Assumption:

1. Only one trigger enters the mode transition subsystem. This is based on priority.
2. Triggers are 1 frame duration pulse i.e. true for only one frame. A continuous True is considered as multiple triggers.
3. Software and Mode panel input triggers are processed only if the autopilot is ON.
4. The exception to the above is the autopilot ON trigger.
5. In the Altitude Hold mode the Altitude selection is disabled. The ALTS trigger is not possible.
6. The modes start with AP off and Vertical and Altitude select in disconnect.
7. The altitude capture and altitude capture done software triggers are possible only is the Autopilot is armed for altitude select.
8. Altitude capture done software trigger is possible if the autopilot is an altitude capture mode earlier.

These requirements are generated from a table automatically by the script “make\_mtl\_EARS.m”. The format of writing the requirement is little different here than in the previous example.

1) While in State DIS(Vertical) , When Trigger AP occurs AND condition C1 is TRUE, the Autopilot Mode shall transit to State PAH.

2) While in State PAH , When Trigger AP occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State DIS(Vertical).

3) While in State PAH , When Trigger SPD occurs AND condition C3 is TRUE, the Autopilot Mode shall transit to State SPD HOLD.

4) While in State PAH , When Trigger VS occurs AND condition C4 is TRUE, the Autopilot Mode shall transit to State VS.

5) While in State PAH , When Trigger ALT occurs AND condition C5 is TRUE, the Autopilot Mode shall transit to State ALT HOLD.

6) While in State PAH , When Trigger ALTCAP occurs , the Autopilot Mode shall transit to State ALTS CAP.

7) While in State PAH , When Trigger APFAIL occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State DIS(Vertical).

8) While in State SPD HOLD , When Trigger AP occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State DIS(Vertical).

9) While in State SPD HOLD , When Trigger SPD occurs , the Autopilot Mode shall transit to State PAH.

10) While in State SPD HOLD , When Trigger VS occurs AND condition C4 is TRUE, the Autopilot Mode shall transit to State VS.

11) While in State SPD HOLD , When Trigger ALT occurs AND condition C5 is TRUE, the Autopilot Mode shall transit to State ALT HOLD.

12) While in State SPD HOLD , When Trigger ALTCAP occurs , the Autopilot Mode shall transit to State ALTS CAP.

13) While in State SPD HOLD , When Trigger APFAIL occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State DIS(Vertical).

14) While in State VS , When Trigger AP occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State DIS(Vertical).

15) While in State VS , When Trigger SPD occurs AND condition C3 is TRUE, the Autopilot Mode shall transit to State SPD HOLD.

16) While in State VS , When Trigger VS occurs , the Autopilot Mode shall transit to State PAH.

17) While in State VS , When Trigger ALT occurs AND condition C5 is TRUE, the Autopilot Mode shall transit to State ALT HOLD.

18) While in State VS , When Trigger ALTCAP occurs , the Autopilot Mode shall transit to State ALTS CAP.

19) While in State VS , When Trigger APFAIL occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State DIS(Vertical).

20) While in State ALT HOLD , When Trigger AP occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State DIS(Vertical).

21) While in State ALT HOLD , When Trigger SPD occurs AND condition C3 is TRUE, the Autopilot Mode shall transit to State SPD HOLD.

22) While in State ALT HOLD , When Trigger VS occurs AND condition C4 is TRUE, the Autopilot Mode shall transit to State VS.

23) While in State ALT HOLD , When Trigger ALT occurs , the Autopilot Mode shall transit to State PAH.

24) While in State ALT HOLD , When Trigger APFAIL occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State DIS(Vertical).

25) While in State ALTS CAP , When Trigger AP occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State DIS(Vertical).

26) While in State ALTS CAP , When Trigger ALT occurs AND condition C5 is TRUE, the Autopilot Mode shall transit to State ALT HOLD.

27) While in State ALTS CAP , When Trigger ALTCPDN occurs , the Autopilot Mode shall transit to State ALT HOLD.

28) While in State ALTS CAP , When Trigger APFAIL occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State DIS(Vertical).

29) While in State AP ON , When Trigger AP occurs , the Autopilot Mode shall transit to State AP OFF.

30) While in State AP ON , When Trigger APFAIL occurs , the Autopilot Mode shall transit to State AP OFF.

31) While in State AP OFF , When Trigger AP occurs AND condition C1 is TRUE, the Autopilot Mode shall transit to State AP ON.

32) While in State ALTS OFF , When Trigger ALTS occurs , the Autopilot Mode shall transit to State ALTS ARM.

33) While in State ALTS ARM , When Trigger AP occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State ALTS OFF.

34) While in State ALTS ARM , When Trigger ALT occurs AND condition C5 is TRUE, the Autopilot Mode shall transit to State ALTS OFF.

35) While in State ALTS ARM , When Trigger ALTS occurs , the Autopilot Mode shall transit to State ALTS OFF.

36) While in State ALTS ARM , When Trigger ALTCAP occurs , the Autopilot Mode shall transit to State ALTSEL CAP.

37) While in State ALTS ARM , When Trigger APFAIL occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State ALTS OFF.

38) While in State ALTSEL CAP , When Trigger AP occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State ALTS OFF.

39) While in State ALTSEL CAP , When Trigger ALT occurs AND condition C5 is TRUE, the Autopilot Mode shall transit to State ALTS OFF.

40) While in State ALTSEL CAP , When Trigger ALTCPDN occurs , the Autopilot Mode shall transit to State ALTS OFF.

41) While in State ALTSEL CAP , When Trigger APFAIL occurs AND condition C2 is TRUE, the Autopilot Mode shall transit to State ALTS OFF.