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**----- SYSTEMS GROUP CHAIRMAN'S FACTUAL REPORT -----**  
**ATTACHMENT 1 – MFD PLAYBACK VIDEO STILL IMAGES**

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**1. ACCIDENT:**

Location: Koehn Dry Lake, California  
Date: October 31, 2014  
Time: 1007 Pacific daylight time (PDT)  
Vehicle: Scaled Composites LLC M339 – “SpaceShipTwo”  
Registration: N339SS

**2. PFD DISPLAY IMAGES:**

A flight worthy multifunctional display (MFD) loaded with the same software version as the accident flight was connected to the flight data processing system (IADS) at the Scaled Composites ground control room. The connection to IADS allowed recorded flight data to be transmitted to the display and have it operate as if it were installed in the vehicle. The MFD refresh rate for the display was 30 Hz. The display was also configured to automatically transition from ADC to INS data for the airspeed and altitude indications.

The setup only contained one MFD. The PFD portion of the display displayed the air data and INS source labels in amber text, “ADC R” and “INS R”. These indications were displayed in amber to alert the flight crew that only the data from one air data computer (ADC) and one inertial navigation system (INS) was displayed. This is an artifact of the playback setup due to the fact that only one MFD was connected to the playback system.

This attachment contains still images extracted from the video recorded when the systems group played back the data through the MFD. The video recording of the MFD playback was captured on a Canon G12 Powershot camera in video recording mode. The camera’s video settings for the camera were as follows:

**Table 1 - Camera Settings**

| Setting             | Value           |
|---------------------|-----------------|
| Recording Pixels    | 1280 x 720 (HD) |
| Frame Rate          | 24 frames/sec   |
| SD Card Speed Class | 10              |

The video file information was as follows:

**Table 2 - Video File Information**

| Setting    | Value                |
|------------|----------------------|
| Codec      | H264-Mpeg-4          |
| Resolution | 1280 x 720           |
| Frame Rate | 23.976023 frames/sec |

The video did not contain a time source. The still images were identified by a frame number. Frame number 0, Figure 13, was based on the first full frame when the airspeed and altitude background changed to gray due to the transition from ADC to INS information. Negative frame numbers (Figure 1 to Figure 12) occurred before the ADC to INS transition and positive frame numbers (Figure 14 to Figure 49) occurred after the transition to INS.



Figure 1 - Still Image Frame Number: -184



Figure 2 - Still Image Frame Number: -183



Figure 3 - Still Image Frame Number: -182



Figure 4 - Still Image Frame Number: -181



Figure 5 - Still Image Frame Number: -180



Figure 6 - Still Image Frame Number: -178



Figure 7 - Still Image Frame Number: -177



Figure 8 - Still Image Frame Number: -176



Figure 9 - Still Image Frame Number: -175



Figure 10 - Still Image Frame Number: -174

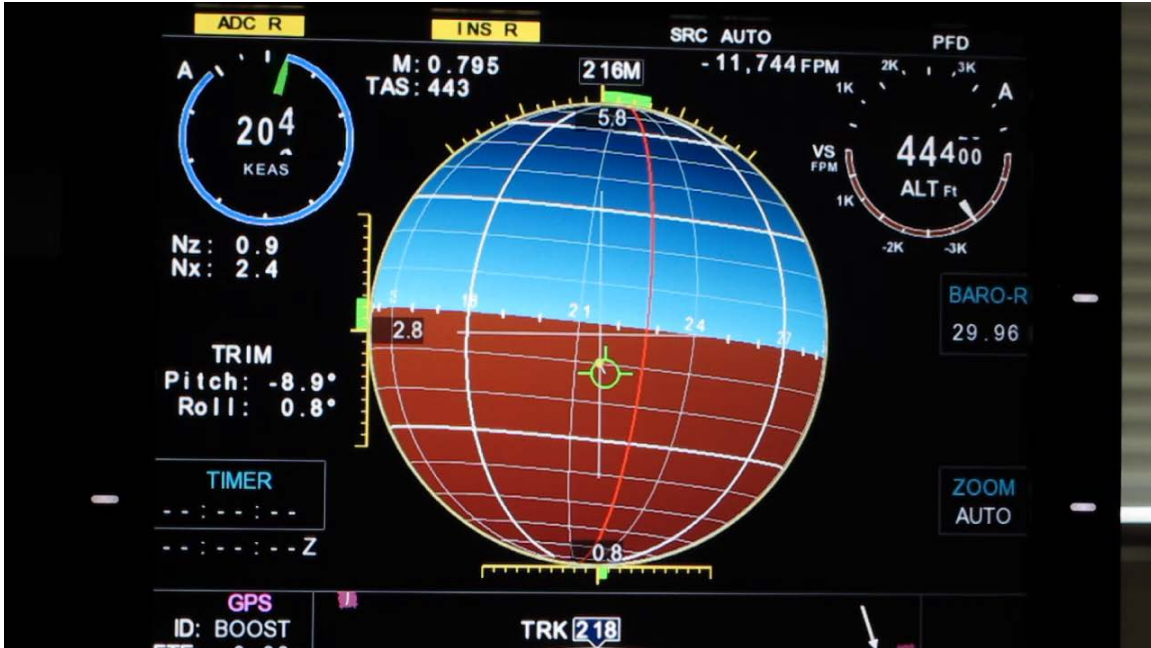


Figure 11 - Still Image Frame Number: -2



Figure 12 - Still Image Frame Number: -1



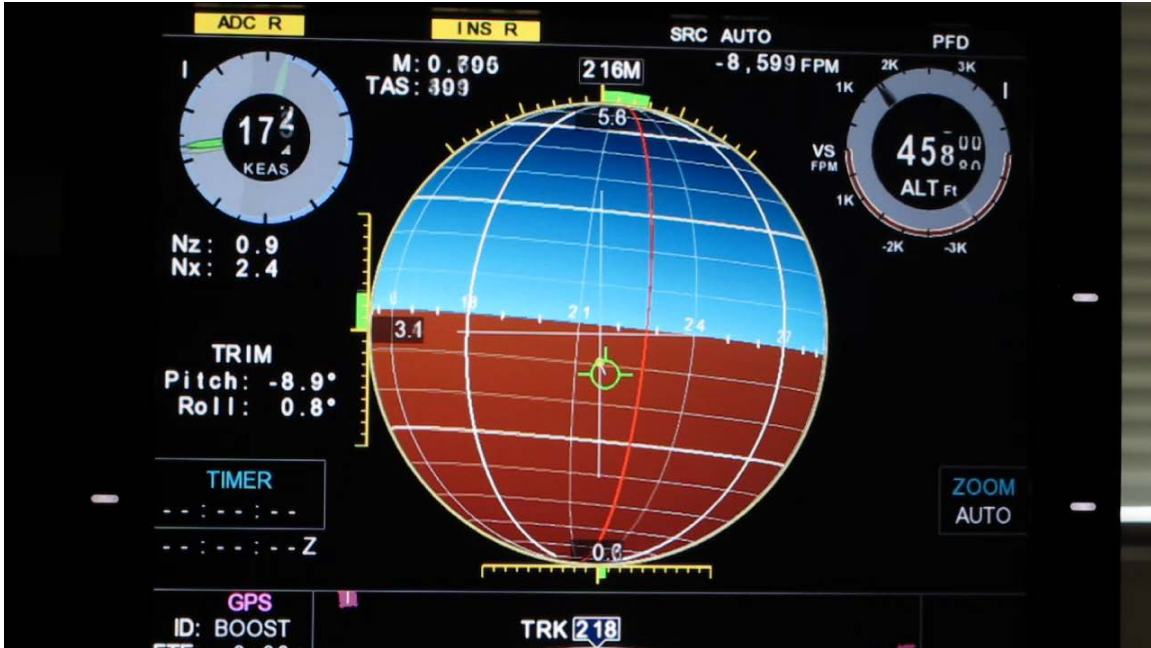


Figure 13 - Still Image Frame Number: 0

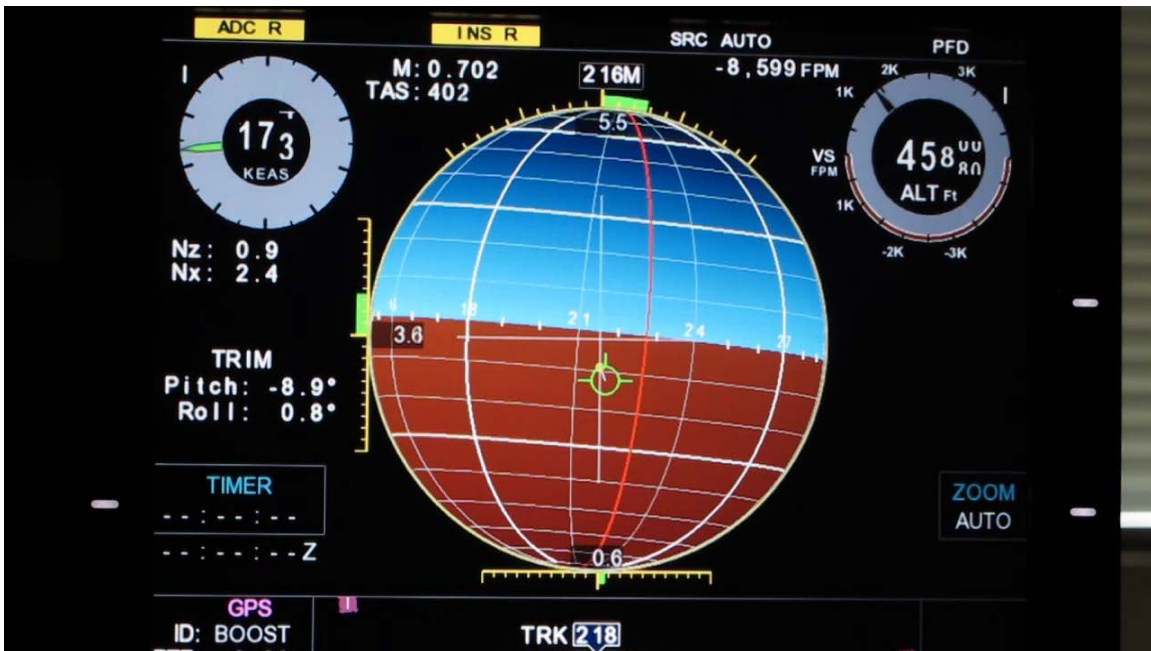


Figure 14 - Still Image Frame Number: 1

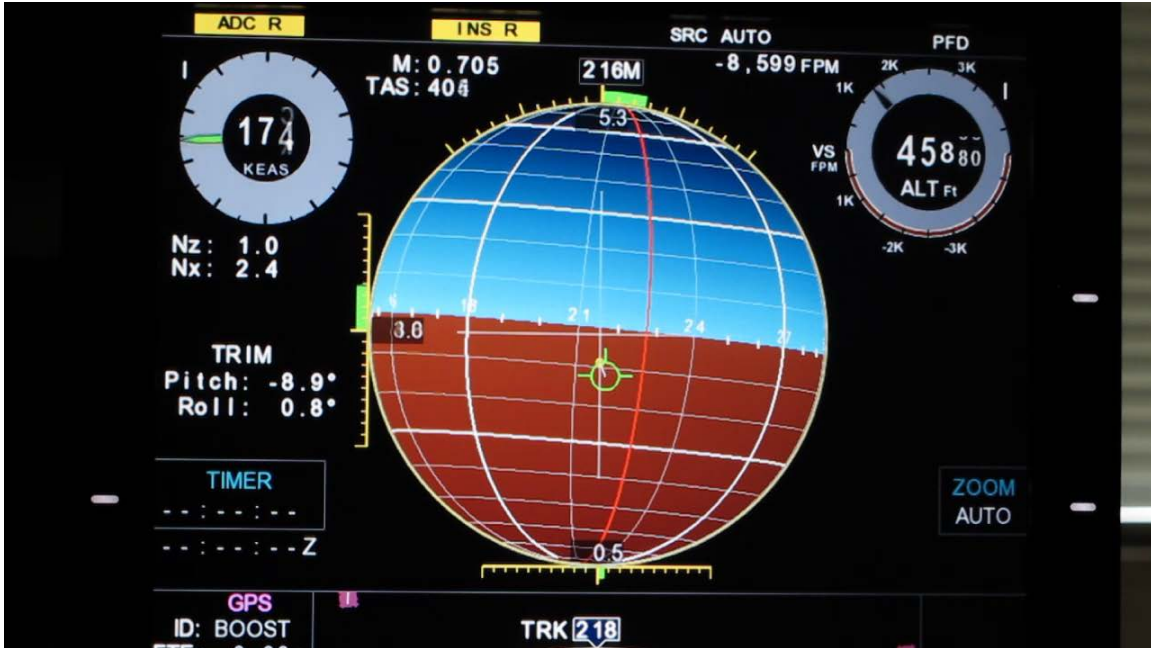


Figure 15 - Still Image Frame Number: 2

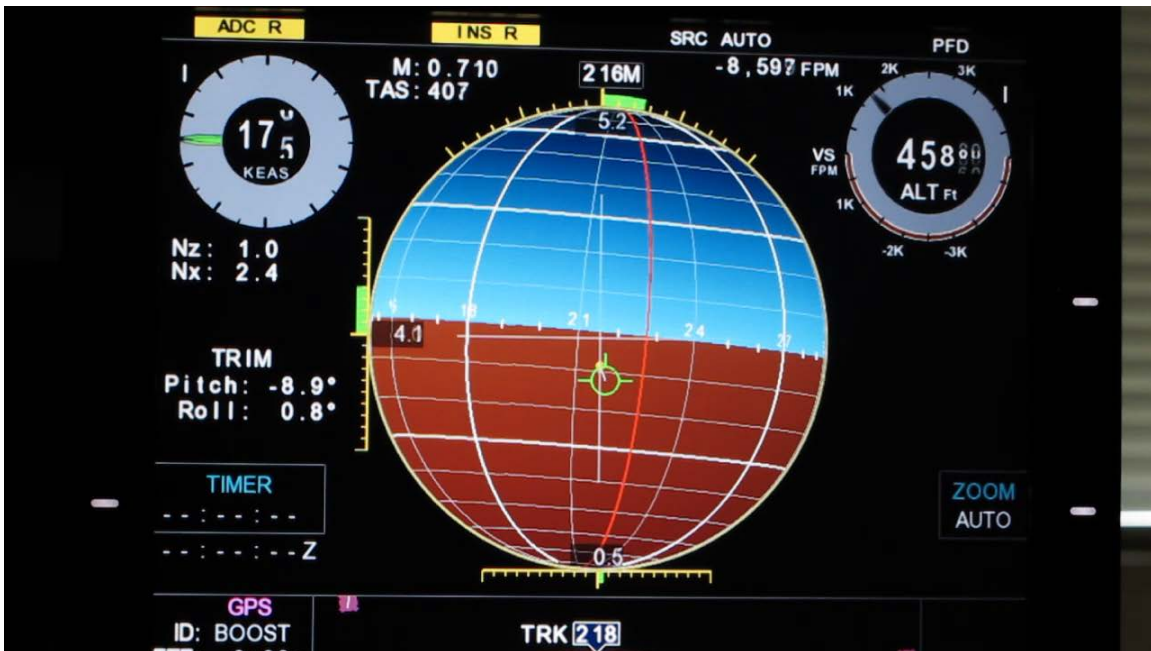


Figure 16 - Still Image Frame Number: 3

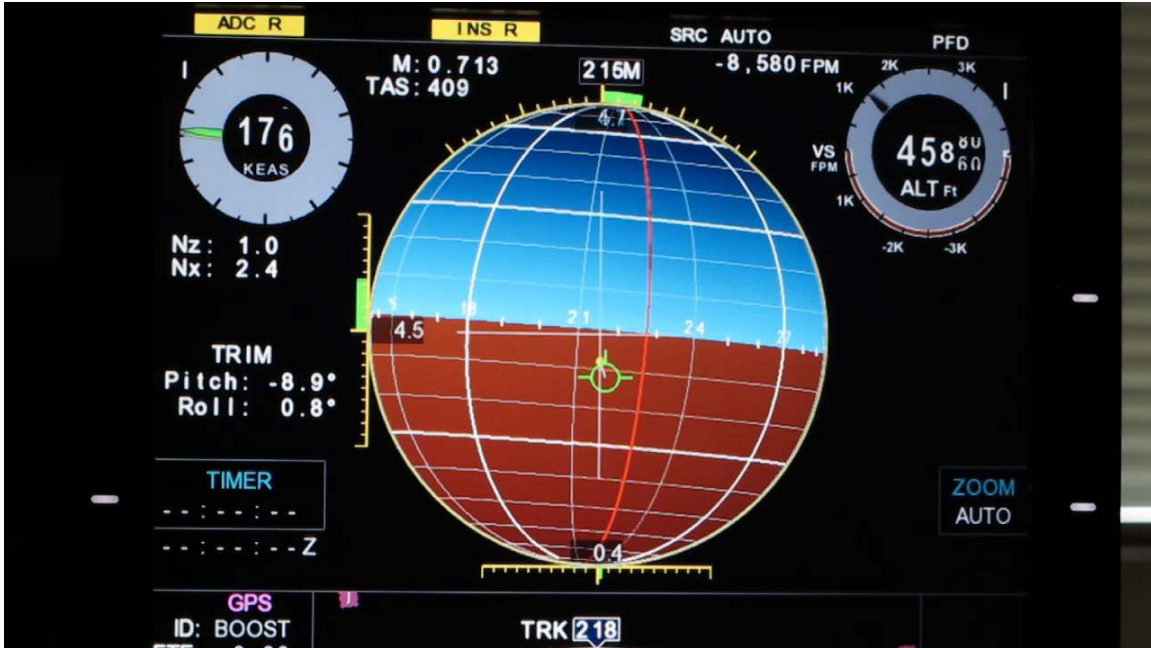


Figure 17 - Still Image Frame Number: 4

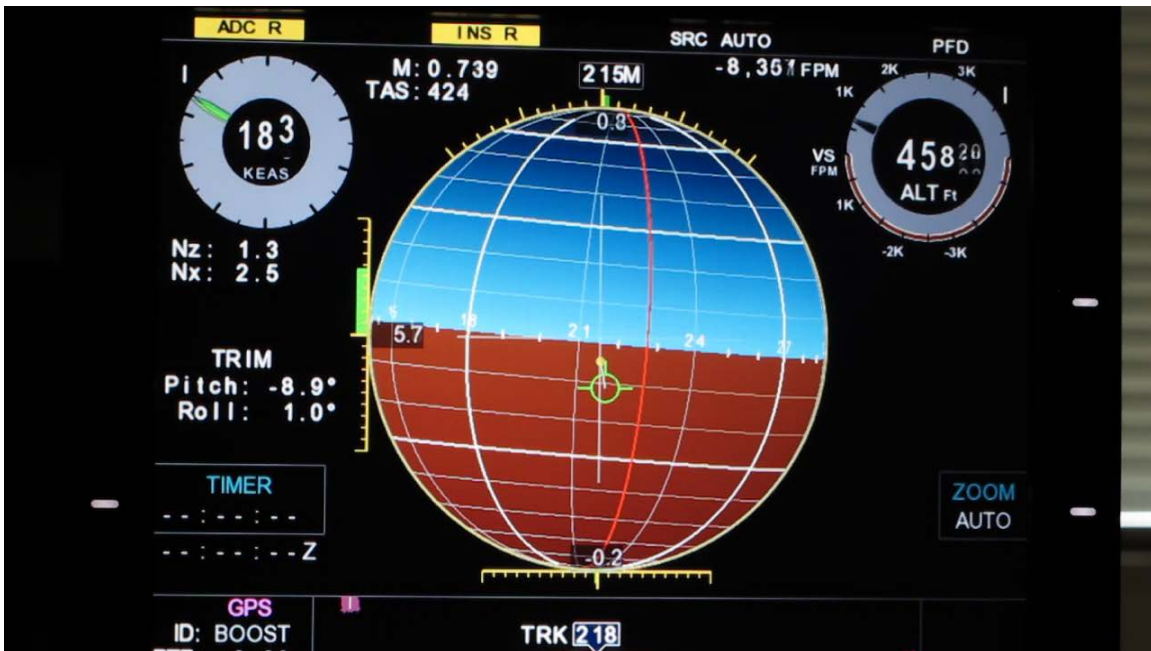


Figure 18 - Still Image Frame Number: 13

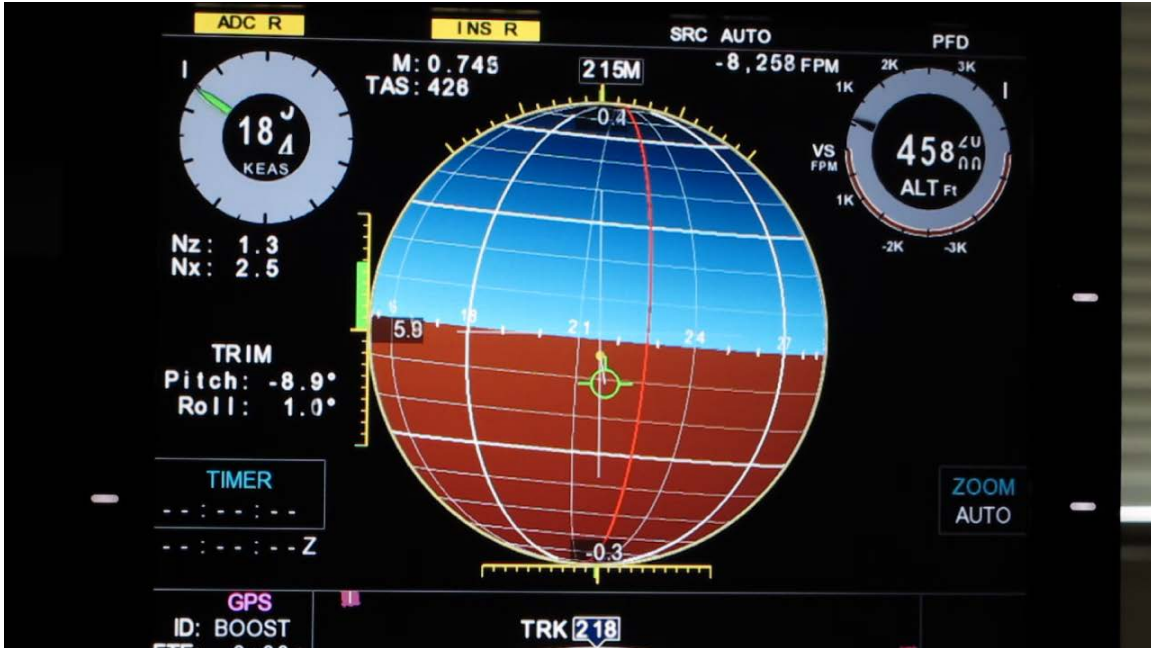


Figure 19 - Still Image Frame Number: 14

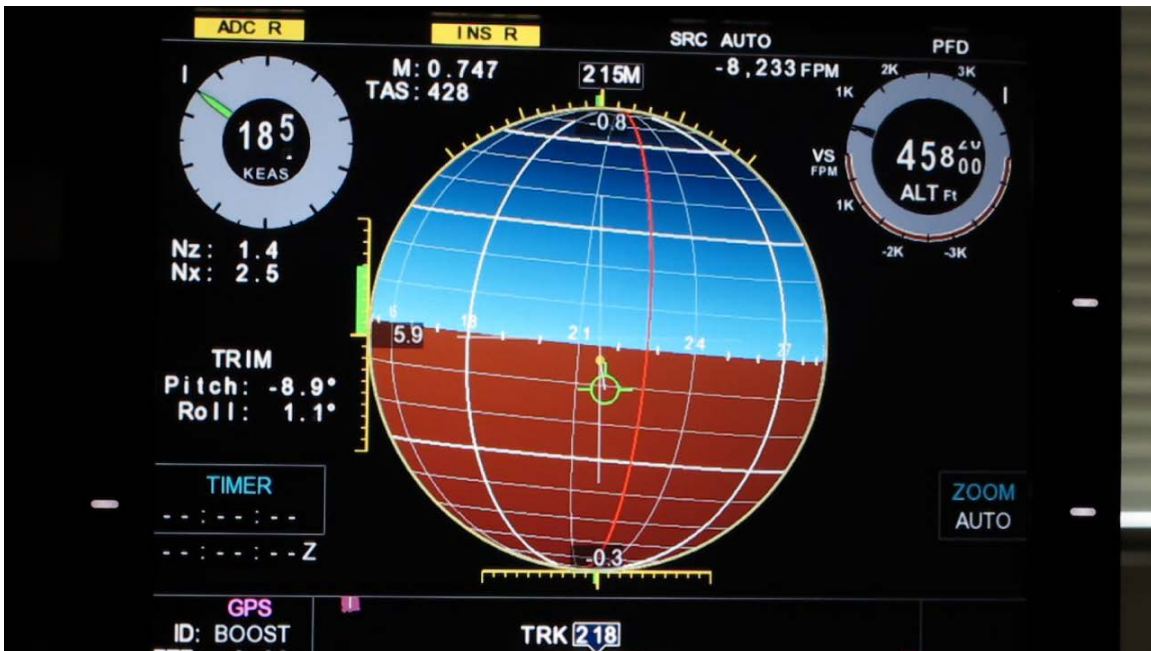


Figure 20 - Still Image Frame Number: 15

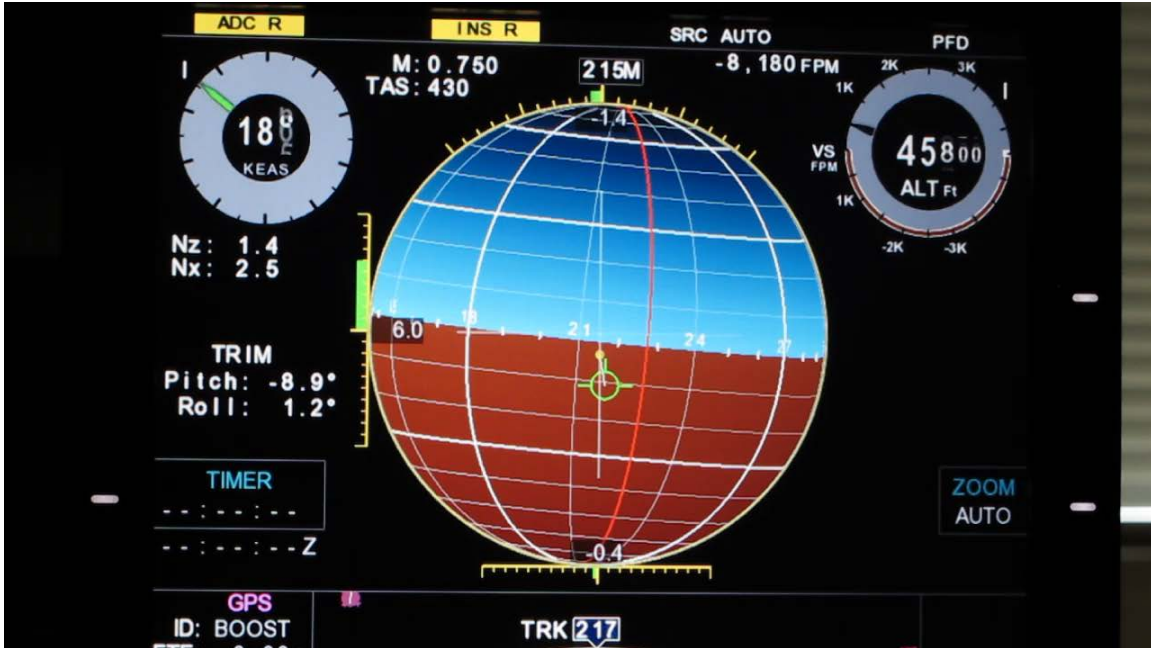


Figure 21 - Still Image Frame Number: 16

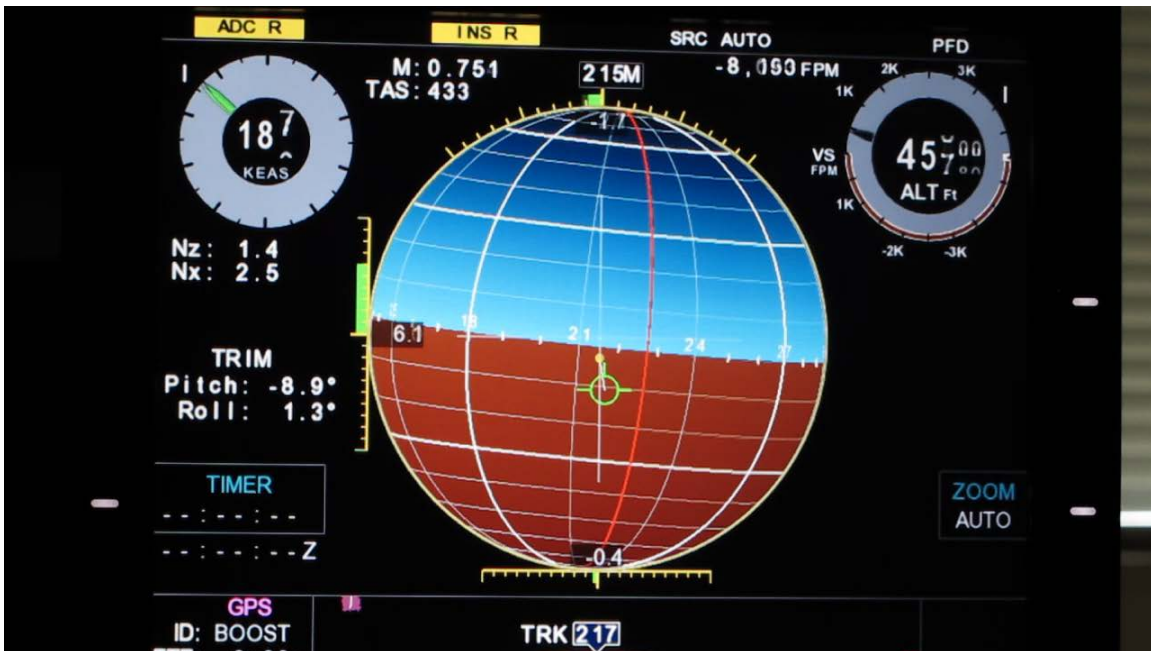


Figure 22 - Still Image Frame Number: 17

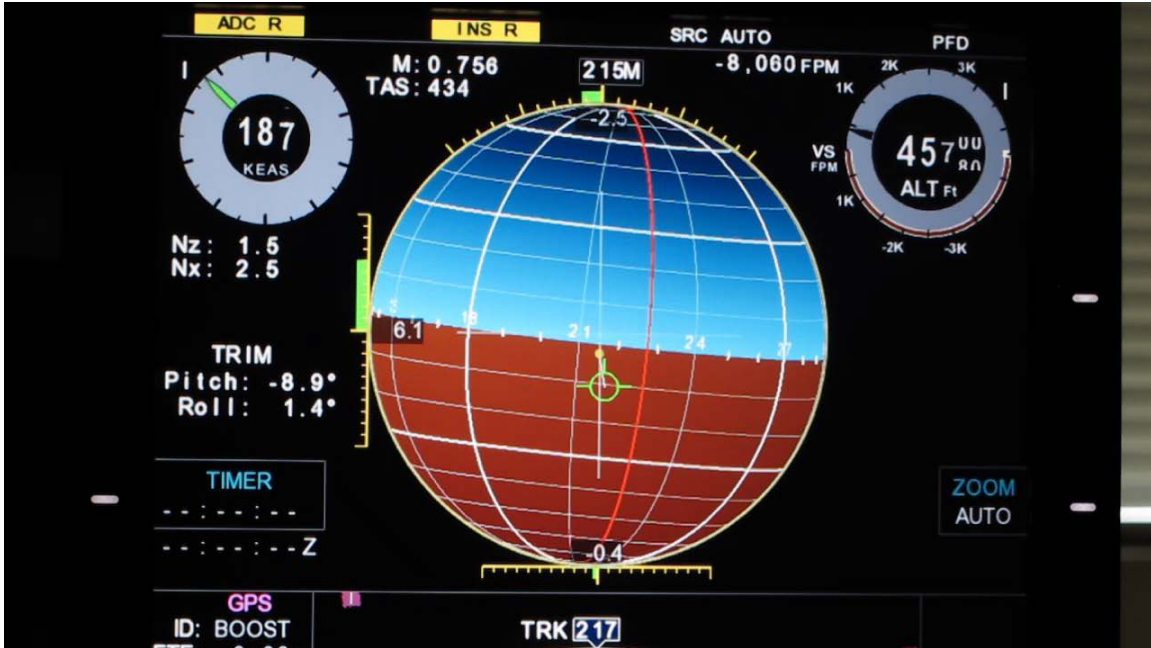


Figure 23 - Still Image Frame Number: 18

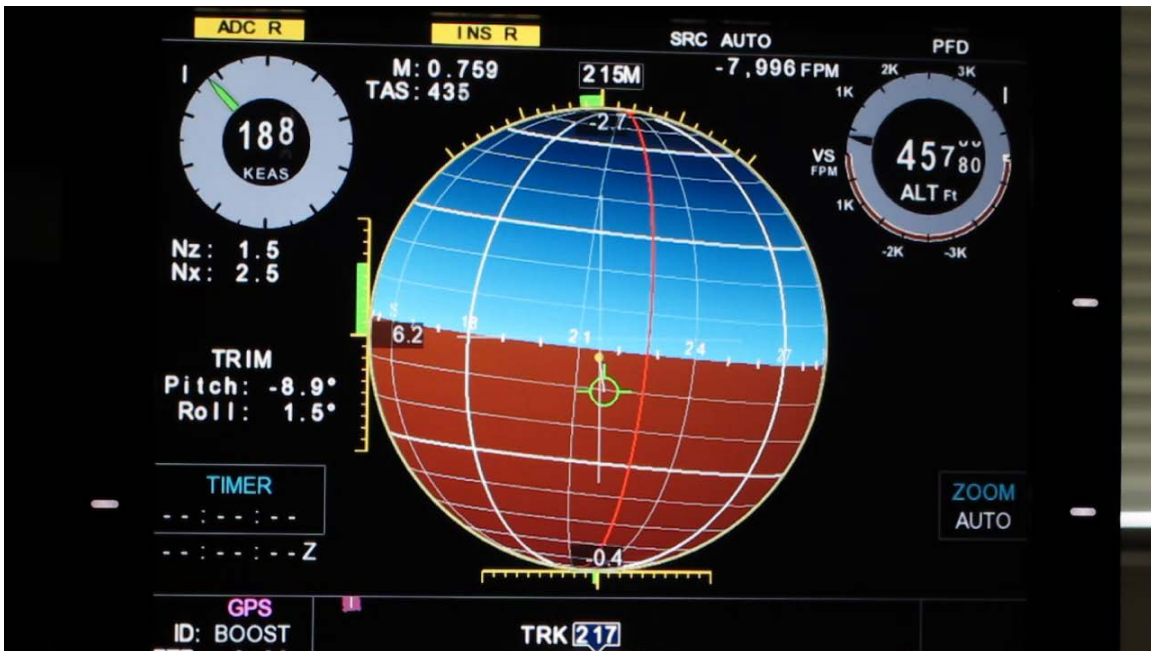


Figure 24 - Still Image Frame Number: 19

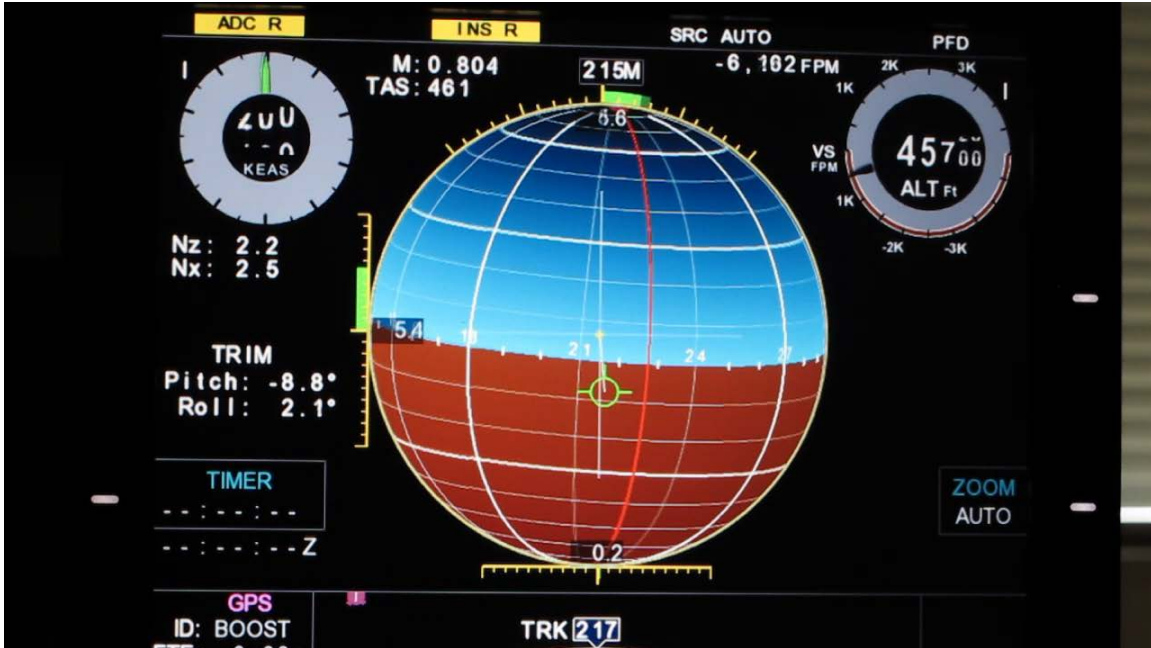


Figure 25 - Still Image Frame Number: 35

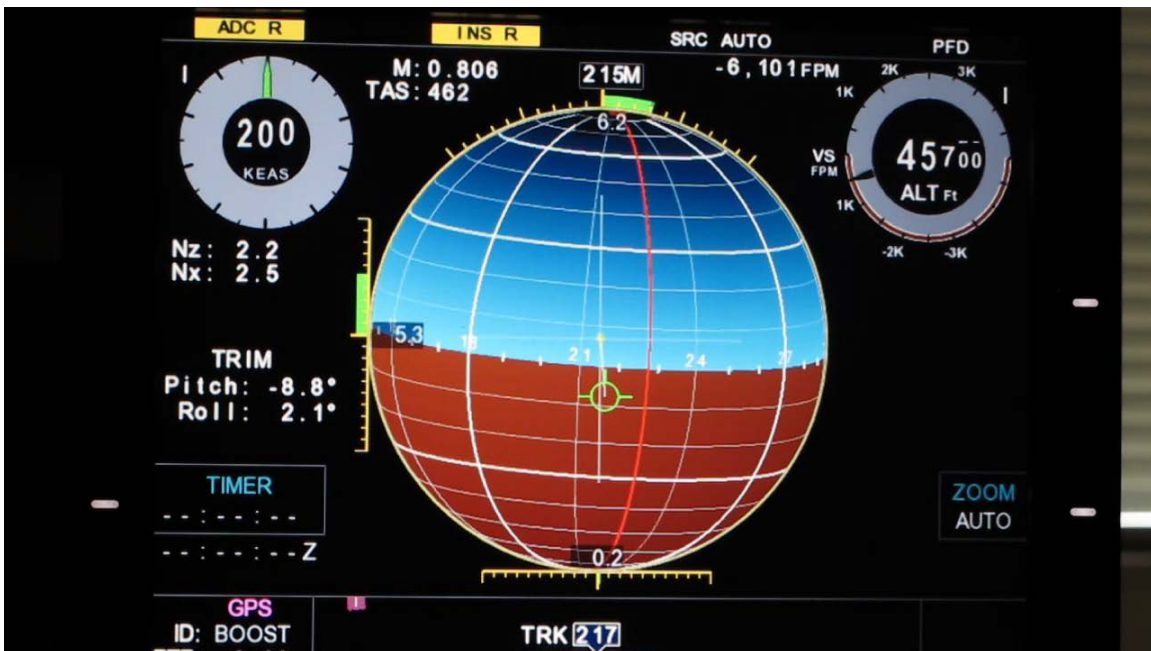


Figure 26 - Still Image Frame Number: 36

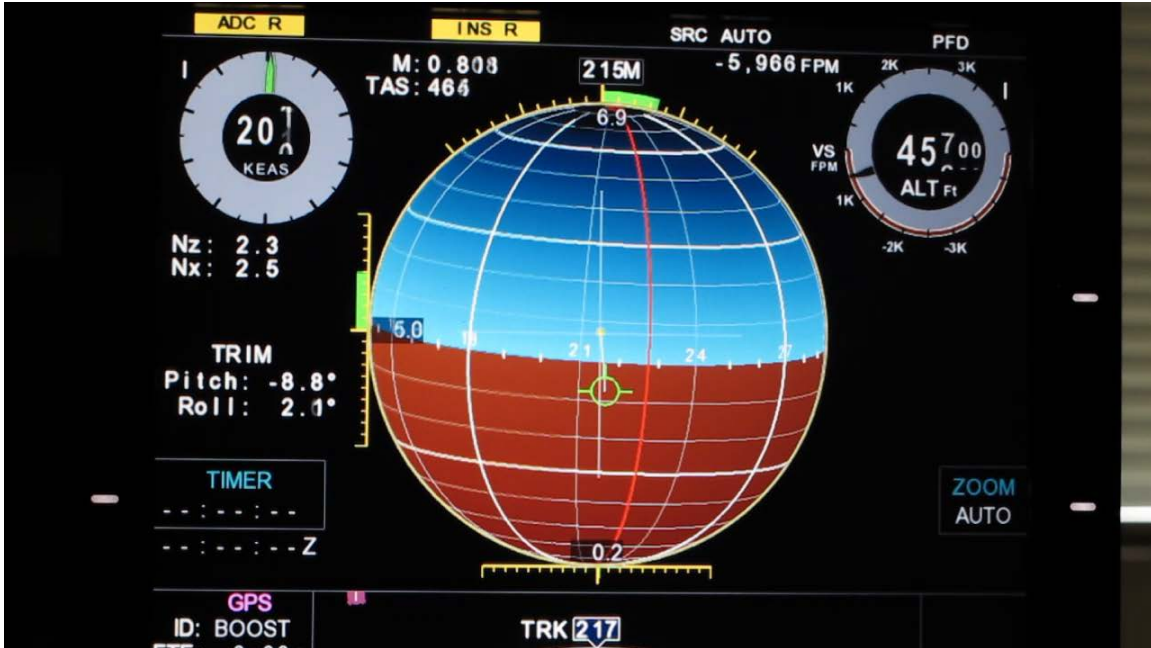


Figure 27 - Still Image Frame Number: 37

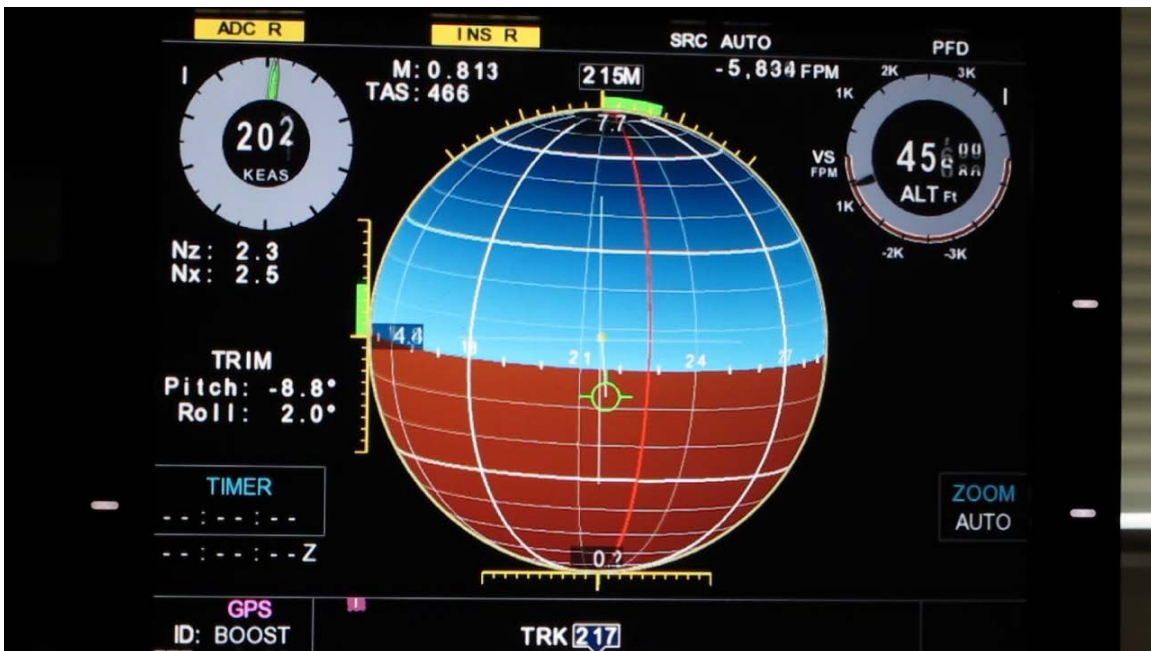


Figure 28 - Still Image Frame Number: 38



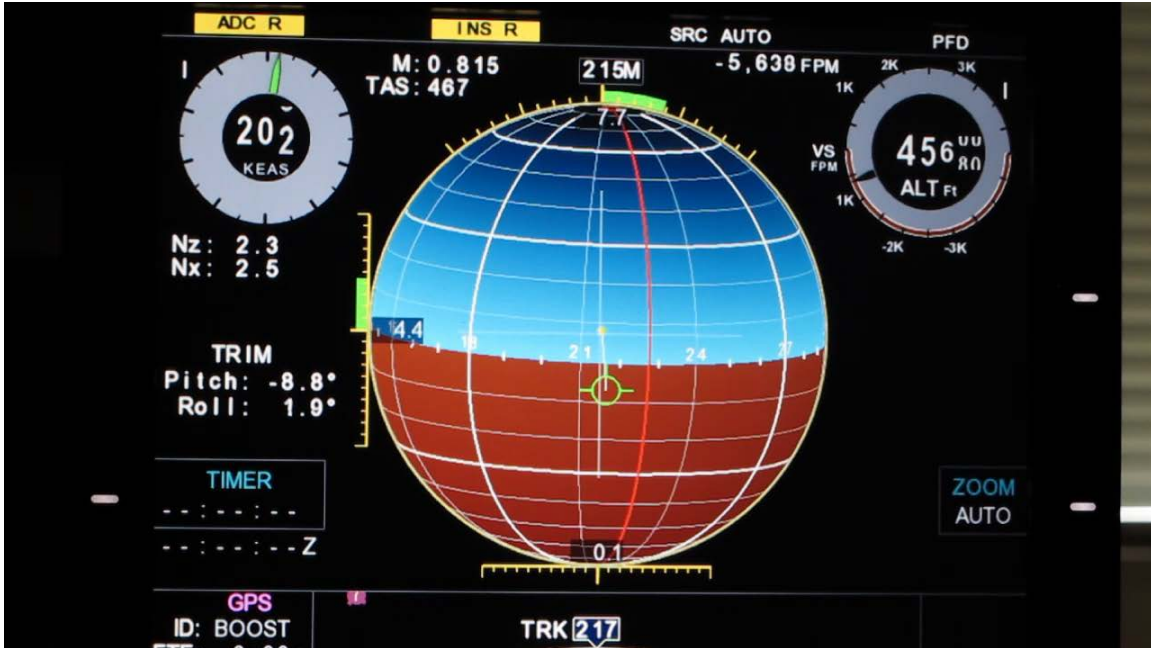


Figure 29 - Still Image Frame Number: 39

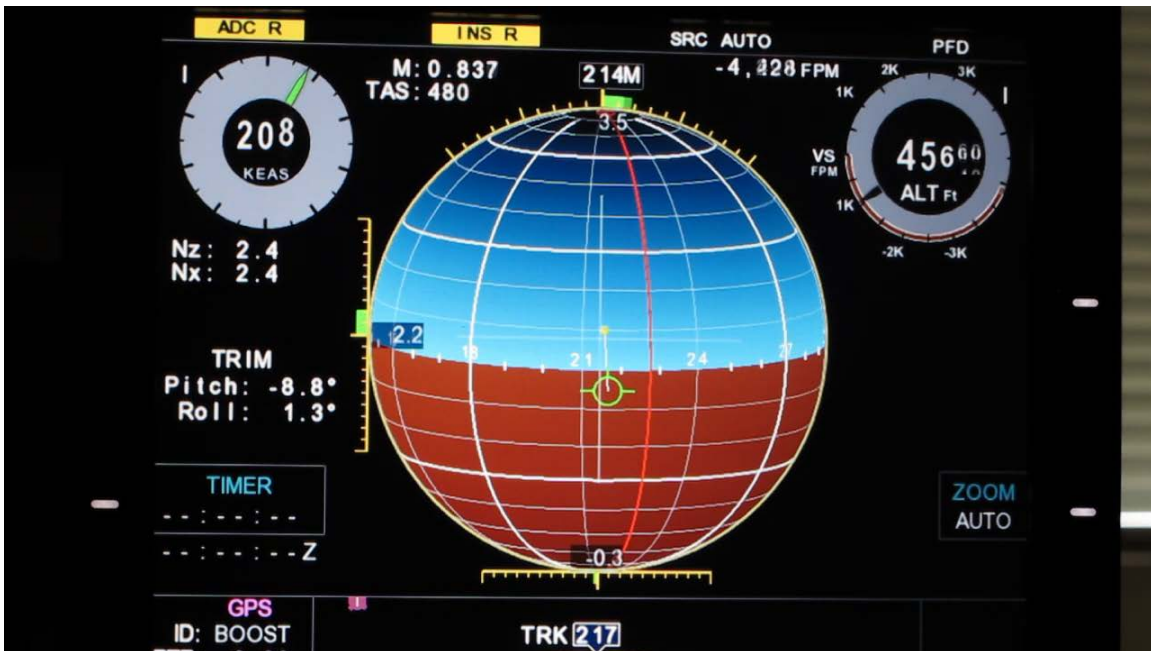


Figure 30 - Still Image Frame Number: 48

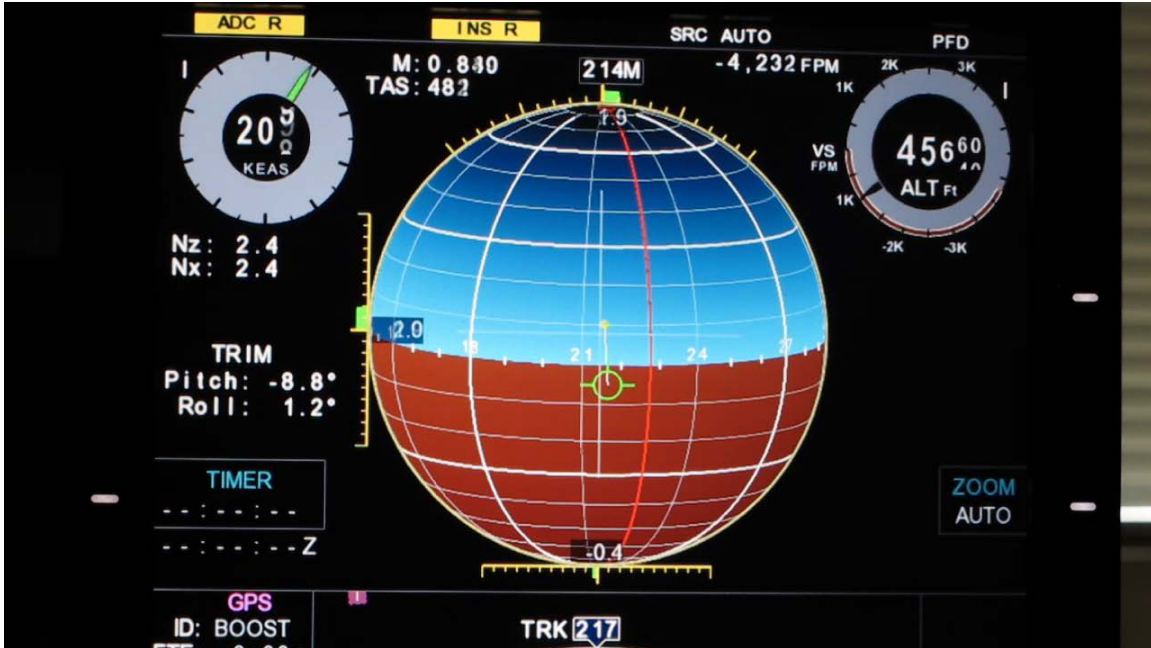


Figure 31 - Still Image Frame Number: 49

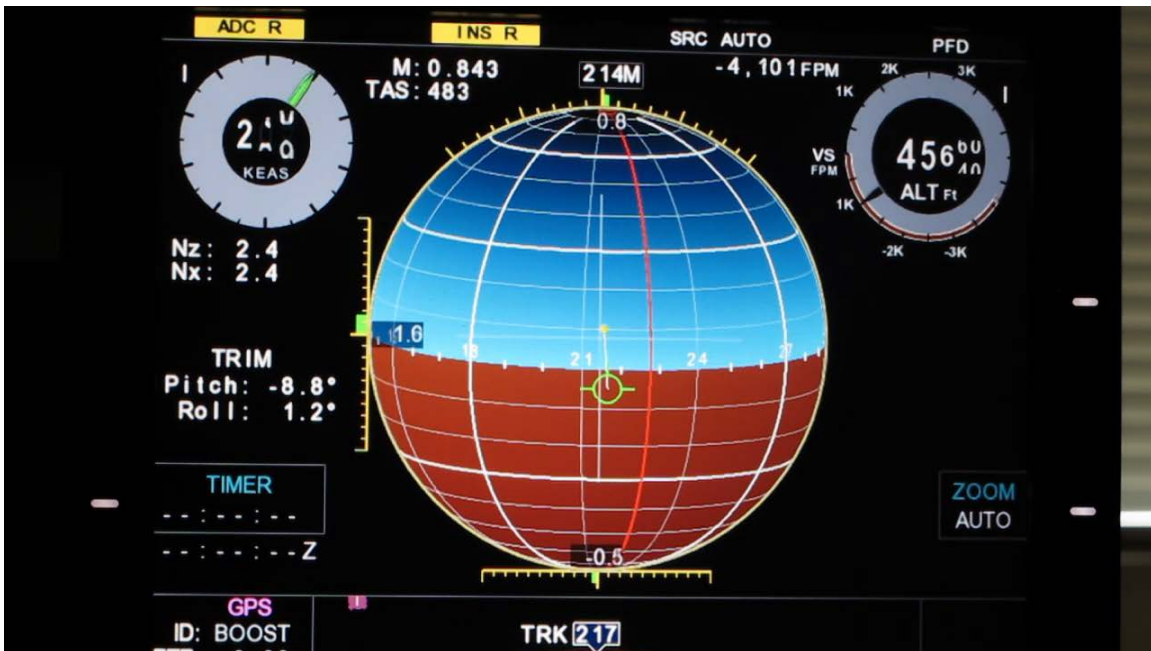


Figure 32 - Still Image Frame Number: 50

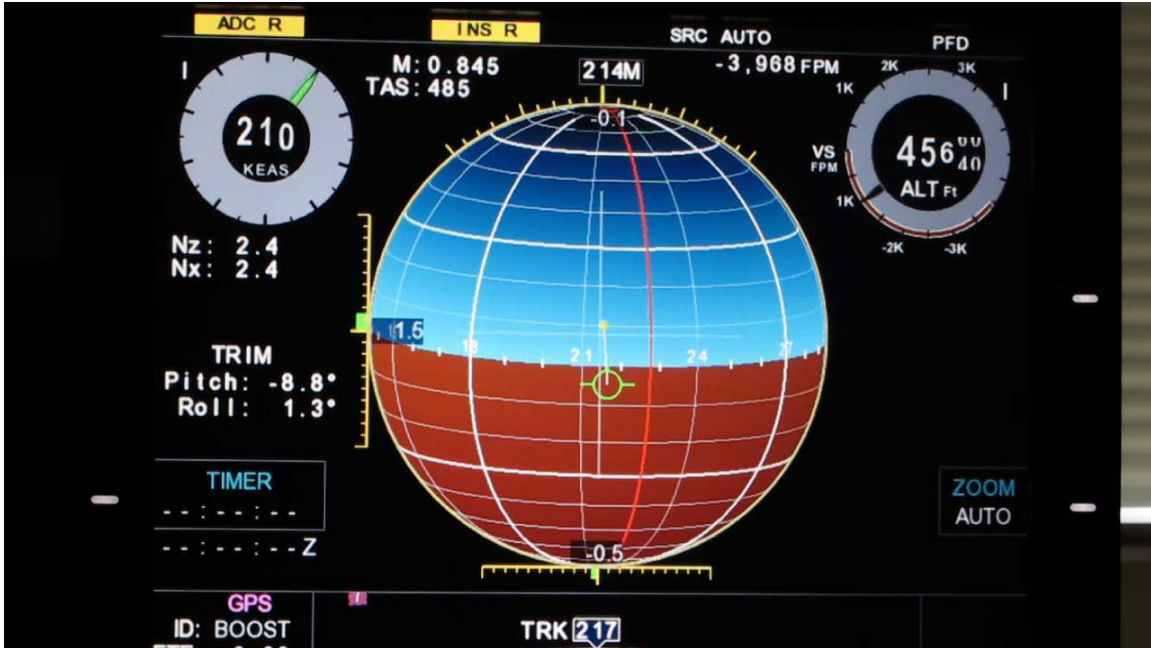


Figure 33 - Still Image Frame Number: 51

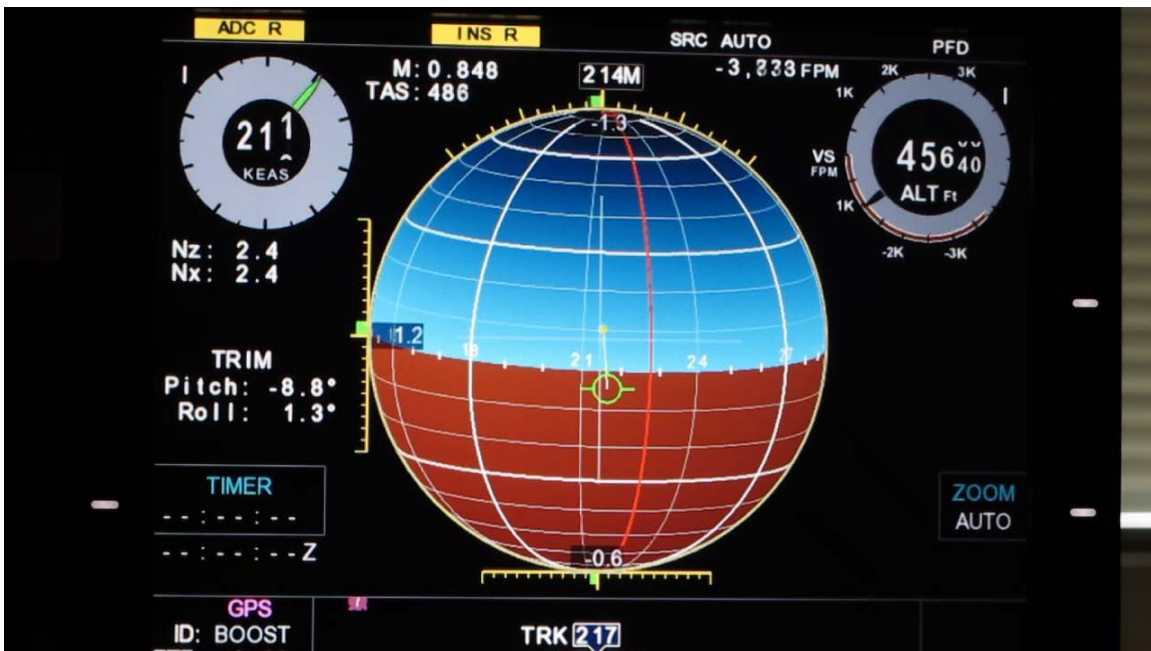


Figure 34 - Still Image Frame Number: 52

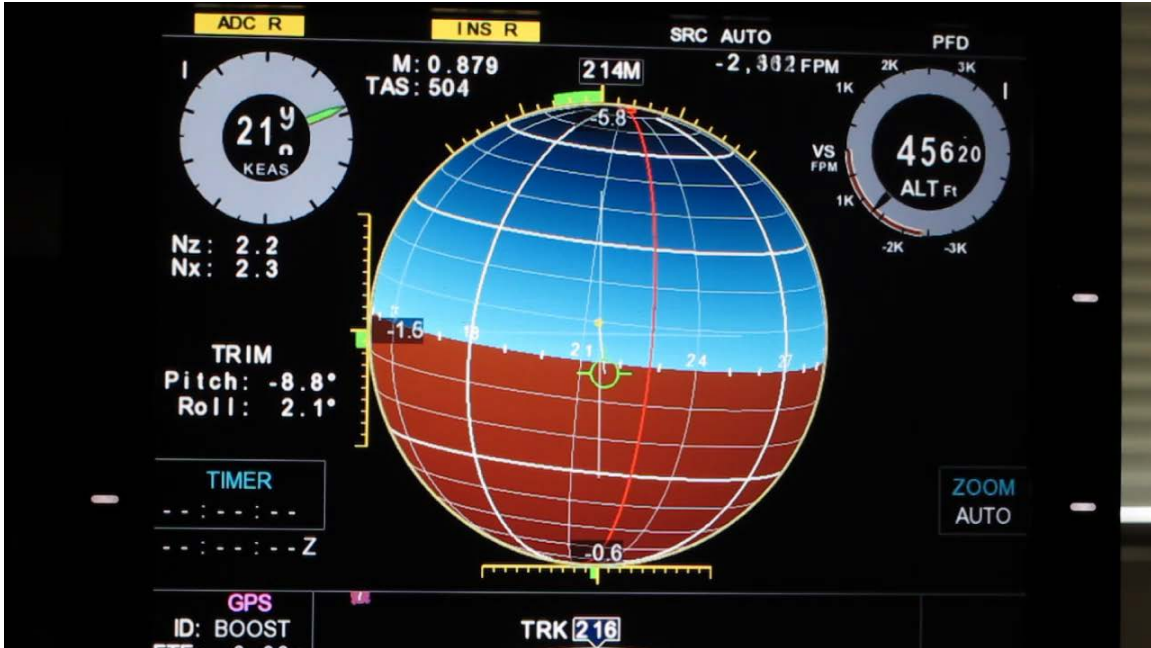


Figure 35 - Still Image Frame Number: 64

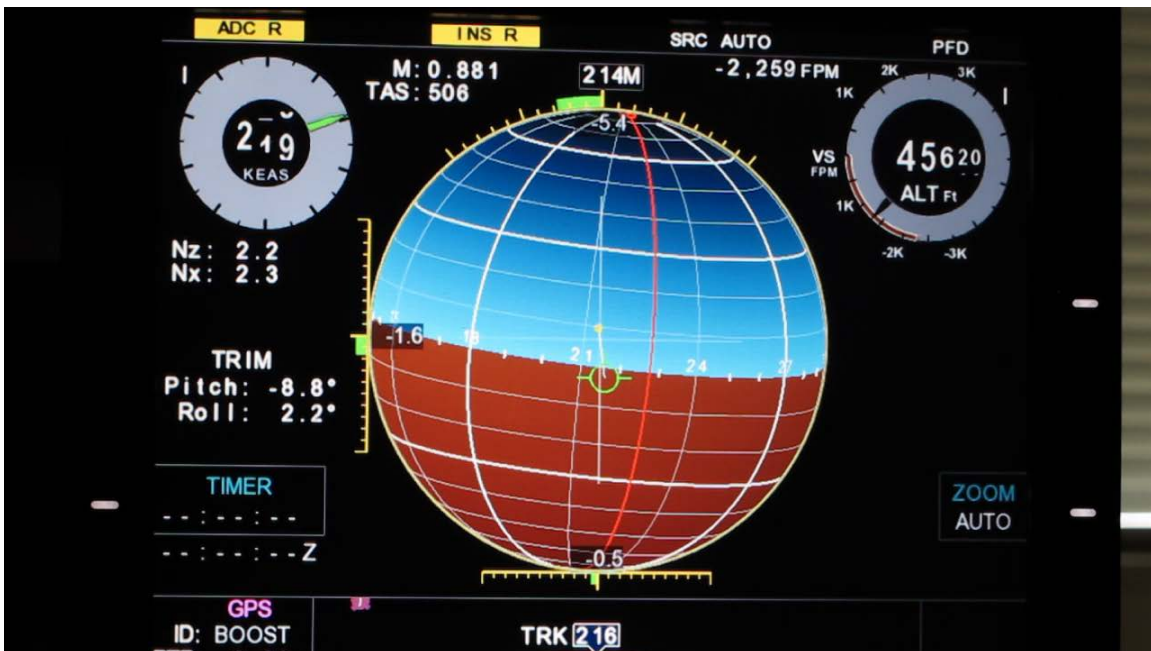


Figure 36 - Still Image Frame Number: 65

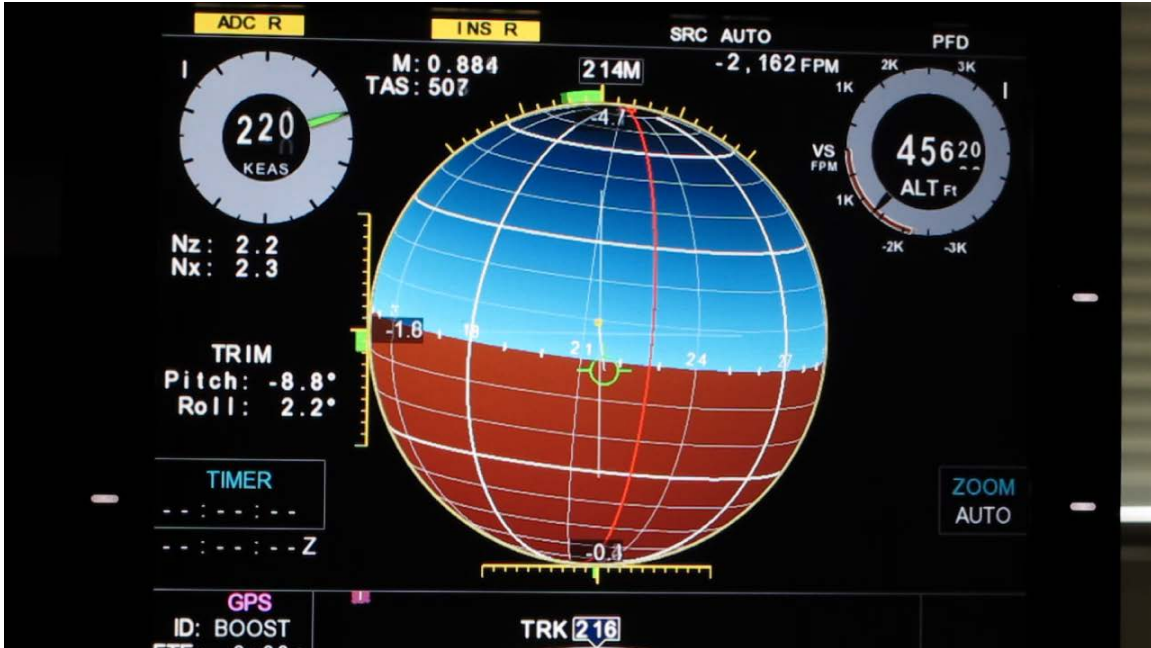


Figure 37 - Still Image Frame Number: 66

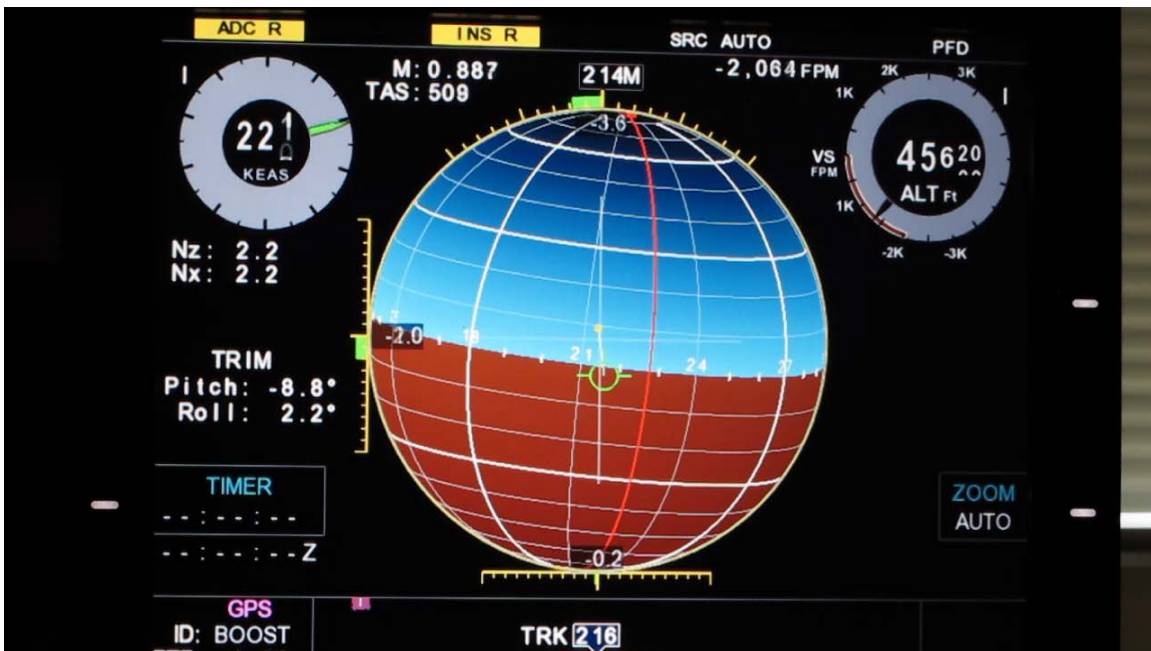


Figure 38 - Still Image Frame Number: 67



Figure 39 - Still Image Frame Number: 68



Figure 40 - Still Image Frame Number: 108



Figure 41 - Still Image Frame Number: 109



Figure 42 - Still Image Frame Number: 110

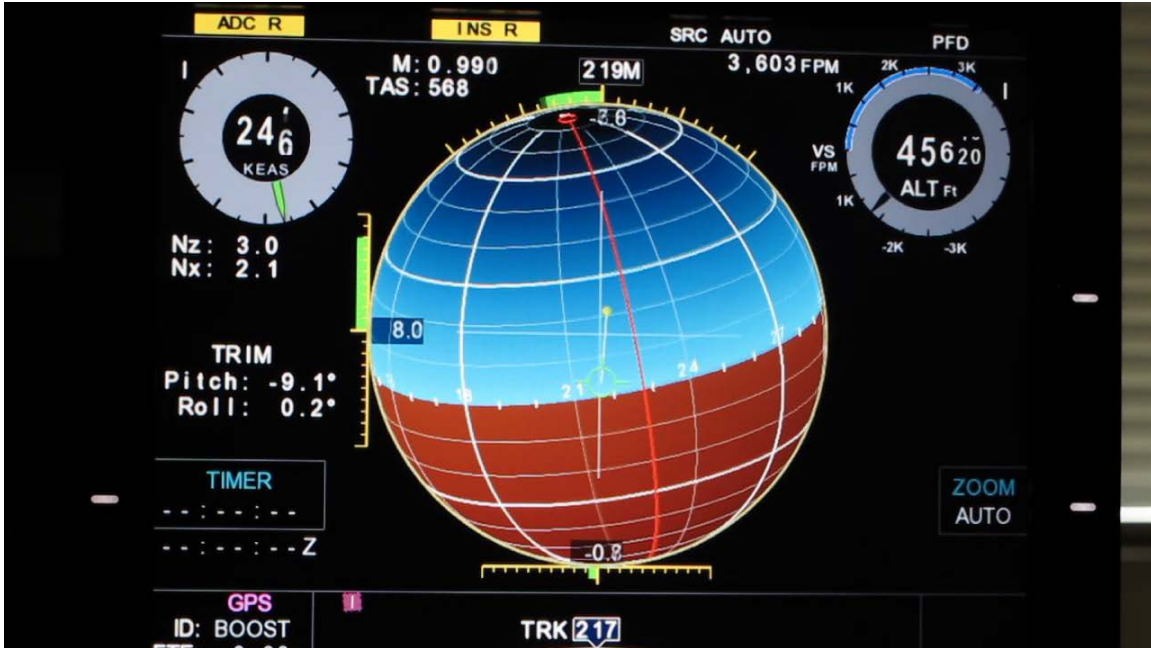


Figure 43 - Still Image Frame Number: 111



Figure 44 - Still Image Frame Number: 112





Figure 45 - Still Image Frame Number: 117



Figure 46 - Still Image Frame Number: 118



Figure 47 - Still Image Frame Number: 119

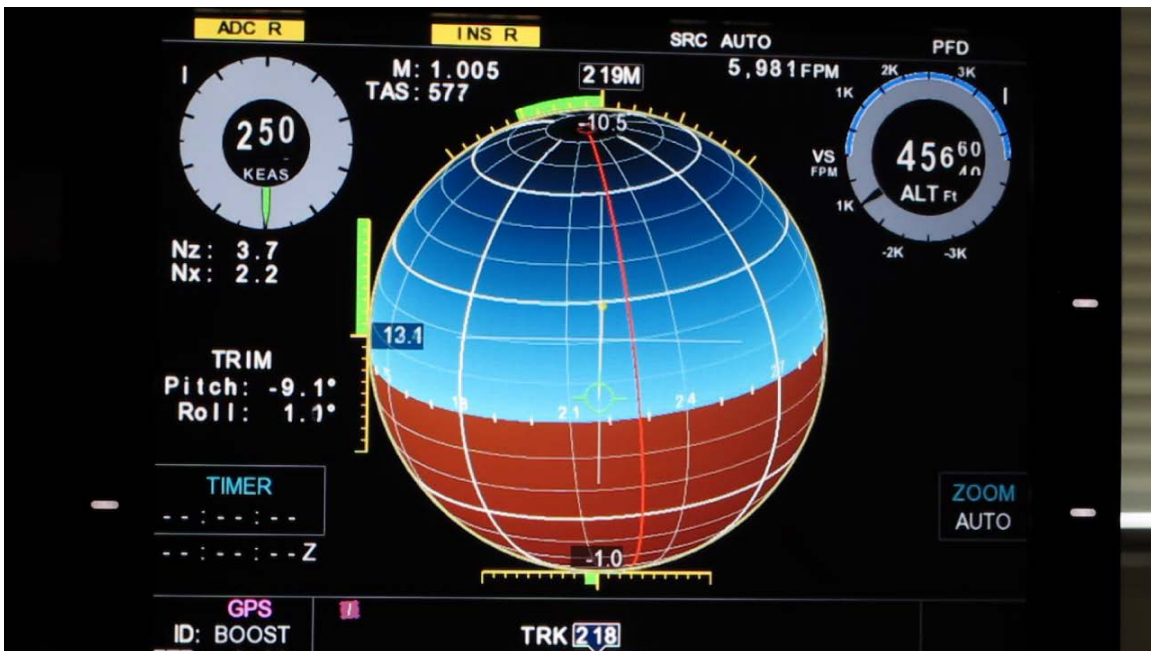


Figure 48 - Still Image Frame Number: 120



Figure 49 - Still Image Frame Number: 121