Dynon SkyView HDX, Knob Control Panel, and COM Panel Checkout and System Familiarity

For completing the Valley Fliers Dynon System Familiarity questions, please refer to:

DYNON SkyView HDX Pilot's Users Guide

DYNON SkyView HDX Flight Manual Supplement

DYNON SkyView HDX System Functional Overview

DYNON D30 Airplane Flight Manual Supplement

Note:

It is recommended that some of the questions in this checkout be approached from a functional, learn-as-you-do perspective instead of just simply studying the manual. This will enhance learning and increase proficiency. Two pilots should be in the aircraft, one flying and one with the checkout sheet acting as a quiz and safety pilot. This way, learning the systems can be accomplished safely, by two people at a time, with a minimum of heads-down time. If you don't have a flying partner or are confused about system functions, seeking instruction is recommended.

Dynon SkyView HDX Checkout and System Familiarity

Note for Valley Fliers installations:

The questions in this checkout questionnaire include images borrowed from Dynon material in manuals and supplements. Some of those images show SkyView systems with a top information bar that shows a combination of autopilot status (A), transponder status (B), clock (C), and communications information (D). In Valley Fliers aircraft N80117, the only information contained on the top bar is transponder status and clock. In aircraft N759MA, autopilot status, transponder status, and clock are displayed. All communications information on COMM 2 is displayed on the Dynon COM panel, not on the SkyView display.

Dynon SkyView HDX Checkout and System Familiarity

1. The Dynon SkyView HDX Primary Flight Display receives information from (Choose all that apply):

a) Pitot-static expandable bellows, like traditional instruments
b) Sensitive pitch, roll, and rate of turn gyros
c) ADS-B
d) ADAHRS
e) An Engine Monitoring System (EMS)

2. The SkyView can display primary flight information in the form of (Choose all that apply):

a) An EFIS-style display
b) A standard 'six-pack' digital display
c) Synthetic vision
d) A combination of a & c or a combination of b & c

3. True or False. The SkyView can be safely left powered on during engine start, so the pilot can monitor RPM and oil pressure during the start.

a) True
b) False

4. Label 1-9 on the SkyView HDX display.

1. _____ 4. _____ 7. _____

2. _____ 5. _____ 8. _____

3. _____ 6. _____ 9. _____

5. The SkyView PFD presents a "Flight Path Marker" that looks like: 

On the SkyView presentation below, the Flight Path Marker (the actual direction the aircraft is going) is several degrees to the left of the nose. This is because:

a) The pilot is flying uncoordinated
b) The pilot needs to offer the aircraft some nose-right rudder trim
c) There is a crosswind
d) The left-turning tendencies of a single-engine airplane

6. *Part 1* of the question. On the SkyView presentation below, there is a series of purple-colored rectangles near the horizon stretching out in front of the aircraft. This is called:

a) Highway in the Sky
b) Flight Path Marker bracket
c) Flight Path Vector
d) Navigation Course Display

Part 2 of the question. Select the correct statements about these rectangles.

a) The feature is accessible starting with the "MENU" touchkey with Synthetic Vision turned On
b) The SkyView must be receiving an active flight plan from the IFD 440
c) A pilot can hand steer the aircraft through the rectangles and stay on course
d) Flying through the rectangles only works when an autopilot is engaged, and therefore won't work in N80117, but will work in N759MA

7. The Dynon knob control panel adjusts the following settings and 'bugs' for the SkyView display. Match the correct choice to the knob function; choose any or all that apply.

ALT ____
BARO ____
HDG ____
TRK ____

a) Altimeter setting in mb

b) Course Select for flying an Airway

c) Pre-selected Altitude to capture or hold

d) GPS Track made good over the Ground

e) VOR Track (i.e. radial) Select

f) Magnetic direction to maintain

g) Vertical Speed select

h) Airspeed select

i) Altimeter setting in in. Hg

8. For the Dynon COM panel below, fill in each blank with the letter that corresponds to its function.

a) Adjust Volume by rotating ____.

b) The Standby frequency is ____.

c) The Active frequency is ____.

d) Area ____ tells the pilot what type of facility the Active frequency is and what airport it's associated with; the same type of indication applies to the Standby frequency so the pilot knows immediately what they're switching to when they hit the Flip-Flop button.

e) To Flip-Flop frequencies (put the Standby into the Active), press ____.

f) It's not shown on this unit, but when the Active frequency is transmitting, area ____ indicates a small "**TX**". Likewise, when receiving, an "**RX**" is indicated

g) Normally, this radio has an automatic squelch function. However, if the pilot needs to override that and adjust the squelch to listen to a distant radio station, press ___ and an indication of "**RXSQ**" in area ____ appears.

h) This radio has the ability to listen on both the Active and Standby, with the Active having priority. In other words, if the Active and Standby are both receiving a transmission, the Standby will be muted so the Active can be heard. To engage this function, press and hold ____. The pilot knows the function is engaged by the indication in area ____.

i) Regarding the above function, if the Active is overriding the Standby, area ____ will show "**▲RX**". Likewise, if the Standby is what I'm hearing, "**▼RX**" will be indicated.

j) If the pilot has 122.6 tuned into the Standby and wishes to manually tune 123.7, the large concentric knob of ____ will change 122 to 123, and the small concentric knob will change .6 to .7.

k) If the pilot wants to change the loaded airport (**KPSP** in this case), pressing ____ twice will open a cursor. ____'s inner concentric knob will change letter and number values, and it's outer concentric knob will move the cursor between spaces. When the correct airport has been selected, pressing ____ will load the airport into the COM panel.

l) In the previous question, after an airport has been loaded into the COM panel, selecting the ATIS or ASOS frequency can be accomplished with a single button press in area ____.

m) If the SkyView display fails, the COM panel can still be used, but an indication of "NoSV" will be displayed in area ____.

9. On N80117 and N759MA, The Avidyne IFD 440 serves as COM Radio ____ (choose #1 or #2) and the Dynon COM panel serves as COM Radio ____ (choose #1 or #2).

10. On N80117 and N759MA, choosing to listen and/or transmit on COM 1 or COM 2 is accomplished by:

a) Using the audio selector panel above the Avidyne IFD 440

b) Selecting "MENU", then "COM RADIO" on the SkyView and using the touch screen

c) Pushing the knob on the Dynon Com Panel labeled: **PUSH**

Questions 11-14 apply to the Communications panel shown below.

11. This Dynon COM panel has KSLC selected as the airport. Pressing the "GND" key will tune:

a) 127.3
b) 121.9
c) 123.775
d) 121.5
e) Either b) or c) with repeated button presses
e) Either a) or d) with repeated button presses

12. Pressing the "ATC" button while sitting in the runup area will tune:

a) 119.05
b) 125.625
c) 127.3
d) 118.3
e) Either a) or d) with repeated button presses

13. While flying in the vicinity of the city of Ogden, north of Salt Lake City, pressing "ATC" will tune:

a) Salt Lake Tower on 118.3
b) Salt Lake Tower on 119.05
c) Cedar City Radio (FSS) on 122.4
d) Salt Lake Approach on 125.7
e) Salt Lake Approach on 121.1
f) a) and b) using multiple button presses
g) c) and d) using multiple button presses

14. Next to KSLC, "DUAL" is indicated. This mode means the COM panel is:

a) Listening to COM 1 and COM 2 at the same time.
b) Listening to Active and Standby frequencies concurrently.
c) Listening to Active and Standby frequencies concurrently, with the Active having priority (i.e., when the Active is receiving, the Standby is muted).

15. To quickly sync the SkyView's HSI Heading bug with the current aircraft heading:

a) Push the HDG control on the knob control panel.
b) In SkyView, select (HDG) control using the left knob, then push and hold the knob.
c) On SkyView, push the "HDG Sync" sofkey.
d) There is no need to manually sync the heading; the system does it automatically.

16. Whether a pilot chooses to use the EFIS or 6-pack display option, an EHSI (electronic horizontal situation indicator) is available. Of the two EHSIs below, which is displaying a course from a ground-based NAVAID, like a VOR or ILS? _____

Display 1

Display 2

17. Referencing the previous question, NAVAID source switching between ground-based (VOR, ILS) and space-based (GPS, WAAS) is normally accomplished on the:

a) Avidyne 440
b) SkyView

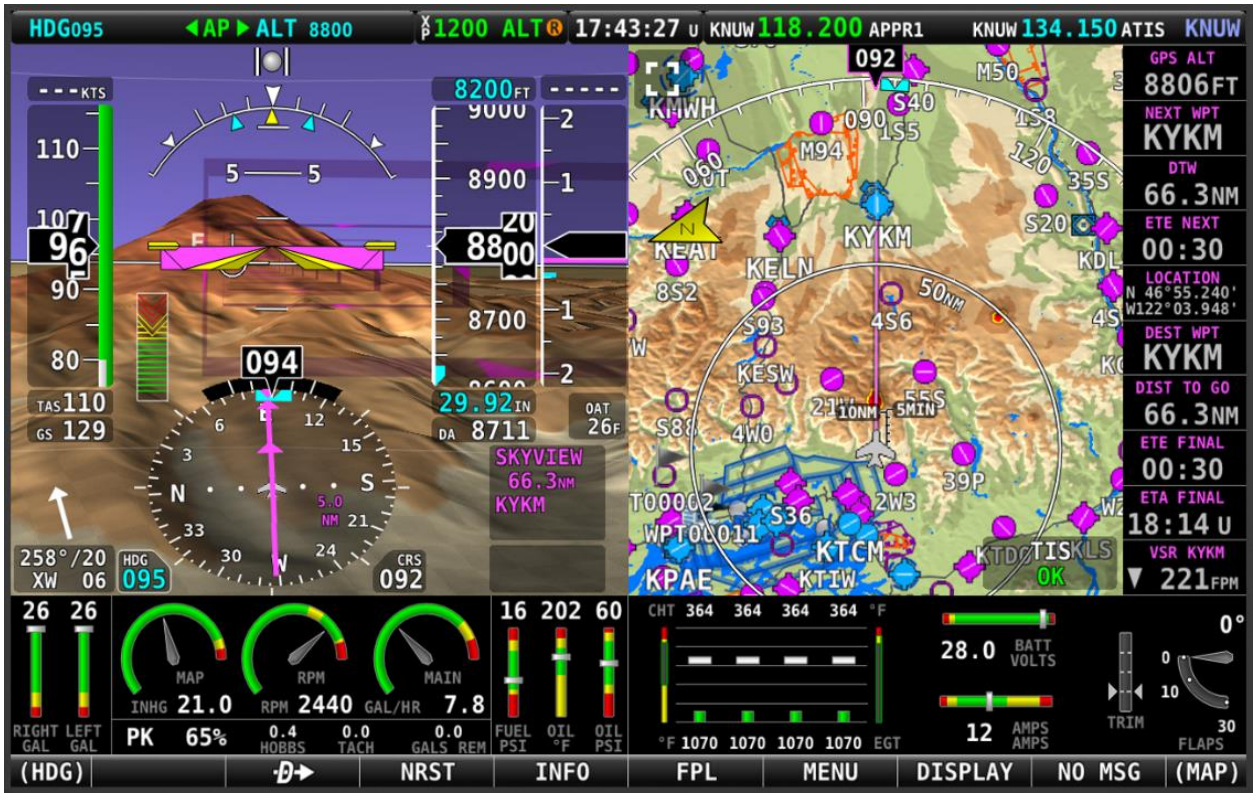
18. The cyan-colored marker at the end of the dashed line represents the:

a) Selected course line
b) Heading bug
c) Actual aircraft track
d) Heading trend marker

19. If a pilot chooses to fly with a six-pack display enabled instead of the EFIS-style display, choose the advantages the Dynon six-pack interpretation confers over standard mechanical gyroscopic/pitot-static instruments:

1. Altitude pre-select
2. Vertical speed pre-select
3. Airspeed display of True Airspeed and Groundspeed
4. A direct indication of indicated altitude
5. On-screen selection of navigation sources
6. Direct readouts of Heading and NAV ‘bug’ and ‘course’ selects
7. Direct readout of density altitude
8. On-screen wind vector indicator
9. Multiple NAV source display on EHSI, like a traditional HSI and RMI combined
10. More readable altimeter setting
11. Ability to display synthetic vision or choose not to
12. On-screen readout of OAT (Outside Air Temperature)
13. Direct indication of Heading and Course ‘bugged’ and selected values
14. Display of wind including crosswind component

20. Refer to the Dynon display below and answer the following questions.



a) The Map is in (circle one) North Up / Track Up view mode.

b) The aircraft's transponder is squawking a code of ____.

c) This pilot is flying to what destination?

d) How far away is the destination and how long will it take to get there?

e) The current GPS-derived ground track is: *(Hint: the HSI display indication says "094" boxed in white. The display indication at the top of the Map says "092" boxed in magenta.)*

f) The pilot is flying toward mountains. Will he clear them on his current track?

g) The atmosphere is colder or warmer than standard?

h) Does this aircraft have a 12 or 24 volt electrical system? Is the alternator working?

i) Assuming a constant fuel burn, about how much gas will the pilot use up by the time the destination is reached?

j) If the pilot twists the left knob on the lower bezel of the SkyView, the _____ will be adjusted.

k) If the pilot twists the right knob on the lower bezel of the SkyView, the _____ will be adjusted.

l) The next waypointnt that will be reached is?

21. What type of airspace is represented by the orange-colored boundary with tick marks?

22. What type of airspace is represented by the magenta shaded line?

23. What type of airspace is represented by the blue shaded line?

24. What type of airspace is represented by the red-colored circle?

25. True or False. The Synthetic Vision function, whether used with the EFIS-style or 6-pack style display, is a highly accurate depiction of terrain and can be used as a sole method of terrain avoidance while flying at night or in instrument conditions.

26. The picture of a SkyView vertical tape VSI has some 1's and 2's. If the black pointer is resting on the 1 that's in the blue, the airplane is:

a) Climbing at 100 feet per minute.

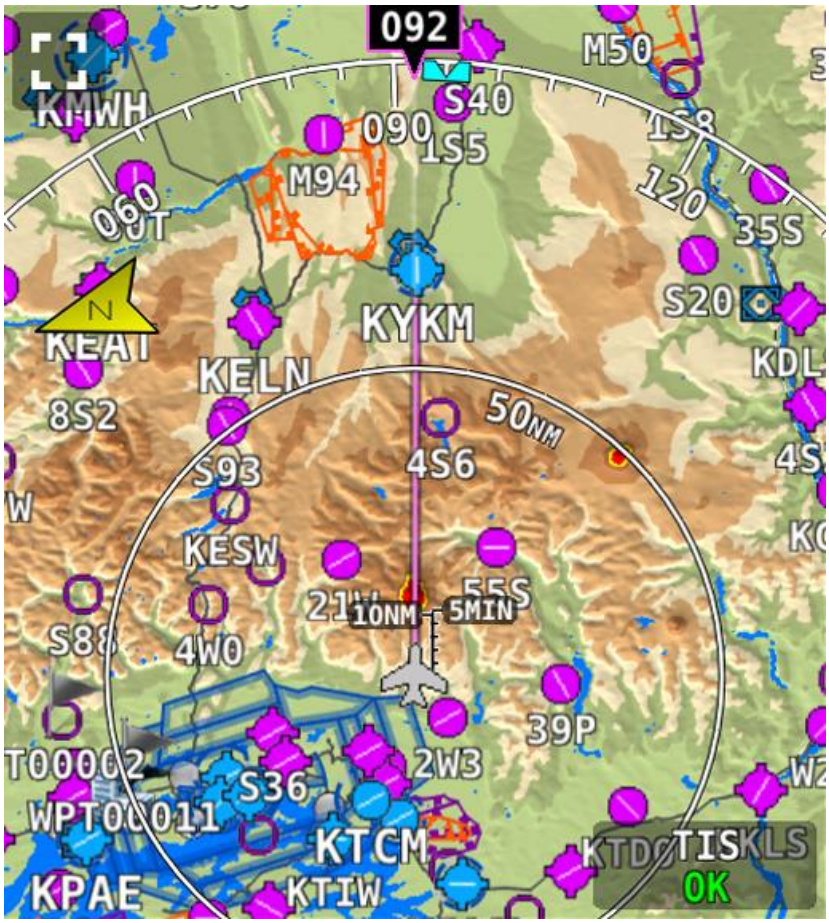
b) Climbing at 1,000 feet per minute.

c) Descending at 1,000 feet per minute.

d) The pilot has pre-selected 1,000 feet per minute as the desired climb rate, but the aircraft is actually climbing at a rate indicated by the light blue 'bug'.

27. The SkyView map display below is in (select one):

a) North Up mode
b) Track Up mode



28. Changing between North Up and Track Up mode on this map display can be quickly accomplished by:

a) Tapping the Map display anywhere on the map
b) Tapping the N arrow indicator
c) The display changes automatically depending on the zoom level
d) The display changes automatically to Track Up when the aircraft is within 50nm of the destination, and North Up when beyond that.

29. The yellow arrow on the SkyView below is pointing to the _____ column. This column is selectable and de-selectable by pressing _____, then _____.

a) Flight Plan, FPL, Display FPL
b) Map Info Column, FPL, Display FPL
c) Flight Plan, Nearest, Nearest Airport
d) Map Info Column, Display, Map Info Column

30. Another on-screen method exists to temporarily hide this column.

a) Tap on it
b) Press and hold a finger on it, then swipe to the side off the screen
c) Use a 'pinch together' with two fingers to minimize the column
d) Tap the  symbol at the top left of the display.

31. Obstacles displayed on the SkyView can be depicted in red or yellow, as shown below.

Obstacles depicted in yellow are between ____ and ____ feet below the aircraft. Obstacles depicted in red are between ____ and ____ feet relative to the aircraft.

a) 1,000 and 2,000. 100 and 1,000
b) 100 and 2,000. 100 and same altitude
c) 100 and 1,000. 100 and same altitude
d) 100 and 1,000. 100 and anywhere above you

32. A Stadium TFR is depicted just west of Phoenix Sky Harbor airport for the Arizona Cardinals. Select the True statements about Stadium TFRs:

a) Stadium TFRs will be displayed automatically on the SkyView Map, after being 'pulled in' from the ADS-B network in flight when ADS-B ground towers are in line-of-sight.

b) Stadium TFRs will not be displayed automatically by the Map, but must be downloaded from the Dynon website into a separate database for viewing.

c) Stadium TFRs are not automatically broadcast by the ADS-B network, so the pilot must recognize and avoid them through proper preflight planning.

d) The SkyView can depict TFRs, but should not be used as an authoritative source for avoiding them.

33. To change from a 50% PFD/50% MAP view to a 100% PFD view as shown below, start by selecting the _____.

a) DISPLAY touchkey.
b) MENU touchkey.
c) (MAP) knob-selectable function.
d) Touch-screen menu pop-up.

34. Accessing the Transponder page shown below is simple. Either ____ or ____.

a) Touch the Transponder (XP) field on the top bar of the display
b) Touch and swipe down on the Transponder (XP) field on the display
c) Select MENU, then select the XPDR icon

35. For Flight Plan filing, select the appropriate ICAO equipment, surveillance, and performance-based navigation codes to use for N80117 and N759MA (more than one may apply):

For equipment:

a) B
b) G
c) R
d) S

For surveillance:

a) B1
b) B2
c) S
d) E

For PBN codes:

a) C1, D1
b) C2, D2
c) D3
d) T1

36. The Dynon Fuel Computer operates on a fuel flow sensor used to calculate how much fuel has been consumed over a given time. For this to occur, the system needs an accurate 'starting point'.

After refueling, the pilot is presented with the following message on the SkyView:

This message conveys that the Fuel Computer believes there are 33 gallons on board, and the Fuel Tank sensors also say there are 33 gallons on board. If these two values differ, and the pilot wishes to set the Fuel Computer to a point that most closely reflects the value in the fuel tanks as measured by the fuel sensors, the best key on the bottom to press is:

a) FULL
b) PRESET
c) MATCH
d) ACCEPT

37. True or False. A key difference between the SkyView presentations in N80117 and N759MA is the inclusion of a selectable Flight Director in N759MA, even when the autopilot is not controlling the airplane.

38. The photo shows the Dynon D30 Standby Flight Display with the Altimeter set to 29.92".

How is the Altimeter set on this unit?

1. When receiving an ADS-B signal, the altimeter will auto-set to the nearest station METAR.
2. The unit will receive GPS altitude information from the SkyView's GPS, and will auto-set the Altimeter to reflect that GPS altitude.
3. The pilot should touch the altimeter setting on the display and use a slider bar to adjust the altimeter setting.

39. On the display shown in the previous question, the aircraft is flying ___ knots at ____ feet and climbing at ____ feet per minute.

a) 15.0; 200.0; 0.
b) 150; Sea Level; 2,000.
c) 150; 2,000; 0.
d) 150; 2,000; there is no VSI on the Standby Flight Display.

40. On the pictured Standby Flight Display, the airspeed tape has a white letter "A" resting on top of a black pointer. This signifies:

a) A pre-configured display of design maneuvering speed.
b) Nothing. "A" is simply a label for the Airspeed tape.
c) The beginning of the normal cruise airspeed regime.

41. If complete electrical system failure is encountered in flight, the Dynon SkyView HDX system will:

a) Fade and shut down after approximately 30 seconds.
b) Remain powered by an internal standby battery for enough time usually to reach a suitable airport.
c) Immediately lose power.
d) Remain powered only if the pilot provides an external source, such as backup battery power through a USB Cable.

42. If complete electrical system failure is encountered in flight, the Dynon D30 Standby Attitude Display system will:

a) Fade and shut down after approximately 30 seconds.
b) Remain powered by an internal standby battery for enough time to usually reach a suitable airport.
c) Immediately lose power.
d) Remain powered only if the pilot provides an external source, such as backup battery power through a USB Cable.

43. A SkyView backup battery failure will be annunciated by:

a) A WARNING annunciator
b) A CAUTION annunciator
c) A Message annunciator
d) An "X" next to the clock at the top center of the HDX display

44. True or False (for Instrument pilots only). Regarding the SkyView's standby backup battery, IFR flight with Yellow or Red Backup Battery indicator status displayed on the top information bar is prohibited. See the two indicators below for examples.

45. True or False. Configuring the SkyView screen to hide the engine instruments is prohibited.

46. The pilot receives a pop-up annunciation on the PFD that looks like this:

The pilot should (check all that apply):

a) Understand that the pitch display on the PFD may be degraded
b) Turn on the pitot heat
c) Understand that the pitot heat has failed, since the circuit runs through the SkyView
d) Exit all IMC conditions immediately if on an instrument flight plan
e) Place more reliance on the standby flight display to the left of the SkyView

47. True or False. If you experience a failure of attitude and heading Primary Flight Display functions and you are using the Standby Flight Display, your skills at interpreting and using the magnetic compass might become much more important.

48. True or False: Communication from the EMS module into the SkyView HDX has become corrupt and a red X appears across EMS indications. You should land as soon as practicable, because you just lost some critical indications that are necessary for safe flight.

49. True or False. If the SkyView is operating on backup battery power, the pilot will be shown a "% / time remaining" battery status indicator.

50. On the bottom right of the HDX display, a flashing **WARNING** appears.

The Pilot should, without delay:

a) Immediately check all engine gauges
b) Land as soon as practicable
c) Report a Master Warning to ATC and declare an emergency
d) Acknowledge the Warning and check the Message Box for clarification

51. The pilot receives a flashing **WARNING** annunciator, acknowledges the Warning, and is presented with the Message: **AMPS LOW** in the Message Window**.** The pilot should:

a) Land as soon as practicable
b) Check and monitor electrical system voltage
c) Anticipate loss of electrical power and plan accordingly
d) Run the Emergency Procedures Checklist
e) Shed non-essential electrical load items
f) All of the above

52. The AHRS portion of the ADAHRS has failed. The pilot will be alerted by:

a) A CAUTION annunciator.
b) Loss of engine data on the Primary Flight Display.
c) A red X through the attitude portion of the Primary Flight Display.
d) A descriptive label in the middle of the PFD stating "ATTITUDE FAIL".
e) Both a) and c).
f) Both c) and d).

53. In the event of the above, the pilot should (choose all that apply):

a) Use the Standby Attitude display.
b) Don't go into the clouds if possible.
c) Power down and power back up the Avionics
d) Use the magnetic compass for heading information.
e) Report the failure, the degree to which it affects your flight, and assistance needed to ATC if under IFR.

54. The pitot line into the ADAHRS has become blocked at the pitot tube. The drain at the pitot tube has remained open. The following will happen (choose all that apply):

a) Indicated airspeed will Airspeed will register zero on the HDX and D30 displays.
b) Flight attitude determination by the ADAHRS will become unreliable, and the system will adjust how it determines attitude information.
c) A **CHECK PITOT HEAT** message will be displayed after a **WARNING** annunciator is acknowledged by the pilot.
d) A **CROSS CHECK ATTITUDE** message will be displayed after a **WARNING** annunciator is acknowledged by the pilot, but only if GPS is unreliable as well.

55. If complete electrical system failure occurs, the Standby Flight Display will:
a) Stop functioning.
b) Remain functioning for long enough to normally reach a suitable airport for landing.
c) Immediately alert the pilot that the unit is powering down.

56. True or False: The charge on the backup battery for the Standby Flight Display must be checked prior to IFR flight. If depleted, IFR flight is prohibited. VFR flight shouldn't be attempted either.

57. Use the Skyview pictured below to answer both parts of the question.

Part A: The navigation source is:

a) Seattle VOR, since the aircraft is close to Seattle.
b) The on-board WAAS antenna.
c) The SkyView internal GPS module.
d) The Avidyne 440.

Part B (applies to IFR only): Assume a failure of the Avidyne 440.

True or False. With the display pictured, the pilot can fly an RNAV approach to LPV minimums.

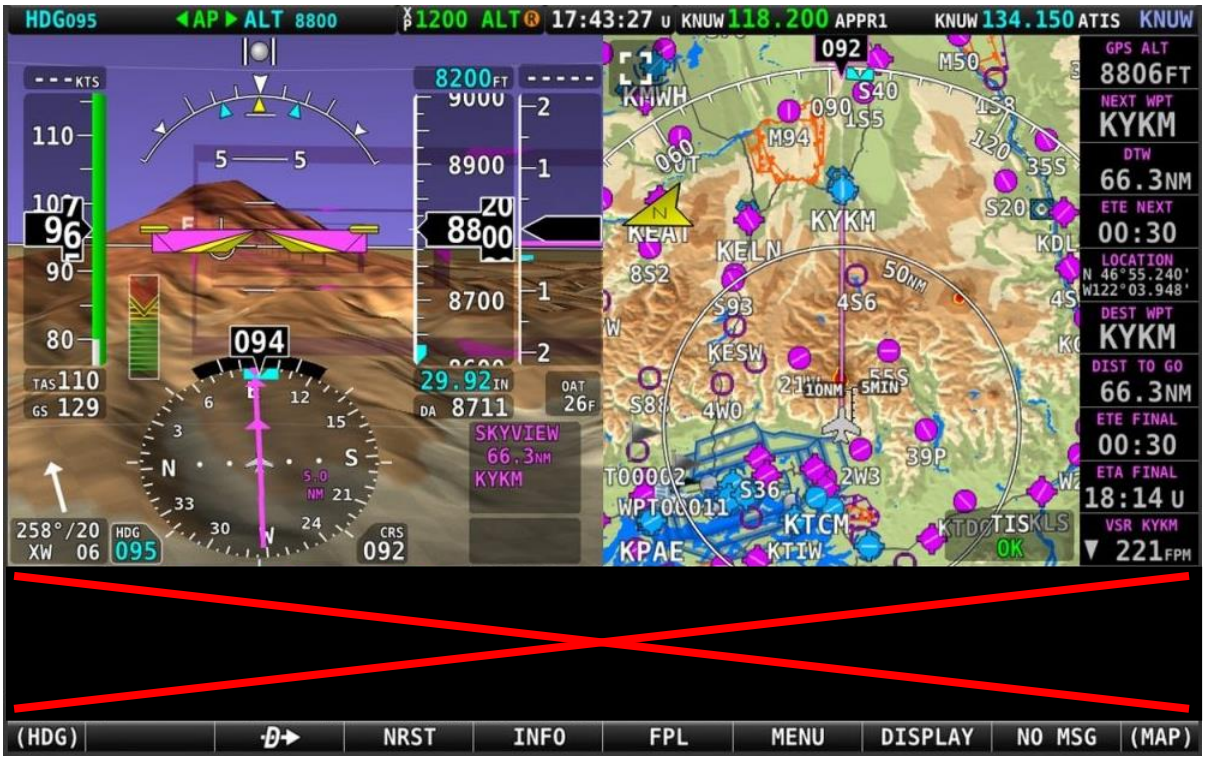
58. On the SkyView below, select the following failure mode and its associated procedure.

The failure mode is....

a) ADAHRS failure
b) GPS failure
c) CHT and EGT thermocouple wire fraying
d) EMS module failure

....and you would (more than one may apply):

a) Control the engine by sound and control lever positions
b) Monitor aircraft performance to help determine engine health
c) Plan to land at the nearest suitable airport
d) Set up for an off-airport landing, because engine failure is imminent
e) Set the mixture full-rich, because you have no EGT indication
f) Declare an emergency and ask Tower to have fire trucks on standby
g) Land flaps-up, because you lost your Flap Position Indicator



59. *Part A:* In the event of an AVIONICS bus failure, some components will remain operational, driven by the SkyView's Backup battery. Other components will fail. Next to each component or piece of equipment below, list the item as "**O**" for Operational during an AVIONICS bus failure, or "**F**" for Failed.

a) The SkyView's internal GPS module that drives the moving map display ____
b) Autopilot Control Panel and servos (for N759MA only) ____
c) Transponder module ____
d) SkyView knob control panel ____
e) The Dynon's Engine Monitoring Module ____
f) The Dynon's COM radio module controlled by the COM panel ____

Part B: Knowing what you know from *Part A*, if your AVIONICS bus fails, you can (select all that apply):

a) Squawk an emergency code ____
b) Call ATC for help ____
c) Monitor and control the engine ____
d) Navigate using the Avidyne 440 ____
e) Navigate using the Dynon's GPS ____
f) Navigate using an app (ForeFlight) ____
g) Fly an ILS ____
h) Fly an RNAV approach ____
i) Use the autopilot on N759MA ____

60. The SkyView Map display includes TIS traffic. Of the three targets displayed on the Map pictured, two are symbolized as: ◆ and one as: ●

Part A: Of the two symbols, which represents "threat traffic" which has a high chance of coming into conflict with your aircraft? ____

Part B: The meaning of the ◆ symbol and associated information at GUY868 is:

a) Threat Traffic, 1,400 feet above, descending
b) Non-Threat Traffic, 14,000 feet above
c) Proximity Traffic, 1,400 feet above, descending
d) Non-Threat Traffic, 1,400 feet above, descending