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March 5th, 2026
Revision E

Maintenance Support Document

ETM1000 -T53 /T55- ICA

Instructions for Continued Airworthiness;

Installation of an AKV, Inc Exceedence and Trend Monitoring System P/N ETM1000 in the Bell UH-1, 204, 205, 210, Eagle Single Bell 212S with T53 Engine and Bell 214 with the T55 engine

STC Number: SR02413LA

S/N _____

REVISIONS INTRODUCTION

The latest revision of this document is indicated by the highest revision letter as listed below in the Revision History and List of Effective Pages. Changes to the current revision will be indicated within the document by change bars. (Reference Section 1.) The entire document will be reprinted to reflect the current revision level.

REVISION HISTORY

Instructions for Continued Airworthiness; AKV Inc Exceedence and Trend Monitoring System ETM1000			**ETM1000-T53/T55-ICA**
Rev.	Date	Revision Description	Approval
NC	March 11th, 2015	Initial Release	PREPARED J. Gunn CHECKED J. Gunn APPROVED
A	January 29th, 2016	Added applicable data for the addition of the Bell 214	PREPARED J. Gunn CHECKED J. Gunn APPROVED
B	July 24th, 2017	Added applicable drawings for the addition of the Bell Eagle Single 212S T53 conversion Added airspeed switch pitot/static test connection note to Pg 22	PREPARED J. Gunn CHECKED J. Gunn APPROVED

Continued

Instructions for Continued Airworthiness; AKV Inc Exceedence and Trend Monitoring System ETM1000			**ETM1000-T53/T55-ICA**
Rev.	Date	Revision Description	Approval
C	September 22nd, 2018	- Added cycle counting option with remote display or 3rd party Flightcell DZMx. -Updated App. A data. Changed to refer to the User Manual - Adjusted Appendix list due to App. A change - Updated App. D Drawings to include change for remote display and Flightcell DZMx interface - Various changes throughout - Changed this ICA to reflect B214 applicablity with the T55	PREPARED J. Gunn CHECKED J. Gunn APPROVED
D	November 5th, 2026	- Added new AA battery holder in place of coin cell and updated Appendix D drawings	PREPARED J. Gunn CHECKED J. Gunn APPROVED
E	March 5th, 2026	- Updated Appendix D drawings to MDL Rev R	PREPARED J. Gunn CHECKED J. Gunn APPROVED

LIST OF EFFECTIVE PAGES

All pages are revised when any page is changed so that all pages maintain the same revision level.

PAGE	REVISION	DATE
All	NC	March 11th, 2015
ALL	A	January 29th, 2016
3, 22 & 27- 58	B	July 24th, 2017
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10 and Appendix D	D	November 5th, 2020
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1. INTRODUCTION

This AKV, Inc maintenance support document provides instructions for the continued airworthiness of the AKV Exceedence and Trend Monitoring System ETM1000. The basis for this document is 14 CFR 29.1529 and Appendix A to Part 29.

1.1 Service Difficulties

Technical Assistance can be provided by:

AKV, Inc.
777 Aviation Dr.
Camarillo, CA 93010
Tel 805-437-1739
Fax 805 437-1783
Email: sales@akvinc.com
Web: www.akvinc.com

1.2 Warnings, Cautions, and Notes

WARNING

FAILURE TO FOLLOW INSTRUCTIONS GIVEN IN A *WARNING* MAY RESULT IN PERSONAL INJURY OR DEATH.

CAUTION

FAILURE TO FOLLOW INSTRUCTIONS GIVEN IN A CAUTION MAY RESULT IN DAMAGE TO THE HELICOPTER

Note

A note includes supplemental data about the procedure, practice, condition, etc., for the maintenance task you are about to perform.

1.3 Language

This manual is written to the Simplified English (SE) specification. This International Aerospace Maintenance Language Specification is important to maintenance personnel whose first language is not English.

1.4 References

The use of parentheses throughout this document is for denoting or depicting a reference to other sections, items, details, etc., the intent of which is to further identify or clarify existing information.

1.5 Revision to ICA

Revisions to this document and the documents listed within it are distributed to the operators who have this modification installed on the subject aircraft, either in electronic or paper format. **Contact AKV for available revision changes.**

1.6 Abbreviations and Definitions

A&P	Airframe & Powerplant Mechanic
CFR	Code of Federal Regulations
RFM	Rotorcraft Flight Manual
RFMS	Rotorcraft Flight Manual Supplement
FAR	Federal Aviation Regulations

2. AIRWORTHINESS LIMITATIONS

This section is FAA approved and specifies the inspections, and other maintenance, which are required under 14 CFR 43.16 and 91.403, unless an alternative program has been FAA approved. There are “No airworthiness limitations associated with this type design change”.

3. DESCRIPTION

3.1 ETM1000 Configurations

The ETM1000 is available in two configurations, a -1 or -2 configuration. In either configuration the ETM1000 enclosure is mounted on the pilot side below the instrument panel. It is electrically spliced to the existing signal generators for Tq, MGT, N1, N2 and Nr behind the instrument panel and at the rear of each indicator. The system receives airspeed indication in the form of a calibrated 80kt airspeed switch connected via a “tee” fitting in the pitot line and mounted in the forward section of the instrument panel area. It provides a signal to the ETM1000 that the A/C is operating 80Kt or greater and is utilized for Tq exceedence criteria. An OAT probe is mounted on the belly and the ETM1000 LRU has a pressure altitude (PA) senser built-in. The OAT and PA sensor are used for the Delta Ng and power check recording.

As a -1 configuration, two (2) instrument panel mounted pushbutton / indicators (annunciators) and audio side-tone are provided for overall status and alert indication to the pilot. A flip guard is installed on the P-PWR/CHK (left side switch) to prevent inadvertent operation. The “P” in the P-PWR/CHK and P-MUTE white nomenclature indicates the pushbutton feature.

NOTE: Cycle counting is available as an option on the -1 configuration via the AKV remote display or displayed on the 3rd party Flightcell DZMx. **The LRU must be Rev P** or greater to allow for using the cycle AKV remote display and **software v72.0 or greater** must be installed for the cycle counting option.

As a -2 configuration, there are no pushbutton / indicators or audio side-tone supplied. **NOTE:** The cycle counting / remote display or Flightcell DZMx interface options are not available with the -2 configuration.

The system date and time is backed up with an externally mounted battery for easy access which is **replaced annually**. A Single power source via a 2 amp circuit breaker supplies power to the ETM1000.

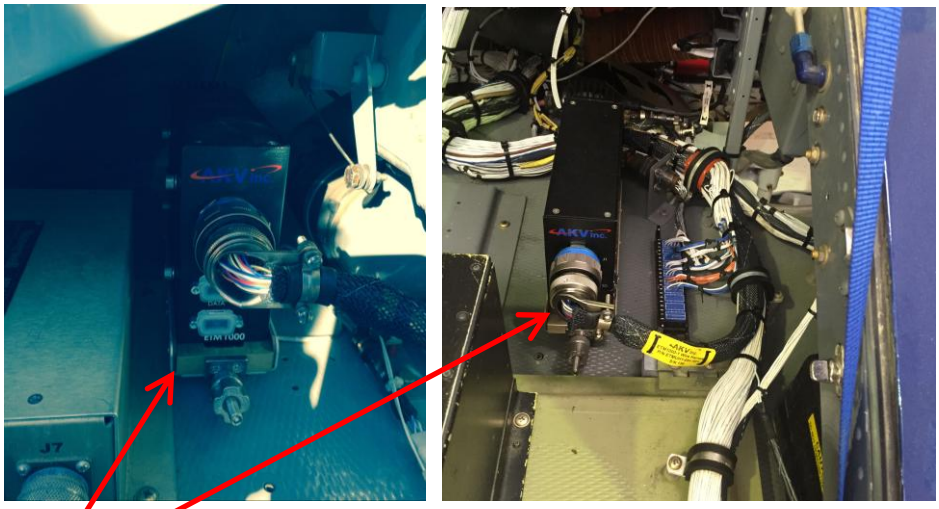


Figure 1 - Installed view of the ETM1000 LRU

ETM1000 ENCLOSURE LRU & MOUNTING TRAY

-1 CONFIGURATION ONLY. TYPICAL PUSHBUTTON / INDICATOR LOCATION

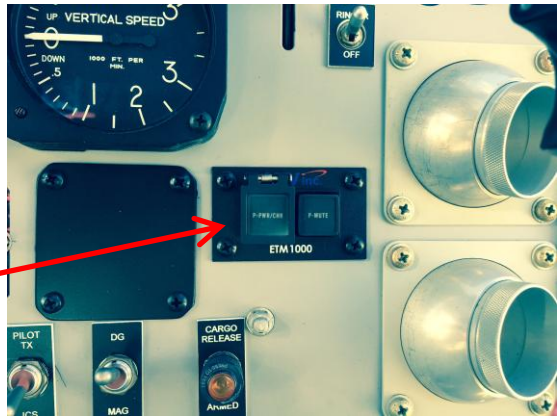


Figure 2 - Installed view of the ETM1000 pushbutton / anunciator

(OPTIONAL) CYCLE COUNTING REMOTE DISPLAY LOCATION

Figure 3 - Installed view of the (optional) cycle counting remote display

Figure 4 –(Optional) Flightcell DZMx with cycle counting display

3.2 ETM1000 Operation

The ETM1000 is designed to continuously monitor and record all engine and drive train parameters at 1Hz (1/sec). For values in excess of the airframe and engine operating limitations during an exceedance, it is recorded at 5hz (5/sec). The 1Hz data refered to as a Run Log (RL) is used during post flight for graphing normal flight operations. Exceedence data is also graphed.

As a -1 configuration system health and exceedence status indication via white caution and blue warning indicators is provided to the pilot via two (2) pushbutton / annunciators mounted on the instrument panel. An audible side tone for the pilot's headset is also provided for caution and warning indication. Audible muting and a power check recording feature is provided as part of the pushbuttons. In the -1 configuration only, the optional cycle count is available.

NOTE: When using the optional cycle counting feature with either the AKV remote display or Flightcell DZMx then refer to the **ETM1000 Bell MediumT53 or Bell 214 T55 Cycle Counting Operating Specification** document.

As a -2 configuration there is no pilot interface and the ETM1000 system is essentially a black box recorder.

All data is written to a removable 2GB SD Card. Exceedances are backed up in the ETM1000 flash memory in case the SD card is missing.

NOTE: For additional information, refer to the **ETM1000 User Manual**.

4. MAINTENANCE INSTRUCTIONS

4.1 Routine Cleaning & Maintenance

Routine Cleaning & Maintenance of the ETM1000 Routine maintenance may be required as the result of an inspection. Re-tighten loose fasteners to the standard torque values shown in Table 1 and Table 2. Perform routine cleaning to remove contaminants from the ETM1000. Remove grease, fungus, and ground-in dirt from equipment and mounting brackets using a clean, soft cloth dampened with mild soap and warm water; avoid damaging the coating.

4.2 Tools

The following tools will be necessary to maintain the AKV ETM1000 Installation:

- A Laptop PC utilizing Windows XP or later operating system
- RS-232 cable as supplied with the ETM1000 kit
- USB adaptor as supplied with the ETM1000 kit
- Pitot test set (user supplied)

4.3 Overhaul

There are no component overhaul requirements for this type design change. Under normal operating conditions, the ETM1000 will not require component overhaul. All parts and assemblies are designed to be replaced “On Condition”. Any maintenance needed to the ETM1000 or its installation beyond that described in this document requires that the components be removed and returned to AKV, Inc. The decision to return damaged components may be a subjective one and should be made by a qualified A & P Mechanic.

4.4 Component Retirement/Retirement Life

The ETM1000 has been designed with components that have a virtually unlimited life span. However, it is anticipated that some components may require replacement at some time during the service life of the helicopter. The decision to replace these parts is a subjective one and should be made by the operator or an A & P Mechanic.

	Bolts -- Steel Tension		Bolts -- Steel Tension		Bolts -- Aluminum	
	AN 3 – AN 20		MS 20004 – MS 20024		AN 3DD – AN 20DD	
	AN 42 – AN 49		NAS 144 – NAS 158		AN 173DD – AN 186DD	
	AN 73 – AN 81		NAS 583 – NAS 590		AN 509DD	
	AN 173 – AN 186		NAS 144 – NAS 158		AN 525D	
	MS 20033 – MS 20046		NAS 144624 – NAS 644		MS 27039D	
	MS 20073		NAS 1303 – NAS 1320		MS 24694DD	
	MS 20074		NAS 172		--------	
	AN 509 NK9		NAS 174		--------	
	MS 24694		NAS 517		--------	
	AN 525 NK525		--------		--------	
	MS 27030		--------		--------	
				Steel Shear Bolt		
				NAS 464		
	Nuts		Nuts		Nuts	
	Steel Tension	Steel Shear	Steel Tension	Steel Shear	Aluminum Tension	Aluminum Shear
	AN 310	AN 320	AN 310	AN 320	AN 365D	AN320D
	AN 315	AN 364	AN 315	AN 364	AN 310D	AN 364D
	AN 363	NAS 1022	AN 363	NAS 1022	NAS 1021D	NAS 1022D
	AN 365	MS 17826	AN 365	MS 17826	--------	--------
	NAS 1021	MA 20364	MS 17825	MS 20364	--------	--------
	MS 17825	--------	MS 20365	--------	--------	--------
	MS 21045	--------	MS 21045	--------	--------	--------
	MS 20365	--------	NAS 1021	--------	--------	--------
	MS 20500	--------	NAS 679	--------	--------	--------
	NAS 679	--------	NAS 1291	--------	--------	--------

FINE THREAD SERIES[1]

Nut-Bolt Size	Torque Limits In-lbs.		Torque Limits In-lbs.		Torque Limits In-lbs.		Torque Limits In-lbs.		Torque Limits In-lbs.		Torque Limits In-lbs.	
	Min.	Max	Min.	Max	Min.	Max	Min.	Max	Min.	Max	Min.	Max
8 - 36	12	15	7	9	------	------	------	------	5	10	3	6
10 - 32	20	25	12	15	25	30	15	20	10	15	5	10
1/4 - 28	50	70	30	40	80	100	50	60	30	45	15	30
5/16 - 24	100	140	60	85	120	145	70	90	40	65	25	40
3/8 - 24	160	190	95	110	200	250	120	150	75	110	45	70
7/16 - 20	450	550	270	300	520	630	300	400	180	280	110	170
1/2 - 20	480	690	290	410	770	950	450	550	280	410	160	260
9/16 - 18	800	1000	480	600	1100	1300	650	800	380	580	230	360
5/8 - 18	1100	1300	660	780	1250	1550	750	950	550	670	270	420
3/4 - 16	2300	2500	1300	1500	2650	3200	1600	1900	950	1250	5560	880
7/8 - 14	2500	3000	1500	1800	3550	4350	2100	2600	1250	1900	750	1200
1 - 14	3700	4500	2200	3300	4500	5500	2700	3300	1600	2400	950	1500
1 1/8 - 12	5000	7000	3000	4200	6000	7300	3600	4400	2100	3200	1250	2000
1 1/4 - 12	9000	11000	5400	6600	11000	13400	6600	8000	3900	5600	2300	3650

Table 1: Recommended torque values for nut-bolt combinations: Fine Thread Series

1 Torque values without lubrication

	Bolts -- Steel Tension		Bolts -- Steel Tension		Bolts -- Aluminum	
	AN 3 – AN 20		MS 20004 – MS 20024		AN 3DD – AN 20DD	
	AN 42 – AN 49		NAS 144 – NAS 158		AN 173DD – AN 186DD	
	AN 73 – AN 81		NAS 583 – NAS 590		AN 509DD	
	AN 173 – AN 186		NAS 144 – NAS 158		AN 525D	
	MS 20033 – MS 20046		NAS 144624 – NAS 644		MS 27039D	
	MS 20073		NAS 1303 – NAS 1320		MS 24694DD	
	MS 20074		NAS 172		--------	
	AN 509 NK9		NAS 174		--------	
	MS 24694		NAS 517		--------	
	AN 525 NK525		--------		--------	
	MS 27030		--------		--------	
				Steel Shear Bolt		
				NAS 464		
	Nuts		Nuts		Nuts	
	Steel Tension	Steel Shear	Steel Tension	Steel Shear	Aluminum Tension	Aluminum Shear
	AN 310	AN 320	AN 310	AN 320	AN 365D	AN320D
	AN 315	AN 364	AN 315	AN 364	AN 310D	AN 364D
	AN 363	NAS 1022	AN 363	NAS 1022	NAS 1021D	NAS 1022D
	AN 365	MS 17826	AN 365	MS 17826	--------	--------
	NAS 1021	MA 20364	MS 17825	MS 20364	--------	--------
	MS 17825	--------	MS 20365	--------	--------	--------
	MS 21045	--------	MS 21045	--------	--------	--------
	MS 20365	--------	NAS 1021	--------	--------	--------
	MS 20500	--------	NAS 679	--------	--------	--------
	NAS 679	--------	NAS 1291	--------	--------	--------

COARSE THREAD SERIES[2]

Nut-Bolt Size	Torque Limits In-lbs.		Torque Limits In-lbs.		Torque Limits In-lbs.		Torque Limits In-lbs.		Torque Limits In-lbs.		Torque Limits In-lbs.	
	Min.	Max	Min.	Max	Min.	Max	Min.	Max	Min.	Max	Min.	Max
8 - 32	12	15	7	9	------	------	------	------	------	------	------	------
10 - 24	20	25	12	15	------	------	------	------	------	------	------	------
1/4 - 20	40	50	25	30	------	------	------	------	------	------	------	------
5/16 - 18	80	90	48	55	------	------	------	------	------	------	------	------
3/8 - 16	160	185	95	110	------	------	------	------	------	------	------	------
7/16 - 14	235	255	140	155	------	------	------	------	------	------	------	------
1/2 - 13	400	480	240	290	------	------	------	------	------	------	------	------
9/16 - 12	500	700	300	420	------	------	------	------	------	------	------	------
5/8 - 11	700	900	420	540	------	------	------	------	------	------	------	------
3/4 - 10	1150	1600	700	950	------	------	------	------	------	------	------	------
7/8 - 9	2200	3000	1300	1800	------	------	------	------	------	------	------	------
1 - 8	3700	5000	2200	3000	------	------	------	------	------	------	------	------
1 1/8 - 8	5500	6500	3300	4000	------	------	------	------	------	------	------	------
1 1/4 - 8	6500	8000	4000	5000	------	------	------	------	------	------	------	------

Table 2: Recommended torque values for nut-bolt combinations: Coarse Thread Series

2 Torque values without lubrication

5. REQUIRED INSPECTIONS

5.1 Cycle Counting Daily Coherence Check (Installed as an option)

The following procedure applies to either use of the AKV remote display or 3rd party Flightcell DZMx display and provides an approved method for conforming with the SAFRAN "coherence check" as specified in the SAFRAN maintenance manual or with reference to SAFRAN / Turbomeca General Service Letter No. 2283/04 5th issue. It will provide a means to determine that the cycle counting function is recording cycles within your normal mission range.

Procedure: To understand your normal mission range, determine what the total manual count was for the last 10 flights. Add all 10 flights together and then divide by 10. The result is the average consumed cycles to which your normal range is determined by adding +/- 10%. Perform this function separately for Ng and Np.

After the last flight of the day, compare the recorded cycles from the cycle counter display with your normal mission range values. This method will insure that there is no significant discrepancy which would be evident with either a digital display of zero "flt" cycles or "flt" cycles that are in excess of what is the normal mission range. In the event that either of these situations is observed, then perform the Annual Inspection of the cycle counter as described below.

5.2 Annual Inspection

This section contains the time limit intervals and requirements for the scheduled and conditional inspections for the ETM1000 Installation. The inspection items are determined through experience, tests, and the judgment of mechanics and engineers. Every calendar and daily inspection is a visual and thorough inspection to determine the airworthiness of the ETM1000. Qualified persons must perform the inspections in accordance with standard aircraft practices and the applicable maintenance manuals.

An Annual inspection using this **ETM1000-ICA** document (Instructions for Continued Airworthiness), is required. When using **ETM1000-ICA** to perform the required inspections, use the "Inspection Task Description" forms below to record the appropriate data.

Any reference data needed to perform this inspection, other than this document, will be listed in the "Data Reference" column of the inspection forms.

The inspection task to be completed is described in the "Inspection Task Description" column of the inspection form.

When each task is satisfactorily completed, the mechanic performing the inspection task signs the "Mechanic" column for that task.

If the inspection task fails the inspection, the reason for the failure must be determined and remedial action taken before the “Mechanic” block can be signed off. Remedial action may involve cleaning, verifying correct operation, adjusting the tightness of fasteners and hardware, sending the assembly to the manufacturer for overhaul or replacement, etc. Once the appropriate remedial action has been taken and the inspection task has been satisfactorily performed, the mechanic may sign off the “Mechanic” block.

Once all tasks are signed off in the “Mechanic” Column, the inspection form may be signed off at the top of the form and the inspection has then been completed.

5.3 Special Inspection

In the event of a hard landing, perform the “Annual Inspection” tasks prior to returning the aircraft to service.

Helicopter S/N:_____ Registration:_____

Facility:_____ W/O.: _____

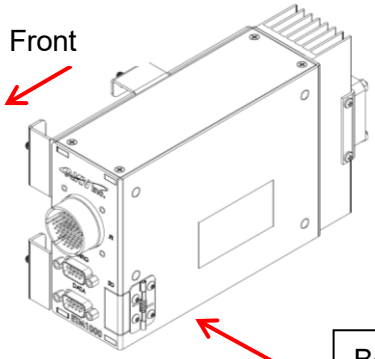
A/F Total time: _____ Rin:_____

Engine Total time: _____ Cycle:_____

Date started: _____ Date completed:_____

Signature: _____ License number: _____

Annual Inspection

Data Reference	Inspection Task Description	Mechanic
ETM1000 User Manual v7.0 or later	**Replacement of the Lithium Backup AA battery for Rev Q and later LRU's** The new 3.6V AA Lithium "button top" style battery should be replaced bi-annually in order to provide continued retention of the date / time clock. The 3.6V AA Lithium battery is a standard industry lithium battery that can be purchased from AKV, Inc. **Caution:** Do not use a standard AA battery which has insufficient voltage of 1.5V With the A/C battery switch "OFF", remove the LRU from the tray and then the battery holder cap by twisting counter clockwise. After the new battery has been installed, make sure the cap installaed and is **fully tighted**. You will now need to reset the date and time. Locate and connect the supplied RS232 cable to the "config" port just below the J1 connector. Connect the cable to a PC running Microsoft XP, 2000, Vista or Windows 7 or 10 using the 9 pin serial port. If a 9 pin serial port is not available then use the supplied USB / Serial adapter.  **Replace with a new battery making sure the "+" side of the battery is down.**	

Data Reference	Inspection Task Description	Mechanic
ETM1000 User Manual v7.0 or later	**Operational Check** The PC you will use must have been set up for communication via “HyperTerminal” prior to using the following procedure. Perform the following steps to verify proper operation of the ETM1000. 1. Use a PC running Windows XP, 2000, Vista or Windows 7/8 and connect to the “Config” port using the AKV supplied RS232 9-pin serial cable. Use the AKV supplied USB/Serial adaptor if your PC does not have a 9 pin serial port available. **<u>If you have a -2 configuration without the pushbutton / indicators and audio side-tone, go to step 7</u>** 2. If the indicators are known to be activated from within the configuration settings of HyperTerminal, turn the A/C battery switch “ON” and observe that the annunciator lights are illuminated as follows during system BIT self-check:  3. **NOTE:** If the **<u>WARNING</u>** light stays illuminated then there has been a prior exceedence that has not been acknowledge and cleared by maintenance. Remove the SD card to confirm what has been exceeded, verify corrective action then reset the light. 4. If the **<u>SD</u>** light stays illuminated then check the SD card is inserted. If it is flashing then the SD card nearly full and data must be removed. If the SD card is bad then replace it. 5. If the **<u>ERR</u>** light stays illuminated then there is a faulty connection with one of the signals to the ETM1000. Use HyperTerminal to determine which signal is faulty. *** Ref. Appendix D for the Wiring Diagrams.** 6. If the audio is known to be activated from within the configuration settings of Hyperterminal and with the headset on your head, check that the audio side tone is heard by cycling the ETM circuit breaker. If it is weak or load, adjust the audio control head unit for a comforatbel level. It is not adjustable within the ETM1000. 7. Check the cooling fan on the rear of the ETM1000 enclosure below the instrument panel for positive airflow by placing your hand next to the fan. 8. Check the fan bearings are not noisy and the fan is clean and provides airflow by placing your hand over the rear of the ETM1000 enclosure. 9. On your PC, locate and run the Windows native program called “HyperTerminal”	

Data Reference	Inspection Task Description	Mechanic
ETM1000 User Manual v7.0 or later	10. Check that the Date and Time are correct. If not, then enter “S” for settings, enter your password and change the appropriate field as required. 11. Check that the Collective Time, Engine Run Time and Engine Starts are correct, If not then enter “S” for settings, enter the password and change the appropriate field as required. 12. Check that the OAT value in “HyperTerminal” is with 5 deg C of the A/C OAT probe. Keep in mind that the ETM1000 OAT probe is mounted on the belly of the A/C and could be receiving additional heat form the ground when compared to the A/C OAT probe mounted above the canopy. **NOTE:** If the cycle counting option is installed, then include the **cycle counting functional check** described on the next page along with item 13, 14 & 15 below. 13. Start the A/C and run at ground idle. 14. Check that the engine parameters for Tq, MGT, N1, N2 and Nr values in “HyperTerminal” correspond with the indicators on the instrument panel. **NOTE:** During startup it is normal to sometimes see the **ERR** light flash on for 1-2 secs. This can vary between different A/C. 15. Run the A/C at flight speed and again, check the engine parameters for accuracy. 16. Return to ground idle and shutdown the engine. 17. Set the altimeter to 29.92 and verify the Pressure Altitude in “HyperTerminal” is within approximately 300ft. 18. Connect a pitot test set to the A/C pitot tube and while monitoring “HyperTerminal” check that the “Air speed Switch” goes from “0” (OFF) to a “1” (ON) when the test set is adjusted to 80Kt or greater. Tolerances - Activation +0 / -5 MPH and Deactivation -2 / -6 MPH *** Ref. Appendix D for the Wiring Diagrams.** **Coninued next page**	

Data Reference	Inspection Task Description	Mechanic
ETM1000 Bell MediumT53 Or Bell 214 T55 Cycle Counting Operating Specification	**Cycle Counting Functional Check (installed as an option)** **NOTE:** Cycle counting is available as an option only on the -1 configuration via the AKV remote display or displayed on the 3rd party Flightcell DZMx as shown in Fig. 3 & 4 above. In either case, the ETM1000 is the source for the cycle counting data. When using the AKV remote display the ETM1000 **LRU must be Rev P** or greater. 1. Perform a ground run of the A/C and observe the first data screen for the N1 and N2 speeds. These values are compared to the instrument panel indicators and should be within +/- 0.5%. **Note**: Per the engine manufacturer requirements, ground runs of the A/C require cycle penalties to be recorded. 2. Perform a normal departure, cruise and landing. Note the max N1 to the nearest 1% during takeoff and the min N1 speed during power reduction as well as the amount of 10% speed excursions / operations (>10% speed increase). After shutdown, compare your estimated cycle count using the T53 Cycle Counter Operations Specification document examples starting on Pg 10. Make sure there is no significant discrepancy between the estimated values and recorded values shown on the cycle counter. If a discrepancy exists, refer to the troubleshooting sect. 7 or contact AKV for further assistance. In place of the ETM1000 cycle counter system which includes the ETM1000 LRU and possibly the remote display (if bad), continue operating the A/C using the T53 “manual cycle counting” procedure during removal and repair of the cycle counter. After the ETM1000 LRU / remote display is repaired, repeat this “Annual Inspection” procedure to verify correct operation. Use the ETM1000 programming interface to update the cycle counting function with any new totals. **END OF PROCEDURE**	

6. REMOVING PARTS

Removal instructions for the AKV ETM1000 and cycle counter remote display are listed below.

6.1 To Remove the ETM1000 LRU

Note: The ETM1000 Enclosure is secured to the mounting plate with four (4) ball studs that allow for a quick-release.

a) Disconnect the airframe P1 electrical connector from the J1 ETM1000 enclosure electrical connector
b) Place your hands on the front and rear of the enclosure
c) Pull the enclosure directly towards you and away from the mounting bracket

6.2 To Remove the Airspeed Switch

See Appendix B for the Airspeed Switch Installation Instructions.

6.3 To Remove the Pushbutton Switches

See Appendix C for the Pushbutton Indicator Removal / Installation Instructions.

6.4 To Remove the (optional) Cycle Counting Remote Display

d) Disconnect the airframe electrical connector from the cycle counter enclosure
e) Remove the 2 mounting screws holding the cycle counter to the bracket
f) Install a plastic bag over the airframe connector and secure with zip ties.

NOTE: To Remove the 3rd Party Flightcell DZMx, refer to the OEM Flightcell DZMx manual

7. TROUBLESHOOTING

The troubleshooting table provides the mechanic with guidance for diagnosing malfunctions and the recommended course of action to remedy the fault. Additional help can be found in the Inspection Task (operational task) starting on Pg. 10 or by contacting AKV. See Page 1 for support contact information.

ETM1000

Fault	Probable Cause	Action
No power to unit when aircraft battery power applied	1. Check Circuit breaker 2. Check J1 Connector	1. Reset the Circuit breaker 2. Turn off aircraft battery power and check connector with reference to Appendix D Drawings
Minimal or no airflow from cooling fan.	Cooling fan inoperative.	Check for obstruction and with the power off, check that the fan moves freely and is clean of dust.
Loss of date and time clock indicated by flashing ERR and confirmation with Hyperterminal connected	1. Battery hold tab loose 2. Battery is weak. Min 2.9V	1. Return LRU to AKV 2. Replace battery with a new one

Cycle Counting (installed as an option)

Fault	Probable Cause	Action
No power to the remote display when aircraft battery power applied	1. Check ETM1000 Circuit breaker 2. Check J1 Connector	1. Reset the Circuit breaker 2. Turn off aircraft battery power and check connector with reference to Appendix D Drawings
High Ng and or Np cycles	Engine Signal Generator(s) noisy	Verify electrical connector at Signal Generator is clean and secure. ** **Perform signal quality check below.**
Blinking cursor in the top left corner of the remote display or no display at all	Electro-static discharge has damaged the LCD	Confirm that a ground bonding strap from the enclosure to airframe ground is present, secure and has < 3 milliohm resistance. **Remote Display will need to be returned to AKV for repair.** See Sect. 6 - Remove Parts

NOTE: If the above actions do not resolve the issue, contact AKV for additional assistance or to arrange for the unit to be returned for repair.

Signal quality check

1. Connect an oscilloscope to the ETM1000 airframe wire harness at the wiring splice point for Ng or Np behind the indictaors for whichever signal is of concern.

   Refer to attached Appendix D drawings ETMUH1-003 for N1/Ng and N2/Np connections

2. Ground run the A/C at idle and observe the quality of the sine-wave signal is as shown in Fig 1.

3. Whilst observing the oscilloscope, slowly increase the FCL to the flight position and observe that the sine-wave remains as shown in Fig 1 thru the speed change.

NOTE: A bad sine-wave signal will look similar to figure 2. If this is observed, clean the signal generator connector and/or replace the signal generator and perform the test again to confirm the quality of the signal is displayed like Fig 1.

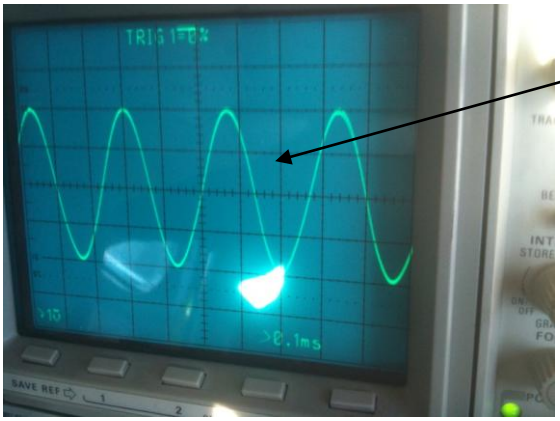


Fig. 1 **(good)**

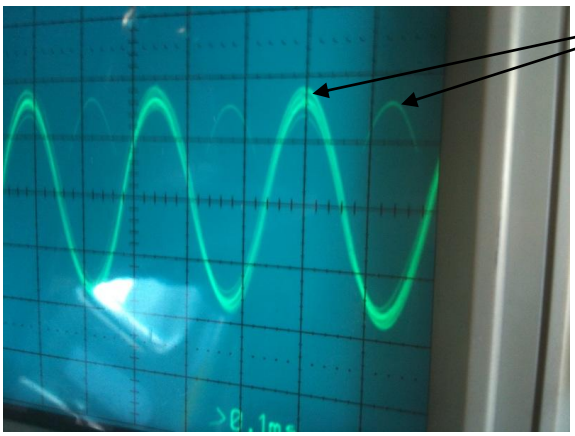


Fig. 2 **(bad)**

8. WEIGHT AND BALANCE CHANGES

In the event the ETM1000 has to be removed for maintenance, use the following table to adjust the aircraft weight and balance data.

Component	Weight
ETM1000 Enclosure P/N ETMUH1-006	1.25lbs 0.57 kg
Mounting tray P/N 96396-1	0.9 lbs 0.41 kg
(Optional) Cycle Counter Remote Display P/N ETMRD-004	0.25 Lbs 0.12 kg
(Optional) Cycle Counter Remote Display Bracket P/N UH1-ETMRD-002	0.75 Lbs 0.34 kg

Appendix A

A. CONFIGURING THE ETM1000

For Instructions on configuring the ETM1000 and optional cycle counting, refer to the ETM1000 User Manual v7.0 or later

Appendix B

B. AIRSPEED SWITCH INSTRUCTIONS

Intended Use:
The intended use of the airspeed switch is to provide an airspeed signal at = > 80 Knots for torque exceedence criteria.

System Description:
This airspeed switch utilizes the existing Pitot system to provide the needed pressures for switch actuation. A ground leg is connected through the airspeed switch and will supply a ground connection for the ETM when the airspeed is = > 80 Knots.

Note: This installation will have negligible effect on aircraft weight and balance.

WARNING: When performing pitot/static systems certification you must connect the vent nipple on the AS9300-603-A switch to the static source on the test box to prevent damage to the switch diaphragm. The vent nipple bleed hole must be sealed to prevent leakage during testing. Do not connect vent nipple to the ships static system except during testing. Do not remove sealant compound from around switch terminals or
pressure nipple bleed hole. Removal will cause leakage when performing a pitot system check.

CHECKOUT PROCEDURES:

Required Equipment:
- Pitot test set.

Test:
1) Test the Pitot system in accordance with the aircraft manufacturer's instructions. If the manufacturer has *not issued instructions for testing Pitot systems, utilize the procedures contained in AC 43.13-1A or later* approved revision.
2) Apply power to the aircraft and observe that the circuit protective device (circuit breaker or fuse) does not "trip" or "blow". Repair wiring if necessary for proper circuit protective device operation.
3) After the Pitot system has been successfully leak tested, adjust Pitot test set to indicate zero knots.
4) Observe that the Airspeed is "OFF" via the laptop PC running "HyperTerminal". If the Airspeed is "ON," check for the proper airspeed switch electrical connections. Incorrect switch connections will cause the ETM to not function correctly when determining a torque exceedence in flight.
5) Adjust the airspeed to equal 80 Knots or greater and observe that the Airspeed is "ON". If the Airspeed does not turn "ON", check connections on airspeed switch or repair wiring as necessary.

   NOTE: Tolerances are Activation +0 / -5 MPH and Deactivation -2 / -6 MPH

6) Disconnect the Pitot test equipment from the aircraft.

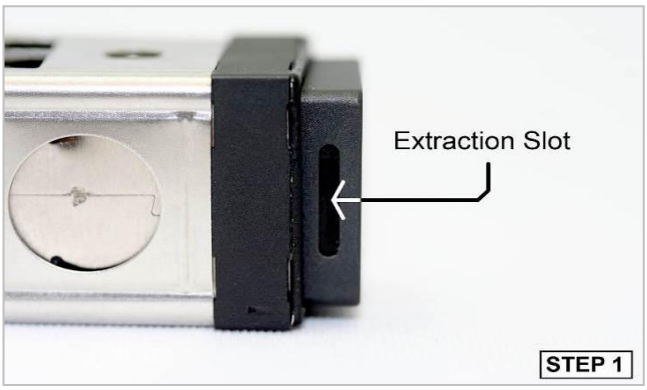
7) Make the appropriate entries in the aircraft log book indicating a Pitot system test, and the airspeed switch installation have been completed.

Appendix C

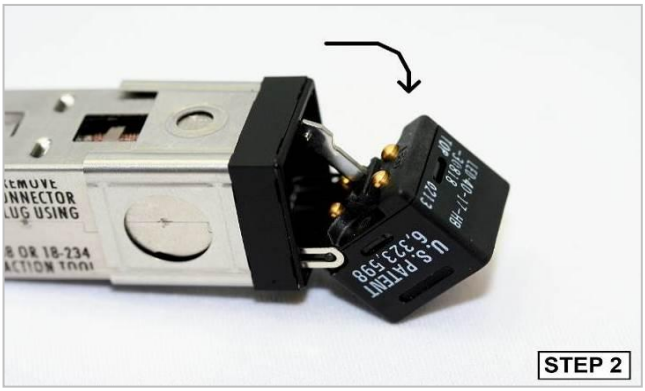
C. Pushbutton Indicator Removal/Installation Instructions

1) Examine the two sides of the switch cap to ensure the extraction slots are completely visible.

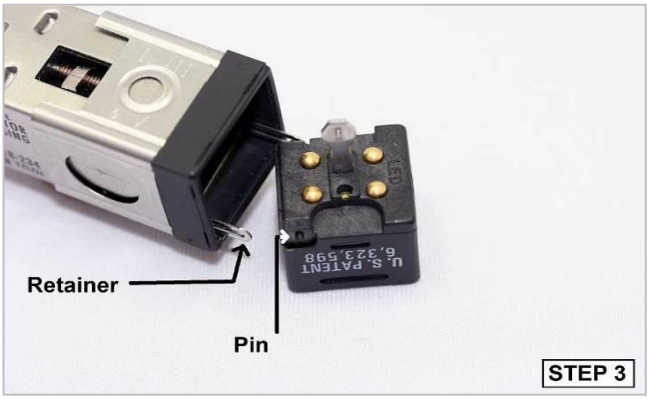
   Note: To release the switch cap from the actuated position, simply push in the switch cap and allow the cap to return to the released position.



2) Extract the switch cap by using the Cap Extractor Tool (Part Number: 17-150) or by applying finger pressure on two sides of the switch cap then pull the switch cap from the switch body.



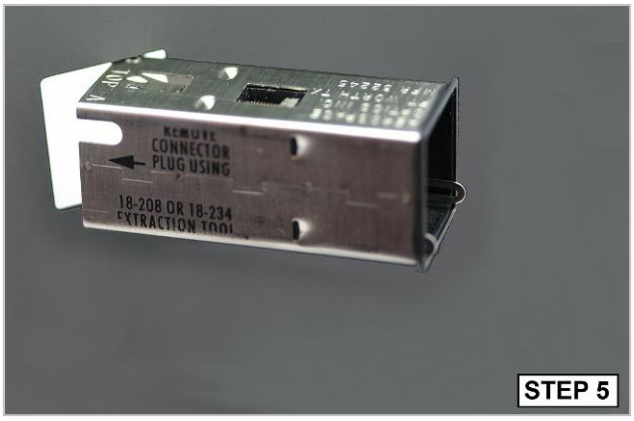
3) Remove switch cap from the switch body by gently removing the cap pins from the metallic retainer.



4) Remove the mounting sleeve by sliding the sleeve over the switch body from the back.

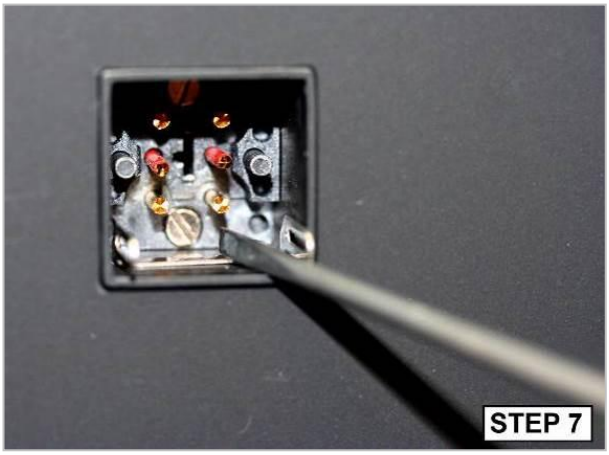
   Note: The optional spacer can also be removed by sliding it from the back of the switch body.

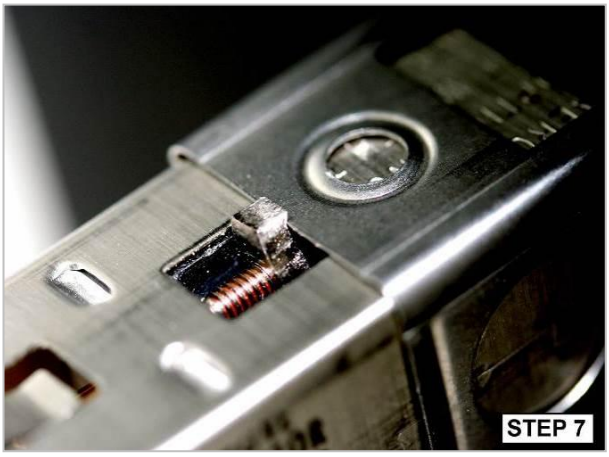
5) Insert the back of the switch body into the panel cutout and slide it through the panel from the front. Ensure the switch body label “TOP” is up.



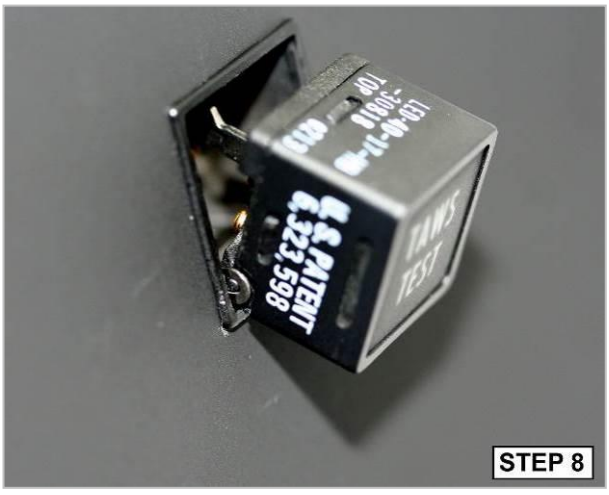
6) From behind the mounting panel, replace the mounting sleeve onto the switch body and slide it up to the back of the mounting panel.

7) From the front and inside of the switch body, tighten the two screws until the Integral Mounting Hardware pulls the mounting sleeve tight up against the mounting panel. Typical torque is 18 inch ounces.





8) Replace the switch cap in the switch body by inserting the cap pins into the metallic retainer and push the cap into the switch body.



Appendix D

D. WIRING DIAGRAMS

This chart is a list of all MDL Rev R in order of appearance.

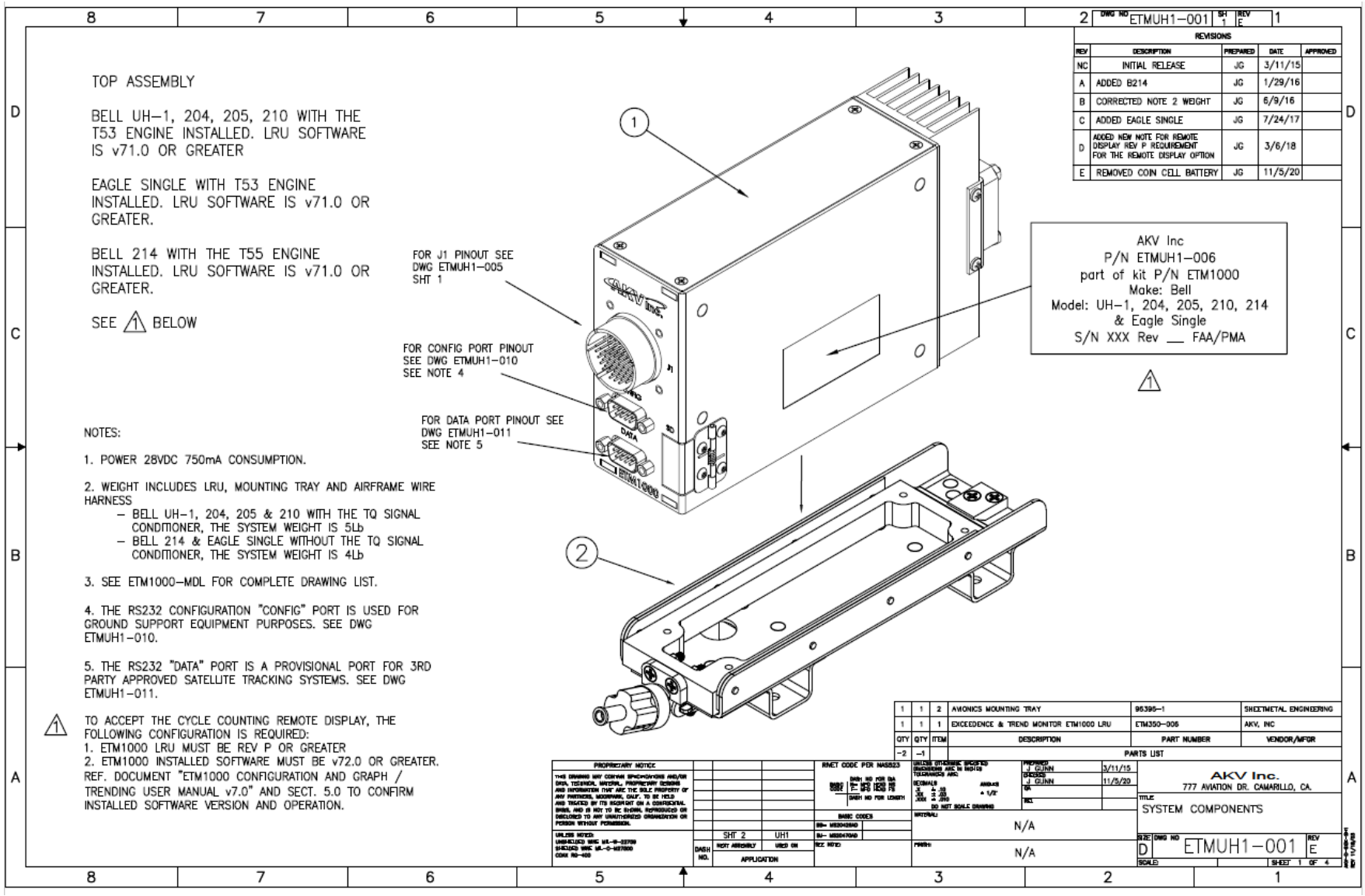
Drawing Number	Rev	Initial Release	Drawing Description
ETMUH1-001 Sht 1	E	11/5/20	SYSTEM COMPONENTS – TOP ASSEMBLY
ETMUH1-001 Sht 2	C	11/5/20	SYSTEM COMPONENTS – FOR -1 CONFIGURATION
ETMUH1-001 Sht 3	C	11/5/20	SYSTEM COMPONENTS – FOR -2 CONFIGURATION
ETMUH1-001 Sht 4	B	7/24/17	SYSTEM COMPONENTS – CABLE ROUTING
ETMUH1-002 Sht 1	C	11/5/20	MECHANICAL INSTALLATION – LRU MOUNTING LOCATION
ETMUH1-002 Sht 2	B	7/24/17	MECHANICAL INSTALLATION – AIRSPEED SWITCH
ETMUH1-002 Sht 3	B	7/24/17	MECHANICAL INSTALLATION – AIRSPEED SWITCH
ETMUH1-002 Sht 4	B	7/24/17	MECHANICAL INSTALLATION – AIRSPEED SWITCH
ETMUH1-002 Sht 5	B	7/24/17	MECHANICAL INSTALLATION – PUSHBUTTON MOUNTING
ETMUH1-002 Sht 6	C	11/5/20	MECHANICAL INSTALLATION – OAT MOUNTING
ETMUH1-002 Sht 7	C	7/24/17	MECHANICAL INSTALLATION – TQ SIGNAL CONDITIONER MOUNTING
ETMUH1-003 Sht 1	B	7/24/17	AIRFRAME WIRING INSTALLATION – POWER
ETMUH1-003 Sht 2	C	7/1/20	AIRFRAME WIRING INSTALLATION – THERMOCOUPLE MGT/EGT
ETMUH1-003 Sht 3	C	1/1/25	AIRFRAME WIRING INSTALLATION – TQ
ETMUH1-003 Sht 4	C	1/1/25	AIRFRAME WIRING INSTALLATION – N1
ETMUH1-003 Sht 5	C	1/1/25	AIRFRAME WIRING INSTALLATION – N2
ETMUH1-003 Sht 6	C	1/1/25	AIRFRAME WIRING INSTALLATION – NR
ETMUH1-003 Sht 7	B	7/24/17	AIRFRAME WIRING INSTALLATION – AIRSPEED SWITCH
ETMUH1-003 Sht 8	B	7/24/17	AIRFRAME WIRING INSTALLATION – COLLECTIVE INTERFACE
ETMUH1-003 Sht 9	B	7/24/17	AIRFRAME WIRING INSTALLATION – AUDIO INTERFACE
ETMUH1-003 Sht 10	C	1/1/25	AIRFRAME WIRING INSTALLATION – OAT

Cont’d next page

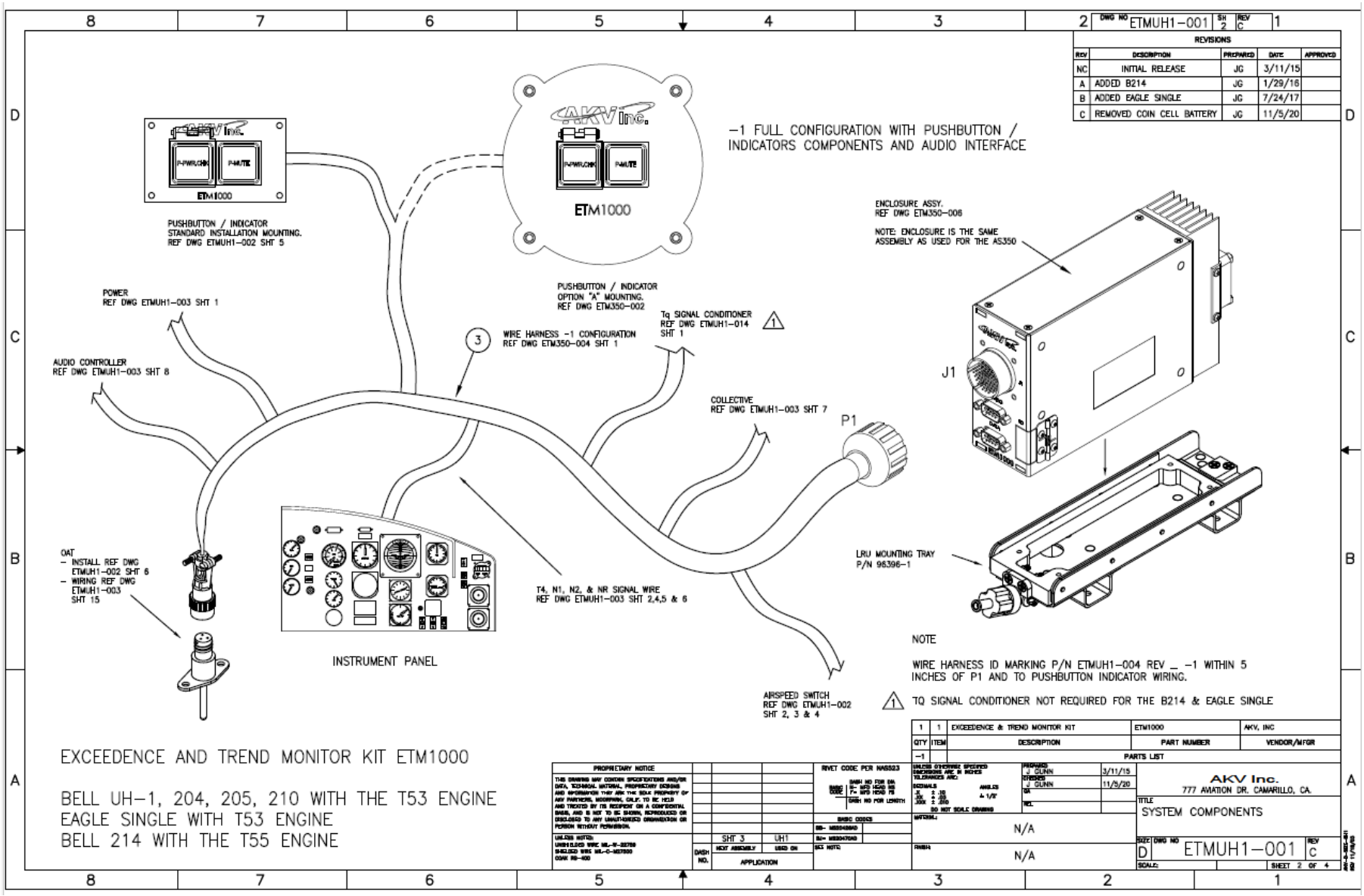
Cont'd

ETMUH1-003 Sht 11	B	7/24/17	AIRFRAME WIRING INSTALLATION – PUSHBUTTON / ANNUNCIATOR CONNECTION
ETMUH1-003 Sht 12	NC	1/1/25	AIRFRAME WIRING INSTALLATION – LOAD CELL
ETMUH1-004 Sht 1	D	1/1/25	- 1 WIRE HARNESS
ETMUH1-004 Sht 2	D	1/1/25	- 2 WIRE HARNESS
ETMUH1-005 Sht 3	E	1/1/25	WIRE HARNESS – J1 CONNECTOR PIN OUT
ETMUH1-010 Sht 1	C	3/6/18	CONFIGURATION PORT – RS232 PIN OUT
ETMUH1-011 Sht 1	D	1/1/25	DATA PORT – RS232 PIN OUT
UH1-ETMRD-003 Sht 1	A	4/3/20	REMOTE DISPLAY INSTALLATION
UH1-ETMRD-003 Sht 2	NC	3/6/18	REMOTE DISPLAY INSTALLATION
UH1-ETMRD-003 Sht 3	NC	3/6/18	REMOTE DISPLAY INSTALLATION
ETMRD-003 Sht 1	A	3/5/26	REMOTE DISPLAY WIRING
ETMRD-003 Sht 1	NC	3/5/26	REMOTE DISPLAY WIRING

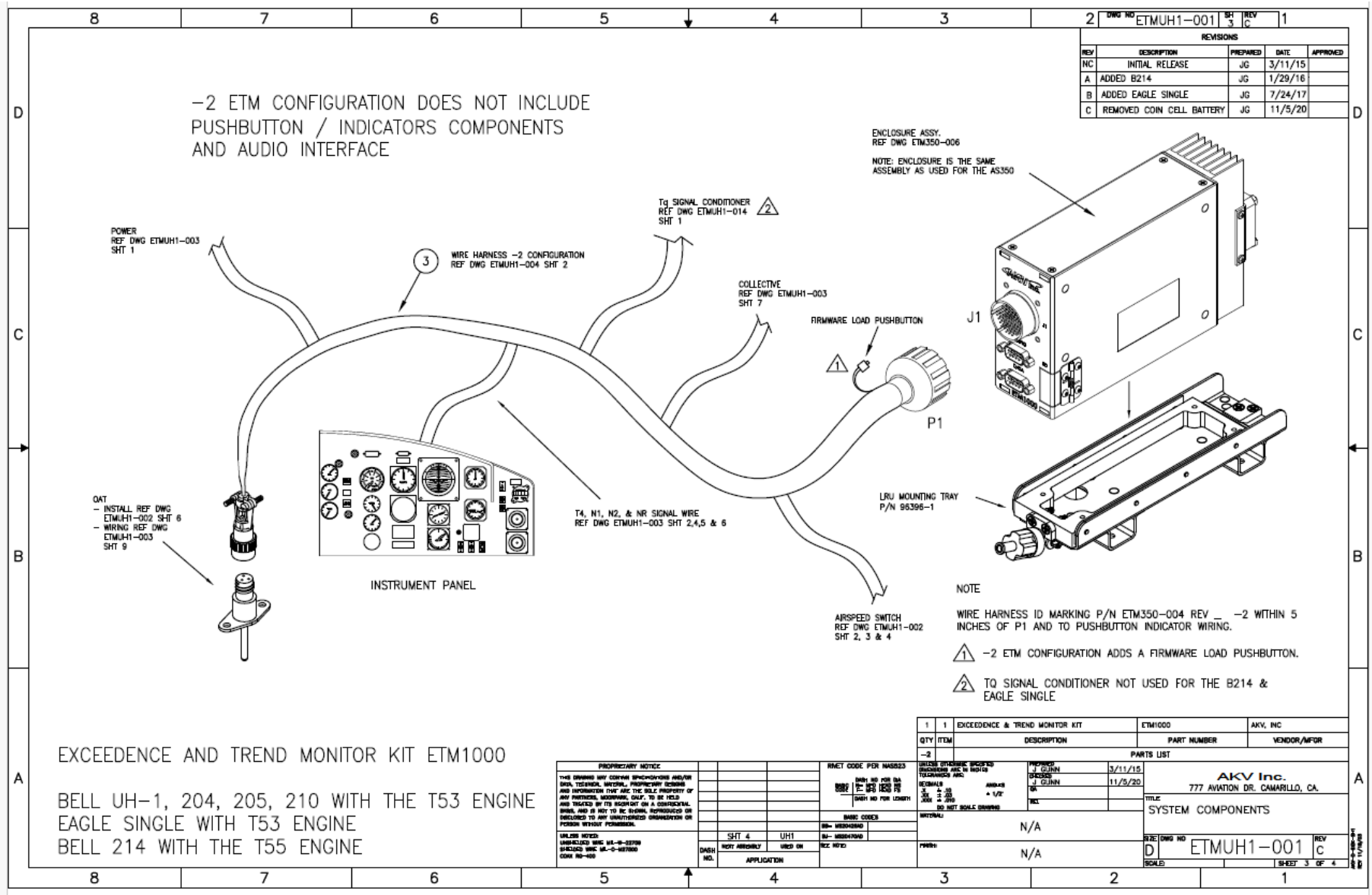
ETMUH1-001 SHT 1 – TOP ASSEMBLEY



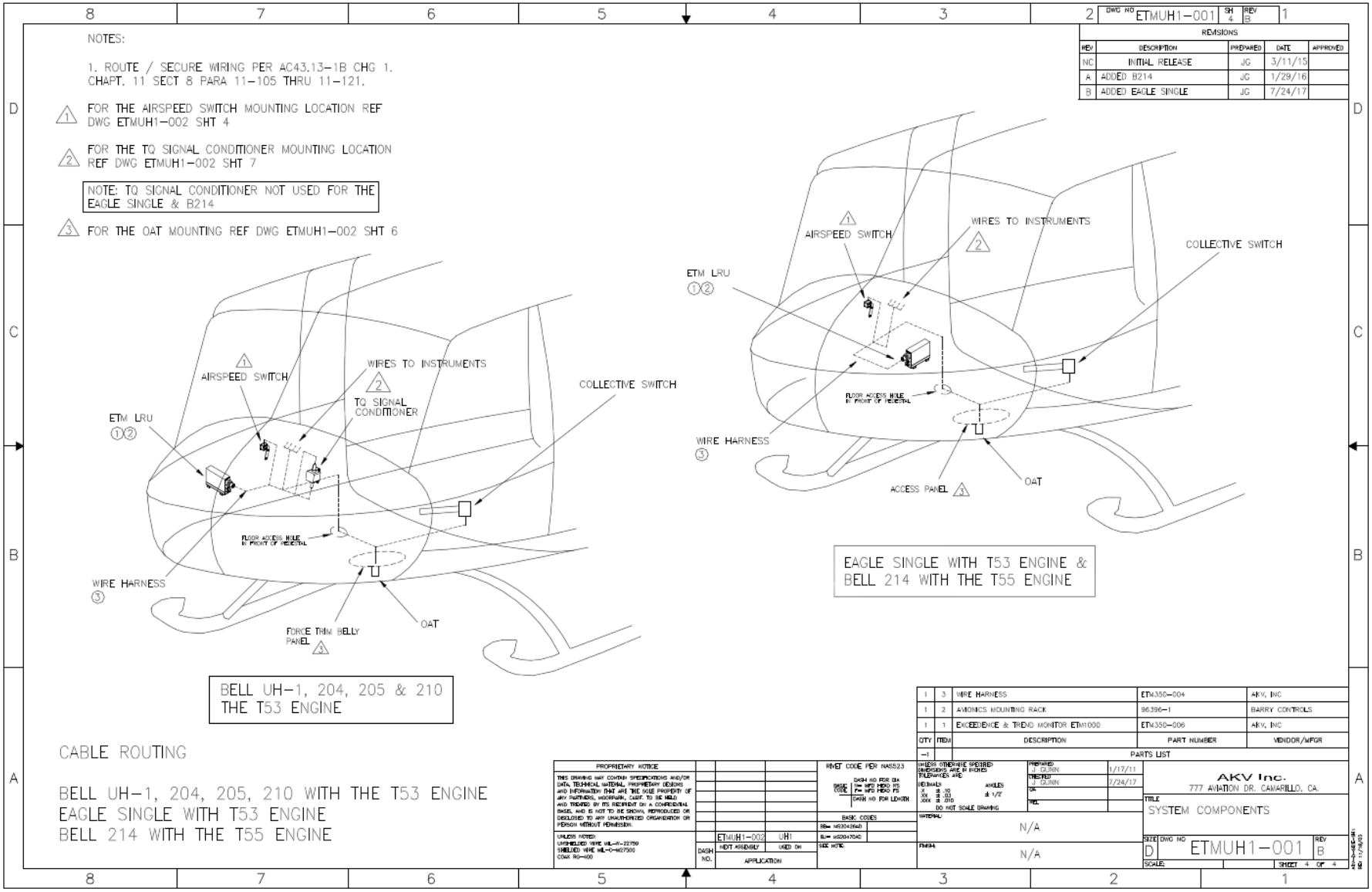
ETMUH1-001 SHT 2 – -1 CONFIGURATION



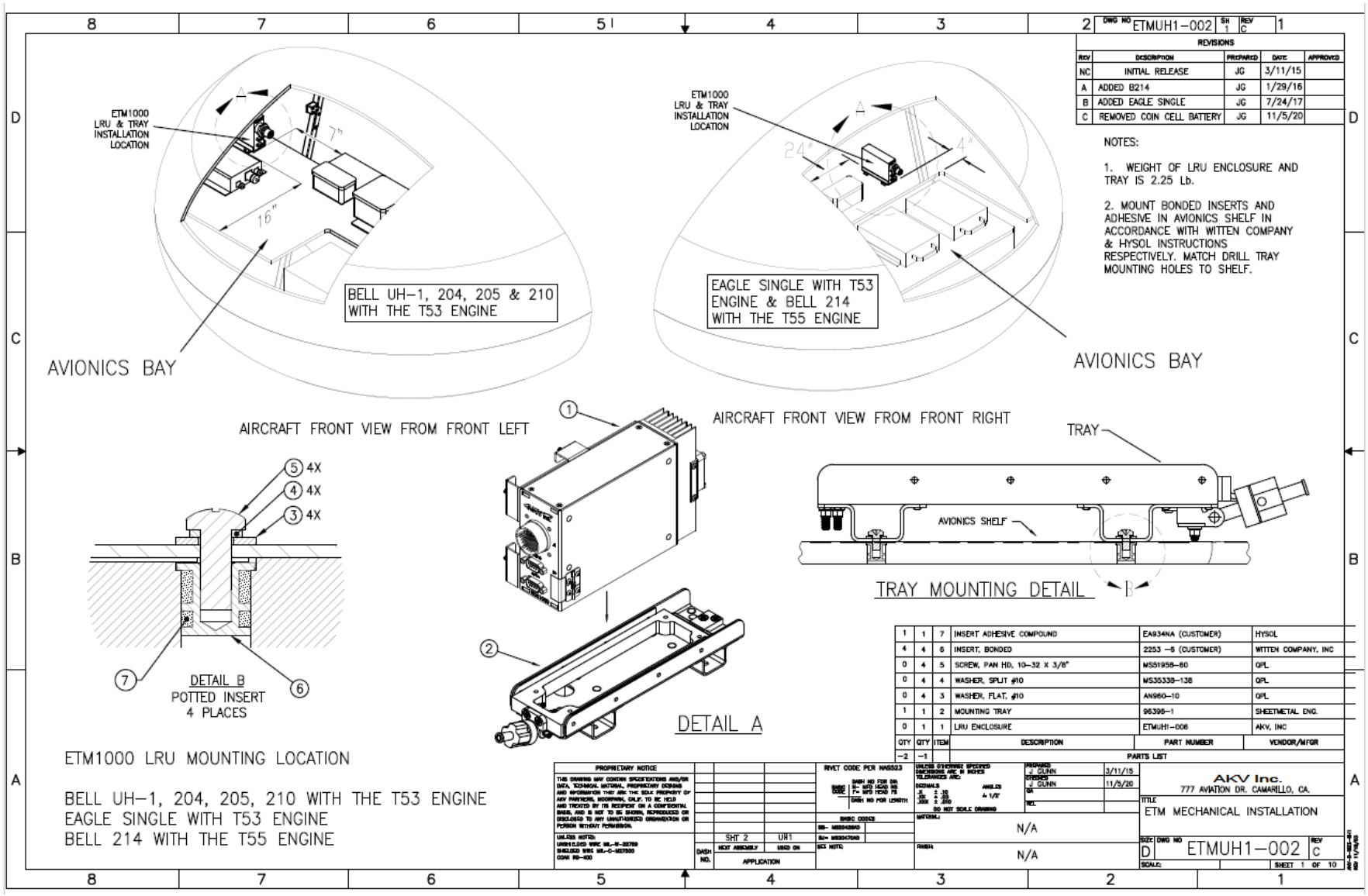
ETMUH1-001 SHT 3 – -2 CONFIGURATION



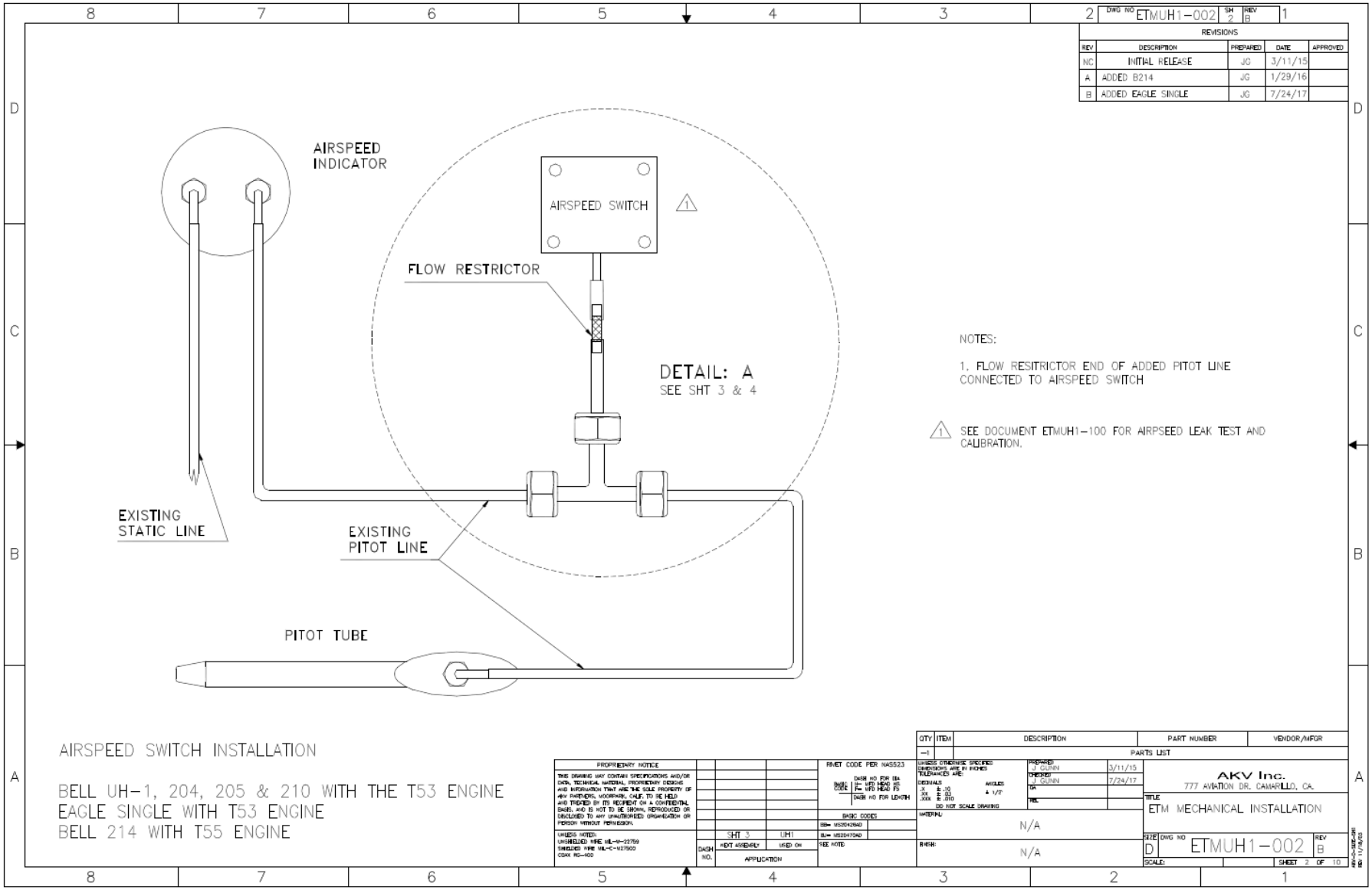
ETMUH1-001 SHT 4 – CABLE ROUTING



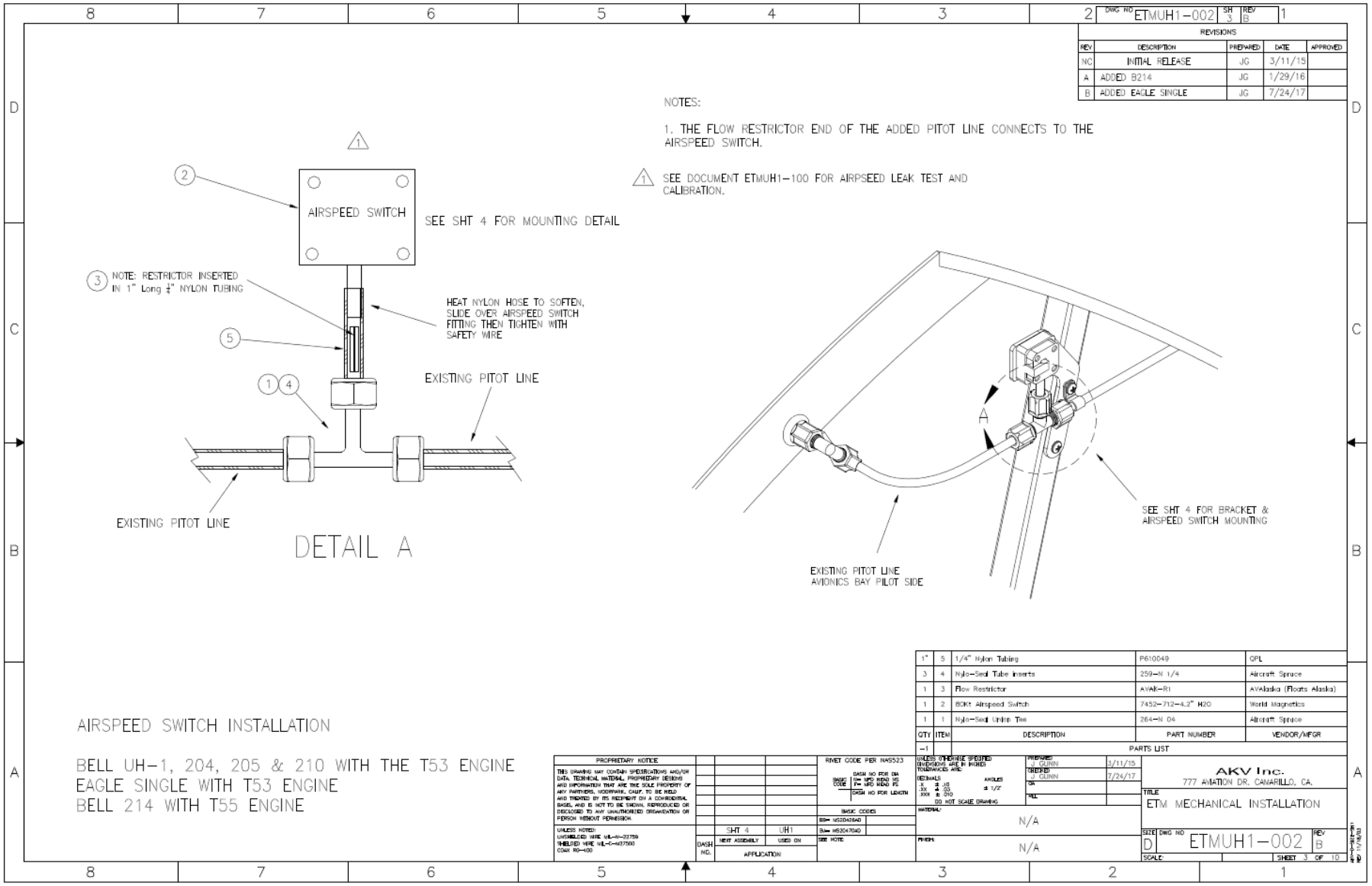
ETMUH1-002 SHT 1 – LRU MOUNTING LOCATION



ETMUH1-002 SHT 2 – AIRSPEED SWITCH



ETMUH1-002 SHT 3 – AIRSPEED SWITCH



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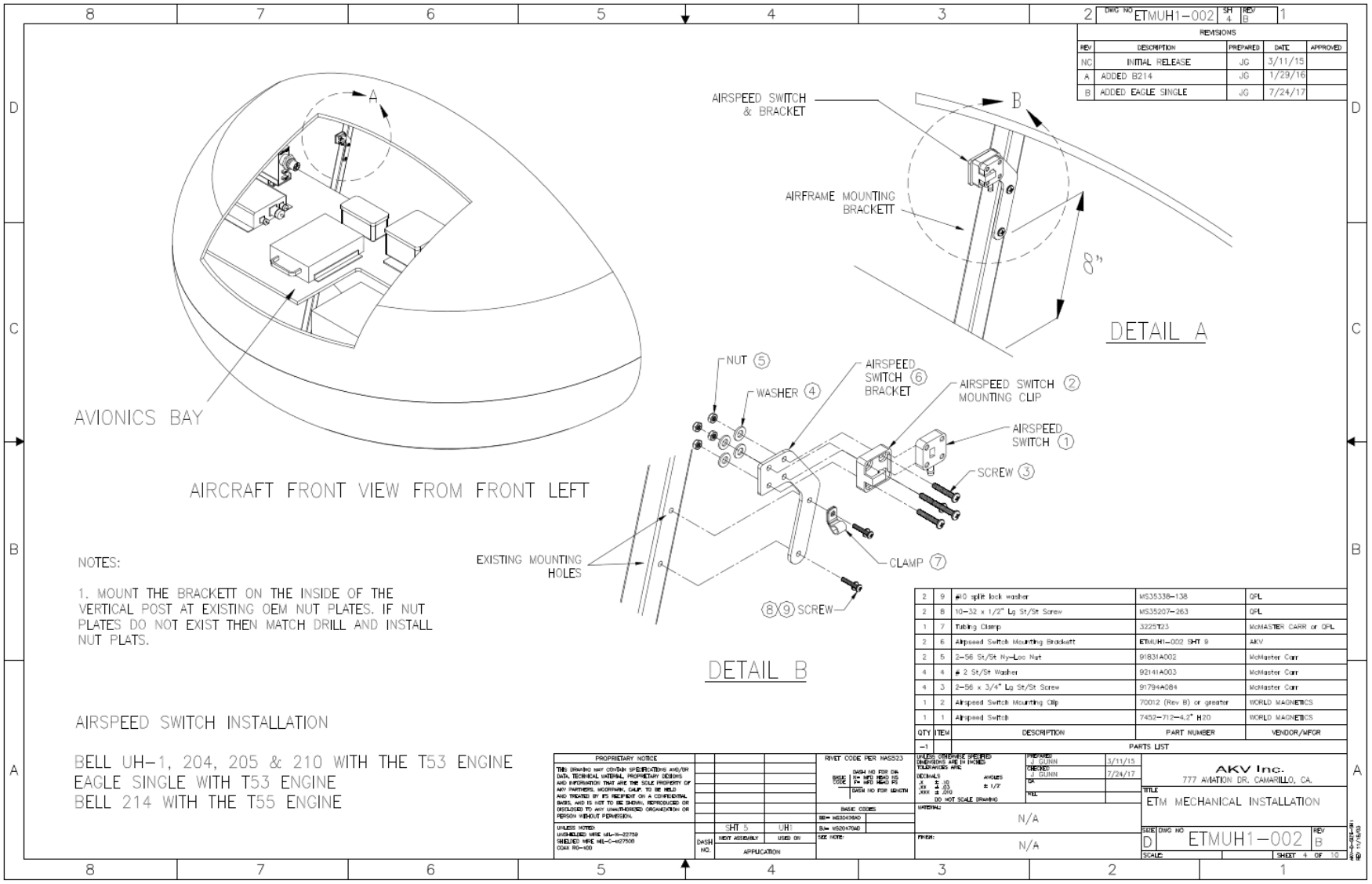
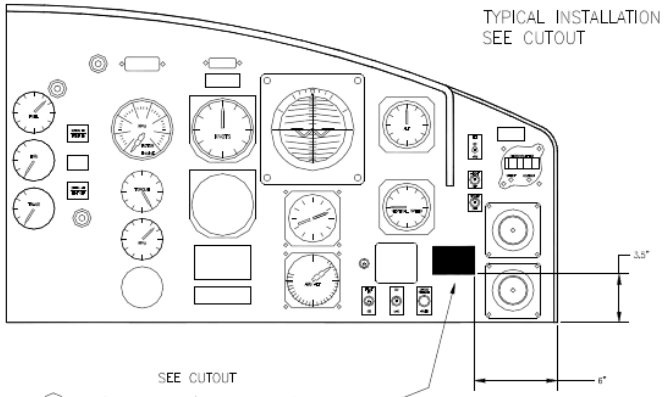
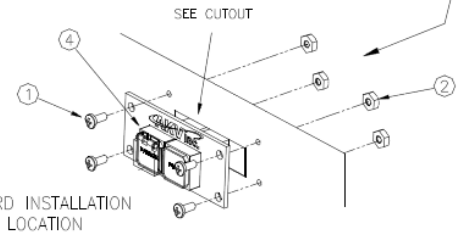


ETMUH1-002 SHT 5 – PUSHBUTTON / INDICATOR MOUNTING

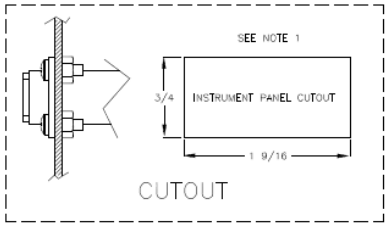
DWG NO ETMUH1–002 SH 5 REV B

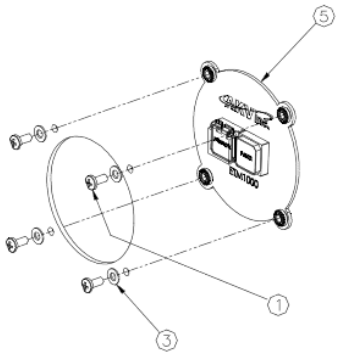
REVISIONS				
REV	DESCRIPTION	PREPARED	DATE	APPROVED
NC	INITIAL RELEASE	JG	3/11/15	
A	ADDED B214	JG	1/29/16	
B	– ADDED EAGLE SINGLE – CORRECTED NOTE 2	JG	7/24/17	





⚠1 STANDARD INSTALLATION
TYPICAL LOCATION
SEE NOTE 1





⚠1 OPTIONAL INSTALLATION
SEE NOTE 2

NOTES:

1. LOCATE THE STANDARD PUSHBUTTON INSTALLATION PER THE TYPICAL LOCATION OR IN A SUITABLE AREA ON THE INSTRUMENT PANEL FREE FROM ANY INTERFERENCE WITH OTHER INSTALLED ITEMS. AFTER CUTOUT IS MADE, TRANSFER MATCH DRILL 4 EA. MOUNTING HOLES USING A 9/64 DRILL BIT. USE HARDWARE ITEMS 1 & 2 TO MOUNT.

2. OPTIONAL MOUNTING CAN BE PURCHASED FROM AKV SEPERATLEY AND USED WHEN A SPARE INSTRUMENT INDICATOR CUTOUT IS AVAILABLE. TO TRANSFER THE SWITCHES TO THE OPTIONAL PLATE, REF AKV DOCUMENT ETMUH1–101 "PUSHBUTTON REMOVAL / INSTALLATION INSTRUCTIONS".

3. WHEN MOUNTING INSTALLATION OF SWITCHES IS COMPLETE, PRESS CORRESPONDING (INDENTIFIED) WIRE HARNESS QUIK CONNECT PLUG INTO THE BACK OF THE SWITCH. VERFIY ORIENTATION PRIOR TO INSTALLING PLUG. REF DWG ETM350–003 SHT 16 FOR WIRING DETAIL.

4. ITEM 3 QUICK CONNECT PLUG REMOVAL TOOL AEROSPACE OPTICS P/N 18–234

5. INDICATOR CAP REMOVAL TOOL AEROSPACE OPTICS P/N 17–150.

6. USE ASTRO TOOL CRIMPER P/N M22520/2–01 AND TURRET P/N M22520/2–07 FOR ITEM 4 QUIK CONNECT SOCKET PINS.

7. USE WIRE INSERTION/EXTRACTION TOOL P/N M81969/14–11 (RED/WHITE) FOR PIN REMOVAL.

8. STANDARD INDICATOR CAP IS NON–NVIS. FOR NVIS CAPATABLE CAP CONTACT AKV.

⚠1 –2 ETM INSTALLATION CONFIGURATION DOES NOT INCLUDE THE INDICATOR PANEL COMPONENTS IDENTIFIED IN THE PARTS LIST

QTY	ITEM	DESCRIPTION	PART NUMBER	VENDOR/MFGR
1	5	OPTIONAL MOUNTING PLATE	ETM350–009	AKV, INC
1	4	STANDARD MOUNTING PLATE	ETM350–008	AKV, INC
4	3	#8 LOCK WASHER	MS35333–37	OPL
4	2	6/32 NYLON SHORT LOCK NUT	MS21083	OPL
4	1	6–32 3/8" PANHEAD SCREW BLK OXIDE	MS35214–23	OPL
–1		PARTS LIST		

PUSHBUTTON / INDICATOR INSTALLATION

BELL UH–1, 204, 205 & 210 WITH THE T53 ENGINE
EAGLE SINGLE WITH T53 ENGINE
BELL 214 WITH T55 ENGINE

PROPRIETARY NOTICE
THIS DRAWING MAY CONTAIN SPECIFICATIONS AND/OR DATA, TECHNICAL MATERIAL, PROPRIETARY DESIGNS AND INFORMATION THAT ARE THE SOLE PROPERTY OF AKV PARTNERS, MOORPARK, CALIF. TO BE HELD AND TREATED BY ITS RECIPIENT IN A CONFIDENTIAL BASIS, AND IS NOT TO BE SHOWN, REPRODUCED OR DISCLOSED TO ANY UNAUTHORIZED ORGANIZATION OR PERSON WITHOUT PERMISSION.

UNLESS NOTED:
UNSHIELDED WIRE MIL–W–22759
SHIELDED WIRE MIL–C–27500
COAX RG–400

RIVET CODE PER NAS523
DASH NO FOR DIA
BASIC CODE 1 = MCR HEAD MS
2 = MCR HEAD FS
DASH NO FOR LENGTH
BASIC CODES
B= MS20426AD
B= MS20470AD

DASH NO.	SHT 6	UH1
	NEXT ASSEMBLY	USED ON
	APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE:
DECIMALS X ± .10, XX ± .03, XXX ± .010
ANGLES ± 1/2°
DO NOT SCALE DRAWING

MATERIAL: N/A
FINISH: N/A

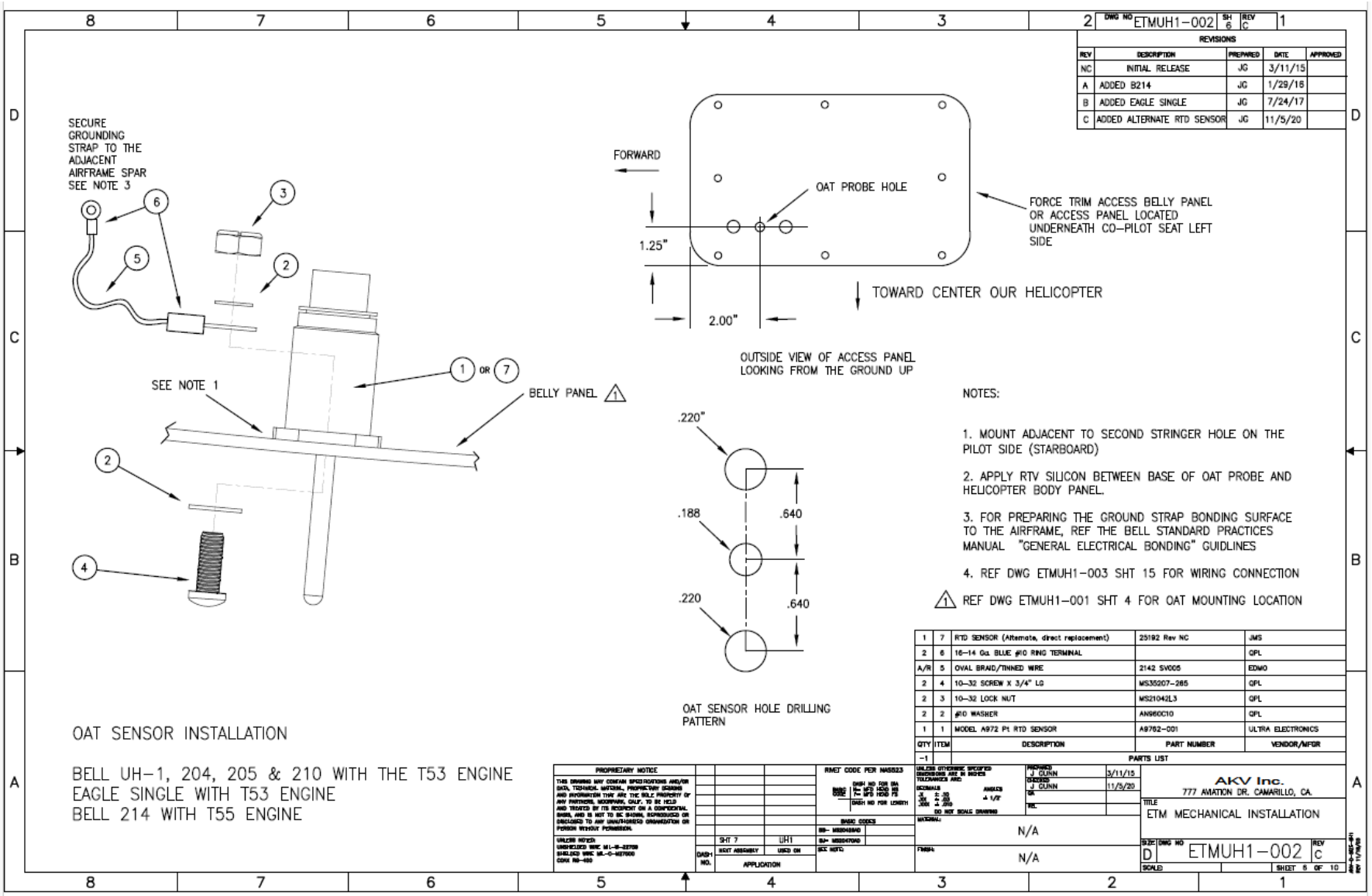
PREPARED: J QUINN 3/11/15
ORDERED: J QUINN 7/24/17
QA
MFG

AKV Inc.
777 AVIATION DR. CAMARILLO, CA.

TITLE
ETM MECHANICAL INSTALLATION

SIZE D DWG NO ETMUH1–002 REV B
SCALE: SHEET 5 OF 10

ETMUH1-002 SHT 6 – OAT MOUNTING



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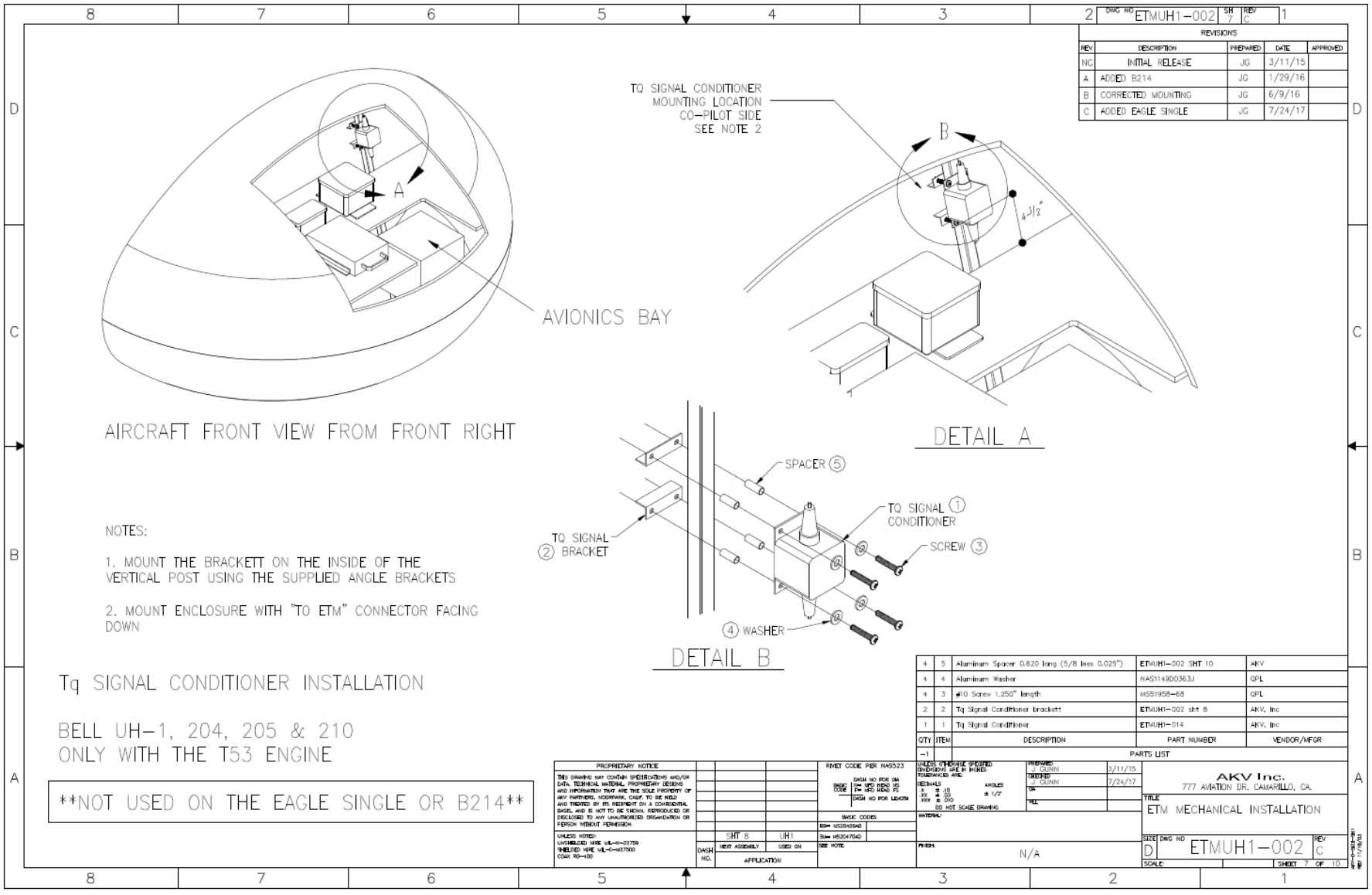
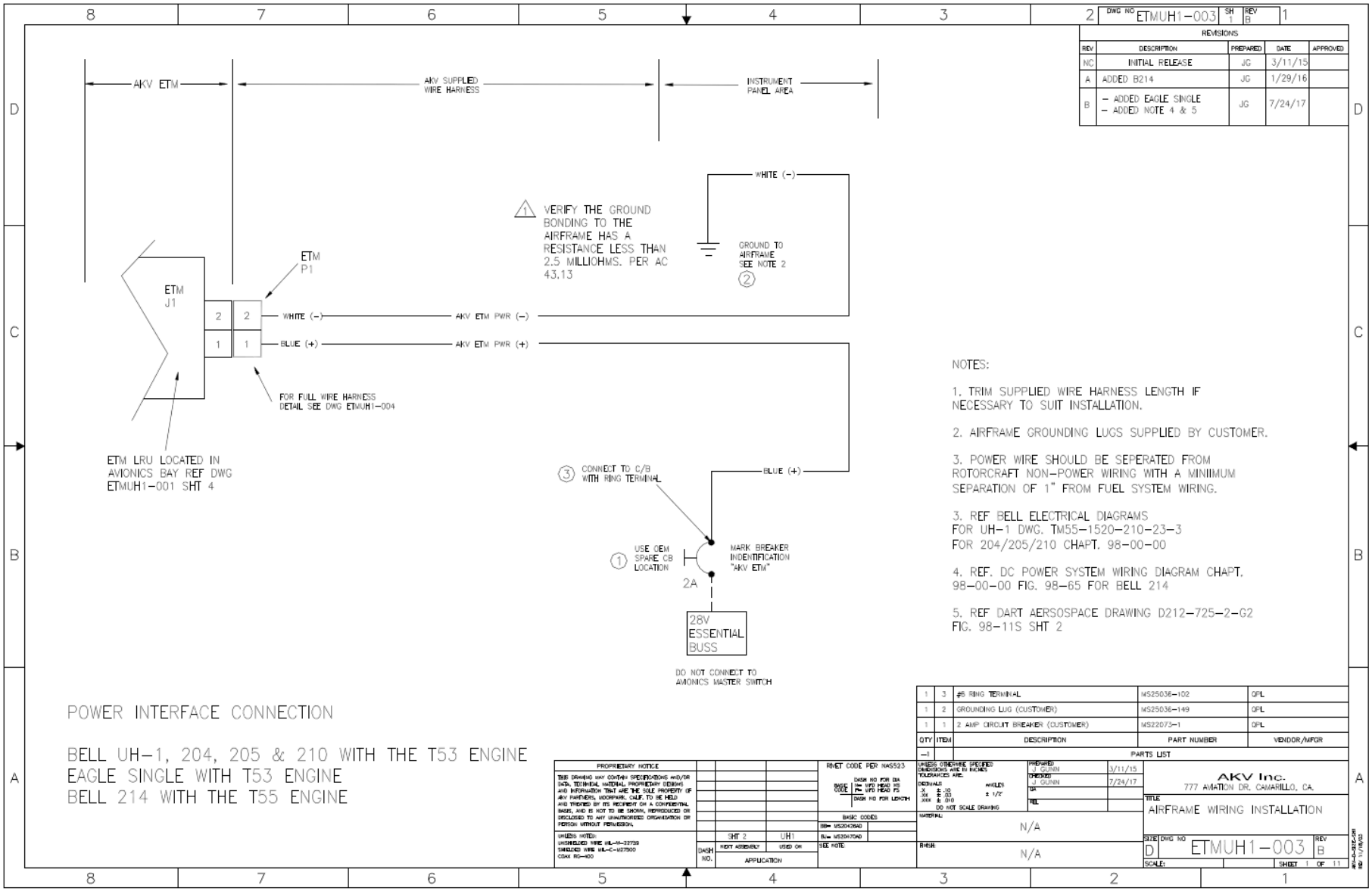


ETMUH1-003 SHT 1 – POWER



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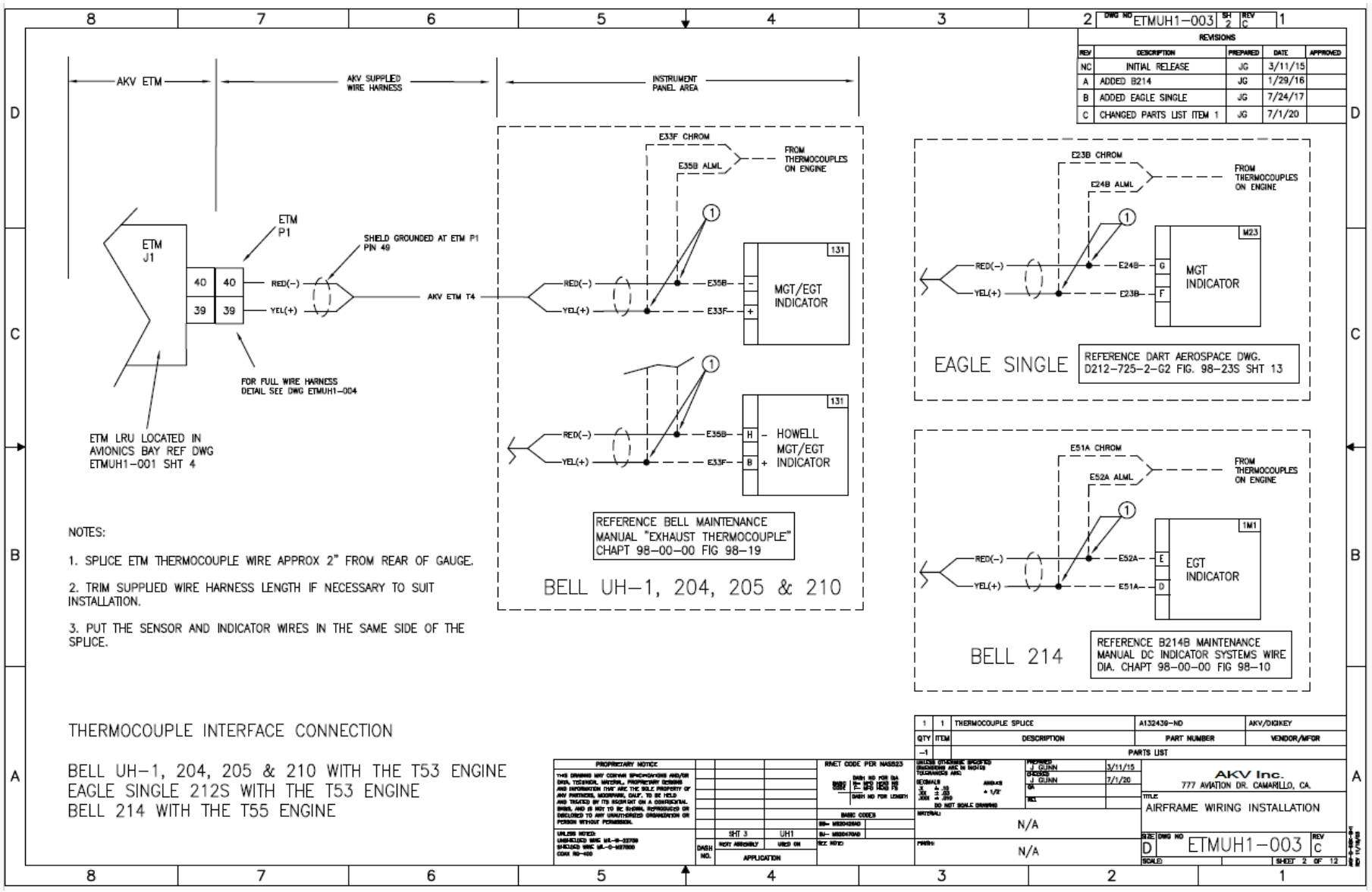

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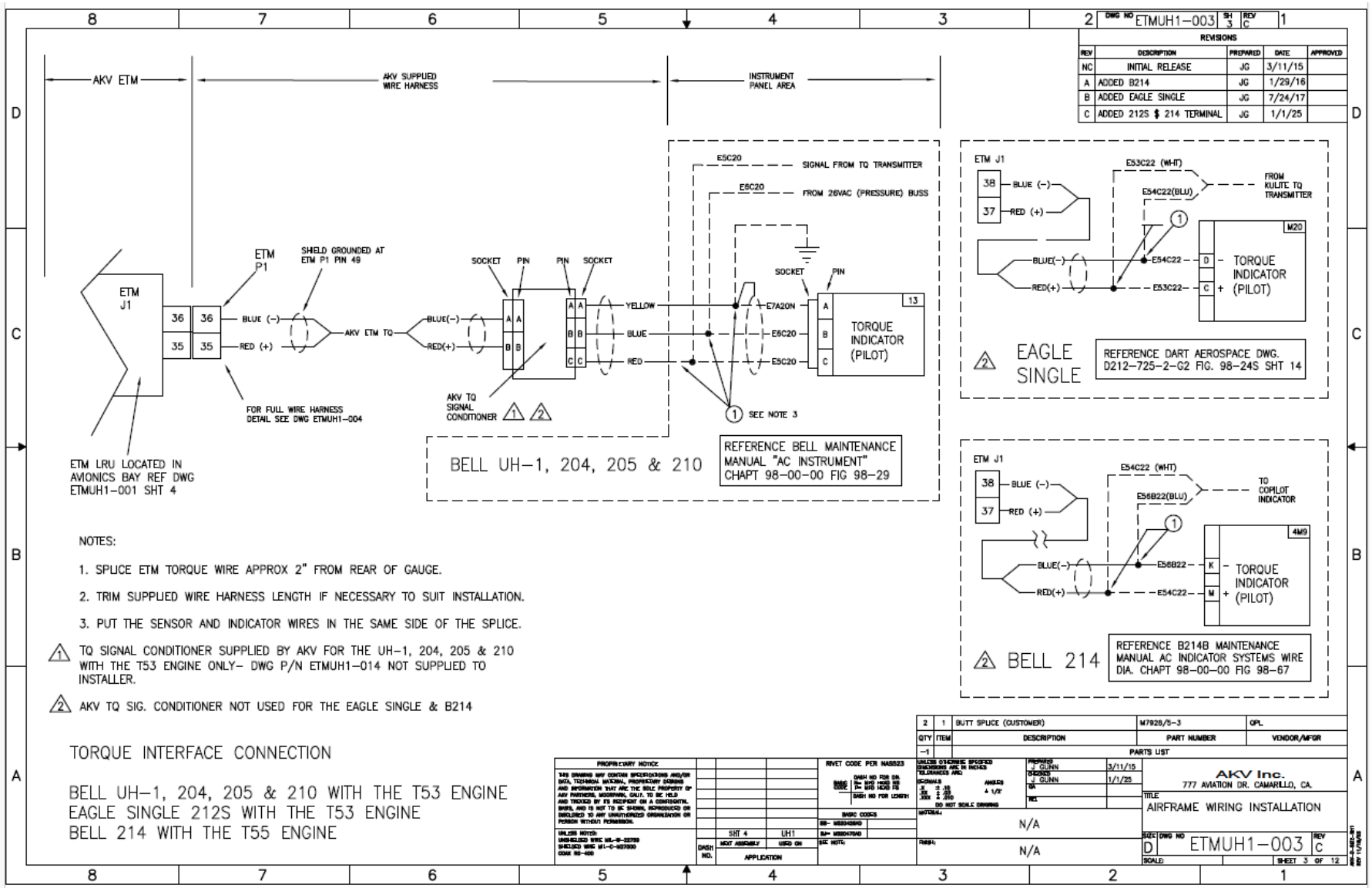
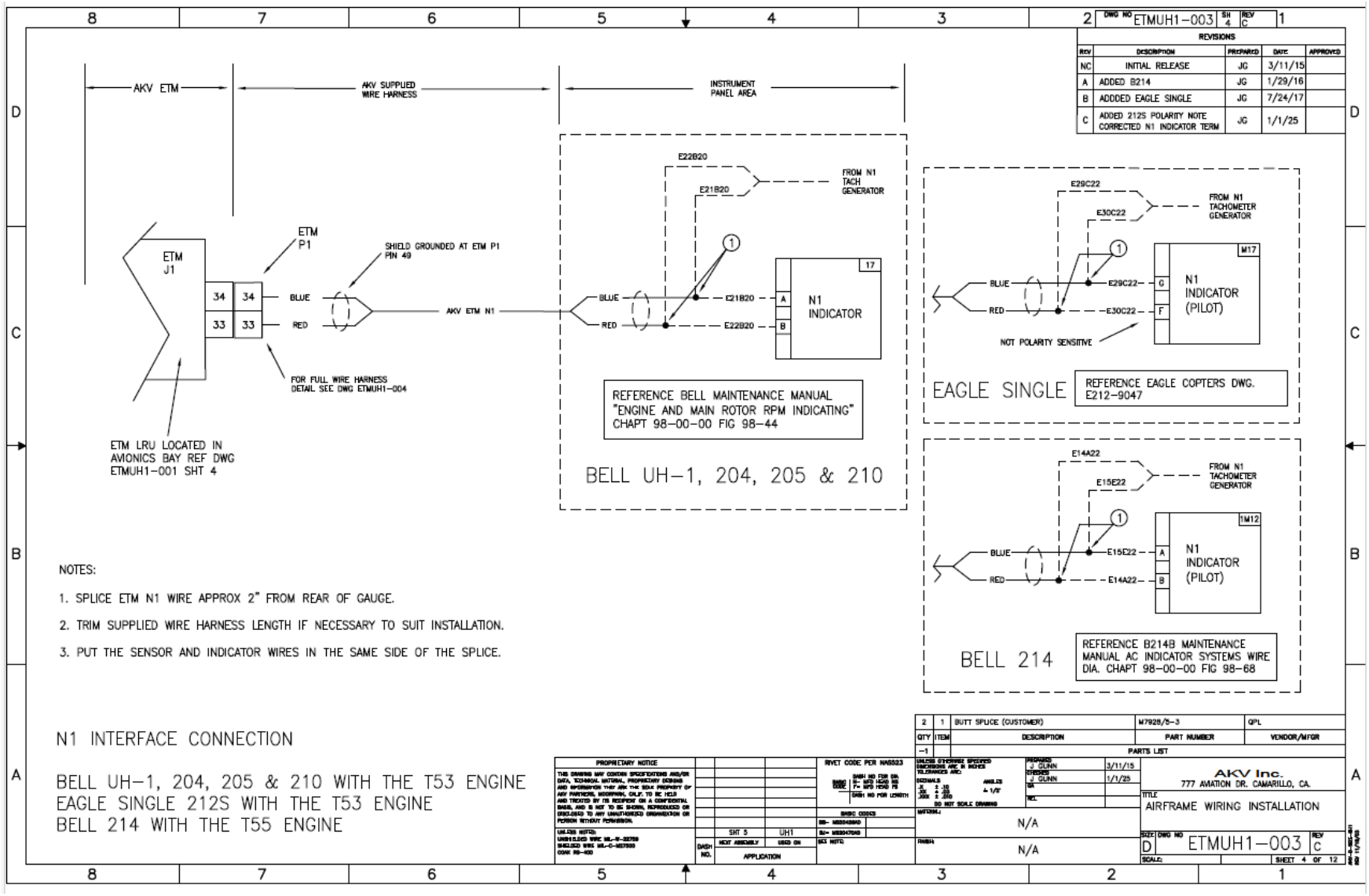
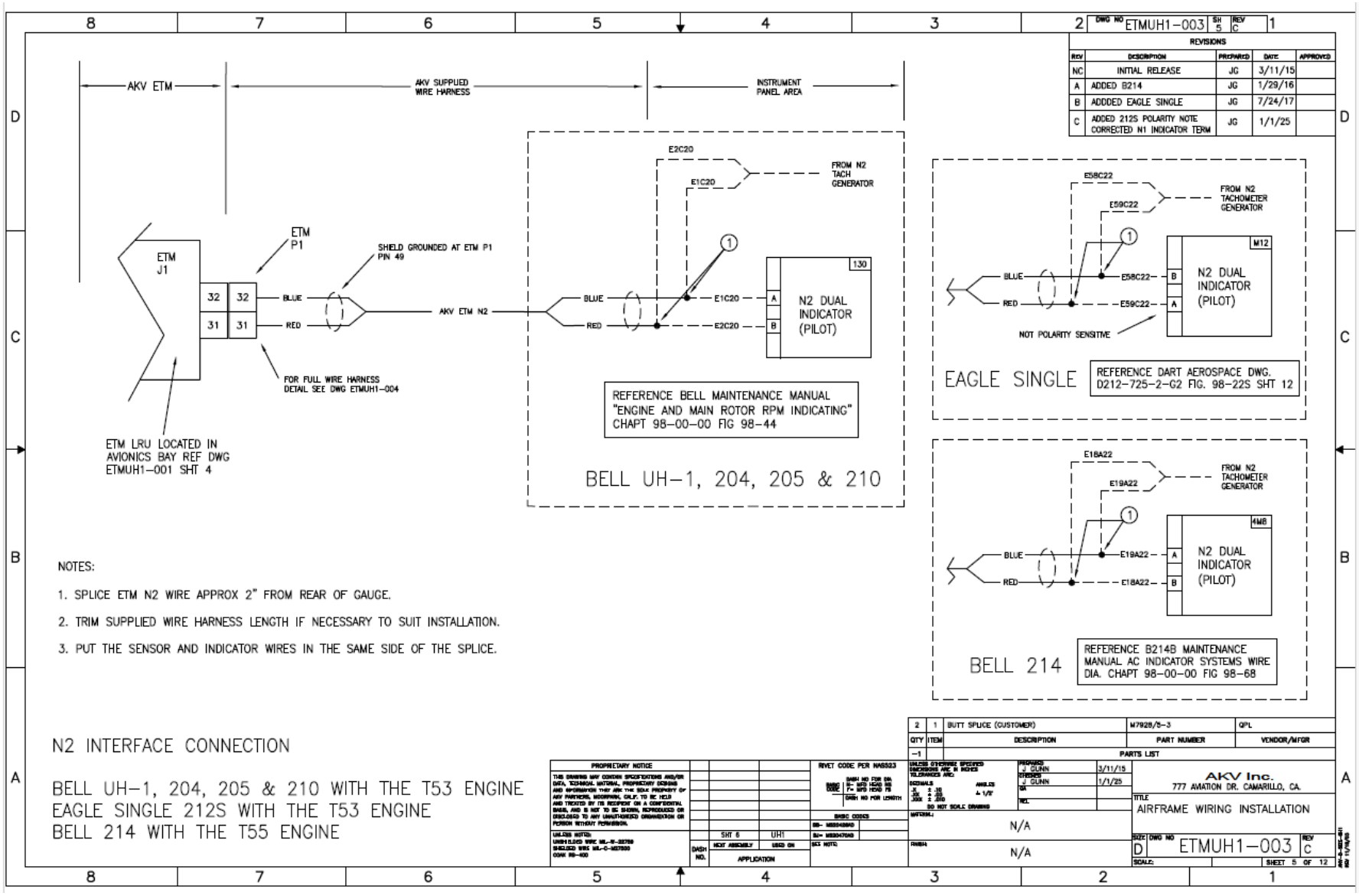


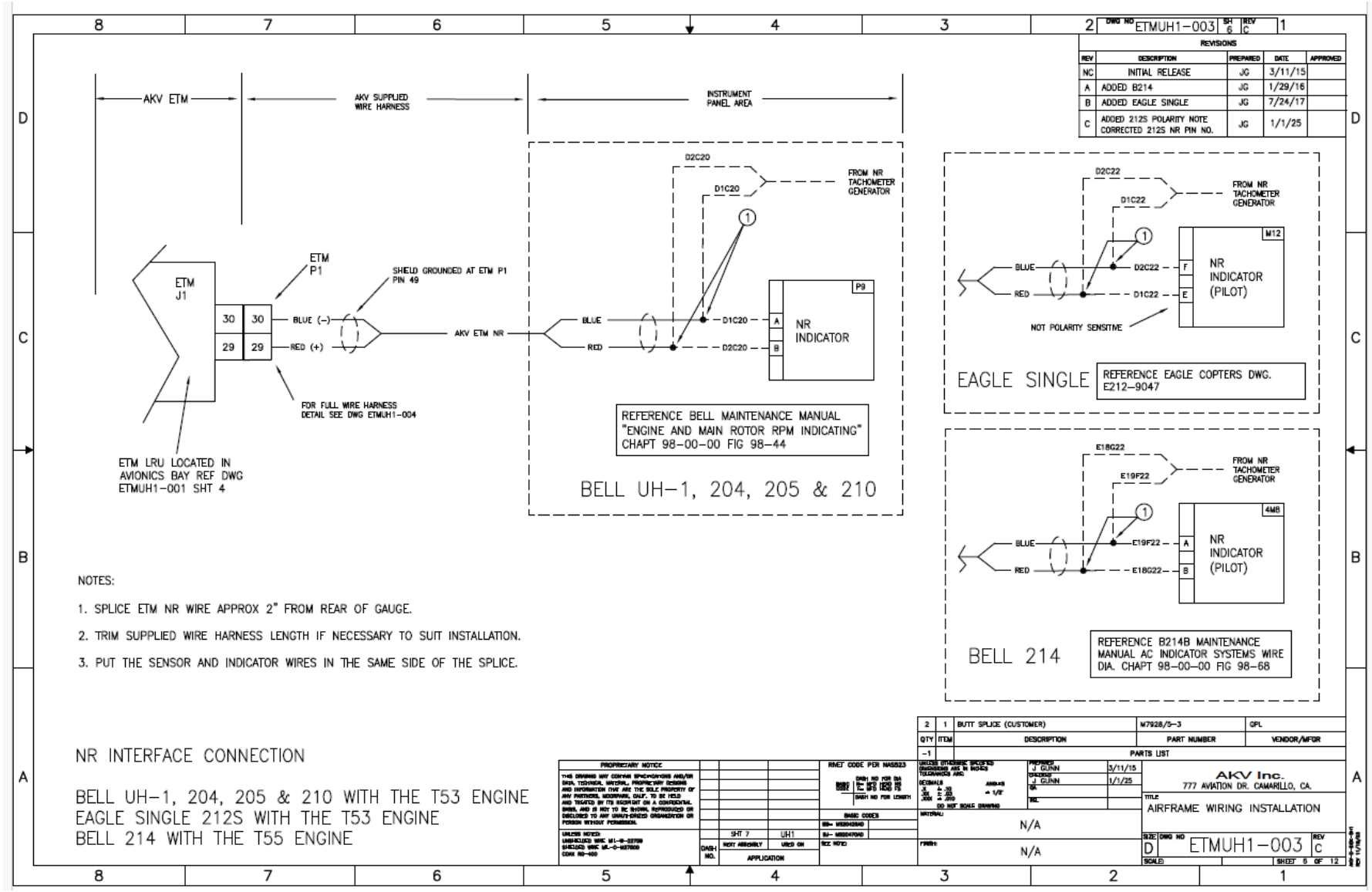
ETMUH1-003 SHT 4 – N1 GAS GENERATOR



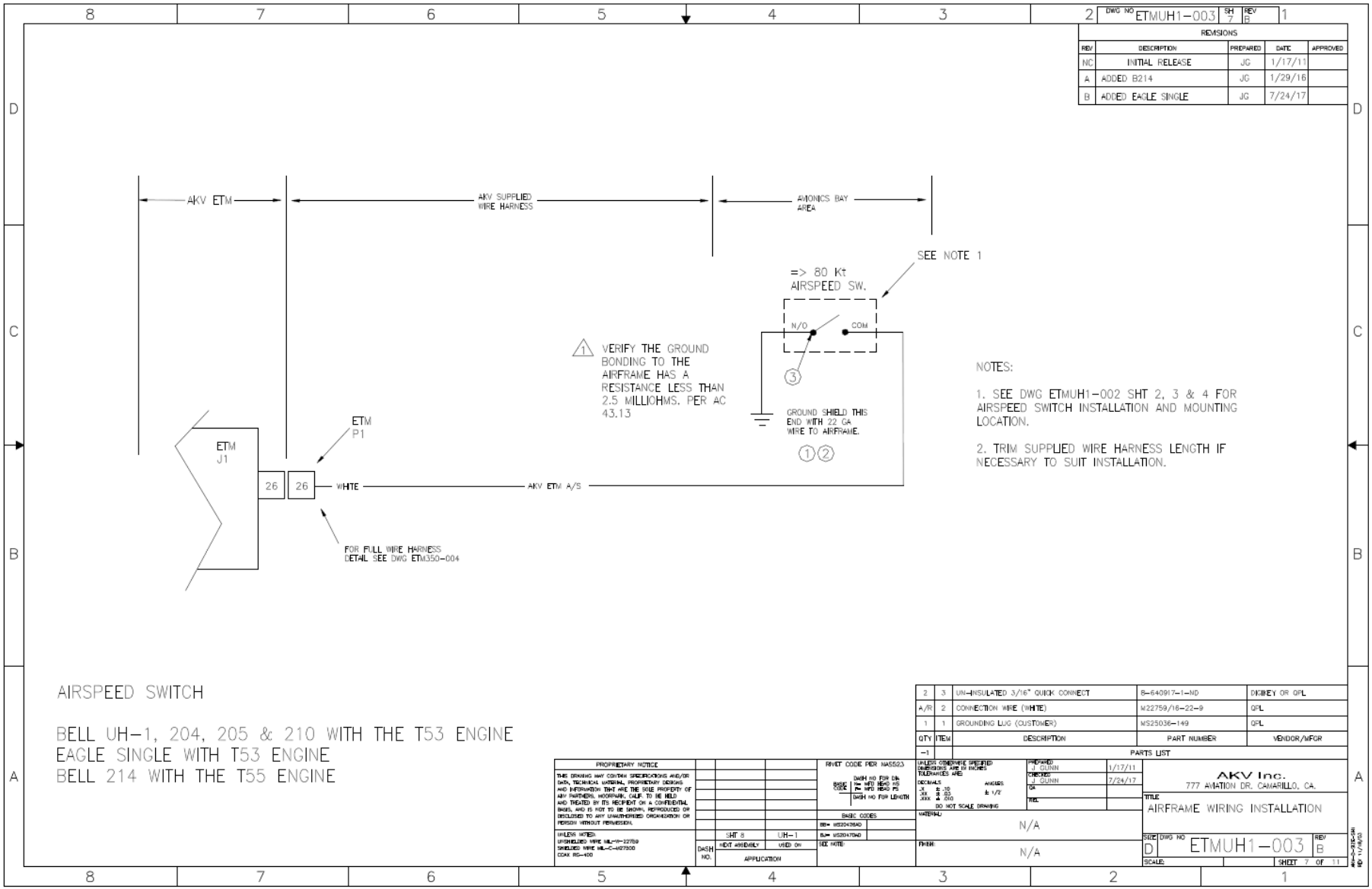
ETMUH1-003 SHT 5 – N2 POWER TURBINE



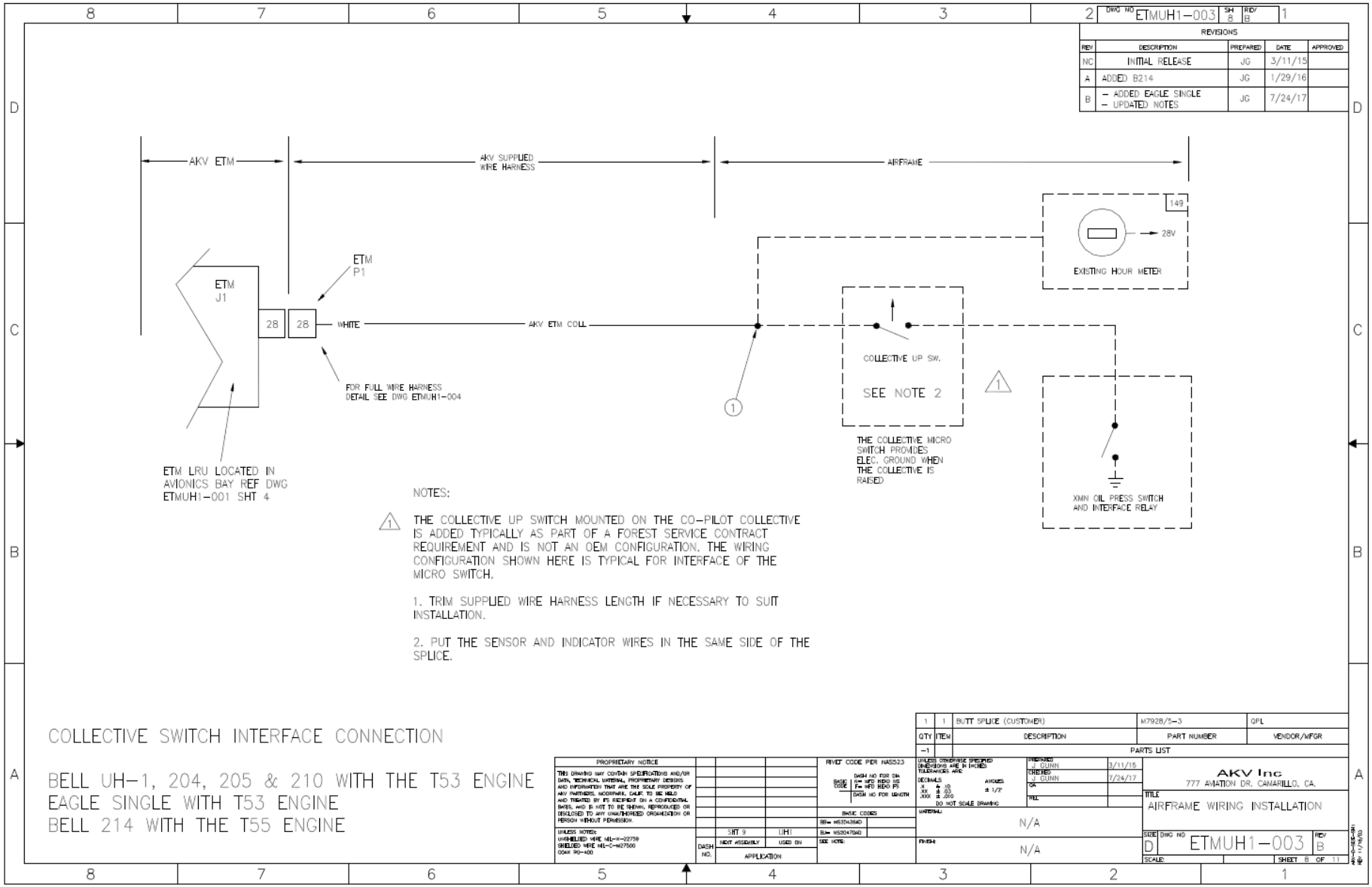
ETMUH1-003 SHT 6 – NR ROTOR



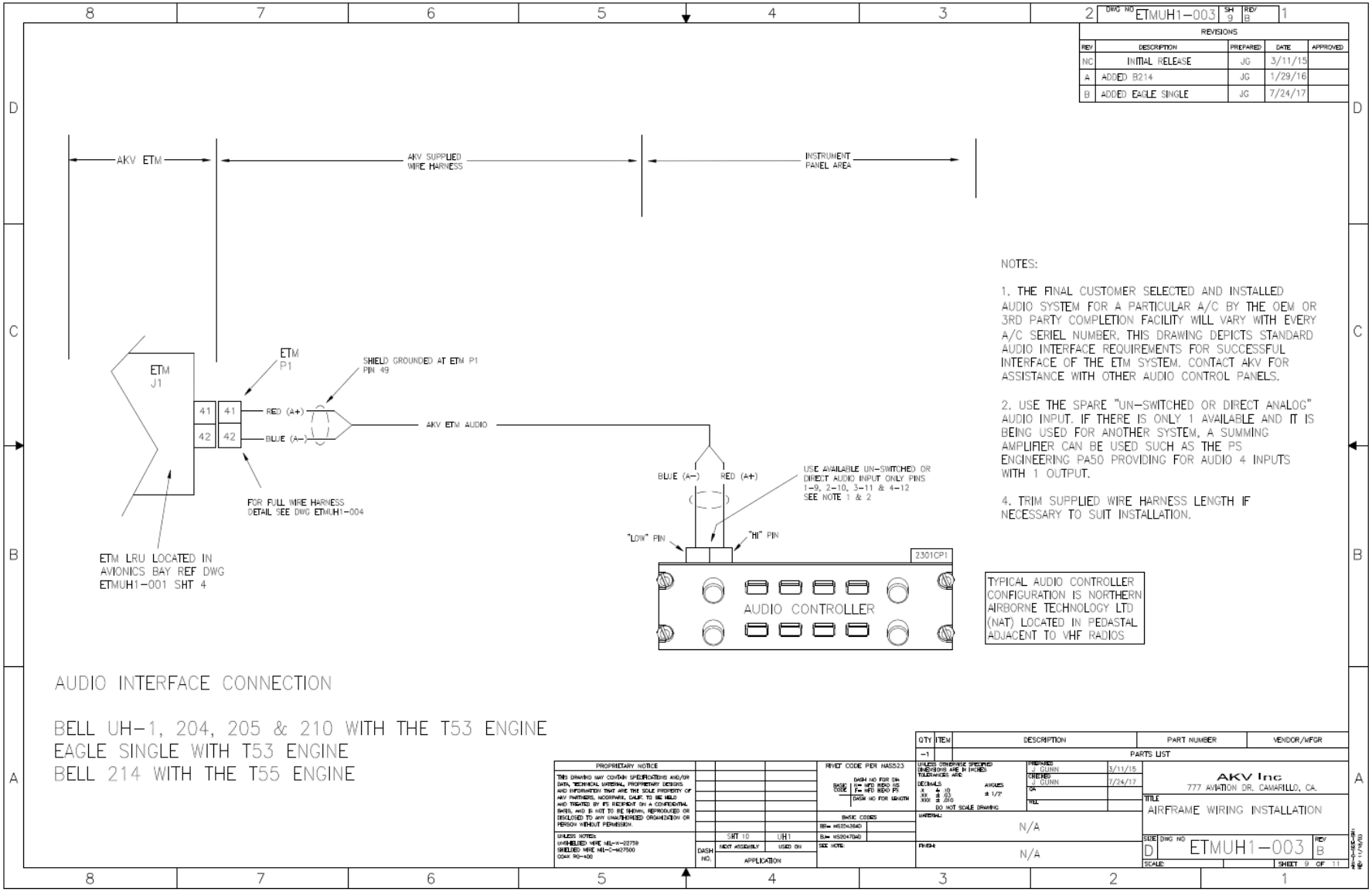
ETMUH1-003 SHT 7 – AIRSPEED SWITCH



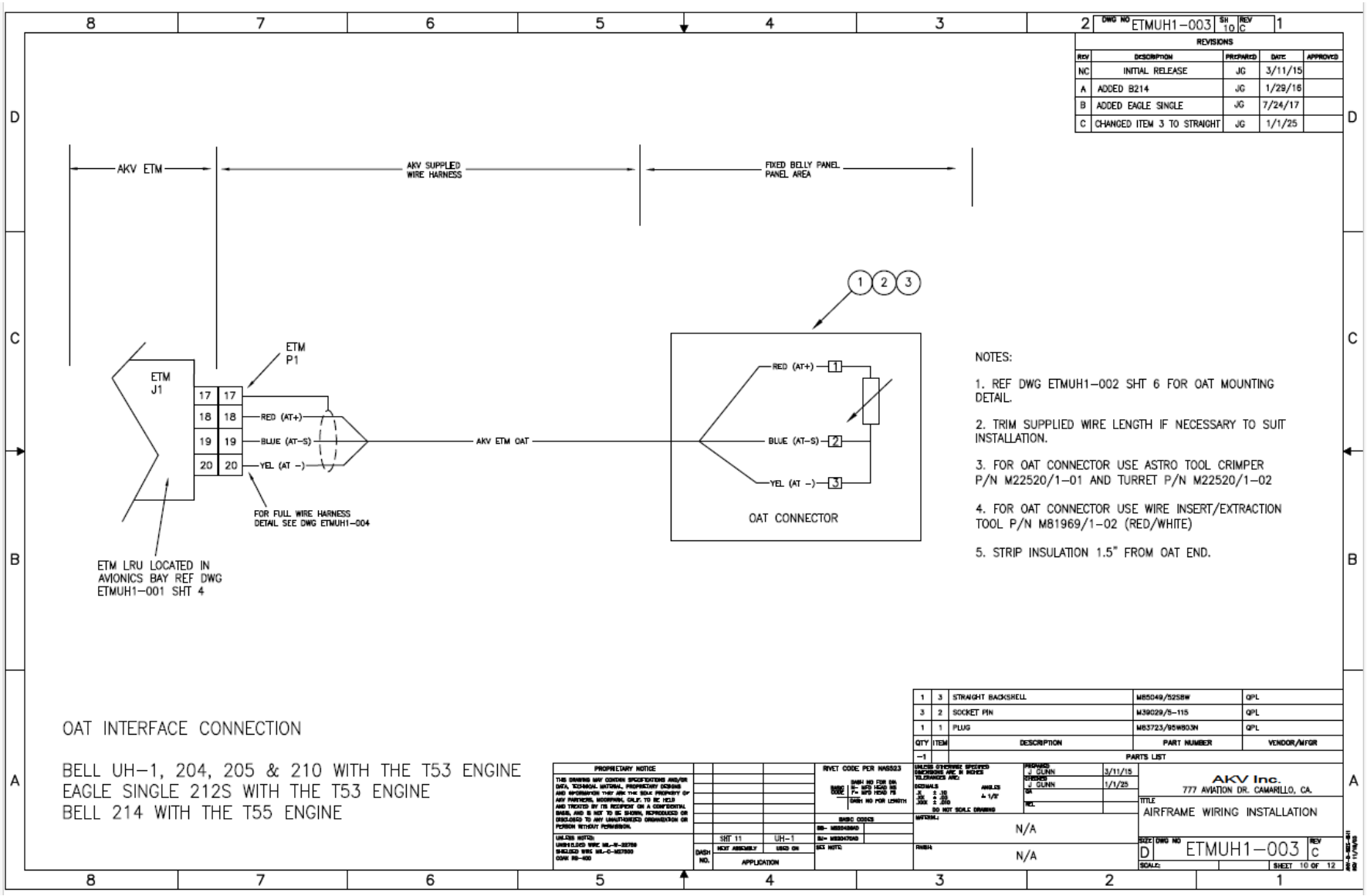
ETMUH1-003 SHT 8 – COLLECTIVE INTERFACE



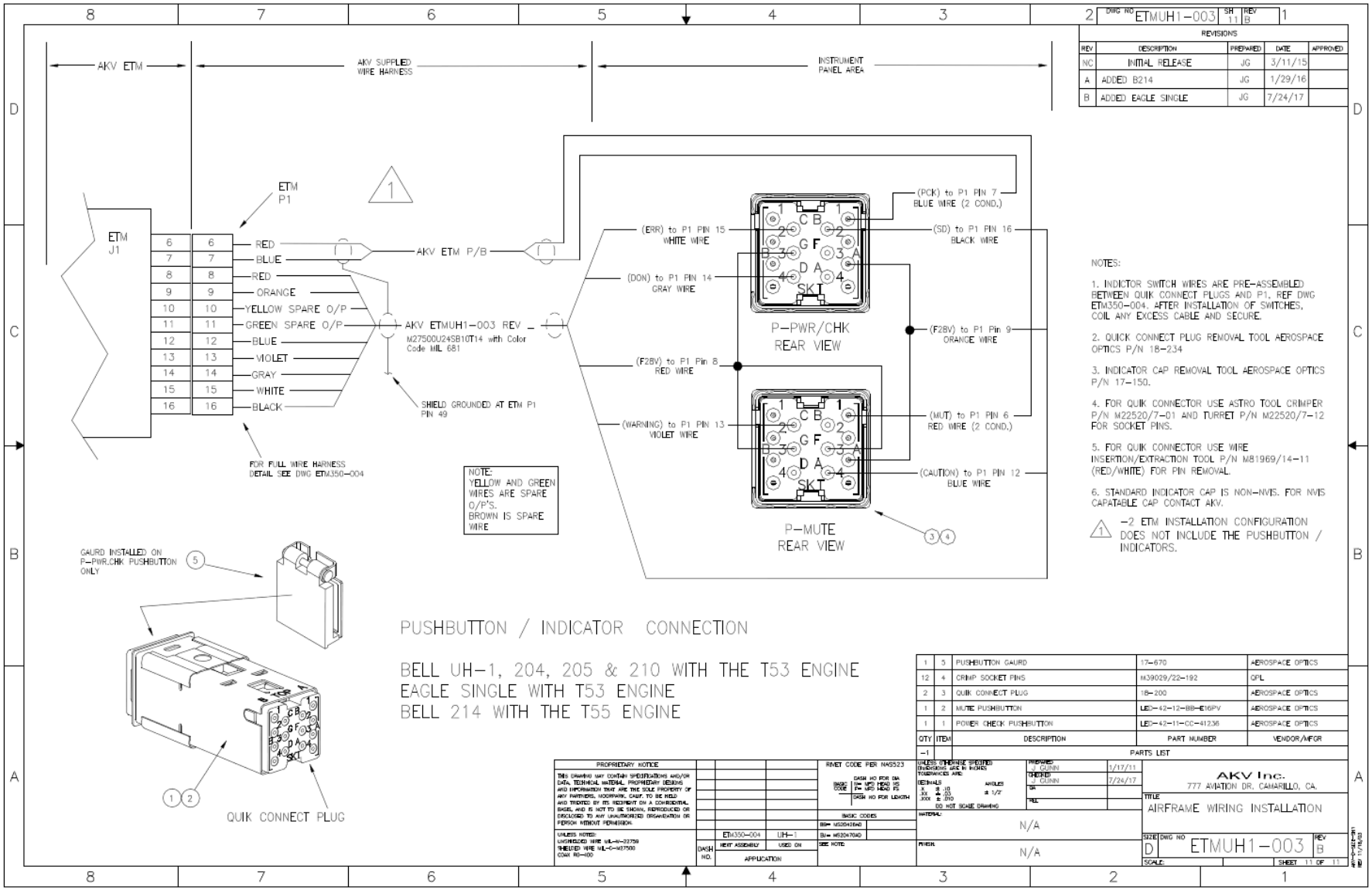
ETMUH1-003 SHT 9 – AUDIO INTERFACE



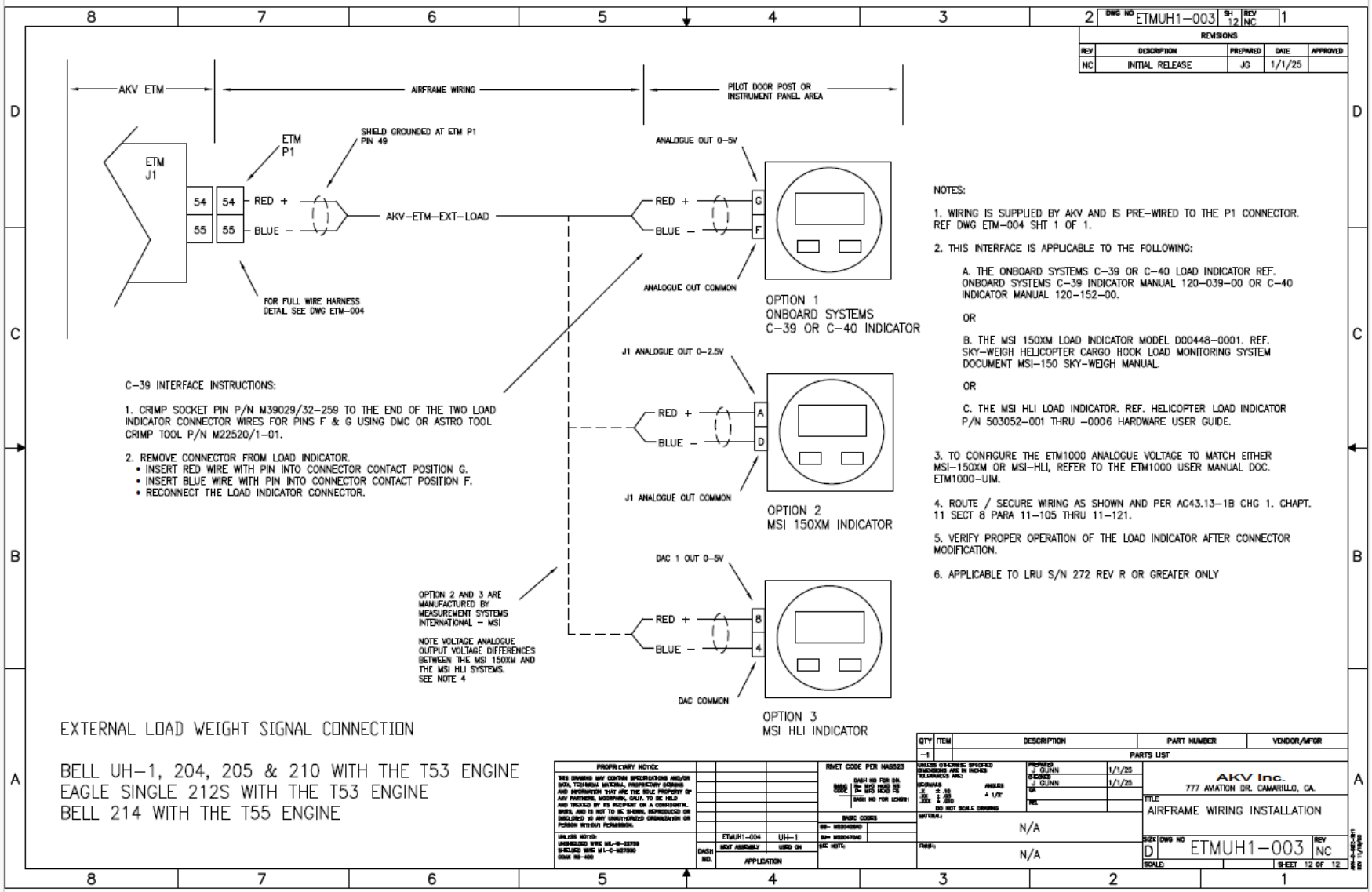
ETMUH1-003 SHT 10 – OAT



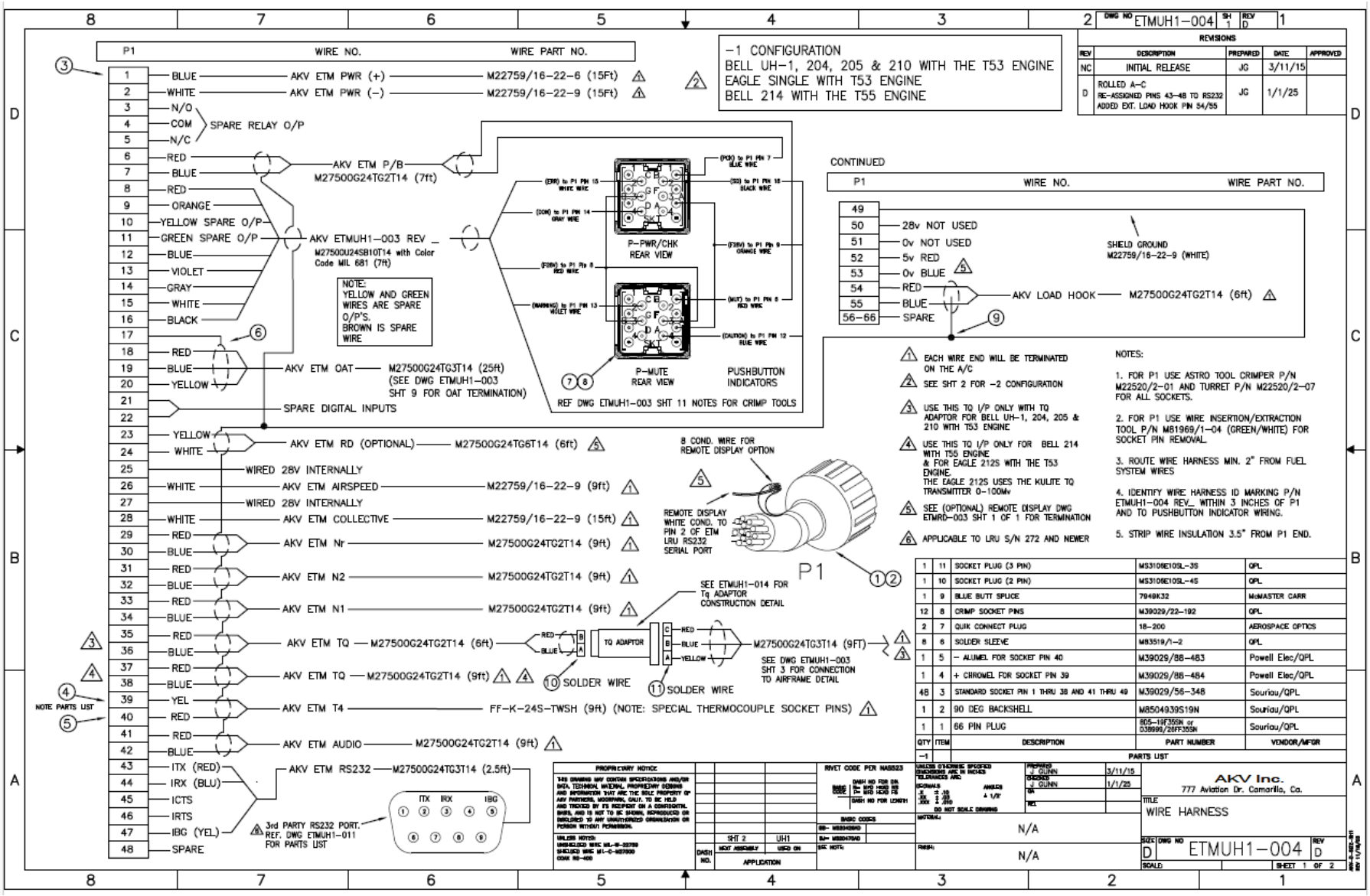
ETMUH1-003 SHT 11 – PUSHBUTTON / INDICATOR



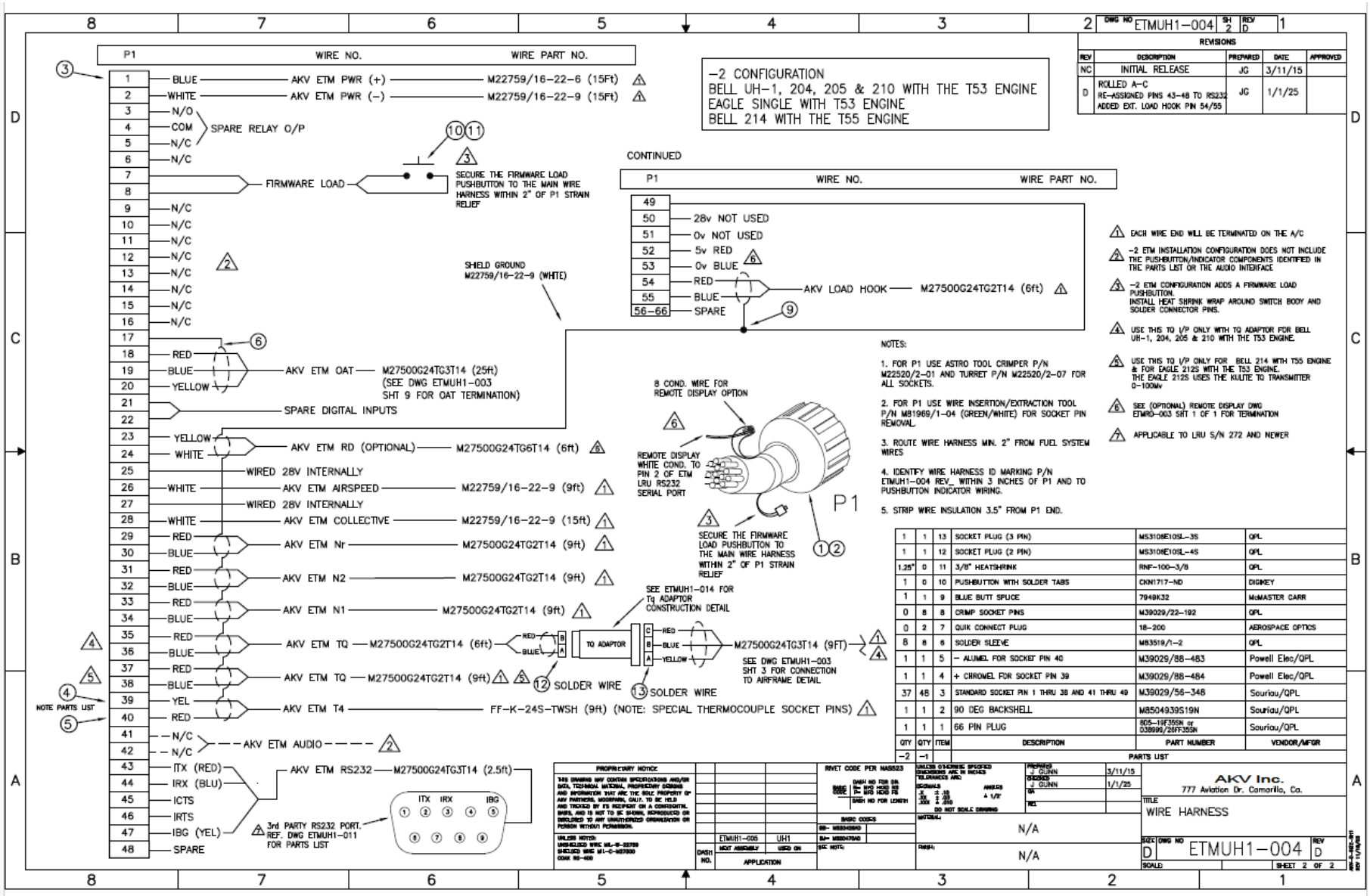
ETMUH1-003 SHT 12 – LOAD CELL



ETMUH1-004 Sht 1 – - 1 WIRE HARNESS

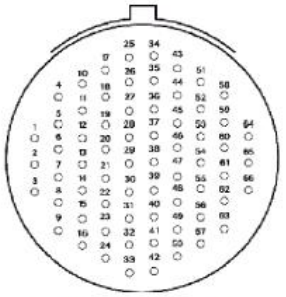


ETMUH1-004 Sht 2 – -2 WIRE HARNESS



ETMUH1-005 SHT 3 – J1 PINOUT

PIN 1	28Vdc		Main Board Power 28V
PIN 2	GND		Main Board Ground 0V
PIN 3	N/O		Spare Relay Output
PIN 4	C		Spare Relay Output
PIN 5	N/C		Spare Relay Output
PIN 6	MUT		Mute
PIN 7	PCK		Power Check
PIN 8	F28V		Fused 28V
PIN 9	F28V		Fused 28V
PIN 10	SP2		Digital Output Spare
PIN 11	SP1		Digital Output Spare
PIN 12	CAU		Caution
PIN 13	WRN		Warning
PIN 14	DON		Done
PIN 15	ERR		Error
PIN 16	SD		SD Card
PIN 17	ATSH		OAT SHIELD
PIN 18	AT+		OAT
PIN 19	AT-		OAT
PIN 20	AT-S		OAT
PIN 21	D4+		Digital Input Spare
PIN 22	D4-		Digital Input Spare
PIN 23	D3+		Remote Display Reset
PIN 24	D3-		Remote Display 0v
PIN 25	D2+		Wired to 28V Internally N/C
PIN 26	D2-		Digital Input Airspeed Sw
PIN 27	D1+		Wired to 28V Internally N/C
PIN 28	D1-		Digital Input Collective Sw
PIN 29	NR+		Nr Rotor
PIN 30	NR-		Nr Rotor
PIN 31	N2+		N2 Free Turbine
PIN 32	N2-		N2 Free Turbine
PIN 33	N1+		N1 Gas Producer
PIN 34	N1-		N1 Gas Producer
PIN 35	TQ+ (AI)		Tq - T53 (UH-1,204,205, 210)
PIN 36	TQ- (AI)		Tq - T53 (UH-1,204,205, 210)
PIN 37	TQ+		Tq - T53 (212S) & T55 (B214)
PIN 38	TQ-		Tq - T53 (212S) & T55 (B214)



Front View of Male Connector

J1 PIN OUT

BELL UH–1, 204, 205 & 210 WITH THE T53 ENGINE
EAGLE SINGLE 212S WITH THE T53 ENGINE
BELL 214 WITH THE T55 ENGINE

J1 66 Male Pin Connector Mounted on ETM Enclosure

REVISIONS

REV	DESCRIPTION	PREPARED	DATE	APPROVED
NC	INITIAL RELEASE	JG	3/11/15	
E	ROLLED A–D RE–ASSIGNED PINS 43–48 TO RS232 ADDED EXT. LOAD HOOK PIN 54/55 REMOVED N1, N2 & NR POLARITY	JG	1/1/25	

NOTES:

1. USE ASTRO TOOL CRIMPER P/N M22520/2–01 AND TURRET P/N M22520/2–09 FOR ALL PINS.
2. USE WIRE INSERTION/EXTRACTION TOOL P/N M81969/1–04 (GREEN/WHITE)
3. THIS REV E DWG IS APPLICABLE TO LRU S/N 272 REV R OR GREATER

PIN 39	KT/C YEL + Chromel	T4 Thermocouple	NOTE: Pin P/N M39029/87-472 (Socket P/N M39029/88-484)
PIN 40	KT/C RED - Alumel	T4 Thermocouple	NOTE: Pin P/N M39029/87-471 (Socket P/N M39029/88-483)
PIN 41	A+	Audio Output	
PIN 42	A-	Audio Output	
PIN 43	ITX	Optional RS232 Interface	
PIN 44	IRX		
PIN 45	ICTS		
PIN 46	IRTS		
PIN 47	IBG		
PIN 48	SPARE		
PIN 49	SHIELD	Signal Wire Shield Ground	
PIN 50	28V	NOT USED ON MEDIUM	
PIN 51	0V	NOT USED ON MEDIUM	
PIN 52	5V	Remote LCD	
PIN 53	0V	Remote LCD	
PIN 54	LH+	Load Hook Interface	
PIN 55	LH-	Load Hook Interface	
PIN 56 THRU 66 SPARE			
For Pin 1 Thru 38 and 41 Thru 66 Use :			NOTE: Pin P/N M39029/58-360 (Socket P/N M39029/56-348)

PARTS LIST

QTY	ITEM	DESCRIPTION	PART NUMBER	VENDOR/MFGR
–1				

PROPRIETARY NOTICE

THIS DRAWING MAY CONTAIN SPECIFICATIONS AND/OR DATA, TECHNICAL MATERIAL, PROPRIETARY DESIGNS AND INFORMATION THAT ARE THE SOLE PROPERTY OF ANY PARTICIPANT, MODIFIER, SALE, TO BE HELD AND TREATED BY ITS RECIPIENT ON A CONFIDENTIAL BASIS, AND IS NOT TO BE SHOWN, REPRODUCED OR DISCLOSED TO ANY UNAUTHORIZED ORGANIZATION OR PERSON WITHOUT PERMISSION.

UNLESS NOTED:
UNSHIELDED WIRE MIL–W–22759
SHIELDED WIRE MIL–C–027500
CODE RS–485

RIVET CODE PER NAS523

DASH NO FOR DIA.
DASH NO FOR LENGTH

BASIC CODES

DASH NO.	ETMUH1–005	UH1
	NEXT ASSEMBLY	USED ON
	APPLICATION	

PREPARED J. GUNN 1/17/11
STRESS J. GUNN 1/1/25
QA
ENGR

DECIMALS .X ± .10 .XX ± .05 .XXX ± .010 ANGLES ± 1/2°
DO NOT SCALE DRAWING

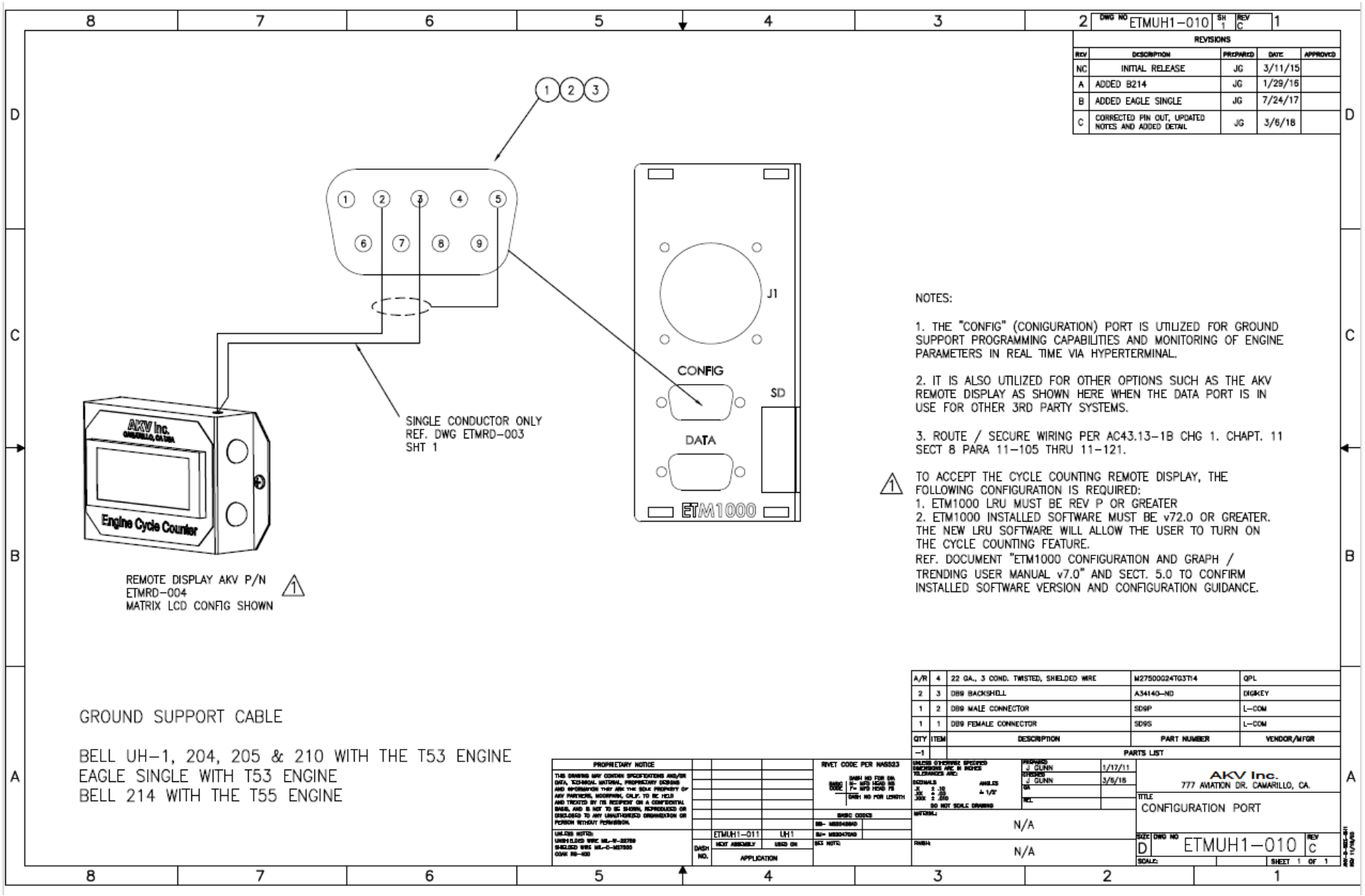
MATERIAL: N/A
FINISH: N/A

AKV Inc.
777 Aviation Dr, Camarillo, Ca.

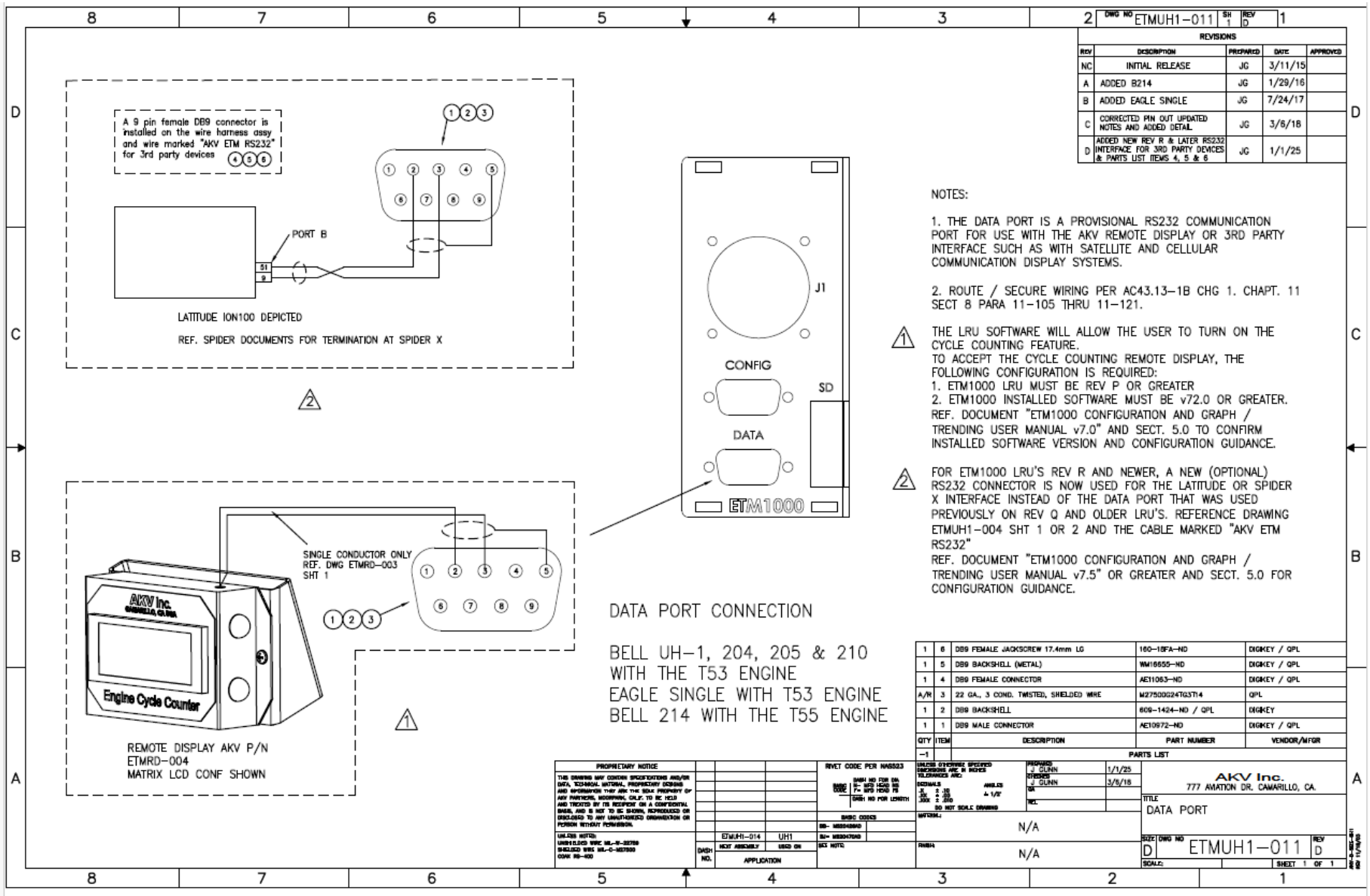
TITLE: WIRING DIAGRAM

SIZE D | DWG NO ETMUH1–005 | REV E
SCALE: | SHEET 3 OF 3

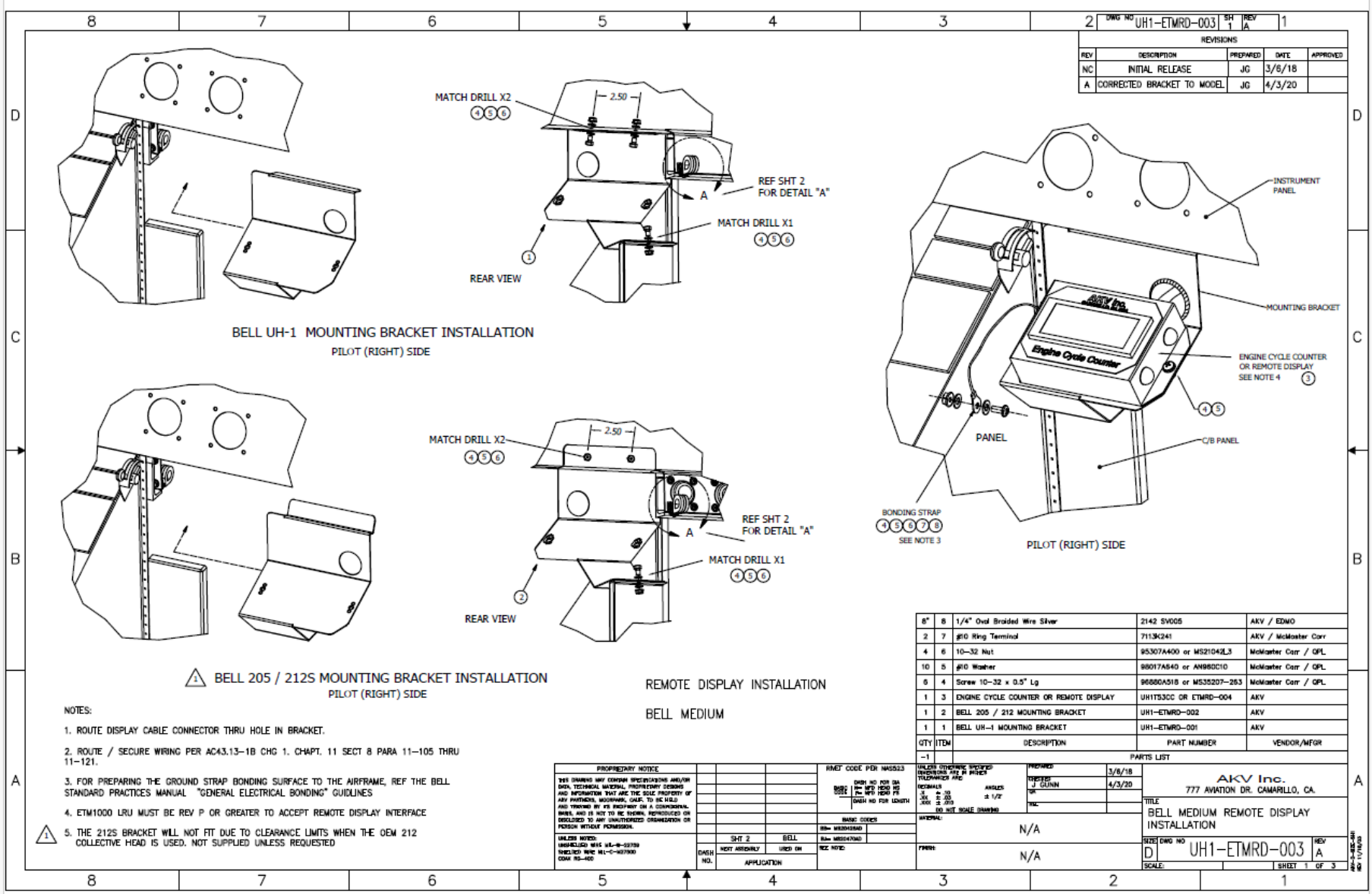
ETMUH1-010 SHT 1 – CONFIGURATION PORT



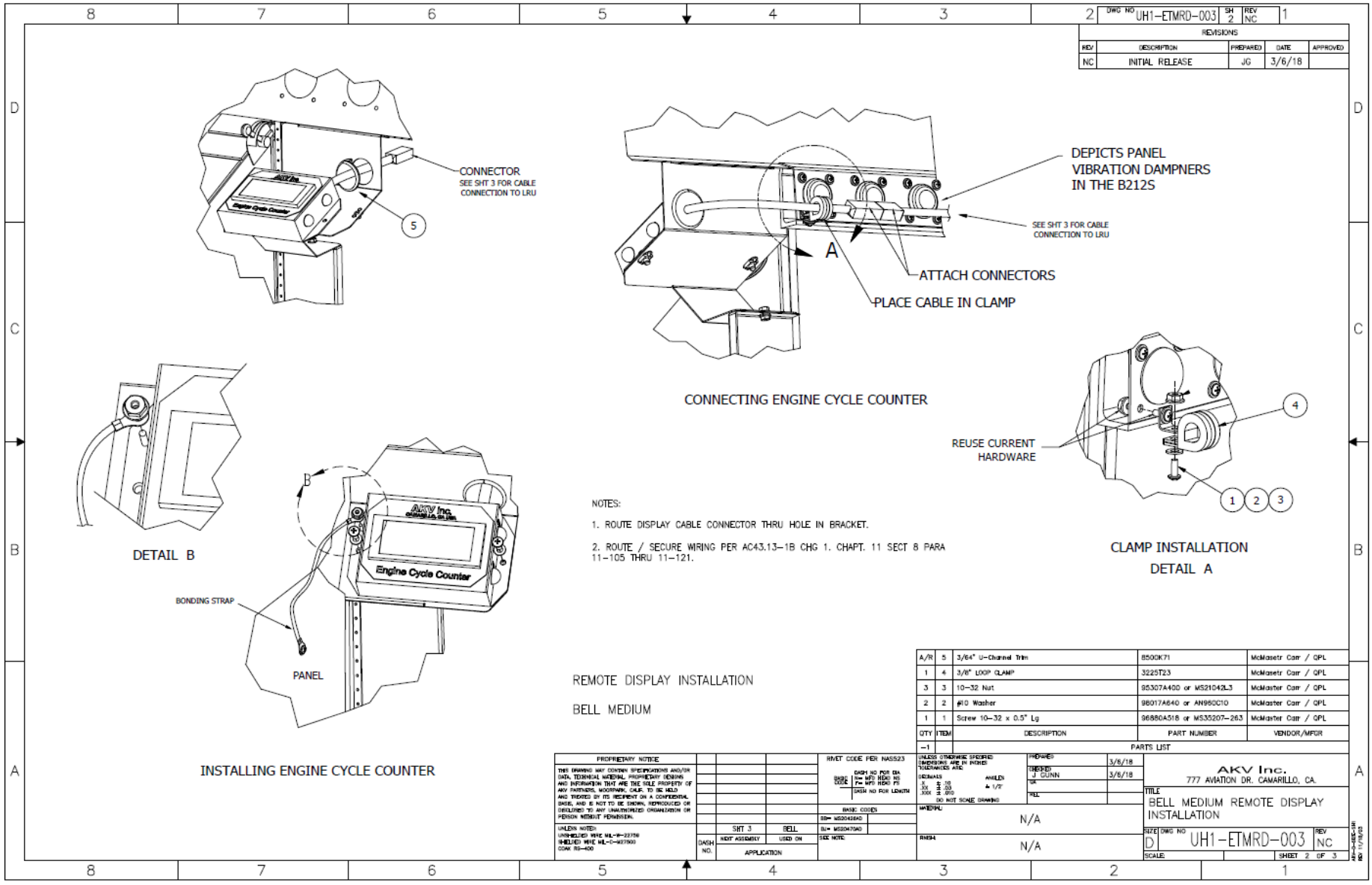
ETMUH1-011 SHT 1 – DATA PORT



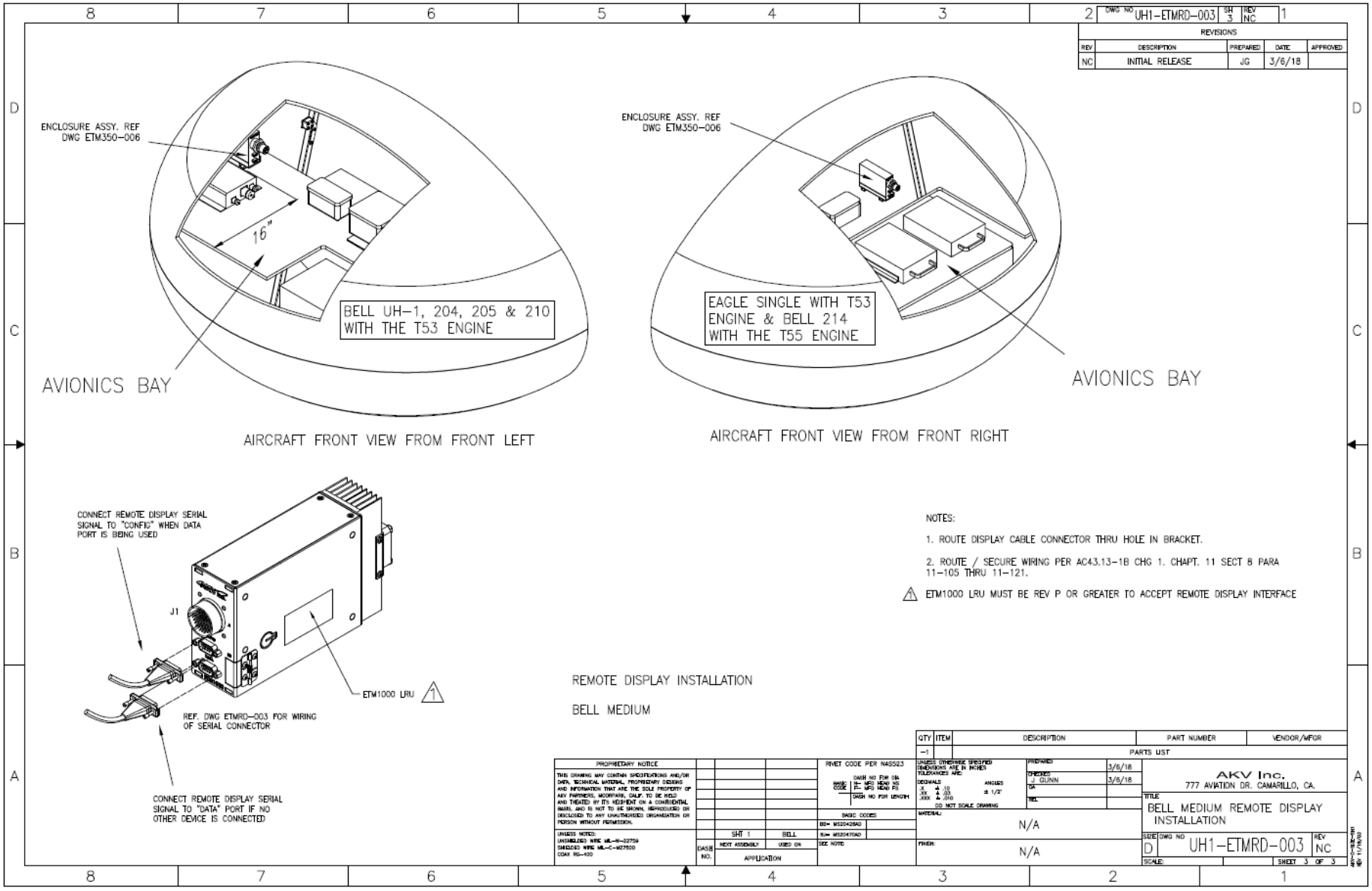
UH1–ETMRD-003 Sht 1 REMOTE DISPLAY INSTALLATION



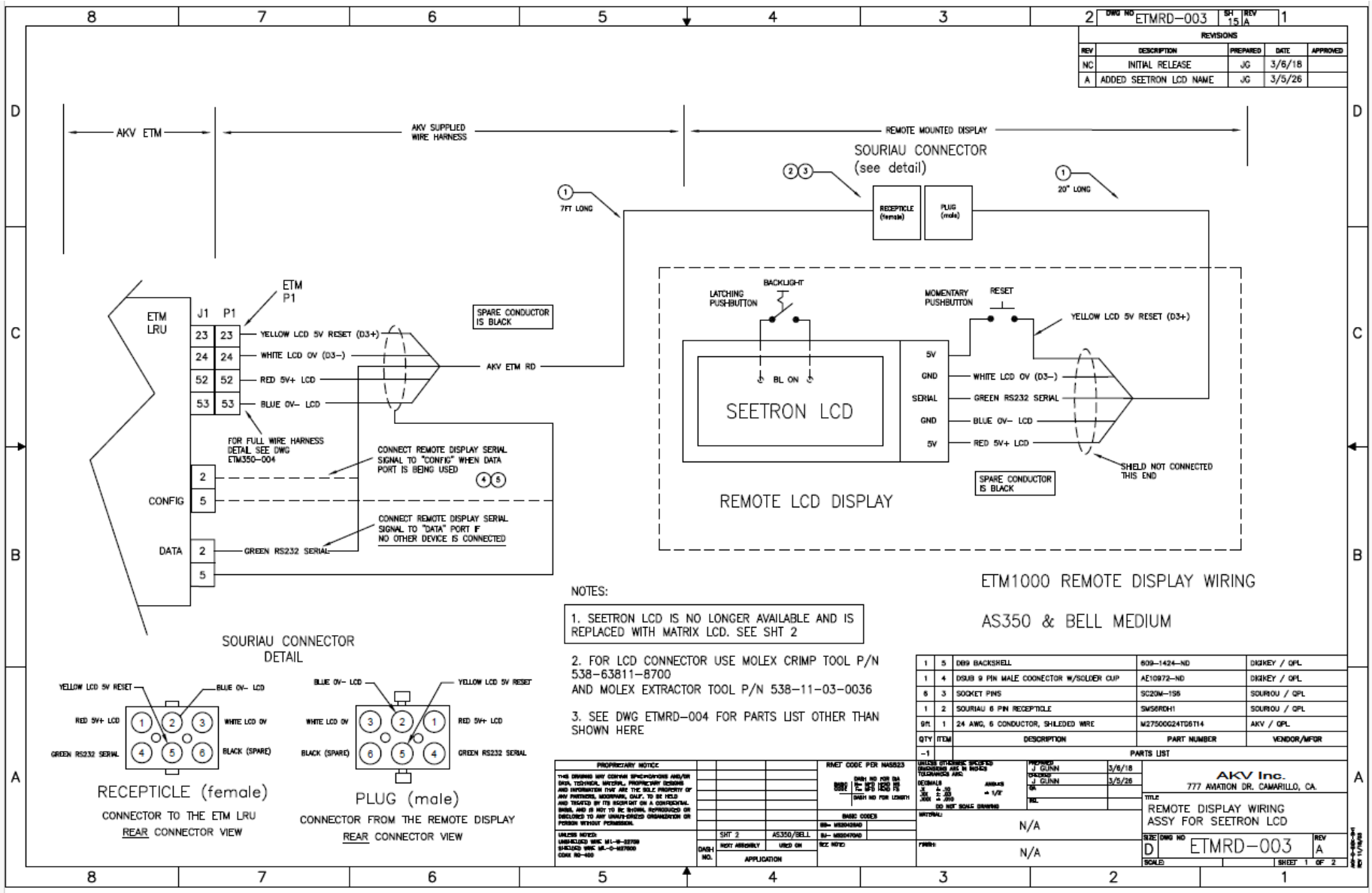
UH1–ETMRD-003 Sht 2 REMOTE DISPLAY INSTALLATION



ETMRD-003 Sht 3 REMOTE DISPLAY INSTALLATION



ETMRD-003 Sht 1 REMOTE DISPLAY WIRING



ETMRD-003 Sht 2 REMOTE DISPLAY WIRING