PRIMARY NAVAL FLIGHT OFFICER TRAINING SYSTEM
Operational Navigation (ONAV)
JMPS Planning Guide
15 Nov 2021

STUDENT INFORMATION

1. Introduction

This supplement presents the most current Operational Navigation (ONAV) route information available and includes detailed planning standards, chart-making checklists and Joint Mission Planning System (JMPS) instruction.

2. Integrity

- No sharing of JMPS files.
- Do your own work. You shall create and print your own products. Crosschecking is encouraged – copying is not!
- Dishonest or deceitful behavior will result in attrition.

3. Class Schedule

- **Day One**
    - o **Academics:** ONAV Flight Planning (MIL)
      Corrections, Winds, and Chart Prep (MIL)
      JMPS Tutorial (MIL)
      Discuss Event Rehearsal
    - o **Homework:** ONAV FTI, Chapter 1 -4

- **Day Two**
    - o **Academics:** JMPS Chart Prep/Mission Planning - ONAV 5 (Lab)
      JMPS Chart Prep/Mission Planning - ONAV 1 (Lab)
    - o **Homework:** ONAV FTI, Chapter 5 - 6

- **Day Three**
    - o **Academics** Flight Procedures (MIL)
    - o **Homework** Continue flight planning remaining ONAV routes (ONAV 2, 3,4, and MAX)
      Review ONAV FTI, Chapter 1 - 6

- **Day Four**
    - o **Academics** ONAV Exam Review (MIL)
    - o **Homework** Continue flight planning remaining ONAV routes (ONAV 2, 3,4, and MAX)
      Review ONAV FTI, Chapter 1 – 6 / Prepare for Exam

- **Day Five**
  - **Academics**   ONAV Exam
    ONAV Exam Remediation
  - **Homework**   Chair-fly
  - **Self-Study**

- **Day Six**   **Rehearsal:**   Use ONAV Event Rehearsal script from Book Issue

- **Day Seven**   **Simulator:**   ON3101 (ONAV 5)

- **Day Eight**   **Simulator:**   ON3102 (ONAV 1)

4. Notes

- **Day One:** Students shall bring UMFO Visual Navigation (VNAV) FTI (P-869) to class. Students will login into NMCI via the JMPS laptops to ensure access to the network for mission planning on Day Two.

- **Day Two:** Students shall bring "JMPS Planning Guide" and New Orleans Sectional to JMPS Planning Lab.

- **Additional Routes:** VT-10 maintains four additional ONAV Routes **(i.e., "West 1", "West 2", "East 1", and "East 2").** If scheduled for one of these, students will sign-out the appropriate strip chart from the SDO at the VT-10 Duty Desk. For fuel planning, students can find the corresponding JMPS Route files (e.g., "West1.jrt") on the **M:/ drive (M:/MasterTemplates/Additional Routes).** Information for these routes (i.e., latitude/longitude, altitudes, etc.) is located on Page 20 of this guide.

- Students can build their own strip chart books (5.5" x 5.5" manila booklets, bound at the top) or they can acquire blank strip chart books from Griffith Hall Book Issue.

- Students **SHALL** bring **ALL** ONAV strip charts to **EVERY** brief for WX contingencies (all ONAV or MTR charts).

- Students are not required to bring West 1 & 2 or East 1 & 2 unless scheduled for these routes.

- If scheduled for East or West routes, students shall checkout corresponding strip charts from the SDO the day prior to the event when the schedule is published.

- Students **SHALL** turn in **ALL** ONAV strip charts to the STAN office at the completion of the block checkride.

SIMULATOR EVENT INFORMATION

This section provides guidance for the Operational Navigation (ONAV) simulator events. Included are administrative notes, event profiles, and a checklist for completion of ground procedures during ONAV simulator events. **Bring the underlined items to each simulator event.**

Administrative

- Students shall wear gloves; however, helmets, oxygen masks, G-suits, and harnesses are not required.

- The NATOPS Pilot's Pocket Checklist shall be readily available during the brief, flight, and debrief.

- Bring applicable (IFR and VFR) Enroute charts, IAP booklets, a FIH and an IFR Supplement for each simulator event (as you would in the airplane).

- Students shall bring a kneeboard with scratch pad and attached writing utensil to each simulator event.

- **Flight Plans:** Students shall prepare a DD-1801 for each simulator event IAW the ONAV academics, the ONAV FTI, and Chapter 4 of the General Planning publication. Students shall provide a copy of the DD-1801 for the instructor. The "Event Profiles" section of this document contains the required flight plan information, including the destination and a qualifying alternate.

- **Jet Log:** Students shall prepare a Jet Log IAW the ONAV academics, the ONAV FTI. Students shall provide a copy of the Jet Log for the instructor. Winds for the route will be "light and variable"; therefore, it is not necessary for the student to "wind" either the Jet Log or the ONAV chart. Based on the forecast weather data for each route, students shall calculate proper IMC or VMC divert fuels via FTI divert procedures.

- **ONAV Strip Chart**: Students shall prepare ONAV Strip Charts IAW the ONAV academics, the ONAV FTI, and the VT-10 T-6A Chart Standards provided in this document. Forecast winds for both sim events will be "light and variable"; therefore, no pre-flight planning for winds is necessary.

- Students shall bring a copy of AHAS Route Conditions for the day of the event (http://www.usahas.com/)

- **Gouge:** The following items are gouge that is **not** permissible during any ONAV event.

    Calculators
    Tab Charts/Tables not part of the CTW-6 In-Flight Guide
    Anything on Enroute Charts other than scheduled Primary or Secondary route marked in a temporary way.
    Anything on Approach Plates other than NOTAMS or Calculated VDPs

SIMULATOR EVENT PROFILES

A. Simulator Event #1 (ON3101).

1. **Profile**: Students will fly **ONAV 5** under the following parameters:

Departure:
KNPA RWY 25L/R

Altitude:
10,000' MSL

TAS:
IFR: (KNPA to ONAV 5) 240TAS
VFR: (ONAV 5 to KMVC) 180TAS

Destination:
KMVC

Route: (DD-1801)
    IFR: KNPA   TEEZY   TRADR
    VFR: TRADR [ONAV Points A through G] HOVEN

Approaches: Vectors RNAV(GPS) RWY 21 @ KMVC (Monroe County, AL)

Weather: Departure: NAS Pensacola (KNPA)   26010 2SM BKN008 19/16 A2990
                Destination: Monroe County (KMVC)   23010 10SM SCT020 19/16 A2990
                Alternate: Mobile Downtown (KBFM)   30010 10SM SCT030 19/16 A2990

2. **Recommended ICPs:**

Recommended ICPs:	Time:	Description:	Distance:
Between TP A and B:	3+10	Bridge	1.0 NM Left
Between TP B and C:	8+40	Road/Power Line	0.5 NM Right
Between TP C and D:	17+00	Road "Y"	0.5 NM Left
Between TP D and E:	22+50	Road Bend	1.0 NM Left
Between TP E and F:	28+20	Road/RR Intersection	0.5 NM Left
Between TP F and G:	35+30	River Fork	0.5 NM Right

3. **Discuss Items**:
   a. CTS for the block.
   b. Time and Course corrections.
   c. ONAV Turn Point Procedures.
   d. FACCU Process.
   e. 6-Minute Rule.

4. DD-1801 Flight Plan for ON3101

PRIORITY ≡FF→   **ADDRESSEE(S)**

FILING TIME   **ORIGINATOR**

SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR

3. MESSAGE TYPE	7. AIRCRAFT IDENTIFICATION	8. FLIGHT RULES	TYPE OF FLIGHT
≡ (FPL	K A T T 1 0	I	M

9. NUMBER	TYPE OF AIRCRAFT	WAKE TURBULENCE CAT.	10. EQUIPMENT
	T E X 2	L — SDGR	/E

13. DEPARTURE AERODROME — K N P A   **TIME** 1 3 0 0

15. CRUISING SPEED	LEVEL	ROUTE
N 0 2 4 0	A 1 0 0	→ DCT TEEZY DCT

16. DESTINATION AERODROME	TOTAL EET HR/MIN	ALTN AERODROME	2ND ALTN AERODROME
Z Z Z Z	0 0 1 5		

18. OTHER INFORMATION

PBN/B2C2D2O2 DEST/TRADR DOF/210101 REG/USN OPR/DOD PER/B

NOT FOR TRANSMISSION

19. SUPPLEMENTARY INFORMATION

ENDURANCE	PERSONS ON BOARD	EMERGENCY AND SURVIVAL EQUIPMENT
FUEL/ 0230	POB/ 2 → RDO/ 2	121.5 → 243 → ~~500~~ → ~~8364~~

TYPE OF EQUIPMENT		LIFE JACKETS	RADIO FREQUENCY
~~POLAR~~ → ~~DESERT~~ → MARITIME → ~~JUNGLE~~ → ~~GLOBAL~~ → JACKETS → LIGHT→ FLUORESCEIN →			121.5 282.8

DINGHIES	COLOR	NUMBER	TOTAL CAPACITY	OTHER EQUIPMENT
	ORANGE	2	2	

DINGHIES → COVER → RMK/

REMARKS	AIRCRAFT SERIAL NUMBERS AND TYPE OF AIRCRAFT IN FLIGHT
	ON FILE CTW-6 KNPA

CREW LIST	☐ ATTACHED	☒ LOCATED AT: VT-10 KNPA
PASSENGER MANIFEST	☐ ATTACHED	☐ LOCATED AT:

NAME OF PILOT IN COMMAND	SIGNATURE OF APPROVING AUTHORITY	AIRCRAFT HOME STATION OR ORGANIZATION
LASTNAME, STANDARD		CTW-6 KNPA

DD Form 1801, MAY 87   *Previous edition is obsolete.*   **DOD INTERNATIONAL FLIGHT PLAN**

PRIORITY ≡FF→   **ADDRESSEE(S)**

3. MESSAGE TYPE	7. AIRCRAFT IDENTIFICATION	8. FLIGHT RULES	TYPE OF FLIGHT
≡ (FPL	K A T T 1 0	V	M

13. DEPARTURE AERODROME — Z Z Z Z   **TIME** 1 3 1 5

15. CRUISING SPEED	LEVEL	ROUTE
N 0 1 8 0	V F R	→ DCT BFM038024 DCT SJI041021 DCT GCV141008 DCT GCV033020 DCT

MVC274030 DCT MVC294010 DCT MVC319024 DCT HOVEN DCT

16. DESTINATION AERODROME	TOTAL EET HR/MIN	ALTN AERODROME	2ND ALTN AERODROME
K M V C	0 1 0 0	K B F M	

18. OTHER INFORMATION

DEP/ TRADR

19. SUPPLEMENTARY INFORMATION — FUEL/ 0 2 1 5 — POB/ 2

B. Simulator Event #2 (ON3102).

1. **Profile**: Students will fly **ONAV 1** under the following parameters:

Departure:	**Altitude**:	**TAS**:	
KMVC RWY 21	VFR	VFR:	180TAS
		IFR:	240TAS
		Destination:	
		KNPA	

Route: (DD-1801)
VFR: KMVC ONAV1 [Point A through G]
 IFR: [ONAV Point G] BFM TRADR TEEZY

Approaches: Vectors ILS Z RWY 7L @ KNPA

Weather: Departure: Monroe County (MVC)   22010 3SM SCT040 19/17A2990
                        Destination: NAS Pensacola (KNPA)   05010 2SM BKN008 19/16 A2990
                            Alternate: Mobile Downtown (KBFM)   35010 10SM BKN020 19/16 A2990

2. **Recommended ICPs:**

Recommended ICPs:	Time:	Description:	Distance:
Between TP A and B:	3+10	NW River Bend	1.5 NM Right
Between TP B and C:	9+30	S End of 4R3	2.0 NM Left
Between TP C and D:	17+00	Dam	2.0 NM Right
Between TP D and E:	21+20	Road/River Bridge	1.0 NM Left
Between TP E and F:	27+00	Road "Y' (Uriah, AL)	1.5 NM Left
Between TP F and G:	N/A	N/A	N/A

3. **Discuss Items**:
   a. Same Discuss items as ON3101.
   b. Terrain Clearance Tasks.
   c. Differences in IFR/VFR clearances

5. DD-1801 Flight Plan for ON3102

PRIORITY	ADDRESSEE(S)
≡ FF ⟶	

3. MESSAGE TYPE ≡ (FPL

7. AIRCRAFT IDENTIFICATION — K A T T 1 0

8. FLIGHT RULES — V

TYPE OF FLIGHT M ≡

13. DEPARTURE AERODROME — K M V C

TIME 1 7 0 0 ≡

15. CRUISING SPEED N 0 1 8 0

LEVEL V F R

ROUTE ⟶ DCT SJI040025 DCT GCV062027 DCT MVC298021 DCT MVC345012 DCT MVC229004 DCT

MVC221025 DCT BFM032026 DCT

≡

16. DESTINATION AERODROME — Z Z Z Z

TOTAL EET HR/MIN 0 1 0 0

ALTN AERODROME ⟶ ☐☐☐☐

2ND ALTN AERODROME ⟶ ☐☐☐☐ ≡

18. OTHER INFORMATION DEST/ BFM

) ≡

19. SUPPLEMENTARY INFORMATION — FUEL/ 0 2 3 0 — POB/ 2

PRIORITY	ADDRESSEE(S)
≡ FF ⟶	

3. MESSAGE TYPE ≡ (FPL

7. AIRCRAFT IDENTIFICATION — K A T T 1 0

8. FLIGHT RULES — I

TYPE OF FLIGHT M ≡

13. DEPARTURE AERODROME — Z Z Z Z

TIME 1 8 0 0 ≡

15. CRUISING SPEED N 0 2 4 0

LEVEL A 1 0 0

ROUTE ⟶ DCT TRADR DCT TEEZY DCT FCTRY DCT

≡

16. DESTINATION AERODROME — K N P A

TOTAL EET HR/MIN 0 0 3 0

ALTN AERODROME ⟶ K B F M

2ND ALTN AERODROME ⟶ ☐☐☐☐ ≡

18. OTHER INFORMATION DEP/ BFM

19. SUPPLEMENTARY INFORMATION — FUEL/ 0 1 3 0 — POB/ 2

DD Form 1801-C, MAY 2019   DOD INTERNATIONAL FLIGHT PLAN (CONTINUATION)

T-6A OPERATIONAL NAVIGATION ROUTES

1. ONAV 1 Route:

Altitude	Point	Fac/Rad/DME	Lat/Long	
As assigned to	A-PWR PLT	SJI 040025	N3100.4	W8800.6
2500' MSL to	B-PWR PLT	GCV 062027	N3116.7	W8800.1
2500' MSL to	C-RD/RR BR	MVC 298021	N3138.8	W8742.1
2500' MSL to	D-MICROWAVE TWR	MVC 345012	N3139.4	W8723.9
2500' MSL to	E-SAWMILL	MVC 229004	N3125.4	W8724.7
2500' MSL to	F-LAKE	MVC 221025	N3109.8	W8742.0
2500' MSL to	G-RD INTX	BFM 032026	N3058.1	W8745.4

2. ONAV 2 Route:

Altitude	Point	Fac/Rad/DME	Lat/Long	
As assigned to	A-WHITE WTR TWR IN MCCULLOUGH	MVC 200020	N3110.0	W8731.6
2000' MSL to	B-BLACK SILO	MVC 264006	N3127.4	W8727.8
2000' MSL to	C-RR/DIRT ROAD INTX	MVC 004015	N3142.9	W8718.5
2000' MSL to	D-TWR & GRAIN SILOS	MVC 068020	N3134.1	W8658.6
2500' MSL to	E-TRAILER BY SMALL LAKE	MVC 093030	N3123.8	W8646.0
2000' MSL to	F-FIVE GRAIN SILOS	CEW 347013	N3102.0	W8643.4

3. ONAV 3 Route:

Altitude	Point	Fac/Rad/DME	Lat/Long	
As assigned to	A-RD/RVR BR	SJI 240016	N3036.7	W8838.5
2500' MSL to	B-RD INTX	SJI 265029	N3043.8	W8855.0
2500' MSL to	C-LAKE	GPT 327019	N3040.7	W8915.8
2000' MSL to	D-RR/PL INTX	LBY 175025	N3100.0	W8920.5
2000' MSL to	E-HOUSES ON LAKE	LBY 210009	N3117.7	W8926.1
2000' MSL to	F-MIDDLE CHICKEN RANCH	LBY 065010	N3128.7	W8908.9
2000' MSL to	G-CHURCH	LBY 074028	N3130.4	W8848.2

4. ONAV 4 Route:

Altitude	Point	Fac/Rad/DME	Lat/Long	
As assigned to	A–MON LOUIS BAY BRIDGE	BFM 191011	N3026.6	W8806.8
2000' MSL to	B–HIGHWAY CPA	SJI 183016	N3028.4	W8824.2
2000' MSL to	C–RD/RVR BR	SJI 275021	N3046.8	W8845.8
2000' MSL to	D–RD/PL INTX	SJI 321014	N3055.5	W8830.9
2000' MSL to	E-RD BR S. OF ESCATAWPA	GCV 019012	N3117.0	W8823.5
2000' MSL to	F-BALLPARK	GCV 024025	N3127.6	W8815.2
2000' MSL to	G-LAKE	MVC 221025	N3109.6	W8742.4
2000' MSL to	H-RD INTX	BFM 032026	N3057.9	W8745.6

5. ONAV 5 Route:

Altitude	Point	Fac/Rad/DME	Lat/Long
As assigned to	A-RR/PWR LN INTX	BFM 038024	N3054.7 W8744.3
2000' MSL to	B-LAKE	SJI 041021	N3058.5 W8803.3
2000' MSL to	C-RD/RVR BR	GCV 141008	N3059.2 W8824.2
2500' MSL to	D-BLUE WTR TWR	GCV 033020	N3121.7 W8814.9
2500' MSL to	E-RD/RVR BR	MVC 274030	N3131.4 W8756.1
2000' MSL to	F-GRAIN ELEVATOR	MVC 294010	N3132.2 W8731.7
2000' MSL to	G-MINE	MVC 319024	N3146.7 W8738.2

6. ONAV MAX Route:

Altitude	Point	Fac/Rad/DME	Lat/Long
As assigned to	A-SAWMILL	MVC 080022	N3129.8 W8655.7
2000' MSL to	B-BRIDGE	MVC 090045	N3124.0 W8628.8
2000' MSL to	C-DAM	MGM 172034	N3139.0 W8616.2
2000' MSL to	D-RD BR OVER I-65	MGM 213023	N3154.6 W8635.3
2100' MSL to	E-SOUTHERN LARGE WHITE BLDG IN GEORGIANA	MVC 067033	N3138.1 W8644.5
2000' MSL to	F-555' MICROWAVE TWR	MVC 023019	N3144.4 W8711.2

Abbreviations:

BR	Bridge
CPA	Closest Point of Approach
HWY	Highway
INTX	Intersection
PL	Power Line
PWRPLT	Power Plant
RR	Rail Road
RD	Road
RVR	River
TWR	Tower
WTR	Water

<u>VT-10 T-6A ONAV CHART STANDARDS</u>

1. **Low- Level Route**

- **Chart scale** – TPC, Zoom to 130%
- **Turnpoint circles** – Black, centered on the visual checkpoint
- **IP** – square, **Target** – Triangle
- **Course line** – Black
- **Route Corridor** – Yellow. 4 nm either side of centerline for ONAVs. As required for MTRs.
- **Turnpoint/Time labels** – White, with white background, **C 11+35**
- **Time ticks** – 1 min apart, every 3rd labeled
- **Doghouses** – 6 components, parallel to course line, located outside of route corridor
    1. Magnetic Course
    2. Leg Distance
    3. Leg Time
    4. Altitude (MSL) – per Planning Guide
    5. Mission Completion Fuel (MCF) – Write MCF in the margins above or below TPC
    6. Nearest Emergency Divert box – 3 letter ID, bearing, distance (example: 1R8 090015)
- **OCF (CHUM)** – Blue, updated for current month
    1. Only CHUM can be drawn inside turnpoint circle
    2. Hazards within 500' of altitude – Red circle, 1nm in diameter
    3. Manually write in any updates after the initial printing *instead* of reprinting the chart.
- **Crossing Routes** – Green arrow on the side it is coming from. Labelled with name (size 16).
    1. **ONAVs** – other ONAV routes
    2. **Section Low Levels** – any MTR that crosses route
- **Intermediate Checkpoints** – Should have 1 per leg (not required on short leg (i.e. 4 min or less)
    1. Handwritten on a margin of strip chart after printed out.
    2. ICP's also annotated on Jet Log (typed or handwritten).
    3. Should include time and deviation from centerline.
    4. ICP's may be highlighted on strip charts.
- **Hazard fields inside route corridor** – Yellow text box with black lettering (size 16).
    Placed outside route corridor
    Include airfield name, 3 Letter ID, and CTAF/Tower freq in box
- Ensure filename **("Last Name ONAV#.jrt")** appears at the bottom of each page of strip chart.

2. **Overview Chart**

- **Scale** – ONC, Zoom 100%. Entire route should fit on one page, with everything legible
- **JMPS Overlays** – Airports, Navaids, SUAS, Airspace Boundaries
- The T-6 Overview Chart should include following:
    - **ONAV route**
    - **Departure Airfield**
    - **2 civilian diverts** (denoted with a triangle)
    - **2 military diverts with gov't/contract fuel** (denoted with a square)
    - **Destination Airfield**
- **Emergency diverts** along the route should include at a minimum:
    - The field's three-character identifier (e.g., 4R3)
    - Tower or Common Traffic Advisory Frequency (CTAF)

3. Stripping the Chart (getting from JMPS to a route book)

- Use glue stick (book issue or purchased) to affix strip chart to booklet.
- Book should be 5-1/2" wide by 11" tall. This gives enough room for the JMPS strip chart and a margin for leg notes. The final product should fit on a kneeboard or under an approach strap.
- Per the FTI, **books are built from back to front (i.e. reverse order)**. Last page will be the Overview chart. Next will be from A to B; then, B to C, etc.

- **Front Cover:** Include the following:
    1. Name
    2. Class Number
    3. Route Name
    4. Copy of the ONAV Planning Guide or AP-1/B route description

- **Inside Pages:** In margins of each strip chart, post the following:
    1. Wind T's
    2. Wind compensations – preflighted crab and airspeed
    3. MCF
    4. Intermediate Checkpoints (description, distance off course, ETA)

- All writing neat and legible
- Bring **ALL** route charts to the brief because of weather (i.e. all ONAV or all MTRs).
    o Students are not required to bring West 1 & 2 or East 1 & 2 unless scheduled for these routes.
    o If scheduled for East or West routes, students shall checkout corresponding strip charts from the SDO the day prior to the event when the schedule is published.
- Have enough VFR Sectional or TPC coverage to navigate visually from the IFR cancellation point to the entry point.

Building a Chart in JMPS

1. **Class Folder**: Class Leader creates a Class Folder on the "S:/StudentFolder" drive. Each student then opens that Class Folder and creates a new folder with their last name only. Within his or her folder, each student will create six folders, one for each ONAV route.

2. **Load VT-10 preferences:**
   a. Browse to **M:"\\Master Templates\VT-10 Preferences**
   b. Double click the VT-10 Preference file. (Black screen should pop-up and auto load preferences.)

3. **Open JMPS application**

4. **Open a new route folder:**
   a. From the **File Menu**, select **New**
   b. Select **Route**
   c. Select **T-6A** and click on the **"Create"** button
   d. From the **File** menu, select **Save As**.
   e. Browse to the appropriate folder– **S:/StudentFolder/(Your class number)/(Your folder)/**
   f. Label the file **"[Last Name]_ONAV X"**.

5. **Enter ONAV route data**. (Refer to the ONAV routes on page 8 and 9 of this Planning Guide.)
   a. Select **Tabular View**. A spreadsheet will appear with one waypoint: **"KNPA/A"**.
   b. Click on the field anywhere below the first line and a new blank line will appear.
   c. Label the waypoints
      i. In the **Fix/Point Box**, enter the Turnpoint (TP) ID and its description.
      ii. You must put a period ("**.**") before entering the TP label (e.g., .A PWR PLT, .B SILO, etc.)
   d. Enter Lat/Longs for each TP.
   e. After entering the last Turnpoint, delete the original, preloaded waypoint: **KNPA/A** (ONAV routes consist of only Point A through the target).
   f. Change Point Types for the IP (initial point) and the TGT (target)
   g. Verify airspeed, bank angle, and altitude
      i. **Airspeed**: ONAVs – 180G
      ii. **Bank Angle**: click on green ADI icon in the **Bank** block, select **"No Turn"**
      iii. **Altitudes:** Enter MSL altitudes for each leg.
      iv. Double-check your entries.
   h. Calculate your route using the calculator icon in the upper toolbar.
      i. Compare results with another student.
      ii. **Do not continue if your route does not calculate properly!**
      iii. **Common errors:**
         ▪ Are the Lat/Longs exact? Are they all North and West?
         ▪ Other than the IP and TGT, do any of the other turnpoints have a type selected?
         ▪ Speeds: 180G for LL route? 240T for the IFR enroute?
         ▪ Select "No Turn" for the Bank angle?
         ▪ Do you have the same winds aloft and LL route winds

6. **Save your Route (.jrt) file** (Save early and often)

7. **Build and Print an ONC Overview Chart**
      a. Switch back to **Graphical View**
      b. Change route line thickness.
            i. From the **Overlay** pulldown menu, scroll to **Overlay Options** and select your **.jrt** file
            ii. Change **Line Thickness** from **3** to **6**
            iii. Change **Symbol Size** from **40** to **20**
            iv. Click on **Apply**
      c. Click on the **Overlay** pulldown menu. Select the following overlays:
            i. **Scale Bar**
            ii. **Airports**
            iii **Airspace Boundaries**
            iv. **NAVAIDs**
            v. **SUAS Boundaries**
      d. Open the **Divert Drawing** file
            i. From the **File** pulldown menu, select **Open**.
            ii. Select **Drawing** and click on **OK**.
            iii. Select **M:\\Mastertemplates:\Master Divert.drx**
      e. Set up Overlay Layers
            i. From the **Overlay** pulldown menu, scroll to **Overlay Manager**.
            ii. Use the controls to move the Scale Bar to the top, **Master Divert.drx** file second,
               then the remaining overlays in any order.
      f. Print an Overview Chart
            i. Select **Chart Tool** icon
            ii. Recommend changing chart to the **1:2M** scale (or zoom-out with CTRL + Mouse scroll) to
               view the entire route.
            iii. On the side menu, click on the **Single Page Layout Tool** icon
            iv. Click anywhere in the middle of your route to drop a **single**, yellow print screen frame.
            v. On the side menu, click on the **Select** icon
            vi. Select Portrait/Landscape as appropriate from **Print Setup** button on the side menu,
               or by putting the cursor on the "handle" at the top of the yellow frame and rotating.
            vii. (Optional) Brighten the chart. Click on "bright" sun icon, or Ctrl <B>, four times.
            viii. From the side menu, select **Print Preview;** ensure the required items are in view:
                   o **Departure Airfield**
                   o **2 civilian diverts** (denoted with a triangle)
                   o **2 military diverts with gov't/contract fuel** (denoted with a square)
                   o **Destination Airfield**
             iv. Select **Print**
            x. Remove the ONC Chart from **Open Planning Data** (Left Side): right click on the
              .cht folder; select "**Remove**"; then, **Close** (No need to save). If want to save, save as PDF.

8. **Undo Things Specific to Overview Charts**
      a. Switch back to **Graphical View**
      b. Click on the **Overlay** pulldown menu. **De-select** the following overlays:
            i. Scale Bar
            ii. Airports
            iii. NAVAIDs

  c. You should still have the following overlays **open**:
    i. Your Route **(.jrt)** folder,
    ii. Airspace Boundaries,
    iii. SUAS Boundaries,
    iv. Master Divert File (leaving open for Doghouse divert info.)
  d. Change route line thickness.
    i. From the **Overlay** pulldown menu, scroll to **Overlay Options** and select your **.jrt** file
    ii. Change **Line Thickness** from **6** back to **3**.
    iii. Change **Symbol Size** from **20** back to **40**
    iv. Click on **Apply**

9. **(Optional) Setup JMPS to display Tab View and Graphical View simultaneously**.
  a. From the **View** pulldown menu, select **Clone**
  b. When prompted, clone the other view,
    i. If Graphical View is currently in view, clone the Tab View.
    ii. If Tab View is currently in view, clone the Graphical View
  c. From the **Window** pulldown menu, select **Tile Horizontally or Vertically**.

10. **Determine Nearest Emergency Divert for Each Turnpoint**
  a. Switch to **Graphical View.** Center the screen on the turnpoint using **Right click/Center Map.**
  b. Use 1:500 TPC scale, Set Zoom - 100%
  c. Click on the **Analysis Tool**. Select **Range and Bearing Tool** from the side menu.
  d. Put the cursor on the turnpoint, click and hold.
  e. Drag the cursor to the nearest Emergency Divert and release mouse button
  f. The **Analysis Tool** will deposit a red arrow on the chart with a bearing and distance
  g. Copy the divert airfield's **ICAO ID**, **bearing**, and **range** (rounded to the nearest degree, NM).
  h. Switch to **Tabular View**. In the **Desc** box, enter the divert info for each Turnpoint.
    i. Enter the divert field's 3-character ID, 3-digit bearing, 3-digit range FROM the turnpoint.
    ii. **Example**: From TP "A" to Bay Minette: 022.2° for 12.8 nm. Enter: **1R8022013**.
    iii. Hit enter after typing in the description.
  i. Right Click and Close (Do not save) the following overlays:
    Analysis Tool file (**.jat** file);
    Master Divert Drawing file (**.drx** file)

11. **Open Master Drawing Folder**
  a. From the **File Menu**, select **Open**; then, select **Drawing.**
  b. Browse to and open **M:/MasterTemplates/Master Drawing** file .
  c. **IMPORTANT!** Immediately save this Master Drawing file as your file:
    i. From **Open Planning Data** (Left Side), highlight **Master Drawing.drx**
    ii. Right Click – Save As…
    iii**.** Browse to **S: /Student/(Class number)/(Student folder)/ (ONAV X)/"**
    iv. Use the following format **Last Name ONAV X"**. Example: JOYCE ONAV 5.
    v. <u>Don't</u> type ".**drx**" extension as part of the label (it's automatically attached)
  d. Cut and paste from the provided drawings/textboxes.

12. **Turnpoint/Time Labels**
    a. Switch to **Graphical View.**
    b. Click on **Drawing Editor**.
    c. **Turnpoint/Time Labels**: Copy a **TP Time Label** from the Drawing file and paste it outside of corridor, abeam the turnpoint. Refer to the Tab View for the calculated elapsed times.
    d. To edit these labels,
        i. Right click on the Time Label in question. Select "**Edit Properties**".
        ii. In the Text window, enter the appropriate elapsed time.
        iii. Set the "**Angle**" to the **previous** leg's base heading.

13. **Build Ellipses.** Use red and green ellipses to highlight following:
    a. **Hazard Airfields:**
        i. Any airfield within 5 nm of course centerline.
        ii. Cut & paste **Red ellipse** (0.7 nm radius)
    b. **Divert Airfields:**
        i. Any airfield outside on 5 nm that meets T-6A divert requirements.
        ii. Cut & paste **Green ellipse** (0.7 nm radius)
    .   c. **Vertical Obstructions**
        i. Any obstructions within 3 nm of centerline and 500' of route altitude.
        ii. To help reduce workload searching for these hazards: use OCF and filter with VOD:
            • Click on the **Overlay** pulldown menu. Select the following overlays:
            • Select **OCF** (blue icons showing latest obstacle IAW current CHUM)
            • Select **VOD** (red icons; set to filter out obstacles less than 1500' AGL)
            • Overlapped **OCF** and **VOD** icons indicates an obstacle greater than 1500' AGL
            • Cut & paste **Red ellipse** (1nm radius).
            • Turn off VOD overlays when finished.
    d. Any other applicable **AP1/B information**,
        i. **Noise Sensitive Areas (NSAs):** Cut & paste **Red ellipse** (3.0 nm radius)
        ii. **No Fly Areas:** Cut & paste **Red ellipse** (size as required)
    e. To edit these ellipses, right click and select "**Edit Properties**".
    f. Save All!

14. **Informational Text Boxes**. Use text boxes to provide critical information, such as comm info at hazardous airfields and emergency diverts, required MOA position reports, FSS calls, or for any other information/tasks required by AP1/B.
    a. Switch to **Graphical View/**
    b. Click on **Drawing Editor.**
    c. Click on and drag a yellow text box outside of corridor near to item of interest
    d. To edit these boxes,
        i. Right click on the box in question. Select "**Edit Properties**".
        ii. In the Text window, enter the appropriate information.
        iii. Rotate by clicking on the box to highlight it; place cursor on blue box at top and rotate.
    e. Save All!

15. **Crossing Routes.** Use green arrows to indicate conflicting ONAV routes. We will use an overlay containing all the ONAV routes and place it over the current ONAV route to see potential conflicts.

      a. **(For ONAV flights)** Open **Master Crossing Routes**
         i. From the **File Menu**, select **Open**; then, select **Drawing.**
         ii. Browse to and open **M:/MasterTemplates/Master Crossing Routes.drx** file.
      b. Set up Overlay Layers.   Ensure your ONAV drawing file is on top of the overlay stack:
         i. From the **Overlay** pulldown menu, scroll to **Overlay Manager**.
         ii. Use controls to highlight and move **Master Crossing Routes.drx** to the bottom stack.
         iii. Colors on your drawing overlay will be bright; the Crossing Route colors will subdued.
      c. Copy a green arrow from the **Drawing** objects and paste over the route centerline of the conflicting route leading to corridor of your ONAV route.
      d. Keep crossing route arrows outside of your ONAV route corridor.
      e. Only display the crossing route on the side of our corridor from which the crossing route is approaching and should capture the crossing route's general vector.
      f. Another consideration: while some routes don't directly cross out flight path, out respective 4 NM corridors do. This might be a good hazard to capture with a green arrow.
      g. To adjust the direction of the arrow after pasting, grab the tip or tail of the needle with the mouse and move it. Clicking on the center of the line will drop another point in the line.
      h. Label the crossing route by cutting & pasting a green background text box.
      i. To edit these boxes:
         i. Right click on the box in question. Select "**Edit Properties**".
         ii. In the Text window, enter the appropriate information.
         iii. Rotate by clicking on the box to highlight it; lace cursor on blue box at top and rotate.
      j.   When complete, close the **Master Crossing Routes.drx** file.
         a.   Right click on the file in the **Open Planning Data** (left side),
         b.   Select **Close**.
      k.   Save All!

16. **Generate Strip Charts**
      a. Zoom out or switch to JNC (1:2M), or zoom out (CTRL + Mouse scroll).
      b. Add one long extra route leg. This step ensures JMPS will create enough strip charts to cover all of the desired legs. (ex. Need 6 print screen boxes for ONAV5)
         i. Select **Route Editor.**
         ii. Click the last turnpoint (i.e., the Target) to highlight it
         iii. From the side menu, click on the **Add Turnpoint** icon
         iv. Some distance from the target, click on the chart to add one long leg
      c. Select **Chart Tool**. Move the cursor to the **Chart Tool** menu on the right side.
         i. Click on the **Generate Strip Charts** icon
         ii. Click on the **Snap to Route Leg** icon
         iii. Click on the **Align to Route Leg** icon
      d. Delete Extra Route Leg(s)
         i. Select the **Route Editor**
         ii. Click on the extra turnpoint(s) and select Delete
      e. Move your Strip Charts. Place a blue strip chart box on each leg
         i. Click and hold a blue box and move it near a leg of the route.
         ii. The selected box will grab and align itself to the nearest leg
         iii. Repeat for each leg

f. Delete extra strip charts boxes, if necessary.

      i. Right click on extra strip chart boxes and Delete

g. (Optional) Dim Map if you brightened it after making your Overview ONC

      i. Click on "dark" sun icon or Ctrl <D> four times.

h. Add VOD NOW.

      i. Click on the **Overlay** pulldown menu. Select **VOD.**

i. Set up Overlay Layers

      i. From the **Overlay** pulldown menu, scroll to **Overlay Manager**.

      ii. Use controls to highlight and move overlays in the following order

                .cht file

                .jrt file

                .drx file

                OCF

                Airspace Boundaries

                SUAS Boundaries

j. Print Preview your Strip Charts

      i. Select **Chart Tool**

      ii. Select **Print Preview**

k. Review each leg and confirm the following:

      i. There is a strip chart for each leg

      ii. One can read the Turnpoint/Time Labels, doghouses and text boxes.

      iii. Crossing routes are posted and labeled.

      iv. No drawing objects inside the corridor except for hazards.

      v. If able, one can see the doghouse for the next leg.

      vi. Each leg has some amount of chart displayed past the turnpoint.

l. Print Your Strip Charts

      i. Select **Print** from the **Print Preview** Screen

      ii. Go to **Print Preferences** and ensure "**one sided print**" only.

      iii. If necessary, browse to the Printer preferences and change orientation to **Landscape**.

m. Save your Chart Tool (.cht) file

      i. From **Open Planning Data** (Left Side), highlight **Chart Tool1.cht**

      ii. Right Click – Save As…

      iii**.** Browse to **S:/Student/(Class number)/(Student folder)/ (ONAV X)/"**

      iv. Use the following format **Last Name ONAV X"**. Example: JOYCE ONAV 5.

      v. <u>Don't</u> type "**.cht**" extension as part of the label (it's automatically attached)

n. **Save All!**

Creating a Jet log/Pilot Card

Open the "**.jrt**" file for the route you are flying:
- Open your **ONAV #** files (located on **S:/Student/Class XX-XX/Last Name/ONAV #)**
- If assigned, WEST 1 or 2, or EAST 1 or 2, look in **M:/MasterTemplates/Additional ONAV Routes**

1. **Enter Route Specific Information**
    a. Set JMPS to **Tabular View**.
    b. Insert all appropriate points for your route of flight.
        Example: KNPA-TEEZY-TRADR-<ONAV 5>-HOVEN-KMVC-KBFM (alternate)
    c. Click on **Type** box for the **departure** airfield and select **ST** (Start Point).
    d. Select the row with your planned **destination** airfield:
        i. Select **Leg Editor** from the top menu.
        ii. Change the **Command** tab from **Standard** to **Approach**.
    e. Change airspeeds for your route of flight.
        Example: 240T (airspeed) to TEEZY and TRADR and to HOVEN and Alternate
    f. Change for your route of flight.
        Example: 10000M (altitude) to TEEZY and TRADR and to HOVEN and Alternate.
    g. Set route clock to zero at route entry
        i. Select the line for the first turnpoint (TP 'A')
        ii. Click on the **All Clock Times** icon
        iii. Select TPT Clock, 00:00:00, **Apply**, **Exit**
    h. Click on **Calculate** icon.
    i. **Sanity Check all information**! (Headings, distances, fuels, times, etc.)

2. **Preparing Pilot Card for your event**.
    a. Select "**One-Click For Generation**" Icon.
    b. Open Excel form (should appear on bottom bar after generated).

3. **Calculate Alternate Fuels**.
    a. Copy/Type (don't cut & paste) the following information from the **Route of Flight** section of the Pilot Card to the **Alternate** line in the **Divert and Bingo Fuels** section:
        • Course
        • Altitude
        • Distance
        • ETE (round to nearest minute)
        • Leg Fuel (round up to the nearest 10 lbs).
    b. Type in the Divert airfield's four-letter identifier.
    c. When this step is complete, highlight all rows in the **Route of Flight** section beneath the **Destination** line, right click and select "**Clear Contents**". Do not delete any rows.
    d. **Calculate Alternate Fuel Total:**
        IMC Divert = Fuel to Divert ("Leg Fuel") + 50# for Approach (if needed) + 125# on Deck
        VMC Divert = Fuel to Divert ("Leg Fuel") +120# on Deck **OR** 200#... Whichever is **HIGHER**
    e. **Calculate and enter MCFs**
        i. Determine spare fuel (EFR at Destination Airfield – Divert Fuel)
        ii. Enter spare fuel in the blank **Spare Fuel** cell at bottom right of spreadsheet
        iii. This macro automatically subtracts Spare fuel from EFR at each point, thus producing an MCF for each turnpoint [MCF at Each Point = EFR at Each Point – Spare Fuel]

4. **Calculate Bingo Fuel**

    a. Determine the Bingo Point, i.e., the farthest point on the ONAV route from the planned destination. Use the Analysis Tool, if necessary.

    b. In JMPS Tabular View, add a line beneath the Bingo Point and enter the IAF for the planned destination.

    c. Change the altitude for this new leg, airspeed to 240T, add winds aloft (if desired).

    d. Click on Calculate icon

    e. Copy/Type the Bingo information from the JMPS Tab View to the **Bingo Fuels** section:
- Course
- Altitude
- Distance
- ETE (round to the nearest minute)
- Leg Fuel (round up to the nearest 10 lbs).

    f. Type in the Bingo Turnpoint Identifier.

    g. When this step is complete, delete the Bingo line in the **Tab View** and re-calculate.

    h. **Calculate Bingo Fuel Total**

        BINGO = Bingo leg Fuel (to the IAF) + 50# (IAF to Destination) + Divert Fuel

5. **Complete remaining required information on the Pilot Card:**

    a. Aircraft call sign

    b. SNFO: enter rank and name

    c. LL Route: enter the ONAV #

    d. FP Route: enter the stereo flight plan or "DD 1801",

    e. Winds: enter winds aloft for cruise and the route, e.g. **High: 330/20 Low 290/15**

    f. Print two copies. Give one to the instructor

    g. Save excel file. **S:/Student/Class XX-XX/Last Name/ONAV #)**

6. **Add your intermediate checkpoints (ICPs typed or handwritten).**

7. **Copy MCF's to your strip charts.**

T-6A ADDITONAL ONAV ROUTES

- VT-10 maintains four additional ONAV Routes: West 1, West 2, East 1, and East 2.
- If scheduled, students will sign-out the strip chart from the VT-10 SDO.
- For fuel planning, students can find the Route files for these routes (e.g., "West1.jrt") on the **M:/ drive (M:/MasterTemplates/Additional Routes).**

1. EAST ROUTE 1. (Depart KNPA IFR: JAYDI INBRD CEW DEFUN...then to ONAV route entry)

Altitude	Point	Fac/RAD/DME	Lat/Long
As Assigned to	A – RADOME	MAI 251050	N3033.9/W8555.3
2000' MSL to	B - CEMETERY	MAI 271029	N3047.8/W8541.4
2000' MSL to	C - WHITE BLDG	MAI 253008	N3044.9/W8516.1
2000' MSL to	D - HWY 90 BR	MAI 109016	N3042.1/W8451.5
2000' MSL to	E – RR BR	MAI 094031	N3054.9/W8434.9
2000' MSL to	F - SOLAR FARM	MAI 039030	N3110.3/W8445.8

(IFR after ONAV route…SZW KTLH)

2. EAST ROUTE 2. (Depart KTLH VFR to ONAV route entry)

Altitude	Point	Fac/RAD/DME	Lat/Long
As assigned to	A – 6 WATER TANKS	MAI 075025	N3054.3/W8435.6
2500' MSL to	B – HWY BR	MAI 027014	N3058.6/W8500.4
2500' MSL to	C – DRAG STRIP	MAI 337019	N3106.0/W8516.7
2500' MSL to	D – 5 WAY INTX	MAI 306018	N3057.0/W8524.1
2500' MSL to	E – LAKE	MAI 300035	N3103.7/W8540.2
2500' MSL to	F – HWY/I-10 INTX	MAI 266029	N3045.8/W8541.1

(IFR after ONAV route... DEFUN CEW PENSI KNPA)

3. WEST ROUTE 1 (Depart KNPA IFR- KNPA TEEZY TRADR PLEBE MINDO...then ONAV route entry)

Altitude	Point	Fac/RAD/DME	Lat/Long
As assigned to	A – I-12/RVR INTX	HMU 260014	N3028.5/W9040.4
2000' MSL to	B - RVR/PL INTX	RQR 316017	N3016.9/W9047.6
2000' MSL to	C – RVR ISLAND	LSU 155018	N3011.8/W9109.6
2000' MSL to	D – RVR Y	LFT 093025	N3010.8/W9131.7
2000' MSL to	E – I-10 BR	LFT 054017	N3020.6/W9143.1
2000' MSL to	F – RR INTX	LSU 280016	N3033.2/W9134.6

(IFR after ONAV route…LFT KARA)

4. WEST ROUTE 2 (Depart KARA VFR to ONAV route entry)

Altitude	Point	Fac/RAD/DME	Lat/Long
As assigned to	A – OBSERVATORY	HMU 269019	N3033.8/W9046.5
2000' MSL to	B - RD/RVR INTX	HMU 346016	N3046.7/W9029.9
2000' MSL to	C – HORSE TRACK	HMU 049013	N3038.1/W9012.4
2000' MSL to	D – PAPER MILL	PCU 328015	N3046.5/W8951.8
2500' MSL to	E – RD INTX	MCB 122028	N3102.2/W8948.4
2500' MSL to	F – OIL TANKS	LBY 187024	N3102.1/W8927.0

(IFR after ONAV route... WIGGO SJI JERYS TEEZY)