

Using ASA's Flight Planner

A flight log is an important part in the preparation for a safe flight. The flight log is needed during flight to check your groundspeed and monitor flight progress to ensure you are staying on course. The Flight Planner has two sections; the Preflight side is used for pre-flight planning while the En Route side is used for navigation and groundspeed checks during the actual flight. Once the Flight Planner is complete you can fold the sheet in half to neatly fit on your kneeboard and display just the necessary information for your flight.

The following is an example of how to complete ASA's Flight Planner form ([ASA-FP-3](#)) when planning a VFR flight. You can use an E6-B flight computer or an electronic flight computer. The sample flight was calculated using a CX-2 electronic flight computer.

Step 1: Plot your course

Refer to Chart 1 for an example of a plotted flight route using visual checkpoints.

1. Mark your planned flight course on a sectional chart.
2. Determine checkpoints between your departure and destination airports that you will use as navigational aids to ensure you are on course and ground speed checks in-flight.
3. Using your plotter, determine the true course and measure the distance between your checkpoints (these will be your flight legs).
4. Determine the appropriate VFR cruising altitude using the terrain, obstructions and airspace along your route. You will also use your weather briefing information to help determine the best altitude for flight.

Step 2: Obtain weather information

You must obtain a weather briefing (800-WX-BRIEF or www.1800wxbrief.com) to receive important weather data for your flight route. The weather briefing includes many different pieces of weather data that a pilot needs to consider before flying. For the purpose of preflight planning using the Flight Planner, the following data points are necessary:

- Wind direction
- Wind velocity
- Temperature at cruising altitude
- Sky coverage, ceiling and freezing level for the purpose of establishing an appropriate and safe cruising altitude

Step 3: Preflight section of the Flight Planner

Once you have established checkpoints, measured the true course and distance between them and obtained your weather briefing in steps 1 and 2, you will have the information required to complete the preflight section on the flight planner. Refer to the top of Figure 1 for the numerical key to each section listed.

To complete the Preflight side of the Flight Planner, you will need to know your checkpoint locations, true course between the checkpoints, intended altitude, wind direction and velocity (obtained from your weather briefing), the aircraft's true airspeed, magnetic variation from the sectional chart and compass deviation from your aircraft.

1. List each checkpoint, beginning with your departure airport.
2. Enter the true course measured with the plotter for each leg between the checkpoints.
3. Enter your intended cruising altitude for each leg of the flight.

Note: Factors such as terrain, airspace and weather should be considered.

4. Enter the wind direction and velocity as given during the weather briefing.
Note: Interpolation may be necessary for your specific cruising altitude.
5. Enter the temperature at your intended altitude as given during the weather briefing.
Note: Interpolation may be necessary for your specific cruising altitude.
6. Enter your planned true airspeed.
Note: This airspeed should be listed in the Airplane Flight Manual (AFM).
7. Enter the computed wind correction angle.
Note: This is only necessary if you are using an E6-B flight computer for your calculations; an electronic flight computer will calculate this for you.
8. Enter the computed true heading in the top box (now is also a good time to note your groundspeed for step 12). The magnetic variation is entered in the lower box. Apply the magnetic variation to the true heading to obtain your magnetic heading.
Note: If using the CX-2 electronic flight computer, the true heading and groundspeed are computed at the same time using true course, true airspeed, wind direction and velocity. Insert your groundspeeds in column 12 you will need these in a later step.
9. Enter the magnetic heading in the top box. The compass card deviation is entered in the lower box. Apply the deviation to the magnetic heading to obtain your compass heading.
Note: The compass deviation card is located on a placard in the aircraft.
10. Enter the computed compass heading on the En Route side of the flight planner.

Step 4: En Route section of the Flight Planner

At this point you should have all the required information necessary to calculate your estimated time and fuel consumption for each intended flight leg. There are also boxes on this side of the En Route section that allow you to monitor flight progress by calculating groundspeed and time checks while en route.

11. Enter the distance of the leg in the top box of this section. The distance remaining for your flight is entered in the lower box.
12. Enter the computed groundspeed in the top box. The actual groundspeed, as determined by in-flight calculations, is entered in the lower box.
Note: If using the CX-2 electronic flight computer, groundspeed can be determined at the same time that true heading is calculated. See notes above for Preflight section 8.
13. Enter your estimated time en route to each checkpoint in the top box. The actual time en route, as determined by in-flight calculations, is entered in the lower box.
Note: If using the CX-2 electronic flight computer, this is calculated using the leg distance and groundspeed under Plan Leg in Flight mode.
14. Enter your estimated time of arrival at each checkpoint in the top box. The actual time of arrival will be entered in the lower box.
15. The fuel that will be used for the leg is entered in the top box. The fuel remaining is entered in the lower box.
Note: If using the CX-2 electronic flight computer, fuel used is calculated using ETE and fuel consumption rate under Fuel Burn in Flight mode.
16. Enter the frequency for navigation aids to be used in that leg in the top box. The audible Morse code identifier is entered in the lower box.
Note: This is an optional aid to navigating your visual flight route.

17. Enter the bearing you will track on the navigational aid in the top box. Indicate if you will be tracking “to” or “from” the bearing in the lower box.
18. Enter transponder or squawk codes given by air traffic control during your flight.

At the top of this section is a table that allows you to enter information you receive before takeoff; ATIS information, temperature, winds, altimeter settings, runways in use or that you are cleared to, time at takeoff and Hobbs meter start and end reading.

At the bottom of this section is the Terminal Information chart. Use this section to enter key information about the airports you will be departing from and flying to. Information such as elevation, runways in use, their length and surface as well as radio frequencies should go here.

Example of a completed Flight Plan

This example is not intended for actual flight; for your flight planning you will need to reference current sectional charts, weather information, weight and balance data and the AFM for your specific aircraft. The flight planner forms and charts in Figures 1 through 3 have been completed based on the aircraft, flight route and weather information below. Using information on airspace, terrain and obstructions and weather information for this flight route, the cruising altitude is determined to be appropriate and safe at 7,500.

The aircraft

Cessna 172, 4 seat, fixed gear airplane
Gross weight: 2,300 pounds
Empty weight: 1,364 pounds
Fuel capacity: 43 gallons (usable fuel)
Fuel consumption: 8 gallons per hour

Weather information

Winds at 3,000 feet: 330° at 6 knots Temperature 17°
Winds at 6,000 feet: 310° at 18 knots Temperature 11°
Winds at 9,000 feet: 300° at 22 knots Temperature 5°
Sky at departure: 10,000 feet scattered
Sky at arrival: 9,000 feet broken
Sky enroute: 12,000 feet broken
Freezing level: 11,000 – 13,000 feet

The flight

The proposed flight is from Montgomery Field Airport (KMYF) to Palm Springs Airport (KPSP) using the V208 airway to help navigate the mountain pass. Chart 1 and Figure 3 shows the flight route and checkpoints. For our flight route, the following checkpoints have been selected:

Montgomery Field Airport (KMYF) – Gillespie Field (SEE) – El Captain Reservoir – Julian VOR (JLI) – Cochran Airport (KTRM) – Palm Springs Airport (KPSP)

Preflight Pilot Checklist

Use this form to log the information you receive when you obtain your preflight weather briefing. You can also use this form to log in-flight pilot reports (PIREPs).

Weight and Balance

Use this chart to enter weight information for the aircraft, fuel, passengers and baggage for your proposed flight. The AFM lists the arm for these positions. The moment can be calculated using the weight and arm for each location. When the total weight and total moment for the aircraft are known, you can use the loading graphs in the AFM to determine if the aircraft will be loaded within center of gravity (CG) limits.

International Flight Plan

FAA Form 7233-4 (International Flight Plan) is shown in Figure 3. The filer is normally responsible for providing the information required in Items 3 through 19. The information below is intended to be a brief guideline in filling out the flight plan form; additional information can be found in the Aeronautical Information Manual (AIM) Section 1, Paragraph 5-1-9 and at www.1800wxbrief.com

Item 3

MESSAGE TYPE: FPL

Item 7

AIRCRAFT IDENTIFICATION: Insert the full registration number of the aircraft ("N" number).

Item 8

FLIGHT RULES: Enter one of the following letters to denote the category of flight rules with which the pilot intends to comply: V (VFR), I (IFR), Y (IFR to VFR), Z (VFR to IFR).

TYPE OF FLIGHT: Enter one of the following to denote the type of flight: **G** (General Aviation).

Item 9

NUMBER: Enter the number of aircraft if more than one.

TYPE OF AIRCRAFT: Enter the aircraft type designator (i.e. C172, for a Cessna 172).

Note: You can search for your aircraft ICAO designator here <http://www.icao.int/publications/doc8643/pages/search.aspx>

WAKE TURBULENCE CATEGORY: L (Light)

Item 10

EQUIPMENT: Enter radio communication, navigation and approach aid equipment and capabilities. After / enter surveillance equipment and capabilities.

Note: A complete listing of Aircraft COM, NAV, and Approach Equipment Qualifiers can be found in the AIM table 5-1-4. Aircraft Surveillance Equipment, Including Designators for Transponder, ADS-B, ADS-C, and Capabilities are listed in table 5-1-5 of the AIM.

Item 13

DEPARTURE AERODROME: Insert the ICAO identifier of your departure airport.

TIME: Enter the estimated departure time.

Item 15

CRUISE SPEED: Insert the true airspeed for the first or the whole cruising portion of the flight, in terms of knots, expressed as N followed by 4 digits (e.g. N0125 for 125 knots).

LEVEL: Insert the planned cruising altitude in hundreds of feet for the first or the whole portion of the route to be flown expressed as A followed by 3 figures (e.g. A075 for 7,500 feet MSL).

ROUTE: Insert your intended route of flight.

Item 16

DESTINATION AERODROME: Insert the ICAO identifier of your destination airport.

TOTAL EET: Insert your total estimated elapsed time (your time en route).

ALTERNATE AERODROME: Insert the ICAO identifier of any alternate airports (optional).

Item 18

OTHER INFORMATION: Insert 0 (zero) if no other information. If other information needs to be entered use the appropriate indicators when available (e.g. SAR for a flight engaged in search and rescue).

Item 19

SUPPLEMENTARY INFORMATION: Item 19 data must be included when completing Flight Plan form. This information will be retained by the facility/organization that transmits the flight plan to Air Traffic Control (ATC), for Search and Rescue purposes, but it will not be transmitted to ATC as part of the FPL.

E/ (ENDURANCE): Insert 4-digits group giving the fuel endurance in hours and minutes.

P/ (PERSONS ON BOARD): Insert the total number of persons (passengers and crew) on board.

R/ (RADIO):

- Cross out “UHF” if frequency 243.0 MHz is not available.
- Cross out “VHF” if frequency 121.5 MHz is not available.
- Cross out “ELBA” if emergency locator transmitter (ELT) is not available.

S/ (SURVIVAL EQUIPMENT):

- Cross out “POLAR” if polar survival equipment is not carried.
- Cross out “DESERT” if desert survival equipment is not carried.
- Cross out “MARITIME” if maritime survival equipment is not carried.
- Cross out “JUNGLE” if jungle survival equipment is not carried.

J/ (JACKETS):

- Cross out “LIGHT” if life jackets are not equipped with lights.
- Cross out “FLUORES” if life jackets are not equipped with fluorescein.
- Cross out “UHF” or “VHF” or both as in R/ above to indicate radio capability of jackets, if any.

D/ (DINGHIES):

- NUMBER: Cross out indicators “NUMBER” and “CAPACITY” if no dinghies are carried, or insert number of dinghies carried; and
- CAPACITY: Insert total capacity, in persons, of all dinghies carried; and
- COVER: Cross out indicator “COVER” if dinghies are not covered; and
- COLOR: Insert color of dinghies if carried.

A/ (AIRCRAFT COLOR AND MARKINGS): Insert color of aircraft and significant markings.

N/ (REMARKS): Cross out indicator N if no remarks, or indicate any other survival equipment carried and any other remarks regarding survival equipment.

C/ (PILOT-IN-COMMAND): Insert name of pilot-in-command.

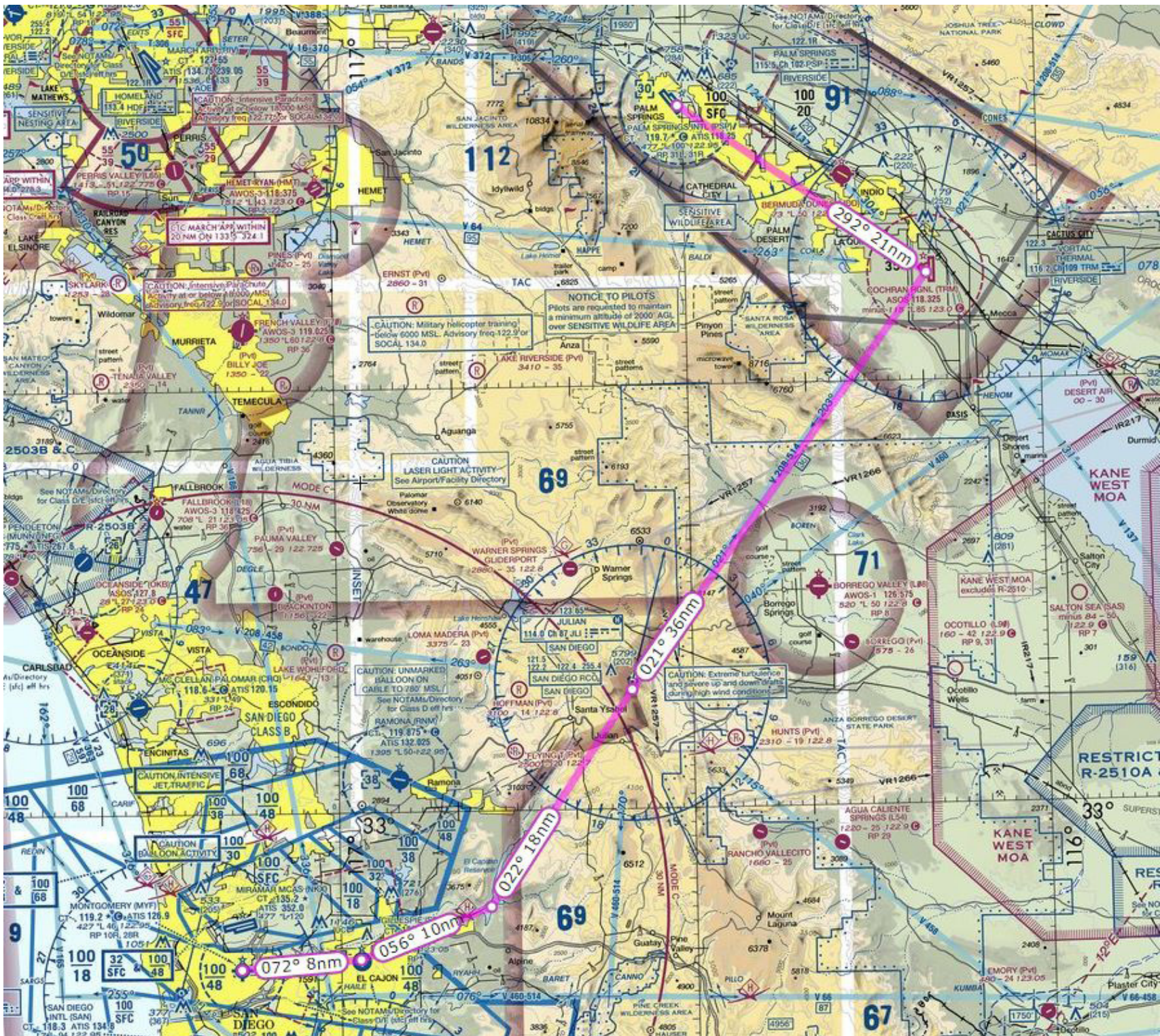


Chart 1



Flight Planner

AIRCRAFT	N19630	TIME OFF	1400	BLOCK START		BLOCK END	
ATIS CODE	Bravo	SKY	10,000Sc+	TEMP	23	WIND	
En Route				ALTIMETER	29.92	RUNWAY	28
						EST GPH	8

Preflight

PLANNED		PREDICTED WIND		TEMP	PLAN TAS	WIND CORR ANGLE -L +R	TRUE HEADING		MAG HEADING
TRUE COURSE	ALTITUDE	DIRECTION	VELOCITY				-E +W	VAR	
84	3500 ↗	330	6	16°C	76	-4	80	68	
							-12	+2	
68	7500	305	20	8°C	76	-13	55	43	
							-12	+2	
34	7500	305	20	8°C	110	-11	23	11	
							-12	+1	
33	7500	305	20	8°C	110	-11	23	11	
							-12	+1	
304	7500 ↙	305	20	8°C	110	0	304	292	
							-12	-1	

Checkpoints	COMPASS HEADING	DIST LEG REM	GS EST ACT	ETE ATE	ETA ATA	FUEL USED REM.	VOR		TRANS-PONDER CODES "SQUAWKS"
							FREQ IDENT	BEARING TO/FROM	
							DEPARTURE		
KMYF	70	8	78	06:09	14:06	0.8			1200
Gillespie		85				42.2			
El Cap Reservoir	45	10	85	07:04	14:13	0.9			
		75				41.3			
Julian VOR	12	18	108	10:00	14:23	1.3	114.0	22	
		57				40		TO	
Cochran	12	36	108	20:00	14:43	2.7	114.0	21	
		21				37.3		FROM	
KPSP	291	21	90	14:00	14:57	1.9	116.2	292	
		0				35.4		FROM	
ARRIVAL	TOTALS	93							

Notes:

KPSP - TPA 1,500 msl
 Runway 13R/31L 10,000 x 150 ft.
 Runway 13L/31R 4,952 x 75 ft.

Terminal Information

Field	Elevation	Runways	Radio Frequencies
KMYF	427	10L/R 28L/R	Ⓜ118.22 Ⓜ119.2
KPSP	476	13L/R 31L/R	ATIS - 118.25
			Ⓜ121.9 Ⓜ119.7

Figure 1

Preflight Pilot Checklist						
Aircraft Identification				Time of Briefing		
Weather <i>(Destination)</i>	<input type="checkbox"/> Present	Remarks	Report Weather Conditions Aloft			
	<input type="checkbox"/> Forecast		<i>Report immediately weather conditions encountered—particularly cloud tops, upper cloud layers, thunderstorms, ice, turbulence, winds and temperature</i>			
			Position	Altitude	Time	Weather Conditions
Weather <i>(En Route)</i>	<input type="checkbox"/> Present					
	<input type="checkbox"/> Forecast					
	<input type="checkbox"/> PIREPs					
Winds Aloft	Best Cruising Altitude					
NAVAID & Com Status	<input type="checkbox"/> Destination					
	<input type="checkbox"/> En Route					
Airport	<input type="checkbox"/> Destination					
	<input type="checkbox"/> Alternate					
ADIZ	<input type="checkbox"/> Airspace Restrictions					

Weight and Balance					
	WEIGHT	x	ARM	=	MOMENT
EMPTY WEIGHT AIRCRAFT	1364		37.9		51,700
FRONT PASSENGERS	300		37.3		11,200
REAR PASSENGERS	185		72.97		13,500
FUEL (GAL x 6 LB/GAL)	228		48.25		11,000
BAGGAGE	25		80		2,000
TOTAL GROSS WEIGHT	2117		TOTAL MOMENT		89,000
CG = $\frac{\text{TOTAL MOMENT}}{\text{TOTAL WEIGHT}}$ =		42.14		GROSS WEIGHT AND CG WITHIN LIMITS? <u>yes</u>	

Pilot Report on frequencies _____	1 Report Type <small>(PIREP, Urgent)</small>	2 Location	3 Time (UTC)	4 Altitude
	5 Aircraft Type	6 Sky Cover	7 Weather	8 Temperature
	9 Wind	10 Turbulence	11 Icing	12 Remarks

Figure 2

International Flight Plan		U.S. Department of Transportation Federal Aviation Administration	
PRIORITY	ADDRESSEE(S)		
<=FF			
FILING TIME	ORIGINATOR		
SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND / OR ORIGINATOR			
3 MESSAGE TYPE	7 AIRCRAFT IDENTIFICATION	8 FLIGHT RULES	TYPE OF FLIGHT
<=(FPL	N1963U	V	G
9 NUMBER	TYPE OF AIRCRAFT	WAKE TURBULENCE CAT.	10 EQUIPMENT
	C172	L	S TC
13 DEPARTURE AERODROME	TIME		
KMYF	400		
15 CRUISING SPEED	LEVEL	ROUTE	
N0110	A075	DCT JLI KTRM KPSP	
TOTAL EET			
16 DESTINATION AERODROME	HR	MIN	ALTN AERODROME
KPSP	0	5	KTRM
18 OTHER INFORMATION			
SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)			
19 ENDURANCE	PERSONS ON BOARD		EMERGENCY RADIO
HR MIN			UHF VHF ELBA
E/ 0800	P/ 1		R/ X <input type="checkbox"/> <input type="checkbox"/>
SURVIVAL EQUIPMENT		JACKETS	
<input type="checkbox"/> POLAR	<input type="checkbox"/> DESERT	<input checked="" type="checkbox"/> LIGHT	<input checked="" type="checkbox"/> FLUORES
<input checked="" type="checkbox"/> MARITIME	<input checked="" type="checkbox"/> JUNGLE	<input checked="" type="checkbox"/> UHF	<input checked="" type="checkbox"/> VHF
DINGHIES			
NUMBER	CAPACITY	COVER	COLOR
D/	X1X	X1X	
AIRCRAFT COLOR AND MARKINGS			
A/	white, red stripe		
REMARKS			
N/			
PILOT-IN-COMMAND			
C/	Joe Asa III		
FILED BY	ACCEPTED BY	ADDITIONAL INFORMATION	

NOTE: File and close flight plans at www.1800wxbrief.com, www.duat.com, or www.duats.com, or call 1-800-WX-BRIEF. VFR pilots: remember to close your flight plan.

Figure 3