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November 1, 2013

## Entertainment System

N212JE

Jeffrey,

I thought it would be helpful to collect all the information and present it to you in a comprehensive way for you to read through so we can reach a meaningful solution.

We are going to tune the system next week at Teterboro and adjust all levels to what IJI believes to be the best set up – based upon our discussions including listening to the system with you and Dan on the airplane at Teterboro.

Additionally, we will be using a frequency analyzer when adjusting audio frequency levels.

With regard to the monitor, we had UTC Aerospace send us a piece of equipment that will allow us to adjust the color and contrast settings on the monitor.

With regard to the air gasper, I have scheduled Brad Brownell of B/E Aerospace to come to my office on Monday to review the various air gasper options. I will have choices identified for you by next week and I am trying to obtain samples for you – even the possibility of replacing one in the aircraft to test.

Please read the following pages:

e-mail to JE on 6/27/2013 2:52 PM

Jeffrey,

The system has this "head unit" for control of the audio system through the touch screen.



The DVD is integrated into this head unit as well as "Mirror Link" which allows you to stream Audio from your i-Phone, i-Pad via Bluetooth.

The video out of this unit will be connected to the existing AV module and displayed on the FWD Bulkhead monitor.

A "fixed" aircraft i-Pad (customer supplied) will be located within the credenza and will provide audio and video.

The DVD input will replace the existing DVD input.

You will switch between iPod and DVD from this head unit which will be installed in the credenza.

The rest of the video will remain as it is being controlled from the existing cabin management system switches.

The existing audio will be replaced completely, with 2 sub amps and 2 subs positioned at either end of the credenza.

The single amp will be replaced with 2 amps to maintain the 10 speaker configuration being relocated to the PSU (5 per side for even sound distribution through the cabin).

All of the source selections and volume controls will be done through the head unit in the credenza.

Since this is a car system the Apple app does not allow you to control the system with your phone / i-Pad, etc.

**ERIC H. ROTH** | PRESIDENT



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#### Fwd Monitor-

The new monitor is manufactured by UTC Aerospace Systems (Audio International / Decrane), one of the nation's largest providers of in-flight entertainment systems for business aircraft.

Although there were other aviation manufacturer's to choose from, we believe that UTC was the best choice.

Prior to purchasing this monitor, we consulted with engineers at UTC to find the best solution to coordinate and integrate into the existing aircraft Cabin Management and aircraft systems.

I spoke to Mike Hill (Cabin Electronics Technology Manager at UTC) at length yesterday and asked him to put our conversation into writing (see below). Should you wish to speak to Mike, I can coordinate a conference call.

*Hello Eric,*

*Thank you for your time on the phone today. I put together a spread sheet comparing our 17" wide LCD to Rosen, ACS, and Flight Displays. Rosen doesn't appear to have a wide (16:9 resolution) 17" LCD, only a standard format (4:3 resolution) LCD.*

*ACS and Flight Displays both have wide 17" LCDs. ACS specs are identical to ours, so I believe they're using the same raw 17" LCD panel as we are.*

*Flight Displays does not list any real specifications in their spec sheet, i.e. no brightness or contrast ratio specs and I question their spec on the native resolution of the LCD. I have not seen any 17" LCDs with full High Definition resolution (1920 x 1080). I believe they can accept and display a 1080 video signal, so I would ask them for specifications off the data sheet for the LCD panel they are using.*

*Our 17" wide LCD monitor has inputs to support standard definition analog composite video and SMPTE-259 SDI video signals. In addition, we can accept VGA computer graphics or 1080i High Definition analog component (YPbPr) video signals on the VGA input, which would allow your current LCD to display HD video signals. The SDI video input will provide a slightly better picture over analog video, and of course an analog HD component video signal will provide a much better quality picture over the composite and SDI inputs.*

*We use a state of the art video processor that will upscale standard def video to meet the native resolution of the LCD panel. It utilizes an adaptive 5-line comb filter and an embedded 3D comb filter for NTSC/PAL video signals. It provides Video Enhancement features such as 5-axis color control and full 10-bit data processing. It provides for enhanced low-motion detection and per-pixel 3D noise reduction, along with improved low-and high-angle interpolation. I know all of this probably sounds Greek to you, but suffice it to say, we use the best video processor in the market and it is the same processor used in many of the commercially available television sets today. We are fortunate to have had a long relationship with this IC manufacturer, which provides us access to their technology even though we are a low volume customer. That is unusual in today's consumer electronics driven market.*

*For aircraft use, our products must undergo certification testing that impacts the cost of the final unit. You can't just buy a commercial television monitor and install that on an aircraft. With that in mind, I believe we have the best 17" wide screen LCD in the market and we will work with you to obtain the best picture quality from the currently installed unit.*

*Please find the LCD comparison below.*

|                           | UTAS                      | Rosen                     | ACS         | Flight Displays  |
|---------------------------|---------------------------|---------------------------|-------------|--|
| resolution                | 1280x768<br>(wide screen) | 1280x1024 (4:3<br>format) | 1280 x 768  | 1920 x 1080 is listed on the spec<br>sheet. I highly question this spec.<br>They can accept and display a<br>1920 x 1080 video signal, but I<br>haven't seen a 17" wide LCD panel<br>that has 1920 x 1080 resolution.<br>(possible smoke here concerning<br>their spec). |
| brightness                | 800                       | 250                       | 800         | 250  |
| contrast ratio            | 700:1                     | 500:1                     | 700:1       | ?  |
| viewing angles<br>U/D/L/R | 60/80/80/80               | 80/80/80/80               | 60/80/80/80 | ?  |