

**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
GRAPHIC DEPARTURE PROCEDURES (DP)**

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Ceilings are in feet above airport elevation. Distances are in nautical miles. Visibilities are in statute miles or feet RVR unless otherwise indicated.

<u>DP NAME</u>	<u>NUMBER</u>	<u>DP COMPUTER CODE</u>	<u>SUPERSEDED NUMBER</u>	<u>DATED</u>	<u>EFFECTIVE DATE</u>
HHOWE	TWO	HHOWE2.HHOWE	ONE	07/19/2018	15 AUG 20119
<u>TYPE:</u>	<u>OBSTACLE</u>	<u>COPTER</u>	<u>SID</u>	<u>SPECIAL</u>	<u>RNAV</u>
	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DP ROUTE DESCRIPTION:**DETROIT METROPOLITAN WAYNE COUNTY (KDTW):**

TAKEOFF RWY 3L: CLIMB ON HEADING 035.71 TO INTERCEPT COURSE 057.40 TO WNNGZ, THEN ON TRACK 107.99 TO CROSS PLYOF AT OR BELOW 7000, THEN ON TRACK 109.71 TO CROSS MCART AT OR BELOW 9000, THEN ON TRACK 109.78 TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 3R: CLIMB ON HEADING 035.71 TO INTERCEPT COURSE 054.43 TO WNNGZ, THEN ON TRACK 107.99 TO CROSS PLYOF AT OR BELOW 7000, THEN ON TRACK 109.71 TO CROSS MCART AT OR BELOW 9000, THEN ON TRACK 109.78 TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 4L: CLIMB ON HEADING 035.68 TO INTERCEPT COURSE 061.86 TO WNNGZ, THEN ON TRACK 107.99 TO CROSS PLYOF AT OR BELOW 7000, THEN ON TRACK 109.71 TO CROSS MCART AT OR BELOW 9000, THEN ON TRACK 109.78 TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 4R: CLIMB ON HEADING 035.70 TO INTERCEPT COURSE 060.77 TO WNNGZ, THEN ON TRACK 107.99 TO CROSS PLYOF AT OR BELOW 7000, THEN ON TRACK 109.71 TO CROSS MCART AT OR BELOW 9000, THEN ON TRACK 109.78 TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 21L: CLIMB ON HEADING 215.72 TO INTERCEPT COURSE 172.93 TO CROSS WINRS AT OR ABOVE 2500 AND AT OR BELOW 230 KIAS, THEN ON TRACK 093.68 TO CROSS USSIE AT OR ABOVE 4000, THEN ON TRACK 083.76 TO CROSS SUURF AT OR BELOW 7000, THEN ON TRACK 076.97 TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 21R: CLIMB ON HEADING 215.72 TO INTERCEPT COURSE 174.91 TO CROSS WINRS AT OR ABOVE 2500 AND AT OR BELOW 230 KIAS, THEN ON TRACK 093.68 TO CROSS USSIE AT OR ABOVE 4000, THEN ON TRACK 083.76 TO CROSS SUURF AT OR BELOW 7000, THEN ON TRACK 076.97 TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 22L: CLIMB ON HEADING 215.71 TO INTERCEPT COURSE 165.80 TO CROSS WINRS AT OR ABOVE 2500 AND AT OR BELOW 230 KIAS, THEN ON TRACK 093.68 TO CROSS USSIE AT OR ABOVE 4000, THEN ON TRACK 083.76 TO CROSS SUURF AT OR BELOW 7000, THEN ON TRACK 076.97 TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 22R: CLIMB ON HEADING 215.69 TO INTERCEPT COURSE 160.96 TO CROSS WINRS AT OR ABOVE 2500 AND AT OR BELOW 230 KIAS, THEN ON TRACK 093.68 TO CROSS USSIE AT OR ABOVE 4000, THEN ON TRACK 083.76 TO CROSS SUURF AT OR BELOW 7000, THEN ON TRACK 076.97 TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 27L: CLIMB ON HEADING 275.73 TO 1146, THEN ON HEADING 275.71 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 27R: CLIMB ON HEADING 275.72 TO 1146, THEN ON HEADING 275.70 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

...ON TRACK 093.88 TO HHOWE, THEN ON (TRANSITION). MAINTAIN 17000 OR AS ASSIGNED BY ATC, EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.

WILLOW RUN (KYIP):

TAKEOFF RWY 5L: CLIMB ON HEADING 053.71 TO 1220, THEN LEFT TURN HEADING 300.00 FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 5R: CLIMB ON HEADING 053.70 TO 1220, THEN LEFT TURN HEADING 300.00 FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 9: CLIMB ON HEADING 095.55 TO 1220, THEN LEFT TURN HEADING 300.00 FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 23L: CLIMB ON HEADING 233.72 TO 1220, THEN ON HEADING 233.70 FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 23R: CLIMB ON HEADING 233.73 TO 1220, THEN ON HEADING 233.72 FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 27: CLIMB ON HEADING 275.57 TO 1220, THEN ON HEADING 275.56 FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

...ON TRACK 093.88 TO HHOWE, THEN ON (TRANSITION). MAINTAIN ATC ASSIGNED ALTITUDE, EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.

ANN ARBOR MUNI (KARB):

TAKEOFF RWY 6: CLIMB ON HEADING 059.53 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 24: CLIMB ON HEADING 239.53 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

...ON TRACK 093.88 TO HHOWE, THEN ON (TRANSITION). MAINTAIN ATC ASSIGNED ALTITUDE, EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.



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COLEMAN A YOUNG MUNI (KDET):

TAKEOFF RWY 7: CLIMB ON HEADING 068.30 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 15: CLIMB ON HEADING 148.32 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 25: CLIMB ON HEADING 248.31 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 33: CLIMB ON HEADING 328.33 TO 1800 THEN AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

...ON TRACK 093.88 TO HHOWE, THEN ON (TRANSITION). MAINTAIN ATC ASSIGNED ALTITUDE, EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.

CUSTER (KTTF):

TAKEOFF RWY 3: CLIMB ON HEADING 027.49 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 21: CLIMB ON HEADING 207.50 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

...ON TRACK 093.88 TO HHOWE, THEN ON (TRANSITION). MAINTAIN ATC ASSIGNED ALTITUDE, EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.

GROSSE ILE MUNI (KONZ):

TAKEOFF RWY 4: CLIMB ON HEADING 037.34 TO 1200 THEN AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 17: CLIMB ON HEADING 173.78 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 22: CLIMB ON HEADING 217.34 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 35: CLIMB ON HEADING 005.78 TO 1800 THEN AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

...ON TRACK 093.88 TO HHOWE, THEN ON (TRANSITION). MAINTAIN ATC ASSIGNED ALTITUDE, EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.

LIVINGSTON COUNTY SPENCER J HARDY (KOZW):

TAKEOFF RWY 13: CLIMB ON HEADING 132.35 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 31: CLIMB ON HEADING 312.36 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

...ON TRACK 093.88 TO HHOWE, THEN ON (TRANSITION). MAINTAIN ATC ASSIGNED ALTITUDE, EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.

OAKLAND COUNTY INTL (KPTK):

TAKEOFF RWY 9L: CLIMB ON HEADING 094.66 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 9R: CLIMB ON HEADING 094.63 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 27L: CLIMB ON HEADING 274.65 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 27R: CLIMB ON HEADING 274.68 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

...ON TRACK 093.88 TO HHOWE, THEN ON (TRANSITION). MAINTAIN ATC ASSIGNED ALTITUDE, EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.

OAKLAND/TROY (KVLL):

TAKEOFF RWY 9: CLIMB ON HEADING 095.71 TO 1400 THEN AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...
TAKEOFF RWY 27: CLIMB ON HEADING 275.72 TO 1500 THEN AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

...ON TRACK 093.88 TO HHOWE, THEN ON (TRANSITION). MAINTAIN ATC ASSIGNED ALTITUDE, EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.



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SELFRIDGE ANGB (KMTG):

TAKEOFF RWY 1: CLIMB ON HEADING 007.47 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 19: CLIMB ON HEADING 187.47 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

...ON TRACK 093.88 TO HHOWE, THEN ON (TRANSITION). MAINTAIN ATC ASSIGNED ALTITUDE, EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.

WINDSOR (CYQG):

TAKEOFF RWY 7: CLIMB ON HEADING 069.55 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 12: CLIMB ON HEADING 122.61 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 25: CLIMB ON HEADING 249.56 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

TAKEOFF RWY 30: CLIMB ON HEADING 302.60 OR AS ASSIGNED FOR RADAR VECTORS TO CROSS MALTB AT OR ABOVE 4000, THENCE...

...ON TRACK 093.88 TO HHOWE, THEN ON (TRANSITION). MAINTAIN ATC ASSIGNED ALTITUDE, EXPECT FILED ALTITUDE 10 MINUTES AFTER DEPARTURE.

TRANSITION ROUTES (GRAPHIC DEPICTION ONLY):

<u>TRANSITION NAME</u>	<u>TRANSITION COMPUTER CODE</u>	<u>FROM FIX/NAVAID</u>	<u>TO FIX/NAVAID</u>	<u>COURSE</u>	<u>DISTANCE</u>	<u>MEA</u>	<u>MOCA</u>	<u>CROSSING ALTITUDE/FIXES</u>
BROKK	HHOWE2.BROKK	HHOWE	BROKK	TRACK 090.20	39.73	10000		
LNCON	HHOWE2.LNCON	HHOWE	LNCON	TRACK 097.71	42.37	10000		

PROCEDURAL DATA NOTES:

NOTE: RNAV 1

NOTE: RADAR REQUIRED

NOTE: DME/DME/IRU OR GPS REQUIRED.

NOTE: TURBOJET DEPARTURES AT/ABOVE 10000, MAINTAIN 280K UNTIL ADVISED BY ATC.

NOTE: BROKK TRANSITION: FOR USE BY FLIGHTS FILED AT OR BELOW FL270, OR AS ASSIGNED BY ATC.

NOTE: KDTW/KYIP DEPARTURES: IF UNABLE TO ACCEPT 500 FT PER NM CLIMB RATE, ADVISE CLEARANCE DELIVERY ON INITIAL CONTACT.

TAKEOFF MINIMUMS:

DETROIT METROPOLITAN WAYNE COUNTY (KDTW):

RWY 3L, 3R, 4L, 4R, 21L, 21R, 22L, 22R, 27L, 27R: STANDARD WITH MINIMUM CLIMB OF 500 FT PER NM TO 1146.

WILLOW RUN (KYIP):

RWY 5L, 5R, 9, 23L, 23R, 27: STANDARD WITH MINIMUM CLIMB OF 500 FT PER NM TO 1220.

ANN ARBOR MUNI (KARB):

RWY 6, 24: STANDARD.

RWY 12, 30: NA - ENVIRONMENTAL.

COLEMAN A YOUNG MUNI (KDET):

RWY 7, 15, 33: STANDARD.

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RWY 25: STANDARD WITH MINIMUM CLIMB OF 210 FEET PER NM TO 1000.

CUSTER (KTTF):
STANDARD.

GROSSE ILE MUNI (KONZ):
RWY 4, 17, 22: STANDARD.
RWY 35: STANDARD WITH MINIMUM CLIMB OF 500 FT PER NM TO 1100.

LIVINGSTON COUNTY SPENCER J HARDY (KOZW):
STANDARD.

OAKLAND COUNTY INTL (KPTK):
RWY 9L, 9R, 27L, 27R: STANDARD.
RWY 18, 36: NA - ENVIRONMENTAL.

OAKLAND/TROY (KVLL):
RWY 9: STANDARD.
RWY 27: STANDARD WITH MINIMUM CLIMB OF 476 FT PER NM TO 1500.

SELFRIDGE ANGB (KMTC):
RWY 1: STANDARD.
RWY 19: STANDARD WITH MINIMUM CLIMB OF 234 FT PER NM TO 1500.

WINDSOR (CYQG):
RWY 7, 12, 25: STANDARD.
RWY 30: STANDARD WITH MINIMUM CLIMB OF 210 FT PER NM TO 1300.

TAKEOFF OBSTACLES NOTES:
SEE FORM 8260-15A TAKEOFF MINIMUMS AND OBSTACLE DEPARTURE PROCEDURES (ODP).

CONTROLLING OBSTACLES:

WILLOW RUN (KYIP):
RWY 27: 903 FT MSL TOWER 421431.78N/0833411.47W

COLEMAN A YOUNG MUNI (KDET):
RWY 25: 871 FT MSL STACK 422307.00N/0830235.00W
RWY 33: 1749 FT MSL TOWER 422653.00N/0831023.00W

GROSSE ILE MUNI (KONZ):
RWY 35: 1146 FT MSL STACK, 420718.61N/0831050.62W

OAKLAND/TROY (KVLL):
RWY 27: 940 FT MSL BLDG 423234.20N/0831235.50W (CG), 1749 FT MSL TOWER 422858.00N/0831219.00W (CGTA)

SELFRIDGE ANGB (KMTC):
RWY 19: 1246 FT MSL TOWER 423315.00N/0825315.00W



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LOST COMMUNICATIONS PROCEDURES:**ADDITIONAL FLIGHT DATA:**

CHART: TOP ALTITUDE: KDTW 17000.

CHART: TOP ALTITUDE: ALL OTHER AIRPORTS ASSIGNED BY ATC

REFERENCE MAG VAR; KDTW 7W/2020

DME/DME ASSESSMENT: SAT (RNP 2.0)

KDTW CHART: SEE ADDITIONAL REQUIREMENTS IN RNAV DEPARTURE AAUP.**AIRPORTS SERVED:**

<u>AIRPORT NAME</u>	<u>CITY</u>	<u>STATE</u>
DETROIT METROPOLITAN WAYNE COUNTY (KDTW)	DETROIT	MI
WILLOW RUN (KYIP)	DETROIT	MI
ANN ARBOR MUNI (KARB)	ANN ARBOR	MI
COLEMAN A YOUNG MUNI (KDET)	DETROIT	MI
CUSTER (KTTF)	MONROE	MI
GROSSE ILE MUNI (KONZ)	DETROIT/GROSSE ILE	MI
LIVINGSTON COUNTY SPENCER J HARDY (KOZW)	HOWELL	MI
OAKLAND COUNTY INTL (KPTK)	PONTIAC	MI
OAKLAND/TROY (KVLL)	TROY	MI
SELFRIDGE ANGB (KMTC)	MOUNT CLEMENS	MI
WINDSOR (CYQG)	WINDSOR, ONTARIO, CANADA	

COMMUNICATIONS:

ATIS, AWOS/ASOS, CLNC DEL, GND CON, TWR, CTAF, DEP CON, CPDLC

FIXES AND/OR NAVAIDS:**REMARKS:**

MOCA(S) NOT CHARTED PER ATC REQUEST TO REDUCE CHART CLUTTER.



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CHANGES TO THIS PROCEDURE MUST BE COORDINATED WITH NAVCANADA, AERONAUTICAL INFORMATION MANAGEMENT (AIM), AIMDATA@NAVCANADA.CA (CURRENT POC IS CHARLES SIMARD, 613-248-3819, SIMACHA@NAVCANADA.CA).

FLIGHT INSPECTED BY: *Digitally signed by*
BRYAN VEIT **DONALD H LANIER**
Jun 11, 2019

OFFICE SYMBOL: FICO
DATE: 6/4/19

DEVELOPED BY: *Digitally signed by*
CHRISTINE BAYSE **DONALD H LANIER**
Jun 11, 2019

OFFICE SYMBOL: AJV-A432
DATE: 03/08/2019

APPROVED BY: *Digitally signed by*
LONNIE EVERHART **DONALD H LANIER**
Jun 11, 2019

OFFICE SYMBOL: AJV-A430
DATE:

REQUIRED EFFECTIVE DATE:
ROUTINE

COORDINATED WITH:

A4A	ALPA	AOPA	APA	HAI	NBAA
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

OTHER:

ZOB, DTW APP CON, AMGR

CHANGES - REASONS:

1. CHANGED TOP ALTITUDE TO 17000 FOR KDTW. - INDUSTRY REQUEST TO REDUCE CONFUSION.
2. CHANGED DEPARTURE ROUTE DESCRIPTION FOR KDTW FROM "MAINTAIN ATC ASSIGNED ALTITUDE..." TO "MAINTAIN 17000 OR AS ASSIGNED BY ATC..." - ALLOW FOR AIRCRAFT WITH LOWER FILED ALTITUDES THAN THE TOP ALTITUDE.
3. ADD AT OR ABOVE 4000 RESTRICTION AT USSIE. - DECONFLICT SID FROM OTHER PROCEDURES.
4. REMOVE AT OR BELOW 7000 RESTRICTION AT WNNGZ. - DECONFLICT SID FROM OTHER PROCEDURES.
5. ADD TF LEG WNNGZ-MALTB TO RWY 3L/R AND 4L/R TRANSITIONS. - DECONFLICT SID FROM OTHER PROCEDURES.
6. ADD PLYOF WITH AT OR BELOW 7000 RESTRICTION. - DECONFLICT SID FROM OTHER PROCEDURES.
7. ADD MCART WITH AT OR BELOW 9000 RESTRICTION. -DECONFLICT SID FROM OTHER PROCEDURES.
8. MOVED WNNGS 0.85 NM NORTHEAST. - DECONFLICT SID FROM OTHER PROCEDURES.
9. ADD CHART NOTE: BROKK TRANSITION: FOR USE BY FLIGHTS FILED AT OR BELOW FL270, OR AS ASSIGNED BY ATC.- RESTRICT USE OF TRANSITION TO AIRCRAFT FILED FL270 AND BELOW.
10. CHANGE NAME OF LWEMA TO LNCON. - IMPROVE PRONOUNCEABILITY OF WAYPOINT NAME.
11. CHANGE ALL VI LEGS TO MINIMUM ALLOWABLE LENGTH. - REDUCE DIRFT ON INITIAL CLIMB OUT.
12. MOVE WINRS 1.2 NM SOUTH. - REDUCE DRIFT ON INITIAL CLIMB OUT.
13. ADD AT OR ABOVE 2500 AND AT OR BELOW 230 KIAS RESTRICTION AT WINRS. - REDUCE DRIFT ON INITIAL CLIMB OUT.
14. ADD CHART NOTE: KDTW/KYIP DEPARTURES: IF UNABLE TO ACCEPT 500 FT PER NM CLIMB RATE, ADVISE CLEARANCE DELIVERY ON INITIAL CONTACT.- ENSURE PILOTS ARE AWARE OF REQUIREMENTS.
15. ADD KDTW CHART: SEE ADDITIONAL REQUIREMENTS IN RNAV DEPARTURE AUP. - ENSURE PILOTS ARE AWARE OF REQUIREMENTS.
16. UPDATED DP ROUTE DESCRIPTION KDTW RWY 3L INTERCEPT COURSE FROM "064.09 TO CROSS WNNGZ" TO "057.40 TO WNNGZ".- WNNGZ MOVED AND VI-CF MINIMUM.
17. UPDATED DP ROUTE DESCRIPTION KDTW RWY 3R INTERCEPT COURSE FROM "060.57 TO CROSS WNNGZ" TO "054.43 TO WNNGZ".- WNNGZ MOVED AND VI-CF MINIMUM.
18. UPDATED DP ROUTE DESCRIPTION KDTW RWY 4L INTERCEPT COURSE FROM "068.17 TO CROSS WNNGZ" TO "061.86 TO WNNGZ".- WNNGZ MOVED AND VI-CF MINIMUM.
19. UPDATED DP ROUTE DESCRIPTION KDTW RWY 4R INTERCEPT COURSE FROM "067.52 TO CROSS WNNGZ" TO "060.77 TO WNNGZ". - WNNGZ MOVED AND VI-CF MINIMUM.

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20. UPDATED DP ROUTE DESCRIPTION KDTW RWY 3L, 3R, 4L AND 4R FROM "ON TRACK 064.09 FOR RADAR VECTORS TO CROSS MALTB..." TO "ON TRACK 109.78 TO CROSS MALTB..."- ADDING FIXES PLYOF AND MCART TO ROUTE DESCRIPTION.					
21. UPDATED DP ROUTE DESCRIPTION KDTW RWY 21L INTERCEPT COURSE FROM "161.34 TO WINRS" TO "172.93 TO CROSS WINRS". - WINRS MOVED AND VI-CF MINIMUM.					
22. UPDATED DP ROUTE DESCRIPTION KDTW RWY 21R INTERCEPT COURSE FROM "166.00 TO WINRS" TO "174.91 TO CROSS WINRS". - WINRS MOVED AND VI-CF MINIMUM.					
23. UPDATED DP ROUTE DESCRIPTION KDTW RWY 22L INTERCEPT COURSE FROM "153.14 TO WINRS" TO "165.80 TO CROSS WINRS". - WINRS MOVED AND VI-CF MINIMUM.					
24. UPDATED DP ROUTE DESCRIPTION KDTW RWY 22R INTERCEPT COURSE FROM "147.16 TO WINRS" TO 160.96 TO CROSS WINRS". - WINRS MOVED AND VI-CF MINIMUM.					
25. UPDATED DP ROUTE DESCRIPTION KDTW RWY 21L, 21R, 22L AND 22R FROM "ON TRACK 108.58 TO USSIE..." TO "ON TRACK 093.68 TO CROSS USSIE..." - WINRS MOVED.					
26. UPDATED DP ROUTE DESCRIPTION KDTW RWY 27L AND 27R CLIMB TO ALTITUDE FROM "1160" TO "1146". - UPDATED CLIMB GRADIENT TERMINATION ALTITUDE					
28. UPDATED TAKEOFF MINIMUMS KDTW FROM "RWY 3L, 3R, 4L, 4R, 21L, 21R, 22L, 22R: STANDARD" AND "RWY 27L, 27R: STANDARD WITH MINIMUM CLIMB OF 500 FT PER NM TO 1160" TO "RWY 3L, 3R, 4L, 4R, 21L, 21R, 22L, 22R, 27L, 27R: STANDARD WITH MINIMUM CLIMB OF 500 FT PER NM TO 1146". - ALL RUNWAYS ARE 500 FT PER NM TO 500 FT ABOVE FOR LNAV ENGAGEMENT.					
29. UPDATED RECOMMENDED NAVAID FROM AIR VOR/DME TO ECK TACAN ON 8260-15C. - NAVAID CLOSER TO AIRPORT.					

QUALITY
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CHECKED

**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
DEPARTURE (DATA RECORD)**

DP NAME							NUMBER	DP COMPUTER CODE	SUPERSEDED NUMBER	DATED	EFFECTIVE DATE
HHOWE							TWO	HHOWE2.HHOWE	ONE	07/19/2018	15 AUG 2019
FIX/NAVAID	LAT/LONG	C	FO/FB	LEG TYPE	TC	DIST (NM)	ALTITUDE	SPEED		REMARKS	
	DETROIT METROPOLITAN WAYNE COUNTY (KDTW)										
RW03L (AER)	421228.21N/0832104.39W	N	-	-	-	-					
-	421436.00N/0831930.18W	-	-	VI	028.71	2.43				CG 500 FT/NM TO 1146	
WNNGZ	422003.77N/0831037.55W	Y	FB	CF	050.40	8.56				RECOMMENDED NAVAID: ECK TACAN	
PLYOF	421827.96N/0825936.51W	Y	FB	TF	100.99	8.33	AT/BELOW 7000				
MCART	421726.01N/0825327.61W	Y	FB	TF	102.71	4.68	AT/BELOW 9000				
MALTB	421457.48N/0823851.48W	Y	FB	TF	102.78	11.12	AT/ABOVE 4000				
RW03R (AER)	421144.21N/0832106.49W	N	-	-	-	-					
-	421404.95N/0831922.76W	-	-	VI	028.71	2.67				CG 500 FT/NM TO 1146	
WNNGZ	422003.77N/0831037.55W	Y	FB	CF	047.43	8.83				RECOMMENDED NAVAID: ECK TACAN	
PLYOF	421827.96N/0825936.51W	Y	FB	TF	100.99	8.33	AT/BELOW 7000				
MCART	421726.01N/0825327.61W	Y	FB	TF	102.71	4.68	AT/BELOW 9000				
MALTB	421457.48N/0823851.48W	Y	FB	TF	102.78	11.12	AT/ABOVE 4000				
RW04L (AER)	421207.82N/0832302.40W	N	-	-	-	-					
-	421427.53N/0832119.54W	-	-	VI	028.68	2.65				CG 500 FT/NM TO 1146	
WNNGZ	422003.77N/0831037.55W	Y	FB	CF	054.86	9.72				RECOMMENDED NAVAID: ECK TACAN	
PLYOF	421827.96N/0825936.51W	Y	FB	TF	100.99	8.33	AT/BELOW 7000				
MCART	421726.01N/0825327.61W	Y	FB	TF	102.71	4.68	AT/BELOW 9000				
MALTB	421457.48N/0823851.48W	Y	FB	TF	102.78	11.12	AT/ABOVE 4000				
QUALITY											
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QUALITY
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**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
DEPARTURE (DATA RECORD)**

DP NAME							NUMBER	DP COMPUTER CODE	SUPERSEDED NUMBER	DATED	EFFECTIVE DATE
HHOWE							TWO	HHOWE2.HHOWE	ONE	07/19/2018	15 AUG 2019
FIX/NAVAID	LAT/LONG	C	FO/FB	LEG TYPE	TC	DIST (NM)	ALTITUDE	SPEED		REMARKS	
RW04R (AER)*	421212.78N/0832213.32W*	N	-	-	-	-				*DISPL THLD (509 FT)	
-	421446.08N/0832020.37W	-	-	VI	028.70	2.91				CG 500 FT/NM TO 1146	
WNNGZ	422003.77N/0831037.55W	Y	FB	CF	053.77	8.94				RECOMMENDED NAVAID: ECK TACAN	
PLYOF	421827.96N/0825936.51W	Y	FB	TF	100.99	8.33	AT/BELOW 7000				
MCART	421726.01N/0825327.61W	Y	FB	TF	102.71	4.68	AT/BELOW 9000				
MALTB	421457.48N/0823851.48W	Y	FB	TF	102.78	11.12	AT/ABOVE 4000				
RW21L (AER)	421310.86N/0832002.65W	N	-	-	-	-					
-	421050.20N/0832146.26W	-	-	VI	208.72	2.67				CG 500 FT/NM TO 1146	
WINRS	420542.02N/0832002.39W	Y	FB	CF	165.93	5.29	AT/ABOVE 2500	AT/BELOW 230K		RECOMMENDED NAVAID: ECK TACAN	
USSIE	420556.34N/0831427.74W	Y	FB	TF	086.68	4.16	AT/ABOVE 4000				
SUURF	420657.51N/0830837.76W	Y	FB	TF	076.76	4.46	AT/BELOW 7000				
MALTB	421457.48N/0823851.48W	Y	FB	TF	069.97	23.53	AT/ABOVE 4000				
RW21R (AER)	421341.85N/0832010.12W	N	-	-	-	-					
-	421134.48N/0832143.96W	-	-	VI	208.72	2.42				CG 500 FT/NM TO 1146	
WINRS	420542.02N/0832002.39W	Y	FB	CF	167.91	6.01	AT/ABOVE 2500	AT/BELOW 230K		RECOMMENDED NAVAID: ECK TACAN	
USSIE	420556.34N/0831427.74W	Y	FB	TF	086.68	4.16	AT/ABOVE 4000				
SUURF	420657.51N/0830837.76W	Y	FB	TF	076.76	4.46	AT/BELOW 7000				
MALTB	421457.48N/0823851.48W	Y	FB	TF	069.97	23.53	AT/ABOVE 4000				

QUALITY
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**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
DEPARTURE (DATA RECORD)**

DP NAME		NUMBER	DP COMPUTER CODE		SUPERSEDED NUMBER		DATED	EFFECTIVE DATE	
HHOWE		TWO	HHOWE2.HHOWE		ONE		07/19/2018	15 AUG 2019	
FIX/NAVAID	LAT/LONG	C	FO/FB	LEG TYPE	TC	DIST (NM)	ALTITUDE	SPEED	REMARKS
RW22L (AER)	421352.37N/0832059.97W	N	-	-	-	-			
-	421114.79N/0832256.00W	-	-	VI	208.71	2.99			CG 500 FT/NM TO 1146
WINRS	420542.02N/0832002.39W	Y	FB	CF	158.80	5.95	AT/ABOVE 2500	AT/BELOW 230K	RECOMMENDED NAVAID: ECK TACAN
USSIE	420556.34N/0831427.74W	Y	FB	TF	086.68	4.16	AT/ABOVE 4000		
SUURF	420657.51N/0830837.76W	Y	FB	TF	076.76	4.46	AT/BELOW 7000		
MALTB	421457.48N/0823851.48W	Y	FB	TF	069.97	23.53	AT/ABOVE 4000		
RW22R (AER)	421334.48N/0832158.61W	N	-	-	-	-			
-	421115.08N/0832341.20W	-	-	VI	208.69	2.65			CG 500 FT/NM TO 1146
WINRS	420542.02N/0832002.39W	Y	FB	CF	153.96	6.18	AT/ABOVE 2500	AT/BELOW 230K	RECOMMENDED NAVAID: ECK TACAN
USSIE	420556.34N/0831427.74W	Y	FB	TF	086.68	4.16	AT/ABOVE 4000		
SUURF	420657.51N/0830837.76W	Y	FB	TF	076.76	4.46	AT/BELOW 7000		
MALTB	421457.48N/0823851.48W	Y	FB	TF	069.97	23.53	AT/ABOVE 4000		
RW27L (AER)	421158.34N/0831949.33W	N	-	-	-	-			
1146 MSL	-	-	-	VA	268.73	-			CG 500 FT/NM TO 1146
-	-	-	-	VM	268.71	-			
RW27R (AER)	421303.02N/0831951.72W	N	-	-	-	-			
1146 MSL	-	-	-	VA	268.72	-			CG 500 FT/NM TO 1146
-	-	-	-	VM	268.70	-			

QUALITY

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**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
DEPARTURE (DATA RECORD)**

DP NAME		NUMBER		DP COMPUTER CODE		SUPERSEDED NUMBER		DATED		EFFECTIVE DATE	
HHOWE		TWO		HHOWE2.HHOWE		ONE		07/19/2018		15 AUG 2019	
FIX/NAVAID	LAT/LONG	C	FO/FB	LEG TYPE	TC	DIST (NM)	ALTITUDE	SPEED	REMARKS		
WILLOW RUN (KYIP)											
RW05L (AER)	421355.86N/0833230.06W	N	-	-	-	-					
1220 MSL	-	-	-	VA	046.71	-			CG 500 FT/NM TO 1220		
-	-	-	-	VM	293.00	-			LEFT TURN		
RW05R (AER)	421350.25N/0833223.46W	N	-	-	-	-					
1220 MSL	-	-	-	VA	046.70	-			CG 500 FT/NM TO 1220		
-	-	-	-	VM	293.00	-			LEFT TURN		
RW09 (AER)*	421438.37N/0833228.33W*	N	-	-	-	-			*DISPL THLD (576 FT)		
1220 MSL	-	-	-	VA	088.55	-			CG 500 FT/NM TO 1220		
-	-	-	-	VM	293.00	-			LEFT TURN		
RW23L (AER)	421441.34N/0833110.47W	N	-	-	-	-					
1220 MSL	-	-	-	VA	226.72	-			CG 500 FT/NM TO 1220		
-	-	-	-	VM	226.70	-					
RW23R (AER)	421436.47N/0833132.03W	N	-	-	-	-					
1220 MSL	-	-	-	VA	226.73	-			CG 500 FT/NM TO 1220		
-	-	-	-	VM	226.72	-					
RW27 (AER)	421440.03N/0833059.06W	N	-	-	-	-					
1220 MSL	-	-	-	VA	268.57	-			CG 500 FT/NM TO 1220		

QUALITY

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QUALITY
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**FEDERAL AVIATION ADMINISTRATION
FLIGHT STANDARDS SERVICE
DEPARTURE (DATA RECORD)**

<u>DP NAME</u>		<u>NUMBER</u>		<u>DP COMPUTER CODE</u>		<u>SUPERSEDED NUMBER</u>		<u>DATED</u>	<u>EFFECTIVE DATE</u>
HHOWE		TWO		HHOWE2.HHOWE		ONE		07/19/2018	15 AUG 2019
<u>FIX/NAVAID</u>	<u>LAT/LONG</u>	<u>C</u>	<u>FO/FB</u>	<u>LEG TYPE</u>	<u>TC</u>	<u>DIST (NM)</u>	<u>ALTITUDE</u>	<u>SPEED</u>	<u>REMARKS</u>
-	-	-	-	VM	268.56	-			
MALTB	421457.48N/0823851.48W	Y	-	IF	-	-	AT/ABOVE 4000		
HHOWE	421523.12N/0822806.06W	Y	FB	TF	086.88	8.00			
HHOWE	421523.12N/0822806.06W	Y	-	IF	-	-			HHOWE2.BROKK
BROKK	421953.00N/0813454.98W	Y	FB	TF	083.20	39.73			
HHOWE	421523.12N/0822806.06W	Y	-	IF	-	-			HHOWE2.LNCON
LNCON	421437.39N/0813103.36W	Y	FB	TF	090.71	42.37			

QUALITY
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