11. Land as soon as practical using gentle VL if possible.

CAUTION

No anti-skid. No JPT or RPM indications.

If unable to perform VL:

12. Land as slow as possible using a minimum rate of descent.

CAUTION

The canopy seal will not deflate quickly. If rapid egress is required the emergency canopy shattering handle may be required.

FLIGHT CONTROL MALFUNCTION — FLIGHT CONTROLS

*1. Paddle switch ..... PRESS AND HOLD

If condition has cleared:

2. Appropriate stab aug switches ..... OFF

3. Paddle switch ..... RELEASE

4. Land as soon as practical.

If condition has not cleared (possible jammed flight controls):

*2. Transition to conventional flight.

3. Land as soon as possible.

SAS FAILURE

1. AFC ..... RESET

If erroneous input occurs:

2. Paddle switch ..... PRESS AND HOLD

3. Appropriate stab aug switch ..... OFF

4. Paddle switch ..... RELEASE

REACTION CONTROL FAILURE

*1. Transition to conventional flight.

If transition to conventional flight not feasible:

2. Land immediately or eject.

SEE IC # 21

RUDDER TRIM FAILURE

1. RUD SVO circuit breaker . . . . . PULL

AILERON OR STABILATOR TRIM FAILURE

If circuit breaker out:

1. Applicable circuit breaker . . . . . RESET (one time only)

If circuit breaker in:

1. Applicable circuit breaker . . . . . CYCLE

Q-FEEL FAILURE

1. Q-FEEL switch . . . . . OFF
2. Maintain airspeed below 500 knots/0.8 Mach.

SPEED BRAKE FAILURE

If SPD BRK light on with gear down:

1. Speed brake circuit breaker . . . . . PULL

If SPD BRK light still on:

2. Perform gentle RVL. Do not taxi.

UNCOMMANDED FLAP MOTION

***1. Nozzles ..... 40° OR GREATER**

2. Flaps power switch ..... OFF

UNCOMMANDED NOSE DOWN PITCH MOVEMENT

***1. Nozzles ..... 40° OR GREATER**

OUT-OF-CONTROL/ JETBORNE/ SEMI-JETBORNE	**OUT OF CONTROL**

***1. Stick ..... FORWARD**

***2. Throttle ..... FULL**

***3. Stick ..... AGAINST ROLL**

***4. Rudder ..... AGAINST SIDESLIP**

If AOA not recovered and time and altitude permit:

***5. Nozzles ..... REDUCE 20 DEGREES**

When AOA recovered:

***6. Nozzles ..... AS REQUIRED**

OUT-OF-CONTROL/SPIN/FALLING LEAF RECOVERY

***1. Controls ..... NEUTRAL**

***2. Throttle ..... IDLE/OFF IF COMPRESSOR LOCKED IN STALL**

***3. Nozzles ..... AFT**

If spin positively confirmed after 2 turns with neutral controls:

***4. Rudder ... FULL OPPOSITE SPIN DIRECTION**

***5. Aileron ..... FULL WITH SPIN IF UPRIGHT, NEUTRAL IF INVERTED**

If Falling Leaf positively confirmed after 5 seconds with neutral controls (TAV-8B and Radar aircraft only):

***4. Stick ..... FULL FORWARD**

When recovered:

***6. Initiate airstart (if required).**

***7. Nozzles ..... AFT**

If still spinning below 10,000 feet AGL:

***6. EJECT.**

SEE IC # 20

LANDING GEAR FAILS TO RETRACT — GEAR

1. Gear handle ..... DOWN
2. Landing gear circuit breaker ..... CHECK IN
3. Obtain visual check.

If unable to obtain visual check:

4. Land as soon as practical.

If visual check indicates no damage:

4. Gear handle ..... UP

If unsafe condition still present:

5. Gear handle ..... DOWN AS SOON AS PRACTICAL
6. Land as soon as practical.

LANDING GEAR UNSAFE/FAILS TO EXTEND

Landing Gear Status Unknown

If one or more gear fails to indicate down:

1. Lights test switch- TEST
   Check 4 green, 4 amber, red GEAR and gear handle lights on. If green gear down light failed with red GEAR and gear handle lights and amber in transit lights out, consider the gear down.

If lights test good -

2. Gear handle - DOWN

If gear indicates unsafe or gear status remains unknown:

3. Landing Gear Unsafe/Fails to Extend Procedures - PERFORM

SEE IC # 20

Landing Gear Unsafe/Fails to Extend

1. **Landing gear circuit breaker - CHECK IN (second circuit breaker from left on bottom row)**
2. **Request visual check (if circumstances permit)**
3. **Gear handle - CYCLE**

If gear does not extend -

4. **Landing Gear Emergency Extension Procedures- PERFORM**

If gear still indicates unsafe after emergency extension -

5. **Fuel/Stores- JETTISON TO MINIMUM GROSS WEIGHT FOR LANDING (as required)**
6. **Perform gentle VL . Throttle - OFF, IF GEAR COLLAPSES**
7. **Do not taxi. Install wing gear locks before engine shutdown**

If nose gear fails to extend -

8. **Perform gentle VL, slowly lowering nose to ground**
9. **Throttle- OFF**

Landing Gear Emergency Extension

***1. Gear Handle - DOWN**

***2. Landing gear circuit breaker - PULL (second circuit breaker from left on bottom row)**

With Airspeed below 210 knots -

***3. Gear Handle- ROTATE 90° CLOCKWISE AND PULL**

If gear does not extend -

***4. LDG GEAR EMER BATT- ACTUATE (After AFC-328)**

BRAKE FAILURE — BRAKES

GROUND

***1. ANTISKID switch ..... NWS**

2. Steer toward safe area.

3. Nozzles ..... HOVER/BRAKING STOP AS REQUIRED

4. Throttle ..... OFF WHEN PRACTICAL

AIR

1. ANTISKID switch ..... NWS

2. Perform VL.

3. Throttle ..... OFF WHEN CHOCKED

HOT BRAKE

If brake overheating is suspected:

1. Taxi aircraft to closest safe location. Use brakes only as needed to stop or turn.

2. Turn aircraft into the wind.

3. Wheels ..... CHOCKED

4. Brakes ..... RELEASE

5. Place nozzles to 30° at idle rpm.

6. Shutdown engines after firefighting equipment arrives.

CANOPY SEAL FAILS TO DEFLATE — CANOPY

1. Cabin pressure switch . . . . . RAM
2. Attempt to manually open canopy.
3. Engine . . . . . SHUT DOWN
4. Have maintenance personnel disconnect weight-on-wheels plug in main wheel well.

If seal still inflated:

5. Have maintenance personnel check CS COOL circuit breaker . . . . . IN

If canopy still will not open:

6. Puncture canopy seal with sharp object.

CANOPY EXPLOSION INFLIGHT

*1. EMERGENCY DESCENT . . . . . IF REQUIRED
*2. LOWER SEAT . . . . . AS REQUIRED
*3. Throttle . . . . . MAINTAIN CONSTANT RPM
(75 to 85%, -406)
(80 to 85%, -408)
4. Minimize g-loading.
5. Land as soon as possible using VNSL.
6. Use nozzles, speedbrake, flaps, and landing gear to control airspeed.
7. Fuel/Stores . . . . . JETTISON AS REQUIRED
8. If vertical landing is the only option, use throttle slowly and progressively and be prepared for engine failure.
9. Throttle . . . . . OFF AS SOON AS PRACTICAL

LDG GEAR

COCKPIT TEMPERATURE HOT/COLD	TEMP

1. Cabin pressure switch . . . . . NORM
2. Cabin air temperature knob . . . . . MANUAL-REGULATE TEMPERATURE

If temperature stays too hot/cold:

3. Descend below 25,000 feet.
4. Cabin pressure switch . . . . . RAM
5. Limit airspeed as follows:

   Below 5,000 feet - 0.4 Mach.
   5,000 to 10,000 feet - 0.6 Mach.
   10,000 to 15,000 feet - 0.7 Mach.

COCKPIT UNDER PRESSURE	PRESS

1. Descend below 25,000 feet MSL.

COCKPIT OVER PRESSURE

1. Descend below 25,000 feet MSL.
2. Cabin pressure switch . . . . . DUMP

If cockpit still over pressure:

3. Cabin pressure switch . . . . . RAM
4. Limit airspeed as follows:

   Below 5,000 feet - 0.4 Mach.
   5,000 to 10,000 feet - 0.6 Mach.
   10,000 to 15,000 feet - 0.7 Mach.

GUN NOT CLEAR — GUN

1. Master arm switch ..... OFF
2. Gun ..... DESELECT

Before Landing:

3. Notify landing facility of Hot Gun.

After Landing:

4. Proceed immediately to Hot Gun area for dearming.

WARNING — WARN

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
AAA Al CW (AV-8B only)	Refer to A1-AV8BB-TAC-100/(S).	
EFC 1 (Voice FUEL CONTROL, FUEL CONTROL)	Number 1 and 2 DECU failed.	**IN V/STOL FLIGHT (TAKEOFF/APPROACH/ LANDING)** Time Critical *1. MFS — SELECT. *2. Throttle — AS REQUIRED. If rpm recovers: *3. Water switch — OFF. If rpm does not recover: *3. Eject. **IN CONVENTIONAL FLIGHT** *1. Throttle — IDLE. *2. MFS — SELECT. *3. Throttle — ADVANCE SLOWLY. If engine not running: *4. Initiate airstart. If unable to select MFS and sufficient power not available: *4. EFC sw — CHANGE LANE. *5. If engine control not restored — EJECT. If MFS fails to restore control but sufficient power: 4. Cautiously use nozzles to control airspeed. 5. Flaps — AUTO. 6. Land as soon as practical. After landing: 7. Use nozzle braking as required. 8. Throttle — OFF. 9. Fuel shutoff handle — OFF.

*Immediate action item

WARNING — WARN

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
FIRE [1] (Voice ENGINE FIRE, ENGINE FIRE)	Fire in the engine compartment.	**GROUND** *1. Execute emergency shutdown. **TAKEOFF/LANDING/ VERTICAL/OPERATION** *1. Abort or land immediately. *2. Execute emergency shutdown. **INFLIGHT** *1. Nozzles — AFT AS SOON AS POSSIBLE. *2. APU GEN — OFF. *3. Master arm/gun — OFF. *4. Throttle — MINIMUM REQUIRED. *5. MFS — SELECT. If fire persists: *6. Eject. If light goes out: 6. Land as soon as possible.

*Immediate action item

WARNING — WARN

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
FLAP 1 (Voice FLAP FAILURE, FLAP FAILURE)	Flap failure.	**TAKEOFF/LANDING/VERTICAL/ OPERATION** *1. Nozzles — 40° OR GREATER. 2. Stores — JETTISON (if required). 3. Land as soon as practical. If flap retraction required: 4. Emergency flaps retract button — SLOWLY BEEP FLAPS UP. **INFLIGHT** 1. Climb to safe altitude (5,000 feet AGL min, 250 KCAS max). 2. Flap mode switch — CRUISE. 3. Land as soon as practical. If flap retraction required: 4. Emergency flap retract — SLOWLY BEEP FLAPS UP. If asymmetry occurs: 5. Do not attempt further retraction. 6. Flap power switch — OFF. 7. Nozzles as required (no less than 20° less than flap position).
GEAR Gear Handle 1 (Voice LANDING GEAR, LANDING GEAR)	Steady light - In transit or unsafe. ——————— Flashing light - Gear up and below 6,000 feet slower than 160 knots and rate of descent over 250 feet/minute.	STEADY 1. Check gear down indicators. ——————— **FLASHING** 1. Gear — DOWN. 2. Increase airspeed or altitude.

*Immediate action item

FIRE
GEAR

WARNING

WARNING — WARN

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
GEN 1 (Voice GENERATOR, GENERATOR)	AC generator off the line.	1. Generator sw — CYCLE. If GEN resets: 2. Continue flight. If GEN warning, DC, and STBY TR cautions still on or after reset, generator drops off line: 2. MFS — SELECT. 3. Generator sw — OFF. 4. APU GEN — ON (when in APU starting envelope). If APU comes on line: 5. MFS — AS REQUIRED. If APU GEN caution comes on: 6. APU GEN — RESET/ON (attempt as required). If APU GEN caution still on: 7. APU GEN — OFF. 8. MFS — SELECT. 9. Non-essential DC equipment — OFF. 10. Landing Gear — DOWN AS SOON AS POSSIBLE (below 200 kts and 16 volts min). 11. Do not select STOL flaps above 165 kts and < 25° nozzles. 12. Fuel boost pump sw(s) — DC (before landing). 13. Land as soon as practical. Perform a VL if possible (HOT NWS).

*Immediate action item

WARNING — WARN

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
HYD [1] (Voice HYDRAULICS, HYDRAULICS)	HYD 1 and HYD 2 failed.	**INFLIGHT** 1. Slow to 250-300 kts. 2. Hydraulic systems pressures — CHECK. If both hydraulic systems failing: 3. Eject. **ON GROUND** 1. Throttle — OFF. 2. Parking brake — SET WHEN STOPPED.
JPTL [1] (Voice LIMITER OFF, LIMITER OFF)	JPTL control inoperative: • JPTL switch set to OFF. • Failure detected in controlling DECU JPT limiting function. • Electrical power lost to either or both DECUs (EFC warning or caution also illuminated). • State input fault external to DECU (fast deceleration solenoid may be inoperative).	1. JPTL sw — CHECK ON. If no EFC warning or caution light: 2. EFC sw — SET TO OTHER DECU. If light remains on: 3. JPTL sw — OFF. 4. Maintain JPT/RPM limits manually.
LAW [1] (Voice ALTITUDE, ALTITUDE)	Below set altitude.	Information.

*Immediate action item

WARNING — WARN

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
MASTER WARNING (Radar/Night attack aircraft)	A warning has been activated.	Check warnings.
1 (Voice OBSTACLE, OBSTACLE)	Aircraft is at or below the set obstacle clearance elevation angle of the AWLS ground station.	Information.
OT 1 (Voice OVERTEMP, OVERTEMP)	JPT limits exceeded: ● Before AFC-394, an open thermocouple circuit will result in JPT indications rising to 999 °C.	If JPT exceeds 765 °C with -406 engine or 820 °C with -408 engine. (OT light): 1. Land as soon as practical (conventionally if possible). 2. Use minimum power. If conventional landing not possible: 3. Jettison fuel and stores if feasible.
R FEED (TAV-8B only) 1 (Voice RIGHT FEED, RIGHT FEED)	Crossfeed system failure or valve in wrong position.	1. Fuel quantity indicator sw — FEED. If left and right fuel quantities above 300 pounds: 2. Fuel proportioner sw — DL. 3. R FEED warning and advisory lights — OUT. If left fuel quantity less than 300 pounds and right fuel quantity above 300 pounds: 2. Fuel proportioner sw — RT. 3. R FEED advisory light — ON. 4. R FEED warning light — OUT. If both left and right fuel quantities below 300 pounds: 2. Fuel proportioner sw — OFF. 3. R FEED warning and advisory lights — OUT.

*Immediate action item

WARNING — WARN

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
SAM (AV-8B only)	Refer to A1-AV8BB-TAC-100/(S).	
L TANK R TANK [1] (Voice LEFT TANK, LEFT TANK or RIGHT TANK, RIGHT TANK)	Fuel tank overpressure or overtemperature.	**DURING AIR REFUELING** *1. Break away. **IN NORMAL FLIGHT** 1. Throttle — MINIMUM REQUIRED. 2. A/R sw — CHECK (out of PRESS position). 3. Fuel dump sw(s) — NORM. **DURING HOT REFUELING** *1. Throttle — OFF.

[1] AV-8B 163519 and up, TAV-8B 163856 and up.

*Immediate action item

CAUTIONS CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
AFC	AFC malfunction or AFC deselected.	1. Assume control.
AFT BAY	Aft bay ECS failed. Selection of reset will remove the AFT BAY Caution from the Caution/Advisory Panel for 45 seconds. If the overheat condition still exists, the AFT BAY Caution can be expected to return. Repeated AFT BAY lights should be considered a system fault. Repeated selection of RESET can result in aircraft damage.	**NON-RADAR AIRCRAFT** 1. EQUIP RESET sw — RESET (No more than three RESETs allowed in a flight). If AFT BAY caution reilluminates three consecutive times or does not reset: 2. EQUIP RESET sw — OFF. 3. Limit airspeed as follows: Below 5,000 feet - 0.7 Mach. 5,000 to 10,000 feet - 0.8 Mach. 10,000 to 15,000 feet - 0.9 Mach. 4. Land as soon as practical. **RADAR AIRCRAFT** 1. AFT EQUIP sw — RESET (No more than three RESETs allowed in a flight). If AFT BAY caution reilluminates three consecutive times or does not reset: 2. Limit airspeed as follows: Below 5,000 feet - 0.4 Mach. 5,000 to 10,000 feet - 0.6 Mach. 10,000 to 15,000 feet - 0.7 Mach. 3. For operational necessity up to 0.2 Mach increase over the above speeds is acceptable for 30 minutes. 4. Land as soon as practical.

*Immediate action item

AFC
AFT BAY

CAUTIONS — CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
APU GEN	APU selected and emergency generator failed.	1. APU sw — RESET/ON (attempt several times). If APU GEN caution still on: 2. APU sw — OFF. 3. Land as soon as practical.
AUT FLP	Auto flap mode or ADC failed.	1. Flap control sw — RESET. If flaps do not reset or AUT FLP caution reilluminates during flight: 2. Flap mode sw — CRUISE OR STOL (< 165 knots and nozzles > 25°). 3. BIT display — CHECK FOR ADC FAILURE (ADC 1). 4. If ADC failure confirmed — do not extend landing gear at airspeeds > 200 KCAS.
BINGO [1] (Voice BINGO, BINGO)	Fuel below bingo setting.	Information.
CANOPY	Canopy not locked closed.	1. Descend below 25,000 feet. 2. Cabin pressure switch — DUMP. 3. Slow below 250 kts. If unsafe latch can be determined: 4. Land as soon as practical.
CASTER	On AV-8B 163677 and up; light is not used, illuminates on lights test only.	Information.
CIP AUT	SMS unable to operate in computed delivery mode (AUTO and CCIP).	Information.

*Immediate action item

CAUTIONS CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
CMBT	Combat thrust activated. Flashes after 2 1/2 minutes.	Information.
CS COOL	Cockpit avionics cooling fan failed. Affected equipment: HUD, ODU, DC, DDI, and ACP.	1. Cockpit temperature — AS COLD AS PRACTICAL. 2. Affected avionics — OFF (if not required). 3. Land as soon as practical.
CW NOGO (AV-8B only)	Refer to A1-AV8BB-TAC-100/(S).	
DC	Main transformer-rectifier failed. **NOTE** ● Hot NWS, perform RVL or VL if possible. ● Below 16 volts, normal manual fuel selection cannot be guaranteed.	1. Confirm DC failure by checking hydraulic gages. 2. Fuel boost pump sw(s) — NORM OR OFF. 3. Voltmeter and STBY TR caution — MONITOR. 4. Do not select STOL flaps >165 knots and <25° nozzles and do not lower landing gear >200 kts. 5. Land as soon as practical. If STBY TR caution on and/or voltmeter below 26 volts: 6. MFS — SELECT (16 volts minimum). 7. Landing gear — DOWN AS SOON AS POSSIBLE (below 200 knots and 16 volts minimum). 8. Nonessential DC equipment — OFF.
DEP RES	Departure resistance reduced.	Observe Prohibited Maneuvers and AOA Limitations without departure resistance.
EFC	DECU number 1 or 2 has failed.	1. Do not change lanes. 2. Land as soon as practical.

*Immediate action item

APU
GEN
EFC

CAUTIONS — CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
ENG EXC	Engine overspeed, overtemperature, or over g was detected.	Information.
FLAPS 1 ---------- FLAPS 2	Flaps channel 1 failed. ---------- Flaps channel 2 failed.	**FLAPS 1 and FLAPS 2:** 1. Flaps — AUTO. 2. Flap power sw — RESET (single channel failure only). If FLAPS 1 or FLAPS 2 does not reset or reilluminates during flight: 3. Flap mode switch — CRUISE OR STOL (<165 knots and nozzles >25°). **For FLAPS 2 caution:** 3. If flap circuit breaker popped — RESET.
L FUEL R FUEL [1] (Voice when fuel is less than 250 pounds: FUEL LOW LEFT, FUEL LOW LEFT or FUEL LOW RIGHT, FUEL LOW RIGHT)	Steady light - left or right fuel 750 pounds. Flashing light - left or right fuel 250 pounds.	**Flashing Light:** 1. Fuel quantity indicator sw — FEED. 2. Apply negative and then positive g's. If single feed tank decreasing: 3. Fuel proportioner sw — OFF. 4. Boost pump sw (flashing side) — OFF. 5. Boost pump sw (nonflashing side) — ON. 6. Fuel asymmetry — MONITOR. 7. Land as soon as practical. If both feed tanks decreasing: 3. Drop tanks — JETTISON. 4. Both boost pumps — NORM. 5. Fuel proportioner sw — OFF. 6. Land immediately.

*Immediate action item

CAUTIONS — CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
FWD BAY (Radar aircraft)	Forward ECS failure.	1. FWD EQUIP sw — RESET. If FWD BAY caution reilluminates or does not reset: 2. Descend to below 25,000 feet. 3. Limit airspeed as follows: Below 5,000 feet - 0.4 Mach. 5,000 to 10,000 feet - 0.6 Mach. 10,000 to 15,000 feet - 0.7 Mach. 4. If radar mode is in OPR or STBY, limit airspeed above 15,000 feet to 0.7 Mach. If no ECS airflow from cockpit louvers: 5. PRESS sw — RAM.
〔3〕 GPS	GPS not valid, aggressive maneuvering or vertical and horizontal position error not within tolerance for mode selected.	If not in maneuvering flight: 1. Check GPS BIT and GPSE status. If BIT and GPSE indicate GPS failure: 2. INS knob to NAV.
H_2O 〔1〕 (Voice WATER, WATER)	Less than 15 seconds water remaining.	Information.
H_2O SEL	Over 250 kts and water sw not OFF.	1. Water sw — OFF.

*Immediate action item

ENG EXC H_2O SEL

CAUTIONS CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
HYD 1	HYD 1 pressure ≤1,400 psi Speedbrake and LIDS not available Expect about 500 pounds decrease in VTOL/VL lift.	1. Fuel proportioner — OFF. If failure indications persist: 2. Land as soon as practical (VL/RVL if practical). 3. Fuel asymmetry — MONITOR. 4. Below 210 knots, landing gear handle — DOWN, TURN AND PULL. **After touchdown:** 5. Throttle — OFF. 6. Parking brake — SET WHEN STOPPED. If VL/RVL not practical: 5. Make slow landing. 6. Use power nozzle braking (60 knots minimum) then steady brake pressure without anti-skid cycling. Braking will be lost if brake accumulator pressure drops below 1,000 psi. 7. Shut down engine and set parking brake when stopped.
HYD 2	HYD 2 pressure ≤1,400 psi.	1. Land as soon as practical. 2. Throttle — OFF WHEN CLEAR OF RUNWAY.
IFF	Mode 4 off, zeroized, or not responding.	Information.
INS	INS aligning or failed	1. Use the standby attitude indicator for attitude reference.

*Immediate action item

CAUTIONS — CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
INS (cont.)	INS aligning or failed.	2. INS switch — OFF (5 seconds - ASN-139/ 3 minutes - ASN-130). 3. Maintain straight and level flight. If attempting an in-flight alignment (IFA): 4. INS switch — IFA. 5. Make any required turns using greater than 30° AOB. 6. EHSD — Monitor alignment time and quality. 7. Alignment complete when HUD attitude information returns. (GPS IFA with good satellite data may take up to 10 minutes). If attempting a radar IFA: 4. Master mode — NAV. 5. Radar mode — Land or Sea based on terrain. 6. INS switch — IFA. 7. Make any required turns using greater than 30° AOB. 8. GPS data page — RIFA. 9. EHSD — Monitor alignment time and quality after two minutes. 10. INS caution — Verify extinguished (may take up to 20 minutes). 11. INS switch — NAV. If IFA is unsuccessful, attempt a GYRO recovery: 1. INS switch — OFF (5 seconds - ASN-139/ 3 minutes - ASN-130). 2. INS switch — GYRO.
JMR HOT (Night Attack)	ASPJ Overtemp.	Information.
L	Left wing gear in transit.	Information.
LIDS	LIDS not in correct position.	With gear up: 1. Do not exceed 200 knots. With gear down: 1. LIDS switch — CHECK NORM. 2. Expect about 500 pound decrease in VTO/VL lift.

*Immediate action item

HYD 1
LIDS

CAUTION

CAUTIONS — CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
LOAD	Fuel asymmetry over VL limit.	Refer to Asymmetric Landing.
M	Main landing gear in transmit.	Information.
MASTER CAUTION [1] (Voice - CAUTION, CAUTION)	A caution has been activated.	Check cautions.
MFS [1] (Voice - MANUAL FUEL, MANUAL FUEL)	Manual fuel system on.	1. MAN FUEL switch — POSITIVELY SELECT ON AND RELEASE. [2] 2. MFS EMER BATT switch — CHECK.
N	Nose landing gear in transit.	Information.
[5] NWS	Nosewheel Steering Malfunction.	INFLIGHT 1. Perform VL. If unable to perform VL: 2. Determine available steering mode. 3. Perform RVL as slow as practical with minimum crab angle. TAKEOFF/LANDING ROLL OUT *1. Attempt to get airborne. If unable to get airborne: *2. Determine failure mode. *3. If NWS in HUD — AVOID USE OF NWS BUTTON. **NOTE** Engaging NWS button will result in hi gain. *4. If CAST in HUD — ENGAGE NWS BUTTON AT MINIMUM PRACTICAL GROUND SPEED.

*Immediate action item

CAUTIONS — CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
OIL	Oil pressure low.	*1. Throttle — MAINTAIN CONSTANT RPM (75 to 85%, -406) (80 to 85%, -408). 2. Minimize g-loading. 3. Land as soon as possible using VNSL. 4. Use nozzles, speedbrake, flaps, and landing gear to control airspeed. 5. Fuel/Stores — JETTISON AS REQUIRED. 6. If vertical landing is the only option, use throttle slowly and progressively and be prepared for engine failure. 7. Throttle — OFF AS SOON AS PRACTICAL.
OXY	OBOGS malfunction.	*1. Emergency oxygen actuator — PULL. *2. Oxygen switch — OFF. 3. Descend below 10,000 feet cockpit altitude. 4. Oxygen mask — RELEASE.
PITCH	Pitch stab aug off or failed.	1. AFC — RESET. If erroneous input occurs: 2. Paddle switch — PRESS AND HOLD. 3. Pitch stab aug switch — OFF. 4. Paddle switch — RELEASE.
P NOGO (AV-8B only)	Refer to A1-AV8BB-TAC-100/(S).	

*Immediate action item

LOAD
P NOGO

CAUTIONS — CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
PROP	Fuel proportioner off or failed.	1. Fuel proportioner switch — OFF. 2. Monitor fuel quantity indicators. 3. Balance fuel by switching lowest feed group boost pump switch OFF until balanced.
L PUMP R PUMP	Left or right boost pump pressure low.	1. Boost pump switch (failed pump) — DC OPR. If pump still failed: 2. Boost pump switch (failed pump) — OFF. 3. Fuel asymmetry — MONITOR. 4. Land as soon as practical.
R	Right wing gear in transit.	Information.
ROLL	Roll stab aug off or failed.	1. AFC — RESET. If erroneous input occurs: 2. Paddle switch — PRESS AND HOLD. 3. Roll stab aug switch — OFF. 4. Paddle switch — RELEASE.
〔4〉 SKID	If light stays on (antiskid failure) If light goes out (caster failure) → **Note** A skid failure will mask a caster failure.	ON GROUND *1. ANTISKID switch — NWS. 2. Brakes — MINIMUM REQUIRED. INFLIGHT 1. Check ANTISKID switch — ON. 2. Select NWS on stick grip. 3. ANTISKID switch — NWS. 4. Perform VL. If unable to land vertically: 5. Minimize crab angle. 6. Perform RVL as slow as practical. 7. Brakes — MINIMUM REQUIRED.

*Immediate action item

CAUTIONS — CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
5 SKID	Anti-Skid System Malfunction.	1. Brakes — MINIMUM REQUIRED.
STBY TR	Standby TRU inoperative or off line.	1. Voltmeter and DC caution — MONITOR.
L TRANS R TRANS	Low air pressure to left or right feed tanks.	1. Descend below 30,000 feet. 2. Air refuel switch — IN. 3. Dump switches — NORM. 4. Fuel quantity indicator switch — AS REQUIRED. SINGLE FEED TANK DECREASING If L FUEL or R FUEL caution flashes: 5. Fuel proportioner switch — OFF. 6. Boost pump switch (flashing side) — OFF. 7. Boost pump switch (non-flashing side) — ON. 8. Fuel asymmetry — MONITOR. 9. Land as soon as practical. BOTH FEED TANKS DECREASING If both L FUEL and R FUEL cautions flash: 5. Drop tanks — JETTISON. 6. Both boost pump switches — NORM. 7. Fuel proportioner switch — OFF. 8. Land immediately.

*Immediate action item

PROP
L/R
TRANS

CAUTIONS — CAUT

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
WSHLD	Windshield hot.	Information.
YAW	Yaw stab aug off or failed.	1. AFC — RESET. If erroneous input occurs: 2. Paddle switch — PRESS AND HOLD. 3. Yaw stab aug switch — OFF. 4. Paddle switch — RELEASE.
15 SEC [1] (Voice - FIFTEEN SECONDS, FIFTEEN SECONDS)	JPT above normal lift rating (flashing after 15 seconds).	1. Monitor JPT.

[1] AV-8B 163519 and up, TAV-8B 163856 and up.

[2] AV-8B 164151 and up; also TAV-8B, AV-8B 161573 thru 164150 after AFC-328.

[3] AV-8B 165384 and up; also 161573 thru 165383, TAV-8B 162963 thru 164542 after AFC-354 Rev A/Part 2/Part 3.

[4] AV-8B 161573 thru 165312, TAV-8B.

[5] AV-8B 165354 and up.

*Immediate action item

ADVISORIES ADV

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
1 (Voice - ACNIP GO, ACNIP GO)	ACNIP BIT passed.	Information.
1 (Voice - ACNIP FAIL, ACNIP FAIL)	ACNIP BIT failed.	Information.
#AFC	AFC selected in front cockpit.	Information.
A/G	Air-to-ground HUD mode Information.	Information.
#ALTHD	Altitude hold selected in front cockpit.	Information.
APU	APU operating.	Information.
#AUTO (Flap)	Flaps AUTO mode selected.	Information.
AUTO (VRS)	VRS AUTO mode selected.	Information.
AV BIT	Light de-activated.	
CW JAM (AV-8B only)	Refer to A1-AV8BB-TAC-100/(S).	
#CRS	Flaps CRUISE mode selected.	Information.
DROOP	Ailerons dropped.	Information.
#H_20	H_20 switch in TO or LDG.	Information.
L	Left wing gear locked down.	Information.

#Rear cockpit indicator only

VOICE
L

ADVISORIES ADV

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
LEFT	Flashing - Left feed group full with air refuel probe extended. --- Steady - 4 external tanks aboard and left inboard external tank full with air refuel probe extended.	Information.
M	Main landing gear locked down.	Information.
N	Nose landing gear locked down.	Information.
NAV	Navigation HUD mode.	Information.
P JAM (AV-8B only)	Refer to A1-AV8BB-TAC-100/(S).	
R	Right wing gear locked down.	Information.
R FEED (TAV-8B only)	Crossfeed valve in right feed position.	Information.
READY	Air refuel probe extended and locked without fuel pressure/flow or tank pressurization.	Information.
REPLY	IFF responding to Mode 4 interrogation.	Information.

#Rear cockpit indicator only

ADVISORIES ADV

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
RIGHT	Flashing - Right feed group full with air refuel probe extended. --- Steady - 4 external tanks aboard and right inboard external tank full with air refuel probe extended.	Information.
RUN	VRS RUN mode selected.	Information.
SEL	Combat thrust limiter selected.	Information.
SPD BRK	Gear up and speed brake extended Gear down and speed brake not 25°.	Information.
STO	Flap switch in STOL.	Information.
#STOL	Flaps STOL mode selected.	Information.
VSTOL	VSTOL HUD mode.	Information.
W	Water is flowing.	Information.
〔1〕 AV-8B 163519 and up, TAV-8B 163856 and up.		

#Rear cockpit indicator only

LEFT
W

GPWS VOICE WARNINGS — ADV

INDICATOR	CAUSE/REMARKS	CORRECTIVE ACTION
PULL-UP	Activated when the altitude is ≤90 feet and the airspeed is ≥250 KCAS, or ≥200 KCAS, at least 60 seconds after takeoff or waveoff, or aircraft calculates a dive recovery is required.	1. Immediate pull up using the direction-of-pull arrow on the HUD.
ROLL OUT	If <150 feet, between 100 and 200 KCAS, at least 60 seconds after takeoff or waveoff, and at bank angle >45° for 1 second, ROLL OUT is annunciated.	1. Immediate roll to wings level and pull up using the direction-of-pull arrow on the HUD.
POWER	Landing Phase. If altitude <150 feet, <200 KCAS, more than 60 seconds after take-off orwaveoff, and sink rate = a threshold for 0.3 seconds, POWER is annunciated. Takeoff Phase. If altitude <150 feet, <250 KCAS, <60 seconds after take-off or waveoff, and a sink rate ≥300 fpm, POWER is annunciated.	1. Immediate power addition to control sink rate and pull up using the direction-of-pull arrow on the HUD.
CHECK GEAR	• GPWS detects the gear is not down and locked. • If <150 feet, between 100 and 200 KCAS, more than 60 seconds after take-off or waveoff, and descending, warning is activated if gear not down and locked for 0.3 seconds.	1. Lower landing gear.

Night Attack/Radar Aircraft Only

BINGO

Table of Contents

Bingo, AV-8B
DAY ATTACK AIRCRAFT
GEAR UP - FLAPS AUTO
DI=20.5
REMARKS
Engine: F402-RR-406

DATE: 03 JULY l990 FUEL GRADE: JP-5
DATA BASES: FLIGHT TEST FUEL DENSITY: 6.8 LB/GAL

FUEL — 1,000 LB	RANGE — NAUTICAL MILES	ALTITUDE — 1,000 FEET	CRUISE — MACH	CRUISE FUEL FLOW — LB/MIN	DESCENT TO SEA LEVEL — NAUTICAL MILES	SEA LEVEL RANGE — NAUTICAL MILES 250 KIAS
1.0	18	5	0.39	46.6	6	16
1.5	87	30	0.60	36.4	43	56
2.0	180	41.8	0.73	36.6	66	95
2.5	272	41.6	0.73	37.0	66	135
3.0	362	41.3	0.73	37.0	66	173
3.5	450	41.0	0.73	37.5	66	212
4.0	535	40.8	0.73	38.0	66	250
4.5	618	40.5	0.73	38.5	66	288
5.0	699	40.2	0.73	39.0	66	326
5.5	780	40.0	0.73	39.4	66	363
6.0	859	39.8	0.73	39.8	66	401
6.5	936	39.5	0.73	40.3	66	438
7.0	1,012	39.1	0.73	40.8	66	474

Data based on:

1. Maximum thrust climb at 300 knots/0.74 Mach from sea level to cruise altitude.
2. Fuel includes 200 pounds allowance for vertical landing and 600 pounds for reserve.
3. Descent at idle thrust and 230 knots (no speedbrake).
4. Range includes climb, cruise and descent distances.

Bingo, AV-8B
DAY ATTACK AIRCRAFT
GEAR DOWN - FLAPS AUTO
DI=20.5
REMARKS
Engine: F402-RR-406

DATE: 03 JULY l990 FUEL GRADE: JP-5
DATA BASES: FLIGHT TEST FUEL DENSITY: 6.8 LB/ GAL

FUEL — 1,000 LB	RANGE — NAUTICAL MILES	ALTITUDE — 1,000 FEET	CRUISE — MACH	CRUISE FUEL FLOW — LB/MIN	DESCENT TO SEA LEVEL — NAUTICAL MILES	SEA LEVEL RANGE — NAUTICAL MILES 250 KIAS
1.0	10	5	0.29	58.1	3	10
1.5	43	20	0.39	51.6	12	34
2.0	85	32.8	0.47	46.2	21	58
2.5	132	32.5	0.47	46.9	21	81
3.0	177	32.3	0.47	47.6	21	105
3.5	221	32.0	0.47	48.2	21	128
4.0	264	31.7	0.47	49.0	21	151
4.5	306	31.4	0.47	49.7	21	174
5.0	346	31.1	0.47	50.4	21	196
5.5	386	30.8	0.47	51.1	21	218
6.0	425	30.5	0.47	51.8	21	240
6.5	463	30.2	0.47	52.6	21	262
7.0	501	29.8	0.47	53.3	21	284

DAY GEAR UP/DN

Data based on:

1. Maximum thrust climb at 200 knots/0.48 Mach from sea level to cruise altitude.
2. Fuel includes 200 pounds allowance for vertical landing and 600 pounds for reserve.
3. Descent at idle thrust and 230 knots (no speedbrake).
4. Range includes climb, cruise and descent distances.

Bingo, AV-8B
NIGHT ATTACK AIRCRAFT
GEAR UP - FLAPS AUTO
DI=21.9
REMARKS
Engine: F402-RR-408

DATE: 03 JULY l990 FUEL GRADE: JP-5
DATA BASES: FLIGHT TEST FUEL DENSITY: 6.8 LB/GAL

FUEL — 1,000 LB	RANGE — NAUTICAL MILES	ALTITUDE — 1,000 FEET	CRUISE — MACH	CRUISE FUEL FLOW — LB/MIN	DESCENT TO SEA LEVEL — NAUTICAL MILES	SEA LEVEL RANGE — NAUTICAL MILES 250 KIAS
1.0	17	5	0.40	53.4	6	14
1.5	84	30	0.62	38.5	43	50
2.0	178	44.9	0.78	39.2	78	85
2.5	269	44.5	0.78	39.7	78	120
3.0	357	44.3	0.78	40.3	78	155
3.5	443	44.0	0.78	40.9	78	190
4.0	526	43.7	0.78	41.6	78	224
4.5	606	43.4	0.78	42.2	78	258
5.0	686	43.1	0.78	42.8	78	291
5.5	764	42.9	0.78	43.3	78	325
6.0	840	42.6	0.78	43.8	78	358
6.5	915	42.4	0.79	44.3	78	390
7.0	988	42.1	0.79	44.8	78	422

Data based on:

1. Maximum thrust climb at 300 knots/0.74 Mach from sea level to cruise altitude.
2. Fuel includes 200 pounds allowance for vertical landing and 600 pounds for reserve.
3. Descent at idle thrust and 230 knots (no speedbrake).
4. Range includes climb, cruise and descent distances.

Bingo, AV-8B
NIGHT ATTACK AIRCRAFT
GEAR DOWN - FLAPS AUTO
DI=21.9
REMARKS
Engine: F402-RR-408

DATE: 20 JULY l990 FUEL GRADE: JP-5
DATA BASES: FLIGHT TEST FUEL DENSITY: 6.8 LB/ GAL

FUEL — 1,000 LB	RANGE — NAUTICAL MILES	ALTITUDE — 1,000 FEET	CRUISE — MACH	CRUISE FUEL FLOW — LB/MIN	DESCENT TO SEA LEVEL — NAUTICAL MILES	SEA LEVEL RANGE — NAUTICAL MILES 250 KIAS
1.0	9	5	0.33	76.4	3	8
1.5	41	20	0.41	58.3	11	29
2.0	88	35.8	0.50	48.4	23	49
2.5	134	35.4	0.50	49.7	23	70
3.0	179	35.1	0.50	50.9	23	90
3.5	223	34.7	0.51	52.3	23	110
4.0	265	34.4	0.51	53.6	23	130
4.5	305	34.0	0.52	55.0	23	150
5.0	345	33.6	0.52	56.4	23	170
5.5	384	33.2	0.52	57.1	23	190
6.0	422	32.8	0.52	57.9	23	209
6.5	459	32.5	0.52	58.6	23	229
7.0	495	32.3	0.52	58.9	23	248

NIGHT GEAR UP/DN

Data based on:

1. Maximum thrust climb at 200 knots/0.48 Mach from sea level to cruise altitude.
2. Fuel includes 200 pounds allowance for vertical landing and 600 pounds for reserve.
3. Descent at idle thrust and 230 knots (no speedbrake).
4. Range includes climb, cruise and descent distances.

Bingo, AV-8B
RADAR AIRCRAFT
GEAR UP - FLAPS AUTO
DI=22.9
REMARKS
Engine: F402-RR-408

DATE: 23 APRIL 1993 FUEL GRADE: JP-5
DATA BASES: ESTIMATED FUEL DENSITY: 6.8 LB/GAL

FUEL — 1,000 LB	RANGE — NAUTICAL MILES	ALTITUDE — 1,000 FEET	CRUISE — MACH	CRUISE FUEL FLOW — LB/MIN	DESCENT TO SEA LEVEL — NAUTICAL MILES	SEA LEVEL RANGE — NAUTICAL MILES 250 KIAS
1.0	16	5	0.42	57.2	6	14
1.5	77	30	0.65	43.0	44	48
2.0	162	42.5	0.78	43.7	73	82
2.5	243	42.2	0.78	44.3	73	116
3.0	323	42.0	0.78	44.9	73	150
3.5	401	41.7	0.79	45.5	73	183
4.0	478	41.4	0.79	46.0	73	216
4.5	552	41.2	0.79	46.6	73	249
5.0	624	41.0	0.79	47.3	73	281
5.5	695	40.7	0.79	47.9	73	313
6.0	764	40.5	0.79	48.5	73	344
6.5	832	40.3	0.79	49.0	73	375
7.0	902	40.0	0.79	49.1	73	406

Data based on:

1. Maximum thrust climb at 300 knots/0.74 Mach from sea level to cruise altitude.
2. Fuel includes 200 pounds allowance for vertical landing and 600 pounds for reserve.
3. Descent at idle thrust and 230 knots (no speedbrake).
4. Range includes climb, cruise and descent distances.

Bingo, AV-8B
RADAR AIRCRAFT
GEAR DOWN - FLAPS AUTO
DI=22.9
REMARKS
Engine: F402-RR-408

DATE: 23 APRIL 1993 FUEL GRADE: JP-5
DATA BASES: ESTIMATED FUEL DENSITY: 6.8 LB/GAL

FUEL — 1,000 LB	RANGE — NAUTICAL MILES	ALTITUDE — 1,000 FEET	CRUISE — MACH	CRUISE FUEL FLOW — LB/MIN	DESCENT TO SEA LEVEL — NAUTICAL MILES	SEA LEVEL RANGE — NAUTICAL MILES 250 KIAS
1.0	9	5	0.33	76.4	3	8
1.5	39	20	0.41	62.9	12	28
2.0	80	33.1	0.52	57.4	22	48
2.5	121	32.8	0.52	58.1	22	68
3.0	161	32.4	0.51	59.0	22	88
3.5	200	32.0	0.51	59.8	22	108
4.0	239	31.6	0.51	60.6	22	127
4.5	276	31.3	0.51	61.4	22	147
5.0	311	31.0	0.51	62.3	22	166
5.5	346	30.8	0.51	63.2	22	186
6.0	379	30.6	0.51	64.1	22	205
6.5	412	30.4	0.51	64.7	22	224
7.0	448	30.0	0.50	64.0	22	243

RADAR GEAR UP/DN

Data based on:

1. Maximum thrust climb at 200 knots/0.48 Mach from sea level to cruise altitude.
2. Fuel includes 200 pounds allowance for vertical landing and 600 pounds for reserve.
3. Descent at idle thrust and 230 knots (no speedbrake).
4. Range includes climb, cruise and descent distances.

Bingo, TAV-8B
GEAR UP - FLAPS AUTO
DI=6.1
REMARKS
Engine: F402-RR-406

DATE: 09 JULY l987 FUEL GRADE: JP-5
DATA BASES: ESTIMATED FUEL DENSITY: 6.8 LB/GAL

FUEL — 1,000 LB	RANGE — NAUTICAL MILES	ALTITUDE — 1,000 FEET	CRUISE — MACH	CRUISE FUEL FLOW — LB/MIN	DESCENT TO SEA LEVEL — NAUTICAL MILES	SEA LEVEL RANGE — NAUTICAL MILES 250 KIAS
1.0	19	5	0.40	44.8	6	17
1.5	98	35	0.68	34.1	56	58
2.0	199	43.5	0.78	34.7	75	99
2.5	302	43.2	0.78	35.0	75	140
3.0	402	42.9	0.78	35.4	75	180
3.5	500	42.6	0.78	35.8	75	221
4.0	595	42.4	0.78	36.3	75	261
4.5	688	42.1	0.78	36.7	75	300
5.0	778	41.9	0.78	37.2	75	340
5.5	866	41.6	0.78	37.5	75	379
6.0	953	41.4	0.78	38.1	75	417
6.5	1,039	41.2	0.78	38.4	75	455
7.0	1,127	40.9	0.78	38.7	75	493

Data based on:

1. Maximum thrust climb at 300 knots/0.78 Mach from sea level to cruise altitude.
2. Fuel includes 200 pounds allowance for vertical landing and 600 pounds for reserve.
3. Descent at idle thrust and 230 knots (no speedbrake).
4. Range includes climb, cruise and descent distances.

Bingo, TAV-8B
GEAR DOWN - FLAPS AUTO
DI=6.1
REMARKS
Engine: F402-RR-406

DATE: 10 JULY l987 FUEL GRADE: JP-5
DATA BASES: ESTIMATED FUEL DENSITY: 6.8 LB/GAL

FUEL — 1,000 LB	RANGE — NAUTICAL MILES	ALTITUDE — 1,000 FEET	CRUISE — MACH	CRUISE FUEL FLOW — LB/MIN	DESCENT TO SEA LEVEL — NAUTICAL MILES	SEA LEVEL RANGE — NAUTICAL MILES 250 KIAS
1.0	10	5	0.30	58.8	3	10
1.5	43	20	0.39	51.6	11	34
2.0	88	33.6	0.48	54.2	21	58
2.5	136	33.2	0.48	46.0	21	82
3.0	183	32.9	0.48	46.7	21	105
3.5	228	32.6	0.48	47.5	21	129
4.0	272	32.4	0.48	48.2	21	152
4.5	315	32.1	0.48	49.0	21	175
5.0	357	31.8	0.48	49.8	21	197
5.5	397	31.5	0.48	50.7	21	220
6.0	436	31.2	0.48	51.6	21	242
6.5	475	30.9	0.48	52.3	21	263
7.0	515	30.5	0.48	52.7	21	285

Data based on:

1. Maximum thrust climb at 200 knots/0.48 Mach from sea level to cruise altitude.
2. Fuel includes 200 pounds allowance for vertical landing and 600 pounds for reserve.
3. Descent at idle thrust and 230 knots (no speedbrake).
4. Range includes climb, cruise and descent distances.

TAV-8B (406) GEAR UP/DN

Bingo, TAV-8B
GEAR UP - FLAPS AUTO
DI=6.1
REMARKS
Engine: F402-RR-408

DATE: 1 APRIL 2000 FUEL GRADE: JP-5
DATA BASES: ESTIMATED FUEL DENSITY: 6.8 LB/GAL

FUEL — 1,000 LB	RANGE — NAUTICAL MILES	ALTITUDE — 1,000 FEET	CRUISE — MACH	CRUISE FUEL FLOW — LB/MIN	DESCENT TO SEA LEVEL — NAUTICAL MILES	SEA LEVEL RANGE — NAUTICAL MILES 250 KIAS
1.0	18	10.0	0.46	50.0	13	15
1.5	88	35.0	0.71	37.0	60	52
2.0	189	43.1	0.80	37.6	85	88
2.5	286	42.8	0.80	38.1	85	124
3.0	381	42.6	0.80	38.7	85	160
3.5	474	42.3	0.80	39.1	85	195
4.0	565	42.0	0.80	39.6	85	231
4.5	654	41.7	0.80	40.1	85	265
5.0	740	41.5	0.80	40.5	85	300
5.5	825	41.2	0.80	41.0	85	334
6.0	907	41.0	0.80	41.5	85	368
6.5	987	40.7	0.80	42.0	85	401
7.0	1,068	40.6	0.80	42.4	85	434

Data based on:

1. Maximum thrust climb at 300 knots/0.78 Mach from sea level to cruise altitude.
2. Fuel includes 200 pounds allowance for vertical landing and 600 pounds for reserve.
3. Descent at idle thrust and 230 knots (no speedbrake).
4. Range includes climb, cruise and descent distances.

Bingo, TAV-8B
GEAR DOWN - FLAPS AUTO
DI=6.1
REMARKS
Engine: F402-RR-408

DATE: 1 APRIL 2000 FUEL GRADE: JP-5
DATA BASES: ESTIMATED FUEL DENSITY: 6.8 LB/GAL

FUEL — 1,000 LB	RANGE — NAUTICAL MILES	ALTITUDE — 1,000 FEET	CRUISE — MACH	CRUISE FUEL FLOW — LB/MIN	DESCENT TO SEA LEVEL — NAUTICAL MILES	SEA LEVEL RANGE — NAUTICAL MILES 250 KIAS
1.0	9	5	0.32	71.1	3	9
1.5	42	25.5	0.43	54.9	15	30
2.0	86	34.5	0.53	53.3	23	51
2.5	131	34.2	0.53	54.4	23	72
3.0	175	33.9	0.53	55.5	23	93
3.5	217	33.7	0.54	56.6	23	114
4.0	259	33.4	0.54	57.3	23	134
4.5	299	33.1	0.53	57.9	23	154
5.0	339	32.8	0.53	58.6	23	174
5.5	377	32.5	0.53	59.2	23	194
6.0	414	32.3	0.53	59.9	23	214
6.5	449	32.0	0.53	60.6	23	233
7.0	485	32.1	0.53	58.2	23	252

Data based on:

1. Maximum thrust climb at 200 knots/0.48 Mach from sea level to cruise altitude.
2. Fuel includes 200 pounds allowance for vertical landing and 600 pounds for reserve.
3. Descent at idle thrust and 230 knots (no speedbrake).
4. Range includes climb, cruise and descent distances.

TAV-8B (408) GEAR UP/DN

P 102006Z DEC 07
FM COMNAVAIRSYSCOM PATUXENT RIVER MD//4.0P//
TO ALL HARRIER AIRCRAFT ACTIVITIES
COMNAVAIRFOR SAN DIEGO CA//N421A//
AIRTEVRON THREE ONE CHINA LAKE CA//51J000D/51J00MD//
COMFLOAN MARISTAT
INFO COMNAVSAFECEN NORFOLK VA//11//
COMNAVAIRSYSCOM PATUXENT RIVER MD//4.0P/4.1/5.0F/4.6.3.3//
VMAT TWO ZERO THREE//CO/OPSO/NATOPS/MO//
NAVAIRDEPOT CHERRY PT NC//AV8FST//
PEOTACAIR PATUXENT RIVER MD//PMA-257/PMA-257SP/PMA-257IT//
AJEMA//NINTHSQUADRON//
GRUPAER GROTTAGLIE COMMARFORCOM//ALD/G-6/DSS//
COMMAFORPAC//ALD/G-6/DSS//
CG FIRST MAW//ALD/G-6/DSS//
CG SECOND MAW//ALD/G-6/DSS//
CG THIRD MAW//ALD/G-6/DSS//
MAG TWELVE//CO/OPSO/MO/DSS//
MAG THIRTEEN//CO/OPSO/MO/DSS//
MAG FOURTEEN//CO/OPSO/MO/DSS//
VMA 211//CO/OPSO/MO/DSS//
VMA 214//CO/OPSO/MO/DSS//
VMA 223//CO/OPSO/MO/DSS//
VMA 231//CO/OPSO/MO/DSS//
VMA 311//CO/OPSO/MO/DSS//
VMA 513//CO/OPSO/MO/DSS//
VMA 542//CO/OPSO/MO/DSS//
MSGID/GENADMIN,USMTF,2007/COMNAVAIRSYSCOM/4.0P//
SUBJ/AV-8B AIRCRAFT PRELIMINARY NATOPS PUBLICATIONS INTERIM CHANGE /SAFETY OF FLIGHT//
REF/A/MSGID:EML/COMMARFORCOM/27NOV2007//
REF/B/MSGID:DOC/NAVAIR/30OCT2007//
REF/C/MSGID:DOC/NAVAIR/01SEP2006//
REF/D/MSGID:DOC/NAVAIR/01SEP2006//
REF/E/MSGID:DOC/NAVAIR/01SEP2006//
NARR/REF (A) IS COG CONCURRENCE. REF (B) IS AIRS 2007-235. REF (C) IS AV-8B A1-AV8BB-NFM-000 NATOPS FLIGHT MANUAL DTD 01 SEP 2006 WITH CH 1 DTD 23 APR 2007. REF (D) IS AV-8B A1-AV8BB-NFM-500 NATOPS POCKET CHECKLIST DTD 01 SEP 2006. REF (E) IS AV-8B A1-AV8BB-NFM-700 NATOPS FUNCTIONAL CHECKFLIGHT CHECK LIST DTD 01 SEP 2006.//
GENTEXT/REMARKS/1. THIS MESSAGE IS ISSUED IN RESPONSE TO REFS (A) AND (B). THIS MESSAGE ISSUES INTERIM CHANGE (IC) NUMBER 36 TO REF (C), IC NUMBER 21 TO REF (D), AND IC NUMBER 1 TO REF (E).
2. SUMMARY.
   A. THIS MESSAGE:
      (1) ADDS NEW EMERGENCY 28 V DC BUS PROCEDURES TO REFS (C), (D), AND (E).
      (2) REVISES IMMEDIATE ACTIONS FOR EMERGENCY 28V DC BUS FAILURE PROCEDURES IN REFS (C) AND (D).
   B. REPLACEMENT PAGES CONTAINING THESE CHANGES FOR DOWNLOADING AND INSERTION INTO REFS (C), (D) AND (E) WILL BE ATTACHED TO THIS INTERIM CHANGE MESSAGE WHEN IT IS POSTED ON THE NATEC AND AIRWORTHINESS WEBSITES (SEE LAST PARA BELOW).
3. THE REPLACEMENT PAGES IMPACT THE FOLLOWING NATOPS FLIGHT MANUAL. THE REPLACEMENT PAGE PACKAGE INCLUDES THE FOLLOWING PAGES:
      A. REF (C) (AV-8B NFM-000) PAGES 5/(6 BLANK), 2-31, 2-32, 7-17,

7-18, 10-5, 10-6, 13-1, 13-2, 15-17 THRU 15-26, 18-1, 18-2, 18-5, 18-6, F0-7 AND F0-8.
(1) PEN AND INK CHANGES ARE AUTHORIZED TO EXISTING FO-7 AND F0-8 IF UNABLE TO PRINT OUT PROPERLY DUE TO PAGE LENGTH.

B. REF (D) (AV-8B NFM-500) PAGES B, C, 19, 20, E1, E2, E35 THRU E38.

C. REF (E) (AV-8B NFM-700) PAGES COVER, A, 6 AND 7.

4. POINTS OF CONTACT:

A. AV-8B NATOPS PROGRAM MANAGER:

(1) MAJ FREEDOM CARLSON, VMAT-203, (252) 466-2638, DSN 582-2638, E-MAIL FREEDOM.CARLSON(AT)USMC.MIL

B. NAVAIR POCS:

(1) MARTY SCANLON, NATOPS IC COORDINATOR, TEL DSN 757-6045 OR COMM (301) 757-6045, EMAIL: MARTIN.SCANLON(AT)NAVY.MIL

(2) MAJ JAMES COPPERSMITH, PMA-257 APMSE, (301) 757-5446, DSN 757-5446, E-MAIL JAMES.COPPERSMITH(AT)NAVY.MIL

(3) KRISTIN SWIFT, AIR-4.0P, NATOPS CHIEF ENGINEER, (301) 995-4193, DSN 995-4193, E-MAIL KRISTIN.SWIFT(AT)NAVY.MIL.

(4) AIRWORTHINESS GLOBAL CUSTOMER SUPPORT TEAM, TEL: 301-757-0187, EMAIL: AIRWORTHINESS(AT)NAVY.MIL.

5. THIS MESSAGE WILL BE POSTED ON THE NATEC WEBSITE, WWW NATEC.MIL WITHIN 48 HOURS OF RELEASE. NEW NATOPS IC MESSAGES MAY BE FOUND IN TWO PLACES ON THIS WEBSITE:

A. IN THE NATOPS IC DATABASE FOUND UNDER THE TMAPS OPTION.

B. IN THE AFFECTED PUBLICATIONS(S) JUST AFTER THE IC SUMMARY PAGE. IF THE IC MESSAGE INCLUDES REPLACEMENT PAGES, THEY WILL BE ADDITIONALLY PLACED WITHIN THE MANUAL AND REPLACED PAGES DELETED.
MESSAGES ARE NORMALLY POSTED IN THE DATABASE BEFORE APPEARING IN THE PUBLICATION. THIS MESSAGE WILL ALSO BE POSTED ON THE NATOPS WEBSITE, AIRWORTHINESS.NAVAIR.NAVY.MIL. IF UNABLE TO VIEW THIS MESSAGE ON EITHER THE NATEC OR NATOPS WEBSITES, INFORM THE NATOPS GLOBAL CUSTOMER SUPPORT TEAM AT (301) 342-3276, DSN 342-3276, OR BY EMAIL AT NATOPS(AT)NAVY.MIL.

C. INFORMATION REGARDING THE AIRWORTHINESS PROCESS, INCLUDING A LISTING OF ALL CURRENT INTERIM FLIGHT CLEARANCES, NATOPS AND NATIP PRODUCTS ISSUED BY NAVAIR 4.0P, CAN BE FOUND AT OUR WEBSITE: AIRWORTHINESS.NAVAIR.NAVY.MIL.

D. EPOWER FOLDER NUMBER 434740, TRACKING NUMBER 28987.//

P 202004Z JUN 07
FM COMNAVAIRSYSCOM PATUXENT RIVER MD//4.0P//
TO ALL HARRIER AIRCRAFT ACTIVITIES
COMNAVAIRFOR SAN DIEGO CA//N421A//
AIRTEVRON THREE ONE CHINA LAKE CA
COMFLOAN
MARISTAT
INFO COMNAVSAFECEN NORFOLK VA//11//
COMNAVAIRSYSCOM PATUXENT RIVER MD//4.0P/4.1/5.0F/4.6.3.3//
NAVAIRDEPOT CHERRY PT NC//AV8FST//
VMAT TWO ZERO THREE//CO/OPSO/NATOPS/MO//
PEOASWASM PATUXENT RIVER MD//PMA-257/PMA-257SP/PMA-257IT//
AJEMA//NINTHSQUADRON//
GRUPAER GROTTAGLIE
VMA 211
VMA 214
VMA 223
VMA 231
VMA 311
VMA 513
VMA 542
MSGID/GENADMIN/COMNAVAIRSYSCOM/4.0P//
SUBJ/AV-8B AIRCRAFT PRELIMINARY NATOPS PUBLICATIONS INTERIM CHANGE /SAFETY OF FLIGHT//
REF/A/MSGID:EML/COMMARFORCOM/30MAY2007//
REF/B/MSGID:DOC/NAVAIR/23MAY2007//
REF/C/DOC/NAVAIR/01SEP2006//
REF/D/DOC/NAVAIR/01SEP2006//
REF/E/DOC/NAVAIR/15SEP1990//
NARR/REF (A) IS TYCOM COG CONCURRENCE. REF (B) IS AIRS 2007-107. REF (C) IS AV-8B A1-AV8BB-NFM-000 NATOPS FLIGHT MANUAL DTD 01 SEP 2006 WITH CH 1 DTD 23 APR 2007. REF (D) IS AV-8B A1-AV8BB-NFM-500 NATOPS POCKET CHECKLIST DTD 01 SEP 2006. REF (E) IS AV-8B A1-AV8BB-NFM-600 NATOPS SERVICING CHECKLIST DTD 15 SEPTEMBER 1990 WITH CH 3 DTD 1 AUG 1995//
GENTEXT/REMARKS/1. THIS MESSAGE IS ISSUED IN RESPONSE TO REFS (A) AND (B). THIS MESSAGE ISSUES INTERIM CHANGE (IC) NUMBER 35 TO REF (C), IC NUMBER 20 TO REF (D), AND IC NUMBER 01 TO REF (E).
2. SUMMARY.
   A. THIS MESSAGE:
      (1) ADDS THE ELECTRONIC AIRSPEED/ALTITUDE SENSOR SYSTEM DESRIPTION AND PREFLIGHT/SERVICING PROCEDURES TO REFS (C), (D), AND (E).
      (2) REVISES IMMEDIATE ACTIONS FOR LANDING GEAR UNSAFE INDICATION IN REFS (C) AND (D).
   B. REPLACEMENT PAGE PAGES CONTAINING THESE CHANGES FOR DOWNLOADING AND INSERTION INTO REFS (C), (D) AND (E) WILL BE ATTACHED TO THIS INTERIM CHANGE MESSAGE WHEN IT IS POSTED ON THE NATEC AND NATOPS WEBSITES (SEE LAST PARA BELOW).
3. THE REPLACEMENT PAGE PACKAGE INCLUDES THE FOLLOWING:
      A. REF (C) (AV-8B NFM) PAGES 5, 2-81/82/82A, 7-11/12/12A, 16-1/2/2A, AND 18-5/6.

B. REF (D) (AV-8B PCL) PAGES B, 13, 14/14A, E41/42/43/44.
C. REF (E) (AV-8B SCL) PAGES C, 17, AND 18.

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(2) MAJ JAMES COPPERSMITH, PMA-257 APMSE, (301) 757-5446, DSN 757-5446, E-MAIL JAMES.COPPERSMITH(AT)NAVY.MIL

(3) CDR JR NASH, 4.0P NATOPS OFFICER, TEL DSN 995-2052, OR COMM (301) 995-2052, EMAIL: JAMES.NASH(AT)NAVY.MIL

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5. THIS MESSAGE WILL BE POSTED ON THE NATEC WEBSITE, WWW.NATEC.NAVY.MIL WITHIN 48 HOURS OF RELEASE. NEW NATOPS IC MESSAGES MAY BE FOUND IN TWO PLACES ON THIS WEBSITE:

A. IN THE NATOPS IC DATABASE FOUND UNDER THE TMAPS OPTION.

B. IN THE AFFECTED PUBLICATIONS(S) JUST AFTER THE IC SUMMARY PAGE. IF THE IC MESSAGE INCLUDES REPLACEMENT PAGES, THEY WILL BE ADDITIONALLY PLACED WITHIN THE MANUAL AND REPLACED PAGES DELETED. MESSAGES ARE NORMALLY POSTED IN THE DATABASE BEFORE APPEARING IN THE PUBLICATION. THIS MESSAGE WILL ALSO BE POSTED ON THE NATOPS WEBSITE, AIRWORTHINESS.NAVAIR.NAVY.MIL. IF UNABLE TO VIEW THIS MESSAGE ON EITHER THE NATEC OR NATOPS WEBSITES, INFORM THE NATOPS GLOBAL CUSTOMER SUPPORT TEAM AT (301) 342-3276, DSN 342-3276, OR BY EMAIL AT NATOPS(AT)NAVY.MIL.

C. EPOWER FOLDER NUMBER 426799, TRACKING NUMBER 27221.//

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