

<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="text-align: left;"> <b>US Department of Transportation Federal Aviation Administration</b> </div> <div style="text-align: center;"> <b>STAR - Standard Terminal Arrival</b> </div> <div style="text-align: right; font-size: 0.8em;">           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         </div> </div>								
(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.TWSTD2	AEX VORTAC	AEX VORTAC					AT/ABOVE FL240
			CRNKY	244.85/74.05	12000	1800		
			PROZC	244.20/18.00	12000	1700	AT/ABOVE FL220, AT/BELOW FL270	
CARPR	CARPR.TWSTD2	CARPR	WHACK	244.04/20.00	9000	1700		AT/ABOVE 17000, AT/BELOW FL200
			CARPR					
			NUTZZ	209.01/17.98	12000	1700	AT/ABOVE FL220, AT/BELOW FL270	
PLANB	PLANB.TWSTD2	PLANB	WHACK	208.95/20.02	9000	1900		AT/ABOVE 17000, AT/BELOW FL200
			PLANB					
			CARPR	209.22/37.13	12000	1900		
SAWMILL	SWB.TWSTD2	SWB VOR/DME	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
			MENTL	224.99/88.96	12000	2000	AT/ABOVE FL240	
			FRAGL	224.31/18.45	12000	2000		AT/ABOVE FL220, AT/BELOW FL270
<b>(2) Arrival Route Description:</b> 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...								
<b>(3) Procedural Data Notes:</b> NOTE: RADAR REQUIRED. NOTE: RNAV 1. NOTE: DME/DME/IRU OR GPS REQUIRED. NOTE: FOR USE BY TURBOJET AND TURBOPROP AIRCRAFT 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. NOTE: EXCEPT FOR AIRCRAFT DEPARTING SHV, PLANB TRANSITION IS ATC ASSIGNED ONLY; DO NOT FILE. NOTE: SPEED RESTRICTION: TURBOJET AIRCRAFT DESCEND VIA MACH NUMBER UNTIL INTERCEPTING 280 KT. MAINTAIN 280 KT UNTIL SLOWED BY STAR.								
<b>(4) Fixes and/or Holding Patterns:</b> CHART HOLDING AT MENTL: NE, RT, 224.99 INBOUND, 20 NM LEGS; CHART HOLDING AT WHACK: NE, RT, 224.23 INBOUND, 10 NM LEGS.								
<b>(5) Communications:</b> HOUSTON APP IAH ATIS								
(6) Arrival Name TWSTD RNAV	(7) Number TWO	(8) STAR Computer Code WHACK.TWSTD2	(9) Superseded Nr. ONE	(10) Dated 5/29/2014	(11) Effective Date <b>24 JUL 2014</b>			

**(12) Airports Served**

<b>Airport Name</b>	GEORGE BUSH INTERCONTINENTAL/HOUSTON	<b>City/State</b>	HOUSTON, TX
<b>Airport Name</b>		<b>City/State</b>	
<b>Airport Name</b>		<b>City/State</b>	
<b>Airport Name</b>		<b>City/State</b>	
<b>Airport Name</b>		<b>City/State</b>	
<b>Airport Name</b>		<b>City/State</b>	

**(13) Lost Communications Procedure:****(14) Remarks:**

**(15) Additional Flight Data:**  
DME/DME ASSESSMENT: SAT (RNP 2.0).  
REFERENCE MAG VAR: KIAH 03E/2015

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<b>(6) Arrival Name</b> TWSTD RNAV	<b>(7) Number</b> TWO	<b>(8) STAR Computer Code</b> WHACK.TWSTD2	<b>(9) Superseded</b> ONE	<b>(10) Dated</b> 5/29/2014	<b>(11) Effective Date</b> 24 JUL 2014
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<b>(16) Continuation:</b>								
<b>(1) Transition Routes</b>								
(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
<p>(2) Arrival Route Description:  267.10. EXPECT VECTORS TO FINAL APPROACH COURSE.</p> <p>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.</p>								
<b>(17) Changes:</b>								
<p>1. Block 1, Column (b) All Revision numbers upnumbered to revision 2</p> <p>2. Procedure Data Notes:  ADD NOTE: EXCEPT FOR AIRCRAFT DEPARTING SHV, PLANB TRANSITION IS FOR ATC ASSIGNED ONLY; DO NOT FILE.</p> <p>3. Procedure Data Notes:  ADD: NOTE: SPEED RESTRICTION: TURBOJET AIRCRAFT DESCEND VIA MACH NUMBER UNTIL INTERCEPTING 280 KT. MAINTAIN 280 KT UNTIL SLOWED BY STAR.</p> <p>4. CHANGE NOTE : FOR TURBOJET AND TURBOPROP AIRCRAFT CAPABLE OF 280 KNOTS OR GREATER ONLY;TO READ: FOR USE BY TURBOJET AND TURBOPROP AIRCRAFT ONLY.</p>								
<b>(18) Reasons for Changes:</b>								
1,2,3,4 ATC REQUEST								
(6) Arrival Name TWSTD RNAV	(7) Number TWO	(8) STAR Computer Code WHACK.TWSTD2	(9) Superseded Nr. ONE	(10) Dated 5/29/2014	(11) Effective Date 24 JUL 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.TWSTD2
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.TWSTD2
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.TWSTD2
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 TWO		(13) STAR Computer Code WHACK.TWSTD2		(14) Superseded Nr. ONE		(15) Dated 5/29/2014	(16) Effective Date 24 JUL 2014

QUALITY  
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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.TWSTD2
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.TWSTD2
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 TWO	(13) STAR Computer Code WHACK.TWSTD2		(14) Superseded Nr. ONE		(15) Dated 5/29/2014		(16) Effective Date 24 JUL 2014	

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US Department of Transportation Federal Aviation Administration							RNAV STAR (Data Record)			
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 TWO		(13) STAR Computer Code WHACK.TWSTD2		(14) Superseded Nr. ONE		(15) Dated 5/29/2014		(16) Effective Date 24 JUL 2014

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**US Department of Transportation  
Federal Aviation Administration**

### STAR (Data Record)

ARINC PACKET - 424-18 - STAR

NAVAID	1	2	3	4	5	6	7	8	9	0	1	2	3
SUSAD	AEX	K4011610VTHA	N31152422W092300351		N31152422W092300351E0030000802					NARALEXANDRIA			
SUSAD	SWB	K4011375VDHW	N31582350W092403752		N31582350W092403752E0020001642					NARSAWMILL			

[illegible][illegible][illegible][illegible]

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(11) <b>Arrival Name</b> TWSTD RNAV	(12) <b>Number</b> TWO	(13) <b>STAR Computer Code</b> WHACK.TWSTD2	(14) <b>Superseded Nr.</b> ONE	(15) <b>Dated</b> 5/29/2014	(16) <b>Effective Date</b> 24 JUL 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

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 (11)  
Arrival Name  
TWSTD RNAV

 (12)  
Number  
TWO

 (13)  
STAR Computer Code  
WHACK.TWSTD2

 (14)  
Superseded Nr.  
ONE

 (15)  
Dated  
5/29/2014

 (16)  
Effective Date  
24 JUL 2014

**US Department of Transportation  
Federal Aviation Administration**
**STAR (Data Record)**

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	56

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(11) Arrival Name	(12) Number	(13) STAR Computer Code	(14) Superseded Nr.	(15) Dated	(16) Effective Date
TWSTD RNAV	TWO	WHACK.TWSTD2	ONE	5/29/2014	24 JUL 2014