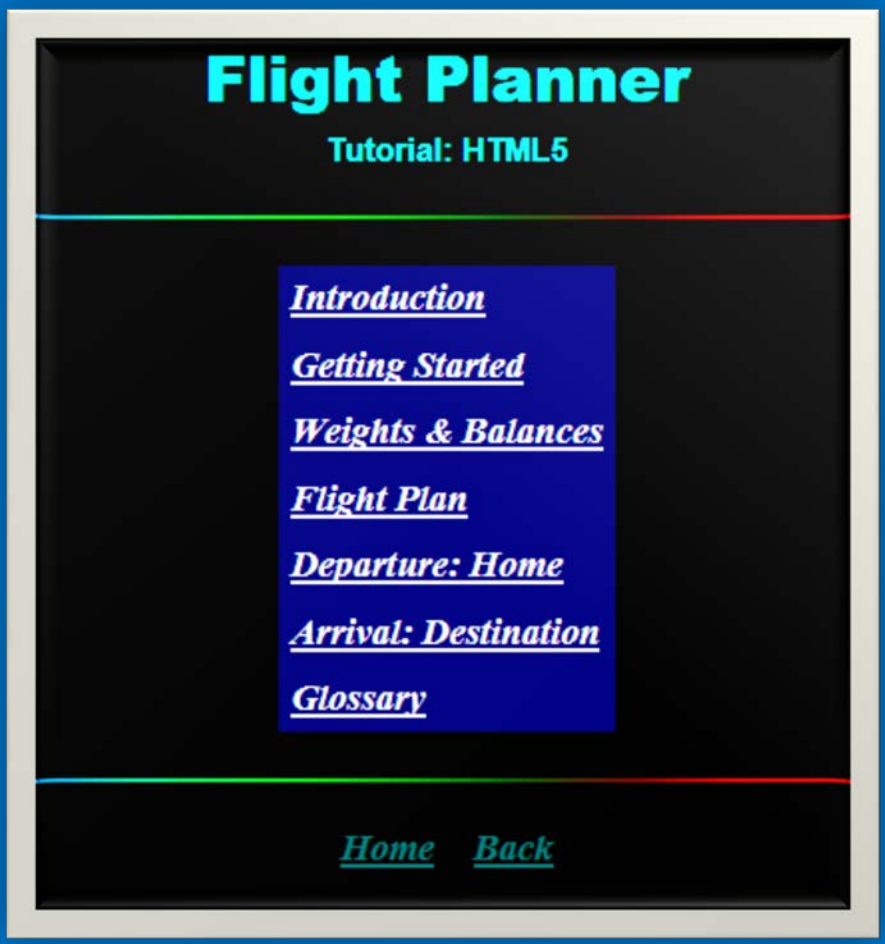

USERS GUIDE: FLIGHT PLANNER TUTORIAL

(FOR TOWER AIRPORTS OPERATING IN CLASS C AIRSPACE)

BY JACKIE BOLEN


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1 INTRODUCTION

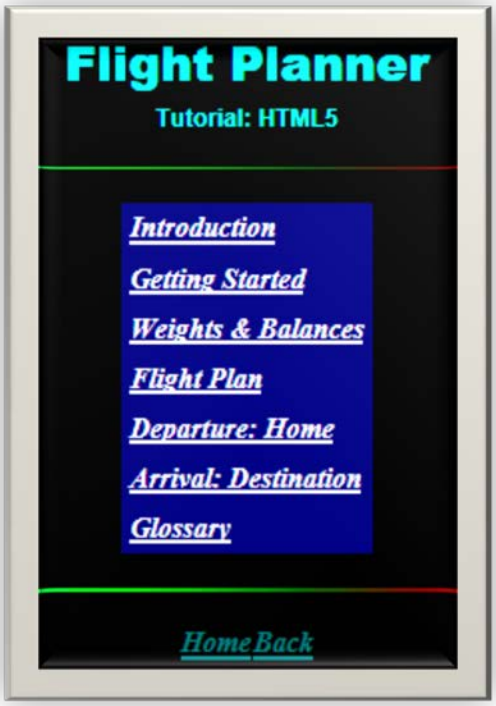

Figure 1-1: "Flight Planner: Tutorial" Webpage

IMPORTANT! For navigation of the "Flight Planner: Tutorial" website, please use the "Flight Planner" and "Back" buttons, at the bottom of each page, unless directed to "Click on browser's back arrow."

The Flight Planner Tutorial, also known as the "Tutorial," aids the Student Pilot in preparing for their solo flights, by walking through the flight-planning process, using simple step-by-step procedures, to accomplish the following tasks:

- Properly balancing weight of Fully-Loaded Aircraft, and ensuring that it is NOT overweight
- Filling in Flight Plan with information used to file with FAA Briefer, beforehand, and during flight
- Obtaining additional Take-Off/Landing information, along with instructions for talking on the radio

It applies to the following types of airports:

- Tower Airports Operating in Class C Airspace
- Tower Airport
- Non-Tower Airport

This chapter provides the following introductory information for the Tutorial:

- *Overview of Tutorial*
- *Required Background of Student Pilot*

NOTE: It is recommended that you read through this Users Guide before planning your flight.

1.1 Overview of Tutorial

The Tutorial performs the following functions:

- Provides tutorial method which facilitates gathering and calculating flight planning information.
- Presents information in an orderly manner that facilitates filling in and submitting Flight Plan to FAA Briefer.

It comprises the following chapters:

- **Introduction:** Describes Flight Planner.
- **Getting Started:** Lists items required for getting started.
- **Weights & Balances:** Defines procedures for calculating Weights and Balances, required for proper Take-Off and operation of the Fully-Loaded Aircraft.
- **Flight Plan:** Defines procedures for filling in Flight Plan, to be filed with the FAA Briefer, at the start of your flight.
- **Departure:** Defines procedures for departing from Departure Point (airport).
- **Arrival: Destination:** Defines procedures for arriving at Destination (airport).
- **Glossary**: Provides listing and brief definition of Flight Planning terms, as used in this Tutorial.

1.2 Required Background of Student Pilot

Figure 1-2: Required Background of Student Pilot

This Tutorial is intended for use by Student Pilots, at the point in their training where they are planning their solo cross-country flights, and assumes the accompanying required level of expertise.

IMPORTANT! As a Student Pilot, Class A/B airspace should be avoided.

2 GETTING STARTED

Figure 2-1: GETTING STARTED

This chapter lists the following information and types of items, required for planning your flight:

- *Required Documents*
- *Required Instruments*
- *Required Other*
- *System Requirements*
- *Conventions*
- *Location of Buttons and Navigation Links*
- *Procedure for Getting to "Flight Planner: Tutorial"*

2.1 REQUIRED DOCUMENTS

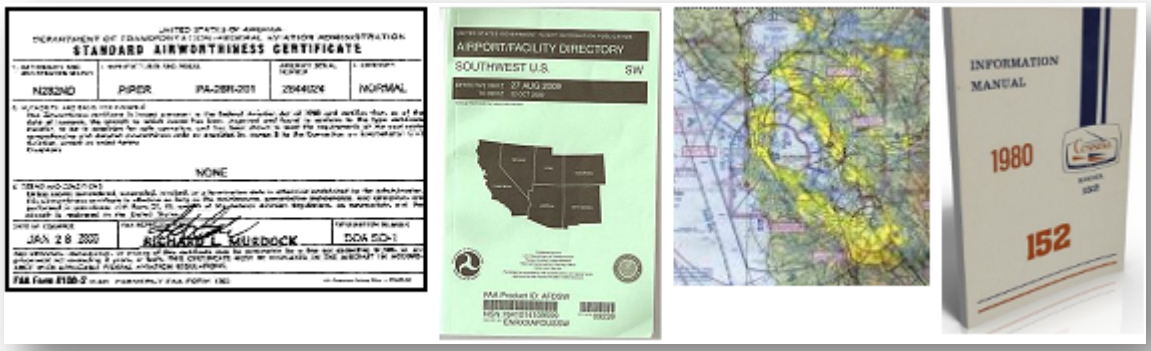

Figure 2-2: Required Documents

You will need the following documents:

- ***Aircraft's Documentation:*** Aircraft registration, maintenance records, and aircraft-specific information, usually found in aircraft's glove compartment
- ***Airport/Facilities Directory*****:** Required directory (green book) used for obtaining airport-related information, purchased at store specializing in flying supplies: Must be current.

  NOTE: The *Pilots Guide to Airports* may be used instead, as a directory, produced by OPTIMA, used for obtaining airport-related information, usually purchased at a store specializing in flying supplies: Includes periodic updates, which keep it current.

- ***Chart:*** Required aeronautical chart used for plotting Route of Flight, purchased at store specializing in flying supplies: Must be current.
- ***Pilots Operator Handbook*****:** Operators manual for Aircraft Type, purchased at store specializing in flying supplies

2.2 REQUIRED INSTRUMENTS

Figure 2-3: Required Instruments

You will need the following instruments:

- **Calculator:** Everyday calculator used to calculate Distance, Estimated Time Enroute, Estimated Time of Arrival, and Remaining Fuel. Purchased at store selling Stationary supplies.
- **E6-B:** Flight computer used for calculating Compass Heading, Ground Speed, and Fuel. Purchased at store specializing in flying supplies.
- **Phone:** To call WX-BRIEF (800 number)
- **Plotter:** Instrument used for plotting Route of Flight, purchased at store specializing in flying supplies
- **Transponder with Mode C:** Instrument located in aircraft's Instrument Panel that enhances aircraft's identity on Air Traffic Controller's radar screen.

  Mode C provides additional required capabilities for operating in Class C Airspace that enable Air Traffic Controller to keep track of aircraft's identity.

  NOTE: "Transponder with Mode C" may also be referred to as "Transponder."

2.3 Required Other

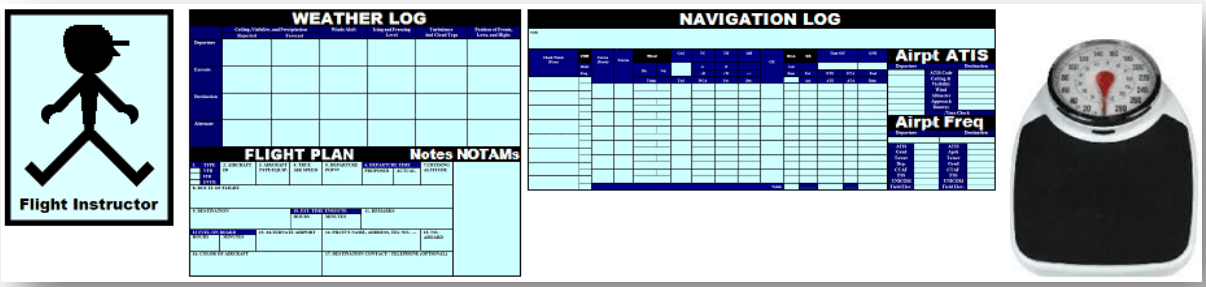

Figure 2-4: Required Other

You will need the following individual, item, and information:

- **BLANK Flight Plan:** Paper form used for filling in Flight Plan, before Cross-Country Flight, purchased at a store specializing in flying supplies
- **Flight Instructor:** Source of critical information required for your Flight
- **Your Weight:** One of heaviest objects aboard aircraft, used for Weights & Balances, and measured in Pounds

2.4 System Requirements

You will need a system with a Web Browser that can run HTML5 code.

2.5 Conventions

- Document titles are listed in Italics.
- In this document, buttons and field names, and webpage titles, are listed in Bold-Face.
- On webpages, buttons are underscored.

2.6 Location of Buttons and Navigation Links

- Buttons are located throughout each webpage, as applicable.
- The **Flight Planner** and **Back** navigation links (buttons) are located at the bottom of webpages, as applicable.

2.7 Procedure for Getting to "Flight Planner: Tutorial"

Task:

1. Go to http://www.jbolen.net, to display the **Jackie Bolen** homepage.
2. Click on **Flight Planner**, to display **Flight Planner** webpage.
3. Click on **Tutorial**, to display **Flight Planner: Tutorial** webpage.

3 WEIGHTS & BALANCES

Figure 3-1: WEIGHTS & BALANCES

NOTE: All examples in this chapter use a Cessna 152 for the aircraft.

This chapter defines following procedures, which ensure that Fully-Loaded Aircraft meets following criteria, required for proper Take-Off and operation:

- ***Ensuring that Aircraft Is NOT Overweight:*** Its Total Weight does NOT exceed its (allowable) Maximum Gross Weight.
- ***Ensuring that Aircraft Is Properly Balanced:*** Its Center of Gravity (heaviest part of aircraft) has NOT shifted from when the aircraft was empty.

IMPORTANT! If Fully-Loaded Aircraft is overweight or unbalanced, its Take-Off and handling ability will be affected.

Task:

1. From **Flight Planner: Tutorial** webpage, click on **Weights & Balances**.

3.1 Ensuring that Aircraft Is NOT Overweight

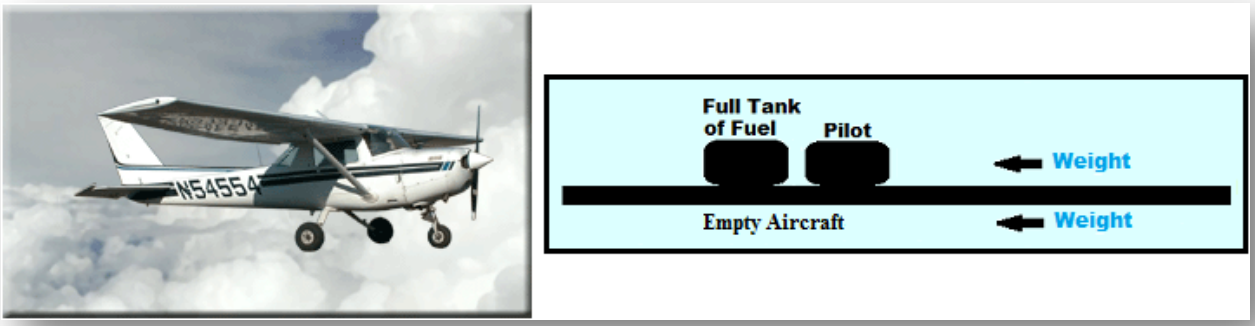

Figure 3-2: Ensuring that Aircraft Is NOT Overweight

This sub-chapter defines the procedure for ensuring that Fully-Loaded Aircraft's Total Weight does NOT exceed its (allowable) Maximum Gross Weight, measured in Pounds, where:

- **Total Weight:** Of Fully-Loaded Aircraft
- **Maximum Gross Weight:** Maximum allowable weight for Take-Off and operation

Prerequisites:

- *Pilots Operator Handbook*
- Calculator
- Your Weight, as only person aboard

Task:

1. From **Weights & Balances** webpage, click on **Ensuring that Aircraft is not overweight**.
2. Perform steps 1-3 indicated on that webpage.
3. Click on **Back**, to re-display **Weights & Balances** webpage.

Result:

Fully-Loaded Aircraft will be at proper weight for Take-Off and handling.

3.2 Ensuring that Aircraft Is Properly Balanced

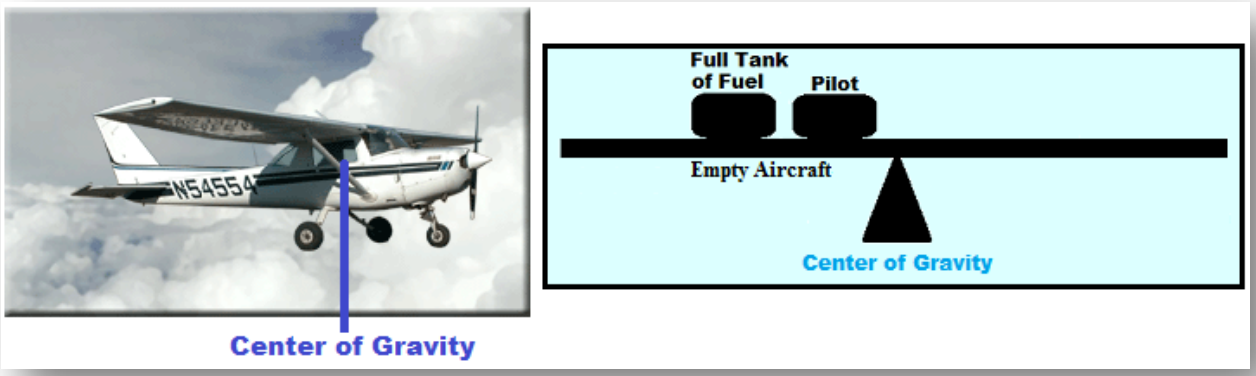

Figure 3-3: Ensuring that Aircraft Is Properly Balanced

This sub-chapter defines procedure for ensuring that heaviest objects (including Pilot and passengers) are properly positioned within aircraft, so that its Center of Gravity (heaviest part of aircraft) does not shift from when it was empty.

Prerequisites:

- *Pilots Operator Handbook*
- Calculator
- Weight information from *sub-chapter 3.1: Ensuring that Aircraft Is not Overweight*

Task:

1. From **Weights & Balances** webpage, click on **Ensuring that Aircraft Is Properly Balanced**.
2. Perform steps 1-5 indicated on that webpage.
3. Click on **Flight Planner**, to re-display **Flight Planner: Tutorial** webpage.

Result:

Fully-Loaded Aircraft will be properly balanced for Take-Off and handling.


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4 FLIGHT PLAN

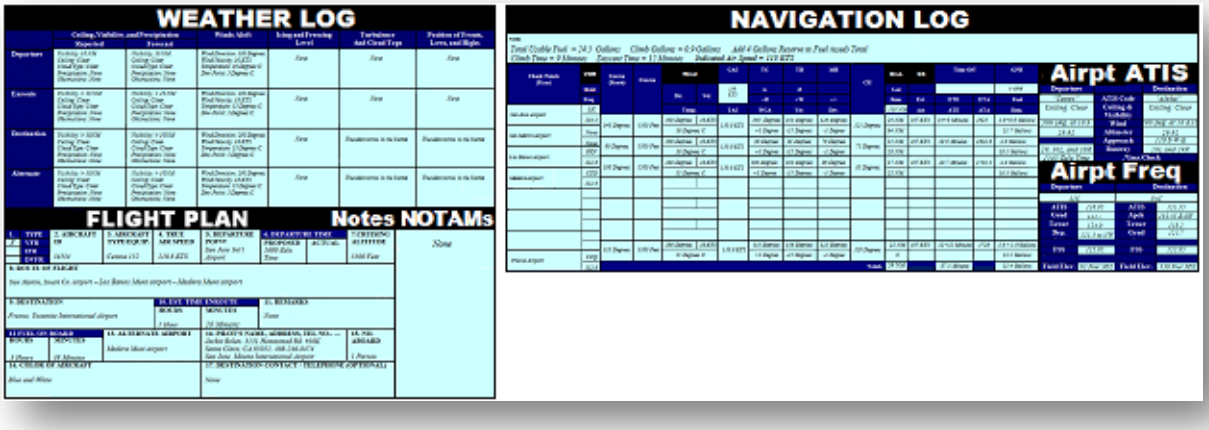


Figure 4-1: FLIGHT PLAN

NOTE: All examples in this chapter use a Cessna 152 for the aircraft, "San Jose, Mineta International Airport" for Departure Point, and "Fresno, Yosemite International Airport" for Destination, as two Tower Airports operating in Class C Airspace.

Flight Plan: Plan filled in before Cross-Country Flight, to provide following information:

- Important aircraft-related details
- Departure Point and Destination
- Route of Flight
- Weather conditions and possible hazards
- Estimated Time of Arrival
- Number of people aboard aircraft

To be:

- Filed with FAA Briefer, at start of flight
- Used by Pilot during flight

This chapter defines the following procedures for filling in the following sections of the Flight Plan, to:

- ***"Flight Plan" Section:*** Organize general flight-related information, for filing with FAA Briefer at start of flight.
- ***"Airport Frequencies":*** List frequency and elevation information for Departure Point and Destination.
- ***"Weather Log":*** Organize weather-related information for pre-flight weather planning.
- ***"Navigation Log":*** Organize navigation information, for pre-flight navigation planning, as well as to keep track of progress during flight.
- ***"Airport & ATIS Advisories":*** Obtain and list critical current weather information for Departure Point and Destination.
- ***"Notes and NOTAMs":*** List hazards that could affect flight safety.

Task:

1. From **Flight Planner: Tutorial** webpage, click on **Flight Plan**, then **Tower Airports Operating in Class C Airspace**, to display **Flight Plan: Class C Airspace** webpage.

4.1 "FLIGHT PLAN" SECTION

FLIGHT PLAN

1. TYPE	2. AIRCRAFT ID	3. AIRCRAFT TYPE/EQUIP.	4. TRUE AIR SPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7.CRUISING ALTITUDE
					PROPOSED	ACTUAL	
X VFR	54554	Cessna 152	110.8 KTS	San Jose Int'l Airport	1600 Zulu Time		5500 Feet
IFR							
DVFR							

8. ROUTE OF FLIGHT

San Martin, South Co. airport – Los Banos Muni airport – Madera Muni airport

9. DESTINATION	10. EST. TIME ENROUTE		11. REMARKS
	HOURS	MINUTES	
Fresno, Yosemite International Airport	1 Hour	28 Minutes	None

12 FUEL ON BOARD		13. ALTERNATE AIRPORT	14. PILOT'S NAME, ADDRESS, TEL NO.. …	15. NO. ABOARD
HOURS	MINUTES			
3 Hours	38 Minutes	Madera Muni airport	Jackie Bolen. 3131 Homestead Rd. #10K Santa Clara, CA 95051, 408-246-8474 San Jose, Mineta International Airport	1 Person

16. COLOR OF AIRCRAFT	17. DESTINATION CONTACT / TELEPHONE (OPTIONAL)
Blue and White	None

NOTE: Actual Departure Time will be filled in at a later time. Remarks and Destination Contact / Telephone are optional.

Figure 4-2: "Flight Plan" Section

"Flight Plan" Section: Section of Flight Plan that provides convenient way to organize following general flight-related information, for filing with FAA Briefer at start of flight:

- **Type:** Type of Flight, obtained from your Flight Instructor
- **Aircraft ID:** Aircraft's license number, starting with "N," obtained from *Aircraft's Documentation*
- **Aircraft Type/Equipment:** Aircraft make and model, and Special Equipment, obtained from *Aircraft's Documentation*
- **True Air Speed:** Air speed used for calculating Wind Correction Angle, and filing Flight Plan with FAA Briefer, measured in Nautical Miles, per *paragraph 4.4.4: Calibrated & True Air Speed*
- **Departure Point:** Name of Departure city and airport, obtained from your Flight Instructor
- **Proposed Departure Time:** Planned Departure Time, listed in Zulu Time, and obtained from your Flight Instructor
- **Cruising Altitude:** Level portion of aircraft travel displayed by Altimeter, occurring between ascent and descent phases, and usually majority of journey, and measured in Feet, per *paragraph 4.4.2: Check Points, Route, & Altitude*
- **Route of Flight:** Set of selected recognizable landmarks positively identified from the air, per *paragraph 4.4.2: Check Points, Route, & Altitude*
- **Destination:** Name of Destination city and airport, obtained from your Flight Instructor
- **Total Estimated Time Enroute:** Expected duration of time for Entire Flight, measured in Minutes, per *paragraph 4.4.8: Time*
- **Fuel on Board:** Aircraft's total fuel available for flight planning, without Reserve, measured in Hours and Minutes, per *paragraph 4.4.9: Fuel*
- **Alternate Airport:** Designated as alternate if intended Destination inadvisable, obtained from *Chart*, using Plotter
- **Pilot's Name, Address, Telephone Number, etc.:** Your information
- **Number Aboard:** Number of individuals aboard aircraft, including yourself
- **Color of Aircraft:** May be multiple colors.

Prerequisites:

- Your Flight Instructor
- *Aircraft's Documentation*
- *Chart*
- BLANK Flight Plan (paper form)

Task:

1. From **Flight Plan: Class C Airspace** webpage, click on **"Flight Plan" Section**.
2. Perform steps 1-11 indicated on that webpage.
3. Click on **Back**, to re-display **Flight Plan: Class C Airspace** webpage.

Result:

Provides general flight-related information used by Pilot, to:

- File with FAA Briefer, at start of Flight, per *paragraph 5.1.4: Calling WX-BRIEF to File Flight Plan with FAA Briefer*.
- Keep track of progress during flight.

4.2 "AIRPORT FREQUENCIES"

Airport Frequencies

Departure		Destination	
SJC		*FAT*	
ATIS	*126.95*	ATIS	*121.35*
Grnd	*121.7*	Apch	*119.6 W-E* *132.35 E-SW* *118.5 Visalia area*
Tower	*124.0*	Tower	*118.2*
Dep.	*121.3 to NW* *120.1 to SE*	Grnd	*121.7*
FSS	*122.95*	FSS	*122.95*
Field Elev.	*62 Feet MSL*	Field Elev.	*336 Feet MSL*

Figure 4-3: "Airport Frequencies"

"Airport Frequencies": Section of Flight Plan that provides convenient way to list following frequency and elevation information for Departure Point and Destination, obtained from *Airport/Facilities Directory*:

- **ATIS Frequency:** Automatic Terminal Information Service: Used at busy Tower Airports operating in Class C Airspace, to provide current weather information, as transmitted ATIS Recording on Receive Only frequency
- **Ground Control Frequency (Grnd):** Used at larger airports, to control airport operations on the ground
- **Tower Frequency:** Used at mid-sized to larger Tower Airports, to control Airspace surrounding Airport
- **"Departure" Frequency (Dep.):** Used at busy Tower Airports operating in Class C Airspace, to control departure through Class C Airspace, from Departure Point
- **"Approach" Frequency (Apch):** Used at busy Tower Airports operating in Class C Airspace, to control approach through Class C Airspace, to Destination
- **FSS Frequency:** Flight Services Station: Used at mid-sized to larger Tower Airports, to allow Pilot to obtain Weather Briefing, fuel, ground transportation, etc., and file Flight Plan with FAA Briefer
- **Field Elevation (Field Elev.):** Airport elevation, measured in Feet MSL (Mean Sea Level)

For the following locations:

- *Departure Point*
- *Destination*

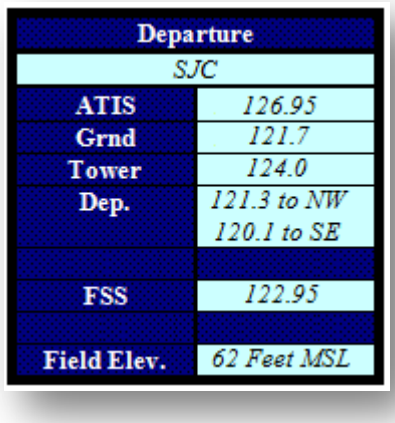
Prerequisites:

- *Airport/Facilities Directory*

Task:

1. From **Flight Plan: Class C Airspace** webpage, click on **"Airport Frequencies"**.

4.2.1 FOR DEPARTURE POINT:



Departure	
SJC	
ATIS	126.95
Grnd	121.7
Tower	124.0
Dep.	121.3 to NW 120.1 to SE
FSS	122.95
Field Elev.	62 Feet MSL

Figure 4-4: "Airport Frequencies": Departure

Task:

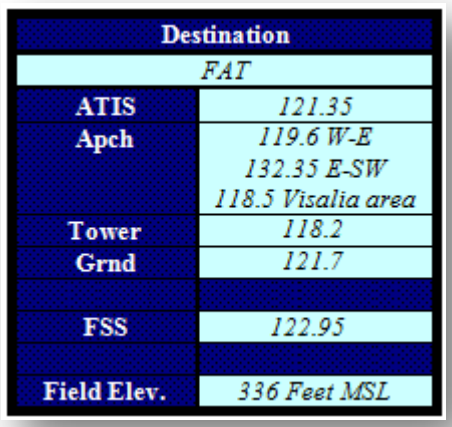
1. From **"Airport Frequencies"** webpage, click on **Departure** ("Links" section), to display **"Airport Frequencies," for Departure Point** webpage.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **"Airport Frequencies"** webpage.

Result:

Lists frequencies used by Pilot to communicate with following organizations at Departure Point, per following paragraphs:

- **ATIS:** *5.1.1: Calling ATIS for Current Weather Information*
- **FSS:** *5.1.5: Calling FSS for Fuel*
- **Ground Control:** *5.1.8: Calling Ground Control for Taxiing Instructions to Runway*
- **Tower:**
  5.2.2: Calling Tower for Taking-Off
  5.2.3: Talking to Tower for Leaving Traffic Pattern
- **"Departure":** *5.3.1: Calling "Departure" for Exiting Class C Airspace*

4.2.2 FOR DESTINATION:



Destination	
FAT	
ATIS	121.35
Apch	119.6 W-E 132.35 E-SW 118.5 Visalia area
Tower	118.2
Grnd	121.7
FSS	122.95
Field Elev.	336 Feet MSL

Figure 4-5: "Airport Frequencies": Destination

Task:

1. From **"Airport Frequencies"** webpage, click on **Destination** ("Links" section), to display **"Airport Frequencies," for Destination** webpage.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, then **Back**, again, to re-display **Flight Plan: Class C Airspace** webpage.

Result:

Lists frequencies used by Pilot to communicate with following organizations at Destination, per following paragraphs:

- **ATIS:** *6.1.1: Calling ATIS for Current Weather Information*
- **"Approach":** *6.1.4: Calling "Approach" for Entering Class C Airspace*
- **Tower:**
  6.2.3: Calling Tower for Approaching Airport
  6.3.2: Talking to Tower for Landing
- **Ground Control:** *6.4.1: Calling Ground Control for Taxiing Instructions to GA Tie-Downs*
- **FSS:** *6.4.3: Calling FSS for Fuel*

4.3 "WEATHER LOG"

WEATHER LOG

	Ceiling, Visibility, and Precipitation		Winds Aloft	Icing and Freezing Level	Turbulence And Cloud Tops	Position of Fronts, Lows, and Highs
	Reported	Forecast				
Departure	*Visibility: 10 NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None*	*Visibility: 10 NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None*	*Wind Direction: 300 Degrees Wind Velocity: 10 KTS Temperature: 19 Degrees C Dew Point: 5 Degrees C*	*None*	*None*	*None*
Enroute	*Visibility: > 10 NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None*	*Visibility: > 10 NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None*	*Wind Direction: 290 Degrees Wind Velocity: 18 KTS Temperature: 35 Degrees C Dew Point: 5 Degrees C*	*None*	*None*	*None*
Destination	*Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None*	*Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None*	*Wind Direction: 290 Degrees Wind Velocity: 18 KTS Temperature: 35 Degrees C Dew Point: 5 Degrees C*	*None*	*Thunderstorms in the Sierra*	*Thunderstorms in the Sierra*
Alternate	*Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None*	*Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None*	*Wind Direction: 290 Degrees Wind Velocity: 18 KTS Temperature: 35 Degrees C Dew Point: 5 Degrees C*	*None*	*Thunderstorms in the Sierra*	*Thunderstorms in the Sierra*

NOTE: "KTS" and "NM" are "Nautical Miles." "Degrees C" is "Degrees Centigrade."

Figure 4-6: "Weather Log"

"Weather Log": Section of Flight Plan that provides convenient way to organize following weather-related information, for pre-flight weather planning, obtained from ATIS and WX-BRIEF:

- **Ceiling, Visibility, & Precipitation:** Atmospheric information for Visibility, Cloud Layer, Cloud Type, Precipitation, and Obstructions, measured in Nautical Miles, Feet, etc.
- **Winds Aloft:** Information for Wind Direction and Velocity, Air Temperature, and Dew Point, measured in Degrees, Nautical Miles, and Degrees Centigrade, respectively
- **Icing and Freezing Level:** Hazard information for conditions that can lead to water ice on aircraft
- **Turbulence and Cloud Tops:** Hazard information for Thunderstorms, Hailstorms, etc., along with cloud height
- **Position of Fronts, Lows, and Highs:** Position information for Warm/Cold Fronts, etc., and High/Low Pressure Centers

For the following locations:

- *Departure Point*
- *Route of Flight*
- *Destination*
- *Alternate Airport*

Prerequisites:

- Phone: To call WX-BRIEF (800 number)

Task:

1. From **Flight Plan: Class C Airspace** webpage, click on **Weather Log**.

Result:

Provides following wind information used to fill in "Navigation Log," per *paragraph 4.4.3: Wind*:

- **Wind Direction:** In Degrees
- **Wind Velocity:** In Nautical Miles
- **Temperature:** Air Temperature: In Degrees Centigrade

4.3.1 FOR DEPARTURE POINT:

	Ceiling, Visibility, and Precipitation		Winds Aloft	Icing and Freezing Level	Turbulence and Cloud Tops	Position of Fronts, Lows, and Highs
	Reported	Forecast				
Departure	*Visibility: 10 NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None*	*Visibility: 10 NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None*	*Wind Direction: 300 D. Wind Velocity: 10 KTS Temperature: 19 Deg. C Dew Point: 5 Degrees C*	*None*	*None*	*None*

Figure 4-7: "Weather Log": Departure

Task:

1. From **"Weather Log"** webpage, click on **Departure**, to display **"Weather Log," for Departure Point** webpage.
2. Perform steps 1-3 indicated on that webpage.
3. Click on **Back**, to re-display **"Weather Log"** webpage.

4.3.2 FOR ROUTE OF FLIGHT:

	Ceiling, Visibility, and Precipitation		Winds Aloft	Icing and Freezing Level	Turbulence And Cloud Tops	Position of Fronts, Lows, and Highs
	Reported	Forecast				
Enroute	*Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precip.: None Obstructions: None*	*Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precip.: None Obstructions: None*	*Wind Direction: 290 D. Wind Velocity: 18 KTS Temperature: 35 Deg. C Dew Point: 5 Degrees C*	*None*	*None*	*None*

Figure 4-8: "Weather Log": Enroute

Task:

1. From **"Weather Log"** webpage, click on **Enroute**, to display **"Weather Log," for Route of Flight** webpage.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **"Weather Log"** webpage.

4.3.3 FOR DESTINATION:

	Ceiling, Visibility, and Precipitation		Winds Aloft	Icing and Freezing Level	Turbulence And Cloud Tops	Position of Fronts, Lows, and Highs
	Reported	Forecast				
Destination	*Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precip.: None Obstructions: None*	*Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precip.: None Obstructions: None*	*Wind Direction: 290 D. Wind Velocity: 18 KTS Temperature: 35 Deg. C Dew Point: 5 Degrees C*	*None*	*Thunderstorms in the Sierras.*	*Thunderstorms in the Sierras.*

Figure 4-9: "Weather Log": Destination

Task:

1. From **"Weather Log"** webpage, click on **Destination**, to display **"Weather Log," for Destination** webpage.
2. Perform steps 1-4 indicated on that webpage.
3. Click on **Back**, to re-display **"Weather Log"** webpage.

4.3.4 FOR ALTERNATE AIRPORT:

	Ceiling, Visibility, and Precipitation		Winds Aloft	Icing and Freezing Level	Turbulence And Cloud Tops	Position of Fronts, Lows, and Highs
	Reported	Forecast				
Alternate	*Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precip.: None Obstructions: None*	*Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precip.: None Obstructions: None*	*Wind Direction: 290 D. Wind Velocity: 18 KTS Temperature: 35 Deg. C Dew Point: 5 Degrees C*	*None*	*Thunderstorms in the Sierras.*	*Thunderstorms in the Sierras.*

Figure 4-10: "Weather Log": Alternate

Task:

1. From **"Weather Log"** webpage click on **Alternate**, to display **"Weather Log," for Alternate Airport** webpage.
2. Perform steps 1-3 indicated on that webpage.
3. Click on **Back**, then **Back**, again, to re-display **Flight Plan: Class C Airspace** webpage.

4.4 "NAVIGATION LOG"

NAVIGATION LOG

Notes
Total Usable Fuel = 24.5 Gallons Climb Gallons = 0.9 Gallons Add 4 Gallons Reserve to Fuel (used) Total Climb Time = 9 Minutes Descent Time = 12 Minutes Indicated Air Speed = 110 KTS

Check Points (Fixes)	VOR	Course (Route)	Altitude	Wind		CAS	TC	TH	MH	CH	Dist.	GS	Time Off		GPH
	Ident			Dir.	Vel.	107 KTS	-L	-E			Leg				8 GPH
	Freq.						+R	+W	+/-		Rem.	Est.	ETE	ETA	Fuel
San Jose Airport	SJC			Temp.		TAS	WCA	Ver.	Dev.		118 NM	Act.	ATE	ATA	Rem.
	114.1	140 Degrees	5500 Feet	300 Degrees	10 KTS	110.8 KTS	140 Degrees	141 Degrees	126 Degrees	125 Degrees	24 NM	107 KTS	14+9 Minutes	1623	1.9+0.9 Gallons
San Martin airport	None			19 Degrees C			+1 Degree	-15 Degrees	-1 Degree		94 NM				21.7 Gallons
	None	90 Degrees	5500 Feet	300 Degrees	10 KTS	110.8 KTS	90 Degrees	91 Degrees	76 Degrees	75 Degrees	35 NM	107 KTS	19.6 Minutes	1642.6	2.6 Gallons
Los Banos airport	PXN			19 Degrees C			+1 Degree	-15 Degrees	-1 Degree		59 NM				19.1 Gallons
	112.6	100 Degrees	5500 Feet	290 Degrees	18 KTS	110.8 KTS	100 Degrees	101 Degrees	86 Degrees	85 Degrees	37 NM	107 KTS	20.7 Minutes	1703.3	2.8 Gallons
Madera airport	CZQ			35 Degrees C			+1 Degree	-15 Degrees	-1 Degree		22 NM				16.3 Gallons
	112.9														
		135 Degrees	3500 Feet	290 Degrees	18 KTS	110.8 KTS	135 Degrees	136 Degrees	121 Degrees	120 Degrees	22 NM	107 KTS	12+12 Minutes	1728	1.6 + 1.6 Gallons
Fresno Airport	CZQ			35 Degrees C			+1 Degree	-15 Degrees	-1 Degree		0				13.1 Gallons
	112.9									Totals	118 NM		87.3 Minutes		11.4 Gallons

Figure 4-11: "Navigation Log"

"Navigation Log": Section of Flight Plan that provides convenient way to organize following navigation-related information, for pre-flight navigation planning, as well as keep track of progress during flight:

- ***Notes:*** Obtain and list aircraft-related information, required for flight, but not included in Flight Plan, and obtained from *Pilots Operator Handbook*.
- ***Check Points, Route, & Altitude:*** Obtain and list route-related information used for determining Route of Flight, and pre-flight navigation planning, obtained from *Chart*, using Plotter.
- ***Wind:*** List weather-related information used for determining weather conditions along Route of Flight, obtained from WX-BRIEF.
- ***Calibrated & True Air Speed (CAS/TAS):*** Obtain, calculate, and list air speed information used for filing Flight Plan with FAA, and during flight, measured in Nautical Miles.
- ***Compass Headings (CH):*** Calculate and list headings displayed by aircraft's Compass during flight, measured in Degrees, and calculated using heading-related information.
- ***Distance (Dist.):*** Obtain, calculate, and list distance-related information used during flight, measured in Nautical Miles, and obtained from *Chart*, using Plotter.
- ***Ground Speed (GS):*** Calculate and list air speed information in relation to the ground, measured in Nautical Miles.
- ***Time (ETE & ETA):*** Calculate and list Estimated Time Enroute and Estimated Time of Arrival, used to keep track of time, measured in Minutes, and listed in Zulu Time.
- ***GPH/Fuel:*** Obtain, calculate, and list fuel-related information used to keep track of fuel, measured in Gallons.

Task:

1. From **Flight Plan: Class C Airspace** webpage, click on **Navigation Log**.

4.4.1 NOTES

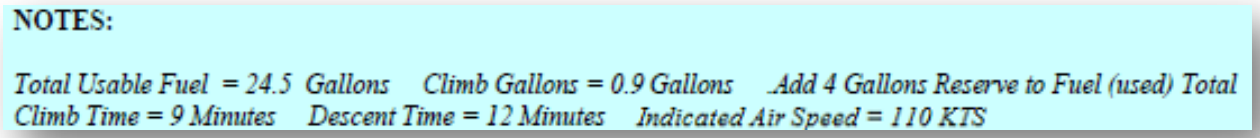


Figure 4-12: "Navigation Log": Notes

Notes: Section of "Navigation Log" that provides convenient way to obtain and list following aircraft-related information, required for flight, but not included in Flight Plan, and obtained from *Pilots Operator Handbook*:

- **Total Usable Fuel:** Aircraft's total fuel available for flight planning, without Reserve, measured in Gallons
- **Climb Gallons:** Number of Gallons required for aircraft to climb to Cruising Altitude, after Take-Off
- **Reserve:** Reserve Fuel, measured in Gallons
- **Climb Time:** Time required for aircraft to climb to Cruising Altitude after Take-Off, measured in Minutes
- **Descent Time:** Time required for aircraft to descend from Cruising Altitude to Landing, measured in Minutes
- **Indicated Air Speed:** Speed displayed by aircraft's Air Speed Indicator, measured in Nautical Miles

Prerequisites:

- *Pilots Operator Handbook*

Task:

1. From **"Navigation Log"** webpage, click on **Notes** ("Links" section).
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, to re-display **"Navigation Log"** webpage.

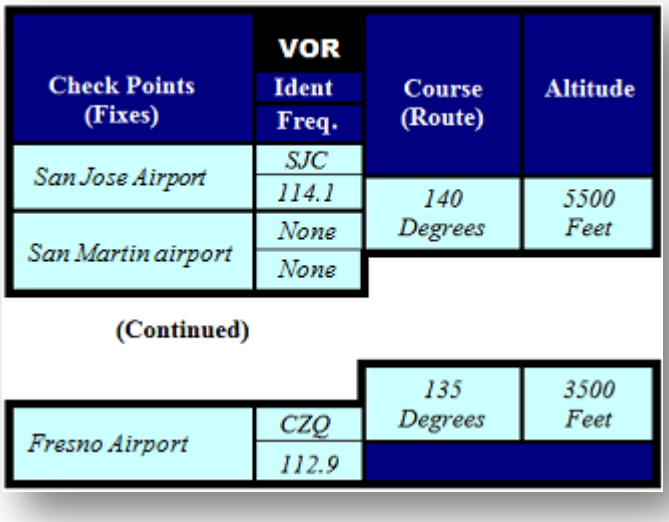
Result:

Lists following aircraft-related information, to be:

- **Indicated Air Speed:** Displayed by aircraft's Air Speed Indicator, in Nautical Miles
- **Total Usable Fuel**, **Climb Gallons**, **Reserve:** Used to calculate fuel for "Navigation Log," per *paragraph 4.4.9: Fuel*
- **Climb/Descent Time:** Used to calculate ETE and ETA for "Navigation Log," per *paragraph 4.4.8: Time*

NOTE: ETE is Estimated Time Enroute. ETA is Estimated Time of Arrival.

4.4.2 CHECK POINTS, ROUTE, & ALTITUDE



Check Points (Fixes)	VOR Ident	VOR Freq.	Course (Route)	Altitude
San Jose Airport	SJC	114.1	140 Degrees	5500 Feet
San Martin airport	None	None		
(Continued)				
Fresno Airport	CZQ	112.9	135 Degrees	3500 Feet

Figure 4-13: "Navigation Log": Check Points, VOR, Course, & Altitude

Following columns of "Navigation Log" provide convenient way to obtain and list following route-related information used for determining Route of Flight, and pre-flight navigation planning, obtained from *Chart*, using Plotter:

- **Check Points:** Set of selected recognizable landmarks along Route of Flight that can be positively identified from the air
- **VOR:** VHF Omni-directional Range: Instrument located in aircraft's Instrument Panel that is most commonly used radio navigational system in U.S.
- **True Course (Course):** Intended direction of flight, as measured on *Chart*, in Degrees
- **Cruising Altitude (Altitude):** Level portion of aircraft travel displayed by Altimeter, occurring between ascent and descent phases, and usually majority of journey, measured in Feet

Prerequisites:

- *Chart*
- Plotter

Task:

1. From **"Navigation Log"** webpage, click on **Check Points, Route, & Altitude** ("Links" section).
2. Perform steps 1-5 indicated on that webpage.
3. Click on **Back**, to re-display **"Navigation Log"** webpage.

Result:

Lists following route-related information, to be:

- **Check Points:** Used to determine individual Legs comprising Entire Flight
- **VOR:** Displayed by aircraft's VOR, along with Directional and Range information
- **True Course:** Used to calculate headings displayed by aircraft's Compass, in Degrees, per *paragraph 4.4.5: Compass Headings*
- **Altitude:** Displayed by aircraft's Altimeter, in Feet

4.4.3 WIND

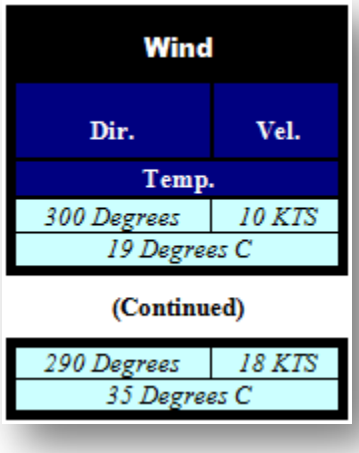


Figure 4-14: "Navigation Log": Wind

Wind: Column of "Navigation Log" that provides convenient way to obtain and list following weather-related information used for determining weather conditions along Route of Flight, obtained from "Weather Log":

- **Wind Direction (Dir.):** Measured in Degrees
- **Wind Velocity (Vel.):** Measured in Nautical Miles
- **Temperature (Temp.):** Air Temperature: Measured in Degrees Centigrade

Prerequisites:

- Filled-in "Weather Log," per *sub-chapter 4.3: "Weather Log"*

Task:

1. From **"Navigation Log"** webpage, click on **Wind** ("Links" section).
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, to re-display **"Navigation Log"** webpage.

Result:

Lists wind-related information used to calculate following:

- **True Air Speed:** Air speed used for filing Flight Plan with FAA Briefer, per paragraphs
  4.4.4: Calibrated & True Air Speed
  5.1.4: Calling WX-BRIEF to File Flight Plan with FAA Briefer
- **Compass Headings:** Displayed by aircraft's Compass during flight, in Degrees, per *paragraph 4.4.5: Compass Headings*
- **Ground Speed:** Air speed in relation to the ground, in Nautical Miles, per *paragraph 4.4.7: Ground Speed*
- **Estimated Time Enroute:** For individual Legs, and Entire Flight, in Minutes, per *paragraph 4.4.8: Time*
- **Estimated Time of Arrival:** At Check Points, and Destination, listed in Zulu Time, per *paragraph 4.4.8: Time*

4.4.4 CALIBRATED & TRUE AIR SPEED

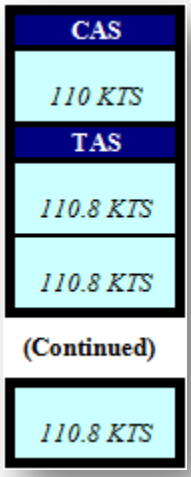


Figure 4-15: "Navigation Log": Calibrated & True Air Speed (CAS/TAS)

CAS/TAS: Column of "Navigation Log" that provides convenient way to obtain, calculate, and list following air speed information used for filing Flight Plan with FAA, and during flight, measured in Nautical Miles:

- **Calibrated Air Speed (CAS):** Indicated Air Speed adjusted for installation, position, and instrument errors

  Where: Indicated Air Speed is speed displayed by aircraft's Air Speed Indicator.
- **True Air Speed (TAS):** Air speed used for calculating Wind Correction Angle, and filing Flight Plan with FAA Briefer

Prerequisites:

- *Pilots Operator Handbook*
- E6-B
- Phone: To call WX-BRIEF (800 number)

Task:

1. From **"Navigation Log"** webpage, click on **Calibrated & True Air Speed** ("Links" section).
2. Perform steps 1-4 indicated on that webpage.
3. Click on **Back**, to re-display **"Navigation Log"** webpage.

Result:

Provides **True Air Speed**, used to:

- Calculate Compass Headings, displayed by aircraft's Compass during flight, in Degrees, per *paragraph 4.4.5: Compass Headings*
- File Flight Plan with FAA Briefer, per *paragraph 5.1.4: Calling WX-BRIEF to File Flight Plan with FAA Briefer*

4.4.5 COMPASS HEADINGS

TC -L +R WCA	TH -E +W Var.	MH +/- Dev.	CH
140 Degrees *+1 Degree*	*141 Degrees* *-15 Degrees*	*126 Degrees* *-1 Degree*	*125 Degrees*

(Continued)

135 Degrees *+1 Degree*	*136 Degrees* *-15 Degrees*	*121 Degrees* *-1 Degree*	*120 Degrees*

Figure 4-16: "Navigation Log": Compass Headings (CH)

CH: Column of "Navigation Log" that provides convenient way to obtain and list headings displayed by aircraft's Compass during flight, measured in Degrees, and calculated using following heading-related information:

- **True Course (TC):** Intended direction of flight, as measured on *Chart*
- **Wind Correction Angle (WCA):** Angular adjustment for wind
- **Variation (Var.):** Magnetic Variation: Difference between True North and Magnetic North
- **Compass Deviation (Dev.):** Caused by magnetic disturbances from electrical and metal components in aircraft, as determined during calibration of aircraft

Where:

- **True North:** Actual location of North Pole
- **Magnetic North:** Compass reading of 360 Degrees

Prerequisites:

- *Aircraft's Documentation*
- *Chart*
- Calculator
- E6-B

Task:

1. From **"Navigation Log"** webpage, click on **Compass Headings** ("Links" section).
2. Perform steps 1-5 indicated on that webpage.
3. Click on **Back**, to re-display **"Navigation Log"** webpage.

Result:

Provides **Compass Headings**, displayed by aircraft's Compass during flight, in Degrees

4.4.6 DISTANCE

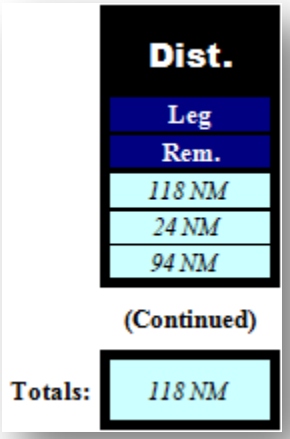


Figure 4-17: "Navigation Log": Distance (Dist.)

Dist.: Column of "Navigation Log" that provides convenient way to obtain, calculate, and list following distance-related information used during flight, measured in Nautical Miles, and obtained from *Chart*, using Plotter:

- **Distance (Leg):** For Individual Leg
- **Remaining Distance (Rem.):** After Individual Leg
- **Total Distance (Totals):** For Entire Flight

Prerequisites:

- *Chart*
- Calculator

Task:

1. From **"Navigation Log"** webpage, click on **Distance** ("Links" section).
2. Perform steps 1-3 indicated on that webpage.
3. Click on **Back**, to re-display **"Navigation Log"** webpage.

Result:

Provides **Distance**, used to calculate following, in Minutes, per *paragraph 4.4.8: Time*:

- Estimated Time Enroute: For Individual Leg
- Total Estimated Time Enroute: For Entire Flight

4.4.7 GROUND SPEED

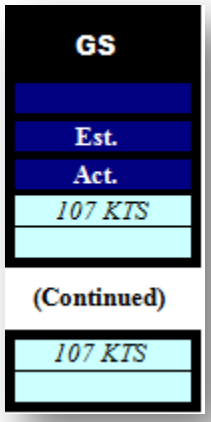


Figure 4-18: "Navigation Log": Ground Speed (GS)

NOTE: Act. will be filled in during flight: (Actual Ground Speed).

GS: Column of "Navigation Log" that provides convenient way to calculate and list following air speed information in relation to the ground, measured in Nautical Miles:

- **Estimated Ground Speed (Est.)**
- **Actual Ground Speed (Act.)**

Prerequisites:

- E6-B

Task:

1. From **"Navigation Log"** webpage, click on **Ground Speed** ("Links" section).
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **"Navigation Log"** webpage.

Result:

Provides **Ground Speed**, used to calculate following, in Minutes, per *paragraph 4.4.8: Time*:

- Estimated Time Enroute: For Individual Leg
- Total Estimated Time Enroute: For Entire Flight

4.4.8 TIME

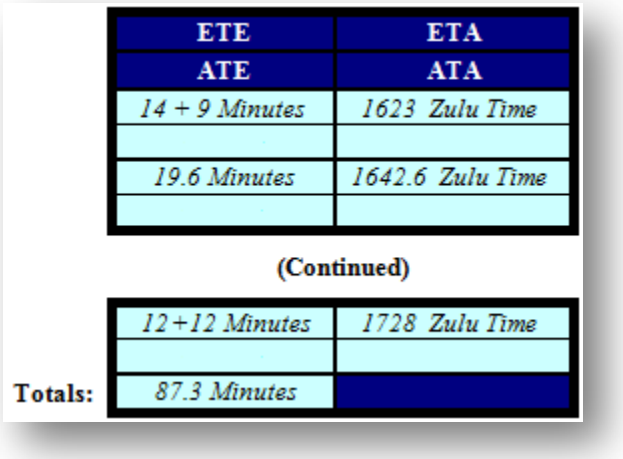


Figure 4-19: "Navigation Log": Time (ETE & ETA)

NOTE: ATE and ATA will be filled in during flight: (Actual Time Enroute and Actual Time of Arrival).

ETE & ETA: Columns of "Navigation Log" that provide convenient way to calculate and list following time-related information used to keep track of your time, and measured in Minutes:

- **Estimated Time Enroute (ETE):** For Individual Leg
- **Total Estimated Time Enroute (Totals):** For Entire Flight
- **Estimated Time of Arrival (ETA):** Expected time to arrive at location, listed in Zulu Time

  Where: Zulu Time is a term used in aviation, which places the entire world on one time standard

Prerequisites:

- Partially filled-in "Flight Plan" section, per *sub-chapter 4.1: "Flight Plan" Section*

Task:

1. From **"Navigation Log"** webpage, click on **Time** ("Links" section).
2. Perform steps 1-5 indicated on that webpage.
3. Click on **Back**, to re-display **"Navigation Log"** webpage.

Result:

Provides following time-related information used during flight:

- **Estimated Time Enroute:** For Individual Leg
- **Total Estimated Time Enroute:** For Entire Flight
- **Estimated Time of Arrival:** Expected time to arrive at location, listed in Zulu Time

And for calculating following, measured in Gallons, per *paragraph 4.4.9: Fuel*:

- **Fuel Consumed:** For Individual Leg
- **Total Fuel Consumed:** For Entire Flight

4.4.9 FUEL

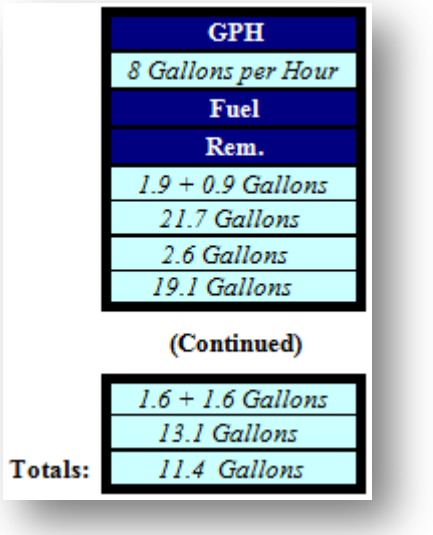


Figure 4-20: "Navigation Log": GPH/Fuel

GPH/Fuel: Column of "Navigation Log" that provides convenient way to obtain, calculate, and list following fuel-related information used to keep track of your fuel, and measured in Gallons:

- **Gallons per Hour (GPH):** Of Fuel Consumed
- **Fuel Consumed (Fuel):** For Individual Leg
- **Remaining Fuel (Rem.):** After Individual Leg
- **Total Fuel Consumed (Totals):** For Entire Flight

Prerequisites:

- *Pilots Operator Handbook*

Task:

1. From **"Navigation Log"** webpage, click on **Fuel** ("Links" section).
2. Perform steps 1-4 indicated on that webpage.
3. Click on **Flight Planner**, to re-display **Flight Planner: Tutorial** webpage.

Result:

Provides fuel-related information, displayed by aircraft's Fuel Gauge during flight, in Gallons

4.5 "AIRPORT & ATIS ADVISORIES"

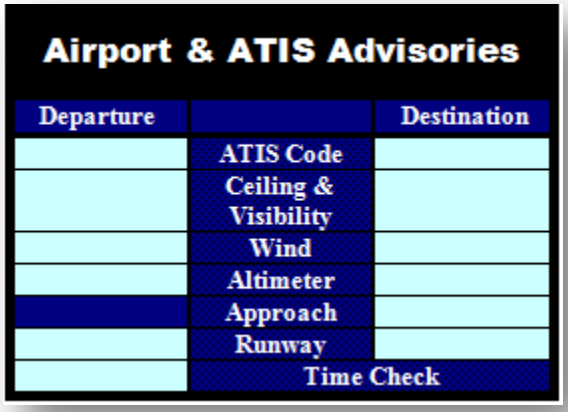


Figure 4-21: Blank "Airport & ATIS Advisories"

NOTE: Will be filled in at a later time.

"Airport & ATIS Advisories": Automatic Terminal Information Service: Section of Flight Plan that provides convenient way to obtain and list following vital current information for Departure Point and Destination, obtained from ATIS:

- **ATIS Code:** Alpha-designation included at beginning of ATIS Recording, as ID tag
- **Ceiling & Visibility:** Height of Cloud Layer, measured in Feet. And greatest distance an observer can see and identify objects through at least half of horizon, measured in Nautical Miles
- **Wind Direction & Velocity (Wind):** Measured in Degrees and Nautical Miles, respectively
- **Altimeter Setting (Altimeter):** Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg.
- **"Approach" Frequency:** Used to control approach through Class C Airspace
- **Runway Numbers (Runways):** Available for Take-Off/Landing
- **Time Check:** Time that Pilot obtained departure information from ATIS, listed in Zulu Time

4.6 "NOTES AND NOTAMS"

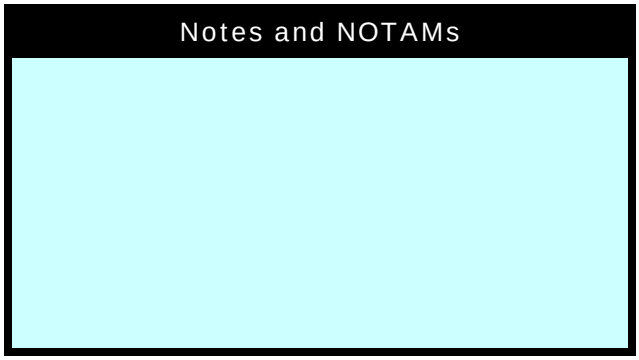


Figure 4-22: Blank "Notes and NOTAMs"

NOTE: Will be filled in at a later time.

"Notes and NOTAMs": Notices to Airmen: Section of Flight Plan that provides convenient way to list hazards that could affect flight safety, obtained from ATIS.

5 DEPARTURE

Aircraft Type and ID	*Cessna 54554*
Airport	*San Jose, Mineta International Airport*

Figure 5-1: DEPARTURE: Sample Airport Information

NOTE: All examples in this chapter use a Cessna 152 for the aircraft, and the "San Jose, Mineta International Airport" for the Departure Point, as a Tower Airport operating in Class C Airspace.

The following information will be used for departure, obtained from "Flight Plan" section of Flight Plan:

- **Aircraft Type:** Aircraft make and model
- **Aircraft ID:** Aircraft's license number, starting with "N"
- **Airport:** Name of Departure Point city and airport

This chapter defines the following procedures for departing from a Tower Airport operating in Class C Airspace:

- *Airport Procedures*
- *Taking-Off*
- *Exiting Class C Airspace*

Task:

1. From **Flight Planner: Tutorial** webpage, click on **Departure: Home**, then **Tower Airport Operating in Class C Airspace**, to display **Departure: Class C Airspace** webpage.

5.1 AIRPORT PROCEDURES

ATIS	*San Jose ATIS: 126.95*
Ground Control	*San Jose Ground: 121.7*
FSS	*San Jose FSS: 122.95*
Clearance Delivery	*San Jose Clearance: 118.0*

Figure 5-2: Sample Airport Frequencies

The following frequencies will be used for Airport Procedures at Departure Point, obtained from "Airport Frequencies" section of Flight Plan:

- **ATIS:** Automatic Terminal Information Service: Used at busy Tower Airports operating in Class C Airspace, to provide current weather information, as transmitted ATIS Recording on Receive Only frequency
- **Ground Control:** Used at larger Tower Airports, to control airport operations on the ground
- **FSS:** Flight Services Station: Used at mid-sized to larger Tower Airports, to allow Pilot to obtain Weather Briefing, fuel, ground transportation, etc., and file Flight Plan with FAA Briefer
- **Clearance Delivery:** Used at busy Tower Airports operating in Class C Airspace, to allow Air Traffic Control to relay clearances to departing traffic. Obtained from *Airport/Facilities Directory*

This sub-chapter defines the following Airport procedures for a Tower Airport operating in Class C Airspace:

- *Calling ATIS for Current Weather Information*
- *Filling in ATIS Information, for Departure Point*
- *Setting your Altimeter*
- *Calling WX-BRIEF to File Flight Plan with FAA Briefer*
- *Calling FSS for Fuel*
- *Calling Clearance Delivery for Squawk Code & Runway*
- *Setting your Squawk Code*
- *Calling Ground Control for Taxiing Instructions to Runway*

Task:

1. From **Departure: Class C Airspace** webpage, click on **Airport Procedures**.

Result:

After completing this sub-chapter, you will be ready for Take-Off, as follows:

- **"Airport & ATIS Advisories," for Departure Point:** Filled in, to provide critical current weather information, obtained from ATIS, per *paragraph 5.1.2.1: "Airport & ATIS Advisories," for Departure Point*
- **"Notes and NOTAMs":** Filled in, to list hazards, obtained from ATIS, that could affect flight safety, per *paragraph 5.1.2.2: "Notes and NOTAMs"*
- **Altimeter:** Set with proper Altimeter Setting, obtained from ATIS or WX-BRIEF, per *paragraph 5.1.3: Setting your Altimeter*
- **Flight Plan:** Filed with FAA Briefer, at WX-BRIEF, per *paragraph 5.1.4: Calling WX-BRIEF to File Flight Plan with FAA Briefer*
- **Fuel Tank:** Full: Fuel is obtained by calling Flight Services Station (FSS) for service, per *paragraph 5.1.5: Calling FSS for Fuel*.
- **Runway Number:** Assigned for Take-Off, by Clearance Delivery or Tower, per *paragraph 5.1.6: Calling Clearance Delivery for Squawk Code & Runway*
- **Transponder:** Set to proper Squawk Code for departure, assigned by Clearance Delivery, per *paragraph 5.1.7: Setting your Squawk Code*
- **Taxiing Instructions to Runway:** Provided by Ground Control, per *paragraph 5.1.8: Calling Ground Control for Taxiing Instructions to Runway*

5.1.1 CALLING ATIS FOR CURRENT WEATHER INFORMATION

This is ATIS Code "Tango," for the San Jose, Mineta International Airport.
Temperature is 19 Degrees Centigrade.
Wind Direction is 300 Degrees, at a Velocity of 10 Nautical Miles.
Visibility is 10 Nautical Miles.
Ceiling is Clear
Altimeter Setting is 29.92.
Use Runways 29, 30L, and 30R.
Use "Departure" frequency: 121.3
Use "Approach" frequency: 121.1
There are No NOTAMs at this time.

NOTE: "Approach" Frequency does NOT apply to Departure Point.

Figure 5-3: Sample ATIS Recording

Automatic Terminal Information Service: Recording transmitted by ATIS (Receive Only) frequency that provides the following current weather information for Departure Point:

- **ATIS Code:** Alpha-designation included at beginning of ATIS Recording, as ID tag
- **Wind Direction & Velocity:** Measured in Degrees and Nautical Miles, respectively
- **Visibility:** Greatest distance an observer can see and identify objects through at least half of horizon, measured in Nautical Miles
- **Ceiling:** Height above earth's surface of lowest layer of clouds, measured in Feet, or "Clear"
- **Altimeter Setting:** Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg.
- **Runway Numbers:** Available for Take-Off
- **"Departure" Frequency:** Used to control departure through Class C Airspace
- **NOTAMs:** Notices to Airmen: List hazards that could affect flight safety.

IMPORTANT! Information from ATIS will take precedence over Flight Plan.

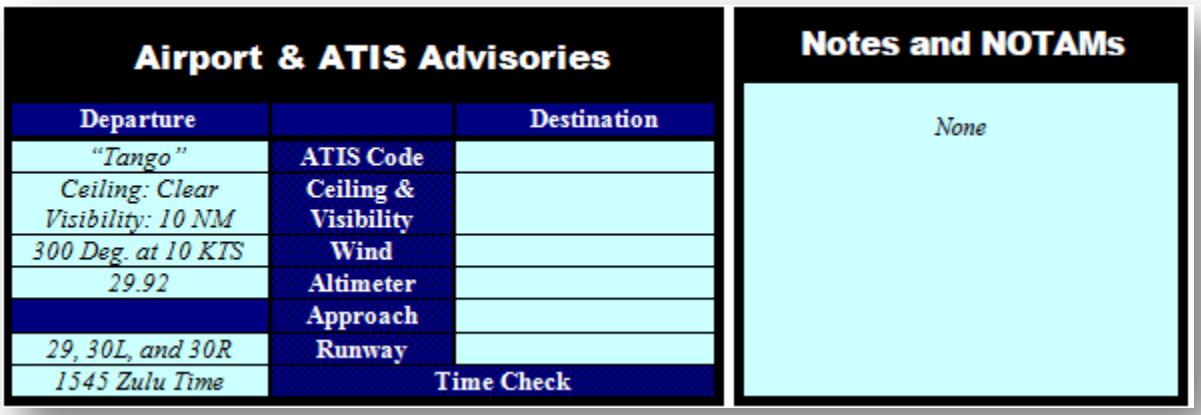
Prerequisite:

- Filled-in "Airport Frequencies" for Departure Point

Task:

1. From **Airport Procedures** webpage, click on **Calling ATIS for Current Weather Information**.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **Airport Procedures** webpage.

5.1.2 FILLING IN ATIS INFORMATION, FOR DEPARTURE POINT



Airport & ATIS Advisories

Departure		Destination
"Tango"	ATIS Code	
Ceiling: Clear Visibility: 10 NM	Ceiling & Visibility	
300 Deg. at 10 KTS	Wind	
29.92	Altimeter	
	Approach	
29, 30L, and 30R	Runway	
1545 Zulu Time	Time Check	

Notes and NOTAMs

None

Figure 5-4: Sample of Filled-In ATIS Information

"Airport & ATIS Advisories": Automatic Terminal Information Service: Section of Flight Plan that provides convenient way to obtain and list following information for Departure Point, from ATIS:

- **ATIS Code:** Alpha-designation included at beginning of ATIS Recording, as ID tag
- **Ceiling & Visibility:** Height of Cloud Layer, measured in Feet. And greatest distance an observer can see and identify objects through at least half of horizon, measured in Nautical Miles
- **Wind Direction & Velocity (Wind):** Measured in Degrees and Nautical Miles, respectively
- **Altimeter Setting (Altimeter):** Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg.
- **Runway Numbers (Runway):** Available for Take-Off
- **Time Check:** Time that Pilot obtained departure information from ATIS, listed in Zulu Time

"Notes and NOTAMs": Notices to Airmen: Section of Flight Plan that provides convenient way to list hazards and special pertinent information that could affect Flight safety, obtained from ATIS.

This paragraph defines the following procedures for using the information obtained from ATIS, to fill in the following sections of the Flight Plan:

- *"Airport & ATIS Advisories," for Departure Point*
- *"Notes and NOTAMs"*

Task:

1. From **Airport Procedures** webpage, click on **Filling in ATIS Information, for Departure Point**.

5.1.2.1 "Airport & ATIS Advisories," for Departure Point

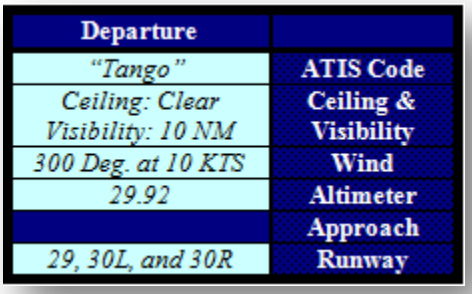


Figure 5-5: Sample "Airport & ATIS Advisories": Departure

Prerequisites:

- Information obtained from ATIS, per *paragraph 5.1.1: Calling ATIS for Current Weather Information*

Task:

1. From **Filling in ATIS Information, for Departure Point** webpage, click on **"Airport & ATIS Advisories," for Departure Point**.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **Filling in ATIS Information, for Departure Point** webpage.

5.1.2.2 "Notes and NOTAMs"

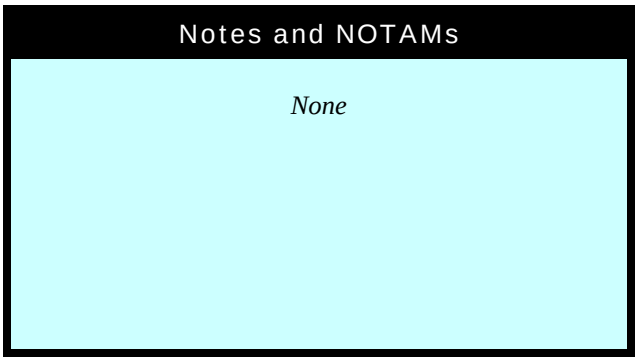


Figure 5-6: Sample "Notes and NOTAMs"

Prerequisites:

- Information obtained from ATIS, per *paragraph 5.1.1: Calling ATIS for Current Weather Information*

Task:

1. From **Filling in ATIS Information, for Departure Point** webpage, click on **"Notes and NOTAMs."**
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, then **Back**, again, to re-display **Airport Procedures** webpage.

5.1.3 SETTING YOUR ALTIMETER

Figure 5-7: Sample Altimeter Setting

Altimeter: Instrument located in aircraft's Instrument Panel that displays Altitude, in Feet, by using Barometric pressure

Altimeter Setting: Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg.

Prerequisites:

- Information obtained from ATIS, per *paragraph 5.1.1: Calling ATIS for Current Weather Information*

Task:

1. From **Airport Procedures** webpage, click on **Setting your Altimeter**.
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, to re-display **Airport Procedures** webpage.

5.1.4 CALLING WX-BRIEF TO FILE FLIGHT PLAN WITH FAA BRIEFER

1. Type of Flight	*VFR*
2. Aircraft ID	*54554*
3. Aircraft Type/Equipment	*Cessna 152*
4. True Air Speed	*110.8 Nautical Miles*
5. Departure Point	*San Jose, Mineta International Airport*
6. Departure Time	*1600 Zulu Time*
7. Cruising Altitude	*5500 Feet*
8. Route of Flight	*San Martin, South Co. airport* *Los Banos Muni Airport* *Madera Muni Airport*
9. Destination	*Fresno, Yosemite International Airport*
10. Total Estimated Time Enroute	*1 Hour and 27 Minutes*
11. Remarks	*None*
12. Fuel On Board	*3 Hours and 38 Minutes*
13. Alternate Airport(s)	*Madera Muni airport*
14. Pilots Name, Address, Tel. No., & Aircraft Home Base	*Jackie Bolen* *3131 Homestead Rd. #10K* *Santa Clara, CA 95051* *408-246-8474*
15. No. Aboard	*1 Person*
16. Color(s) of Aircraft	*Blue and White*
17. Destination Contact/Tel. (Optional)	*None*

NOTE: Remarks and Destination Contact/Tel. are optional.

Figure 5-8: Sample Flight Plan: Filed with FAA Briefer

IMPORTANT! File your Flight Plan! And close it, once you reach your destination!

FAA Briefer: Federal Aviation Administration: Contacted by calling WX-BRIEF, to file Flight Plan, using following general flight-related information obtained from “Flight Plan” section of Flight Plan:

- **Type of Flight:** Visual Flight Rules (VFR), Instrument Flight Rules (IFR), or Defense Visual Flight Rules (DVFR)
- **Aircraft ID:** Aircraft's license number, starting with "N"
- **Aircraft Type & Special Equipment:** Aircraft make and model, and Special Equipment
- **True Air Speed:** Air speed used for calculating Wind Correction Angle, and filing Flight Plan with FAA Briefer, measured in Nautical Miles
- **Departure Point:** Name of Departure city and airport
- **Proposed Departure Time:** Planned Departure Time, listed in Zulu Time
- **Cruising Altitude:** Level portion of aircraft travel displayed by Altimeter, occurring between ascent and descent phases, and usually majority of journey, measured in Feet
- **Route of Flight:** Set of selected recognizable landmarks positively identified from the air
- **Destination:** Name of Destination city and airport
- **Total Estimated Time Enroute:** Expected duration of time for Entire Flight, measured in Hours and Minutes
- **Fuel on Board:** Aircraft's total fuel available for flight planning, without Reserve, measured in Hours and Minutes
- **Alternate Airport(s):** Designated as alternate if intended Destination inadvisable
- **Pilot's Name, Address, Telephone Number, etc.:** Your information
- **Number Aboard:** Number of individuals aboard the aircraft, including yourself
- **Color(s) of Aircraft:** May be multiple colors.

Prerequisites:

- Phone: To call WX-BRIEF (800 number)
- Filled-in "Flight Plan" section, per *sub-chapter 4.1: "Flight Plan" section*

Task:

1. From **Airport Procedures** webpage, click on **Calling WX-BRIEF to File Flight Plan with FAA Briefer**.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **Airport Procedures** webpage.

5.1.5 CALLING FSS FOR FUEL

Pilot	Response
San Jose FSS, this is Cessna 54554, ***At the GA tie-downs,*** ***Requesting fuel.***	***I'll be right out.*** ***May take 10 minutes.***

Figure 5-9: Sample Call to FSS: For Fuel

FSS Frequency: Flight Services Station: Used at mid-sized to larger Tower Airports, to allow Pilot to obtain Weather Briefing, fuel, ground transportation, etc.

GA Tie-Downs: General Aviation: Location, at most airports, used for parking private aircraft, by tying it down to multiple anchor points in the ground, like anchoring a boat

Prerequisite:

- Filled-in "Airport Frequencies" for Departure Point

Task:

1. From **Airport Procedures** webpage, click on **Calling FSS for Fuel**.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **Airport Procedures** webpage.

5.1.6 CALLING CLEARANCE DELIVERY FOR SQUAWK CODE & RUNWAY

Pilot	Response
San Jose Clearance, this is Cessna 54554, *At the GA tie-downs,* *Requesting VFR to Fresno,* *With ATIS Code "Tango."*	*Fly Runway Heading 29.* *Maintain VFR.* *Departure Frequency: 120.1* *Squawk Code: 4523*

Figure 5-10: Sample Call to Clearance Delivery: For Squawk Code, Runway

Clearance Delivery Frequency: Used to allow Air Traffic Control to relay clearances to departing traffic:

- **GA Tie-Downs:** General Aviation: Location, at most airports, used for parking private aircraft, by tying it down to multiple anchor points in the ground, like anchoring a boat
- **VFR:** Visual Flight Rules: Flight rules that specify minimum cloud clearance and visibility requirements for flight
- **ATIS Code:** Alpha-designation included at beginning of ATIS Recording, as ID tag
- **Runway Heading:** Runway Assignment for Take-Off
- **"Departure" Frequency:** Used to control departure through Class C Airspace
- **Squawk Code:** 4-digit code that Pilot enters into Transponder, assigned by Clearance Delivery, to enable Air Traffic Controller to keep track of aircraft's identity, in Class C Airspace

Prerequisite:

- Filled-in "Airport Frequencies" for Departure Point

Task:

1. From **Airport Procedures** webpage, click on **Calling Clearance Delivery for Squawk Code & Runway**.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **Airport Procedures** webpage.

5.1.7 SETTING YOUR SQUAWK CODE

Figure 5-11: Sample Squawk Code

Squawk Code: 4-digit code that Pilot enters into Transponder, assigned by Clearance Delivery, to enable Air Traffic Controller to keep track of aircraft's identity, in Class C Airspace

Prerequisites:

- Transponder with Mode C

Task:

1. From **Airport Procedures** webpage, click on **Setting your Squawk Code**.
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, to re-display **Airport Procedures** webpage.

5.1.8 CALLING GROUND CONTROL FOR TAXIING INSTRUCTIONS TO RUNWAY

Pilot	Response
San Jose Ground Control, this is Cessna 54554, ***At the GA tie-downs.*** ***Taxi Runway 29.***	***Taxi Runway 29,*** ***Via Taxi Way W.***

Figure 5-12: Sample Call to Ground Control: For Taxiing Instructions to Runway

Ground Control Frequency: Used at larger Tower Airports, to control airport operations on the ground

GA Tie-Downs: General Aviation: Location, at most airports, used for parking private aircraft, by tying it down to multiple anchor points in the ground, like anchoring a boat

Runway Number: Assigned by Clearance Delivery for Take-Off

Prerequisite:

- Filled-in "Airport Frequencies" for Departure Point

Task:

1. From **Airport Procedures** webpage, click on **Calling Ground Control for Taxiing Instructions to Runway**.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, then **Back**, again, to re-display **Departure: Class C Airspace** webpage.

5.2 TAKING-OFF

Tower	*San Jose Tower: 124.0*
Field Elevation	*62 Feet MSL*
Runway Number and Traffic Pattern	*29: Left Traffic Pattern*
Best Rate-of-Climb Speed	*67 Nautical Miles*

Figure 5-13: Sample Information: For Taking-Off

The following information will be used for Taking-Off from Departure Point:

- **Tower Frequency:** Used at mid-sized to larger Tower Airports, to control Airspace surrounding Airport, and obtained from "Airport Frequencies" section of Flight Plan
- **Field Elevation:** Airport elevation, measured in Feet MSL (Mean Sea Level), and obtained from "Airport Frequencies" section of Flight Plan
- **Runway Number:** Assigned by Clearance Delivery for Take-Off
- **Traffic Pattern:** Standard path followed by aircraft on Take-Off, while maintaining visual contact with airfield, obtained from *Airport/Facilities Directory*
- **Best Rate-of-Climb Speed:** Speed that results in greatest increase in altitude in a given time, measured in Nautical Miles, and obtained from *Pilots Operator Handbook*

This sub-chapter defines the following procedures for Taking-Off from Tower Airport operating in Class C Airspace:

- *Traffic Pattern*
- *Calling Tower for Taking-Off*
- *Talking to Tower for Leaving Traffic Pattern*

Task:

1. From **Departure: Class C Airspace** webpage, click on **Taking-Off**.
2. Perform steps 1-4 indicated on that webpage.

Result:

After completing this sub-chapter, you will:

- Have just finished Taking-Off, per following paragraphs:

  5.2.1: Traffic Pattern

  5.2.2: Calling Tower for Taking-Off
- Be airborne, leaving Traffic Pattern for Departure Point, per *paragraph 5.2.3: Talking to Tower for Leaving Traffic Pattern*

5.2.1 TRAFFIC PATTERN

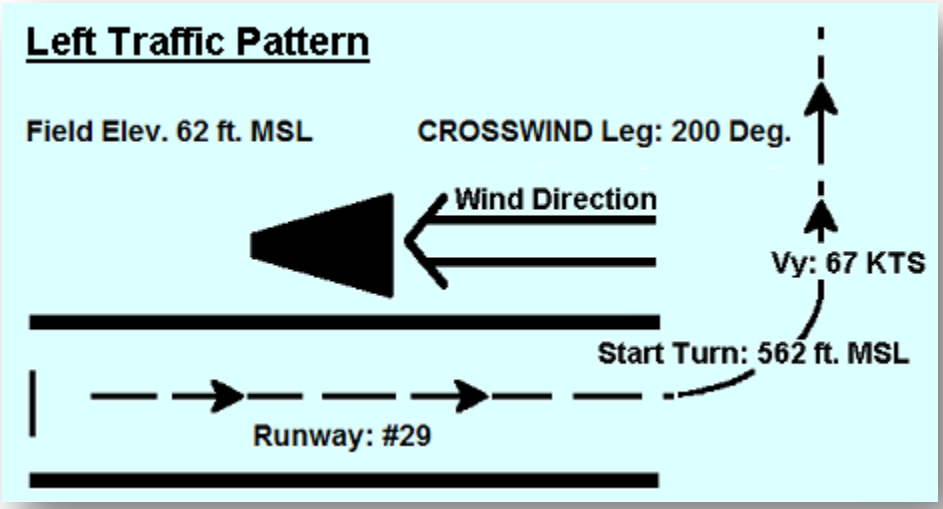


Figure 5-14: Sample Traffic Pattern: For Taking-Off

Traffic Pattern: Standard path followed by aircraft on Take-Off, while maintaining visual contact with airfield:

- **Crosswind Leg:** Short leg of Traffic Pattern that runs perpendicular (90 Degrees) to Runway, measured in Degrees
- **Field Elevation:** Airport elevation, measured in Feet MSL (Mean Sea Level)
- **Left Traffic Pattern:** Traffic Pattern to Left of Runway
- **Runway Number:** Assigned by Clearance Delivery for Take-Off
- **Altitude to Start Turn:** 500 Feet above Field Elevation, where Pilot will start turn into Crosswind Leg, measured in Feet MSL
- **Best Rate-of-Climb Speed (Vy):** Speed that results in greatest increase in altitude in a given time, measured in Nautical Miles

Prerequisites:

- *Airport/Facilities Directory*
- *Pilots Operator Handbook*
- Calculator
- Filled-in "Airport Frequencies": Departure, per *paragraph 4.2.1: For Departure Point*
- Runway Number, assigned by Clearance Delivery, per *paragraph 5.1.6: Calling Clearance Delivery for Squawk Code & Runway*

Task:

1. From **Taking-Off** webpage, click on **Traffic Pattern** ("Links" section).
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, to re-display **Taking-Off** webpage.

5.2.2 CALLING TOWER FOR TAKING-OFF

Pilot	Response
San Jose Tower, this is Cessna 54554. *Ready for Take-Off, at Runway 29.*	*Cleared for Take-Off.* *Fly Runway Heading 29.*

Figure 5-15: Sample Call to Tower: For Taking-Off

Tower Frequency: Used at mid-sized to larger Tower Airports, to control Airspace surrounding Airport

Runway Number: Assigned by Clearance Delivery for Take-Off

Runway Heading: Displayed by aircraft's Compass, in Degrees, while Taking-Off from assigned Runway

Prerequisite:

- Filled-in "Airport Frequencies" for Departure
- Runway Number, assigned by Clearance Delivery for Take-Off

Task:

1. From **Taking-Off** webpage, click on **Calling Tower for Taking-Off**.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **Taking-Off** webpage.

5.2.3 TALKING TO TOWER FOR LEAVING TRAFFIC PATTERN

Tower	Pilot Response
Cessna 54554, *Switch to "Departure" Frequency 121.3.*	*San Jose Tower,* *Cessna 54554 is switching.*

IMPORTANT! "Departure" frequency assigned by Tower will take precedence over any other source.

Figure 5-16: Sample Interaction with Tower: For Leaving Traffic Pattern

"Departure" Frequency: Used at busy Tower Airports operating in Class C Airspace, to control departure through Class C Airspace

Prerequisite:

- Filled-in "Airport Frequencies" for Departure

Task:

1. From **Taking-Off** webpage, click on **Talking to Tower for Leaving Traffic Pattern**.
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, then **Back**, again, to re-display **Departure: Class C Airspace** webpage.

5.3 EXITING CLASS C AIRSPACE

"Departure"	*121.3*

Figure 5-17: Sample Frequency: For Exiting Class C Airspace

The following frequency will be used for Exiting Class C Airspace:

- **"Departure":** Used to control departure through Class C Airspace, and obtained from ATIS

This sub-chapter defines the following procedure for exiting Class C Airspace:

- *Calling "Departure" for Exiting Class C Airspace*

Task:

1. From **Departure: Class C Airspace** webpage, click on **Exiting Class C Airspace**.

Result:

After completing this sub-chapter, you will:

- Have just exited Class C Airspace, per *paragraph 5.3.1: Calling "Departure" for Exiting Class C Airspace*
- Be en route to your Destination

5.3.1 CALLING "DEPARTURE" FOR EXITING CLASS C AIRSPACE

Pilot	Response
Norcal Departure, this is Cessna 54554. ***I am with you.*** ***Climbing through 1500 Feet.***	***Resume Normal Navigation.***

Figure 5-18: Sample Call to "Departure": For Exiting Class C Airspace

"Departure" Frequency: Used to control departure through Class C Airspace

Prerequisite:

- Filled-in "Airport Frequencies" for Departure

Task:

1. From **Exiting Class C Airspace** webpage, click on **Calling "Departure" for Exiting Class C Airspace**.
2. Perform steps 1-3 indicated on that webpage.
3. Click on **Flight Planner**, to re-display **Flight Planner: Tutorial** webpage.


AIRPORT/FACILITY DIRECTORY
SOUTHWEST U.S.
SW

6 ARRIVAL

Aircraft Type and ID	*Cessna 54554*
Airport	*Fresno, Yosemite International Airport*

Figure 6-1: ARRIVAL: Sample Airport Information

NOTE: All examples in this chapter use a Cessna 152 for the aircraft, and the "Fresno, Yosemite International Airport" for the Destination, as a Tower Airport operating in Class C Airspace.

The following information will be used for arrival at a Tower Airport operating in Class C Airspace, obtained from "Flight Plan" section of Flight Plan:

- **Aircraft Type:** Aircraft make and model
- **Aircraft ID:** Aircraft's license number, usually starting with "N"
- **Airport:** Name of Destination city and airport

This chapter defines the following procedures for arriving at a Tower Airport operating in Class C Airspace:

- *Entering Class C Airspace*
- *Approaching Airport*
- *Landing*
- *Airport Procedures*

Task:

1. From **Flight Planner: Tutorial** webpage, click on **Arrival: Destination**, then **Tower Airport Operating in Class C Airspace**, to display **Arrival: Class C Airspace** webpage.
2. Perform step 1 indicated on that webpage.

6.1 ENTERING CLASS C AIRSPACE

Figure 6-2: Sample Frequency: For Entering Class C Airspace

The following frequency will be used for Entering Class C Airspace:

- **ATIS:** Automatic Terminal Information Service: Used to provide current weather information, as transmitted ATIS Recording on Receive Only frequency, and obtained from "Airport Frequencies" section of Flight Plan

This sub-chapter defines the following procedures for entering Class C Airspace:

- *Calling ATIS for Current Weather Information*
- *Filling in ATIS Information, for Destination*
- *Checking your Altimeter*
- *Calling "Approach" for Entering Class C Airspace*
- *Setting your Squawk Code*

Task:

1. From **Arrival: Class C Airspace** webpage, click on **Entering Class C Airspace**.
2. Perform step 1 indicated on that webpage.

Result:

After completing this sub-chapter, you will have just finished entering Class C Airspace, and be ready to approach Destination airport, as follows:

- **"Airport & ATIS Advisories," for Departure Point:** Filled in, to provide critical current weather information, obtained from ATIS, per *paragraph 6.1.2.1: "Airport & ATIS Advisories," for Destination*
- **"Notes and NOTAMs":** Filled in, to list hazards, obtained from ATIS, that could affect flight safety, per *paragraph 6.1.2.2: "Notes and NOTAMs"*
- **Altimeter:** Set with proper Altimeter Setting, obtained from ATIS, per *paragraph 6.1.3: Checking your Altimeter*
- **Heading:** Displayed by aircraft's Compass while entering Class C Airspace, measured in Degrees, and obtained from "Approach," per *paragraph 6.1.4: Calling "Approach" for Entering Class C Airspace*
- **Tower Frequency:** Assigned by "Approach," per *paragraph 6.1.4: Calling "Approach" for Entering Class C Airspace*
- **Transponder:** Set to proper Squawk Code, assigned by "Approach," per *paragraph 6.1.4: Calling "Approach" for Entering Class C Airspace*

6.1.1 CALLING ATIS FOR CURRENT WEATHER INFORMATION

This is ATIS Code "Alpha," for the Fresno, Yosemite International Airport.

Temperature is 35 Degrees Centigrade.

Wind Direction is 290 Degrees, at a Velocity of 18 Nautical Miles.

Visibility is greater than 10 Nautical Miles.

Ceiling is Clear

Altimeter Setting is 29.92.

Use Runways 29L and 29R.

Use "Departure" and "Approach" frequencies:

- ***119.6: From West to East***
- ***132.35: From East to South-West***
- ***118.5: From Visalia area***

Thunderstorms in the Sierras.

NOTE: "Departure" Frequency does NOT apply to Destination.

Figure 6-3: Sample ATIS Recording

Context:

Automatic Terminal Information Service: Recording transmitted by ATIS (Receive Only) frequency that provides following current weather information for Destination:

- **ATIS Code:** Alpha-designation included at beginning of ATIS Recording, as ID tag
- **Wind Direction & Velocity:** Measured in Degrees and Nautical Miles, respectively
- **Visibility:** Greatest distance an observer can see and identify objects through at least half of horizon, measured in Nautical Miles
- **Ceiling:** Height above earth's surface of lowest layer of clouds, measured in Feet, or "Clear"
- **Altimeter Setting:** Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg.
- **Runway Numbers:** Available for Landing
- **"Approach" Frequency:** Used to control approach through Class C Airspace
- **NOTAMs:** Notices to Airmen: List hazards and special pertinent information that could affect safety of Flight

IMPORTANT! Information from ATIS will take precedence over Flight Plan.

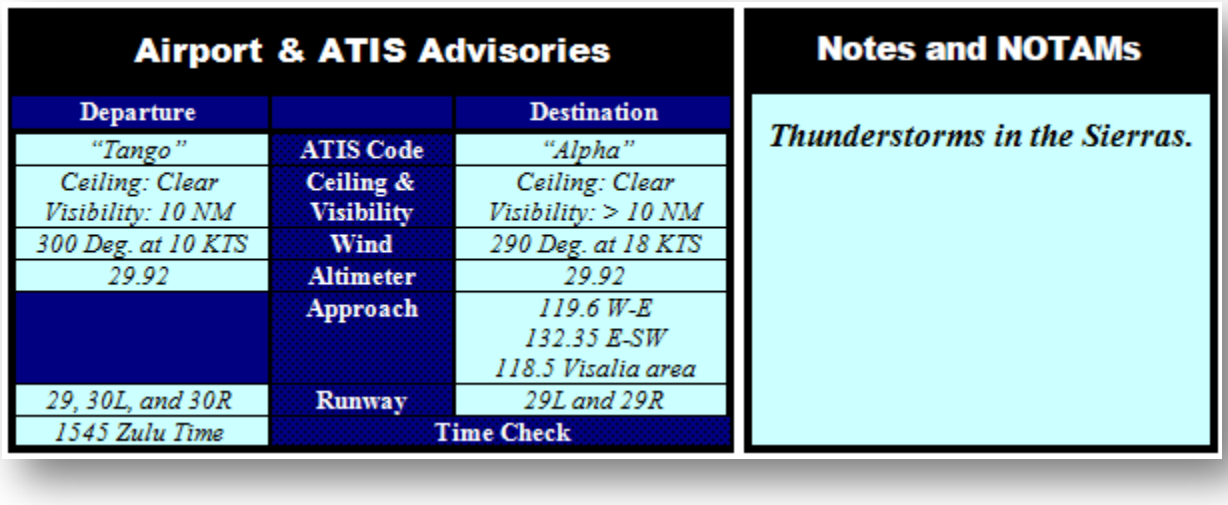
Prerequisite:

- Filled-in "Airport Frequencies" for Destination

Task:

1. From **Entering Class C Airspace** webpage, click on **Calling ATIS for Current Weather Information**.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **Entering Class C Airspace** webpage.

6.1.2 FILLING IN ATIS INFORMATION, FOR DESTINATION



Airport & ATIS Advisories		
Departure		Destination
"Tango"	ATIS Code	"Alpha"
Ceiling: Clear Visibility: 10 NM	Ceiling & Visibility	Ceiling: Clear Visibility: > 10 NM
300 Deg. at 10 KTS	Wind	290 Deg. at 18 KTS
29.92	Altimeter	29.92
	Approach	119.6 W-E 132.35 E-SW 118.5 Visalia area
29, 30L, and 30R	Runway	29L and 29R
1545 Zulu Time	Time Check	

Notes and NOTAMs
Thunderstorms in the Sierras.

Figure 6-4: Sample of Filled-In ATIS Information

"Airport & ATIS Advisories": Automatic Terminal Information Service: Section of Flight Plan that provides convenient way to obtain and list following information for Destination, from ATIS:

- **ATIS Code:** Alpha-designation included at beginning of ATIS Recording, as ID tag
- **Ceiling & Visibility:** Height of Cloud Layer, measured in Feet. And greatest distance an observer can see and identify objects through at least half of horizon, measured in Nautical Miles
- **Wind Direction & Velocity (Wind):** Measured in Degrees and Nautical Miles, respectively
- **Altimeter Setting (Altimeter):** Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg.
- **"Approach" Frequency:** Used to control approach through Class C Airspace
- **Runway Numbers (Runway):** Available for Landing

"Notes and NOTAMs": Notices to Airmen: Section of Flight Plan that provides convenient way to list hazards and special pertinent information that could affect Flight safety, obtained from ATIS

This paragraph defines the following procedures for using the information obtained from ATIS, to fill in the following sections of the Flight Plan:

- *"Airport & ATIS Advisories," for Destination*
- *"Notes and NOTAMs"*

Task:

1. From **Entering Class C Airspace** webpage, click on **Filling in ATIS Information, for Destination**.

6.1.2.1 "Airport & ATIS Advisories," for Destination

	Destination
ATIS Code	*"Alpha"*
Ceiling & Visibility	*Ceiling: Clear* *Visibility: > 10 NM*
Wind	*290 Deg. at 18 KTS*
Altimeter	*29.92*
Approach	*119.6 W-E* *132.35 E-SW* *118.5 Visalia area*
Runway	*29L and 29R*

Figure 6-5: Sample "Airport & ATIS Advisories": Destination

Prerequisites:

- Information obtained from ATIS, per *paragraph 6.1.1: Calling ATIS for Current Weather Information*

Task:

1. From **Filling in ATIS Information, for Destination** webpage, click on **"Airport & ATIS Advisories," for Destination**.
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, to re-display **Filling in ATIS Information, for Destination** webpage.

6.1.2.2 "Notes and NOTAMs"

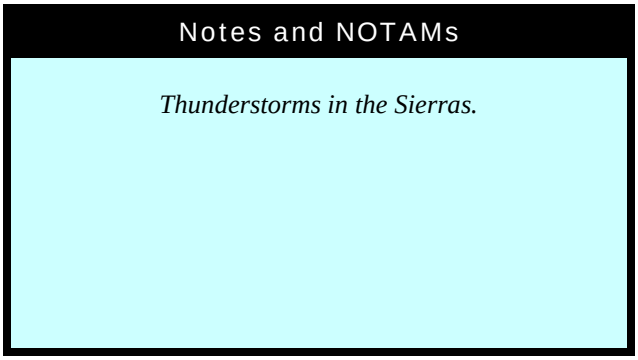


Figure 6-6: Sample "Notes and NOTAMs"

Prerequisites:

- Information obtained from ATIS, per *paragraph 6.1.1: Calling ATIS for Current Weather Information*

Task:

1. From **Filling in ATIS Information, for Destination** webpage, click on **"Notes and NOTAMs."**
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, then **Back**, again, to re-display **Entering Class C Airspace** webpage.

6.1.3 CHECKING YOUR ALTIMETER

Figure 6-7: Sample Altimeter Setting

Altimeter: Instrument located in aircraft's Instrument Panel that displays Altitude, in Feet, by using Barometric pressure

Altimeter Setting: Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg.

Prerequisites:

- Information obtained from ATIS, per *paragraph 6.1.1: Calling ATIS for Current Weather Information*

Task:

1. From **Entering Class C Airspace** webpage, click on **Checking your Altimeter**.
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, to re-display **Entering Class C Airspace** webpage.

6.1.4 CALLING "APPROACH" FOR ENTERING CLASS C AIRSPACE

Pilot	Response
Fresno Approach, this is Cessna 54554. ***Over Madera Muni airport.*** ***Inbound to Fresno Air Terminal.***	***Fly Heading 120.*** ***Squawk Code: 4211*** ***Tower Frequency: 118.2***

Figure 6-8: Sample Call to "Approach" For Entering Class C Airspace

"Approach" Frequency: Used to control approach through Class C Airspace

Heading: Displayed by aircraft's Compass, in Degrees, during Approach into Destination airport

Prerequisite:

- Filled-in "Airport Frequencies" for Destination

Task:

1. From **Entering Class C Airspace** webpage, click on **Calling "Approach" for Entering Class C Airspace**.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **Entering Class C Airspace** webpage.

6.1.5 SETTING YOUR SQUAWK CODE

Figure 6-9: Sample Squawk Code

Squawk Code: 4-digit code that Pilot enters into Transponder, assigned by "Approach," to enable Air Traffic Controller to keep track of aircraft's identity, in Class C Airspace

Prerequisites:

- Transponder with Mode C

Task:

1. From **Entering Class C Airspace** webpage, click on **Setting your Squawk Code**.
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, then **Back**, again, to re-display **Arrival: Class C Airspace** webpage.

6.2 APPROACHING AIRPORT

Tower	*Fresno Tower: 118.2*
Field Elevation	*336 Feet MSL*
Runway Numbers and Traffic Patterns	*29L: Left Traffic Pattern* *29R: Right Traffic Pattern*
Traffic Pattern Altitude	*1300 Feet MSL*

Figure 6-10: Sample Information: For Approaching Airport

The following information will be used for Approaching Destination airport:

- **Tower Frequency:** Used at mid-sized to larger Tower Airports, to control Airspace surrounding Airport, obtained from "Airport Frequencies" section of Flight Plan
- **Field Elevation:** Airport elevation, measured in Feet MSL (Mean Sea Level) , obtained from "Airport Frequencies" section of Flight Plan
- **Runway Numbers:** Available for Landing, obtained from "Airport & ATIS Advisories" section of Flight Plan
- **Traffic Patterns:** Standard paths followed by aircraft on Landing, while maintaining visual contact with airfield, and obtained from *Airport/Facilities Directory*
- **Traffic Pattern Altitude:** Altitude for Traffic Pattern, measured in Feet MSL, and obtained from *Airport/Facilities Directory*

This sub-chapter defines the following procedures for approaching a Tower Airport operating in Class C Airspace:

- *Calling Tower for Approaching Airport*
- *Traffic Pattern*

Task:

1. From **Arrival: Class C Airspace** webpage, click on **Approaching Airport**.
2. Perform steps 1-4 indicated on that webpage.

Result:

After completing this sub-chapter, you will have just finished approaching Destination airport, and be ready to Land there, as follows:

- **Heading:** Displayed by aircraft's Compass during Approach, measured in Degrees, and obtained from Tower, per *paragraph 6.2.1: Calling Tower for Approaching Airport*
- **Runway Number:**

  Assigned for Landing by Tower, per *paragraph 6.2.1: Calling Tower for Approaching Airport*

  Along with associated Traffic Pattern, per *paragraph 6.2.2: Traffic Pattern*

6.2.1 CALLING TOWER FOR APPROACHING AIRPORT

Pilot	Response
Fresno Tower, this is Cessna 54554. *Inbound to Fresno Air Terminal.*	*Fly Heading 120.* *Runway 29L.*

Figure 6-11: Sample Call to Tower: For Approaching Airport

IMPORTANT! Tower frequency assigned by "Approach" will take precedence over any other source.

Tower Frequency: Used at mid-sized to larger Tower Airports, to control Airspace surrounding Airport

Heading: Displayed by aircraft's Compass, in Degrees, during Approach into Destination

Runway Number: Assigned by “Approach” for Landing

Prerequisite:

- Filled-in "Airport Frequencies" for Destination

Task:

1. From **Approaching Airport** webpage, click on **Calling Tower for Approaching Airport**.
2. Perform steps 1-3 indicated on that webpage.
3. Click on **Back**, to re-display **Approaching Airport** webpage

6.2.2 TRAFFIC PATTERN

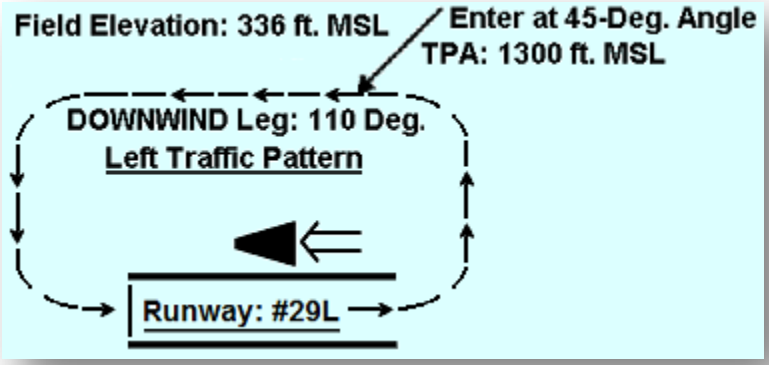


Figure 6-12: Sample Traffic Pattern: For Approaching Airport

Traffic Pattern: Standard path followed by aircraft on Landing, while maintaining visual contact with airfield:

- **45-Degree Angle:** Entry into Traffic Pattern, at 45-Degree angle to Downwind Leg
- **Field Elevation:** Airport elevation, measured in Feet MSL (Mean Sea Level)
- **Left Traffic Pattern:** Traffic Pattern to Left of Runway
- **Runway Number:** Assigned by "Approach" for Landing
- **Traffic Pattern Altitude (TPA):** Altitude of standard path followed by aircraft on Landing, while maintaining visual contact with airfield
- **Downwind Leg:** Long leg of Traffic Pattern that runs opposite (180 Degrees) to Runway, measured in Degrees

Prerequisites:

- *Airport/Facilities Directory*
- Runway Number, assigned by "Approach" for Landing, per *paragraph 6.1.4: Calling "Approach" for Entering Class C Airspace*

Task:

1. From **Approaching Airport** webpage, click on **Traffic Pattern** ("Links" section).
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, then **Back**, again, to re-display **Arrival: Class C Airspace** webpage.

6.3 LANDING

Tower	*Fresno Tower: 118.2*
Field Elevation	*336 Feet MSL*
Traffic Pattern Altitude	*1300 Feet MSL*
Runway Number and Traffic Pattern	*29L: Left Traffic Pattern*
Flap Extended Speed	*80 Nautical Miles*
Best Rate-of-Descent Speed	*70 Nautical Miles*
Approach Speed	*65 Nautical Miles*

Figure 6-13: Sample Information: For Landing

The following information will be used for Landing at the Destination, obtained from "Airport Frequencies" section of Flight Plan, *Airport/Facilities Directory*, and *Pilots Operator Handbook*:

- **Tower Frequency:** Used at mid-sized to larger Tower Airports, to control Airspace surrounding Airport
- **Field Elevation:** Airport elevation, measured in Feet MSL (Mean Sea Level)
- **Traffic Pattern Altitude:** Altitude for Traffic Pattern, measured in Feet MSL
- **Runway Number:** Assigned by "Approach" for Landing
- **Traffic Pattern:** Standard path (traffic flow) associated with Runway Number assigned for Landing
- **Flap Extended Speed:** Highest speed permissible with wing flaps extended, measured in Nautical Miles
- **Best Rate-of-Descent Speed:** Speed that results in best rate of decrease in altitude, measured in Nautical Miles
- **Approach Speed:** Recommended Air Speed on Final Leg, measured in Nautical Miles

This sub-chapter defines the following procedures for Landing at a Tower Airport operating in Class C Airspace:

- *Traffic Pattern*
- *Talking to Tower for Landing*

Task:

1. From **Arrival: Class C Airspace** webpage, click on **Landing**.
2. Perform steps 1-3 indicated on that webpage.

Result:

After completing this sub-chapter, you will:

- Have just finished Landing, per following paragraphs:

  6.3.1: Traffic Pattern
  6.3.2: Talking to Tower for Landing
- Be ready to start post-Landing Airport Procedures, per *sub-chapter 7.4: Airport Procedures*

6.3.1 TRAFFIC PATTERN

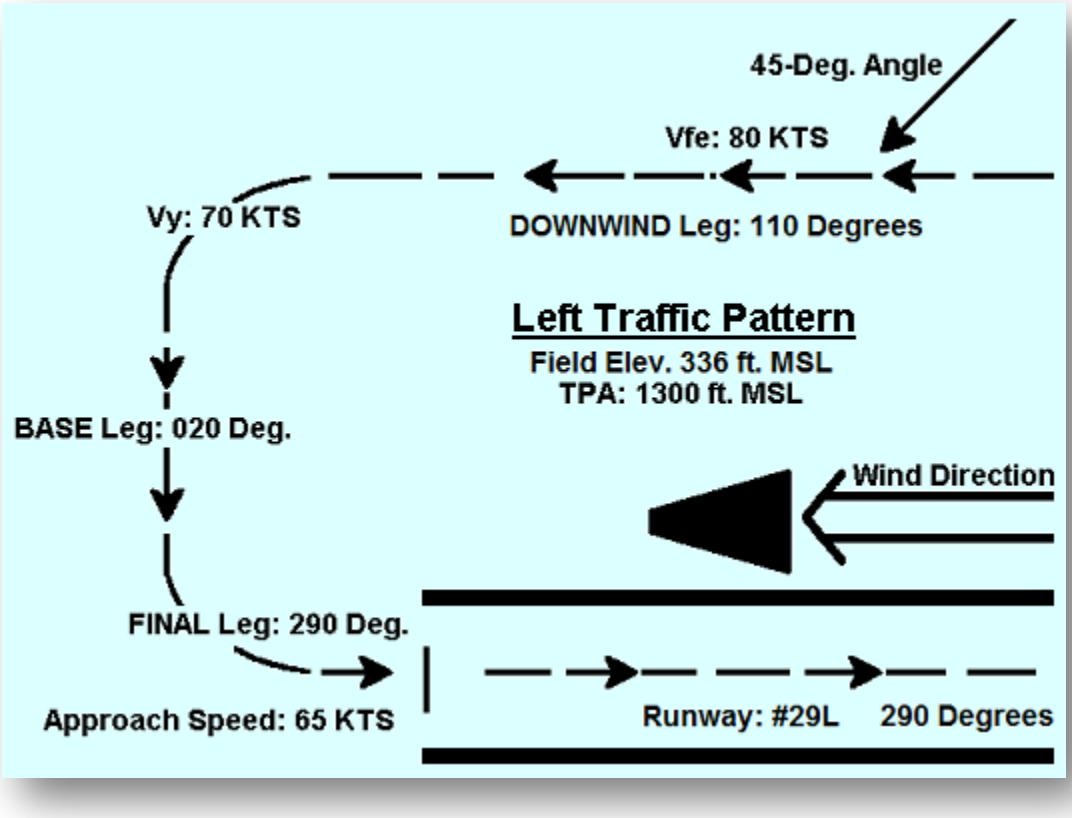


Figure 6-14: Sample Traffic Pattern: For Landing

Traffic Pattern: Standard path followed by aircraft on Landing, while maintaining visual contact with airfield, which includes following information:

- **Left Traffic Pattern:** Traffic Pattern to Left of Runway
- **Field Elevation:** Airport elevation, measured in Feet MSL (Mean Sea Level)
- **Traffic Pattern Altitude (TPA):** Altitude for Traffic Pattern, measured in Feet MSL
- **45-Degree Angle:** Entry into Traffic Pattern, at 45-Degree angle to Downwind Leg, measured in Degrees
- **Flap Extended Speed (Vfe):** Highest speed permissible with wing flaps extended, measured in Nautical Miles
- **Downwind Leg:** Long leg of Traffic Pattern that runs opposite (180 Degrees) to Runway, measured in Degrees
- **Best Rate-of-Descent Speed (Vy):** Speed that results in best rate of decrease in altitude, measured in Nautical Miles
- **Base Leg:** Short leg of Traffic Pattern that runs perpendicular (90 Degrees) to Runway, measured in Degrees
- **Final Leg:** Leg of Traffic Pattern that includes Runway, measured in Degrees
- **Approach Speed:** Recommended Air Speed on Final Leg, measured in Nautical Miles
- **Runway Number:** Assigned by "Approach" for Landing

Prerequisites:

- *Airport/Facilities Directory*
- *Pilots Operator Handbook*
- Calculator
- Runway Number, assigned by "Approach" for Landing, per *paragraph 6.1.4: Calling "Approach" for Entering Class C Airspace*

Task:

1. From **Landing** webpage, click on **Traffic Pattern**.
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, to re-display **Landing** webpage.

6.3.2 TALKING TO TOWER FOR LANDING

Tower	Pilot Response
Cessna 54554, ***Is Cleared to Land.***	***Cessna 54554,*** ***Will Comply.***

Figure 6-15: Sample Call to Tower: For Landing

Tower Frequency: Used at mid-sized to larger Tower Airports, to control Airspace surrounding Airport

Prerequisite:

- Filled-in "Airport Frequencies" for Destination

Task:

1. From **Landing** webpage, click on **Talking to Tower for Landing**.
2. Perform steps 1-3 indicated on that webpage.
3. Click on **Back**, then **Back**, again, to re-display **Arrival: Class C Airspace** webpage.

6.4 AIRPORT PROCEDURES

Ground Control	*Fresno Ground: 121.7*
FSS	*Fresno FSS: 122.95*
Runway Number	*29L*

Figure 6-16: Sample Airport Information

The following frequencies will be used for Airport Procedures at Destination, obtained from "Airport Frequencies" section of Flight Plan:

- **Ground Control Frequency:** Used at larger Tower Airports, to control airport operations on the ground
- **FSS Frequency:** Flight Services Station: Used at mid-sized to larger Tower Airports, to allow Pilot to obtain Weather Briefing, fuel, ground transportation, etc., and close Flight Plan with FAA Briefer
- **Runway Number:** Assigned by "Approach" for Landing

This sub-chapter defines the following Airport procedures for a Tower Airport operating in Class C Airspace:

- *Calling Ground Control for Taxiing Instructions to GA Tie-Downs*
- *Calling WX-BRIEF to Close Flight Plan with FAA Briefer*
- *Calling FSS for Fuel*

Task:

1. From **Arrival: Class C Airspace** webpage, click on **Airport Procedures**.
2. Perform steps 1-2 indicated on that webpage.

Result:

At the end of this procedure, your Flight will be completed, as follows:

- **Taxiing Instructions to GA Tie-Downs:** Provided by Ground Control, per *paragraph 6.4.1: Calling Ground Control for Taxiing Instructions to GA Tie-Downs*
- **Flight Plan:** Closed, per *paragraph 6.4.2: Calling WX-BRIEF to Close Flight Plan with FAA Briefer*
- **Fuel Tank:** Full for next flight: Fuel is obtained by calling Flight Services Station (FSS) for service, per *paragraph 6.4.3: Calling FSS for Fuel*.

6.4.1 CALLING GROUND CONTROL FOR TAXIING INSTRUCTIONS TO GA TIE-DOWNS

Pilot	Response
Fresno Ground, this is Cessna 54554, *At Runway 29L.* *Taxi GA tie-downs.*	*Taxi GA tie-downs,* *Via Taxi Way B,* *And turn left at B12.*

Figure 6-17: Sample Call to Ground Control: For Taxiing Instructions to GA Tie-Downs

Ground Control Frequency: Used at larger Tower Airports, to control airport operations on the ground

Runway Number: Assigned by "Approach" for Landing

GA Tie-Downs: General Aviation: Location, at most airports, used for parking private aircraft, by tying it down to multiple anchor points in the ground, like anchoring a boat

Prerequisite:

- Filled-in "Airport Frequencies" for Destination

Task:

1. From **Airport Procedures** webpage, click on **Calling Ground Control for Taxiing Instructions to GA Tie-Downs**.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Back**, to re-display **Airport Procedures** webpage.

6.4.2 CALLING WX-BRIEF TO CLOSE FLIGHT PLAN WITH FAA BRIEFER

Pilot	Response
FAA Briefer, this is Cessna 54554. *I wish to close my Flight Plan.*	*Thank you. So noted.*

IMPORTANT! Once you reach your final destination, close your Flight Plan!

Figure 6-18: Sample Call to FAA Briefer: For Closing Flight Plan

FAA Briefer: Federal Aviation Administration: Contacted by calling WX-BRIEF, to close Flight Plan

Prerequisite:

- Phone: To call WX-BRIEF (800 number)

Task:

1. From **Airport Procedures** webpage, click on **Calling WX-BRIEF to Close Flight Plan with FAA Briefer**.
2. Perform step 1 indicated on that webpage.
3. Click on **Back**, to re-display **Airport Procedures** webpage.

6.4.3 CALLING FSS FOR FUEL

Pilot	Response
Fresno FSS, this is Cessna 54554, ***At the GA tie-downs,*** ***Requesting fuel.***	***I'll be right out.*** ***Look for the Chevron truck.***

Figure 6-19: Sample Call to FSS: For Fuel

FSS Frequency: Flight Services Station: Used at mid-sized to larger Tower Airports, to allow Pilot to obtain Weather Briefing, fuel, ground transportation, etc.:

- **GA Tie-Downs:** General Aviation: Location, at most airports, used for parking private aircraft, by tying it down to multiple anchor points in the ground, like anchoring a boat

Prerequisite:

- Filled-in "Airport Frequencies" for Destination

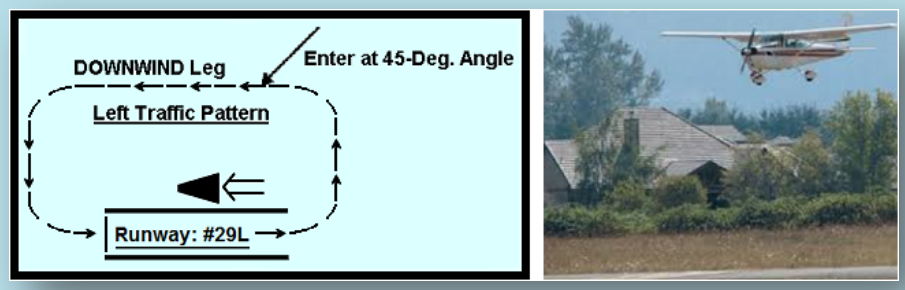
Task:

1. From **Airport Procedures** webpage, click on **Calling FSS for Fuel**.
2. Perform steps 1-2 indicated on that webpage.
3. Click on **Flight Planner**, to re-display **Flight Planner: Tutorial** webpage.

GLOSSARY

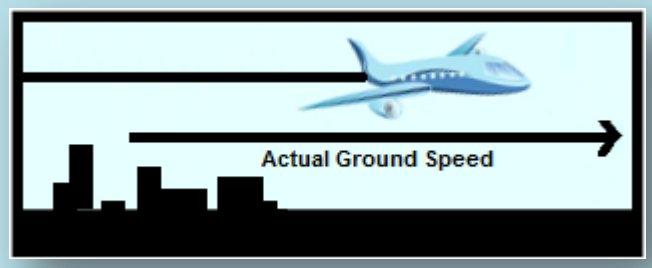
NOTE: All examples in the Glossary use a Cessna 152 for the aircraft, the "San Jose, Mineta International Airport" for the Departure Point, and the "Fresno, Yosemite International Airport" for the Destination, as two Tower Airports operating in Class C Airspace.

45-Degree Angle: For Landing: Entry into Traffic Pattern, at 45-Degree angle to Downwind Leg



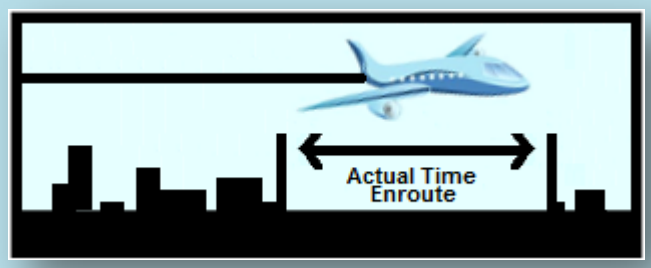
NOTE: Left example shows diagram of entry into Traffic Pattern. Right shows actual Aircraft.

Actual Ground Speed (Act.): Actual speed of aircraft in relation to the ground, measured in Nautical Miles



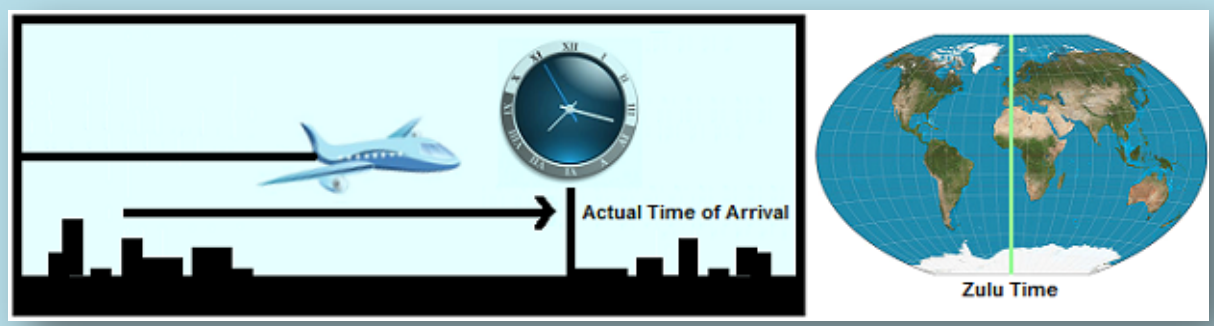
EXAMPLE: 106.2 KTS

Actual Time Enroute (ATE): Actual duration of time, measured in Minutes, and filled in during flight



EXAMPLE: First Leg = 28 Minutes

Actual Time of Arrival (ATA): Time arrived at location, listed in Zulu Time, and filled in during flight



EXAMPLE: First Check Point = 1630 Zulu Time (4:30 PM) = 9:30 AM Pacific Daylight Time

AGL: Above Ground Level: Altitude measured with respect to ground surface, in Feet

NOTE: This example shows aircraft at 50 Feet AGL above Runway.

Air Speed Indicator: Please see Indicated Air Speed.

Aircraft ID: Aircraft's license number, used to identify it in radio communications, and obtained from *Aircraft's Documentation*

EXAMPLE: 54554 (for "N54554")

Aircraft Type: Aircraft make and model, obtained from *Aircraft's Documentation*

EXAMPLE: Cessna 152

***Aircraft's Documentation*:**

STANDARD AIRWORTHINESS CERTIFICATE

N282ND	PIPER	28444024	NORMAL
	PA-28R-201		

NONE

JAN 28 2000

RICHARD L. MURDOCK

DOA SO-1

Includes following information, usually found in aircraft's glove compartment:

- Aircraft Registration
- Maintenance Records
- Aircraft-Specific Information

"Airport & ATIS Advisories": Automatic Terminal Information Service:

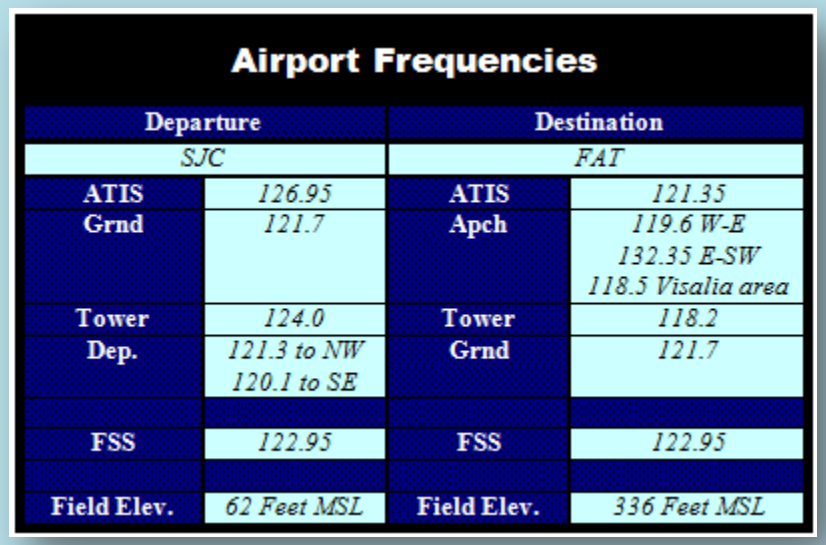
Airport & ATIS Advisories		
Departure		**Destination**
"Tango"	**ATIS Code**	*"Alpha"*
Ceiling: Clear Visibility: 10 NM	**Ceiling & Visibility**	*Ceiling: Clear Visibility: > 10 NM*
300 Deg. at 10 KTS	**Wind**	*290 Deg. at 18 KTS*
29.92	**Altimeter**	*29.92*
	Approach	*119.6 W-E 132.35 E-SW 118.5 Visalia area*
29, 30L, and 30R	**Runway**	*29L and 29R*
1545 Zulu Time	**Time Check**	

Section of Flight Plan that provides convenient way to obtain and list following information for Departure Point and Destination in Class C Airspace, obtained from ATIS:

- **ATIS Code:** Alpha-designation included at beginning of ATIS Recording, as ID tag
- **Ceiling & Visibility:** Height of Cloud Layer, measured in Feet. And greatest distance an observer can see and identify objects through at least half of horizon, measured in Nautical Miles
- **Wind:** Wind Direction, measured in Degrees. Velocity, measured in Nautical Miles
- **Altimeter Setting:** Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg.
- **"Approach" Frequency:** Used to control approach through Class C Airspace
- **Runway:** Runway Numbers: Available for Take-Off/Landing
- **Time Check:** Time that Pilot obtained departure information from ATIS, listed in Zulu Time

Airport/Facilities Directory: Required directory (green book) used for obtaining airport-related information, and purchased at a store that specializes in flying supplies

"Airport Frequencies":



Airport Frequencies			
Departure		Destination	
SJC		FAT	
ATIS	126.95	ATIS	121.35
Grnd	121.7	Apch	119.6 W-E 132.35 E-SW 118.5 Visalia area
Tower	124.0	Tower	118.2
Dep.	121.3 to NW 120.1 to SE	Grnd	121.7
FSS	122.95	FSS	122.95
Field Elev.	62 Feet MSL	Field Elev.	336 Feet MSL

Section of Flight Plan that provides convenient way to list following frequencies for Departure Point and Destination, obtained from *Airport/Facilities Directory*:

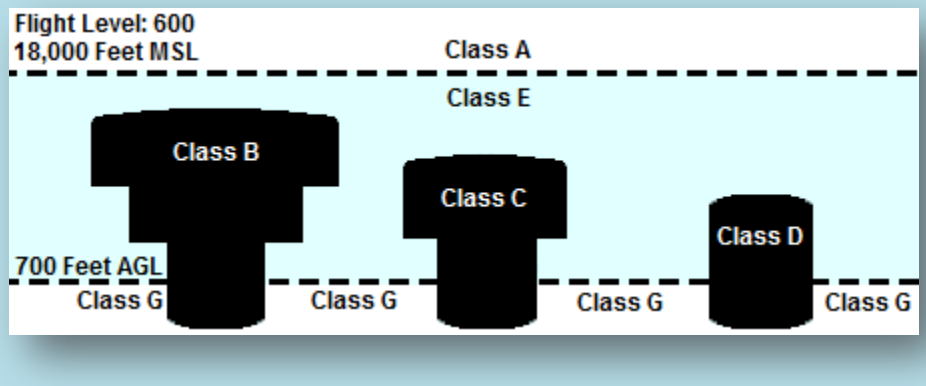
- **ATIS:** Automatic Terminal Information Service: Used at busy Tower Airports operating in Class C Airspace, to provide current weather information, as transmitted ATIS Recording on Receive Only frequency
- **Ground Control (Grnd):** Used at larger Tower Airports, to control airport operations on the ground
- **Tower:** Air Traffic Control: Used at mid-sized to larger Tower Airports, to control Airspace surrounding Airport
- **"Departure" (Dep):** Used at busy Tower Airports operating in Class C Airspace, to control departure through Class C Airspace
- **"Approach" (Apch):** Used at busy Tower Airports operating in Class C Airspace, to control approach through Class C Airspace
- **FSS:** Flight Services Station: Used at mid-sized to larger Tower Airports, to allow Pilot to obtain Weather Briefing, fuel, ground transportation, etc., and file Flight Plan with FAA Briefer
- **Field Elevation (Field Elev.):** Airport elevation, measured in Feet MSL

Airport ID: Unique 3-letter alpha-numeric identification used to represent airport, obtained from *Airport/Facilities Directory*

EXAMPLE:

- **Departure Point:** SJC (for "San Jose, Mineta International Airport")
- **Destination:** FAT (for "Fresno, Yosemite International Airport")

Airspace:



Comprises following types of airspace, obtained from *Chart*:

- **Class A:** Requires instrument rating.
- **Class B:** Established to separate arriving/departing traffic surrounding major airports
- **Class C:** Controlled, surrounding large airport, where Air Traffic Control uses radar to control traffic in airspace
- **Class D:** Controlled, surrounding at least one Tower airport
- **Class E:** Controlled, without communication requirements. Comprises majority of airspace within U.S.
- **Class F:** Designated for Special Use Airspace: Restricted or Advisory
- **Class G:** Used wherever other classes are not

EXAMPLE: Following two airports are in Class C Airspace:

- **Departure Point:** "San Jose, Mineta International Airport"
- **Destination:** "Fresno, Yosemite International Airport"

Alternate Airport: Designated as alternate for Landing, if intended Destination inadvisable, usually obtained from *Chart*, using Plotter

NOTE: This example uses Madera Muni airport as alternate to "Fresno, Yosemite International Airport."

Altimeter & Altimeter Setting: Altimeter is instrument located in aircraft's Instrument Panel that displays Altitude, in Feet.

Altimeter Setting is Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg., and obtained from ATIS

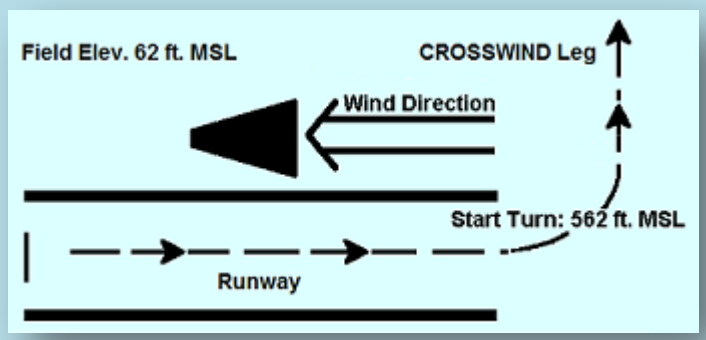
NOTE: This example shows an Altimeter with Altimeter Setting (Barometric Pressure) of 29.92 inHg.

Where:

- **inHg:** Inches of Mercury at 0 Degrees Centigrade Pressure Unit
- **0 Degrees Centigrade:** 32 Degrees Fahrenheit

Altitude: Please see Cruising Altitude.

Altitude to Start Turn: For Take-Off: Start Turn: 500 Feet above Field Elevation, where Pilot will start turn into Crosswind Leg, measured in Feet MSL



Calculated by adding 500 Feet to Field Elevation

EXAMPLE: 562 Feet MSL

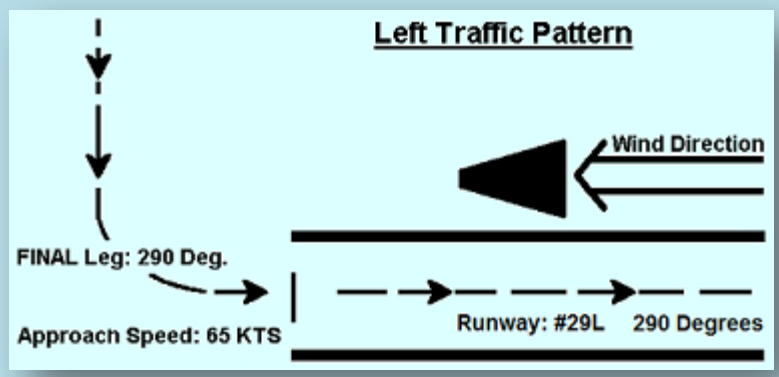
"Approach" Frequency (Apch): Used at busy Tower Airports operating in Class C Airspace, to control approach through Class C Airspace, obtained from ATIS

NOTE: This example shows an aircraft approaching through Class C Airspace.

EXAMPLE:

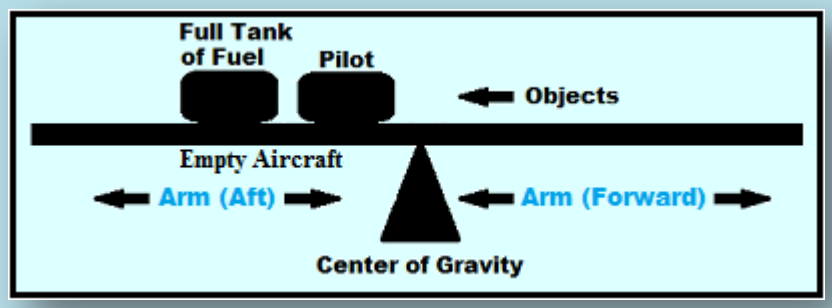
- 119.6: From West-East
- 132.35: From East-SouthWest
- 118.5: From Visalia area

Approach Speed: Recommended Air Speed on Final Leg, measured in Nautical Miles, and obtained from *Pilots Operator Handbook*



EXAMPLE: 65 KTS = 74.801 MPH

Arm: Object's distance from Datum (Empty Aircraft's Center of Gravity), measured in inches, and obtained from *Pilots Operator Handbook*



Where value will be:

- **Aft of aircraft's Datum:** Positive number
- **Forward of aircraft's Datum:** Negative number

EXAMPLE:

- **Empty Aircraft:** 37.4 Inches
- **Full Tank of Fuel:** 45.3 Inches
- **Pilot:** 37.0 Inches

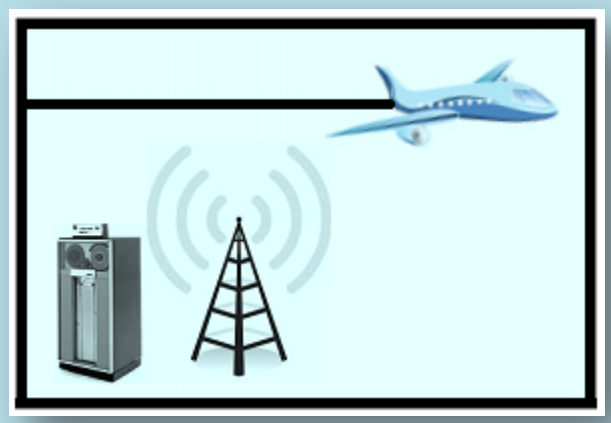
ATIS Code: Automatic Terminal Information Service: Alpha-designation included at beginning of ATIS Recording, in Class C Airspace, as ID tag, incremented every time ATIS Recording is updated, to differentiate current transmission from previous ones.

This is ATIS Code "Tango," for the San Jose, Mineta International Airport. …	***This is ATIS Code "Alpha," for the Fresno, Yosemite International Airport.*** …

EXAMPLE:

- **Departure Point:** "Tango" (for "T")
- **Destination:** "Alpha" (for "A")

ATIS Frequency: Automatic Terminal Information Service: Used at busy Tower Airports operating in Class C Airspace, to provide current weather information, as transmitted ATIS Recording on Receive Only frequency. Obtained from *Airport/Facilities Directory*



NOTE: Current weather information is recorded; then transmitted for retrieval by incoming/outgoing air traffic.

EXAMPLE:

- **Departure Point:** 126.95
- **Destination:** 121.35

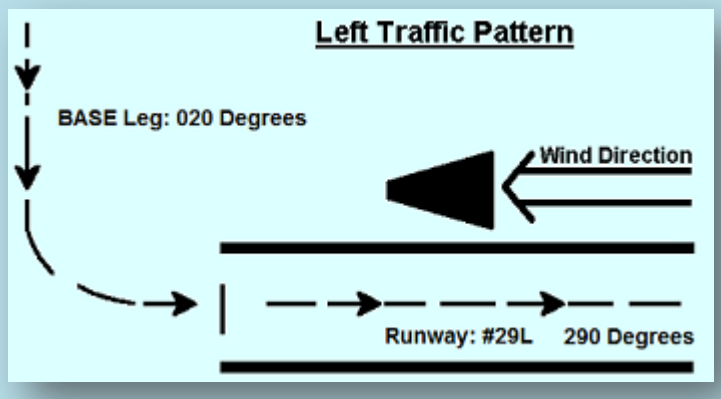
ATIS Recording: Automatic Terminal Information Service:

This is ATIS Code "Tango," for the San Jose, Mineta International Airport.	***This is ATIS Code "Alpha," for the Fresno, Yosemite International Airport.***
Temperature is 19 Degrees Centigrade.	***Temperature is 35 Degrees Centigrade.***
Wind Direction is 300 Degrees, at a Velocity of 10 Nautical Miles.	***Wind Direction is 290 Degrees, at a Velocity of 18 Nautical Miles.***
Visibility is 10 Nautical Miles.	***Visibility is greater than 10 Nautical Miles.***
Ceiling is Clear	***Ceiling is Clear***
Altimeter Setting is 29.92.	***Altimeter Setting is 29.92.***
Use Runways 29, 30L, and 30R.	***Use Runways 29L and 29R.***
Use "Departure" frequency: 121.3	***Use "Departure" and "Approach" frequencies:***
Use "Approach" frequency: 121.1	***119.6: From West to East***
There are No NOTAMs at this time.	***132.35: From East to South-West***
	118.5: From Visalia area
	Thunderstorms in the Sierras.

Recording transmitted by ATIS (Receive Only) frequency, in Class C Airspace, to provide following current weather information for Departure Point / Destination:

- **ATIS Code:** Alpha-designation included at beginning of ATIS Recording, as ID tag
- **Temperature:** Air Temperature: Measured in Degrees Centigrade
- **Wind Direction & Velocity:** Measured in Degrees and Nautical Miles, respectively
- **Visibility:** Greatest distance an observer can see and identify objects through at least half of horizon, measured in Nautical Miles
- **Ceiling:** Height above earth's surface of lowest layer of clouds, measured in Feet, or "Clear"
- **Altimeter Setting:** Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg.
- **Runways:** Runway Numbers: Available for Take-Off/Landing
- **"Departure" & "Approach" Frequencies:** Used to control departure/approach through Class C Airspace
- **NOTAMs:** Notices to Airmen: List hazards and information that could affect safety of Flight

Base Leg: For Landing: Short leg of Traffic Pattern that runs perpendicular (90 Degrees) to Runway, measured in Degrees



Calculated by adding/subtracting 90 Degrees to/from Runway Heading, as applicable

EXAMPLE: Base Leg = 020 Degrees

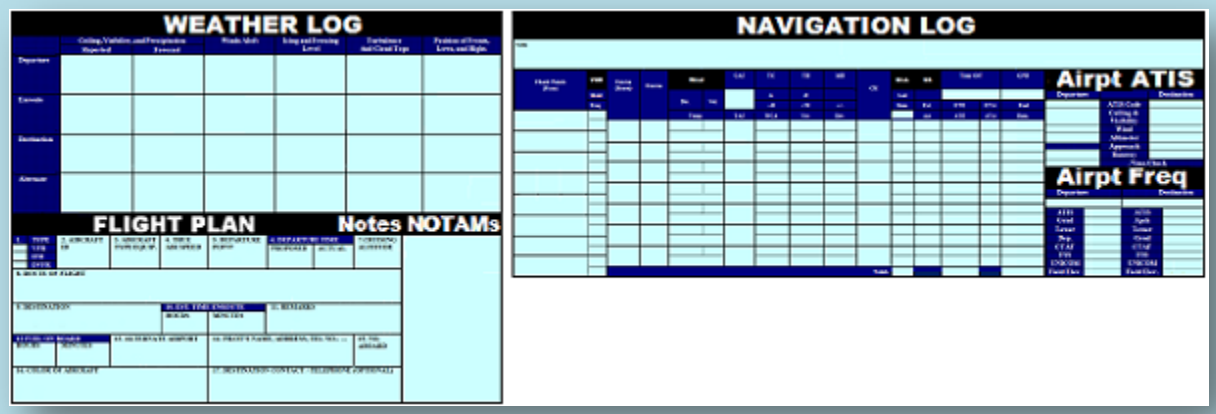
Best Rate-of-Climb Speed (Vy): Speed that results in greatest increase in altitude in a given time, measured in Nautical Miles, and obtained from *Pilots Operator Handbook*

EXAMPLE: 67 KTS = 77.102 MPH

Best Rate-of-Descent Speed (Vy): Speed that results in best rate of decrease in altitude, measured in Nautical Miles, and obtained from *Pilots Operator Handbook*

EXAMPLE: 67 KTS = 77.102 MPH

BLANK Flight Plan: Paper Form: Used for filling in Flight Plan, before Cross-Country Flight, purchased at a store specializing in flying supplies



Calculator: Everyday calculator, purchased at store selling Stationary supplies

Used to calculate:

- Distance
- Estimated Time of Arrival
- Remaining Fuel

Calibrated Air Speed (CAS): Measured in Nautical Miles, and obtained from *Pilots Operator Handbook*

NOTE: This example shows Indicated Air Speed of 110 Nautical Miles, and Calibrated Air Speed of 107 Nautical Miles (Green Line).

Indicated Air Speed adjusted for following calibration issues:

- Installation
- Position
- Instrument Errors

EXAMPLE: 107 KTS = 123.1 MPH

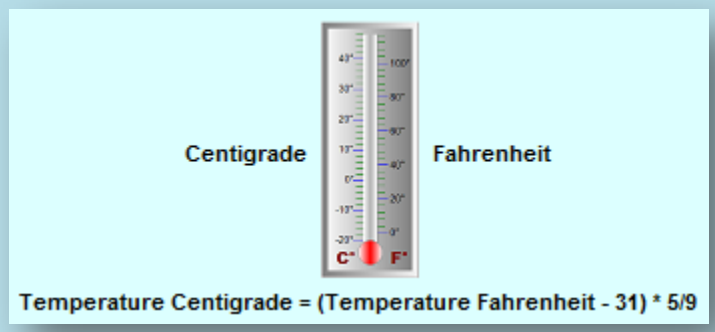
Ceiling: Cloud Layer: Height above earth's surface of lowest layer of clouds, measured in Feet, or "Clear," obtained from ATIS:

Clear

Cloud Layer

Center of Gravity: Heaviest part of Fully-Loaded Aircraft, calculated by dividing its Total Moment by its Total Weight

Centigrade: Degrees C:



Temperature scale where water is defined as follows, at standard atmospheric pressure:

- **Freezing Point:** 0 Degrees
- **Boiling Point:** 100 Degrees

Cessna 152: American two-seat, fixed tricycle gear, general aviation airplane, used primarily for flight training and personal use

Where: Tricycle Gear is landing gear that is arranged in a tricycle fashion, with one nose wheel in the front, and two main wheels slightly aft of the center of gravity.

***Chart*:** Required aeronautical chart used for plotting Route of Flight, purchased at store specializing in flying supplies

Check Points (Fixes): Set of selected recognizable landmarks along Route of Flight that can be positively identified from the air, obtained from *Chart*, using Plotter

EXAMPLE:

- **First Check Point:** San Martin, South Co. Airport
- **Second Check Point:** Los Banos Muni airport
- **Third Check Point:** Madera Muni airport

Class A/B Airspace:

NOTE: For Class A, this example uses two Fighter Jets above 18,000 Feet MSL; for Class B, "San Francisco International Airport."

Comprises following types of airspace, obtained from *Chart*:

- **Class A:** Airspace above 18,000 Feet MSL, which requires instrument rating
- **Class B:** Established to separate arriving/departing traffic surrounding major airports

IMPORTANT! As a Student Pilot, Class A/B Airspace should be avoided.

Class C Airspace: Controlled Airspace surrounding large airport, where Air Traffic Control uses radar to control traffic in airspace. Obtained from *Chart*

EXAMPLE: Following two airports are in Class C Airspace:

- **Departure Point:** "San Jose, Mineta International Airport"
- **Destination:** "Fresno, Yosemite International Airport"

Class E/G Airspace:

NOTE: For Class E/G Airspace, this example uses Madera Muni airport.

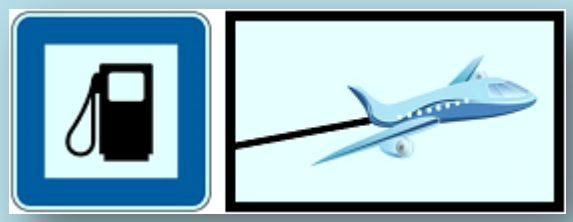
Comprises following types of airspace, obtained from *Chart*:

- **Class E:** Controlled, without communication requirements
- **Class G:** Used wherever other classes are not

Clearance Delivery Frequency: Used at busy Tower Airports operating in Class C Airspace, to allow Air Traffic Control to relay clearances to departing traffic. Obtained from *Airport/Facilities Directory*

EXAMPLE: **Departure Point:** 118.0

Climb Gallons: Fuel required for aircraft to climb to Cruising Altitude after Take-Off, obtained from *Pilots Operator Handbook*



EXAMPLE: 0.9 Gallons

Climb Time: Time required for aircraft to climb to Cruising Altitude after Take-Off, measured in Minutes, and obtained from *Pilots Operator Handbook*

EXAMPLE: 9 Minutes

Cloud Tops: Cloud Height, usually associated with Turbulence, and measured in Feet

NOTE: This example shows Cloud Top for Thunderstorm.

Cloud Type: Type of clouds, obtained from WX-BRIEF:

Clear

Scattered

Few

Broken

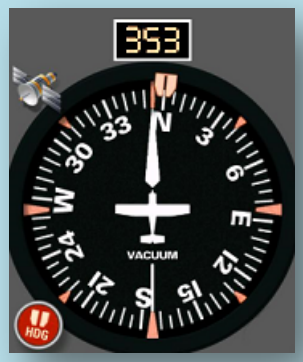
Overcast

Compass: Please see Compass Heading.

Compass Deviation (Dev.): Caused by magnetic disturbances from electrical and metal components in aircraft, as determined during calibration of aircraft, and measured in Degrees. Obtained from *Aircraft's Documentation*

NOTE: This example shows Compass Deviation of -1 Degree from actual location of North Pole.

Compass Heading (CH): Heading displayed by Compass during flight, measured in Degrees



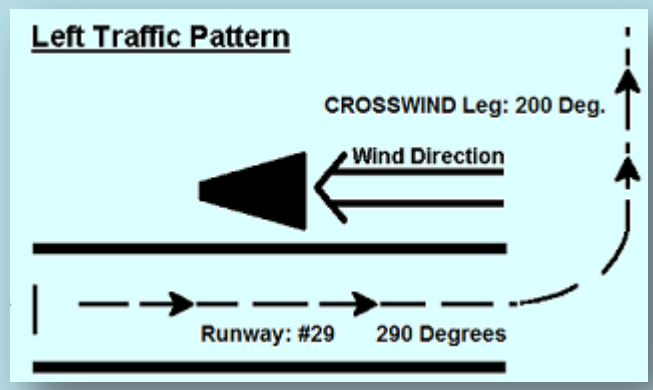
NOTE: This example shows Heading of 353 Degrees.

Calculated using following information:

- **True Course:** Intended direction of flight, obtained from *Chart*, using Plotter
- **Compass Deviation:** Caused by magnetic disturbances from electrical and metal components in aircraft, as determined during calibration of aircraft, and obtained from *Aircraft's Documentation*
- **Magnetic Variation:** Difference between True North and Magnetic North, obtained from *Chart*
- **Wind Correction Angle:** Angular adjustment for wind

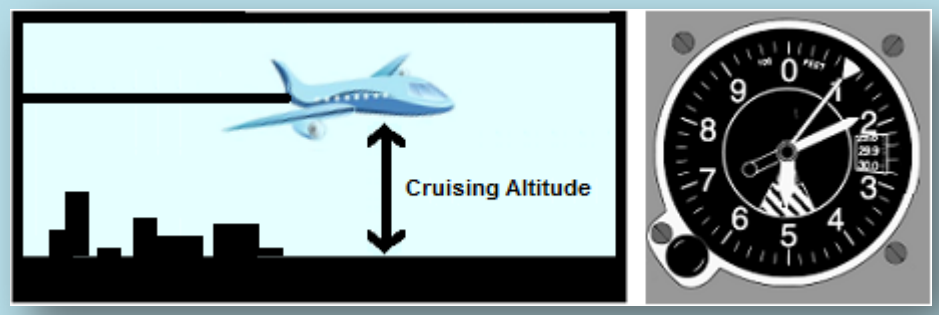
Where: Compass is instrument located in aircraft's Instrument Panel that displays Compass Headings.

Crosswind Leg: For Take-Off: Short leg of Traffic Pattern that runs perpendicular (90 Degrees) to Runway, measured in Degrees



Calculated by multiplying Runway Number by 10, and adding/subtracting 90 Degrees, as applicable
EXAMPLE: Crosswind Leg = 200 Degrees

Cruising Altitude: Level portion of aircraft travel displayed by Altimeter, occurring between ascent and descent phases, and usually majority of journey, measured in Feet. Obtained from *Chart*, using Plotter



Following rules apply to Cruising Altitude above 3,500 Feet:

- **Course of 0-179 Degrees:** Odd number + 500 Feet
- **Course of 180-359 Degrees:** Even number + 500 Feet

EXAMPLE: 5500 Feet (for Course of 140 Degrees)

Datum: Please see Empty Aircraft.

"Departure" Frequency: Used at busy Tower Airports operating in Class C Airspace, to control departure through Class C Airspace, obtained from ATIS, or assigned by Clearance Delivery prior to Take-Off

NOTE: This example shows aircraft departing through Class C Airspace.

EXAMPLE: 121.3

Departure Point: Name of Departure city and airport, usually obtained from your Flight Instructor

EXAMPLE: San Jose, Mineta International Airport

Descent Time: Time required for aircraft to descend from Cruising Altitude to Landing, measured in Minutes, and obtained from *Pilots Operator Handbook*

EXAMPLE: 12 Minutes

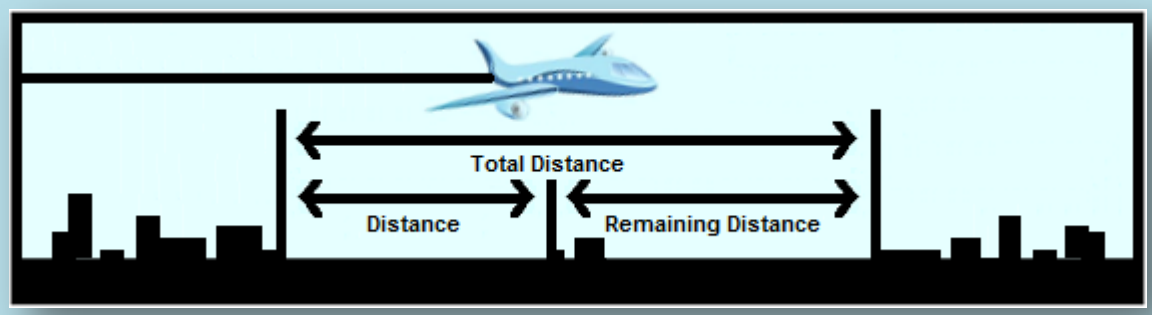
Destination: Name of Destination city and airport, usually obtained from your Flight Instructor

EXAMPLE: Fresno, Yosemite International Airport

Dew Point: Air Temperature where water vapor will condense into liquid water, measured in Degrees Centigrade, and obtained from WX-BRIEF

EXAMPLE: 5 Degrees Centigrade = 41 Degrees Fahrenheit

Distance (Dist.): Obtained from *Chart*, using Plotter



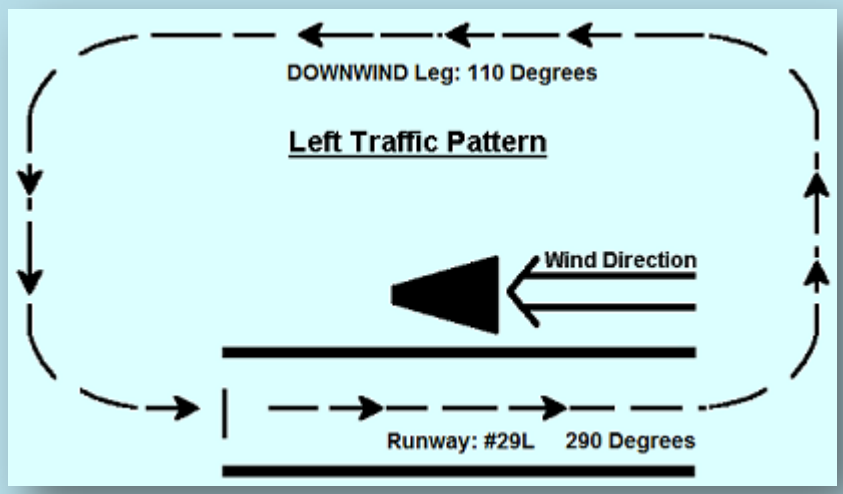
Dist. encompasses following distance information:

- **Leg:** Distance for Individual Leg: Measured in Nautical Miles
- **Rem.:** Remaining after Individual Leg: Please see Remaining Distance.
- **Totals:** For Entire Flight: Please see Total Distance.

EXAMPLE: First Leg = 24 NM = 27 Miles, 1088.9 Yards

DME: Distance Measuring Equipment: Instrument located in aircraft's Instrument Panel that measures distance of aircraft from navigation aid, in Nautical Miles

Downwind Leg: For Landing: Long leg of Traffic Pattern that runs opposite (180 Degrees) to Runway, measured in Degrees



Calculated by adding/subtracting 180 Degrees to/from Runway Heading, as applicable
EXAMPLE: Downwind Leg = 110 Degrees

DVFR: Defense Visual Flight Rules: Govern procedure for conducting flight within air defense identification zone

E6-B: Flight computer, purchased at store specializing in flying supplies

Used to calculate:

- Compass Heading
- Ground Speed
- Fuel

Empty Aircraft:

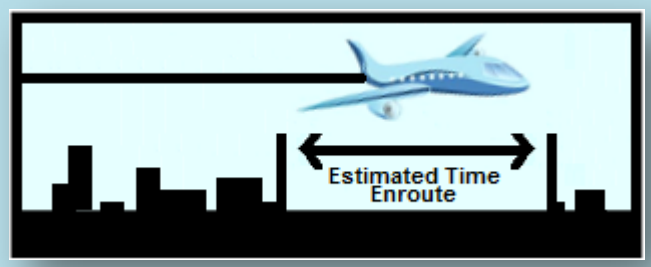
Aircraft before Fuel and Pilot, etc., comprising following information for Empty Aircraft, obtained from *Pilots Operator Handbook*:

- **Weight:** Measured in Pounds
- **Arm:** Measured in Inches
- **Datum:** Location of Center of Gravity (heaviest part of aircraft) for Empty Aircraft

EXAMPLE:

- **Weight:** 1460 Pounds
- **Arm:** 37.4 Inches
- **Datum:** Please see figure

Estimated Time Enroute (ETE): Expected duration of time, measured in Minutes

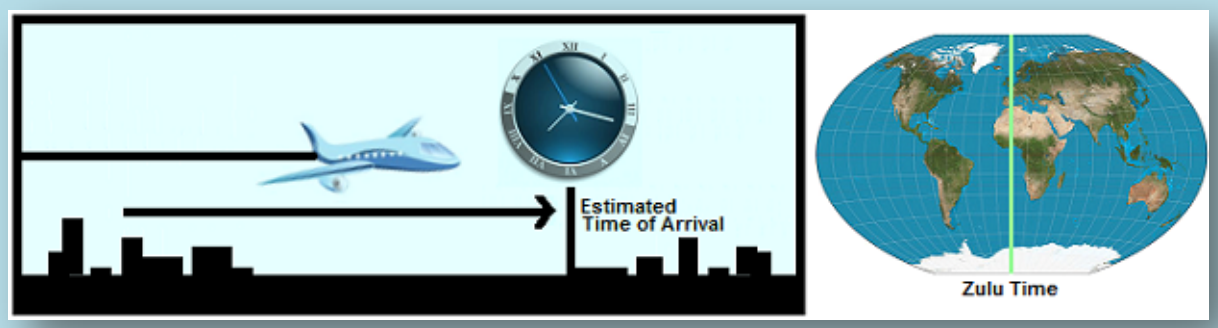


Calculated using following information:

- **Distance:** Measured in Nautical Miles
- **Estimated Ground Speed:** Air speed in relation to the ground, measured in Nautical Miles
- **Climb Time:** Time required for aircraft to climb to Cruising Altitude after Take-Off, measured in Minutes, as applicable, and obtained from *Pilots Operator Handbook*
- **Descent Time:** Time required for aircraft to descend from Cruising Altitude to Landing, measured in Minutes, as applicable, and obtained from *Pilots Operator Handbook*

EXAMPLE: First Leg = 23 Minutes

Estimated Time of Arrival (ETA): Expected time to arrive at location, listed in Zulu Time



Calculated using following information:

- **Proposed Departure Time:** Planned departure time, listed in Zulu Time
- **Estimated Time Enroute:** Expected duration of time, measured in Minutes

EXAMPLE: First Check Point = 1623 Zulu Time (4:23 PM) = 9:23 AM Pacific Daylight Time

FAA Briefer: Federal Aviation Administration

Contacted by calling WX-BRIEF, to:

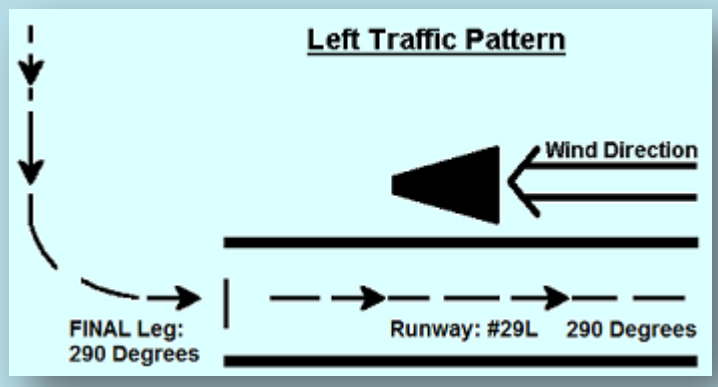
- Obtain Weather Briefing.
- File/close Flight Plan.

Field Elevation: Airport elevation, measured in Feet MSL, and obtained from *Airport/Facilities Directory*

EXAMPLE:

- **Departure Point:** 62 Feet MSL
- **Destination:** 336 Feet MSL

Final Leg: For Landing: Leg of Traffic Pattern that includes Runway, measured in Degrees



Calculated by multiplying Runway Number by 10
EXAMPLE: Final Leg = 290 Degrees

Flap Extended Speed (Vfe): For Landing: Highest speed permissible with wing flaps extended, measured in Nautical Miles, and obtained from *Pilots Operator Handbook*

NOTE: This example shows aircraft on Downwind Leg, with Flaps Extended.

EXAMPLE: 80 KTS = 92.062 MPH

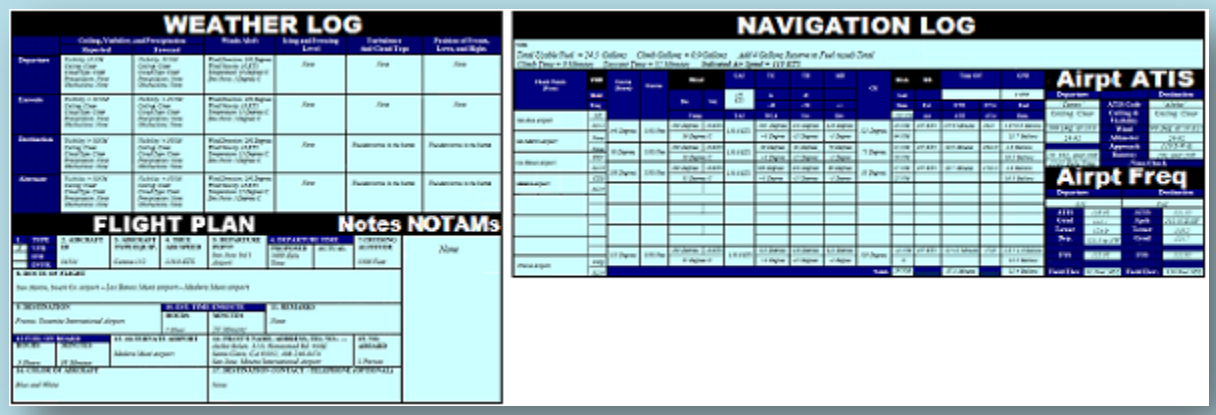
"Flight Following": Service for cross-country flight that helps Dispatcher keep track of aircraft, to alert Pilot of possible hazards, requested from "Departure"

Flight Instructor:

Source of following information required for your Flight:

- Type of Flight
- General Flight-Related Information, including Departure Point and Destination
- Remarks and Destination Contact Information

Flight Plan:



Plan filled out before Cross-Country Flight, to provide information to be:

- Filed with FAA Briefer, at start of Flight
- Used, by Pilot, during Flight

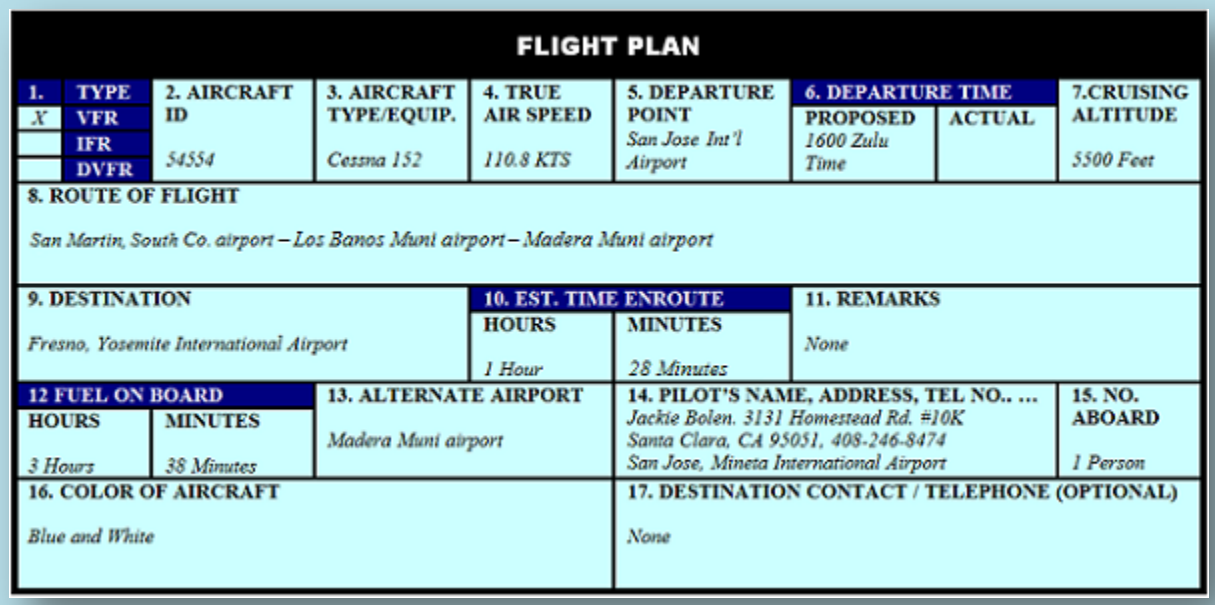
It provides following information:

- Important aircraft-related details
- Departure Point and Destination
- Route of Flight
- Weather conditions and possible hazards
- Estimated Arrival Time
- Number of people aboard aircraft

And comprises following sections, which provide convenient way to perform following tasks:

- **"Flight Plan" Section:** Organize information, for filing with FAA Briefer at start of Flight.
- **"Airport Frequencies":** List frequency and elevation information for Departure Point and Destination, obtained from *Airport/Facilities Directory*.
- **"Weather Log":** Organize pre-flight weather planning information.
- **"Navigation Log":** Organize pre-flight navigation planning information, as well as keep track of progress during Flight.
- **"Airport & ATIS Advisories":** Obtain and list critical current weather information for Departure Point and Destination in Class C Airspace, obtained from ATIS.
- **"Notes and NOTAMs":** List hazards and special pertinent information, for Departure Point and Destination, in Class C Airspace.

"Flight Plan" Section:



FLIGHT PLAN

1. TYPE		2. AIRCRAFT ID	3. AIRCRAFT TYPE/EQUIP.	4. TRUE AIR SPEED	5. DEPARTURE POINT	6. DEPARTURE TIME		7.CRUISING ALTITUDE
						PROPOSED	ACTUAL	
X	VFR				San Jose Int'l Airport	1600 Zulu Time		5500 Feet
	IFR	54554	Cessna 152	110.8 KTS				
	DVFR							

8. ROUTE OF FLIGHT

San Martin, South Co. airport – Los Banos Muni airport – Madera Muni airport

9. DESTINATION	10. EST. TIME ENROUTE		11. REMARKS
	HOURS	MINUTES	
Fresno, Yosemite International Airport	*1 Hour*	*28 Minutes*	*None*

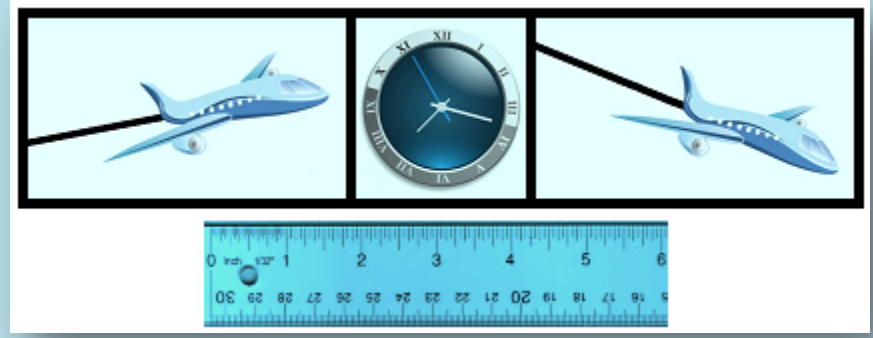
12 FUEL ON BOARD		13. ALTERNATE AIRPORT	14. PILOT'S NAME, ADDRESS, TEL NO.. ...	15. NO. ABOARD
HOURS	MINUTES			
3 Hours	*38 Minutes*	*Madera Muni airport*	*Jackie Bolen. 3131 Homestead Rd. #10K Santa Clara, CA 95051, 408-246-8474 San Jose, Mineta International Airport*	*1 Person*

16. COLOR OF AIRCRAFT	17. DESTINATION CONTACT / TELEPHONE (OPTIONAL)
Blue and White	*None*

Section of Flight Plan that provides convenient way to organize following information, for filing with FAA Briefer at start of Flight:

- **Type:** Type of Flight, usually obtained from Flight Instructor
- **Aircraft ID:** Aircraft's license number, usually starting with "N," and obtained from *Aircraft's Documentation*
- **Aircraft Type/Equip.:** Aircraft make and model, and Special Equipment, obtained from *Aircraft's Documentation*
- **True Air Speed:** Air speed used for calculating Wind Correction Angle, and filing Flight Plan with FAA Briefer, measured in Nautical Miles
- **Departure Point:** Name of Departure city and airport, usually obtained from Flight Instructor
- **Proposed Departure Time:** Planned Departure Time, listed in Zulu Time
- **Cruising Altitude:** Level portion of aircraft travel displayed by Altimeter, occurring between ascent and descent phases, and usually majority of journey, measured in Feet
- **Route of Flight:** Set of selected recognizable landmarks positively identified from the air, obtained from *Chart*, using Plotter
- **Destination:** Name of Destination city and airport, usually obtained from Flight Instructor
- **Total Estimated Time Enroute:** Expected duration of time for Entire Flight, measured in Minutes
- **Remarks:** Optional
- **Fuel on Board:** Aircraft's total fuel available for flight planning, without Reserve, measured in Hours and Minutes
- **Alternate Airport:** Designated as alternate if intended Destination inadvisable, usually obtained from *Chart*, using Plotter
- **Pilot's Name, Address, Telephone Number, etc.:** Your information
- **No. Aboard:** Number of individuals aboard aircraft, including yourself
- **Color of Aircraft:** May be multiple colors.
- **Destination Contact / Telephone:** Optional

FPM: Feet per Minute: Used to measure aircraft's climb/descent rate



Freezing Level: Height above Earth's surface, of lowest level of atmospheric conditions that can lead to formation of water ice on aircraft, measured in Feet, and obtained from WX-BRIEF

NOTE: This example shows cirrocumulus clouds, predominantly composed of ice crystals positioned at Freezing Level.

Front: Leading edge of air masses with different density (air temperature and/or humidity), marked by changes in Temperature, Moisture, Wind Direction & Velocity, Barometric Pressure, and Precipitation. Obtained from WX-BRIEF:

Cold Front

Warm Front

Occluded Front

Stationary Front

Shear Line

FSS Frequency: Flight Services Station: Obtained from *Airport/Facilities Directory*

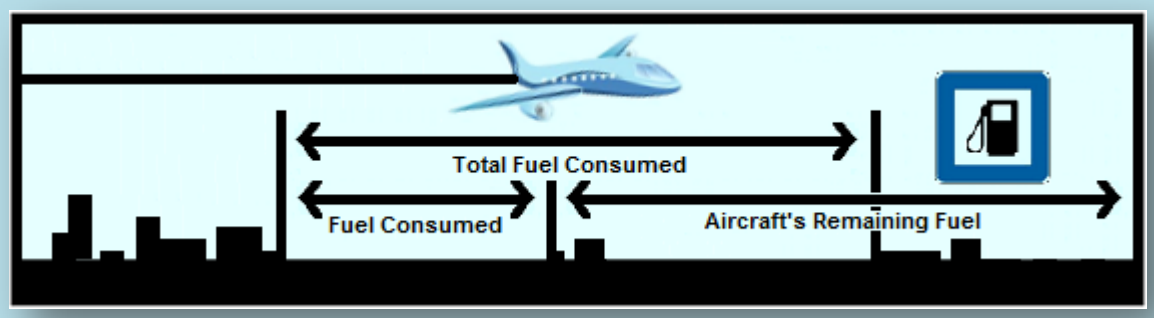
Used at mid-sized to larger Tower Airports, to allow Pilot to:

- Obtain Weather Briefing, fuel, ground transportation, etc.
- File/close Flight Plan with FAA Briefer.

EXAMPLE:

- **Departure Point:** 122.95
- **Destination:** 122.95

Fuel Consumed (Fuel):



Encompasses following fuel information:

- **Fuel:** Fuel Consumed for Individual Leg: Measured in Gallons
- **Rem.:** Aircraft's Remaining Fuel after Individual Leg: Please see Remaining Fuel.
- **Totals:** For Entire Flight: Please see Total Fuel Consumed.

Calculated using following information:

- **Climb Gallons:** Fuel required for aircraft to climb to Cruising Altitude after Take-Off, obtained from *Pilots Operator Handbook*
- **Estimated Time Enroute:** Expected duration of time, measured in Minutes
- **Gallons per Hour:** Obtained from *Pilots Operator Handbook*

EXAMPLE: First Leg: = 1.9 Gallons + 0.9 Climb Gallons

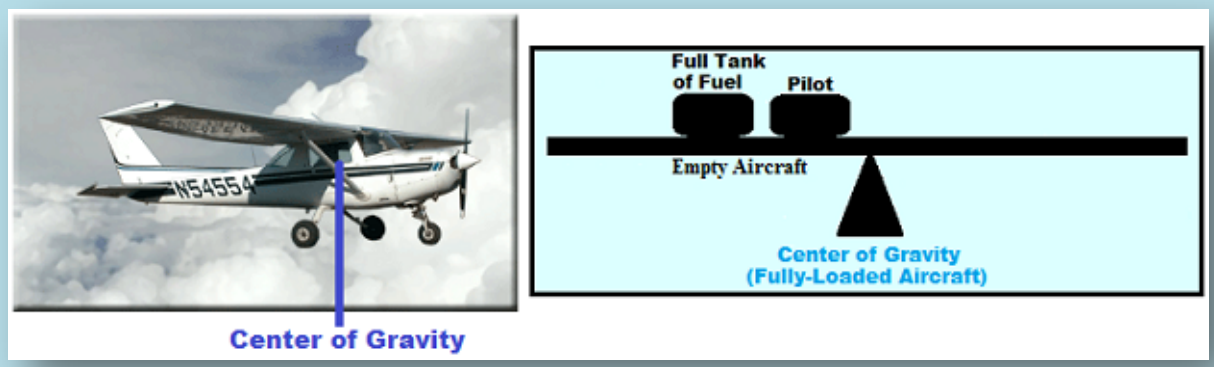
Fuel Gauge: Instrument located in aircraft's Instrument Panel that displays fuel status

NOTE: This example shows a Full Tank.

Fuel on Board: Aircraft's total fuel available for flight planning, without Reserve, measured in Hours and Minutes, and obtained from *Pilots Operator Handbook*

EXAMPLE: 3 Hours and 38 Minutes

Fully-Loaded Aircraft:



Aircraft after following have been added, obtained from *Pilots Operator Handbook*:

- Fuel
- Pilot
- Etc.

Where: Center of Gravity is heaviest part of aircraft.

EXAMPLE: Center of Gravity is 38.38 Inches (shift Aft from when aircraft was empty)

GA Tie-Downs: General Aviation: Location, at most airports, used for parking a private aircraft, by tying it down to multiple anchor points in the ground, to keep it in place

GPH: Gallons per Hour: Of Fuel Consumed, obtained from *Pilots Operator Handbook*

EXAMPLE: 8 Gallons per Hour

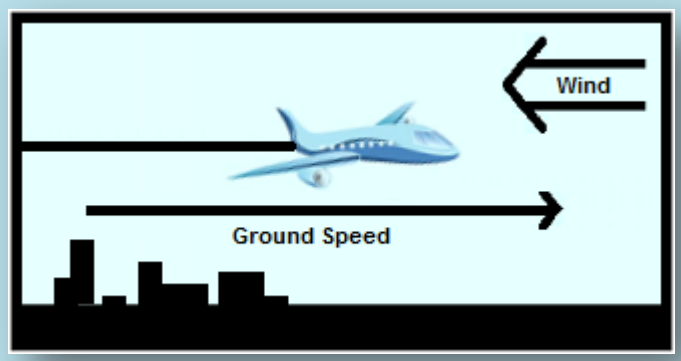
GPS: Global Positioning System: Instrument located in aircraft's Instrument Panel, as Space-based satellite navigation system, that provides location and time information in all weather conditions

Ground Control Frequency (Grnd): Used at larger airports, to control airport operations on the ground: Obtained from *Airport/Facilities Directory*

EXAMPLE:

- **Departure Point:** 121.7
- **Destination:** 121.7

Ground Speed (GS): Aircraft speed in relation to the ground, measured in Nautical Miles



Calculated using E6-B, with following information:

- **Calibrated Air Speed:** Indicated Air Speed adjusted for installation, position, and instrument errors. Measured in Nautical Miles, and obtained from *Pilots Operator Handbook*
- **Altimeter Setting:** Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg, and obtained from ATIS
- **True Course:** Intended direction of flight, in Degrees, obtained from *Chart*, using Plotter
- **Cruising Altitude:** Level portion of aircraft travel displayed by Altimeter, occurring between ascent and descent phases, and usually majority of journey, measured in Feet. Obtained from *Chart*, using Plotter
- **Wind Direction & Velocity:** Measured in Degrees and Nautical Miles, respectively

EXAMPLE: 107 KTS = 123.1 MPH

GUMPS: Landing Checklist:

Gas: Fuel ON

Under-Carriage: Landing Gear DOWN

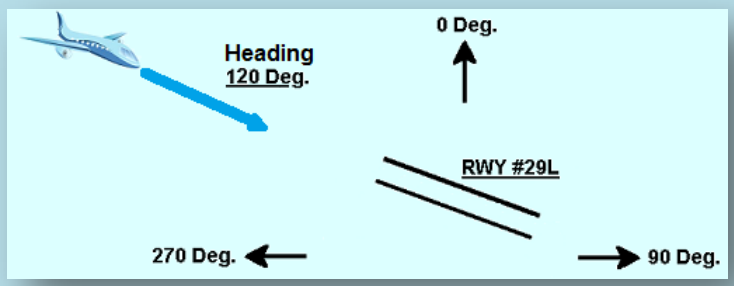
Mixture: Fuel FULL RICH

Propeller: PROPER PITCH

Shoulder-Harnesses: SECURE

NOTE: "Under-Carriage" applies ONLY to Retractable Landing Gear. "Propeller" applies ONLY to Constant-Speed Propeller.

Heading: Displayed by aircraft's Compass, in Degrees, during Approach into Destination airport



Assigned by "Approach," upon entry into Class C Airspace, to guide aircraft from current position
EXAMPLE: "Fly Heading 120."

High Pressure Center: Region of Earth's atmosphere where air (Barometric) pressure is high. Obtained from WX-BRIEF

Where:

- Skies are clearer.
- Winds are lighter.
- There is a reduced chance of precipitation.
- There is normally a greater range between high and low temperature.
- Air is drier.
- Air pollution may build up, if high pressure persists.

Icing: Obtained from WX-BRIEF

NOTE: This example shows Icing on a Wing.

Formation of water ice on aircraft, in following locations:

- On surfaces
- Within engine (as carburetor icing)

Many aircraft are not certified for flight into known conditions, where icing and freezing are certain, or likely to exist.

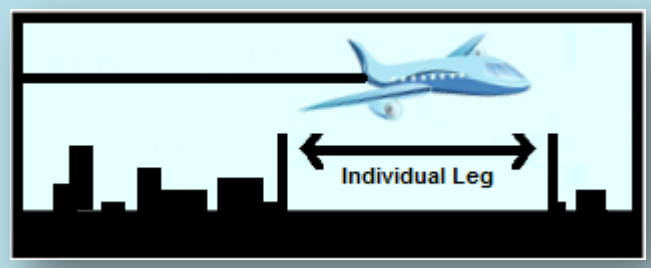
IFR: Instrument Flight Rules: Govern procedure for conducting flight in weather conditions

Indicated Air Speed: Air Speed displayed by aircraft's Air Speed Indicator, measured in Nautical Miles, and obtained from *Pilots Operator Handbook*

NOTE: This example shows Indicated Air Speed of 110 Nautical Miles.

Where: Air Speed Indicator is instrument located in aircraft's Instrument Panel.

Individual Leg: One of multiple legs, used to break down Entire Flight into smaller (manageable) parts



To determine and calculate:

- Compass Headings
- Cruising Altitude
- Use of Radio Navigation

EXAMPLE:

- **From:** San Jose, Mineta International Airport (Departure Point)
- **To:** San Martin, South Co. Airport (First Check Point)

inHg: Inches of Mercury at 0 degrees Centigrade Pressure Unit: Used to measure variations in existing atmospheric pressure and temperature

Low Pressure Center: Region of Earth's atmosphere where air (Barometric) pressure is low. Obtained from WX-BRIEF

NOTE: This example shows a Low Pressure Center with Thunderstorms.

Where: Weather is normally unsettled in its vicinity, with:

- Increased cloudiness, winds, and temperatures
- Upward motion in the atmosphere
- Increased chance of precipitation, and in some cases, snow

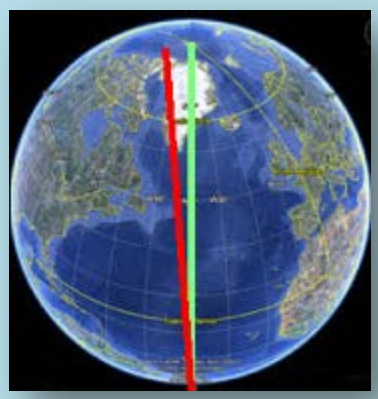
Magnetic Heading (MH): Heading relative to Magnetic North, measured in Degrees, and calculated using following information:

- **True Course:** Intended direction of flight, obtained from *Chart*, using Plotter
- **WCA:** Wind Correction Angle: Angular adjustment for wind
- **Magnetic Variation:** Obtained from *Chart*

EXAMPLE: Magnetic Heading = 126 Degrees:

- **From:** San Jose, Mineta International Airport
- **To:** San Martin, South Co. Airport

Magnetic Variation (Var.):



NOTE: This example shows Variation between Magnetic North (Red Line), and True North (Green Line).

Difference between following two measurements, obtained from *Chart*, and measured in Degrees**:**

- **Magnetic North:** Compass display of 360 Degrees
- **True North:** Actual location of North Pole

Where value will be:

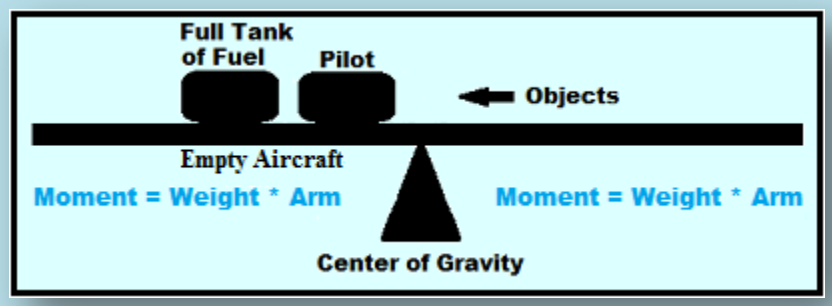
- **Negative:** If Magnetic North is West of True North
- **Positive:** If Magnetic North is East of True North

EXAMPLE: -15 Degrees

Maximum Gross Weight: Maximum allowable weight for Take-Off and operation of aircraft, measured in Pounds, and obtained from *Pilots Operator Handbook*

EXAMPLE: 2400 Pounds

Moment: Amount of force applied to object (within aircraft), while aircraft is in motion, measured in Pound-Inches:



Calculated by multiplying, together, the following (for the object):

- **Weight:** Measured in Pounds
- **Arm:** Distance from aircraft's Datum (Center of Gravity for Empty Aircraft), measured in Inches

NOTE: Total Moment is derived by adding up the individual Moments.

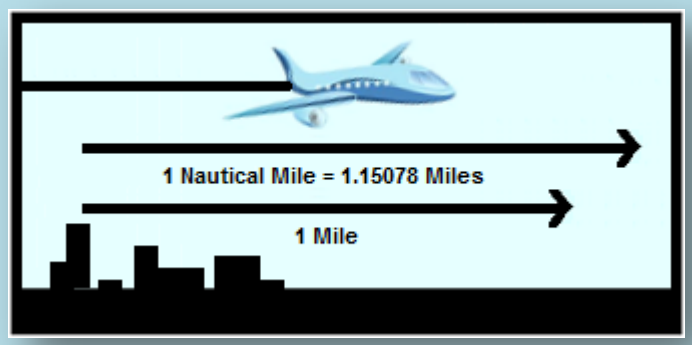
EXAMPLE:

- **Empty Aircraft:** 54604 Pound-Inches
- **Full Tank of Fuel:** 10872 Pound-Inches
- **Pilot:** 5920 Pound-Inches

MSL: Mean Seal Level: Average height of surface of sea for all stages of tide:

NOTE: This example shows sea level at Low and High Tide. Elevation is measured in Feet MSL.

Nautical Miles (KTS, NM):



Used to measure:

- **Speed:** 1 KTS = 1.15078 MPH
- **Distance:** 1 NM = 1.15078 Miles

"Navigation Log":

NAVIGATION LOG

Notes
Total Usable Fuel = 24.5 Gallons Climb Gallons = 0.9 Gallons Add 4 Gallons Reserve to Fuel (used) Total
Climb Time = 9 Minutes Descent Time = 12 Minutes Indicated Air Speed = 110 KTS

Check Points (Fixes)	VOR Ident / Freq.	Course (Route)	Altitude	Wind Dir. / Vel. / Temp.	CAS / TAS	TC / TH / MH	CH	Dist. Leg / Rem.	GS Est. / Act.	Time Off ETE / ATE	ETA / ATA	GPH Fuel / Rem.
San Jose Airport	SJC / 114.1	140 Degrees	5500 Feet	300 Degrees / 10 KTS / 19 Degrees C	110.8 KTS	140 Degrees / 141 Degrees / 126 Degrees	125 Degrees	24 NM / 94 NM	107 KTS	14+9 Minutes	1623	1.9+8.9 Gallons / 21.7 Gallons
San Martin airport	None / None	90 Degrees	5500 Feet	300 Degrees / 10 KTS / 19 Degrees C	110.8 KTS	90 Degrees / 91 Degrees / 76 Degrees	75 Degrees	33 NM / 39 NM	107 KTS	19.6 Minutes	1642.6	2.6 Gallons / 19.1 Gallons
Los Banos airport	PXN / 112.6	100 Degrees	5500 Feet	290 Degrees / 18 KTS / 33 Degrees C	110.8 KTS	100 Degrees / 101 Degrees / 86 Degrees	85 Degrees	37 NM / 22 NM	107 KTS	20.7 Minutes	1703.3	2.8 Gallons / 16.3 Gallons
Madera airport	CZQ / 112.9											
		133 Degrees	5500 Feet	290 Degrees / 18 KTS / 33 Degrees C	110.8 KTS	133 Degrees / 136 Degrees / 121 Degrees	120 Degrees	22 NM / 0	107 KTS	12+12 Minutes	1728	1.6 + 1.6 Gallons / 13.1 Gallons
Fresno Airport	CZQ / 112.9						Totals	116 NM		87.3 Minutes		11.4 Gallons

Section of Flight Plan that provides convenient way to organize following information, for pre-flight navigation planning, as well as keep track of progress during Flight:

- **Notes:** Obtain and list information required for flight, but not included in Flight Plan.
- **Check Points, Route, & Altitude:** Obtain and list information for determining Route of Flight.
- **Wind:** List information for determining weather conditions along Route of Flight.
- **Calibrated & True Air Speed:** Calculate True Air Speed, to be used for determining Compass Headings, and filing Flight Plan with FAA Briefer, at start of flight.
- **Distance:** Obtain, calculate, and list Distance.
- **Ground Speed:** Calculate and list air speed in relation to the ground.
- **Time:** Calculate and list information used to keep track of your time.
- **Fuel:** Obtain, calculate, and list information used to keep track of your fuel.

Non-Tower Airport:

Smaller airport without operating tower, where aircraft follow standard procedures, that:

- Often involve standard arrival and departure patterns
- May also include radio calls over common frequency

"Notes": Obtained from *Pilots Operator Handbook*

NOTES:

Total Usable Fuel = 24.5 Gallons Climb Gallons = 0.9 Gallons Add 4 Gallons Reserve to Fuel (used) Total Climb Time = 9 Minutes Descent Time = 12 Minutes Indicated Air Speed = 110 KTS

Section of "Navigation Log" that provides convenient way to obtain and list following aircraft-related information, required for flight, but not included in any other part of Flight Plan:

- **Total Usable Fuel:** Aircraft's total fuel available for flight planning, without Reserve
- **Climb Gallons:** Fuel required for aircraft to climb to Cruising Altitude after Take-Off
- **Reserve:** Fuel Reserve
- **Climb Time:** Time required for aircraft to climb to Cruising Altitude, after Take-Off, measured in Minutes
- **Descent Time:** Time required for aircraft to descend from Cruising Altitude, to Landing
- **Indicated Air Speed:** Air Speed displayed by aircraft's Air Speed Indicator, measured in Nautical Miles

"Notes and NOTAMs": Section of Flight Plan that provides convenient way to list hazards and information that could affect safety of Flight, for Departure Point and Destination, in Class C Airspace. Obtained from ATIS

Notes and NOTAMs

Thunderstorms in the Sierras.

Notice to Airmen (NOTAM): Notice filed with aviation authority to alert Pilots of potential hazard that could affect safety of Flight, along flight route, or at a location

And contains time-critical information, which is either:

- Of a temporary nature
- Not known far enough in advance to permit publication on "Charts," etc.

Obtained from ATIS

EXAMPLE: Thunderstorms in the Sierras.

Obstructions: Obstructions, from following, obtained from WX-BRIEF:

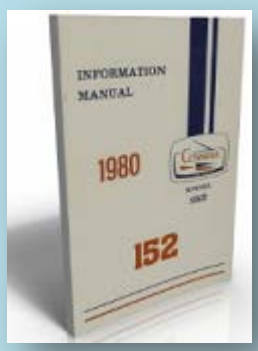
None		**Sand**	
Fog		**Dust**	
Mist		**Smoke**	
Haze		**Volcanic Ash**	
Spray			

Phone: Used to call WX-BRIEF (800 number), to:

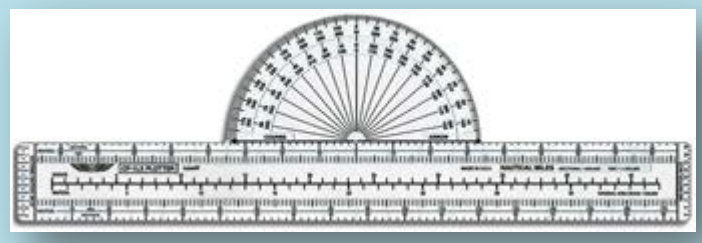
- Obtain Weather Briefing.
- File/close Flight Plan with FAA Briefer.

***Pilots Guide to Airports*:** Directory produced by OPTIMA for obtaining airport-related information, purchased at a store that specializes in flying supplies

***Pilots Operator Handbook*:** Operators manual for Aircraft Type, purchased at store specializing in flying supplies



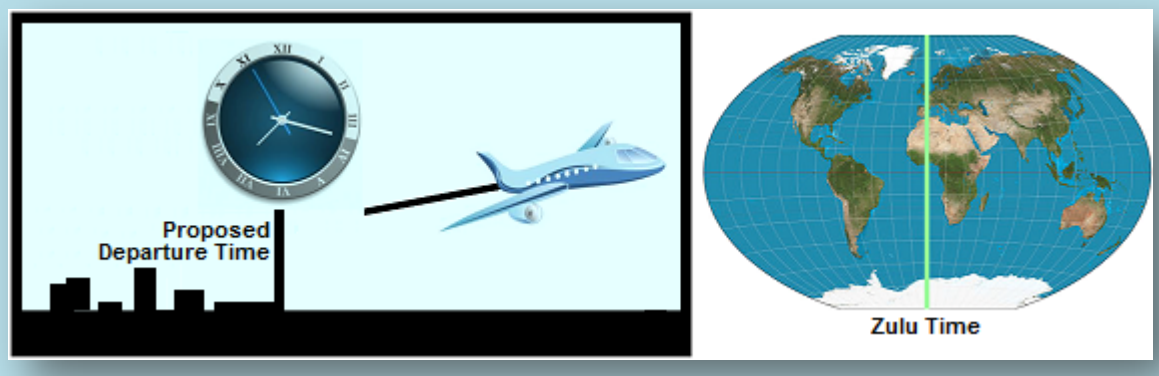
Plotter: Instrument used for plotting Route of Flight, purchased at store specializing in flying supplies



Precipitation: Water particles that fall from atmosphere and reach the ground, as follows, obtained from WX-BRIEF:

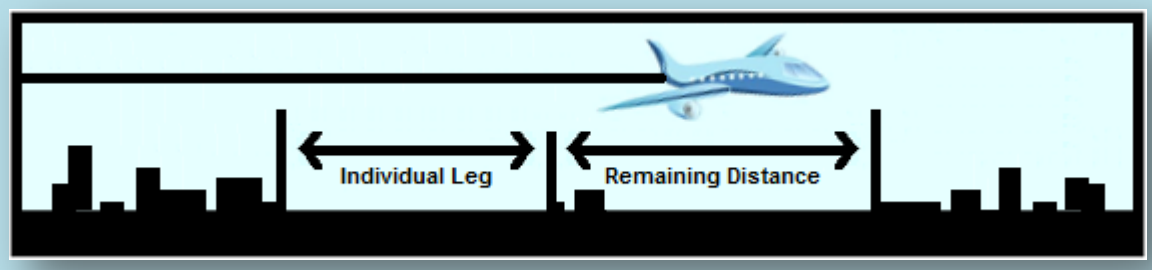
None		Small Hail	
Rain		Snow Grains	
Drizzle		Ice Pellets	
Ice Crystals		Snow	
Hail			

Proposed Departure Time: Planned departure time, listed in Zulu Time, and obtained from Flight Instructor



EXAMPLE: 1600 Zulu Time (4:00 PM) = 9:00 AM Pacific Daylight Time

Remaining Distance (Rem.): After Individual Leg, measured in Nautical Miles

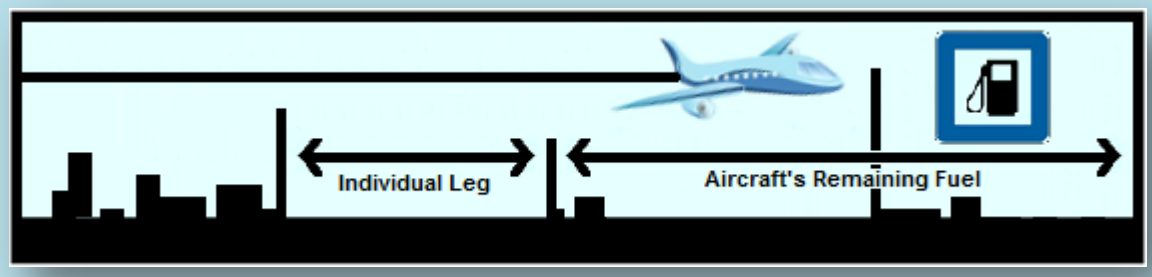


Calculated using following information, measured in Nautical Miles:

- **Distance:** For Individual Leg
- **Total Distance:** For Entire Flight

EXAMPLE: After First Leg: 94 NM = 108 Miles, 304.95 Yards

Remaining Fuel (Rem.): After Individual Leg, measured in Gallons



Calculated using following information, measured in Gallons:

- **Fuel Consumed:** For Individual Leg
- **Total Fuel Consumed:** For Entire Flight

EXAMPLE: After First Leg: 21.7 Gallons

Reserve Fuel: Number of Gallons, obtained from *Pilots Operator Handbook*

EXAMPLE: 4 Gallons

Route of Flight: Please see Check Points.

Runway Heading: Runway Number may be referred to as "Runway Heading," while being assigned by Clearance Delivery, prior to Take-Off.

EXAMPLE: "Fly Runway Heading 29."

NOTE: May also refer to Heading displayed by aircraft's Compass (in Degrees), while Taking-Off / Landing from/on assigned Runway (290 Degrees for Runway 29).

Runway Number (Runway): Runway assigned for Take-Off/Landing, assigned by Clearance Delivery / "Approach"

EXAMPLE:

- **Departure Point:** 29
- **Destination:** 29L

Runway Numbers (Runway): Lists current available Runway Numbers for Take-Off/Landing, obtained from ATIS.

EXAMPLE: 29, 30L, and 30R

Special Equipment: May include following instruments, etc., located in aircraft's Instrument Panel, obtained from *Aircraft's Documentation*:

Transponder with Mode C:

VOR: VHF Omni-directional Range:

GPS: Global Positioning System:

DME: Distance Measuring Equipment:

Squawk Code: 4-digit code that Pilot enters into Transponder, Assigned by Clearance Delivery / "Approach," to enable Air Traffic Controller to keep track of aircraft's identity

EXAMPLE:

- **Departure Point:** 4523
- **Destination:** 4211

Temperature (Temp.): Air Temperature: Measured in Degrees Centigrade, obtained from ATIS

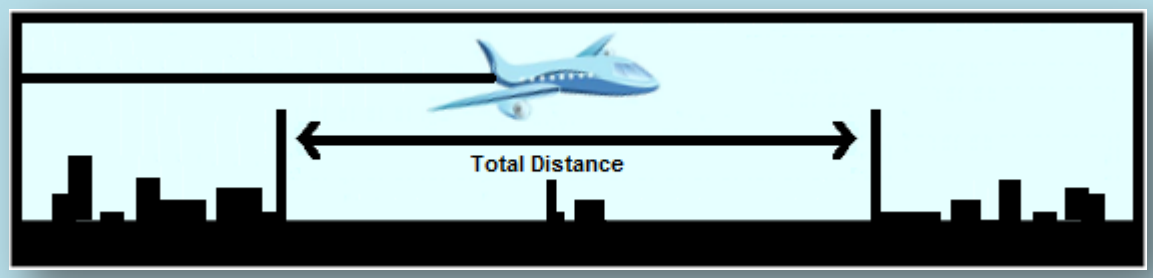
EXAMPLE:

- **Departure Point:** 19 Degrees Centigrade = 66.2 Degrees Fahrenheit
- **Destination:** 35 Degrees Centigrade = 95 Degrees Fahrenheit

Time Check: Time that Pilot obtained departure information from ATIS, in Class C Airspace, listed in Zulu Time

EXAMPLE: 1545 Zulu Time (3:45 PM) = 8:45 AM Pacific Daylight Time

Total Distance (Totals): For Entire Flight, measured in Nautical Miles

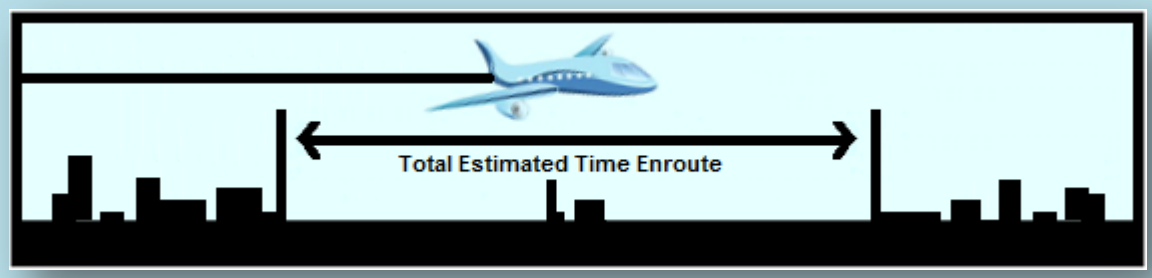


Calculated using following information:

- **Distance:** For Individual Leg, measured in Nautical Miles

EXAMPLE: Entire Flight: 118 NM = 135 Miles, 1393.9 Yards

Total Estimated Time Enroute (Totals): Expected duration of time for Entire Flight, measured in Minutes

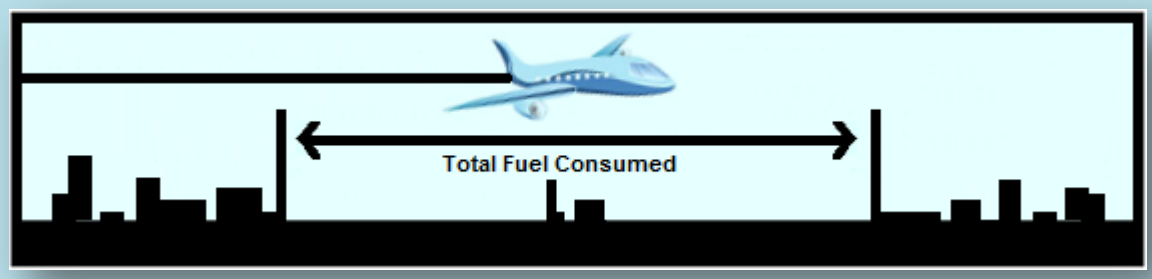


Calculated using following information:

- **Total Distance:** For Entire Flight, measured in Nautical Miles
- **Estimated Ground Speed:** Air speed in relation to the ground, measured in Nautical Miles
- **Climb Time:** Time required for aircraft to climb to Cruising Altitude after Take-Off, measured in Minutes, and obtained from *Pilots Operator Handbook*
- **Descent Time:** Time required for aircraft to descend from Cruising Altitude to Landing, measured in Minutes, and obtained from *Pilots Operator Handbook*

EXAMPLE: Entire Flight = 88 Minutes

Total Fuel Consumed (Totals): For Entire Flight, measured in Gallons



Calculated using following information:

- **Fuel Consumed:** For Individual Leg, measured in Gallons

EXAMPLE: Entire Flight: 11.4 Gallons

Total Usable Fuel: Aircraft's total fuel available for flight planning, without Reserve, measured in Gallons, and obtained from *Pilots Operator Handbook*

EXAMPLE: 24.5 Gallon

Tower Airport:

Mid-sized to large airport with Tower that provides service, where ground Controllers direct aircraft, on the ground, and through controlled airspace, with primary purpose of:

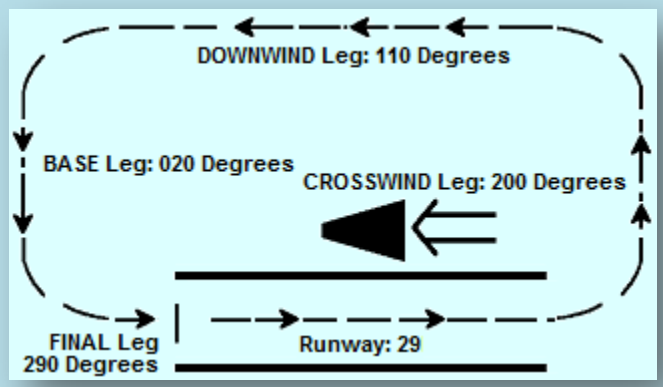
- Separating aircraft to prevent collisions
- Organizing and expediting flow of traffic
- Providing information and other support for Pilots, when able

Tower Frequency: Used at mid-sized to larger Tower Airports, to control airspace surrounding airport, obtained from *Airport/Facilities Directory*, or assigned by "Approach" prior to Landing

EXAMPLE:

- **Departure Point:** 124.0
- **Destination:** 118.2

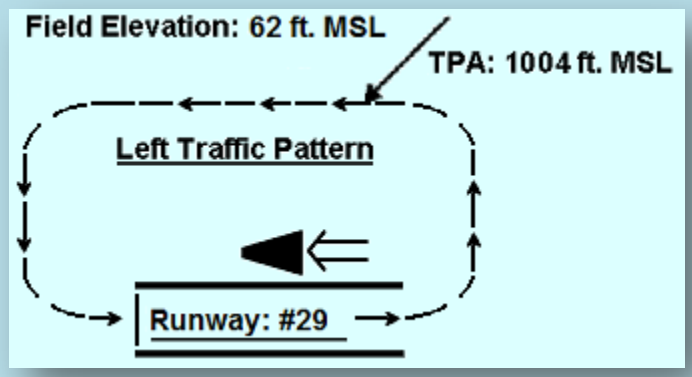
Traffic Pattern: Standard path (traffic flow) associated with Runway Number assigned for Take-Off/Landing, obtained from *Airport/Facilities Directory*



EXAMPLE:

- **Departure Point:** Runway Number = 29
- **Destination:** Runway Number = 29L

Traffic Pattern Altitude (TPA): Altitude for Traffic Pattern, measured in Feet MSL, and obtained from *Airport/Facilities Directory*



EXAMPLE:

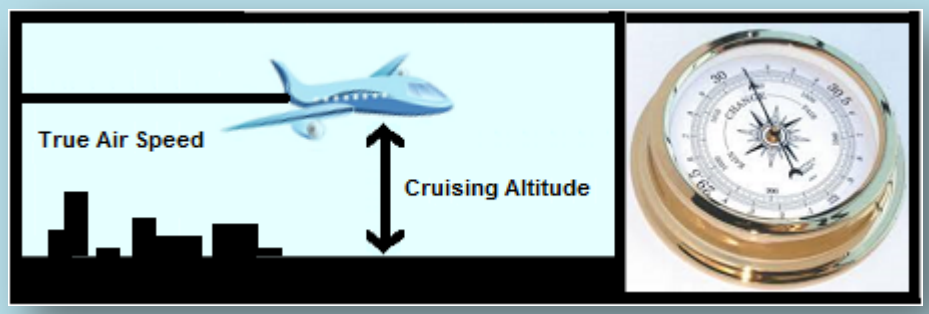
- **Departure Point:** 1004 Feet MSL
- **Destination:** 1300 Feet MSL

Transponder with Mode C: Instrument located in aircraft's Instrument Panel that enhances aircraft's identity on Air Traffic Controller's radar screen.

NOTE: This example shows a Transponder with Mode C, displaying assigned Squawk Code of "4523."

Mode C provides additional required capabilities for operating in Class C Airspace that enable Air Traffic Controller to keep track of aircraft's identity.

True Air Speed (TAS): Air speed, measured in Nautical Miles



Used for:

- Calculating Wind Correction Angle, to determine Compass Headings
- Filing Flight Plan with FAA Briefer

Calculated using E6-B, with following information:

- **Calibrated Air Speed:** Indicated Air Speed adjusted for installation, position, and instrument errors. Measured in Nautical Miles, and obtained from *Pilots Operator Handbook*
- **Cruising Altitude:** Level portion of aircraft travel displayed by Altimeter, occurring between ascent and descent phases, and usually majority of journey, measured in Feet. Obtained from *Chart*, using Plotter
- **Altimeter Setting:** Barometric Pressure setting used to adjust Altimeter for variations in existing atmospheric pressure and temperature, measured in inHg., and obtained from ATIS

EXAMPLE: 110.8 KTS = 127.5 MPH

True Course (Course, TC): Intended direction of flight, in Degrees, obtained from *Chart*, using Plotter

EXAMPLE: 140 Degrees:

- **From:** San Jose, Mineta International Airport
- **To:** San Martin, South Co. Airport

True Heading (TH): Aircraft's actual heading, in Degrees, used for calculating heading displayed by aircraft's Compass

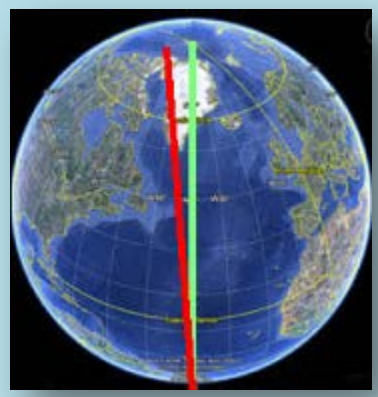
Calculated using E6-B, with following information:

- **True Course:** Intended direction of flight, obtained from *Chart*, using Plotter
- **Wind Correction Angle:** Angular adjustment for wind

EXAMPLE: 141 Degrees:

- **From:** San Jose, Mineta International Airport
- **To:** San Martin, South Co. Airport

True North: Actual location of North Pole, measured in Degrees, and obtained from *Chart*



NOTE: This example shows True North (Green Line), as actual location of North Pole.

Turbulence:

NOTE: This example shows Thunderstorms.

Turbulent movement of air masses caused when bodies of air (moving at widely different speeds) meet, from following basic types:

- **Thermal Turbulence:** Uneven heating of Earth's surface by Sun, where darker patches absorb more radiation than lighter ones, causing air flows, such as Thunderstorms
- **Mechanical Turbulence:** Other turbulence, such as turbulent rotor, wake vortices of Take-Off/Landing aircraft, or eddies created by jet stream

Type of Flight (Type): Comprises following, obtained from Flight Instructor:

VFR: Visual Flight Rules:

IFR: Instrument Flight Rules:

DVFR: Defense Visual Flight Rules:

VFR: Visual Flight Rules: Flight rules that specify minimum cloud clearance and visibility requirements for flight:

Visibility: Greatest distance an observer can see and identify objects through at least half of horizon, measured in Nautical Miles, and obtained from ATIS:

Greater	
Less	

EXAMPLE:

- **Departure Point:** 10 Nautical Miles = 11 Miles, 893.72 Yards
- **Destination:** Greater than 10 Nautical Miles

VOR: VHF Omni-directional Range: Instrument located in aircraft's Instrument Panel, which is most commonly used radio navigational system in U.S.

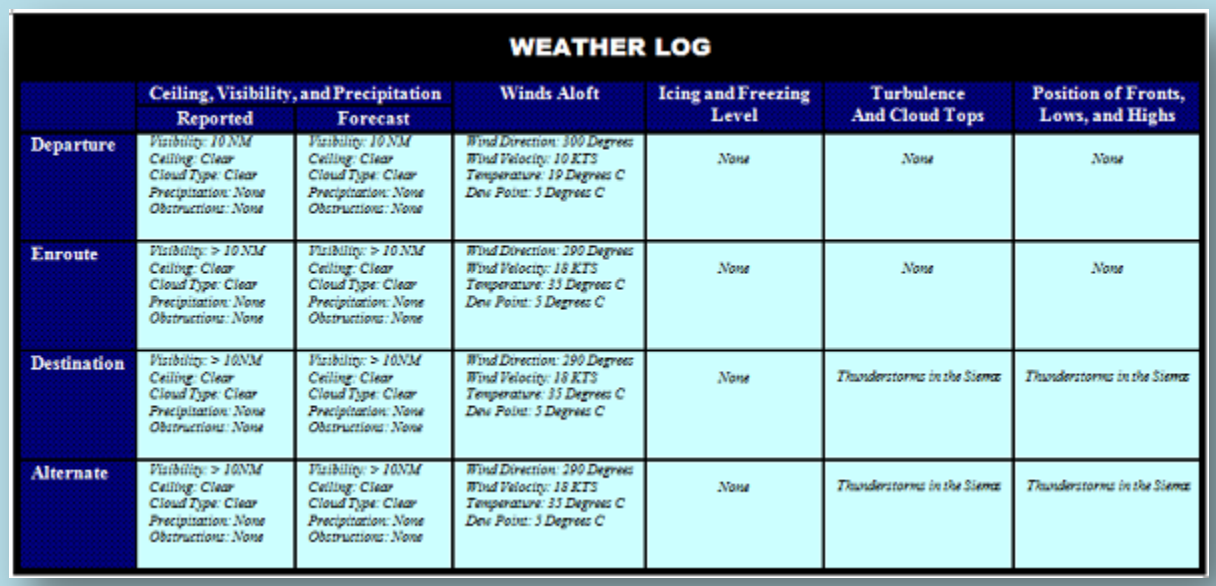
Comprises following information, obtained from *Chart*:

- **Identification:** Unique 3-letter alpha-numeric identification used to represent VOR site
- **Frequency:** Used to access VOR site, using VOR

EXAMPLE:

- **Identification:** SJC
- **Frequency:** 114.1

“Weather Log”:



WEATHER LOG

	Ceiling, Visibility, and Precipitation		Winds Aloft	Icing and Freezing Level	Turbulence And Cloud Tops	Position of Fronts, Lows, and Highs
	Reported	Forecast				
Departure	Visibility: 10 NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None	Visibility: 10 NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None	Wind Direction: 300 Degrees Wind Velocity: 10 KTS Temperature: 19 Degrees C Dew Point: 3 Degrees C	None	None	None
Enroute	Visibility: > 10 NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None	Visibility: > 10 NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None	Wind Direction: 290 Degrees Wind Velocity: 18 KTS Temperature: 33 Degrees C Dew Point: 5 Degrees C	None	None	None
Destination	Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None	Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None	Wind Direction: 290 Degrees Wind Velocity: 18 KTS Temperature: 33 Degrees C Dew Point: 5 Degrees C	None	Thunderstorms in the Sierras	Thunderstorms in the Sierras
Alternate	Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None	Visibility: > 10NM Ceiling: Clear Cloud Type: Clear Precipitation: None Obstructions: None	Wind Direction: 290 Degrees Wind Velocity: 18 KTS Temperature: 33 Degrees C Dew Point: 5 Degrees C	None	Thunderstorms in the Sierras	Thunderstorms in the Sierras

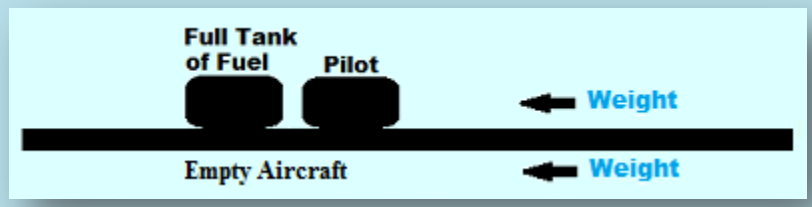
Section of the Flight Plan that provides convenient way to organize following information for pre-flight weather planning, obtained from ATIS and WX-BRIEF:

- **Ceiling, Visibility, & Precipitation:** Atmospheric information for Visibility, Cloud Layer, Cloud Type, Precipitation, and Obstructions, measured in Nautical Miles, Feet, etc.
- **Winds Aloft:** Information for Wind Direction and Velocity, Air Temperature, and Dew Point, measured in Degrees, Nautical Miles, and Degrees Centigrade, respectively
- **Icing and Freezing Level:** Hazard information for conditions that can lead to water ice on aircraft
- **Turbulence and Cloud Tops:** Hazard information for Thunderstorms, Hailstorms, etc., along with cloud height
- **Position of Fronts, Lows, and Highs:** Position information for Warm/Cold Fronts, etc., and High/Low Pressure Centers

For following locations:

- **Departure:** Departure Point
- **Enroute:** Route of Flight
- **Destination**
- **Alternate:** Alternate Airport

Weight: Of each of heaviest objects aboard aircraft, measured in Pounds, and obtained from *Pilots Operator Handbook*



NOTE: Total Weight is derived by adding up the individual Weights.

EXAMPLE:

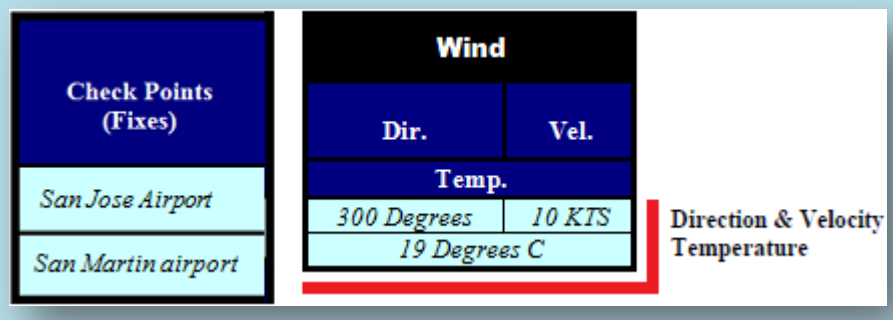
- **Empty Aircraft:** 1460 Pounds
- **Full Tank of Fuel:** 240 Pounds
- **Pilot:** 160 Pounds

Weights and Balances:

Used to allow proper Take-Off and operation of Fully-Loaded Aircraft, by ensuring that:

- It is not overweight.
- Heaviest objects (including passengers) are located nearest aircraft's Datum, forming safe Center of Gravity.

Wind (Direction, Velocity, & Temperature):



Current following wind conditions, obtained from ATIS:

- **Wind Direction:** Measured in Degrees
- **Wind Velocity:** Measured in Nautical Miles
- **Temperature:** Air Temperature, measured in Degrees Centigrade

Wind Correction Angle (WCA): Angular adjustment for Wind

Which is angular difference between the following two measurements, as corrected for wind:

- **True Course:** Intended direction of flight, as measured on *Chart*
- **True Heading:** Actual heading of aircraft, which includes correction for wind

Where value will be:

- **Negative:** If correction is to Left
- **Positive:** If correction is to Right

Calculated using E6-B, with following information:

- **True Air Speed:** Air speed used for calculating Wind Correction Angle, and filing Flight Plan with FAA Briefer, measured in Nautical Miles
- **Wind Direction & Velocity:** Measured in Degrees and Nautical Miles, respectively

EXAMPLE: +1 Degree:

- **From:** San Jose, Mineta International Airport
- **To:** San Martin, South Co. Airport

Winds Aloft:

Forecast of specific atmospheric conditions in terms of wind and temperature at certain altitudes, which provides the following wind-related information, obtained from WX-BRIEF:

- **Wind Direction:** Measured in Degrees
- **Wind Velocity:** Wind Speed, measured in Nautical Miles
- **Temperature:** Air Temperature: Measured in Degrees Centigrade
- **Dew Point:** Air Temperature where water vapor will condense into liquid water, measured in Degrees Centigrade

EXAMPLE:

- **Wind Direction:** 300 Degrees
- **Wind Velocity:** 10 Nautical Miles = 11.5 Miles per Hour
- **Temperature:** 19 Degrees Centigrade = 66.2 Degrees Fahrenheit
- **Dew Point:** 5 Degrees Centigrade = 41 Degrees Fahrenheit

WX-BRIEF:

United States Flight Services Station: National toll-free number (800) that allows Pilot to:

- Obtain Weather Briefing.
- File/close Flight Plan with FAA Briefer, who records Flight Plan.

Zulu Time: Universal Time Coordinated (UTC):

Term used in aviation, which places the entire world on one time standard (running through London), for determining:

- Departure and arrival times
- Time Checks
- Etc.

Zulu Time uses a 24-Hour Clock, which adds 12 to the PM hour number, as in the example.

This information may be obtained from the Internet, at ***www.time.gov/***.

EXAMPLE: 8:25 PM = 20:25 (24-Hour Clock)