AERONAUTICAL CHARTING FORUM
Instrument Procedures Group
Meeting 15-01 – April 28, 2015

RECOMMENDATION DOCUMENT

FAA Control # 15-01-321

Subject: Coding of Missed Approach for ILS31L and ILS31R at KJFK

Background/Discussion: It was recently discovered by an airline crew that the missed approach for the ILS31L and ILS31R at KJFK does not appear to be coded correctly in the FMS database. The coding and text on the approach chart do not match and is causing confusion in the cockpit. The FMS coding indicates these are "At or Above" altitudes, however the text indicates the intent of these to be coded as "At" altitudes. It seems that the "at" altitude is indeed providing procedural separation the way it is described. Investigation with Aeronautical Information Services (AIS) and Jeppesen revealed that the text description indicates a level off, but the actual coding indicates "at/above or minimum." FAA Form 8260-3 states that "Altitudes are minimum altitudes unless otherwise indicated." However, when it comes to the text used to describe missed approach instructions, Order 8260.19F, paragraph 8-6-7d Note, states:

Note: *To standardize and clarify altitudes and the meaning of "and" or "then" when used as connecting words between segments of the missed approach, "and" means a continuous climb to the stated altitude; "then" means the altitude condition must be reached at the prior to the connecting word "then", and either is maintained through the remaining missed approach or a second altitude will be stated.*

Recommendations: Unlike RNAV procedures that are accompanied with ARINC coding information with the procedure, non-RNAV procedures do not. Recommend that database coding authorities become familiar with and comply with the use of the terms (i.e., "and" vs. "then") used when coding conventional instrument procedures as defined in Order 8260.19F, paragraph 8-6-7d Note.

Comments:

Submitted by: Lev Prichard
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E-mail: lprichard@alliedpilots.org
Date: 8APR15

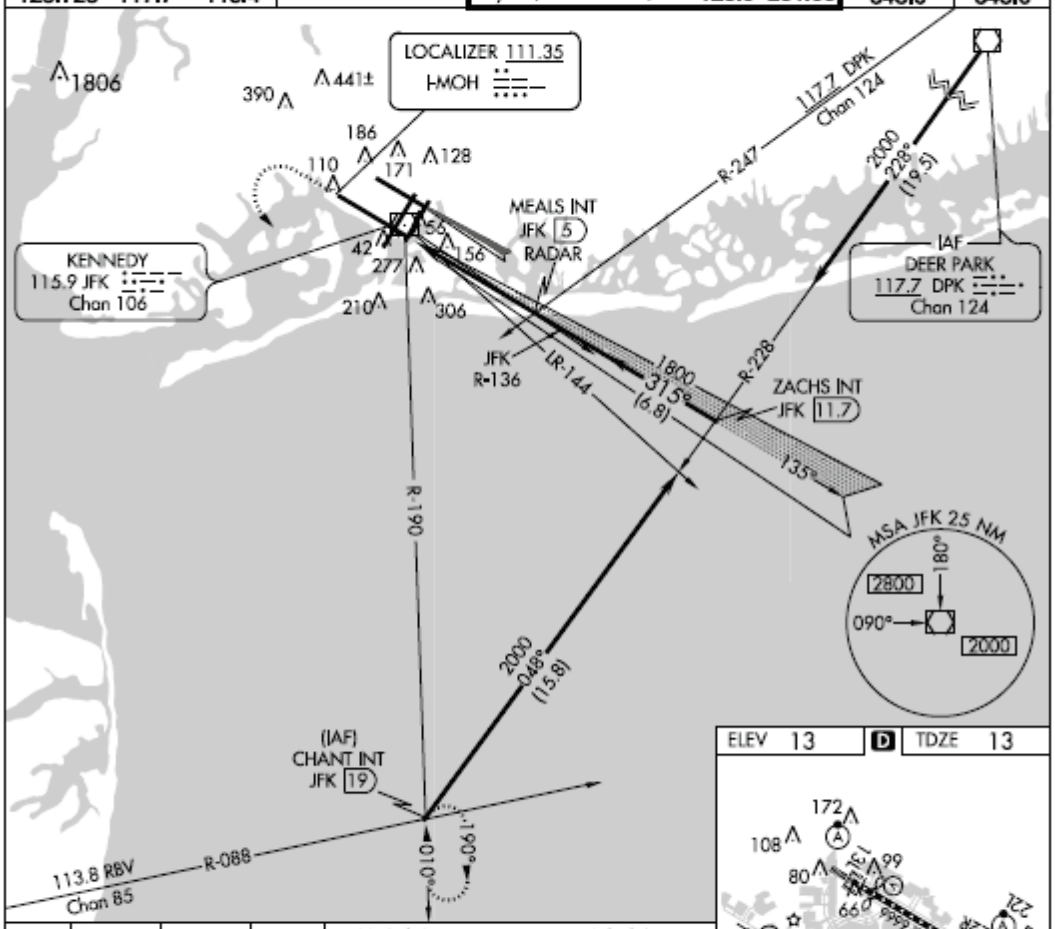
LOC I-MOH	APP CRS	Rwy ldg 11248
111.35	315°	TDZE 13
		Apt Elev 13

ILS or LOC RWY 31L
JOHN F KENNEDY INTL (JFK)

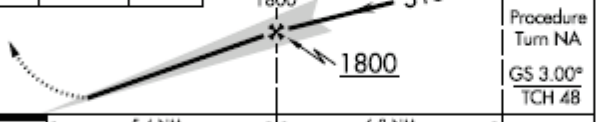
Simultaneous approach authorized with Rwy 31R.
DME from JFK VOR/DME.

MISSED APPROACH: Climb to 500 then climbing left turn to 1000 until intercepting JFK R-190, then climb to 3000 via JFK R-190 to CHANT INT/JFK 19 DME and hold.

ATIS (ARR-NE)	(ARR-SW)	NEW YORK APP CON	KENNEDY TOWER	GND CON	CLNC DEL
128.725 117.7	115.4	128.12 269.0	Rwys 4R/22L and 13L/31R 119.1 281.55 Rwys 4L/22R and 13R/31L 123.9 281.55	121.9 348.6	135.05 348.6

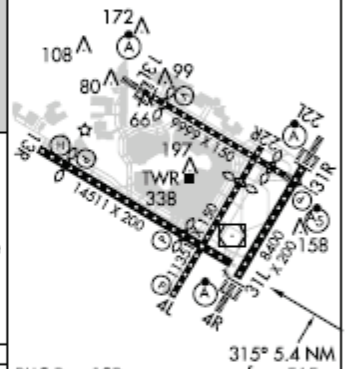


500	1000	3000	CHANT INT	MEALS INT JFK 5 RADAR	ZACHS INT JFK 11.7
	JFK R-190			1800	2000



Procedure Turn NA
GS 3.00°
TCH 48

ELEV 13 | D | TDZE 13



RLLS Rwy 13R
HIRL all Rwys
TDZ/CL Rwys 4R, 13L, 31R and 22L

FAF to MAP 5.4 NM

Knots	60	90	120	150	180
Min:Sec	5:24	3:36	2:42	2:10	1:48

CATEGORY	A	B	C	D
S-ILS 31L	213/40 200 (200-¾)			
S-LOC 31L	440/50 427 (500-1)		440/60 427 (500-1¼)	440-1½ 427 (500-1½)
CIRCLING	640-1 627 (700-1)		640-1¾ 627 (700-1¾)	640-2 627 (700-2)

NE-2, 02 APR 2015 to 30 APR 2015
NE-2, 02 APR 2015 to 30 APR 2015

KJFK/JFK
KENNEDY INTL

JEPPESEN

26 SEP 14 (21-6)

NEW YORK, NY
ILS or LOC Rwy 31L

D-ATIS Arrival (NE)	(SW)	NEW YORK Approach (R)	KENNEDY Tower (Rwys 4L/22R & 13R/31L) (Rwys 4R/22L & 13L/31R)	Ground
128.72 117.7	115.4	128.12	123.9 119.1	121.9

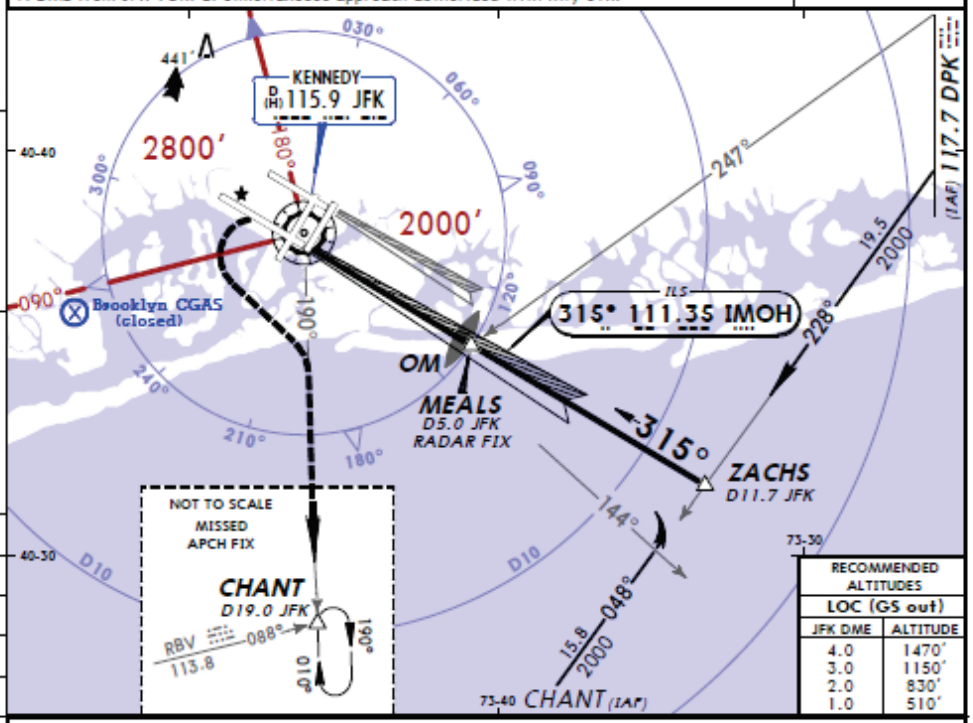
LOC	Final Apch Crs	GS	ILS DA(H)	Apt Elev 14′
IMOH 111.35	315°	MEALS 1800′(1787′)	213′(200′)	TDZE 13′

MISSED APCH: Climb to 500′ then climbing LEFT turn to 1000′ until intercepting JFK VOR R-190 outbound, then climb to 3000′ outbound via JFK VOR R-190 to CHANT INT/D19.0 JFK and hold.

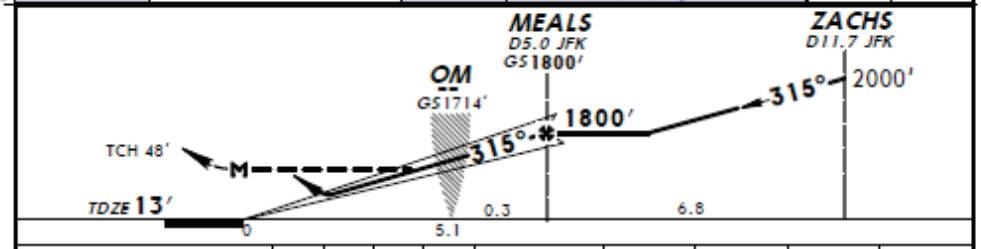
Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. DME from JFK VOR. 2. Simultaneous approach authorized with Rwy 31R.

MSA JFK VOR



RECOMMENDED ALTITUDES LOC (GS out)	
JFK DME	ALTITUDE
4.0	1470′
3.0	1150′
2.0	830′
1.0	510′



Gnd speed-Kts		120	140	160	180
ILS GS or LOC Descent Angle	3.00°	637	743	849	955
MEALS to MAP	5.4	2:42	2:19	2:02	1:48

PAPI-L | 500′ | 1000′ LT | JFK 115.9 R-190

STRAIGHT-IN LANDING RWY 31L			CIRCLE-TO-LAND	
	ILS DA(H) 213′(200′)	LOC (GS out) MDA(H) 440′(427′)	Max Kts	MDA(H)
C	RVR 40 or ¾	RVR 60 or 1¼	140	640′(626′) - 1¾
D		1½	165	640′(626′) - 2

CHANGES: Note.

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TERPS AMEND 10D 18 SEP 2014

LOC/DME I-RTH	APP CRS	Rwy ldg 8482
111.5	315°	TDZE 13
Chan 52		Apt Elev 14

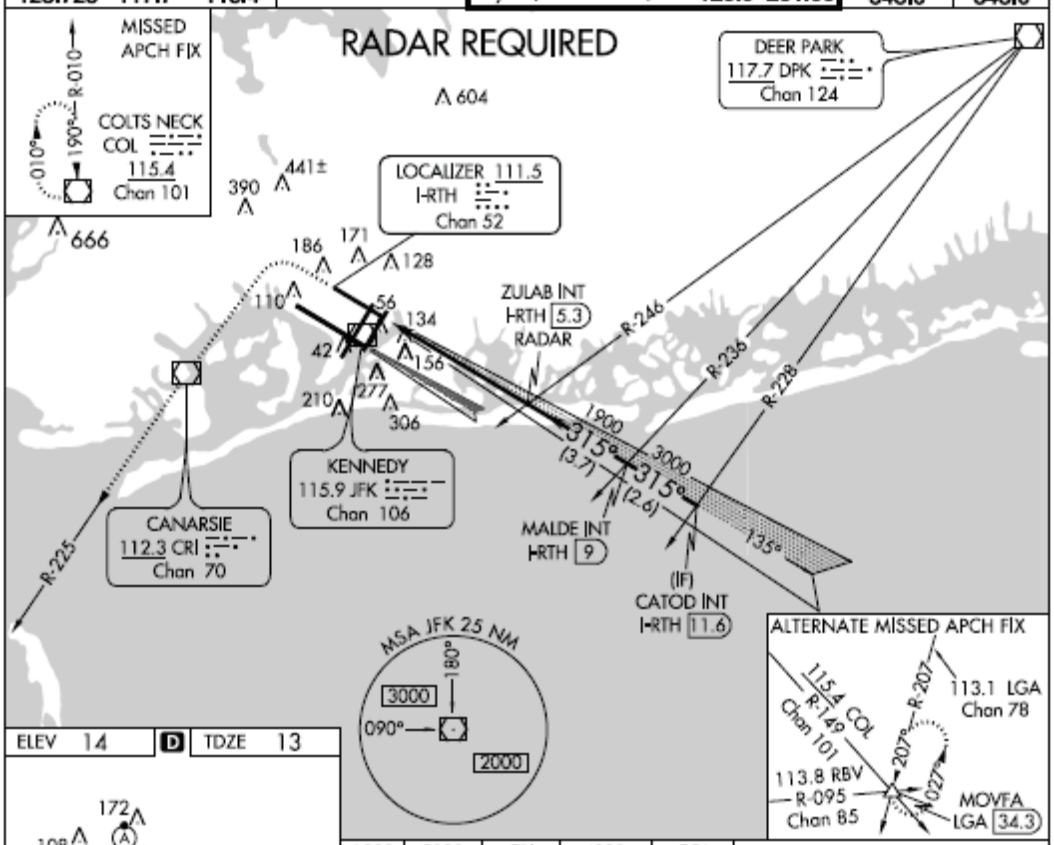
ILS or LOC RWY 31R
JOHN F KENNEDY INTL (JFK)

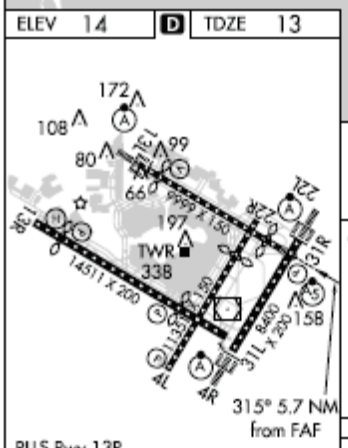
Simultaneous approach authorized with Rwy 31L.

MALSR

MISSED APPROACH: Climb to 1800 then climbing left turn to 2000 direct CRI VOR/DME then climb to 4000 via CRI VOR/DME R-225 to COL VOR/DME and hold.

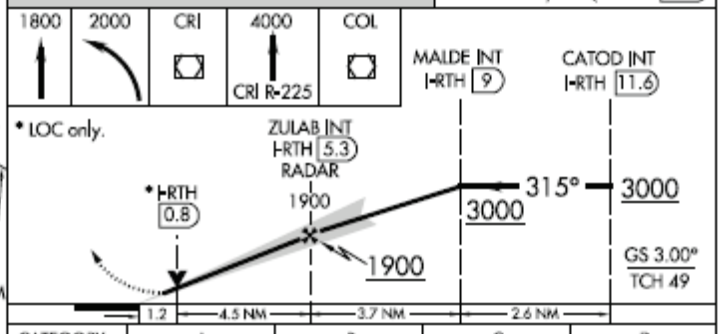
ATIS			NEW YORK APP CON		KENNEDY TOWER			GND CON	CLNC DEL
	(ARR-NE)	(ARR-SW)							
128.725	117.7	115.4	128.12	269.0	Rwys 4R/22L and 13L/31R	119.1	281.55	121.9	135.05
					Rwys 4L/22R and 13R/31L	123.9	281.55	348.6	348.6





RLLS Rwy 13R
HIRL all Rwys
TDZ/CL Rwys 4R, 13L, 31R and 22L

FAF to MAP 5.7 NM					
Knots	60	90	120	150	180
Min:Sec	5:42	3:48	2:51	2:17	1:54



CATEGORY	A	B	C	D
S-ILS 31R	213/18 200 (200-½)			
S-LOC 31R	440/24 427 (500-½)		440/40 427 (500-¾)	440/50 427 (500-1)
CIRCLING	640-1 626 (700-1)		640-1¾ 626 (700-1¾)	640-2 626 (700-2)

NE-2, 02 APR 2015 to 30 APR 2015
NE-2, 02 APR 2015 to 30 APR 2015

KJFK/JFK
KENNEDY INTL

JEPPESEN

26 SEP 14 (21-7)

NEW YORK, NY
ILS or LOC Rwy 31R

D-ATIS Arrival (NE)	(SW)	NEW YORK Approach (R)	KENNEDY Tower	Ground
128.72 117.7	115.4	128.12	119.1 (Rwys 4R/22L & 13L/31R) 123.9 (Rwys 4L/22R & 13R/31L)	121.9

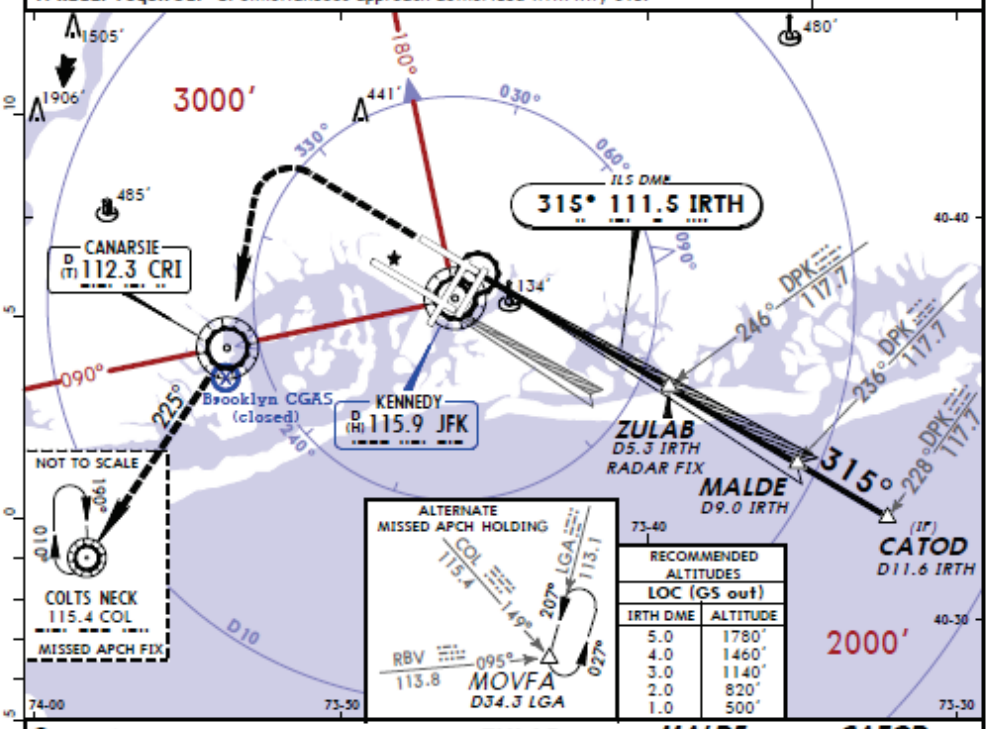
LOC IRTH	Final Apch Crs	GS ZULAB	ILS DA(H)	Apt Elev 14′
111.5	315°	1900′ (1887′)	213′ (200′)	TDZE 13′

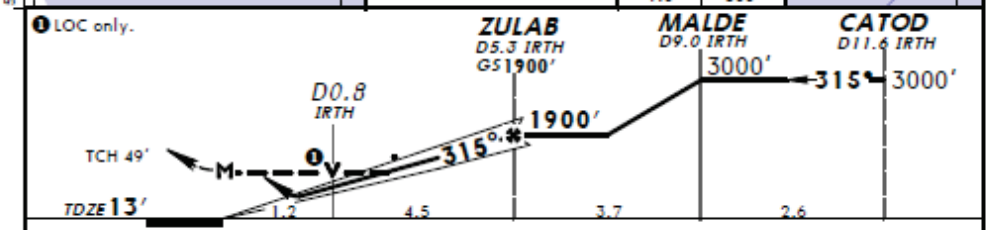
MISSED APCH: Climb to 1800′ then climbing LEFT turn to 2000′ direct CRI VOR then climb to 4000′ outbound via CRI VOR R-225 to COL VOR and hold, or as directed by ATC.

Alt Set: INCHES Trans level: FL 180 Trans alt: 18000′

1. Radar required. 2. Simultaneous approach authorized with Rwy 31L.

MSA JFK VOR (180°, 3000′, 090°, 2000′)





Gnd speed-Kts		120	140	160	180	MALSR	1800′	2000′ LT	CRI 112.3
ILS GS or LOC Descent Angle	3.00°	637	743	849	956				
ZULAB to MAP	5.7	2:51	2:27	2:08	1:54				

STRAIGHT-IN LANDING RWY 31R

	ILS DA(H) 213′ (200′) FULL	TDZ or CL out	RAIL or ALS out	LOC (GS out) MDA(H) 440′ (427′)	RAIL out	ALS out	CIRCLE-TO-LAND Max Kts	MDA(H)
C	RVR 18 or ½	RVR 24 or ½	RVR 40 or ¾	RVR 40 or ¾	RVR 60 or 1¼		140	640′ (626′) - 1¾
D				RVR 50 or 1	1½		165	640′ (626′) - 2

TERPS AMBND 15D 18 SEP 2014

CHANGES: Notes modified.

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INITIAL DISCUSSION – MEETING 15-01: Lev Prichard, Allied Pilots Association, briefed on an issue encountered by a crew where the missed approach verbiage does not match coding in the Flight Management System (FMS). The verbiage indicates an intermediate level off in the missed approach (use of word "then" in instructions) whereas the coding shows an at-or-above altitude crossing at all points. Lev took this issue to Brad Rush, AJV-54, who looked at it and said there were complications on the 8260-Forms that limited them to coding this way. Gary Fiske, AJV-82, inquired if anyone had asked the New York TRACON of their expectations of what the pilot will do in the event of a missed approach, and Lev said "no" since the procedure is spelled out on the approach plate. Rich Boll, NBAA, added to the discussion with a similar experience with JFK approaches on a different runway last year and when he asked ATC, they indicated they were "at" altitudes, which also did not match coding. Ted Thompson, Jeppesen, did research at Jeppesen on the history on these JFK approaches, and determined there was a back-and-forth change on how these altitudes would be coded. He inquired to Brad who pointed out the 8260-series Forms "boiler plate" guidance that says all altitudes are at-or-above unless otherwise designated. Ted said either the wording has to change to use "at," which also has issues (rapid climb rate not insuring level off), or change to at-or-below (as done in Seattle) since the FMS equipment will change the climb profile (soften) and solve problem. Brad had also reminded Ted that flight procedures are primarily designed for obstacle clearance and not ATC separation. Ted recommends the at-or-below method. Lev said the approaches in question need to be fixed ASAP, since this is a safety of flight issue and the long term solution needs to be addressed. Gary McMullin, Southwest Airlines, advised they have seen many of these before and when taken back to the FPT, all have been corrected with at-or-below altitudes. Lev displayed Order 8260.19F, paragraph 8-6-7d note, on meaning of word "then." Tom said this is written for procedure designers when developing the missed approach text and added that designers use TERPs to evaluate the missed approach segment (40:1 surface) but when there is a level off; the designer must switch to use a level surface evaluation for ROC, which was a major issue in Seattle. Rich said the issue is still the coding not matching what is on the chart. A group discussion ensued with several more examples and discussion of ARINC 424 coding of conventional approaches. Lev restated he is asking the group for two things: Fix the identified issue at JFK; and for changes to ensure this scenario does not happen again. Ted stated his answer is make altitudes at-or-below, and Tom added that would require a waiver to establish criteria to support as was done in Seattle. The existing criteria is at-or-above, and there is policy to distinguish what the language in the missed approach means and how that should (technically) be coded; however, he cannot control how the conventional procedure is coded by database providers. Information is provided about coding RNAV procedures on the FAA Form 8260-10. Rich said his example was an RNAV procedure and data on the Form 8260-10 form did not match the text. Tom said this is an AIS problem and Brad should have corrected this; Rich advised no. Gary McMullin asked if there was documentation on coding conventional missed approaches (answer no) and could that be a first step. Tom answered FAA does not do coding on conventional procedures, adding that originally the FAA did not want to be involved in coding RNAV either. It is the responsibility of each manufacturer to insure their navigation equipment will comply with the instrument procedure lateral and vertical requirements. A group discussion followed on coding issues including Jeppesen history, OEM issues, climbing and level off issues with and without coding, etc. Tom added there are numerous iterations of missed approach procedures and procedure designers need flexibility. The FAA relies on data base coders to interpret what is needed to support the missed approach and that is how the ARINC record is formulated. The question now becomes

how much more detail is required? Once the procedure is developed, it goes to flight check for flyability. If it does not pass flight check, they send it back to AIS for revision. Rick Dunham, AFS-420, specifically asked Lev what they are looking for since changes will not happen right away; i.e., issue a NOTAM? Lev said coding is out there and it does not match the procedure. Valerie Watson, AJV-553, stated that the FAA codes ILS procedures, but a Form 8260-10 is not provided as part of a procedure package for database developers outside the FAA. Tom inquired if there are any recommendations to change or improve guidance language to ensure that coding is done correctly.

Status: Rick took IOU for AFS-420 to take item back, review language, reach out to Lev and others, and see if there is an opportunity to clarify language (if needed) or determine if this is an AIS database issue. Tom added issue will be directed to US-IFPP due to impact on surfaces with at-or-below altitudes when executing a missed approach. Rick added US-IFPP has a database group to consider these kinds of issues. **Item open:** AFS-420 (US-IFPP)

MEETING 15-02: John Bordy, AFS-420, briefed (View) that this situation is related to a hold down altitude on the missed approach. The issue was referred to the US-IFPP and a working group was formed to look at procedure design and coding. There have been two meetings so far, looking at missed approach design options, guidance in FAA Order 8260.19, and ensuring language is consistent with departures. There is an effort to ensure missed approach instructions are clear to pilots and controllers. The intent is to make it easy for the database coder to know what is desired by the procedure developer and to try and avoid complicated procedures as much as possible. The group is looking at “at or above,” “at,” and “at or below” altitudes on forms. The intent is to avoid early level-off segments. The next amendment of FAA Order 8260.3 will explicitly prohibit hold down altitudes in the missed approach segment. The hold down of 1000 ft at JFK is being worked now with an expected publication date of February 2016. One option being explored is a missed approach that is similar to the RNAV MA to the same runway, which does not require a hold down altitude. Tony Lawson, AJV-54, said there is no criteria to evaluate a missed approach with a hold down altitude. General discussion followed on fixing the missed approach at JFK and pilot workload during a missed approach. Rick Dunham, AFS-420, assured the forum this is being worked and discussed within several groups. Rich Boll, NBAA, said this issue has come up before with the RNAV 4L/4R MA’s coding not matching. Ted Thompson, Jeppesen, said Jeppesen has changed coding multiple times on missed approaches for users, and continues to this day. Tom Schneider, AFS-420, recommended discussing the issue with the ARINC 424 group. John thinks the WG will have a recommendation by February 2016.

Status: Report results of sub-group meetings and US-IFPP decisions. **Item Open:** AFS-420.

MEETING 16-01: John Bordy (AFS-420) briefed that this issue involves hold down altitudes on the two approaches, which are non-standard. New language in Order 8260.3C clarifies the issue by stating altitudes other than the clearance limit altitude or an altitude to identify a turn point are not permitted, which should stop or stem the flow of these type missed approaches. AFS-400 would need to grant a waiver, and their

position is to discourage this. A recommendation for the ARINC coding working group was developed, but the AFS-460 representative could not attend their February meeting and will attend next. One of the recommendations from the working group was specific missed approach verbiage related to hold down altitudes so that coders can discern intent and code appropriately. That is, instead of saying, for example, "…climb to 1000 until CRI VOR/DME, then climb and maintain 2000," we would say "climb and maintain 2000 until CRI VOR/DME then climb to 4000…" Regarding the specific procedures that drove this agenda item, they were scheduled for amendment in February, but changes did not occur. The FAA, (AIS and the FPT), are negotiating with the New York TRACON (N90), trying to remove the hold down altitudes completely since the RNAV procedures to the same runways do not have any hold down restrictions. Tony Lawson (AJV-5) said they are involved in the waiver process, but do not like those type missed approaches, adding there are similar issues in Van Nuys, CA and at other airports. They would prefer the procedures be designed without hold down altitudes. Kevin Allen (American Airlines) said ATC wants flexibility to hold aircraft down, although procedure calls for higher altitudes. The recommendation was to code hard altitudes. John said the work group came to the same conclusion, but we generally do not establish policy on how to annotate/design non-standard procedures. In this case the altitude was coded as "at or above." If a procedure comes thru the Procedure Review Board (PRB) like this, we will ensure it is coded as "at or below," with the missed approach language something like "… maintain 2000 until crossing xxx, then…" Gary Fiske (AJV-8) asked N90 to provide the rationale for the RNAV and ILS missed approach differences. Tony advised that work is still on hold and being discussed at the region and they (AIS) are not involved in the discussion, but he has requested an update and will provide it when received. Lev Prichard (APA) expressed concern over the slow pace at which the FAA is reacting to correct this problem at JFK and feels coding guidance is needed for non-standard procedures to avoid this again. In the specific JFK cases, their crews have to manually catch this every time, so the pilots are asking why it is not fixed yet, and it has been over a year now, so why is it not at least coded correctly? Ted stated that the data base is coded as the FAA defines it on FAA source (i.e., 8260-series Form), but they still receive queries on these same procedures on a monthly basis. John said the issue needs a higher priority within the FAA. Coordination must be completed with the Eastern Region and N90. All altitudes specified on FAA Forms are "at or above" unless stated otherwise. Ted said that missed approaches are designed for obstacle clearance, not ATC needs, and that is the crux of the issue. Tony said from a design standpoint, the developer needs to know how long the aircraft must remain at a specified altitude due to required obstacle clearance. The FAA needs to look in the short term at a verbiage change initially then a procedure amendment to follow on these specific procedures.

Status: John will continue to work this through the US-IFPP regarding future criteria enhancements and look into raising the priority on this specific safety issue. **Item open:** AFS-420

MEETING 16-02: John Bordy (AFS-420) briefed VIEW there are two issues. The first issue is the status of the KJFK procedures; these are being amended with a scheduled publication ~~is~~ of February 2017. Stephen McClain (New York TRACON) advised that the revised procedure will not contain any hold down altitudes. The second issue is the coding of hold down altitudes on missed approach procedures. John Bordy reiterated these will continue to be non-standard and will require waivers. The FAA is moving away from providing coding (as with the VDA issue) for any procedures. Ted Thompson

(Jeppesen) said the issue is the wording of the missed approach procedure vs. the actual coding and stressed that the wording must be clearly written and not subject to interpretation if the coding is to be correct. John said the missed approach wording will be made as clear as possible and coding (in this case at-or-below) will have to match that, adding the FAA will discourage these type of hold down procedures. Stephen McClain mentioned that hold down altitudes have a huge impact on their congested airspace. Tom added there are locations where these may be needed but we do not want these as standard. Lev Prichard (APA) said providing the wording but no coding should fix the issue. A group discussion followed on the language as it would appear on the 8260-series Form and coding. Ted said if a change is desired prior to February, then written guidance by the FAA will be necessary for the providers.

Status: Track status of JFK procedure changes. **Item open:** AFS-420

MEETING 17-02: John Bordy (Flight Procedure Standards Branch), briefed these procedures have been revised to remove the maximum altitude restrictions within the missed approach segments and emphasized any procedures with such restrictions are non-standard and require waivers approved by Flight Standards. Rich Boll (NBAA) brought up another procedure which appears to also have a maximum altitude restriction prior to the missed approach clearance limit (VIEW), TEB RNAV(RNP) Z RWY 19. Rich indicated the maximum altitude; however, is coded improperly as a minimum altitude restriction. This example indicates there may be a systemic problem so John took an action to research.

Action Items: John Bordy to determine if a systemic problem exists in the NAS by identify all locations where a maximum altitude restriction is present within the missed approach and to determine if (1) a waiver to standards was granted, and (2) determine if the altitude is coded correctly.

Status: Item will remain open until above action is complete and can be reported to the ACF-IPG.

Meeting 18-01: John Bordy (Flight Procedure Standards Branch) informed the group that the subject procedures at John F. Kennedy Intl airport were revised to remove the maximum altitude restrictions within the missed approach. John and Tony Lawson (AJV-5) researched the NAS to identify all procedures with a maximum altitude restriction in the missed approach and will determine a course of action for those procedures (either obtain waiver or amend). Gary Fiske (AJT-24) said this could be a coding problem when text is unclear, and John added that when waiver requests are being considered, the language of the missed approach instructions are scrutinized to ensure the intent of the procedure designer is clear. Rich asked if Order 8260.19 should contain language specifying missed approach instructions should be worded when they contain a maximum altitude restriction, and John said we normally don't include policy for non-standard procedure design (maximum altitudes in missed approach are non-standard). Rich then

stated it would be possible then for different procedures (with maximum altitude restrictions) to have different language in the missed approach instructions to convey the restriction. John conceded evaluation of the missed approach instructions is subjective, but that he would talk to the manager of the branch responsible for approving waivers to see if Rich's concern about consistency can be addressed. John asked the group if they would like to keep this open or close this and report back at next meeting; the group concurred with issue closure.

Status: Item closed.