

US Department of Transportation
Federal Aviation Administration

STAR - Standard Terminal Arrival

1. Bearings, headings, courses and radials are listed to the nearest hundredth (e.g. 360.00)
2. Distances are in nautical miles to nearest hundredth (e.g. 00.00)
3. Altitudes are minimum altitudes unless otherwise indicated

(1) Transition Routes

(a) Transition Name	(b) Transition Computer Codes	(c) From RNAV WP / FIX / NAVAID	(d) To RNAV WP / FIX / NAVAID	(e) Mag Course / Distance	(f) MEA	(g) MOCA	(h) MAA	(i) Crossing Altitudes / Fixes
ALEXANDRIA	AEX.TWSTD1	AEX VORTAC	AEX VORTAC					
			CRNKY	244.85/74.05	12000	1800		AT/ABOVE FL240
			PROZC	244.20/18.00	12000	1700		AT/ABOVE FL220, AT/BELOW FL270
			WHACK	244.04/20.00	9000	1700		AT/ABOVE 17000, AT/BELOW FL200
CARPR	CARPR.TWSTD1	CARPR	CARPR					
			NUTZZ	209.01/17.98	12000	1700		AT/ABOVE FL220, AT/BELOW FL270
			WHACK	208.95/20.02	9000	1900		AT/ABOVE 17000, AT/BELOW FL200
PLANB	PLANB.TWSTD1	PLANB	PLANB					
			CARPR	209.22/37.13	12000	1900		
			NUTZZ	209.01/17.98	12000	1700		AT/ABOVE FL220, AT/BELOW FL270
			WHACK	208.95/20.02	9000	1900		AT/ABOVE 17000, AT/BELOW FL200
SAWMILL	SWB.TWSTD1	SWB VOR/DME	SWB VOR/DME					
			MENTL	224.99/88.96	12000	2000		AT/ABOVE FL240
			FRAGL	224.31/18.45	12000	2000		AT/ABOVE FL220, AT/BELOW FL270

(2) Arrival Route Description: FROM WHACK ON TRACK 228.83/12.93 TO CROSS TWSTD AT OR ABOVE 13000, AT OR BELOW 16000 AND AT 280 KIAS (MEA 6000).

LANDING RWY 08L/R: FROM TWSTD ON TRACK 225.94/10.55 TO CROSS PSYCO AT OR ABOVE 10000, AT OR BELOW 11000 AND AT 250 KIAS (MEA 4000), THEN ON TRACK 227.30/14.95 TO CROSS KNGWD AT OR BELOW 10000 (MEA 4000), THEN ON TRACK 256.73/11.43 TO VLDEZ (MEA 4000), THEN ON TRACK 267.09/4.16 TO CROSS GOVVV AT 6000 AND AT 210 KIAS (MEA 4000), THEN ON TRACK 267.10/5.91 TO CROSS DOMNO AT 6000 (MEA 4000), THEN ON TRACK

Continued on block 16...

(3) Procedural Data Notes:

NOTE: RADAR REQUIRED.

NOTE: RNAV 1.

NOTE: DME/DME/IRU OR GPS REQUIRED.

NOTE: FOR TURBOJET AND TURBOPROP AIRCRAFT CAPABLE OF 280 KNOTS OR GREATER ONLY.

NOTE: EXPECT RUNWAY ASSIGNMENT FROM HOUSTON TRACON UPON INITIAL CONTACT.

NOTE: CORRESPONDING RNAV STAR IS WHACK. EXPECT WHACK WHEN IAH IS LANDING WEST.

NOTE: CROSS PROZC AT 280 KIAS, CROSS WHACK AT 280 KIAS, CROSS NUTZZ AT 280 KIAS, CROSS FRAGL AT 280 KIAS, CROSS TWSTD AT 280 KIAS, CROSS PSYCO AT 250 KIAS, CROSS GOVVV AT 210 KIAS, CROSS SHIVV AT 210 KIAS.

(4) Fixes and/or Holding Patterns: CHART HOLDING AT MENTL: NE, RT, 224.99 INBOUND, 20 NM LEGS; CHART HOLDING AT WHACK: NE, RT, 224.23 INBOUND, 10 NM LEGS.

(5) Communications: HOUSTON APP IAH ATIS

QUALITY
2
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(6) Arrival Name	(7) Number	(8) STAR Computer Code	(9) Superseded Nr.	(10) Dated	(11) Effective Date
TWSTD RNAV	ONE	WHACK.TWSTD1	NONE		29 MAY 2014

(12) Airports Served					
Airport Name	GEORGE BUSH INTERCONTINENTAL/HOUSTON		City/State	HOUSTON, TX	
Airport Name			City/State		
Airport Name			City/State		
Airport Name			City/State		
Airport Name			City/State		
Airport Name			City/State		
(13) Lost Communications Procedure:					
(14) Remarks:					
(15) Additional Flight Data: DME/DME ASSESSMENT: SAT (RNP 2.0). REFERENCE MAG VAR: KIAH 03E/2015					
(6) Arrival Name	(7) Number	(8) STAR Computer Code	(9) Superseded Nr.	(10) Dated	(11) Effective Date
TWSTD RNAV	ONE	WHACK.TWSTD1	NONE		29 MAY 2014

(16) Continuation:**(1) Transition Routes**

(a) Transition Name	(b) Transition Computer Codes	(c) From RNAV WP / FIX / NAVAID	(d) To RNAV WP / FIX / NAVAID	(e) Mag Course / Distance	(f) MEA	(g) MOCA	(h) MAA	(i) Crossing Altitudes / Fixes
			WHACK	224.23/20.01	9000	1700		AT/ABOVE 17000, AT/BELOW FL200

(2) Arrival Route Description:

267.10. EXPECT VECTORS TO FINAL APPROACH COURSE.

LANDING RWY 09: FROM TWSTD ON TRACK 225.94/10.55 TO CROSS PSYCO AT OR ABOVE 10000, AT OR BELOW 11000 AND AT 250 KIAS (MEA 4000), THEN ON TRACK 227.30/14.95 TO CROSS KNGWD AT OR BELOW 10000 (MEA 4000), THEN ON TRACK 224.87/6.00 TO CROSS EDEEE AT OR BELOW 8000 (MEA 4000), THEN ON TRACK 225.00/10.41 TO CROSS REAPR AT 6000 (MEA 4000), THEN ON TRACK 224.98/4.54 TO CROSS SHIVV AT 6000 AND AT 210 KIAS (MEA 4000), THEN ON TRACK 267.18/4.82 TO CROSS HOWLN AT 6000 (MEA 4000), THEN ON TRACK 267.18. EXPECT VECTORS TO FINAL APPROACH COURSE.

(17) Changes:**(18) Reasons for Changes:**

02/04/14: THIS IS AN UPDATED COPY OF THE FORM DEVELOPED ON 6/17/13.

1. 7100-4 BLOCK 3 CHANGED NOTE FROM TURBOJET AND TURBOPROP AIRCRAFT ONLY TO FOR TURBOJET AND TURBOPROP AIRCRAFT CAPABLE OF 280 KNOTS OR GREATER ONLY.
2. 7100-4 BLOCK 8 CHANGED STAR COMPUTER CODE FROM TWSTD.TWSTD1 TO WHACK.TWSTD1.
3. 7100-3 BLOCK 13 CHANGED STAR COMPUTER CODE FROM TWSTD.TWSTD1 TO WHACK.TWSTD1.

(6) Arrival Name	(7) Number	(8) STAR Computer Code	(9) Superseded Nr.	(10) Dated	(11) Effective Date
TWSTD RNAV	ONE	WHACK.TWSTD1	NONE		29 MAY 2014

US Department of Transportation Federal Aviation Administration				RNAV STAR (Data Record)						
(1) FIX/NAVAID	(2) LAT/LONG	(3) C	(4) FO/FB	(5) LEG	(6) TC	(7) DIST	(8) ALTITUDE	(9) SPEED	(10) REMARKS	
En Route Transition										
AEX VORTAC	311524.22N / 0923003.51W	Y		IF					AEX.TWSTD1	
CRNKY	304700.71N / 0934941.12W	Y	FB	TF	247.85	74.05	AT/ABOVE FL240			
PROZC	303959.73N / 0940855.50W	Y	FB	TF	247.20	18.00	AT/ABOVE FL220 AT/BELOW FL270	AT 280K		
WHACK	303208.86N / 0943014.89W	Y	FB	TF	247.04	20.00	AT/ABOVE 17000 AT/BELOW FL200	AT 280K		
En Route Transition										
CARPR	310428.34N / 0940654.83W	Y		IF					CARPR.TWSTD1	
NUTZZ	304910.97N / 0941758.94W	Y	FB	TF	212.01	17.98	AT/ABOVE FL220 AT/BELOW FL270	AT 280K		
WHACK	303208.86N / 0943014.89W	Y	FB	TF	211.95	20.02	AT/ABOVE 17000 AT/BELOW FL200	AT 280K		
En Route Transition										
PLANB	313559.26N / 0934351.54W	Y		IF					PLANB.TWSTD1	
CARPR	310428.34N / 0940654.83W	Y	FB	TF	212.22	37.13				
NUTZZ	304910.97N / 0941758.94W	Y	FB	TF	212.01	17.98	AT/ABOVE FL220 AT/BELOW FL270	AT 280K		
WHACK	303208.86N / 0943014.89W	Y	FB	TF	211.95	20.02	AT/ABOVE 17000 AT/BELOW FL200	AT 280K		
(11) Arrival Name TWSTD RNAV		(12) Number ONE		(13) STAR Computer Code WHACK.TWSTD1			(14) Superseded Nr. NONE		(15) Dated	(16) Effective Date 29 MAY 2014

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US Department of Transportation Federal Aviation Administration							RNAV STAR (Data Record)			
(1) FIX/NAVAID	(2) LAT/LONG	(3) C	(4) FO/FB	(5) LEG	(6) TC	(7) DIST	(8) ALTITUDE	(9) SPEED	(10) REMARKS	
En Route Transition										
SWB VOR/DME	315823.50N / 0924037.52W	Y		IF					SWB.TWSTD1	
MENTL	305820.09N / 0935730.12W	Y	FB	TF	227.99	88.96	AT/ABOVE FL240			
FRAGL	304547.04N / 0941314.39W	Y	FB	TF	227.31	18.45	AT/ABOVE FL220 AT/BELOW FL270	AT 280K		
WHACK	303208.86N / 0943014.89W	Y	FB	TF	227.23	20.01	AT/ABOVE 17000 AT/BELOW FL200	AT 280K		
Common Route										
WHACK	303208.86N / 0943014.89W	Y		IF			AT/ABOVE 17000 AT/BELOW FL200	AT 280K	WHACK.TWSTD1	
TWSTD	302407.78N / 0944200.06W	Y	FB	TF	231.83	12.93	AT/ABOVE 13000 AT/BELOW 16000	AT 280K		
Runway Transition										
TWSTD	302407.78N / 0944200.06W	Y		IF			AT/ABOVE 13000 AT/BELOW 16000	AT 280K		
PSYCO	301710.80N / 0945111.19W	Y	FB	TF	228.94	10.55	AT/ABOVE 10000 AT/BELOW 11000	AT 250K		
KNGWD	300735.81N / 0950426.99W	Y	FB	TF	230.30	14.95	AT/BELOW 10000			
VLDEZ	300532.56N / 0951725.16W	Y	FB	TF	259.73	11.43				
(11) Arrival Name TWSTD RNAV		(12) Number ONE		(13) STAR Computer Code WHACK.TWSTD1			(14) Superseded Nr. NONE		(15) Dated	(16) Effective Date 29 MAY 2014

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GOVVV	300532.85N / 0952212.94W	Y	FB	TF	270.09	04.16	AT 6000	AT 210K	
DOMNO	300533.28N / 0952901.63W	Y	FO	TF	270.10	05.91	AT 6000		
KIAH:RWY 08B		Y		FM	270.10				
Runway Transition									
TWSTD	302407.78N / 0944200.06W	Y		IF			AT/ABOVE 13000 AT/BELOW 16000	AT 280K	
PSYCO	301710.80N / 0945111.19W	Y	FB	TF	228.94	10.55	AT/ABOVE 10000 AT/BELOW 11000	AT 250K	
KNGWD	300735.81N / 0950426.99W	Y	FB	TF	230.30	14.95	AT/BELOW 10000		
EDEEE	300333.64N / 0950934.66W	Y	FB	TF	227.87	06.00	AT/BELOW 8000		
REAPR	295634.37N / 0951828.99W	Y	FB	TF	228.00	10.41	AT 6000		
SHIVV	295331.44N / 0952221.90W	Y	FB	TF	227.98	04.54	AT 6000	AT 210K	
HOWLN	295332.21N / 0952754.90W	Y	FO	TF	270.18	04.82	AT 6000		
KIAH:RWY 09		Y		FM	270.18				
(11) Arrival Name TWSTD RNAV		(12) Number ONE		(13) STAR Computer Code WHACK.TWSTD1		(14) Superseded Nr. NONE		(15) Dated	(16) Effective Date 29 MAY 2014

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STAR (Data Record)

SUSAP	KIAHK4ETWSTD14AEX	010AEX	K4D 0V	IF				18000
SUSAP	KIAHK4ETWSTD14AEX	020CRNKYK4PC0E		010TF			+ FL240	
SUSAP	KIAHK4ETWSTD14AEX	030PROZCK4PC0E		010TF			B FL270FL220	280
SUSAP	KIAHK4ETWSTD14AEX	040WHACKK4EA0EE	H	010TF			B FL20017000	280
SUSAP	KIAHK4ETWSTD14CARPR	010CARPRK4PC0E		IF				18000
SUSAP	KIAHK4ETWSTD14CARPR	020NUTZZK4PC0E		010TF			B FL270FL220	280
SUSAP	KIAHK4ETWSTD14CARPR	030WHACKK4EA0EE	H	010TF			B FL20017000	280
SUSAP	KIAHK4ETWSTD14PLANB	010PLANBK4EA0E		IF				18000
SUSAP	KIAHK4ETWSTD14PLANB	020CARPRK4PC0E		010TF				
SUSAP	KIAHK4ETWSTD14PLANB	030NUTZZK4PC0E		010TF			B FL270FL220	280
SUSAP	KIAHK4ETWSTD14PLANB	040WHACKK4EA0EE	H	010TF			B FL20017000	280
SUSAP	KIAHK4ETWSTD14SWB	010SWB	K4D 0V	IF				18000
SUSAP	KIAHK4ETWSTD14SWB	020MENTLK4PC0E	H	010TF			+ FL240	
SUSAP	KIAHK4ETWSTD14SWB	030FRAGLK4PC0E		010TF			B FL270FL220	280
SUSAP	KIAHK4ETWSTD14SWB	040WHACKK4EA0EE	H	010TF			B FL20017000	280
SUSAP	KIAHK4ETWSTD15	010WHACKK4EA0E	H	IF			B FL2001700018000	280
SUSAP	KIAHK4ETWSTD15	020TWSTDK4EA0EE		010TF			B 1600013000	280
SUSAP	KIAHK4ETWSTD16RW08B	010TWSTDK4EA0E		IF			B 160001300018000	280
SUSAP	KIAHK4ETWSTD16RW08B	020PSYCOK4PC0E		010TF			B 1100010000	250
SUSAP	KIAHK4ETWSTD16RW08B	030KNGWDK4PC0E		010TF			- 10000	
SUSAP	KIAHK4ETWSTD16RW08B	040VLDEZK4PC0E		010TF				
SUSAP	KIAHK4ETWSTD16RW08B	050GOVVVK4PC0E		010TF			06000	210
SUSAP	KIAHK4ETWSTD16RW08B	060DOMNOK4PC0EY		010TF			06000	
SUSAP	KIAHK4ETWSTD16RW08B	070DOMNOK4PC0EE		FM	AEX K4	243516932671	D	
SUSAP	KIAHK4ETWSTD16RW09	010TWSTDK4EA0E		IF			B 160001300018000	280
SUSAP	KIAHK4ETWSTD16RW09	020PSYCOK4PC0E		010TF			B 1100010000	250
SUSAP	KIAHK4ETWSTD16RW09	030KNGWDK4PC0E		010TF			- 10000	
SUSAP	KIAHK4ETWSTD16RW09	040EDEEEK4PC0E		010TF			- 08000	
SUSAP	KIAHK4ETWSTD16RW09	050REAPRK4PC0E		010TF			06000	
SUSAP	KIAHK4ETWSTD16RW09	060SHIVVK4PC0E		010TF			06000	210
SUSAP	KIAHK4ETWSTD16RW09	070HOWLNK4PC0EY		010TF			06000	
SUSAP	KIAHK4ETWSTD16RW09	080HOWLNK4PC0EE		FM	AEX K4	239717392672	D	

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(11) Arrival Name TWSTD RNAV	(12) Number ONE	(13) STAR Computer Code WHACK.TWSTD1	(14) Superseded Nr. NONE	(15) Dated	(16) Effective Date 29 MAY 2014
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**US Department of Transportation
Federal Aviation Administration**
STAR (Data Record)

ARINC SUMMARY - 424-18 - STAR

ROUTES	TRANSITION	FIX	SEQ	USE	PATH	TURN	FO/FB	RNP	MAG (TRUE)	DISTANCE	ALTITUDE	SPEED
	AEX	AEX	010		IF		FB					
	AEX	CRNKY	020		TF		FB	1.0			AA FL240	
	AEX	PROZC	030		TF		FB	1.0			BT FL270FL220	AT 280
	AEX	WHACK	040		TF		FB	1.0			BT FL20017000	AT 280
	CARPR	CARPR	010		IF		FB					
	CARPR	NUTZZ	020		TF		FB	1.0			BT FL270FL220	AT 280
	CARPR	WHACK	030		TF		FB	1.0			BT FL20017000	AT 280
	PLANB	PLANB	010		IF		FB					
	PLANB	CARPR	020		TF		FB	1.0				
	PLANB	NUTZZ	030		TF		FB	1.0			BT FL270FL220	AT 280
	PLANB	WHACK	040		TF		FB	1.0			BT FL20017000	AT 280
	SWB	SWB	010		IF		FB					
	SWB	MENTL	020		TF		FB	1.0			AA FL240	
	SWB	FRAGL	030		TF		FB	1.0			BT FL270FL220	AT 280
	SWB	WHACK	040		TF		FB	1.0			BT FL20017000	AT 280
		WHACK	010		IF		FB				BT FL20017000	AT 280
		TWSTD	020		TF		FB	1.0			BT 1600013000	AT 280
	RW08B	TWSTD	010		IF		FB				BT 1600013000	AT 280
	RW08B	PSYCO	020		TF		FB	1.0			BT 1100010000	AT 250
	RW08B	KNGWD	030		TF		FB	1.0			AB 10000	
	RW08B	VLDEZ	040		TF		FB	1.0				
	RW08B	GOVVV	050		TF		FB	1.0			AT 06000	AT 210
	RW08B	DOMNO	060		TF		FO	1.0			AT 06000	
	RW08B	DOMNO	070		FM		FB		267.1()			
	RW09	TWSTD	010		IF		FB				BT 1600013000	AT 280
	RW09	PSYCO	020		TF		FB	1.0			BT 1100010000	AT 250
	RW09	KNGWD	030		TF		FB	1.0			AB 10000	
	RW09	EDEEE	040		TF		FB	1.0			AB 08000	
	RW09	REAPR	050		TF		FB	1.0			AT 06000	
	RW09	SHIVV	060		TF		FB	1.0			AT 06000	AT 210
	RW09	HOWLN	070		TF		FO	1.0			AT 06000	
	RW09	HOWLN	080		FM		FB		267.2()			

POINT DATA	WAYPOINT	LAT IN SECS	LONG IN SECS	LAT IN MINS	LONG IN MINS
	AEX	N311524.22	W0923003.51	N3115.404	W09230.059
	SWB	N315823.50	W0924037.52	N3158.392	W09240.625
	PLANB	N313559.26	W0934351.54	N3135.988	W09343.859

(11) Arrival Name	(12) Number	(13) STAR Computer Code	(14) Superseded Nr.	(15) Dated	(16) Effective Date
TWSTD RNAV	ONE	WHACK.TWSTD1	NONE		29 MAY 2014

**US Department of Transportation
Federal Aviation Administration**
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TWSTD	N302407.78	W0944200.06	N3024.130	W09442.001
WHACK	N303208.86	W0943014.89	N3032.148	W09430.248
CARPR	N310428.34	W0940654.83	N3104.472	W09406.914
CRNKY	N304700.71	W0934941.12	N3047.012	W09349.685
DOMNO	N300533.28	W0952901.63	N3005.555	W09529.027
EDEEE	N300333.64	W0950934.66	N3003.561	W09509.578
FRAGL	N304547.04	W0941314.39	N3045.784	W09413.240
GOVVV	N300532.85	W0952212.94	N3005.548	W09522.216
HOWLN	N295332.21	W0952754.90	N2953.537	W09527.915
KNGWD	N300735.81	W0950426.99	N3007.597	W09504.450
MENTL	N305820.09	W0935730.12	N3058.335	W09357.502
NUTZZ	N304910.97	W0941758.94	N3049.183	W09417.982
PROZC	N303959.73	W0940855.50	N3039.996	W09408.925
PSYCO	N301710.80	W0945111.19	N3017.180	W09451.187
REAPR	N295634.37	W0951828.99	N2956.573	W09518.483
SHIVV	N295331.44	W0952221.90	N2953.524	W09522.365
VLDEZ	N300532.56	W0951725.16	N3005.543	W09517.419
RW08L	N300025.78	W0952131.65	N3000.430	W09521.528
RW08R	N295936.30	W0952117.87	N2959.605	W09521.298
RW09	N295839.34	W0952002.79	N2958.656	W09520.047

RUNWAY DATA

RWY	THRESHOLD ELEVATION	TCH
RW08L	00091	55
RW08R	00095	55
RW09	00091	50

(11) Arrival Name	(12) Number	(13) STAR Computer Code	(14) Superseded Nr.	(15) Dated	(16) Effective Date
TWSTD RNAV	ONE	WHACK.TWSTD1	NONE		29 MAY 2014