

## Airline Callsigns

<b>AAL</b> American	<b>COA</b> Continental	<b>ROA</b> RenoAir
<b>ACA</b> Air Canada	<b>DAL</b> Delta	<b>SDU</b> Sundance
<b>AFR</b> Air France	<b>DLH</b> Lufthansa	<b>SKW</b> Skywest
<b>ASA</b> Alaska	<b>EGF</b> Eagle Flight	<b>SWA</b> Southwest
<b>ASH</b> Air Shuttle	<b>GAA</b> Biz-ex	<b>SWR</b> Swiss Air
<b>AWE</b> Cactus	<b>KLM</b> KLM	<b>TWA</b> TWA
<b>AWI</b> Air Wisconsin	<b>LOF</b> Waterski	<b>UAL</b> United
<b>BAW</b> Speedbird	<b>MEP</b> Med-ex	<b>USA</b> USAir
<b>CDN</b> Canadian	<b>NWA</b> Northwest	<b>VIR</b> Virgin Air

## Aircraft Performance Characteristics

Flight Strip Designator	Aircraft Type	Climb/Descent Speed (kts)	Cruise Speed (Mach)
<b>B727</b>	Boeing 727	320	.82
<b>B73S</b>	Boeing 737	300	.75
<b>B74F</b>	Boeing 747	330	.85
<b>B757/67</b>	Boeing 757 and 767	320	.80
<b>B777</b>	Boeing 777	330	.83
<b>C501/550</b>	Citation	260	.65
<b>C650</b>	Citation	290	.78
<b>CL60</b>	Challenger	280	.76
<b>DA50</b>	Falcon	290	.78
<b>DC10</b>	DC-10	330	.84
<b>EA31/32</b>	Airbus 310/320	320	.79
<b>G2/G3/G4</b>	Gulfstream	290	.80
<b>HS25</b>	Hawker	260	.78
<b>LR25/35</b>	Lear Jet	280	.76
<b>LR55/60</b>	Lear Jet	290	.80
<b>MD80/88</b>	MD-80	320	.78
<b>MD11</b>	MD-11	330	.84

This speed information is *approximate*, and may vary depending on a number of factors. The best way to determine an aircraft's speed is to *ask the pilot* with the **SI** (Say Indicated) command, or **SM** (Say Mach Number).

## Aircraft Commands

## Computer Entries

Command		Example	Computer Entries
<b>CM</b>	Climb and maintain	<b>CMFL290</b>	<b>Accept Handoff</b> <F1>AID
<b>DM</b>	Descend and maintain	<b>DM14000</b>	<b>Initiate Handoff</b> <F1>sector# AID
<b>FH</b>	Fly heading	<b>FH090</b>	<b>Move Datablock</b> <F1>direction AID
<b>TLH</b>	Turn left heading	<b>TLH220</b>	<b>Remove Datablock</b> <F1>AID
<b>TRH</b>	Turn right heading	<b>TRH060</b>	<b>After Handoff</b>
<b>TxL</b>	Turn x degrees left	<b>T10L</b>	<b>Display Route</b> <F3>AID
<b>TxR</b>	Turn x degrees right	<b>T40R</b>	<b>Measure Distance</b> <F4>mouse mouse
<b>FPH</b>	Fly present heading	<b>FPH</b>	...or <F4>fix mouse
<b>..</b>	Cleared direct	<b>..CIVET</b>	<b>Temp Altitude</b> <F8>alt AID
<b>MxK</b>	Maintain (x) knots	<b>M310K</b>	<b>Remove Temp</b> <F8>AID
	...or less	<b>M280K-</b>	<b>New Hard Altitude</b> <F5>alt AID
	...or greater	<b>M320K+</b>	<b>Five-Mile Ring</b> <F7>J AID
<b>MMx</b>	Maintain mach (x)	<b>MM78</b>	<b>Unplug from sector</b> ALT-P
<b>+</b>	Maintain maximum speed	<b>+</b>	
<b>-</b>	Reduce speed as much as practical	<b>-</b>	AID means the full callsign, computer ID# in the datablock, or left mouse click over the target.
<b>\</b>	Resume normal speed	<b>\</b>	
<b>*</b>	Contact Center on...*	<b>134.65</b>	
<b>E</b>	Expedite	<b>E</b>	direction is a number on the keypad specifying the direction.
<b>A</b>	Approved	<b>A</b>	
<b>U</b>	Unable	<b>U</b>	
<b>DV8L</b>	Deviations left approved	<b>DV8L</b>	mouse is a left mouse button click.
<b>DV8R</b>	Deviations right approved	<b>DV8R</b>	
<b>RI</b>	Ride information	<b>RI</b>	fix is a VORTAC or intersection.
<b>SR</b>	Say ride conditions	<b>SR</b>	
<b>SA</b>	Say altitude	<b>SA</b>	alt is the altitude in hundreds of feet, such as 140 for 14,000 or 290 for flight level 290.
<b>SH</b>	Say heading	<b>SH</b>	
<b>SI</b>	Say indicated speed	<b>SI</b>	
<b>SM</b>	Say mach number	<b>SM</b>	

Key the microphone with <ENTER>, then callsign, comma, command, then <ENTER> to unkey.

## Command Shortcuts

NOTE: The following command shortcuts do **not** require a comma after the aircraft callsign has been typed:

Shortcut	Command	Example	Explanation
<left arrow>	<b>Turn Left</b>	<b>AWE235 &lt;-040</b>	Use <i>two</i> digits in the heading value to specify a left turn by that number of degrees, or <i>three</i> digits (as in this example) to specify a turn to that <i>heading</i> .
<right>	<b>Turn right</b>	<b>NWA650 -&gt;20</b>	Same as above.
<up>	<b>Climb &amp; maintain</b>	<b>DAL517 ^250</b>	Altitudes can be expressed in <i>hundreds</i> of feet, and <i>FL</i> can be omitted when referring to flight levels.
<down>	<b>Descend &amp; maintain</b>	<b>USA311 V150</b>	Same as previous.
*	<b>Contact</b>	<b>UAL56*2572</b>	Decimal point and the 1 can be omitted in the frequency, so 125.72 can be typed as 2572.

**Callsigns** Can be shortened to just the last several digits, e.g. 350 for AAL350.

**Fix names** Can be shortened to the first several characters, e.g. MA for MAZIE.

## L.A. Sector 19

*(refer to the sector 19 map)*

### VORTACS

<b>PMD</b> Palmdale	<b>HEC</b> Hector	<b>GFS</b> Goffs
<b>PDZ</b> Paradise	<b>BLH</b> Blythe	<b>HDF</b> Homeland
<b>DAG</b> Dagget	<b>TNP</b> Twenty-nine Palms	

### Airports

<b>LAX</b> Los Angeles	<b>LGB</b> Long Beach	<b>LAS</b> Las Vegas
<b>ONT</b> Ontari	<b>SMO</b> Santa Monica	<b>IFP</b> Bullhead City
<b>SNA</b> John Wayne	<b>HHR</b> Hawthorne	<b>SAN</b> San Diego

### Sectors

Sector 19 owns from the ground to FL230, except the areas over sectors 01 and 44, where 19 owns from 14,000 to FL230.

Sectors **17**, **18**, **06** and **10** are L.A. Center sectors that also own from the ground to FL230. Sector **12** is L.A. Center but only from 14,000 to FL230.

Sector **38** lies above 17 and 18, and owns from FL240 and up.

Sectors **01** and **77** are **Socal Approach**, and own at and below 13,000. Sector **44** is **Palm Springs Approach**, also owning at and below 13,000.

## PROCEDURES

### Arrivals

**LAX** jet arrivals will enter the sector from over HEC, ABREE, or TNP, all descending to FL240, routed direct to CIVET then direct LAX. They must be descended to be at 14,000 by the western sector boundary, just west of CIVET. You can either start their descents to 14,000 around V386, or have them cross CIVET at 14,000 with the **XCIVET@140** instruction. Then, hand them off to Socal approach sector 77. Each of these arrivals must be **10 miles-in-trail** by the time they pass CIVET.

**L.A. Basin Props (SMO, HHR, LGB, SNA, ONT)** will enter the sector at their cruising altitude, either from over HEC or TNP. They must be descended to either

10,000 or 12,000 (your choice), and handed off to Social Approach sector 01.

**ONT** jets also arrive from over HEC or TNP, and will be level at FL240. They must be descended to 12,000 and handed off to Social sector 01.

**PSP** arrivals, both jets and props, will enter the sector from HITOP, descending to or level at 17,000. They must be descended to 14,000 and handed off to Palm Springs Approach, sector 44. If you have two arrivals next to each other, descend one to 13,000 and the other to 14,000.

### Departures

**L.A. Basin Props (SMO, HHR, LGB, SNA, ONT)** will be climbing to 11,000 (unless requesting a lower final altitude), and will exit Social sector 01 either direct to HEC or direct TNP. You must climb these to their requested cruising altitude and hand off to the next sector along their route (17 or 10).

**PSP** jet departures will be climbing to 13,000 and flying north along V386. They must be climbed to FL230 and handed off to sector 38. You are authorized to clear them direct PMD if you wish to give them a shortcut, though you don't have to.

### Overflights

Overflights will mostly be turboprops and commuter props crossing to the northeast, southeast, northwest or southwest. Disturb them as little as possible and hand off to the subsequent sector (18, 06, 10 or 12).

### Strategies and Hints

The bulk of the workload in this sector is spacing apart the LAX arrivals. On the radar map, but not on the printed map, you will see *sequencing arcs* each 10 miles apart, and centered at CIVET. These arcs are displayed at the real-life sector 19 as well. The idea behind the sequencing arcs is that **two aircraft anywhere along the same arc, at the same groundspeed, will both be tied at CIVET**. Likewise, an aircraft anywhere along one arc will be exactly 10 miles apart from an aircraft on either the arc in front of it or behind it, after they pass CIVET, assuming they are the same groundspeed. If one is faster than the other, you will either slowly gain or lose the spacing by CIVET, so you may want to match their speeds.

As mentioned in the section on *sequencing and spacing*, it is best to use vectoring (turns) to achieve the 10 miles spacing, then match speeds to hold it. A good compromising descent speed (indicated) is 310 or 320 knots, because most jets can maintain that. Still, you can use 250 knots to slow them down, or 280 knots for a "medium" speed, and 320 knots for "fast."

Good vectors to use are the 160 heading (almost straight down), for aircraft coming

from HEC or ABREE, if you want to turn them out to go behind another; or the 280 heading for those coming from TNP. Of course, you may need sharper turns if you need more spacing or there are just too many in line. After you are done vectoring to get the 10 miles spacing, clear the aircraft back direct CIVET with the **..CIVET** instruction. Depending on how much of a turn you had issued, it may take several more miles until the aircraft completes its turn, so you might start a turn back to CIVET when you have only 7 or 8 miles, to end up with 10 after the turn back to CIVET is complete.

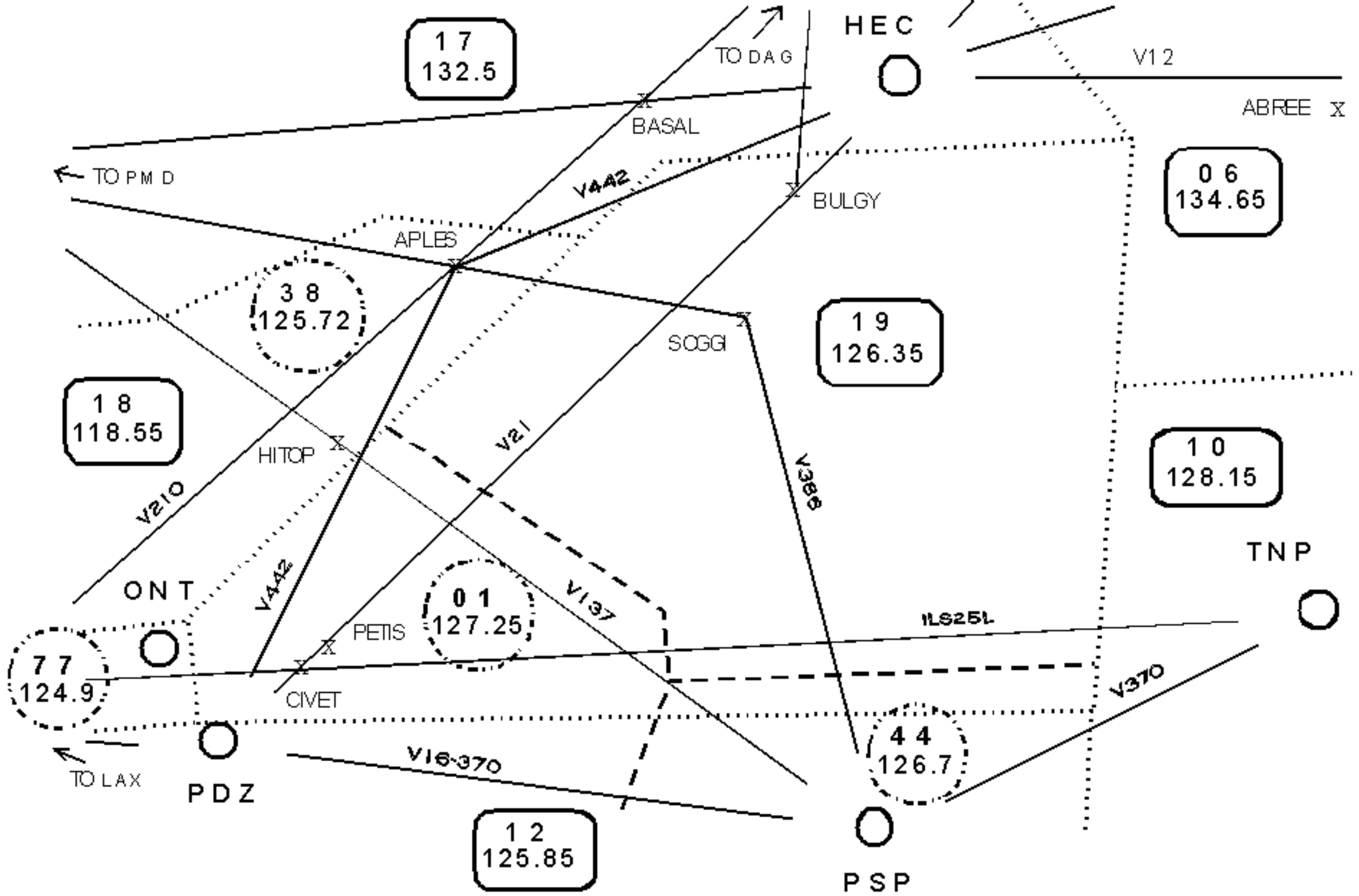
If all of this seems completely confusing, remember that you don't *have* to get 10 miles apart between aircraft, because sector 77 will still accept handoffs even with one right on top of another (one at 14,000 and one at 15,000 for example). But, the real-life Social Approach would not tolerate that, because they have very little room to achieve more spacing.

Also, try not to waste extra spacing. If two aircraft are only 5 miles apart in the sequence, an outstanding controller will space it into 10 miles to meet the procedure, not an over-restrictive 20 or 15. If you can consistently achieve 10 miles spacing on these LAX arrivals, you have essentially mastered the Art.

The quick way to tell if a newly arriving jet is landing at ONT or LAX is that ONT landers will show **240C** in the datablock. LAX landers will show at or descending to a *temp* altitude of 240, as in **240T240**. Don't waste extra time sequencing an Ontario arrival with the LAX stream!

Beware of **PSP** departures conflicting with low prop traffic crossing to and from TNP. If you have a slow aircraft moving across at 11,000, for example, and you get a PSP handoff (which is climbing to 13,000), get on the interphone and stop the aircraft at 10,000. Then, once the aircraft comes over to your frequency, you can re-evaluate the situation.

With the props and jets you descend to 12,000 and hand off to sector 01, be sure you remove their datablocks from the scope *as soon as they cross the boundary* into sector 01, with the left mouse click over the target, or <F1> and computer ID. If you don't, the computer may charge **you** with a deal after sector 01 continues their descent into other traffic within their sector. Even though its not your fault, you may still end up with the deal. Just remember to **remove the aircraft's datablock after it has exited your sector!**



L.A. SECTOR 19

## L.A. Sector 38

(refer to the sector 38 map)

### VORTACs

**EHF** Shafter  
**GMN** Gorman  
**PMD** Palmdale

**DAG** Dagget  
**POM** Pomona  
**SLI** SealBeach

**HEC** Hector  
**EED** Needles  
**BLH** Blythe

### Airports

**VNY** Van Nuys

**BUR** Burbank  
Vegas

**LAS** Las

**SMO** Santa Monica

**SNA** John Wayne

**PSP** Palm  
Springs

**LAX** Los Angeles

**ONT** Ontario

### Sectors

Sector 38 owns FL240 and above. All **adjacent** sectors (27, 37, 34 and 30) are Los Angeles Center sectors, and cover the same altitudes. Sectors 06 and 17 are also L.A. Center, but own FL230 and below. R-2508 is a restricted area, reserved for the military, and all aircraft must be kept at least three miles from its boundary.

### PROCEDURES

#### Departures

All departures (from **LAX**, **BUR**, **ONT** and **PSP**) will come over climbing to FL230 only, even though their datablocks will show their requested cruising altitude. You must eventually climb these aircraft to their requested cruise, and hand off to the next sector along their route, whether 34, 37 or 27, except those that land at LAS, which must be handed off to 06 (see *arrivals* below).

Aircraft passing over DAG to LAS and beyond can be cleared direct to LAS (with the **..LAS** instruction) at your discretion, as a little shortcut. No other direct routings are authorized.

#### Arrivals

**BUR** and **VNY** arrivals will enter the sector over HEC at FL280, or sometimes a little above. These must be descended as soon as practical to FL240 and handed off to sector 17.

**LAS** landers must be descended to FL240 in the vicinity of DAG (either start their

descents at or shortly before DAG, or have them cross DAG at FL240 with the **XDAG@FL240** instruction), and hand off to sector 06. These must be sequenced or spaced with each other so they are at a minimum of **10 miles-in-trail**.

### **Overflights**

The J65 overflights should be left alone as much as possible and handed off to the next sector along their route. No direct routings are authorized beyond what they already have.

### **Strategies and Hints**

Most of the conflict in the sector is between the LAX and ONT departure stream (roughly northeast along J9) and the BUR arrivals (westbound along J6). It's best to descend BUR arrivals as soon as you can, by procedure to FL240 though you can descend them below that if necessary (FL220 or FL200). If you have a slowly-climbing jumbo jet, you can also stop its climb underneath the BUR arrival, though it is preferable to get the BUR arrivals underneath all the departures. You can also get on the interphone to issue a descent to FL240 as soon as the aircraft pops up on your scope, even before you have taken the handoff. If you issue a descent in this way, you will need to enter its altitude in the datablock.

Watch out for overtakes between successive departures, usually when a 737 (B73S) is in front of a much faster jumbo jet or 757. Match speeds between the two aircraft, such as by assigning 310 knots to both, if they are climbing to different cruising altitudes. If they want the same altitude, let one take it and leave the other at the next altitude beneath it (FL290, FL330 or FL370) and hand it off to the next sector anyway.

The PSP departures will possibly conflict with the LAX/ONT departures even before entering your airspace, while still below FL230. The computer controller may not see these conflicts, and you could take the blame for the deal if you have handoffs on both aircraft, even though neither aircraft has checked on with you. If you see a conflict between two handoffs, get on the interphone and stop one of them beneath the other, then take them only when you see they are separated. Remember, if you issue an altitude to an aircraft via the interphone, *you* have to enter it into the datablock.

A good technique is to put LAS arrivals' datablocks in the **3** position (southeast), and those going DAG to LAS and beyond in the **7** position (northwest). Thus, you can quickly tell which need to be descended for a handoff to sector 06, and which continue on to sector 34. The sooner you can start spacing out these LAS arrivals, the less work you will need to do. Use 310 or 320 knots for "fast," 280 knots for "medium," and 250 knots for "slow." If you have three LAS arrivals close together, for example, make #1 go fast, #2 medium, and #3 slow. When they get further along the sector, you can use quick vectors to get any additional spacing you might need. Once you get the 10 miles spacing, match their speeds (such as assigning all of them

310 or 320 knots). If you don't get the full 10 miles spacing, hand it off to sector 06 anyway, though this is just passing the work to the next guy.

Watch out for the departures going from LAX to DAG to EED. They will look like those going over DAG to LAS, and you may mistakenly try to hand them off to 34. After they cross DAG, though, they make a hard right turn direct to EED, and should have been handed off to 37. You may want to put these aircraft's datablocks in the **3** position as well, to remind yourself they will be headed east.

If a departure off of BUR and one off of LAX/ONT look like they'll be eventually tied at DAG, try to get the one requesting the higher cruising altitude *above* the other. For example, a Lear Jet currently over PMD may be at FL200, requesting FL410, and a 737 off of LAX may be at FL210 requesting FL330. It's best to stop the 737 at FL250 or so and let the Lear keep climbing. Then, step-climb the 737 to the vacated altitudes of the Lear. Once their routes merge together after DAG, the Lear will be above the 737, and both can get their requested cruising altitude.

You must keep all aircraft out of the huge military restricted area R-2508. On weekends and many evenings, however, the restricted area is often inactive, and you can vector aircraft in there as necessary. Or, on a case-by-case basis, even if it is active, you are sometimes allowed to vector an aircraft up to the boundary or slightly within, by getting permission from the military controllers via the interphone. So, if you *really* need to turn somebody in there, go ahead (you don't need to get permission in this simulation), but try your best not to.



# New York Sector 66

(refer to the Sector 66 map)

## VORTACS

<b>SBJ</b> Solberg	<b>CRI</b> Canarsie	<b>CCC</b> Calverton
<b>ARD</b> Yardley	<b>COL</b> Colts Neck	<b>DPK</b> Deer Park
<b>CYN</b> Coyle	<b>RBV</b> Robbinsville	<b>HTO</b> Hampton
<b>VCN</b> Cedar Lake	<b>SIE</b> Sea Isle	

## Airports

<b>TEB</b> Teterboro	<b>HPN</b> Westchester County
<b>EWR</b> Newark	<b>LGA</b> Laguardia
<b>PHL</b> Philadelphia	<b>JFK</b> John F. Kennedy Int'l
<b>ACY</b> Atlantic City	<b>ISP</b> Long Island MacArthur

## Sectors

Sector **66** owns from the surface to FL230.

Sector **11** is **New York Approach** and owns from the ground to 17,000. Sector **32** is **Boston Center**, from the ground to FL230.

Sector **22** is **New York Center** (oceanic), owning from the surface up.

Sector **44** is **Atlantic City Approach** and owns at and below 13,000.

Sector **51** and **58** are **Washington Center**, with **51** owning 14,000 to FL230 and **58** overlying 66 at FL240 and above.

## PROCEDURES

### Arrivals

**JFK** jet arrivals must be descended to 11,000 and handed off to New York Approach (sector 11), at least **7 miles-in-trail**. They must either be on course via CAMRN then CRI, or can be cleared direct to CRI if they'll be within a few miles of an imaginary line between CAMRN and CRI (thus, OWENZ direct CRI is not allowed, but MANTA direct CRI is). Ideally, they should cross CAMRN at 11,000 (**XCAMRN@110**) and be switched to sector 11 as soon as practical.

**JFK** prop arrivals (coming from ACY) should be left at 7,000 and handed off to 11 on course, or direct CRI.

**HPN** arrivals will enter the sector from SIE, and should cross BOUNO at 17,000, hand off to 11.

**ISP** arrivals northeast along V139 should be descended to 13,000 and handed off to 32.

**PHL** prop arrivals will be along V312 to CYN, and should be descended to 12,000 and handed off to 44.

**PHL** jet arrivals will be southwest-bound along V139, should cross BRIGS at 14,000, and hand off to 51.

**ACY** arrivals southwest-bound along V139 should be descended to 8,000 (or cross HARBO at 8,000) and handed off to 44.

### **Departures**

**JFK, EWR** and **LGA** jet departures will exit sector 11 direct to WAVEY (if southwest-bound) or SHIPP (if trans-atlantic), climbing to 15,000. They must be climbed to FL230 and handed off to sector **58** if southwest-bound, or **22** if trans-oceanic. You are authorized to clear the southwest-bound jets direct ZIZZI, if you desire.

**JFK** prop departures will be direct SHIPP, climbing to 9,000. They must be climbed to their requested altitude, and handed off to the next sector along their route, depending on their destination.

**ISP** departures will be climbing to 10,000. They must either be climbed to their requested altitude and handed off to the next sector depending on destination, or climbed to FL230 and handed off to sector **58** if requesting above FL230.

**ACY** prop departures will come over to you climbing to 7,000, and should be climbed to their requested altitudes and handed off to the next sector as appropriate. Jet departures (bound for JFK) will be climbing to 11,000 as a final altitude.

### **Overflights**

Overflights should be disturbed as little as possible, and handed off to the next sector along their route.

### **Strategies and Hints**

There are two jet arrival streams going into JFK: one from over SIE, northeast-bound along V44 to CAMRN, and one from over the ocean entering the sector at OWENZ then direct CAMRN. The stream from SIE will be 15 miles-in-trail, allowing you to fit in the oceanic arrivals between the gaps. Use CAMRN as the common sequencing point to determine where along the SIE arrival stream a particular oceanic flight will fit in. If an oceanic and SIE arrival are the same distance from CAMRN, you might turn the oceanic arrival a little left, say to a 270 or 260 heading, until the distance becomes about 5 miles at CAMRN, then turn the oceanic arrival direct CRI and it should roll out around 7 or 8 in trail. Also be sure to match speeds, because the oceanic jumbo jets are usually faster than the domestic

flights coming in from SIE.

Descend the JFK jets coming in from SIE to 11,000 as soon as they come over, or have them cross CAMRN at 11,000 (**XCAMRN@110**). You should descend the oceanic arrivals to 12,000 or 13,000 as soon as practical, then once you have them fit in with the other arrival stream you can continue their descent to 11,000.

The main sector confliction point is in the MANTA and NATLE area. JFK jets are climbing here, oceanic arrivals are descending, PHL and ACY arrivals are descending, and small props are chugging along at 8-14,000 feet. It's good to get the JFK jets climbing as soon and as quickly as you can to get above this area, and get the oceanic arrivals down as quickly as you can. If you have PHL arrivals southwest along V139, you might want to turn them to the south by PREPI to let them descend, then send them direct to CYN (PHL props), ACY (ACY props and jets), or BRIGS (PHL jets).

If you need to vector JFK or ISP jet departures, clear them direct ZIZZI when you are done.

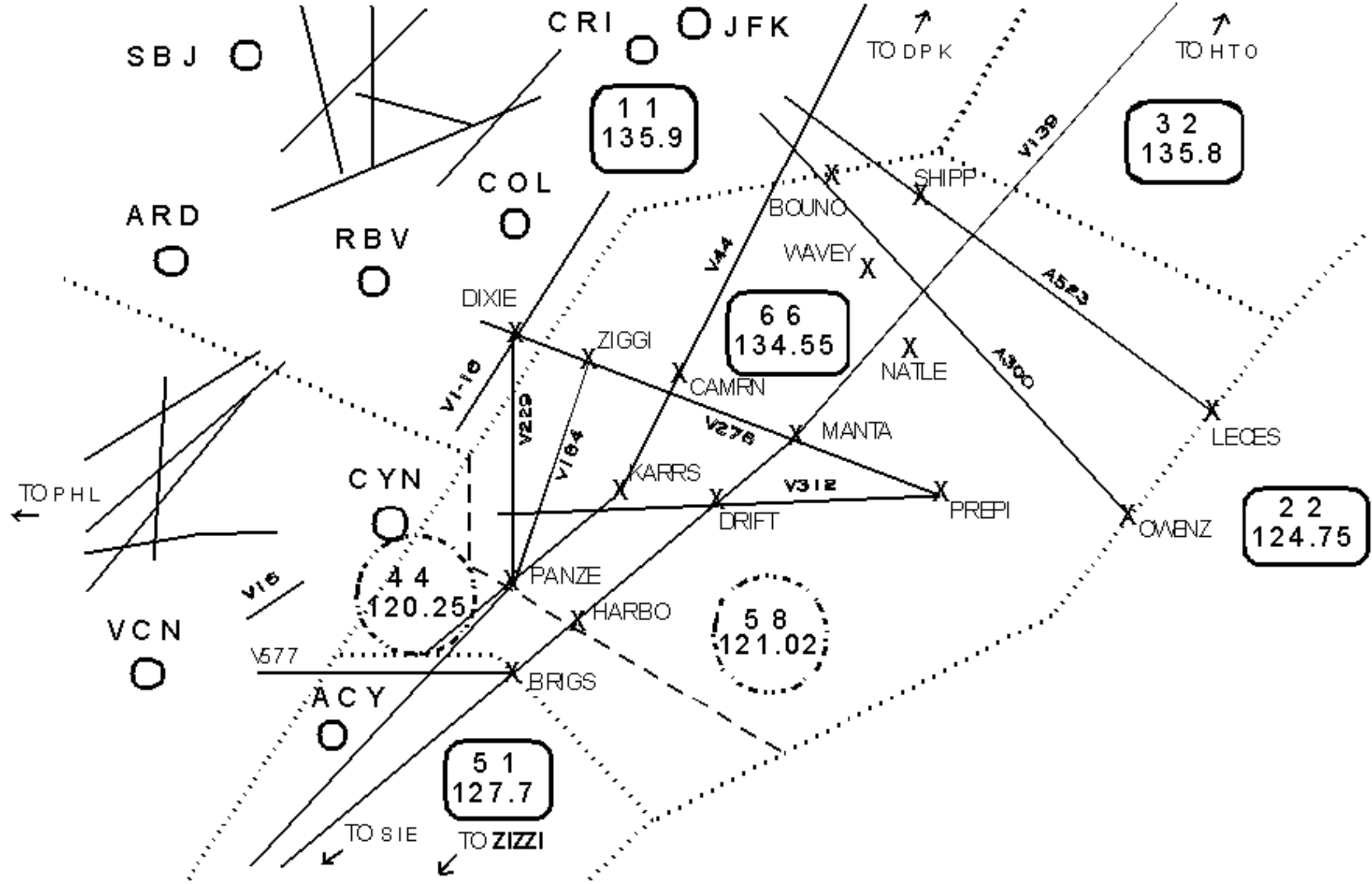
Slow-moving props along V139 can easily conflict with the departures coming out of New York Approach in the WAVEY and SHIPP area. Either vector them to the east, then direct HTO when you're done, or use the interphone to stop the departures beneath the overflights.

ISP arrivals can actually be descended to any altitude you need, but 13,000 is preferred. If you would rather get them lower, beneath the New York departures, go ahead and descend them to 9,000 or even 5,000.

**Do not take handoffs from New York Approach unless they are separated from each other!** Even though two aircraft may be within sector 11's sky, if you take both handoffs and they are less than 5 miles and 1,000 feet apart, you may be charged with a deal. Wait until you get separation before you take the handoff. You can also use the interphone to put one or both on headings to get separation sooner, or to stop their climbs at different altitudes.

**Remove datablocks from your scope as soon as they leave your sector!** This is especially true for the JFK arrivals, whose datablocks you should remove (left mouse click) as soon as you switch them over to approach control. Approach will continue their descents, and if you still have a datablock displayed you may be charged with a deal that's not your fault.

# NEW YORK SECTOR 66



# Chicago Sector 75

(refer to the sector 75 map)

## VORTACS

<b>ODI</b>	Nodine	<b>BAE</b>	Badger	<b>OBK</b>	Northbrook
<b>ALO</b>	Waterloo	<b>DLL</b>	Dells	<b>JVL</b>	Janesville
<b>FOD</b>	Fort Dodge	<b>DBQ</b>	Dubuque	<b>JOT</b>	Joliet
<b>DSM</b>	Des Moines	<b>IOW</b>	Iowa City	<b>MZV</b>	Moline

## Sectors

Sector **75**, and all depicted sectors except **74** own from FL240 and up. **74** owns FL230 and below.

Sectors **30**, **17** and **18** are in Minneapolis Center. The rest are in Chicago Center.

## PROCEDURES

### Arrivals

**ORD** (O'Hare) arrivals enter the sector in four streams: J144, J100 and J82 to DBQ, BRIBE and JVL; and from the northwest on J30 to BRIBE and JVL. They must be descended to FL240 by 20 west of JVL, and handed off to sector 74 at least **eight miles-in-trail** of each other.

**MKE** (Milwaukee) arrivals enter from the south, direct to JVL and BAE. They must cross JVL at FL240 and be handed off to sector 74. There is no particular miles-in-trail requirement.

**MSP** (Minneapolis) arrivals will merge over ALO from the south and southeast. They must be sequenced, if possible, to seven or eight miles-in-trail. However, leave them at their cruise altitude, and hand off to Minneapolis sector 17.

### Departures

**ORD** departures on will come over to you climbing to FL230 only. They must be climbed to their requested altitude, and handed off to the next sector (Minneapolis sector 30). You are authorized to let them proceed direct FOD if you wish, as a slight shortcut.

### Overflights

Overflights will be on assigned airways, though you are authorized to let them proceed directly to the first fix outside your sector: BAE, OBK or JOT. Additionally, any that will eventually proceed to CRL (Carleton) may be given direct CRL, which takes them

roughly over OBK anyway.

### **Strategies and Hints**

Most of the difficulty with the sector is in sequencing ORD arrivals. Those coming from the west can be spaced apart as necessary using DBQ as the common convergence point. Then, after they pass DBQ you can fit in any coming from the northwest along J30, using BRIBE as the common point. Or, as soon as ORD-bound aircraft check on to your frequency, you can clear them direct to JVL (pilots appreciate such shortcuts), and use JVL as the common point for all of them.

Start ORD-bound descents to FL240 in the vicinity of DBQ, or after crossing your boundary if coming from ODI. Alternatively, you can assign them to cross 20 west of JVL at FL240 (**X20WJVL@FL240**). If you switch them to sector 74 prior to JVL, sector 74 will keep them descending, so they shouldn't conflict with your MKE arrivals descending to FL240 over JVL also.

Come up with a technique to differentiate ORD arrivals from overflights. You might put all ORD arrival datablocks in the southeast (#3) position, and overflights in the northwest or north (7 or 8) position. Or, you might extend the leader lines of the overflights to two units, with the <F1>/2 computer entry, leaving the ORD landers at one unit.

It is a good idea to let overflights coming up J100 or J144 proceed direct to OBK or CRL, to get away from the DBQ area. This will make them run along your southern boundary, and out of the way of your sequencing and descending areas into ORD.

Beware of merging overflights at the same altitude, such as along J82 and J30 (crossing at COTON intersection). First determine who will cross the intersection point first, and leave that aircraft on course. Turn the other one *behind* this first, with a 10- or 15- degree turn *towards* the other. Once it's clear you will have separation, clear the aircraft back on course direct to the next fix. If you can start this turn soon enough (greater than 50 miles away), you should need only about a 10 degree turn. If you need more than about 20 degrees of turn, it's probably easier just to change one aircraft's altitude until they pass.

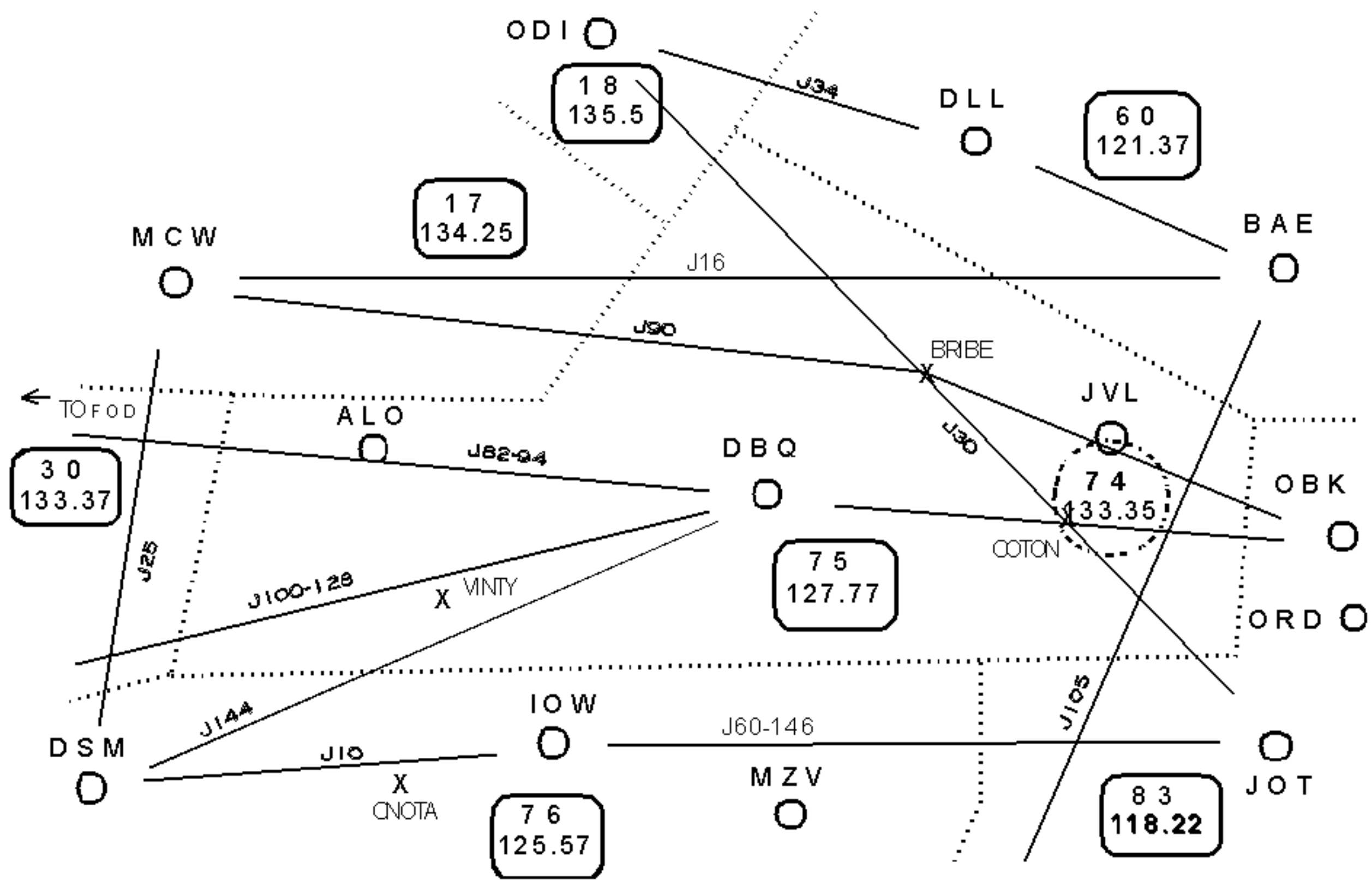
Milwaukee arrivals (MKE) should cross JVL at FL240 (**XJVL@FL240**), but will possibly conflict with your ORD arrivals in the stream between BRIBE and JVL. Just keep the MKE aircraft above the ORD arrivals. These MKE arrivals will also conflict with overflights in the COTON area, or other ORD arrivals east of DBQ if you gave them a shortcut direct JVL, so beware.

ORD departures should be given direct FOD, and will usually reach their cruising altitude prior to DBQ. Their only conflicts should be with the few MKE arrivals, and any overflights on J100 and J144 that you let proceed direct to CRL.

MSP arrivals shouldn't need much sequencing, but if you do need to, use ALO as the common point. Try to get at least 5 miles in trail, but if not, just hand them off to Minneapolis 17 anyway.

Because the sector is so large, it will fill up with many aircraft and you may think you are losing the flick. Just look at the big picture, and you will realize they are *so* far apart (just look at how tiny the J-ring appears) and are moving across your scope so slowly, that you have plenty of time and nothing is probably imminent. Once you get the ORD sequencing out of the way, the sector almost runs itself, at least until you get weather deviations.

# CHICAGO SECTOR 75



# Chicago Sector 82

*(refer to the sector 82 map)*

## VORTACS

<b>OBK</b>	Northbrook	<b>PMM</b>	Pullman	<b>CRL</b>	Carleton
<b>GIJ</b>	Gipper	<b>ELX</b>	Keeler	<b>CXR</b>	Chardon
<b>OXI</b>	Knox	<b>GSH</b>	Goshen	<b>FWA</b>	Fort Wayne

## Sectors

Sector **82** and all other depicted sectors own from FL240 and up.

All sectors are in Chicago Center, except **28** and **46** which are in Cleveland Center.

## PROCEDURES

### Arrivals

**DTW** (Detroit) arrivals must be descended to FL240 and handed off to Cleveland sector **28**.

**MKE** (Milwaukee) arrivals should be descended to FL280 and handed off to sector **25**.

### Departures

**ORD** (O'Hare) departures will come over climbing to FL230 only. They must be climbed to their requested altitude, or as close as you can allow, and handed off to the subsequent sector (**28** or **46**).

### Overflights

Most overflights can be left alone and handed off to the next sector along their routes. If you have two that are at similar speeds and going to the same airport, though, try to get them at least **10 miles-in-trail** before handing them off, to make things easier for subsequent sectors. It is not required, however. No direct routings are authorized except direct **CRL** and **CXR** if you want to give aircraft a little bit of a shortcut.

### Strategies and Hints

The majority of traffic in this sector is overflights going from west to east along the airways. There are a number of ORD departures, though, that must be fit into this

overflight stream and ideally climbed to their requested altitudes.

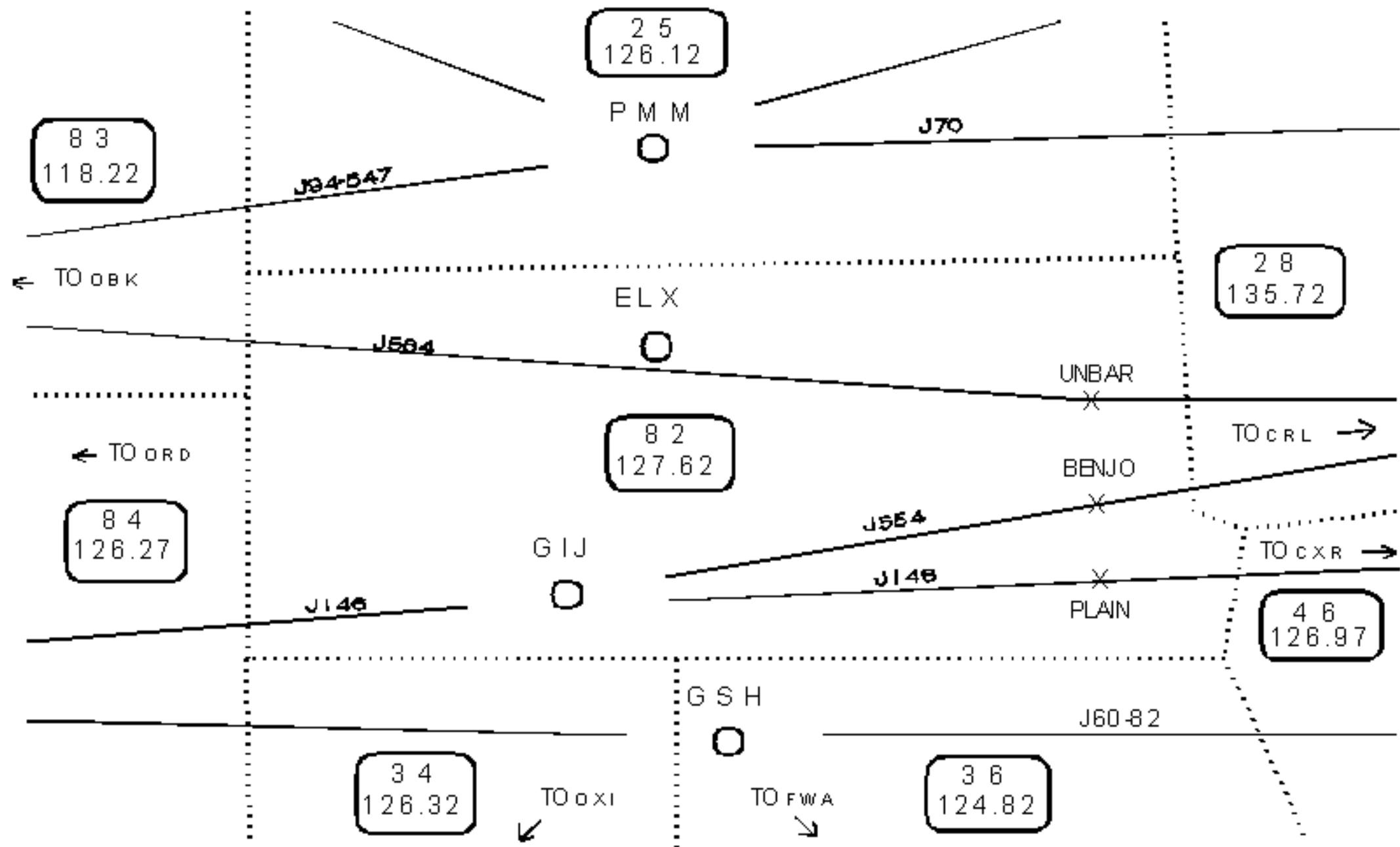
You might get an ORD departure stuck underneath an overflight (such as the overflight level at FL330 and the ORD departure wanting FL370 as a cruising altitude.) If you aren't too busy, you can use the space in between the two major airways (J584 and J146) as maneuvering room to get the departure above the overflight, then clear it back on course. For example, you might instruct the departure to fly heading 090 to parallel the overflight on J146, then once it is 2000 feet above, clear it direct CXR again. If you are too busy, though, or the ORD departure wants the same altitude as the overflight it is tied with, just leave the departure at the next lower altitude and hand off to the next sector as-is.

Detroit arrivals will enter the sector along J584, or will be off of ORD. You might put these arrivals' datablocks in a certain position (such as the **2** position) and the overflights along J584 in another position (such as **8**) to remind yourself which will need to descend and which need to stay at altitude.

There is no particular flow requirement for the DTW landers, but try to get them at least eight miles-in-trail. You should start their descents to FL240 once they pass ELX, or you can have them cross 70 west of CRL at FL240 (the **X70WCRL@FL240** instruction).

Aircraft landing at MKE will enter the sector from the southeast, and should be started down after passing J554, though it is your choice. If you have traffic along J584 that is in their way, you can wait until they pass before starting them down, just as long as they have started the descent prior to exiting your sector.

J146 and J584 traffic aren't factors for each other (unless you have weather deviations), but watch out for aircraft that cross over from J146 to J554 after GIJ. If you notice that a J554 and J584 aircraft are both at the same altitude and are slowly coming together, climb or descend one so you don't give sector 28 an eventual *deal*.



CHICAGO SECTOR 82

# New York Sector 97

(refer to the sector 97 map)

## VORTACS

<b>MIP</b>	Milton	<b>LVZ</b>	Wilkes Barre	<b>SAX</b>	Sparta
<b>SEG</b>	Selinsgrove	<b>FJC</b>	Allentown	<b>STW</b>	Stillwater
<b>RAV</b>	Ravine	<b>ETX</b>	East Texas	<b>BWZ</b>	Broadway
<b>HAR</b>	Harrisburg		<b>PTW</b>	Pottstown Solberg	<b>SBJ</b>
<b>LRP</b>	Lancaster	<b>ARD</b>	Yardley	<b>RBV</b>	Robbinsville

## Airports

<b>ABE</b>	Allentown-Bethlehem	<b>HPN</b>	Westchester County
<b>PHL</b>	Philadelphia	<b>LGA</b>	Laguardia
<b>EWR</b>	Newark	<b>JFK</b>	John F. Kennedy Int'l
<b>TEB</b>	Teterboro		

## Sectors

Sectors **97**, **93**, **96** and **98** are in New York Center, and cover from the ground to 17,000. Sector **73** is also New York Center, lies over **97** and owns from FL180 and up.

Sector **77** is **Philadelphia Approach**, owning 10,000 and below.  
Sector **88** is **Allentown Approach**, also owning 10,000 and below.  
Sector **11** is **New York Approach**, covering 17,000 and below.

Sector 97 owns the sky above Allentown and Philadelphia approaches (east of the dashed lines on the map), from 11,000 to 17,000.

## PROCEDURES

### Arrivals

**LGA** jet arrivals approach the sector from MIP, descending to FL180. They must be descended to 13,000 and handed off to New York Approach, sector 11.

**ABE** arrivals, both jets and props, must be descended to 9,000 and handed off to Allentown Approach, sector 88.

**PHL** jet arrivals will enter the sector from the north at 17,000. They must be descended to cross MAZIE intersection at 11,000, either with the **XMAZIE@11000** instruction, or a normal descent to 11,000 starting at about ETX. Hand them off to Philadelphia approach, sector 77.

**New York Metro Area** prop arrivals (**EWR**, **TEB**, **HPN**, **LGA** and **JFK**) will be eastbound along V6 or northeast along V457. They must be descended to 9,000 and

handed off to Allentown, sector 88.

### **Departures**

**PHL** jet departures will enter the sector from over PTW, headed either northwest-bound or turning westbound, climbing to 12,000. They must be climbed to 17,000 and handed off to sector 73.

**ABE** jet departures will enter the sector from ETX climbing to 8,000. They must be climbed to 17,000 and handed off to 73.

**ABE** props will also be climbing to 8,000, and must be climbed to their requested altitude and handed off to the next sector (93 or 98).

### **Overflights**

Numerous prop overflights will travel mostly to and from the southwest and northeast, and must be handed off to the subsequent sector. Aircraft should be left on the airways as much as possible, though you may clear them direct to the next VORTAC outside the sector if you need to vector them for some reason.

### **Strategies and Hints**

Most of the sector's conflict is in the FLOAT to DUMMR area, between various prop overflights, New York City area prop arrivals, and slow-climbing PHL departures. There are also occasional overflight props that cross or converge at the same altitudes.

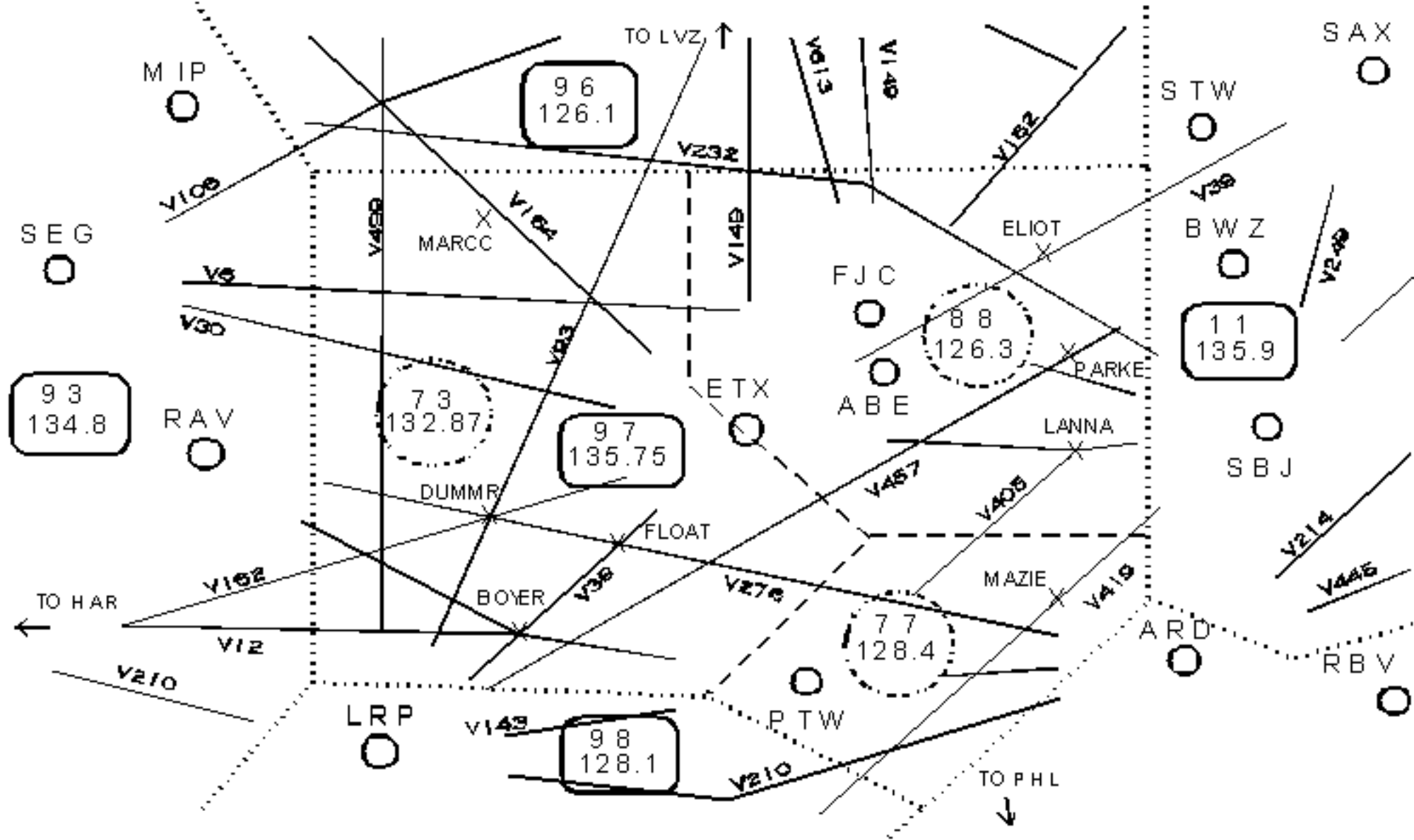
Southwest-bound ABE departures are usually underneath, and should be kept underneath the PHL departures by step-climbing them to the vacated altitudes of the other.

Props bound for the metro area, especially those northeast along V457, should be descended to 9,000 as *soon* as you get them, so jet departures don't get stuck underneath. If you need to, use the interphone to relay a descent to start them down as early as possible.

Watch out for ABE departures westbound toward SEG conflicting with eastbound prop arrivals along V6. Turn the ABE departures a little to the left until clear of the arrivals, then back on course direct SEG.

LGA jet arrivals should be descended to 13,000 as soon as they come over, and should easily clear any crossing PHL arrivals. Most PHL arrivals should have few conflicts between ETX and MAZIE, so can be left at 17,000 until about ETX. If you are very busy, however, you can always start their descent sooner just to get them out of the way.

With prop overflights that are in conflict with each other, it is usually easier just to change one aircraft's altitude by 2,000 feet (to keep it right for direction of flight, westbound at even altitudes and eastbound at odd) than to turn it out. Later, you can either climb or descend the aircraft back to its original altitude, or just call it a "new" cruising altitude and hand it off to the next sector. If you make it a new cruising altitude, change the datablock altitude with the <F5> computer entry and remove the old temp altitude with <F8>.



NEW YORK SECTOR 97