

DEPARTURES AND ARRIVALS

FULFILLS IR.V.B & CFII PTS V.B

Objective	
The student shall understand the purpose and types of DPs and how to depart a non-controlled airport. The student shall become familiar with STARs and their prevalence in the terminal area.	
Instructor Actions	Student Actions
- Explain the types of DPs and how to find them - Walk through reading a DP and how/when to fly them - Discuss departures from non-controlled airport - Discuss risks of 0/0 departures - Explain the purpose of STARs and how to read them	- Take notes and participate in instructor's discussion - Practice reading a DP while chair flying - Begin considering DPs and STARs during cross country planning
Case Studies	Equipment
	- Computer - FAR/AIM - Instrument Flying Handbook - Instrument Procedures Handbook - White Board
Completion Standards	
The student shall explain the symbols and phraseology appropriate to DPs and STARs.	

ELEMENTS

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RESOURCES

FAA-S-ACS-8C IR ACS - Area V Task B

FAA-S-8089-9B CFII PTS - Area V Task B

FAA-H-8083-15B Instrument Flying Handbook – Chapter 10: IFR Flight

FAA-H-8083-16B Instrument Procedures Handbook - Chapter 1: Departure Procedures

FAA-H-8083-16B Instrument Procedures Handbook - Chapter 3: Arrivals

AIM 5-2 Departure Procedures

AIM 5-4 Arrival Procedure

1. DEPARTURE PROCEDURES (DP)

Refer to AIM 5-2-9

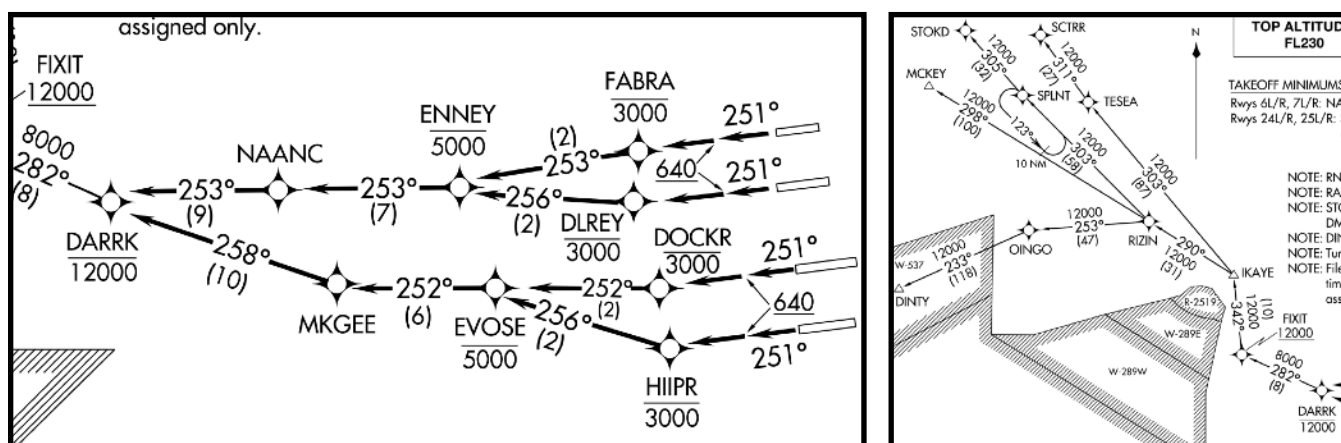
ODPs guarantee obstacle clearance from the airport to the enroute structure. There are two types:

ODPs Presented textually or graphically, usually implemented for obstacle clearance (see KWJF Palmdale One DP). Are designed to accommodate as many aircraft as possible (i.e. VORs). If graphical, they include (OBSTACLE) in the title to differentiate them from SIDs.

SIDs Presented graphically, usually implemented to improve traffic flow and alleviate ATC workload

ODPs may be flown without ATC clearance unless a particular DP or vector has been specified by ATC.

SIDs cannot be flown without ATC clearance. SIDs are named after the waypoint at the end of the departure route and the waypoint at the end of the transition segment. For example, runways from KLAX converge upon DARRK in the DARRK THREE departure, but depending on the routing received, may transition to MCKEY, STOKD, etc. The particular SID name would then be DARRK3.MCKEY or DARRK3.STOKD. The heavy black lines indicate the initial departure route, and the lighter line emanating from DARRK is the transition route. These DPs may be “pilot nav”, where the pilot is responsible for navigating the DP, or “vectored”, where ATC provides vectors to the DP course after the pilot climbs to a suitable altitude. The SID pictured below is a pilot nav DP.

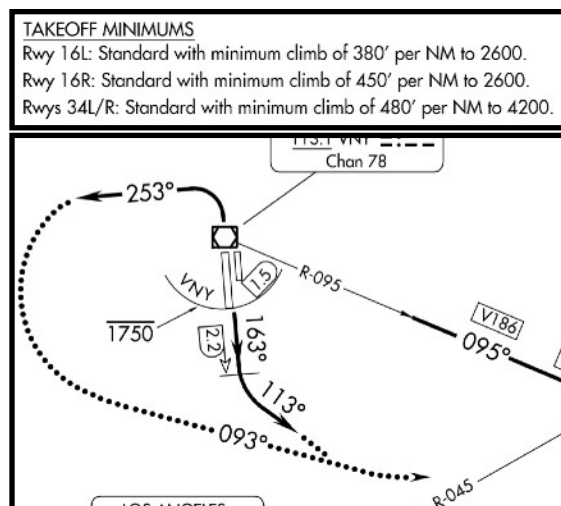


Looking at the ADAMM THREE SID from KVNy, there are no transitions listed. Rather, the instructions say to expect RADAR VECTORS. This would be filed as the ADAMM3.ADAMM DP.

Many DPs will indicate a minimum climb gradient in terms of ft/NM. This must be converted to FPM via the aircrafts expected groundspeed. If not specified, the standard climb gradient is 200 ft/NM (TERPS 2-3), assuming the airplane crosses the departure end of runway at 35 ft and is at 400ft AGL before turning (AIM 5-2-9e).

It is also common for DPs to depict lost communication procedures. The lost comm course is depicted with a dotted line.

LOST COMMUNICATIONS: If not in contact with departure control within 3 NM, turn left heading 093° to intercept VNY R-095 to ADAMM INT maintain 5500' or as assigned.



2. DEPARTING A PILOT CONTROLLED AIRPORT

Pilots can choose to depart VFR and pick up their IFR clearance in the air, or call ATC through a remote communications outlet (RCO) or via phone. Either way, ATC will assign you a clearance void time.

2.1. Clearance Void Time

A pilot may receive a clearance, when operating from an airport without a control tower, which contains a provision for the clearance to be void if not airborne by a specific time. A pilot who does not depart prior to the clearance void time must advise ATC as soon as possible of their intentions. ATC will normally advise the pilot of the time allotted to notify ATC that the aircraft did not depart prior to the clearance void time. This time cannot exceed 30 minutes. Failure of an aircraft to contact ATC within 30 minutes after the clearance void time will result in the aircraft being considered overdue and search and rescue procedures initiated.

NOTE-

1. Other IFR traffic for the airport where the clearance is issued is suspended until the aircraft has contacted ATC or until 30 minutes after the clearance void time or 30 minutes after the clearance release time if no clearance void time is issued.
2. **If the clearance void time expires, it does not cancel the departure clearance or IFR flight plan.** It withdraws the pilot's authority to depart IFR until a new departure release/release time has been issued by ATC and is acknowledged by the pilot.
3. Pilots who depart at or after their clearance void time are not afforded IFR separation and may be in violation of 14 CFR Section 91.173 which requires that pilots receive an appropriate ATC clearance before operating IFR in controlled airspace.
4. Pilots who choose to depart VFR after their clearance void time has expired should not depart using the previously assigned IFR transponder code.

3. DEPARTURE MINIMUMS

Takeoff minimums do not exist for Part 91 operations. A pilot can choose to depart with 0/0 conditions. However, it may not be wise to depart an airport with weather below the minimums for any approach at that airport! **Discuss risks**

Part 121 and 135 operators are subject to certain takeoff minimums. When an airport has non-standard takeoff minimums for commercial operations or a published DP, a shaded T (▼) appears on the approach plate for any approach at that airport.

These takeoff minimums can be found in the TPP in the same section as the airport's ODPs.

4. STANDARD TERMINAL ARRIVAL (STAR)

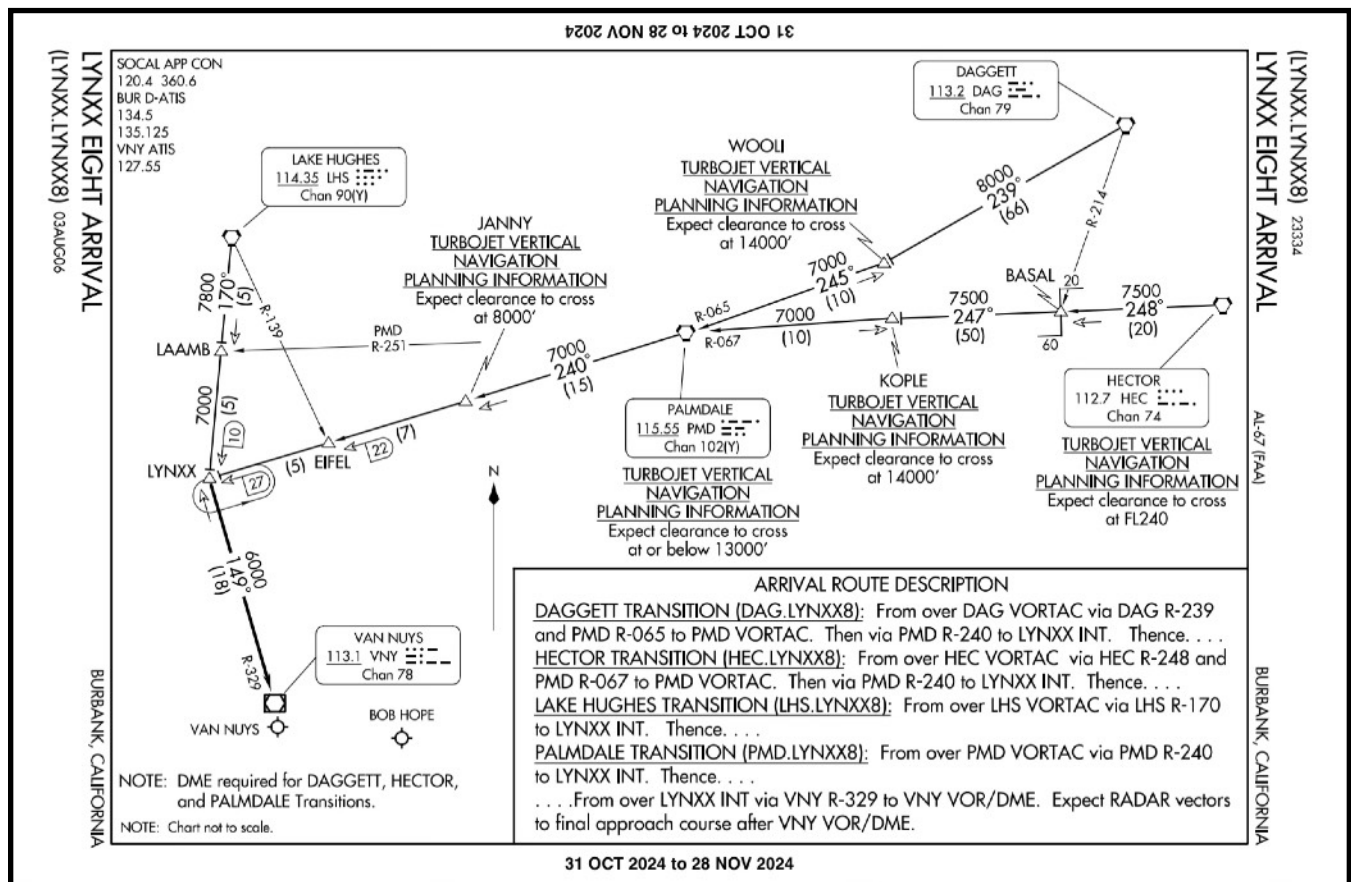
Refer to AIM 5-4

STARs are extremely similar to a DP. They serve to **alleviate ATC workload** and **improve traffic flow**. All STARs are graphical with an accompanying textual description.

The naming of a STAR is reversed compared to a DP. Looking at the WEESL ONE arrival at KBUR and KVNy, all transition routes converge at WEESL. However, the transition routes emanate from WRING, Shafter (EHF) VOR, and NINTY. The applicable STAR may be named WRING.WEESL1, EHF.WEESL1, or NINTY.WEESL1.

Heavy lines indicate the congregated arrival route, medium lines indicate the transition routes, and light lines indicate any intersection references, if applicable.

A controller may say "Cleared WEESL ONE arrival." This only allows you to follow the STAR laterally. It is not a clearance to descend, even if the STAR indicates a lower altitude on the leg you are following. You are cleared to follow the STAR and descend if you hear "descend via the WEESL ONE arrival."



5. FREQUENTLY ASKED QUESTIONS

What is the difference between a graphical ODP and a SID?

An ODP is designed to afford the maximum number of aircraft at as many airports as needed the opportunity to transition from departure to the en-route environment. SIDs, however, are really an ATC procedure designed to increase efficiency and reduce the number of communications required following a departure.

When are ODPs published?

If an aircraft may turn in any direction from a runway within the limits of the assessment area (see paragraph 5-2-9e3) and remain clear of obstacles, that runway passes what is called a diverse departure assessment and no ODP will be published. A SID may be published if needed for air traffic control purposes – AIM 5-2-9d

How close must you remain to the airport during a VCOA?

A Visual Climb Over Airport (VCOA) procedure is a departure option for an IFR aircraft, operating in visual meteorological conditions equal to or greater than the specified visibility and ceiling, to visually conduct climbing turns over the airport to the published “at or above” altitude. At this point, the pilot may proceed in instrument meteorological conditions to the first en route fix using a diverse departure, or to proceed via a published routing to a fix from where the aircraft may join the IFR en route structure, while maintaining a climb gradient of at least 200 feet per nautical mile. VCOA procedures are developed to avoid obstacles **greater than 3 statute miles from the departure end of the runway as an alternative to complying with climb gradients greater than 200 feet per nautical mile.** Pilots are responsible to advise ATC as early as possible of the intent to fly the VCOA option prior to departure. Pilots are expected to remain within the distance prescribed in the published visibility minimums during the climb over the airport until reaching the “at or above” altitude for the VCOA procedure. If no additional routing is published, then the pilot may proceed in accordance with their IFR clearance. If additional routing is published after the “at-or-above” altitude, the pilot must comply with the route to a fix that may include a climb-in-holding pattern to reach the MEA/MIA for the en route portion of their IFR flight. These textual procedures are published in the Take-Off Minimums and (Obstacle) Departure Procedures section of the Terminal Procedures Publications and/or appear as an option on a Graphic ODP. – AIM 5-2-9e7