

RTCA Special Committee 209
ATCRBS / Mode S Transponder
Meeting #4

Honeywell, Olathe, Kansas
18 + 19 October 2006

Summary of Issues Relating to the Figures
In the Draft of DO-181D

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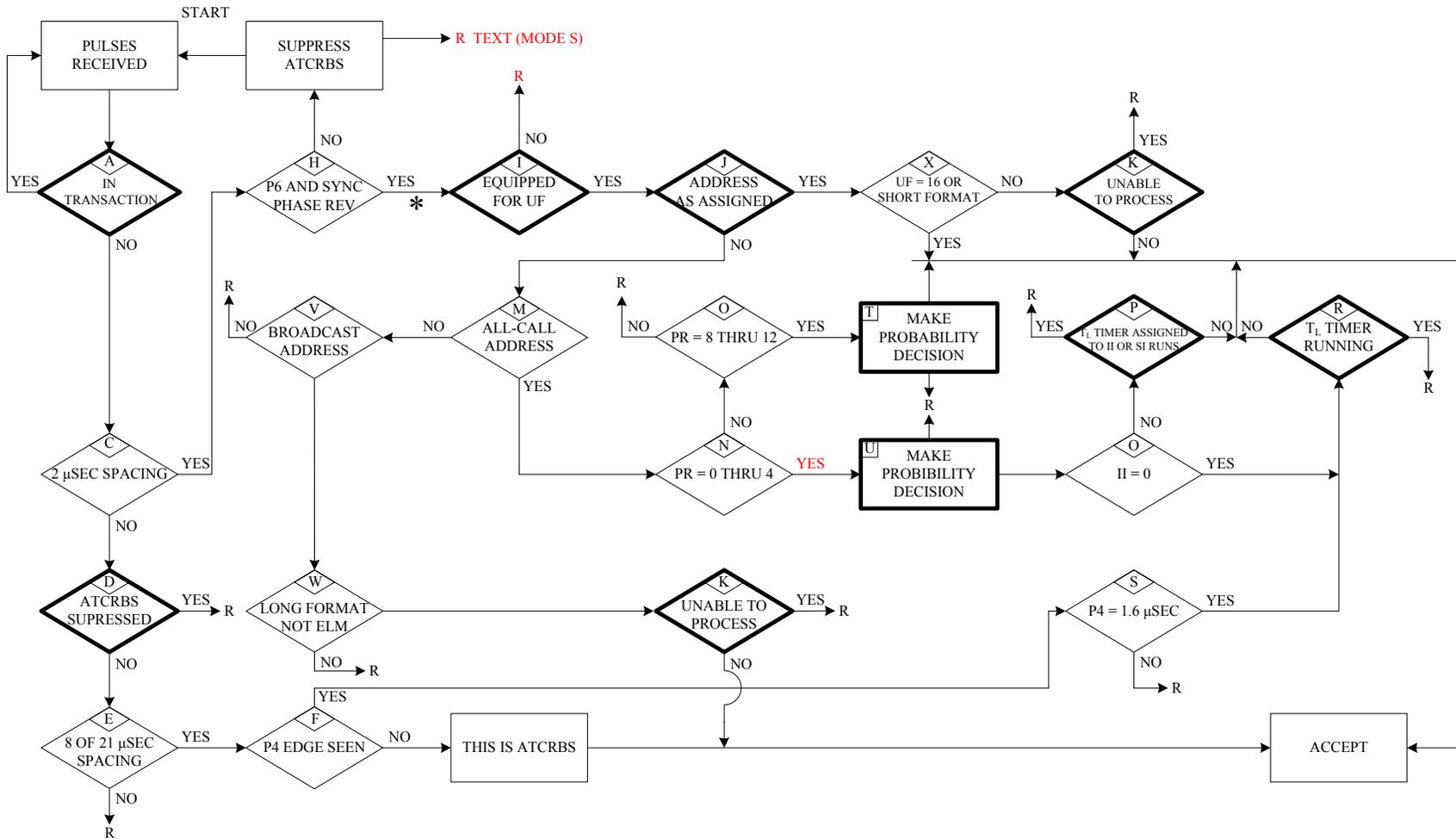
SUMMARY

This Working Paper summarizes a set of issues that have been identified by John Fisher and Pete Muraca who were kind enough to convert all of the Figures previously in DO-181C into Microsoft Visio for future maintenance in DO-181D.

The following is a list of issues that have been identified by John Fisher and Pete Muraca during their conversion of Figures that were in DO-181C into Microsoft Visio format for ease of maintenance in the future.

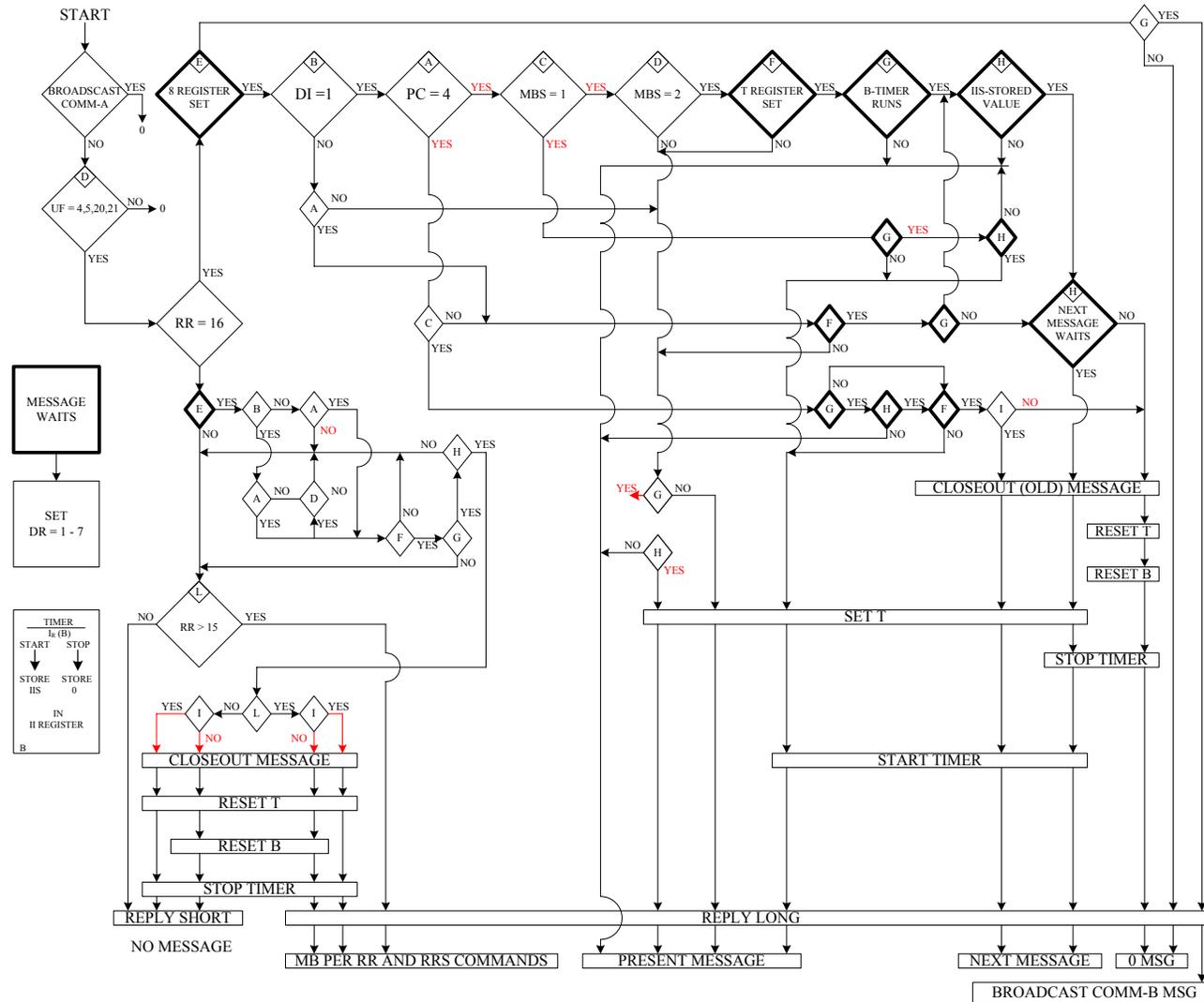
Figure 2-11	The "Suppress for ATCRBS" rectangle and the "I" diamond both point to "R Text (Mode S). (Ref page 225 in DO-181C)
	It appears a YES statement was missing from the original document to the right of diamond N. I think this should be added but need to confirm this. (Ref page 225 in DO-181C)
Figure 2-16	This is the same problem as in 2-11. The "Suppress for ATCRBS" rectangle and the "I" diamond both point to "R Text (Mode S). (Ref page 225 in DO-181C)
	This is the same problem as in 2-11. It appears a YES statement was missing from the original document to the right of diamond N. I think this should be added but need to confirm this. (Ref page 225 in DO-181C)
Figure 2-19	It appears a YES and NO statement is missing from the original document to the right and below diamond A. I think these should be added but need to confirm this. Of course the location of the Yes and No need to be verified also. (Ref page 234 in DO-181C)
	It appears a YES and NO statement is missing from the original document to the right and below diamond C. I think these should be added but need to confirm this. Of course the location of the Yes and No need to be verified also. (Ref page 234 in DO-181C)
	It appears a YES statement is missing from the original document to the right of diamond G. I think this should be added but need to confirm this. (Ref page 234 in DO-181C)
	It appears a NO statement is missing from the original document to below small diamond A. I think this should be added but need to confirm this. (Ref page 234 in DO-181C)
	It appears a NO statement is missing from the original document to the right of small diamond I. I think this should be added but need to confirm this. (Ref page 234 in DO-181C)
	It appears a YES statement is missing from the original document to the right of diamond G. ALSO, a line leaving small diamond G, with the YES should also be added going somewhere, either to the line to the left or just to the YES. I think this should be added but need to confirm this. (Ref page 234 in DO-181C)

Figure 2-19	It appears a YES statement is missing from the original document below small diamond H. I think this should be added but need to confirm this. (Ref page 234 in DO-181C)
	It appears there may be a logic error in the lower left section of the diagram where an input goes to small diamond L. This may be right but just want to make sure. From L, if the answer is Yes or No you go to I (left or right). From I, if you answer Yes or No you go down to Closeout Message. Please verify this is correct. (Ref page 234 in DO-181C)
	Note 2 refers to "K". I cannot find this on this diagram. (Ref page 234 in DO-181C)
	Note 2 also states "DI≠7 OR DI=7" I can think of times when this logic makes sense but I can also think of times when this does not. Please verify this is correct. Leaving it as it is highlights the relationship this note has with '7'. The other argument goes something like this; 'If I have \$10 or if I don't go to the store.' That seems redundant to state. Again, this is probably correct just want to make sure. (Ref page 234 in DO-181C)
	Note 7 refers to a para. This is worth noting since you will be rearranging the entire document and this reference will change. (Ref page 234 in DO-181C)
	Note 8, Is this correct, "DI=-" Please verify
Figure 2-20	Diamond C has a NO below it. It either needs a line going somewhere or it needs to be removed. (Ref page 235 in DO-181C)
Figure 2-22	Note 8 refers to a para please note this as you restructure the entire document. (Ref page 237 in DO-181C)
	In the lower left corner of the document, please confirm the item in red is indeed IIS _D . (Ref page 237 in DO-181C)
Figure 2-23	Note 2 refers to a para please note this as you restructure the entire document. (Ref page 238 in DO-181C)
	Please confirm the item in red is indeed IIS _D . (Ref page 238 in DO-181C)



NOTE: 1. BOLD BORDERS INDICATE TRANSPONDER STATUS.
 2. R = RECOVER.
 3. * = START OF MODE S TRANSACTION CYCLE.

Figure 2-16: Data Link Transponders Interrogation Acceptance



- NOTE: 1. BOLD INDICATE TRANSPONDER STATES.
 2. THE DECISION IN "DIAMOND "K" IS "YES" ONLY IF RR=16 AND EITHER $DI \neq 7$ OR $DI=7$ AND $RSS=0$
 3. "0" INDICATES TERMINATION OF THE PROCESS.
 4. THE T-REGISTER (FIG. 2-23) INDICATES WHETHER THE MESSAGE HAS BEEN READ AT LEAST ONCE.
 5. THE T-REGISTER IS RESET WHEN THE B-TIMER EXPIRES.

6. THE B-TIMER DOES NOT EXPIRE FOR A MULTISITE-DIRECTED COMM-B MESSAGE
 7. ADDITIONAL PROCESSING FOR MULTISITE-DIRECTED COMM-B TRANSMISSIONS IS DEFINED IN 2.2.17.2.3.2
 8. IIS IS ONLY DEFINED IF $DI \neq 7$, OR 7.
 9. THIS FIGURE DOES NOT INCLUDE THE ENHANCED DATA LINK PROTOCOL FEATURES.

Figure 2-19: All Data Link Transponders B Protocol

- NOTES: 1. "RESERVATION" INDICATES THAT THE IIS IS STORED AND THE TIMER IS STARTED.
 2. "CLOSEOUT" INDICATES THAT THE STORED IIS IS CANCELLED, THE TIMER IS STOPPED, TAS IS CLEARED AND THE SETUP IS CANCELLED.
 3. "O" INDICATES TERMINATION OF THE PROCESS.
 4. BOLD BORDERS INDICATE TRANSPONDER STATES.
 5. THIS FIGURE DOES NOT INCLUDE THE ENHANCED DATA LINK PROTOCOL FEATURES.

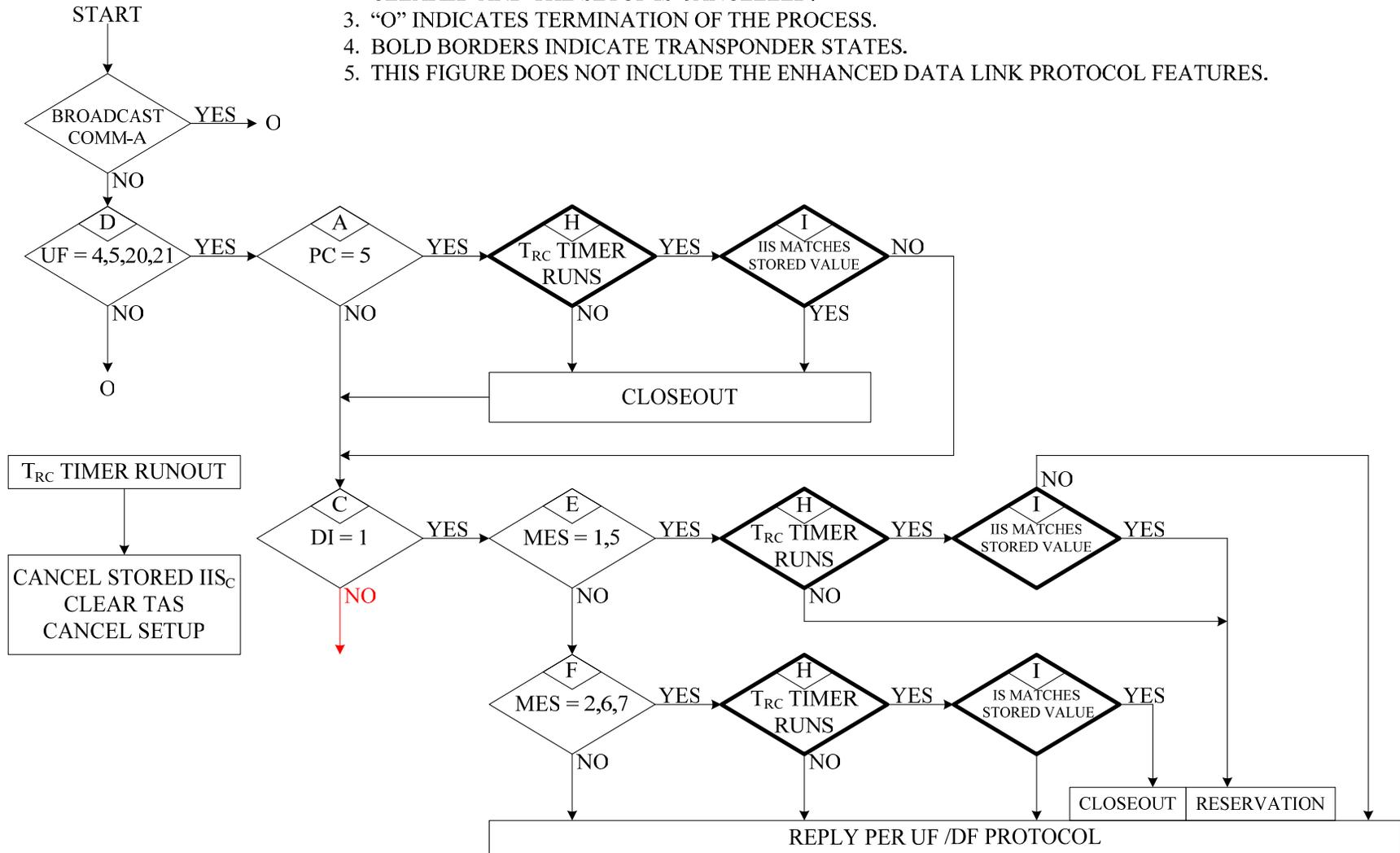


Figure 2-20: Comm-C Reservation and Closeout

- NOTES: 1. "RESERVATION" INDICATES THAT THE IIS IS STORED AND THE TIMER IS STARTED.
2. "CLOSEOUT" INDICATES THAT THE STORED IIS IS CANCELLED, THE TIMER IS STOPPED, DR IS CLEARED AND THE SETUP IS CANCELLED.
3. THE D-REGISTER (FIG.2-23) INDICATES THAT A COMMAND TO TRANSMIT SEGMENTS (SRS) HAS BEEN RECEIVED AT LEAST ONCE.

4. "O" INDICATES TERMINATION OF THE PROCESS.
5. BOLD BORDERS INDICATE TRANSPONDER STATES.
6. CLOSEOUT IS ONLY PERMITTED IF THE D-REGISTER IS SET.
7. THE D-REGISTER IS RESET WHEN THE D-TIME EXPIRES.
8. ADDITIONAL PROCESSING FOR MULTISITE DIRECTED COMM-D TRANSMISSIONS IS DEFINED IN [2.2.17.2.5.2](#).
9. THIS FIGURE DOES NOT INCLUDE THE ENHANCED DATA LINK PROTOCOL FEATURES.

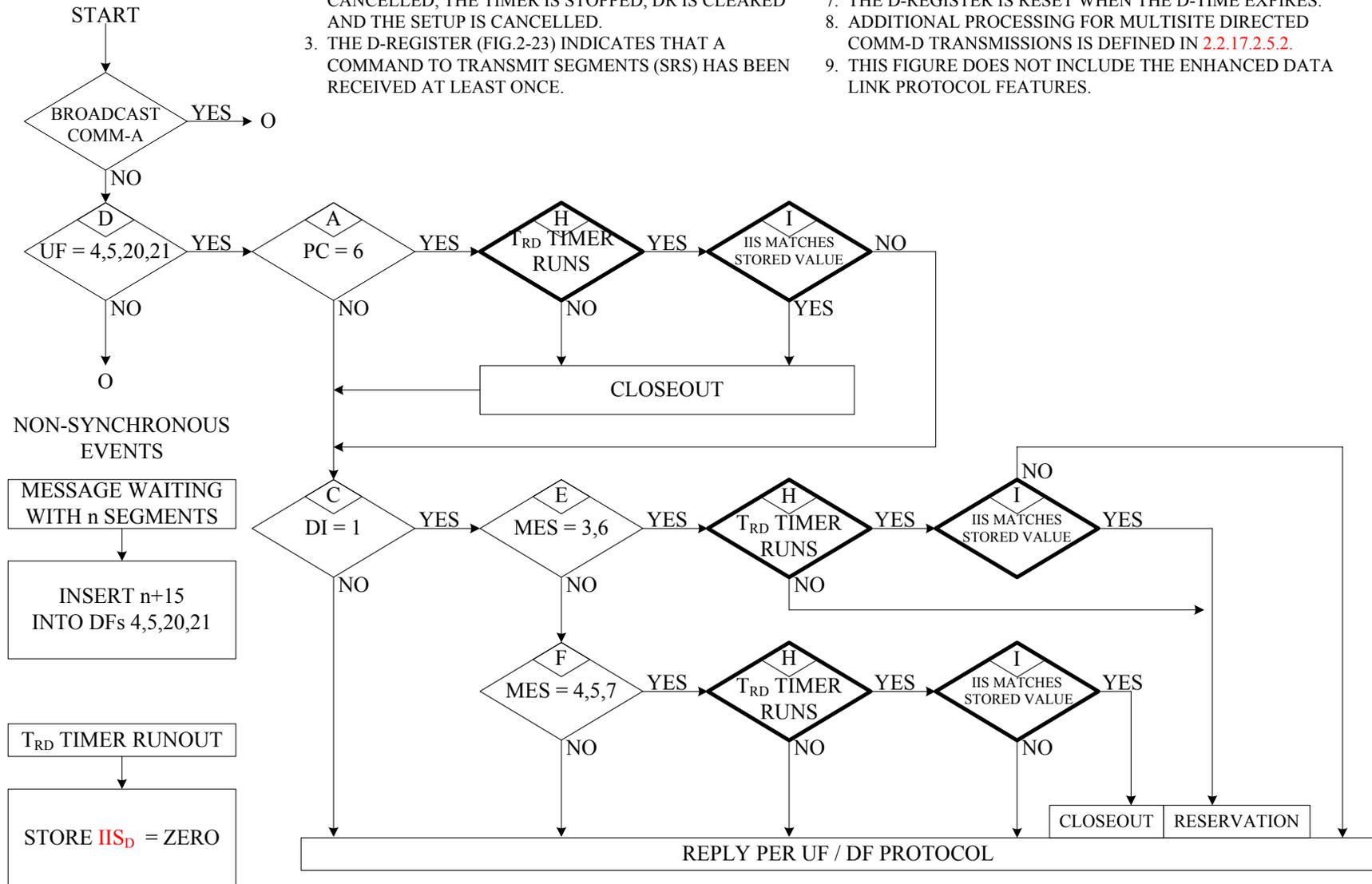
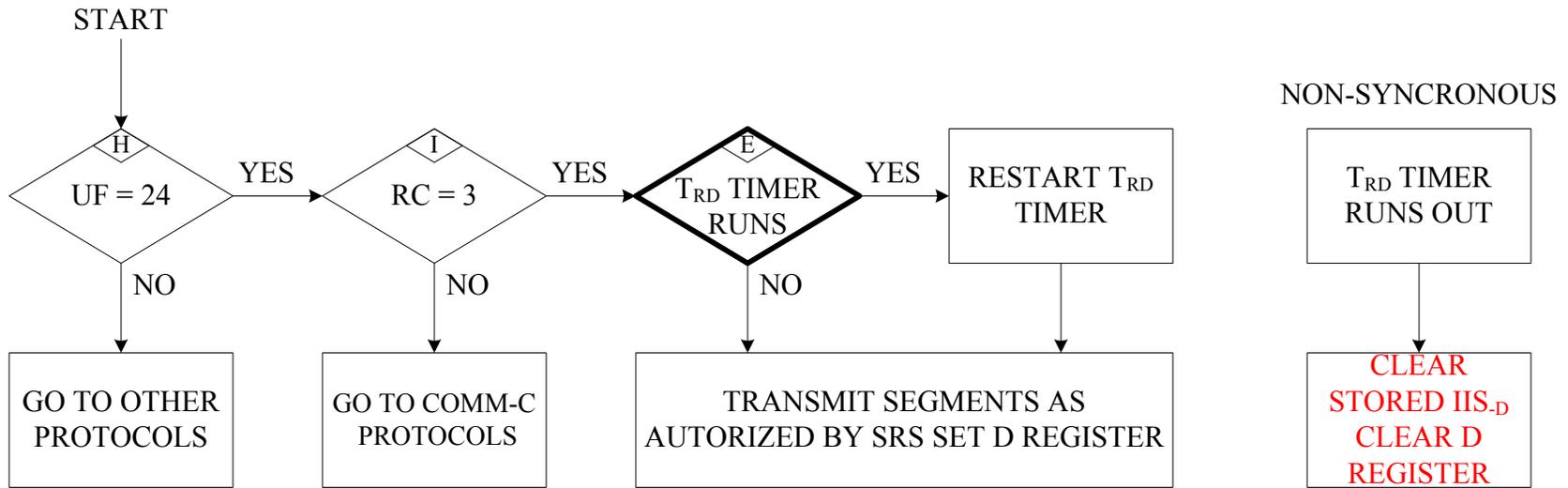


Figure 2-22: Comm-C Reservation and Closeout



- NOTES: 1. BOLD BORDERS INDICATE TRANSPONDER STATE.
 2. ADDITIONAL PROCESSING REQUIRED FOR MULTISITE DIRECTED COMM-D TRANSMISSIONS IN DEFINED IN 2.2.17.2.5.2.
 3. THIS FIGURE DOES NOT INCLUDE THE ENHANCED DATA LINK PROTOCOL FEATURES.

Figure 2-23: Comm-D Message Handling