FLIGHT SUPPORT
LECTURE GUIDE

AIRWAYS NAVIGATION
FLIGHT PROCEDURES
T-45
COMBINED FLIGHT TRAINING

2009

DEPARTMENT OF THE NAVY
CHIEF OF NAVAL AIR TRAINING
CNATRA
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CNATRA P-1233
N715
10 AUG 09

CNATRA P-1233 (REV. 06-09)

Subj: FLIGHT SUPPORT LECTURE GUIDE, AIRWAYS NAVIGATION FLIGHT PROCEDURES, T-45

1. CNATRA P-1233 (Rev. 06-09) PAT, is issued for information, standardization of instruction, and guidance for all flight instructors and student aviators within the Naval Air Training Command.

2. This publication shall be used as an explanatory aid to support the T-45 Combined Flight Training. It will be the authority for the execution of all flight procedures and maneuvers herein contained.

3. Recommendations for changes shall be submitted via CNATRA TCR form 1550/19 in accordance with CNATRAINST 1550.6E.

4. CNATRA P-1233 (05-99) PAT is hereby cancelled and superseded.

JAMES A. CRABBE
Chief of Staff

Distribution:
CNATRA N7 (5) Plus Original
COMTRAWING ONE (200)
COMTRAWING TWO (200)

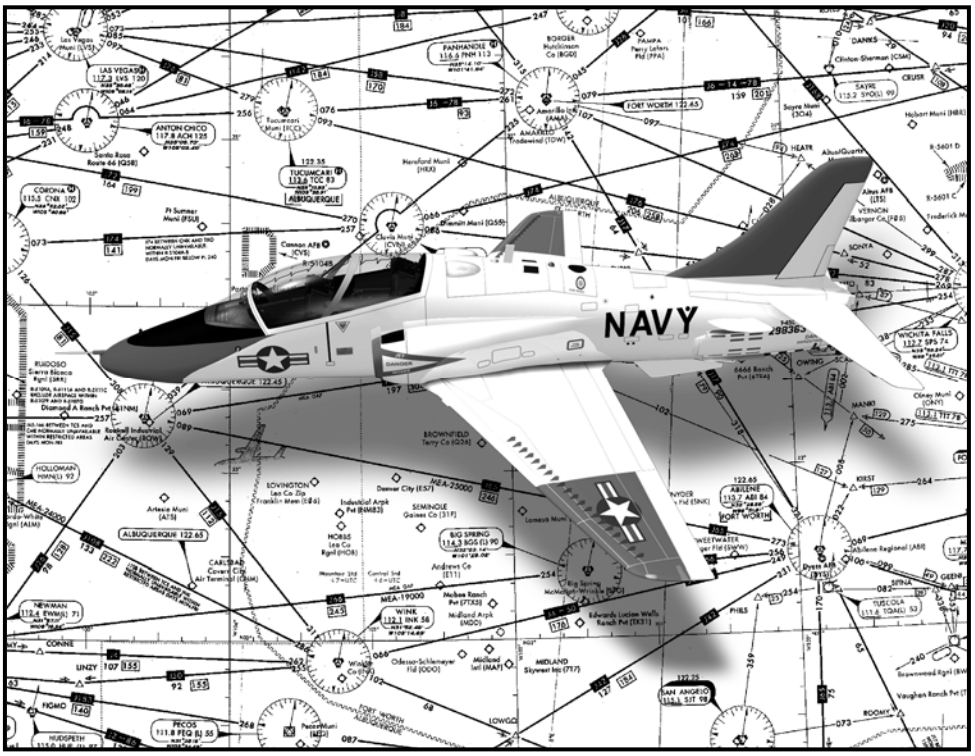
FLIGHT TRAINING INSTRUCTION

FOR

AIRWAYS NAVIGATION FLIGHT PROCEDURES

T-45 COMBINED FLIGHT TRAINING

P-1233



LIST OF EFFECTIVE PAGES

Dates of issue for original and changed pages are:
Original...0...15 May 99 (this will be the date issued)
Revision 1…0…10 Aug 09

TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 34 CONSISTING OF THE FOLLOWING:

Page No.	Change No.	Page No.	Change No
COVER	0		
LETTER	0		
iii – vii	0		
viii (blank)	0		
1-1 – 1-24	0		
A-1	0		
A-2 (blank)	0		

INTERIM CHANGE SUMMARY

The following Changes have been previously incorporated in this manual:

CHANGE NUMBER	REMARKS/PURPOSE

The following interim Changes have been incorporated in this Change/Revision:

INTERIM CHANGE NUMBER	REMARKS/PURPOSE	ENTERED BY	DATE

TABLE OF CONTENTS

TABLE OF FIGURES

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CHAPTER ONE
PLANNING FOR AIRWAYS NAVIGATION MISSION

100. INTRODUCTION – N/A

COURSE/STAGE:

- T-45 Airways Navigation Flight Procedures

LESSON TITLE:

- Airways Navigation Flight Procedures

LESSON IDENTIFIER:

1. T-45 ANFP-01

2. T-45C ADV RIFP-05

LEARNING ENVIRONMENT:

- Classroom

ALLOTTED LESSON TIME:

1. T-45 ANFP-01 2.7 hr

2. T-45C ADV RIFP-05 3.0 hr

TRAINING AIDS:

- None

STUDY RESOURCES:

1. DOD FLIP IFR Supplement

2. OPNAVINST 3710.7

3. DOD FLIP high altitude approach plates

4. DOD FLIP low altitude approach plates

5. FLIP General Planning

LESSON PREPARATION:

- **Read:**

  a. Sections 420 and 428, NATOPS General Flight and Operating Instructions Manual, OPNAVINST 3710.7

  b. Chapter 25, NATOPS Instrument Flight Manual, NAVAIR 00-80T-112

  c. Instrument Flight Planning, Flight Procedures, Safety/Emergency Procedures, Instrument Flight FTI

REINFORCEMENT:

- Review the procedures for completing the Single-Engine Jet Flight Log and DD-175.

EXAMINATION:

The objectives in this lesson will be tested in Airways Navigation 02X and RIFP-06X (T-45C ADV.)

101. LESSON OBJECTIVES

1. Recall FLIPs required for flight planning
2. Recall items to be checked for destination airfield
3. Determine weather criteria for flight
4. Recall takeoff minimums as defined in OPNAVINST 3710.7
5. Determine alternate routes/airfields
6. Plan route of flight
7. Recall procedures for performing an enroute descent
8. Determine fuel requirements for route of flight
9. Prepare single-engine jet log
10. Recall procedures for completing DD-175
11. Recall instrument approach criteria outlined in OPNAVINST 3710.7
12. Recall procedures for modifying route of flight and destination

1-2 PLANNING FOR AIRWAYS NAVIGATION MISSION

13. Recall procedures for lost communications situations

14. Recall procedures for mission cockpit management

15. Recall procedures for performing IFR to a contact approach

16. Recall procedures for performing visual approach

17. Recall procedures for performing a circling approach

18. Recall procedures for performing missed approach

19. Recall procedures for terminal communications

102. MOTIVATION

Prior to beginning any flight, you must know your fuel requirements and have a plan of action that will enable you to make accurate and rapid decisions in the event weather conditions change. Because flight planning is a part of every flight, you will use the material reviewed in this lesson extensively both during training and in the fleet.

As you know, a primary ingredient in a successful flight is thorough preflight planning. To ensure a safe and successful flight, you must understand the flight planning process along with the associated documents needed to manage a cross-country flight.

Filling out a flight plan correctly serves as a checklist, ensuring that you have a plan to follow based on aircraft performance, weather, NAVAIDs, and applicable USN/FAA regulations.

103. OVERVIEW

Stressing preflight preparation, this lesson reviews the related procedures, requirements, and criteria used to prepare for cross-country flight. Your thorough preparation will take most of the uncertainties out of your flight.

In this lesson we will be studying:

1. FLIP publications required to prepare a flight plan

2. Check-items for destination airfield

3. Weather minimums for instrument flight

4. Departure point minimums for takeoff

5. Selecting alternate routes/airfields

6. Planning route of flight

7. Fuel requirements for route of flight

8. Preparing Single-Engine Jet Flight log

9. Preparing DD Form 175, Military Flight Plan

10. Criteria determining type of approach

11. Additional Airways Navigation review topics

104. REFRESHER

Recall

1. OPNAVINST 3710.7 regulations from your T-34 training and T-45 FRR lessons

2. Regulations and your meteorological data interpretation skills to solve flight planning problems

3. Your experiences of flight planning during your earlier T-45 training

105. PRESENTATION

FLIPs required for flight planning

1. DOD FLIP General Planning

    a. Index for aeronautical information

        i. Location of data contained in General Planning

        ii. Reference to other primary publications

    b. Definition of aeronautical terms

    c. Flight plans

    d. Pilot procedures

        i. Preflight

        ii. Departure

        iii. Enroute

1-4 PLANNING FOR AIRWAYS NAVIGATION MISSION

iv. Arrival

v. Supplementary information

2. DOD FLIP high altitude charts

   a. High altitude route structure

   b. Primary NAVAIDs

   c. Airport locations

   d. Special use airspace

3. DOD FLIP IFR supplement

   a. IFR airport/facility directory

   b. Special notices/procedures required to support enroute and area charts

4. DOD FLIP Flight Information handbook

   a. Emergency and lost communication procedures

   b. Flight data and procedures

      i. Traffic control

      ii. Approach/runway lighting systems

      iii. Position reporting

      iv. Runway condition reading

   c. Meteorological information

      i. Telephone weather briefings

      ii. Pilot-to-Metro Service (PMSV)

      iii. FAA Weather Services

      iv. Automatic Terminal Information Service (ATIS)

      v. Pilot Weather Reports (PIREPs)

vi. Turbulence/icing types and intensity

d. Conversion tables

e. FLIP and NOTAM abbreviations

5. DOD FLIP Area Planning AP/1, North and South America, planning and procedural information

a. Route and area restrictions and flight hazards

b. FAA airspace classifications

c. Specific airport restrictions and cautions

d. Preferred IFR routes

6. DOD FLIP Area Planning AP/1, tabulated information on all special use airspace areas for North and South America

a. Prohibited

b. Restricted

c. Danger

d. Warning

e. Alert

f. Military operations

g. Parachute jumping

7. DOD FLIP high altitude (Terminal) Airport Diagrams, Instrument Approach procedures, Military Standard Instrument Departures, Radar Instrument Approach Minimums

a. Transition information from high altitude route structure

b. Instrument approach procedures for high performance aircraft

c. Military standard instrument departures (SIDs)

d. Airport sketches/diagrams

e. Instrument approach minimums

1-6 PLANNING FOR AIRWAYS NAVIGATION MISSION

f. Minimum safe altitude for radius of 25 nm from approach NAVAID

g. Emergency safe altitude for radius of 100 nm from approach NAVAID

h. Airport communication frequencies

8. DOD FLIP low altitude approach plates: same as high altitude approach plates with two exceptions

a. No transition information from high altitude route structure

b. Instrument approach procedures are not for high performance aircraft

9. DOD FLIP area arrival charts: depict detailed facilities/routes for twelve high density terminal areas

10. DOD FLIP standard arrival routes (STARS): provide clues for filing to feeder fixes and other terminal routing information

Check following items for destination airfield

1. Hours of operation/landing restrictions (DOD FLIP IFR supplement and NOTAMs)

2. Length of runway (DOD FLIP IFR supplement and high altitude approach plates)

3. Types of approaches available and minimums (DOD FLIP high altitude approach plates)

4. Runway lighting (DOD FLIP IFR supplement flight information handbook and high altitude approach plates)

5. Field elevation (DOD FLIP IFR supplement and high altitude approach plates)

6. Obstructions (DOD FLIP IFR supplement and high altitude approach plates)

7. Communications/NAVAID frequencies (DOD FLIP IFR supplement and high altitude approach plates)

8. Availability of arresting gear and jet barrier (DOD FLIP IFR supplement and high altitude approach plates)

9. Availability of aircraft servicing (DOD FLIP IFR supplement)

10. Forecast weather and winds at ETA +/- 1 hour (terminal forecasts)

11. Status of runways, NAVAIDs, and emergency equipment (NOTAMs and DOD FLIP IFR supplement)

12. Airfield restrictions, hazards, and cautions (DOD FLIP AP/1)

13. Miscellaneous information provided by DOD FLIP IFR supplement

Weather criteria

NOTE

IFR flight plans shall be filed and flown by Naval aviators whenever practicable regardless of weather as a means of reducing the potential for midair collisions.

1. All flight plans are based on the following:

   a. Weather at the actual point of departure at time of clearance

   b. Existing and forecast weather for entire route of flight

   c. Destination and alternate forecast WX for ETA +/- 1 hour

DCA 221010 10SCT C18 BKN 5SW-3415G25 OCNL C8 X 1/2SW 12Z C50 BKN 3312G22 04Z MVFR CLG.

DCA 221010: DCA Forecast 22nd day of month - valid time 10Z-10Z.

10SCT C18 BKN 5SW--3415G25 OCNL C8 X 1/2SW: Scattered clouds at 1000 feet. Ceiling 1800 feet broken. Visibility 5 miles. Light snow showers. Surface wind from 340 degrees at 15 knots. Gusts to 25 knots. Occasional ceiling 8 hundred feet sky totally obscured. Visibility 1/2 mile in moderate snow showers.

12Z C50 BKN 3312G22: By 12Z becoming ceiling 5000 feet broken. Surface wind 330 degrees at 12 knots. Gusts to 22.

04Z MVFR CLG: Last 6 hours of FT after 04Z marginal VFR due to ceiling.

Figure 1-1 DCA Forecast

NOTE

A DD-175-1 WX briefing form shall be completed for all flights to be conducted in IMC. The forecaster will complete the form for briefings conducted in person. It is the pilots responsibility to complete the form for telephonic or weathervision briefings.

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2. The following are filing criteria rules for destination approach minimums

    a. Observe absolute minimums of 200 and 1/ 2 sm (2,400 RVR) for single-piloted aircraft

    b. Use minimums for instrument approach to probable runway based on forecast surface winds

    c. Use lowest minimums for any approach you are qualified and your aircraft is equipped to fly

3. In-flight weather sources

    a. ATIS

    b. FSS (frequency 255.4)

    c. ARTCC

    d. Approach control

    e. PMSV – Metro (FIH or IFR ES)

4. Pilots are expected to obtain enroute and terminal weather updates, especially:

    a. When forecast for enroute or destination is marginal

    b. Before overflying the alternate airfield

    c. Before descent is initiated (prior to hand-off to approach control)

    d. When on a stopover flight plan

Takeoff minimums

1. Special instrument rating

    a. No takeoff ceiling or visibility limits apply

    b. Takeoff dependent upon

        i. Judgment of pilot

        ii. Urgency of flight

2. Standard instrument rating minimums

a. Lowest non-precision minimums for runway in use but not lower than 300-1

b. If runway in use has precision approach, takeoff is permitted to precision minimums or 200-1/2 (2,400 RVR), whichever is higher

RVR (feet)	Visibility (statute miles)
1600	1/4
2400	1/2
3200	5/8
4000	3/4
4500	7/8
5000	1
6000	1-1/4

Figure 1-2 RVR to Ground Visibility Conversion Chart

Planning for alternate

1. Apply weather minimum rules to destination

   a. Ceiling and visibility of 0-0 up to, but not including, published minimums: alternate must be 3,000-3 or better at ETA +/- 1 hour

   b. Published minimums up to but not including 3,000-3

      i. Non-precision: alternate must be published minimums plus 300-1

      ii. Precision: alternate must be published minimums plus 200-1/2

   c. 3,000-3 or better: no alternate required

NOTE

CNATRA requires that you always file for an alternate.

<table>
<tr><td>DESTINATION WEATHER
ETA plus and minus one (1) hour</td><td colspan="3">ALTERNATE WEATHER
ETA plus and minus one (1) hour</td></tr>
<tr><td>0-0 up to but not including
published minimums</td><td colspan="3">3000-3 or better</td></tr>
<tr><td rowspan="2">Published minimums up to but
not including 3000-3 (single-piloted absolute
minimums 200-1/2)</td><td rowspan="2">NON-
PRECISION</td><td colspan="2">PRECISION</td></tr>
<tr><td>ILS</td><td>PAR</td></tr>
<tr><td></td><td>*Published
minimums
plus 300-1</td><td>Published
minimums
plus
200-1/2</td><td>*Published
minimums
plus
200-1/2</td></tr>
<tr><td>3000-3 or better</td><td colspan="3">No alternate required</td></tr>
<tr><td colspan="4">*In the case of single-piloted or other aircraft with only one operable UHF/VHF transceiver, radar approach minimums may not be used as the basis for selection of an alternate airfield.</td></tr>
</table>

Figure 1-3 IFR Filing Criteria

2. Select appropriate alternate

   a. Choose suitable alternate with required forecast weather minimums

   b. Check NOTAMs for compatible NAVAIDs

   c. Alternate airfield must have approach compatible with aircraft NAVAIDs and can be flown without use of two way communications if either of the following conditions exist:

      i. If destination airfield lacks approach that is compatible with aircraft NAVAIDs and cannot be flown without two way communication

      ii. If forecast weather is below 3,000 ft ceiling and 3 sm

   d. Determine suitable approach to runway with consideration to crosswinds and T-45 requirements

   e. An airfield may be selected as an alternate even though certain restrictions may preclude use of the same airfield as a destination

      i. When another unrestricted airfield is not available as an alternate the following airfields may be used without obtaining permission:

(a). Official business only

(b). PPR

ii. Civilian airfields may be used as an alternate provided:

(a). A DOD flying unit is located on the aerodrome

(b). No military airfield or civilian airfield with a DOD unit is available

NOTE

Don't forget to close your flight plan with flight service if you land at a civilian airfield.

Planning route of flight

1. Select destination and route of flight

2. Obtain initial weather briefing

   a. Determine route with acceptable enroute weather (consider winds, turbulence, icing, and thunderstorms)

   b. Determine altitude/flight level with most favorable winds

NOTE

Consider MEA's and hemispheric rotation.

   c. Determine need for alternate

NOTE

Always file for an alternate.

   d. Determine suitable alternates

   e. Record forecast surface winds for destination and possible alternates

   f. Record required data for computing takeoff performance

      i. Departure base pressure altitude

      ii. Winds

iii. Temperature

g. Determine expected active runway

3. Reference required FLIP publications and NOTAMs

a. Select suitable alternate(s)

b. Review SID, if available

c. Review approach charts for destination and alternate

Determining fuel requirements for stages of flight

1. NATOPS performance data, Part XI and JMPS.

2. T-45 fuel planning data, above, for standard conditions during initial planning. (Data is not current NATOPS values and is to be used for training purposes only. DO NOT USE FOR FLIGHT.)

a. Optimum altitude and speed

b. Start, taxi, takeoff fuel

c. Fuel to climb

d. Enroute fuel from level off to destination IAF (time enroute multiplied by fuel consumption rate)

e. Penetration and approach fuel

NOTE

Consider altitude leaving and altitude descending to for enroute descent fuel computation.

f. Fuel from destination IAF to alternate IAF plus approach fuel

g. Reserve fuel (10% or 20 minutes at 10,000 ft at maximum endurance, whichever is greater)

Preparing single-engine jet flight log

1. Discuss techniques for preparation of flight log

SINGLE-ENGINE JET FLIGHT LOG

DEP ELEV	CLNC DELIV	GND CONT	TOWER
317	301.0	336.4	340.2(L) 360.2(R)
ALT CORR	**TIME OFF**	**TAS**	**LBS PH**
		300	1078

CLEARANCE

DEPARTURE

DEST ELEV		APC CONT		TOWER		GND CONT	
30		270.8/120.65		340.2/126.2		336.4/121.7	

ATIS 267.6
METRO 359.6

Figure 1-4 Single-Engine Jet Flight Log – Top Section

ROUTE / TO	IDENT / CHAN	CUS	DIST	ETE	ETA / ATA	LEG / FUEL	EFR 2904 / AFR	NOTES
Depart NMM	NMM 56	START-TAXI-T/O				200	2704	
⊖▸✆	MEI 117	224	28	6		300	2404	MEI 117.0
⊖▸ NPA 141010	NPA 119	142	153	27		520	1884	
			178	33		1020		
								FRCST ALT

ALTERNATE	ROUTE	ALTITUDE	TIME	FUEL
VPS ELGIN AFB	⊖▸	16000	0+09	1+15

ALT ELEV	APC CONT	TOWER	GND CONT
85	322.6/125.1	348.4/118.2	335.8/121.8

VPS ELGIN AFB	DWO 02	112	45	9		180	1824	ATIS 373.5/134.625 METRO 342.5

Figure 1-5 Single-Engine Jet Flight Log – Lower Front

2. Discuss use of flight log

FUEL PLAN

1. CLIMB / ROUTE DEST IAF		6. START/TAXI	
2. ROUTE ALT IAF (if required)		7. TOTAL REQUIRED (4, 5 & 6)	
3. APPROACHES		8. TOTAL ABOARD	
4. TOTAL (1, 2 & 3)		9. SPARE FUEL (8 -7)	
5. RES 10% of 4 (Min 20 mins)			

EMERGENCY "BINGO" TO ALTERNATE

	REQUIRED		APPROACH		RES		TOTAL
LAST CRUISING ALT		+		+		=	
INITIAL APP ALT		+		+		=	
EMER SAFE ALT		+		+		=	

Figure 1-6 Single-Engine Jet Flight Log – Top Section

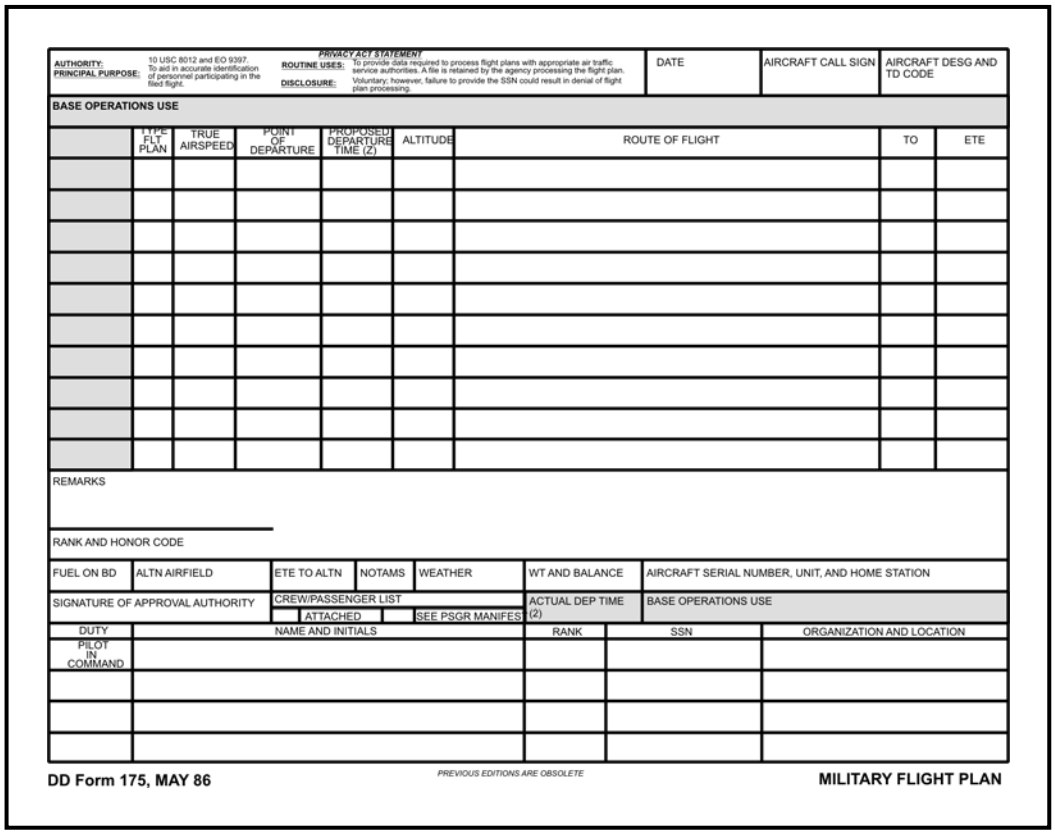
CHECK LIST	DESTINATION	ALTERNATE
RWY LENGTH	25/8000 x 200	30 12,000/300
LIGHTING	HIRL	(A1) HIRL
FUEL / JASU / LOX	J5	J8
ILS	NONE	RW 30 110.3 270/24
LOC	NONE	RW 30 110.3 320/40
ASR	25L 460 1¼	30 520/40
PAR MINS	25L 200 ½	NONE
TAC MINS	25L 460 1¼	30 520/40
ARR GEAR	E 28 Both Ends	BAK 12 Both Ends
PUBS	✓	✓
NOTAMS	✓	✓
FUEL PACKET	✓	✓
FLASHLIGHT, WALLET, ETC.	✓	✓

EMER FIELDS	
MERIDIAN KEY FIELD	
ID	MEI
CH	117/117.0
PAGE NO.	96

Figure 1-7 Single-Engine Jet Flight Log – Top Section

Military flight plan: completing DD Form 175

1. Review DOD FLIP General Planning for specific preparation steps



PRIVACY ACT STATEMENT

AUTHORITY: 10 USC 8012 and EO 9397.
PRINCIPAL PURPOSE: To aid in accurate identification of personnel participating in the filed flight.
ROUTINE USES: To provide data required to process flight plans with appropriate air traffic service authorities. A file is retained by the agency processing the flight plan.
DISCLOSURE: Voluntary; however, failure to provide the SSN could result in denial of flight plan processing.

DATE	AIRCRAFT CALL SIGN	AIRCRAFT DESG AND TD CODE

BASE OPERATIONS USE

	TYPE FLT PLAN	TRUE AIRSPEED	POINT OF DEPARTURE	PROPOSED DEPARTURE TIME (Z)	ALTITUDE	ROUTE OF FLIGHT	TO	ETE

REMARKS

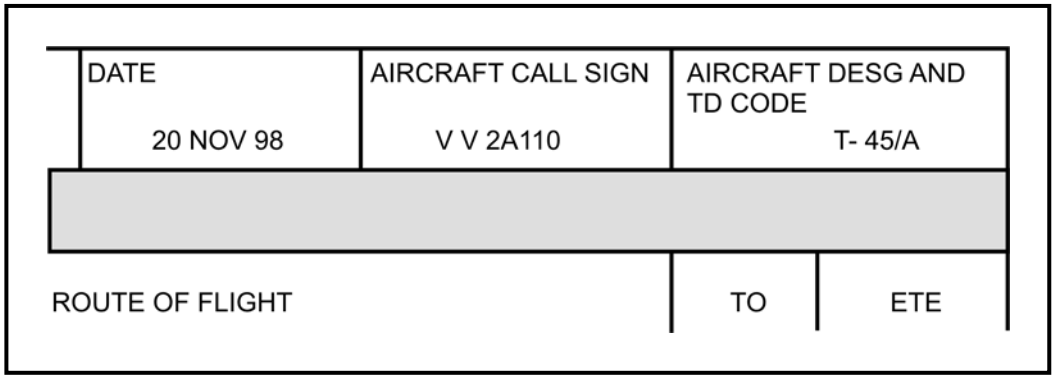
RANK AND HONOR CODE

FUEL ON BD	ALTN AIRFIELD	ETE TO ALTN	NOTAMS	WEATHER	WT AND BALANCE	AIRCRAFT SERIAL NUMBER, UNIT, AND HOME STATION
SIGNATURE OF APPROVAL AUTHORITY		CREW/PASSENGER LIST ATTACHED		SEE PSGR MANIFEST	ACTUAL DEP TIME (Z)	BASE OPERATIONS USE

DUTY	NAME AND INITIALS	RANK	SSN	ORGANIZATION AND LOCATION
PILOT IN COMMAND				

DD Form 175, MAY 86 PREVIOUS EDITIONS ARE OBSOLETE MILITARY FLIGHT PLAN

Figure 1-8 Flight Plan DD-175



DATE	AIRCRAFT CALL SIGN	AIRCRAFT DESG AND TD CODE
20 NOV 98	V V 2A110	T- 45/A

ROUTE OF FLIGHT	TO	ETE

Figure 1-9 DD-175 Section I

2. ANFP instructor will discuss techniques for preparation and use of DD Form 175 for different mission profiles

   a. IFR point to point

b. Stopover

c. Terminal delay

NOTE

If there is a delay in takeoff, do not forget to revise your ETA. Pilots are required to file 30 minutes prior to expected departure time.

BASE OPERATIONS USE								
	TYPE FLT PLAN	TRUE AIRSPEED	POINT OF DEPARTURE	PROPOSED DEPARTURE TIME (Z)	ALTITUDE	ROUTE OF FLIGHT	TO	ETE
	I	300	NMM	1350	190	MEI NPA 141010	NPA	0+31

Figure 1-10 DD-175 Section II

REMARKS

Request Radar Departure

RANK AND HONOR CODE V5H

FUEL ON BD	ALTN AIRFIELD	ETE TO ALTN	NOTAMS	WEATHER	WT AND BALANCE	AIRCRAFT SERIAL NUMBER, UNIT, AND HOME STATION

Figure 1-11 DD-175 Section III

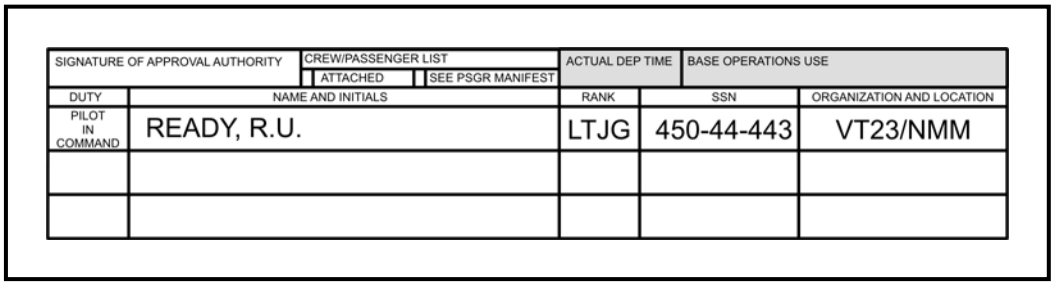
RANK AND HONOR CODE V5H

FUEL ON BD	ALTN AIRFIELD	ETE TO ALTN	NOTAMS	WEATHER	WT AND BALANCE	AIRCRAFT SERIAL NUMBER, UNIT, AND HOME STATION
2+40	VPS	0+09	√	4-129	N/R	165457/TW1/NMM

SIGNATURE OF APPROVAL AUTHORITY	CREW/PASSENGER LIST		ACTUAL DEP TIME	BASE OPERATIONS USE
	ATTACHED	SEE PSGR MANIFEST		

DUTY	NAME AND INITIALS	RANK	SSN	ORGANIZATION AND LOCATION
PILOT IN COMMAND				

Figure 1-12 DD-175 Section IV



SIGNATURE OF APPROVAL AUTHORITY	CREW/PASSENGER LIST ATTACHED / SEE PSGR MANIFEST	ACTUAL DEP TIME	BASE OPERATIONS USE	
DUTY	NAME AND INITIALS	RANK	SSN	ORGANIZATION AND LOCATION
PILOT IN COMMAND	READY, R.U.	LTJG	450-44-443	VT23/NMM

Figure 1-13 DD-175 Section V

Criteria determining type of approach

1. Navigational equipment on aircraft

2. Types of approaches available at destination

3. Weather: at or above published minimums

NOTE

Do not commence approach at destination if reported weather is below published minimums.

4. Absolute minimums for single-piloted aircraft executing a precision approach: 200 ft ceiling visibility 1/2 sm (2,400 RVR) or published minimums, whichever is greater

5. Published minimums

   a. Review published landing minimums for category C aircraft (T-45 is category C) to determine lowest MDA/DH approach

NOTE

T-45 in no-flap configuration is **not** a category C aircraft. The radius of turn may exceed circling cleared airspace.

   b. Determine if forecast weather conditions are above published minimums

Additional Airways Navigation review topics

1. Procedures for modifying route of flight and destination

   a. Use procedural steps found on the back of the IFR Supplement

   b. D.R.A.F.T. report

1-18 PLANNING FOR AIRWAYS NAVIGATION MISSION

2. Bingo fuel computations

    a. Use appropriate drag index

    b. Climb schedule: 300 KIAS to .75 Mach

    c. Descent @ 180 KIAS

NOTE

A good rule of thumb to use is to multiply the altitude to lose by 3. This will give you the approximate distance out to begin your descent.

3. Enroute descent

    a. Pilot or controller can initiate

    b. Pilot may refuse in lieu of published approach

    c. Fuel computations

    d. Controller must provide terminal WX if:

        i. Ceiling is below 1,000 ft (when higher than the highest circling minimum)

        ii. Visibility is **less** than **3 miles** (IFR)

4. Procedures for lost communication situations

    a. Squawk 7600

    b. Controller may attempt to reestablish contact by requesting that the pilot:

        i. Change squawk

        ii. Squawk ID

        iii. Squawk STBY

        iv. Make turns

5. Procedures for mission cockpit management

    - Stay ahead of the aircraft, plan ahead for the next NAV/COMM transition

i. Set navigation radios for seamless transition to next course

ii. Set communications for seamless change over to next controller without compromising primary comm

iii. Keep crew member/IP informed/briefed of problems, plans, updates, and NAV/COMM setup

6. Procedures for performing IFR to a contact approach

a. Pilot must request

b. Clear of clouds and minimum 1 sm visibility and can expect to continue under those conditions

c. Authorized instrument procedure to destination airport having a standard or special instrument approach procedure

d. Pilot responsible for obstruction clearance

e. ATC responsible for aircraft separation

7. Procedures for performing IFR to a visual approach

a. IFR procedure that is pilot requested but authorized and controlled by ATC

b. Clearance authorizes pilot to proceed visually and clear of clouds to the airport

c. Pilot must have the airport **or** the proceeding aircraft in sight

d. Reported WX, ceiling at or above 1,000 ft AGL and visibility 3 sm or greater

e. Separation

i. If pilot has airport in sight but cannot see the aircraft to be followed, ATC retains responsibility for separation and wake vortex separation responsibility

ii. If visually following a proceeding aircraft, acceptance of the visual approach clearance constitutes acceptance of pilot responsibility for maintaining safe interval and adequate wake turbulence separation

NOTE

Standard cloud clearance requirements are not applicable.

8. Procedures for performing a circling approach/missed approach

   a. Circling approach

NOTE

Circling minimums are for the runway approach flown, not to the landing runway.

      i. Published circling minimums provide obstacle clearance when pilots remain within the protected area

      ii. Remain at or above circling minimums until the aircraft is in position to descend to a landing on the intended runway using

         (a). Normal rate of descent

         (b). Normal maneuvers

      iii. Basic rules

         (a). Maneuver the shortest path to the base or downwind leg, as appropriate, considering existing WX conditions

NOTE

There is no restriction from passing over the airport or other runways.

         (b). Circling maneuvers may be made while VFR or other flying is in progress at the airport

NOTE

Standard left turns or specific instruction from the controller for maneuvering must be considered when circling to land.

         (c). At airports without a control tower, it may be desirable to fly over the airport to observe wind, turn indicators, and other traffic which may be in the runway or flying in the vicinity of the airport

   b. Missed approach

      i. When landing cannot be accomplished

         (a). Advise ATC

(b). At missed approach point (MAP) comply with published missed approach procedures or specific ATC instructions

NOTE

Obstacle clearance for missed approach is predicated on the missed approach being initiated at the MAP. No consideration for obstacle clearance is provided for initiating a missed approach procedure early. Always commence a missed approach procedure at the MAP at or above the MDA or DH.

ii. Visual reference is lost while circling to land

- Follow missed approach procedure specified for the approach conducted unless specific ATC instructions received

- Make initial climbing turn toward the landing runway and continue the turn until established on the missed approach course

NOTE

Adherence to the procedure will assure that the aircraft will remain within the circling and missed approach obstruction clearance areas.

iii. Always conform to ATC radar vectors in lieu of the published missed approach procedure

9. Procedures for terminal communications

a. Keep transmissions short and concise

b. Clearance to land is provided only by the tower

NOTE

Landing clearance may be relayed by tower through any ATC facility.

10. 3710.7 instrument approach criteria

a. Alternate weather criteria

i. Non-precision approach, published minimums + 300-1 (non-radar)

ii. Precision approach available, published minimums + 200-1 (ILS but **not** PAR)

b. Takeoff weather criteria (standard instrument rating)

i. Non-precision approach, not less than 300-1

ii. Precision approach available (ILS or PAR for duty runway) not less than 200-1/2 or 2,400 ft RVR

c. An approach shall not be commenced if the reported weather is below published minimums for type of approach being conducted

i. If a turbojet enroute descent is to be executed, the approach is considered to be commenced when the aircraft descends below the highest initial penetration altitude established in high altitude instrument approach procedures for the destination airport

ii. Once an approach has been commenced, pilots may, at their discretion, continue the approach to approved landing minimums for type of approach

d. Absolute minimums for single-piloted aircraft executing a precision approach are 200 ft ceiling/height above touchdown (HAT), and visibility 1/2 sm/2,400 ft RVR, or published minimums, whichever is higher

106. SUMMARY

This lesson has focused on the following topics:

1. FLIP publications required to prepare a flight plan
2. Check-items for destination airfield
3. Weather minimums for instrument flight
4. Departure point minimums for takeoff
5. Selecting alternate routes/airfields
6. Planning route of flight
7. Fuel requirements for route of flight
8. Preparing Single-Engine Jet Flight log
9. Preparing DD Form 175, Military Flight Plan
10. Criteria determining type of approach

11. Additional Airways Navigation review topics

107. CONCLUSION

As your flight planning experience continues to grow, you will become increasingly efficient in arranging the many details for your flight. Attending to the criteria for determining what type of approach to use to your destination airport or what departure point minimums apply to your takeoff is critical. The more carefully you examine these details, the better prepared you will be for the unexpected.

APPENDIX A
GLOSSARY

A100. INTRODUCTION – N/A

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