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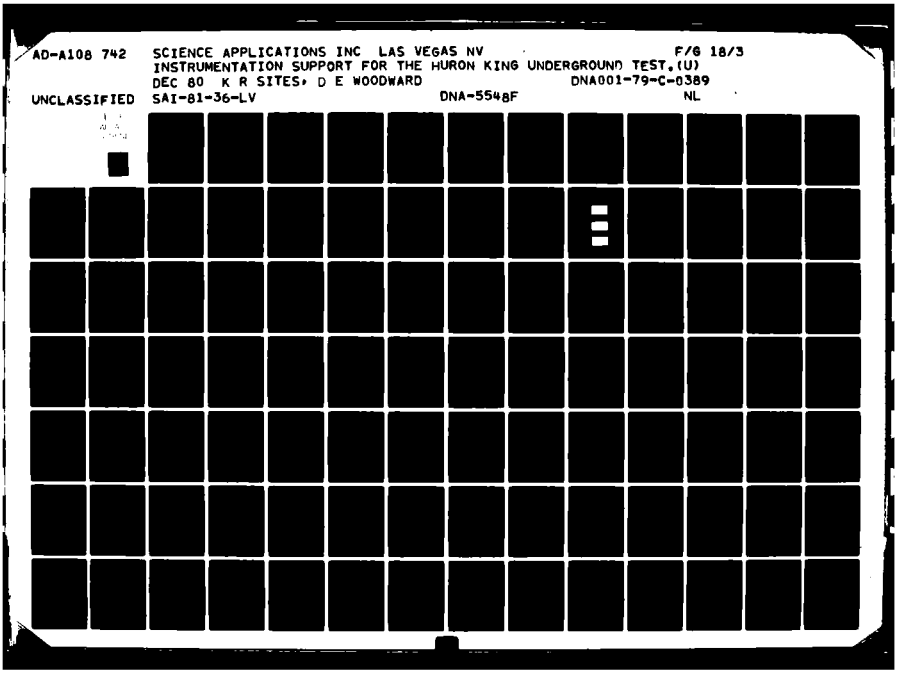

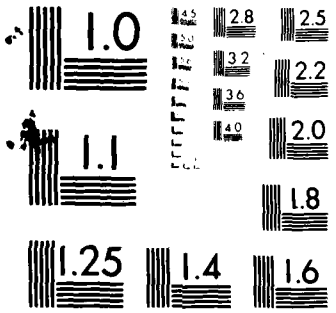

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INSTRUMENTATION SUPPORT FOR THE HURON KING UNDERGROUND TEST

Science Applications, Incorporated
P.O. Box 19057
Las Vegas, Nevada 89119

9 December 1980

Final Report for Period 13 June 1979—30 November 1980

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An SGEMP experiment was fielded on the Huron King underground test (UGT) at the Nevada Test Site (NTS). The test was conducted on the STARSAT Satellite which was supplied by General Electric (GE) under contract to the Defense Nuclear Agency (DNA). The experiment was fielded by JAYCOR and GE. The SAI Las Vegas office provided instrumentation support for this program.

The SAI Las Vegas office designed and operated a recording system that collected data from the SGEMP experiment. The recording system contained 350 wideband oscilloscopes and 11 magnetic tape recorders, plus ancillary equipment,

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that were mounted in six instrumentation trailers.

SAI provided all engineering and technician support necessary to design and operate these trailers. SAI collected and processed all shot data as well as preshot calibration data. Special hardware was provided to support systems calibration and data recording.

X-ray and gamma trigger diodes also were fielded. Their purpose was primarily to trigger the recording system oscilloscopes. A secondary purpose was to quantify the radiation level near the top interior of the experiment tank.

A total of 512 measurements were made. They were recorded on scopes and tape recorders that yielded 753 data records. Measurements refer to sensors that recorded field strengths, currents and voltages throughout the test vehicle. Additional measurements were made to verify proper performance of the EAGE, receipt of sequence commands, and general housekeeping data.

A total of 722 records are judged usuable which resulted in a 97 percent return.

PREFACE

The program that is discussed in this report was performed by personnel from the SAI Las Vegas office. The SAI Project Officer was Ken Sites. The Field Engineers were Doyle Woodward and Roger Robertson, and the Field Tech Supervisor was Gene Winn. Laboratory operations support was supplied by Dave Sheline. Data reduction was done under the guidance of Randy Dockter.

Principal contacts at agencies supported by SAI were Dr. Ralph Stahl (JAYCOR), Joe Peden (GE), Danny Tasca (GE) and Joe Klisch (GE).

The Test Group Director for Field Command, DNA was Major William Hecker, USA, and the Technical Director was Major Russell Bonn, USAF. The Instrumentation Engineer was Mr. George Lu. Major Richard Gullickson, USAF was the Contracting Officer's Representative (COR).

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1.0 INTRODUCTION

An SGEMP experiment was fielded on the Huron King Underground test (UGT) at the Nevada Test Site (NTS). The test was conducted on the STARSAT Satellite which was supplied by General Electric (GE) under contract to the Defense Nuclear Agency (DNA). The Electromagnetics Division of Science Applications, Incorporated (SAI) was under separate contract to DNA to assist in the experiment definition and to provide electromagnetic field predictions. The experiment was fielded by JAYCOR and GE. The SAI Las Vegas office provided instrumentation support for this program.

The SAI Las Vegas office designed and operated a recording system that collected data from the SGEMP experiment. The recording system contained 350 wideband oscilloscopes and 11 magnetic tape recorders, plus ancillary equipment, that were mounted in six instrumentation trailers.

SAI provided all engineering and technician support necessary to design and operate these trailers. SAI collected and processed all shot data as well as preshot calibration data. Special hardware was provided to support systems calibration and data recording.

X-ray and gamma trigger diodes also were fielded. Their purpose was primarily to trigger the recording system oscilloscopes. A secondary purpose was to quantify the radiation level near the top interior of the experiment tank.

A total of 512 measurements were made. They were recorded on scopes and tape recorders that yielded 753 data records as listed in Table 1.1. Measurements refer to sensors that recorded field strengths, currents and voltages throughout the test vehicle. Additional measurements were made to verify proper performance of the Electronic Aerospace Ground Equipment (EAGE), receipt of sequence commands, and general housekeeping data.

A total of 722 records are judged usable. As listed in Table 1.2, this results in a 97 percent data return. Usable records are defined as equipment that operated correctly and

recorded information. In some cases, signals may be off-scale or too small to be observed. These records still qualify as usable data. The experimenter may decide that data are unusable because of a defective sensor or for other reasons. These type judgements do not enter into our classification.

Table 1.1. Data Recording Statistics

AGENCY	GE	JAYCOR	NSA	SAI	TOTAL
MEASUREMENTS	373	94	40	5	512
Scope Traces**	279	163	14	10	426
7912's	5	17	2	--	24
WB Tape Ch.	60	22	11	10*	103
FM Tape Ch.	162	--	25	13*	200
TOTAL RECORDS	466	202	52	33	753

* Housekeeping; IRIG, FIDU monitors.

** Dual beam oscilloscopes are counted as two traces.

Table 1.2. Usable Data Records

AGENCY	GE	JAYCOR	NSA	SAI	TOTAL (%)
Scope Traces	229	150	14	9	402 (94)
7912's	5	17	2	--	24 (100)
WB Tape Ch.	58	22	11	10	101 (98)
FM Tape Ch.	162	--	25	13	200 (100)
TOTAL (%)	454 (97)	189 (94)	52 (100)	32 (97)	722 (97)

2.0 DATA RECORDING SYSTEM

Data were recorded on a combination of oscilloscopes and/or tape recorders that were selected to meet the recording bandwidth requirements for each sensor that was specified by the responsible experimenter. The Oscilloscope and Tape Channel Assignments are listed in Appendix A, and the Recording System Cross Index is listed in Appendix B. Detailed one-line drawings for the oscilloscope and tape recording channels are included in Appendix C.

2.1 Oscilloscope Data Recording Channel

A typical oscilloscope recording channel is shown in Figure 2.1. A differential sensor is shown which has two 50-ohm coax cables that are connected to a balun (balanced to unbalanced transformer, SAI Model SC-111) located inside a junction box that was positioned outside the experiment vacuum tank. The balun output then drives a coax cable that runs to the recording trailer. The cable equalizer (EQ) compensates for the high frequency cable losses. The signal out of the equalizer is fanned out through a resistive matching network for distribution to the oscilloscopes and tape recorder.

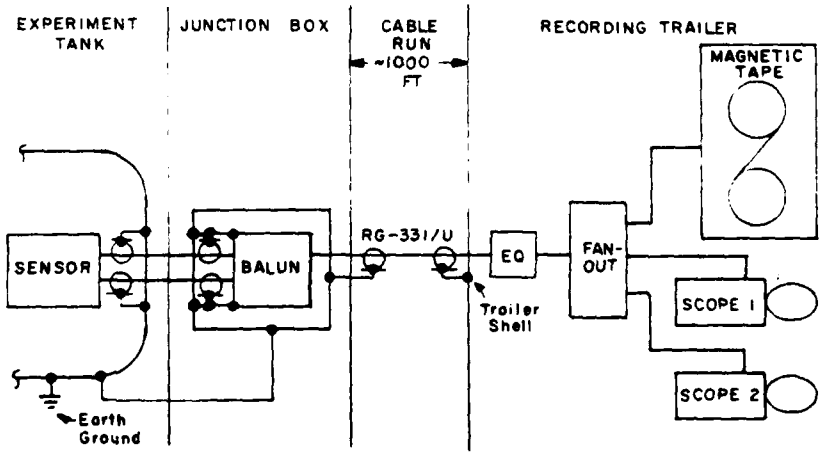


Figure 2.1. Typical Oscilloscope Recording Channel

Other recording channel variations were also fielded such as; (1) single-ended sensors that require no balun, (2) scope quantities varying from one to four per channel, and (3) many channels were recorded on scopes but not on magnetic tape.

2.2 Tape Data Recording Channel

A typical tape recording channel is shown in Figure 2.2. In general, differential signals were generated by sensors located from within the satellite. These signals were fed through the junction box on twisted shielded pair (TSP) cable where they were connected to the trailer cable run. Inside the trailer the signals were connected to a calibrator chassis. The calibrator output drives a voltage controlled oscillator (VCO). The VCO output was recorded on magnetic tape. Ten VCO outputs were multiplexed onto a single tape track. Each VCO was operated at a different center frequency to prevent cross channel interference. The calibrator chassis contains relay contacts that may be actuated to apply calibrated voltages to the VCO inputs.

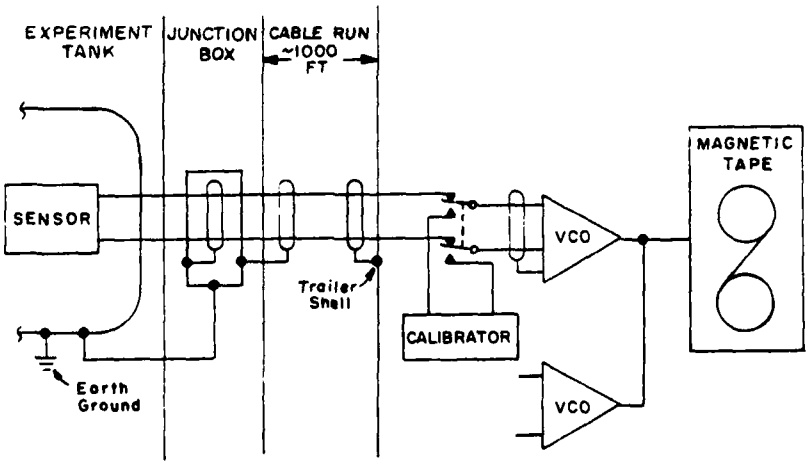


Figure 2.2. Typical Tape Recording Channel

2.3 Trigger Diodes

Four X-ray diodes and one gamma diode were fielded by SAI. Their primary purpose was to provide trigger signals to operate the oscilloscopes in the vans. A secondary function was to quantify the radiation level.

The location of the diodes is shown in Figure 2.4. They were positioned to view the forward scattered photons from the scatterers that were located in the line-of-sight pipe. The X-ray diodes were secondary emission types (EG&G Model XRD7) while the gamma diode was a flour photodiode type (modified EG&G Model N-PD-52B).

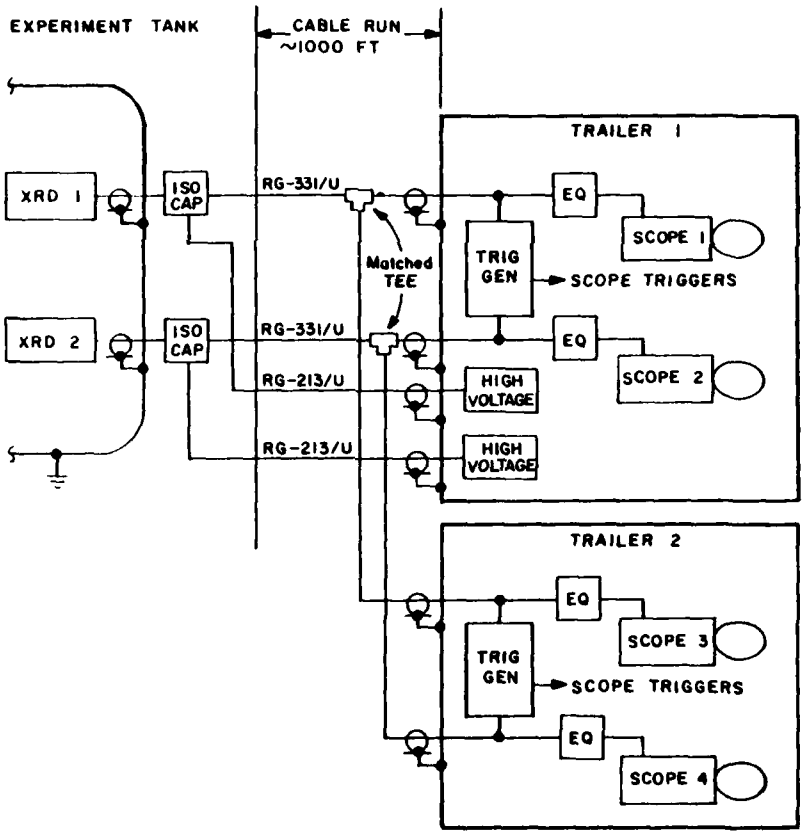


Figure 2.3 Scope Trigger System

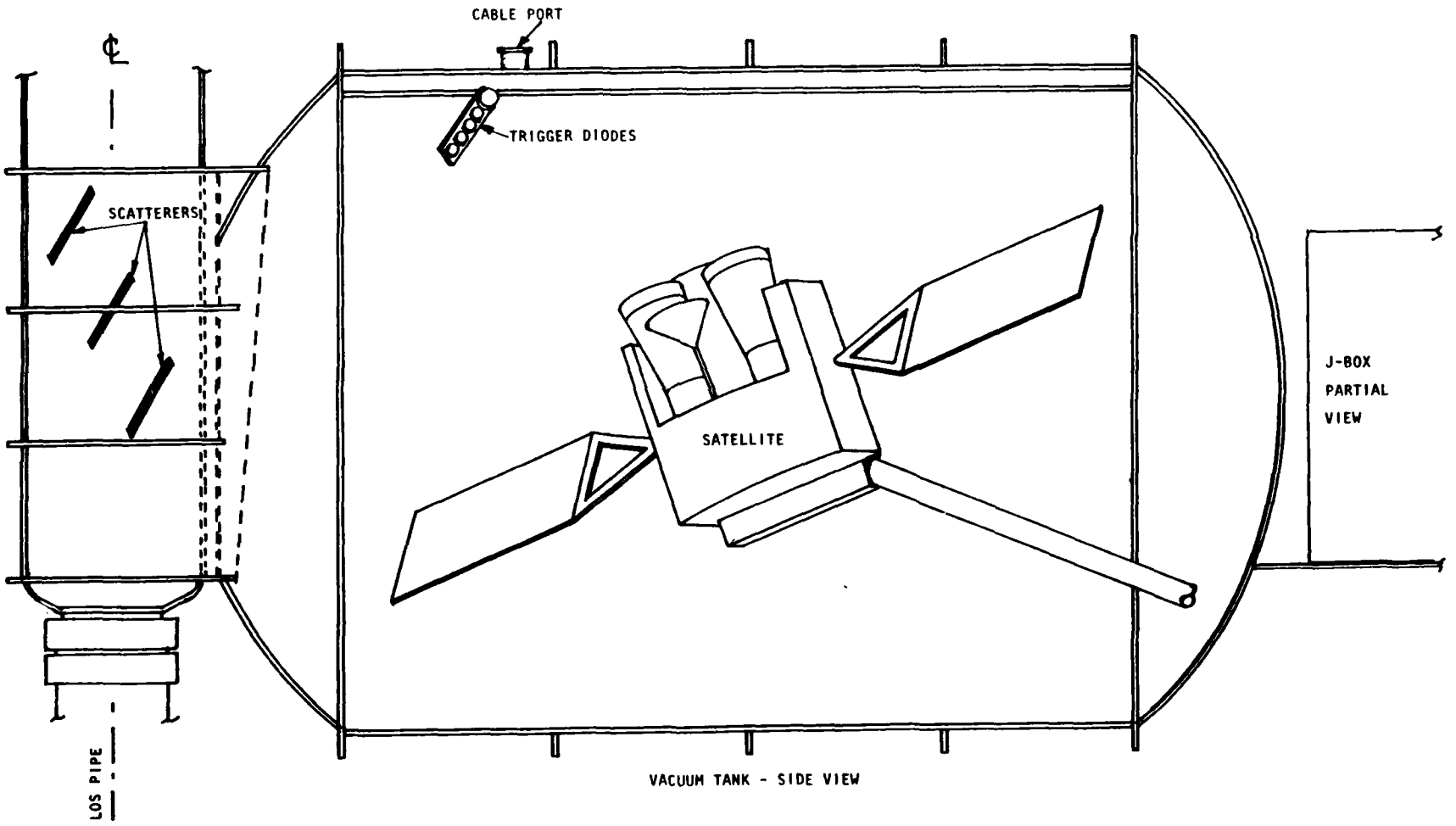


Figure 2.4 Trigger Diode Locations

The X-ray diodes were paired such that they would redundantly trigger two trailers as shown in Figure 2.3. The diodes were biased by high voltage supplied from one trailer. An isolation capacitor (ISO CAP) was inserted into the signal line. It allowed the diode to be biased while capacitively blocking high voltage from feeding onto the trailer signal line.

When a diode signal was generated it was capacitively coupled through the ISO CAP onto the signal cable that was routed to the trailer. At the trailer the signal was split by a matched tee. The matched tee outputs were fed to trigger generator inputs in both trailers. The trigger generator triggered the oscilloscopes in each trailer. The XRD signal was equalized after the trigger generator and then recorded on a cross timing oscilloscope. The oscilloscopes were used to record the pulse shape and arrival time relative to a fiducial marker that was applied to each scope.

2.4 Grounding and Shielding

The recording system design included grounding and shielding procedures to ensure noise free data. The sensors and their associated signal cables were bonded to the satellite. The signal cables also were bonded to entrance and exit feed-through interfaces at the junction box. The sensor and junction box connections were performed by JAYCOR personnel. The experiment tank and junction box were connected to the line-of-sight pipe which was earth grounded. A large number of cables exited the junction box for routing to the trailers. The feedthrough matrix is shown in drawing LVD-243 which is included in this section.

All cable shields were bonded to the trailer shell. Details of this bonding procedure are shown in drawing LVC-452 which is included in this section. This work was done by SAI personnel. The trailer shell was floating with respect to earth ground. The resistance from the shell to earth ground was measured to be one megohm or higher prior to hookup of the

sensor cables routed to the tank. The Timing and Firing output signals and monitor lines entered the trailer through an RFI filter interface panel which was bonded to the trailer shell.

The power to operate the recording trailers was isolated by using motor generators that provided instrumentation power while utility power was supplied through isolation transformers. In addition, RFI filters were used in the power line interface at the trailers.

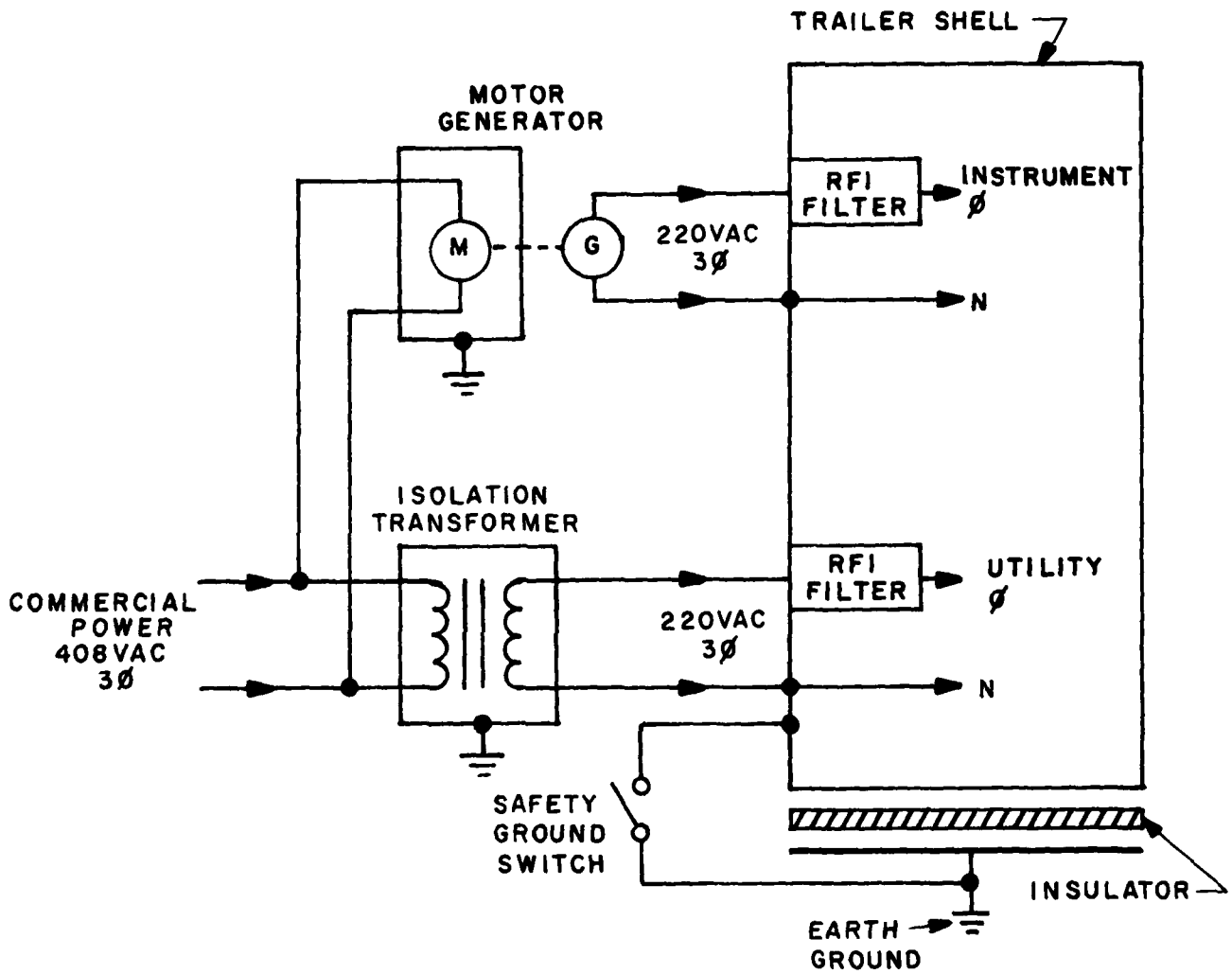
A simplified diagram is shown in Figure 2.5. For clarity, only one phase of power is shown for both utility and instrument power. All hot legs of power enter the trailer through RFI filters. The safety ground switch was open during the tests. The trailer shell was grounded to the experiment tank ground through the signal cable shields.

2.5 Special Hardware

SAI provided special hardware for this program. Some items are listed in Table 2.1. The wideband baluns were fabricated and tested under a JAYCOR purchase order for use by JAYCOR and GE. Three current probes were designed to record data on high static current power buses. These probes are described in Appendix D. The probes were fielded by GE. The wideband amplifiers were assembled to handle low-level signals predicted for some GE and JAYCOR experiments. Data for these amplifiers are given in Appendix E. The multiplex and calibrate control units were installed in the instrumentation vans for general use by all experimenters.

Table 2.1. Special Hardware

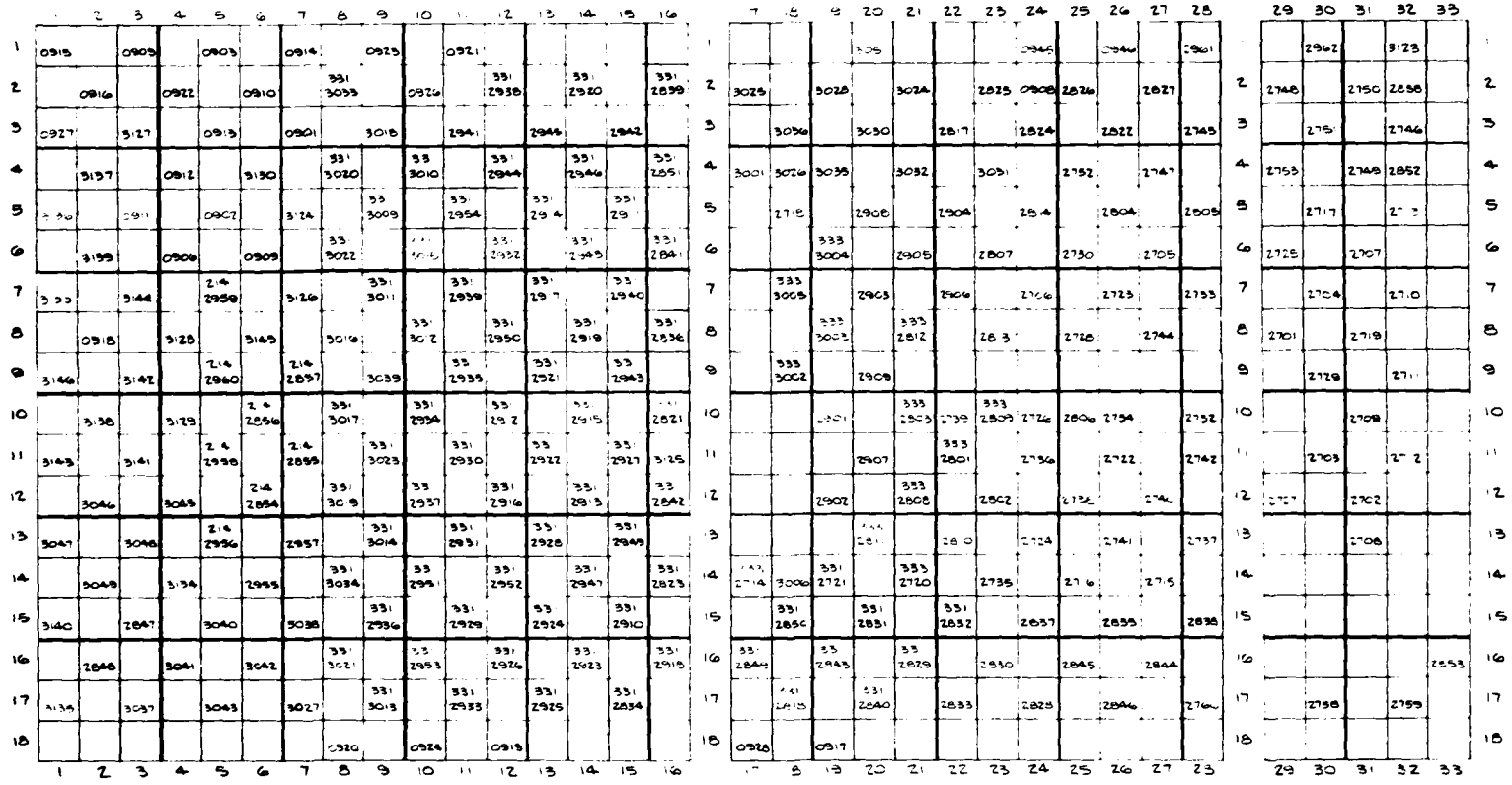
2	Multiplex Control Units
13	Calibrate Control Units
50	Wideband Amplifiers
175	Wideband Baluns
3	Current Probes



For clarity, single phase power is shown.

3-phase power was used for both power distributions.

Figure 2.5. Instrument and Utility Power



LEGEND (EXAMPLE)

331 ← RG CABLE TYPE
2919 ← CABLE NO.

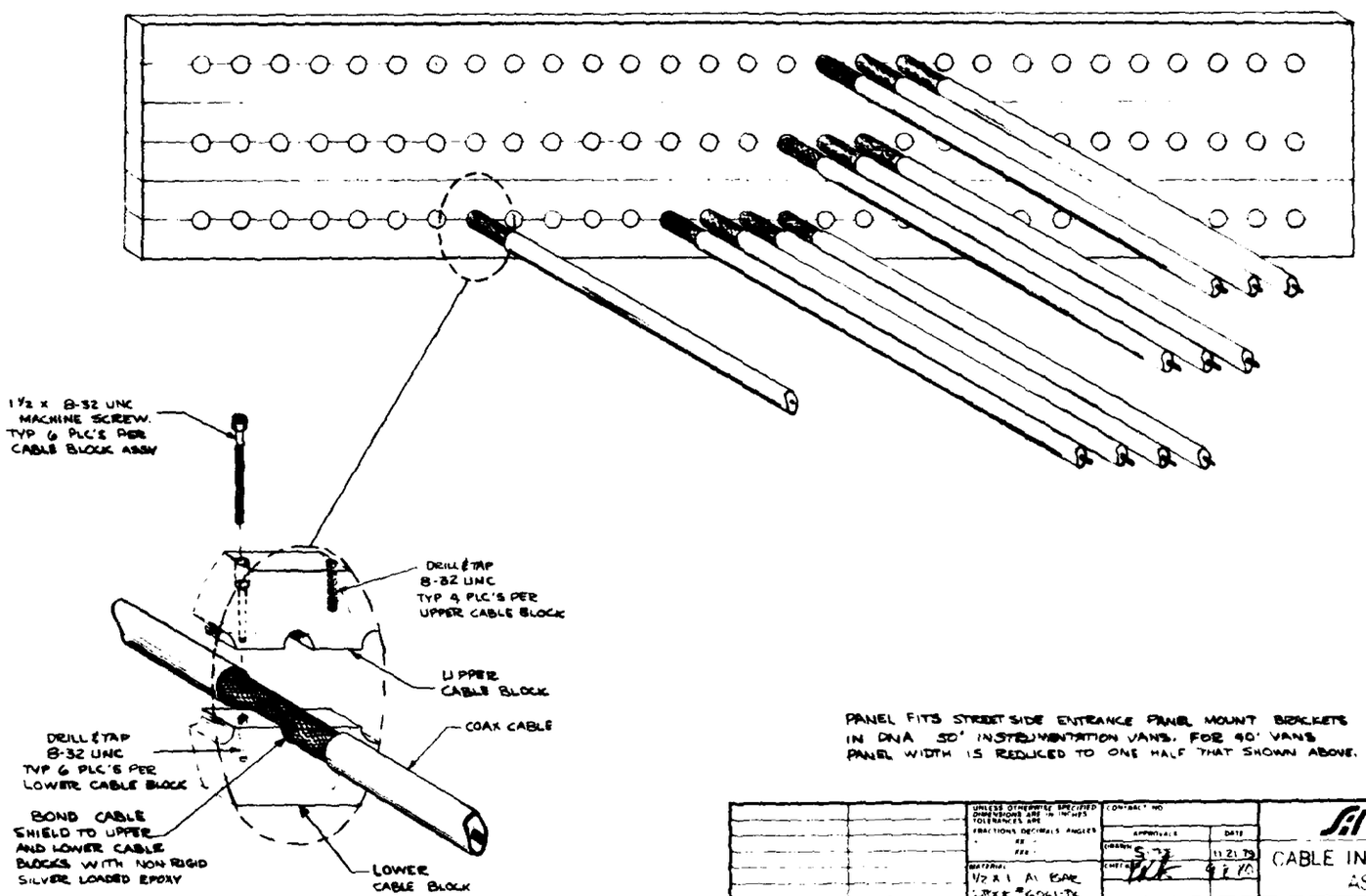
PARTS LIST

SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

CABLE LAYOUT
JAYCOR J-BOX
HURON KING

D LVD-243

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



PANEL FITS STREET SIDE ENTRANCE PANEL MOUNT BRACKETS IN DNA 50' INSTRUMENTATION VANS. FOR 40' VANS PANEL WIDTH IS REDUCED TO ONE HALF THAT SHOWN ABOVE.

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APPLICATION			

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
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MATERIAL 1/2 X 1 Al BAR 6061-T6
FINISH CLEAR IRIDITE
DO NOT SCALE DRAWING

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SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

CABLE INTRUSION PANEL ASSEMBLY

SIZE C | CODE IDENT NO | DRAWING NO LVC 452

SCALE ~1/2 | SHEET 1 OF 1

3.0 SYSTEM CALIBRATION

All recording channels and instruments were calibrated to ensure proper operation and characterization. The following are system calibrations that were performed.

3.1 Pulse Calibration

All oscilloscopes and 7912 digitizers were pulse calibrated by injecting a step pulse of known amplitude into the cables at the experiment J-box and recording it on photographic film or magnetic tape. The measured pulse deflection determines the sensitivity of each scope referenced to the sensor output. An example is shown in Figure 3.1. It shows a baseline plus a step cal.

3.2 DC Calibrations

The purpose of this calibration was to account for unknowns in scope sensitivity and the camera lens reduction ratio. DC calibration was accomplished by applying several measured DC voltages to the input of each scope and recording a sweep at each level. This calibration, in conjunction with known system attenuations, provided a predicted scope sensitivity that was compared to the pulse calibrations. An example is shown in Figure 3.2.

3.3 Common Timing Calibrations

Common timing was accomplished by injecting a common pulse, at the experiment J-box, into all signal cables simultaneously. Three separate runs of the single pulse were photographically recorded on the oscilloscopes, or digitally recorded from the 7912's, and then the marker-to-signal times were read out. These times provided a calibrated marker time reference on the event film. An example is shown in Figure 3.3. The record shows an oscillator trace that provides a calibrated time reference. The data trace contains a fiducial time reference marker pulse near the sweep start and a simulation pulse near the center of the trace.

The Common Timing Pulse Generator also was used as a dryrun pulse simulation system which allowed each channel to be

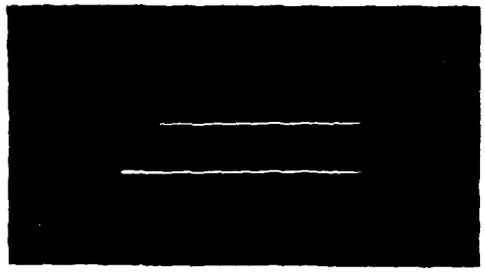


Figure 3.1 Pulse Calibration Record

Figure 3.2 DC Calibration Record

Figure 3.3 Common Timing Calibration Record

checked on a daily basis for proper rise time and pulse shape characteristics.

3.4 Cable Testing

Cable integrity was ensured with the use of a Time Domain Reflectometer (TDR). The TDR allows one to view cable and connector mismatches by the use of pulse reflection techniques.

All signal cables were hi-potted to 2 kV with the exception of the trigger cables which were hi-potted to 8 kV.

The electrical length of all cables was measured using an NTF-41 Cable Measuring Unit.

3.5 Cable Equalization

Cable equalizers were supplied and calibrated, by the DNA contractor (EG&G, Inc.), for the coax signal cables. Equalizer calibration includes the sensor to J-box jumper, RG-331/U and RG-333/U cable, and the internal trailer signal cable. Equalized cable bandwidth is specified from DC to the 3 dB down frequency.

Data supplied by EG&G, Inc., included step response plots and derived impulse plots.

3.6 Tape Recorder Calibration

All FM tape channels were calibrated by applying a DC voltage onto each tape channel at the trailer input. The voltage levels were +2/3 full scale, -2/3 full scale, and a shorted input. The calibration levels were applied automatically onto the shot tape at about two minutes prior to test zero time. The calibration data were played back at the same time that the shot data were reproduced.

All wideband tape channels were calibrated by applying a 100 kHz sine wave of known amplitude into each tape channel and recording it on tape. These data were applied manually, one channel at a time, on a separate tape not associated with the shot tape. The calibration tape and the shot tape data were played back at the same relative time and on the same play-back equipment in order to minimize reproduction errors.

4.0 PRESHOT ACTIVITIES

1 Dec 79	Preliminary system design complete.
1 Dec 79	Started acceptance tests on instrumentation trailers.
4 Jan 80	Fielded Trailer 50028.
14 Jan 80	Fielded remaining five trailers.
31 Jan 80	Dry run system installation complete.
14 Feb 80	Tank pull test conducted.
1 Apr 80	Started T&F dry runs.
10 Apr 80	Started cable equilization.
15 Apr 80	Installed trigger diodes.
27 May 80	Cable equalization complete.
12 Jun 80	MFP
13 Jun 80	Predictions and scope settings complete.
18 Jun 80	Dry run system removed.
22 Jun 80	System calibration complete.
22 Jun 80	Final sensor hookup.
23 Jun 80	Final dry run.
24 Jun 80	Conducted test.

5.0 RESULTS

Good quality data were recorded in all six recording trailers. The usable data results are listed in Table 1.2.

5.1 Instrumentation Problems

There was a small percentage of equipment failures that resulted in some loss of data. The instrumentation problems affecting the shot data are listed in Table 5.1. The equipment failures are summarized in Table 5.2. The wideband amplifiers listed as failed were defective prior to the test. These amplifiers were installed at a late time after the signal simulator was dismantled. As a result, they were not operationally tested in the field and were not found until post shot tests were conducted.

Table 5.1. Instrumentation Problems Affecting Shot Data

Channel or Recording Instrument	Problem	Cause
Scope 123B	Has double sweep	Trigger level set too sensitive. Triggered on noise. Some usable data.
Scope 205C	No oscillator, data trace triggered late.	Time base trigger erratic.
Scope 207B	No trace	Intensity dropped following final dry run.
Scope 212B	Fogged film	Film holder light leak. Scope was positioned near door used for post shot recovery. Data trace is visible under intense back lighting.
Scope 219B	No trace	Time base failure. Plugin had been sent to Bendix for repair on D-1 for same problem.

Table 5.1. continued

Channel or Recording Instrument	Problem	Cause
Scope 320C	No oscillator, data OK	Vertical amplifier drift.
Scope 321D	No oscillator, data OK	Vertical amplifier drift.
Scope 324A	No trace	Time base failure.
Scope 328A	Fogged film	Film holder light leak. Scope was positioned near door used for post shot recovery.
Scope 329B	No trace	Time base failure.
Scope 345B	CRT bloom	Trace readable through bloom. No data loss.
Scope 405C	No trace	Vertical amplifier failed. Trace was positioned off-scale.
Channel 132	No signal	Input and output connectors at WB amplifier were reversed.
Channel 134	No signal	Cable disconnected at output of equalizer as it entered WB amplifier. May have been due to ground shock. WB tape was tee'd off ahead of equalizer and it also has no data.
Channel 304	No signal	Defective WB amplifier.
Channel 306	No signal	Defective WB amplifier.
Channel 308	No signal	Defective WB amplifier.
Channel 324-2	No signal	Defective WB amplifier.
Channel 403	No signal	Defective WB amplifier.
Tape Channel 5-2-7	No signal	Record electronics dead when post test cal was done.

Table 5.2. Equipment Failures

Oscilloscopes	8
7912's	0
WB Tape Channels	2
FM Tape Channels	0
WB Amplifiers	5
Film Overexposure	2

6.0 DATA PROCESSING

All usable photographic shot film data traces were digitized and computer processed to generate magnetic tape and plot outputs in proper engineering units referenced to the sensor output. In addition, the preshot calibration data for each oscilloscope and tape recorder channel was processed in preparation for the shot data processing.

6.1 Digitization

The number of digitized records are listed below in Table 6.1 by agency. The scope shot film traces were digitized using an acousitic digitizer that operates on-line with the SAI-LV NOVA-2 computer system. These data were processed using the EFFE code developed by SAI. Example plots are shown in Figure 6.1.

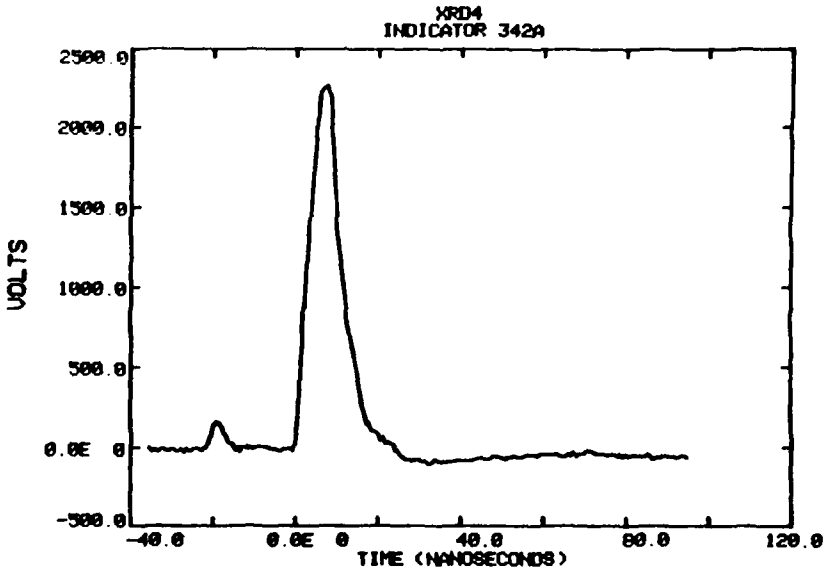
Table 6.1 Data Processing Digitization

AGENCY	GE	JAYCOR	NSA	SAI	TOTAL
Scope Traces	211	127	14	8	360
7912's	5	17	2	---	24
WB Tape*	57	4	1	---	62
TOTAL	273	148	17	8	446

UNFOLDING

55 Records Processed for GE

* Some WB tape and all FM tape data were played back on oscillograph records provided by the DNA Tape Playback Facility.



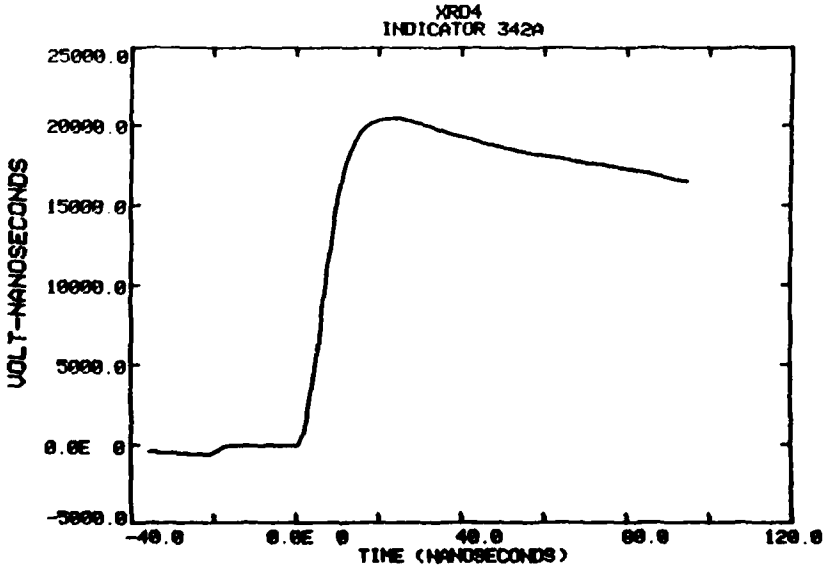


Figure 6.1. Example Digitized Data Plots

The 7912 data were processed with the TDICS and EFFE codes. Seventeen data records were processed with the DNA TDICS computer; while the remaining five were processed on the SAI computer.

The wideband tape data were processed with a new system developed in the SAI Las Vegas laboratory. The system block diagram is shown below in Figure 6.2.

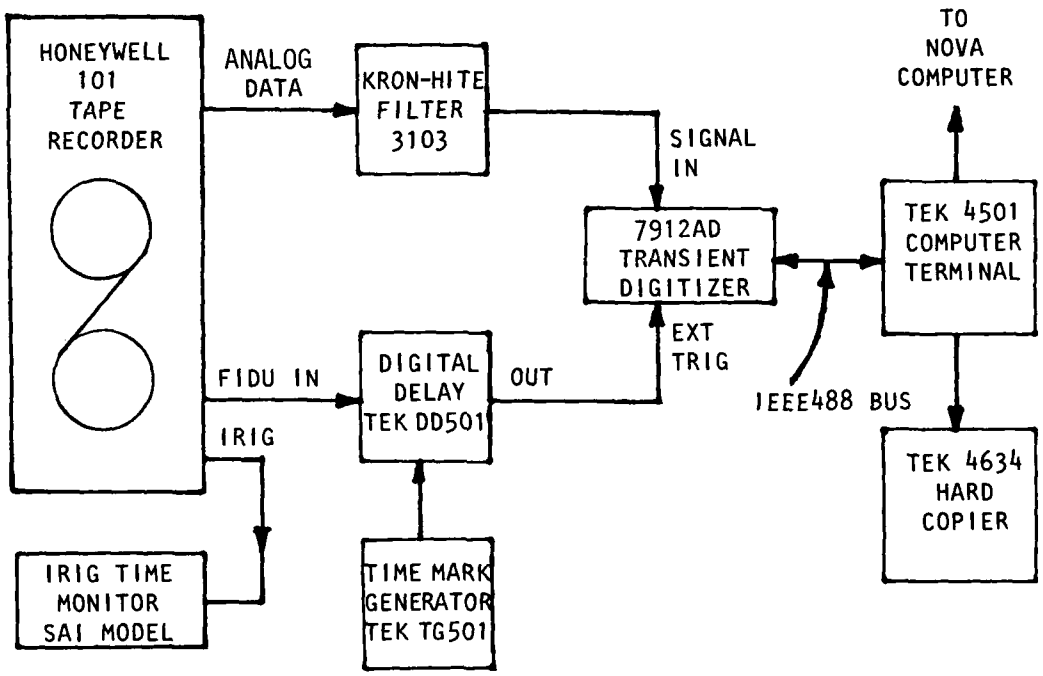


Figure 6.2 Block Diagram, Wideband Tape Data Processing System.

Shot data are played back on a Honeywell 101 wideband tape recorder. The IRIG track is decoded and displayed such that the operator can monitor the time of day relative to the expected data start time. The Fidu signal is used to trigger a 7912AD Transient Digitizer via a digital delay generator. Data are

played back from a single channel at a time through a variable filter into the 7912AD. The 7912AD will digitize 512 points with 9 bits of amplitude resolution. The digitized 7912AD data are processed in the TEK 4051 computer terminal. It will generate plots and/or listings of the data. It also will permanently store data on a cassette tape. Plots and listings may be output to the hard copy unit. The cassette tape stored data may also be transferred to the SAI NOVA-2 computer system for further processing.

The filter is used to limit the data frequency to less than the 7912AD sample rate. The general criteria is to digitize five points per cycle at the maximum frequency. This gives a low-pass filter frequency of 10.24 cycle/div. Examples are given in Table 6.2

Table 6.2 Filter vs. Sample Rate

7912AD Sweep Speed (μs/div)	Low-Pass Filter (kHz)
1	10,200*
2	5,100*
5	2,100
10	1,000
20	510
50	205
100	102
200	51
500	20
1000	10

* Normally limited to recorder bandwidth which is 2 MHz for Sangamo SABRE IV tape recorder and 4 MHz for the Honeywell 9600 tape recorder.

If a longer time recording is required, the 7912AD may be replaced by an SAI Model DP-102 Analog/Digital Processor. Its setup is listed in Table 6.3. The DP-102 digitizes 1024 points with 10 bits of amplitude resolution.

Table 6.3 Filter vs. Sample Rate

DP-102 Sample Window (ms)	Sample Rate per Second	Low-Pass Filter (kHz)
25	40K	8
50	20K	4
100	10K	2
200	5K	1

The system has already proven to be cost effective and is much faster than taking scope photos of the data for analysis as has been done in the past.

6.2 Unfolding

Approximately 55 records were processed to unfold the low frequency response limitations of sensors and other instrumentation. This work was done using the SAI DATA$ code.

Data to be unfolded are first converted from the time domain to the frequency domain. The transfer functions for the frequency limited instrumentation are then folded with the frequency domain data. The folded data resultant then are converted back to the time domain.

6.3 Noise Analysis

The DATA$ code was used to aid in analyzing background noise in approximately 20 data records. The DATA$ code contains a Fast Fourier Transformation (FFT) program which generates

frequency distribution plots. The noise power distribution indicates signatures that are characteristic of the recording system background spectrum.

7.0 CONCLUSION AND RECOMMENDATIONS

The Huron King test was successfully fielded on schedule and good quality data were recorded. There was a high percentage data return with less than a two percent data loss.

SAI functioned as an integration support contractor that recorded and processed data for all DNA sponsored experiments with exception of the output diagnostics experiment that was fielded by LPARL. SAI worked directly with DNA, GE, JAYCOR and NSA to ensure that each experimenter's requirements were met.

SAI implemented a computerized management system that maintained up-to-date records of equipment and cable assignments for each sensor. In addition, system checklists were computerized as has been done on previous test programs. These methods of data and equipment management proved to be cost effective and allowed all program milestones to be met on schedule.

During the last month of the fielding effort there were a large number of activities to be conducted which caused the schedule to be very tight; in particular the experimenter predictions were finalized during this period which resulted in major instrumentation system modifications that were necessary to accommodate the data recording requirements. This also resulted in some compromises because of the type of equipment that was assigned to each sensor. In particular, many predictions showed much lower frequency response requirements than were available with the wideband amplifiers that were procured for the program.

Many of these problems can be alleviated or reduced significantly on future programs. In particular, we recommend that the instrumentation support organization (in this case, SAI) be involved with the experimenters during the test planning phase. In this way the instrumentation engineers can be more aware of the recording system requirements and offer suggestions to the planners as to the most effective method to measure certain data as well as select equipment that is known to be available in the DNA or supporting organizations' equipment pool.

APPENDIX A

OSCILLOSCOPE AND TAPE CHANNEL ASSIGNMENTS

OSCILLOSCOPE AND TAPE CHANNEL ASSIGNMENTS

EVENT: HURON KING
AGENCIES: GE, JAYCOR, NSA AND SAI

FINAL REPORT

THE FOLLOWING LIST GIVES THE EQUIPMENT ALLOCATIONS FOR EACH RECORDING CHANNEL. THE CHANNELS ARE LISTED SEQUENTIALLY BY SENSOR NUMBER. SENSORS 1 THROUGH 546 (GE, NSA, JAYCOR) ARE THOSE LISTED ON THE GE STARSAT SENSOR MATRIX. IN ADDITION, SENSOR NUMBERS ENDING IN LF ARE LOW FREQUENCY PORTIONS OF THE MAIN SENSOR. FOR EXAMPLE: 101LF IS THE SINGLE ENDED LOW FREQUENCY PORTION OF 101. 101 AND 101LF ARE TRANSMITTED ON SEPARATE CABLES TO THE RECORDING VAN.
EAGE01 THROUGH EAGE50 ARE ARBITRARY NUMBERS ASSIGNED TO THE GE EAGE MEASUREMENTS. THE GAMMA AND XRD SENSORS ARE SAI MEASUREMENTS. THE DATA LISTED ARE DESCRIBED AS FOLLOWS:

SCOPE/TYPE

THIS IS A LISTING GIVING THE SCOPE NUMBER AND THE SCOPE TYPE. THE FIRST DIGIT GIVES THE TRAILER NUMBER THAT THE SCOPE IS LOCATED IN. THE NEXT TWO DIGITS INDICATE THE SCOPE CHANNEL NUMBER. THE ALPHA CHARACTER FOLLOWING THE CHANNEL NUMBER INDICATES WHICH SCOPE IT IS WITHIN THE CHANNEL. A 1 OR 2 FOLLOWING THE ALPHA CHARACTER INDICATES WHICH TRACE THE DATA ARE DISPLAYED ON.

EXAMPLE:	SENSOR	SCOPE/TYPE	SCOPE/TYPE
	12	122A1/7903	122B1/183

= TRAILER 1, CHANNEL 22, SCOPE A, SWEEP 1, TYPE 7903 SCOPE.
= TRAILER 1, CHANNEL 22, SCOPE B, SWEEP 1, TYPE 183 SCOPE.

WB TAPE

THE WIDEBAND TAPE CHANNELS ARE IDENTIFIED BY TRAILER NUMBER, TAPE RECORDER NUMBER AND TRACK NUMBER.

EXAMPLE:	SENSOR	WB TAPE
	161	6-2-11

= TRAILER 6, TAPE RECORDER 2, TRACK 11.

THE 7912 DIGITAL DATA TRACKS ARE INDICATED BY A "D" FOLLOWING THE TAPE TRACK(EG: 1-1-4D).

FM TAPE

LOW FREQUENCY DATA ARE FM MULTIPLEXED ONTO 10 CHANNEL PER TRACK TAPE. THE FM TAPE CHANNELS ARE IDENTIFIED BY TRAILER NUMBER, TAPE MACHINE NUMBER, TRACK NUMBER AND CHANNEL NUMBER.

EXAMPLE:	SENSOR	FM TAPE
	EAGE08	5-3-11-8

= TRAILER 5, TAPE RECORDER 3, TRACK 11, CHANNEL 8.

DATE: 12/10/80

SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
B2	243A/519	243B/519				
B3	244A/519	244B/519				
B4	344A/180					
CI1	246A/7912	246B/180				
CI3	343A/180	343B/519				
CLK						5-3-3-7
DATA						5-3-3-5
EAGE01						5-3-11-1
EAGE02						5-3-11-2
EAGE03						5-3-11-3
EAGE04						5-3-11-4
EAGE05						5-3-11-5
EAGE06						5-3-11-6
EAGE07						5-3-11-7
EAGE08						5-3-11-8
EAGE09						5-3-11-9
EAGE10						5-3-11-10
EAGE11						5-3-12-1
EAGE12						5-3-12-2
EAGE13						5-3-12-3
EAGE14						5-3-12-4
EAGE15						5-3-12-5
EAGE16						5-3-12-6
EAGE17						5-3-12-7
EAGE18						5-3-12-8
EAGE19						5-3-12-9
EAGE20						5-3-12-10
EAGE21						5-3-13-1
EAGE22						5-3-13-2
EAGE23						5-3-13-3
EAGE24						5-3-13-4
EAGE25						5-3-13-5
EAGE26						5-3-13-6
EAGE27						5-3-13-7
EAGE28						5-3-13-8
EAGE29						5-3-13-9
EAGE30						5-3-13-10
EAGE31						5-4-10-1
EAGE32						5-4-10-2
EAGE33						5-4-10-3
EAGE34						5-4-10-4
EAGE35						5-4-10-5
EAGE36						5-4-10-6
EAGE37						5-4-10-7
EAGE38						5-4-10-8
EAGE39						5-4-10-9
EAGE40						5-4-10-10
EAGE41						5-4-11-1
EAGE42						5-4-11-2
EAGE43						5-4-11-3

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SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
EAGE44						5-4-11-4
EAGE45						5-4-11-5
EAGE46						5-4-11-6
EAGE47						5-4-11-7
EAGE48						5-4-11-8
FIDU2						2-1-14-2
FIDU3						3-1-14-2
FIDU4						4-1-14-2
FIDU5A						5(1/2)14-2
FIDU5B						5(3/4)14-2
FIDU6						6(1/2)14-2
GAMMA	438A/519	438B/519				
IRIG1					1-1-14	
IRIG2						2-1-14-3
IRIG3						3-1-14-3
IRIG4						4-1-14-3
IRIG5A						5(1/2)14-3
IRIG5B						5(3/4)14-4
IRIG6						6(1/2)14-3
NSACLK					5-2-13	
NSA/T&F						5(1/2)14-10
SFIDU						5(3/4)14-3
SPARE01						5-3-2-10
SPARE02						5-3-3-4
SPARE03						5-3-3-5
SPARE04						5-3-3-6
SPARE05					6-1-1	
SPARE11						5-4-4-7
SPARE12						5-4-4-8
SPARE13						5-4-4-9
SPARE14						5-4-4-10
SPARE15						5-4-8-2
SPARE16						5-4-9-4
SPARE17					2-1-4	
SPARE18						6(1/2)14-4
SPARE19						5-4-13-6
SPARE20						5-4-13-7
SPARE21						5-4-13-8
SPARE22						5-4-13-10
SPARE24						5-3-3-7
SPARE25						5-3-3-8
SPARE26					2-1-6	
SPARE27					5-1-1	5-4-8-3
SPARE30	245A/519	245B/519				
SPARE31					4-1-10	4-1-14-6
SPARE32					4-1-11	4-1-14-7
SPARE33					4-1-12	4-1-14-8
SPARE34					2-1-8	
SPARE46					6-1-4	
SPARE47						5-4-8-1

DATE: 12/10/80

SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
SPARE48					2-1-7	
SPARE49					6-1-5	
SPARE50					4-1-2	
SYNC						5-3-3-6
TPMN1-1					1-1-10	
TPMN2-1					2-1-1	
TPMN3-1					3-1-13	
TPMN4-1					4-1-8	
TPMN5-1					5-1-11	
TPMN5-2					5-2-11	
TPMN5-3					5-3-5	
TPMN5-4					5-4-12	
TPMN6-1					6-1-6	
XRD1	137A/647A	240A/519				
XRD2	138A/647A	241A/519				
XRD3	341A/519	430A/519				
XRD4	342A/519	431A/519				
1	304A/519	304B/7844				
2	121A2/183	121B2/183				
3	126A1/183	126B1/183				
4		301B/7844				
5A	123A2/183	123B2/183				
6	306A/519	306B/7844				
7		402B/7903	402C/180			
8	108A/7912	108B1/183	108C1/183		1-1-4D	
9		309B/7844				
10		209B/7844	209C/7903			
12		302B/7844				
13	123A1/183	123B1/183				
14	124A1/183	124B1/183				
15	125A1/183	125B1/183				
16		303B/7844				
17	121A1/183	121B1/183				
18	122A2/183	122B2/183				
19	122A1/183	122B1/183				
21		307B/7844				
23	105A/7912	105B1/183	105C1/183		1-1-3D	
24	104A/7912	104B/7903	104C/7903		1-1-2D	
26A		203B/7844	203C/7903			
27		113B2/183	113C2/183			
28	126A2/183	126B2/183				
29	109A/7912	109B1/183	109C1/183		1-1-5D	
30	114A/7912				1-1-7D	
31R	212A1/183	212B1/183				
32R	212A2/183	212B2/183				
35	120A1/183	120B1/183				
36	115A/7912				1-1-8D	
37	110A/7912	110B1/183	110C1/183		1-1-5D	
38	102A/7912	102B/7903	102C/7903		1-1-1D	
40		204B/7844	204C/7903			

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SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
41		205B/7844	205C/7903			
42		206B/7844	206C/7903	206D/7903		
43		401B/180	401C/7903	401D/7903		
44	124A2/183	124B2/183				
45	107A/7912	107B1/183	107C1/183	107D/7844	1-1-4D	
46	439A/7903	439B/7903				
47	426A/7903	426B/180				
48		105B2/183	105C2/183			
49	106A/7912	106B1/183	106C1/183	106D/7844	1-1-3D	
50		207B/7844	207C/7903			
51	111A/7912	111B1/183	111C1/183		1-1-6D	
53	210A/519	210B/7844				
54	101A/7912	101B/7903	101C/7903		1-1-1D	
55	403A/519	403B/180				
57		201B/7844	201C/7903			
57A	128A/7844	128B/647A				
58A		310B/7844				
59	308A/519	308B/7844				
60	211A2/183	211B2/183				
61	103A/7912	103B/7903	103C/7903		1-1-2D	
62		111B2/183	111C2/183			
63		112B2/183	112C2/183			
65	125A2/183	125B2/183				
68		404B/180	404C/7903			
69		108B2/183	108C2/183			
74		109B2/183	109C2/183			
75	112A/7912	112B1/183	112C1/183		1-1-6D	
76	345A/519	345B/519				
77	346A/519	346B/519				
78	113A/7912	113B1/183	113C1/183		1-1-7D	
81	211A1/183	211B1/183				
82		208B/7844	208C/7903			
83		106B2/183	106C2/183			
84		107B2/183	107C2/183			
85		405B/7903	405C/180	405D/180		
86	118A/7704	118B/7844			1-1-9D	
87	116A/7912	116B/7844			1-1-8D	
88	117A/7912	117B/7844			1-1-9D	
89	127A/7844	127B/647A				
90	129A/7844	129B/647A				
90A		305B/180				
91-1	130A/7844	130B/647A				
91-2	130A/7844	130B/647A				
92-1	131A/7844	131B/647A				
92-2	131A/7844	131B/647A				
93	213A2/183	213B2/183			2-1-5	
94-1	432A/7903					
94-2	432A/7903					
95B	213A1/183	213B1/183				
95C	132A/7903	132B/7844				

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SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
96		202B/7844	202C/7903			
96C					6-1-2	
96D	135A/647A				1-1-11&12	
96E						5-4-2-10
96G	213A1/183	213B1/183				
96J	119A/7704	119B/7844				
101	134A/647A	134B/647A	134C/546	134D/546	1-1-13	
101A	221A/180	221B/180	221C/546	221D/546		
101LF						5-4-13-4
102	222A/180	222B/180	222C/546	222D/546	2-1-2	
102LF						5-4-13-5
103	326A/180	326B/180	326C/546	326D/546	3-1-1	
104	327A/180	327B/180	327C/546	327D/546	3-1-2	
104A	321A2/183	321B2/183	321C/180	321D/647A		
105	322A1/183	322B1/183	322C/180			
107	328A/180	328B/180	328C/546		3-1-3	
108	424A/7903	424B/180	424C/180	424D/546		
109	329A/180	329B/180	329C/546	329D/546	3-1-4	
109LF						5-4-13-9
110	415A/7903	415B/180	415C/546		4-1-2	
110A	420A/180	420B/546	601A/546	601B/546		
110B	421A/180	421B/546	421C/180			
110C	422A/180	422B/546	602A/546	602B/546		
111	416A/7903	416B/180	416C/546	618A/546		
112	225A/180					
112A	410A/183	410B/183	410C/180			
112B	411A2/183	411B2/183				
112C	414A1/183	414B1/183				
112D	337A/180					
112E	220A1/183	220B1/183				
113	226A/180					
113A	217A2/183	217B2/183				
113B	406A1/183	406B1/183				
113C	408A1/183	408B1/183				
122						5-4-5-8
122A	228A/180					
122B	229A/180					
122C	224A/180	603A/546	603B/546		6-2-3	
122D	437A/180	617A/546				
123						5-4-6-2
123A	230A/180					
124					3-1-12	3-1-14-4
125	218A/183	218B/183	218C/7912	218D/7912		
125A	219A2/183	219B2/183				
125B	434A/180	608A/546				
126	324A1/183	324B1/183	324C/180			
127	248A/7912	248B/7912	248C/180			
127A	435A/180	609A/546				
128	219A1/183	219B1/183	219C/7912			
128A	220A2/183	220B2/183				

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SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
129	311A1/183	311B1/183				
130	312A1/183	312B1/183				
131	323A2/183	323B2/183	323C/180			
131A	231A/180					
131B	436A/180	610A/546				
132	216A2/183	216B2/183				
132A	232A/180					
132B	236A/180					
132C	237A/180	607A/546				
133	425A/180	425B/180	425C/180	425D/180		
134	233A/180					
134A						5-4-5-10
134B						5-4-5-9
135	418A/7903	418B/180	418C/546		4-1-5	
136	419A/7903	419B/180	419C/546		4-1-6	
136A						5-4-2-9
137	611A/546				6-1-7	
138	612A/546				6-1-8	
139	234A/180					
140	235A/180					
141	313A1/183	313B1/183				
141C						
142	314A2/183	314B2/183				
147					4-1-9	
148					2-1-9	
149					5-1-12	
150					6-2-4	
151					6-2-5	
152	223A/180	223B/180			2-1-3	
153	433A/7903	616A/546			6-1-11	
154					6-1-3	
155					6-2-7	
156					6-2-8	
157	417A/7903		417C/546		4-1-13	
158					6-2-9	
159					6-2-10	
160	242A/180	604A/546	604B/546		6-1-13	
161					6-2-11	
162					6-2-12	
163					2-1-13	
164					6-2-13	
165					4-1-1	
166					4-1-3	
167					4-1-4	
168					5-1-13	
169					3-1-5	
170	613A/546				6-1-9	
171					3-1-6	
172					3-1-7	
173					3-1-8	

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SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
174					3-1-9	
175					3-1-10	
176	614A/546				6-1-12	
177	605A/546				6-2-2	
178					2-1-10	
179	615A/546				6-2-1	
180					2-1-11	
181					2-1-12	
185	315A2/183	315B2/183				
186	316A2/183	316B2/183				
187	429A/180					
190	317A1/183	317B1/183				
190C						
191	318A2/183	318B2/183				
194						5-3-1-1
195						5-3-1-2
196						5-3-1-3
197						5-3-1-4
198						5-3-1-5
199						5-3-1-6
200						5-3-1-7
201						5-3-1-8
202						5-3-1-9
203						5-3-1-10
204						5-3-2-1
205						5-3-2-2
206						5-3-2-3
207						5-3-2-4
208						5-3-2-5
209						5-3-2-6
210						5-3-3-1
211						5-3-3-2
212						5-3-3-3
213						5-3-4-7
214						5-3-4-8
215						5-3-4-9
216						5-3-4-10
219						5-3-3-9
220						5-3-3-10
221						5-3-4-1
222						5-3-4-2
223						5-3-4-3
224						5-3-4-4
225						5-3-4-5
226						5-3-4-6
227						5-4-3-1
228						5-4-3-2
229						5-4-3-5
230						5-4-3-6
231						5-4-3-9

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SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
232						5-4-3-10
233						5-4-4-3
234						5-4-4-4
235						5-3-2-7
236						5-3-2-8
237						5-3-2-9
256						5-4-3-3
256A						5-4-3-4
257						5-4-3-7
257A						5-4-3-8
258						5-4-4-1
258A						5-4-4-2
259						5-4-4-5
259A						5-4-4-6
260	319A1/183	319B1/183				
261	239A/180					
262	136A/647A					
263	320A1/183	320B1/183				
264	325A1/183	325B1/183				
265	311A2/183	311B2/183				
266	312A2/183	312B2/183				
267	313A2/183	313B2/183				
270	423A/180	423B/180	423C/546		4-1-7	
272	317A2/183	317B2/183				
273	318A1/183	318B1/183				
274	319A2/183	319B2/183	619A/546			
275	770A/180					
276	320A2/183	320B2/183	320C/546			
277	331A/180					
282	325A2/183	325B2/183				
283	332A/180					
289						5-3-7-1
290						5-3-7-2
291						5-3-7-3
292						5-3-7-4
293						5-3-7-5
294						5-3-7-6
295						5-3-7-7
296						5-3-7-8
297						5-3-7-9
298						5-3-7-10
299						5-3-8-1
300						5-3-8-2
301						5-3-8-3
302						5-3-8-4
303						5-3-8-5
304						5-3-8-6
305						5-3-8-7
306						5-3-8-8
307						5-3-8-9

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SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
308						5-3-8-10
309						5-3-9-1
310						5-3-9-2
311						5-3-9-3
312						5-3-9-4
313						5-3-9-5
314						5-3-9-6
315						5-3-9-7
316						5-3-9-8
317						5-3-9-9
318						5-3-9-10
319						5-3-10-1
320						5-3-10-2
321						5-3-10-3
322						5-3-10-4
323						5-3-10-5
324						5-3-10-6
325						5-3-10-7
326						5-3-10-8
327						5-3-10-9
328						5-3-10-10
329						5-4-1-1
330						5-4-1-2
331						5-4-1-3
332						5-4-1-4
333						5-4-1-5
334						5-4-1-6
335						5-4-1-7
336						5-4-1-8
337						5-4-1-9
338						5-4-1-10
339					5-2-1	5-3-6-1
340					5-2-2	5-3-6-2
341					5-2-3	5-3-6-3
342					5-2-4	5-3-6-4
343					5-2-5	5-3-6-5
344					5-2-6	5-3-6-6
345					5-2-7	5-3-6-7
346					5-2-8	5-3-6-8
347					5-2-9	5-3-6-9
348					5-2-10	5-3-6-10
353						5-4-2-1
354						5-4-2-2
355						5-4-2-3
356						5-4-2-4
357						5-4-2-5
358						5-4-2-6
359						5-4-6-1
360	321A1/183	321B1/183				
361	322A2/183	322B2/183				

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SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
363	333A/180					
366						5-4-5-1
367						5-4-5-2
368						5-4-5-3
369						5-4-5-4
370	324A2/183	324B2/183				
371	406A2/183	406B2/183				
372	407A2/183	407B2/183				
373	408A2/183	408B2/183				
374	334A/180					
375						5-4-2-7
376						5-4-2-8
380	409A2/183	409B2/183				
383	335A/180					
384	412A2/183	412B2/183				
385						5-4-5-5
386	413A1/183	413B1/183				
389	336A/180					
392						5-4-5-7
394						5-4-6-4
395						5-4-6-3
396						5-4-5-6
397						5-4-6-6
398						5-4-6-10
399						5-4-6-8&
406						5-4-6-5
407	606A/546	606B/546			6-1-10	
409						5-4-6-7
410	407A1/183	407B1/183				
411	428A/180					
411A	412A1/183	412B1/183				
411B	427A/180					
411C	315A1/183	315B1/183				
411D	340A/7044					
415						5-4-8-5
416						5-4-8-6
417						5-4-8-7
418						5-4-8-8
419						5-4-8-9
422						5-4-7-1
423						5-4-7-2
424						5-4-7-3
425						5-4-7-4
426						5-4-7-5
427						5-4-7-6
434						5-4-8-10
435						5-4-9-1
436						5-4-9-2
437						5-4-9-3
438						5-4-7-7

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SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
439						5-4-7-8
440						5-4-7-9
441						5-4-7-10
444	238A/180					
445	409A1/183	409B1/183				
446	227A/180					
447	217A1/183	217B1/183				
448	314A1/183	314B1/183				
449	316A1/183	316B1/183				
450	411A1/183	411B1/183				
451	339A/180					
452	323A1/183	323B1/183				
458	414A2/183	414B2/183				
459	413A2/183	413B2/183				
501	120A2/183	120B2/183				
502		110B2/183	110C2/133			
503						5(3/4)14-5
507						5(3/4)14-6
509						5(3/4)14-7
510						5(3/4)14-8
511						5(3/4)14-9
512					5-1-2	5(3/4)14-10
514						5-4-8-4
515						5-4-9-5
516						5-4-9-6
517						5-4-9-7
518						5-4-9-8
519						5-4-11-9
520						5-4-11-10
521						5(1/2)14-4
522						5(1/2)14-5
523						5(1/2)14-6
524						5(1/2)14-7
525						5(1/2)14-8
526	214A1/183	214B1/183				
527	215A1/183	215B1/183				
530					5-1-3	5-4-13-1
531					5-1-4	5-4-13-2
532	214A2/183	214B2/183				
533	215A2/183	215B2/183				
534					5-1-5	
535					5-1-6	
536					5-1-7	
537					5-1-8	
538					5-1-9	
543	216A1/183	216B1/183				
544	249A/7912	249B/7912				
545					5-1-10	
547						5-4-9-9
548						5-4-9-10

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SENSOR #	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	SCOPE/TYPE	WB TAPE	FM TAPE
549					5-2-12	5-4-13-2
550						5(1/2)14-9

APPENDIX B

RECORDING SYSTEM CROSS INDEX

THIS APPENDIX INCLUDES A COMPUTERIZED CROSS INDEX THAT MAY BE USED IN CONJUNCTION WITH THE DIAGRAMS IN APPENDIX C. THE CROSS INDEX IS LISTED THREE WAYS: (1) SEQUENTIALLY BY SENSOR NUMBER, (2) SEQUENTIALLY BY SAI CHANNEL NUMBER (PRIMARY NUMBER USED ON ONE-LINE DIAGRAMS), AND (3) BY CABLE NUMBER. THE LISTINGS ALSO INCLUDE THE ASSIGNED TRAILER NUMBER AND THE EQUALIZER ATTENUATION FOR EACH OSCILLOSCOPE CHANNEL.

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
B2	243	4	2728/RG-333/1000FT	10
B3	244	4	2750/RG-331/1000FT	10
B4	344	3	SAI2/RG-214/50FT	--
BIT00	J1202IN	5	3103-16/20TSP/1000FT	--
BIT01	J1202IN	5	3103-15/20TSP/1000FT	--
BIT02	J1202IN	5	3103-14/20TSP/1000FT	--
BIT03	J1202IN	5	3103-13/20TSP/1000FT	--
BIT04	J1202IN	5	3103-12/20TSP/1000FT	--
BIT05	J1202IN	5	3103-11/20TSP/1000FT	--
BIT06	J1202IN	5	3103-10/20TSP/1000FT	--
BIT07	J1202IN	5	3103-09/20TSP/1000FT	--
BIT08	J1202IN	5	3103-08/20TSP/1000FT	--
BIT09	J1202IN	5	3103-07/20TSP/1000FT	--
BIT10	J1202IN	5	3103-06/20TSP/1000FT	--
BIT11	J1202IN	5	3103-05/20TSP/1000FT	--
BIT12	J1202IN	5	3103-04/20TSP/1000FT	--
BIT13	J1202IN	5	3103-03/20TSP/1000FT	--
BIT14	J1202IN	5	3103-02/20TSP/1000FT	--
BIT15	J1202IN	5	3103-01/20TSP/1000FT	--
CI1	246	4	RG-331/1000FT	10SW
CI3	343	3	SAI1/RG-214/500FT	10SW
CLK	5-3-03-07	5	J1203(MM,NN)EAGE	--
CLKIN	J1202IN	5	3103-18/20TSP/1000FT	--
DATA	5-3-03-05	5	J1203(HH,PP)EAGE	--
EAGE01	5-3-11-01	5	3118-01/20TSP/1000FT	--
EAGE02	5-3-11-02	5	3118-02/20TSP/1000FT	--
EAGE03	5-3-11-03	5	3118-03/20TSP/1000FT	--
EAGE04	5-3-11-04	5	3118-04/20TSP/1000FT	--
EAGE05	5-3-11-05	5	3118-05/20TSP/1000FT	--
EAGE06	5-3-11-06	5	3118-06/20TSP/1000FT	--
EAGE07	5-3-11-07	5	3118-07/20TSP/1000FT	--
EAGE08	5-3-11-08	5	3118-08/20TSP/1000FT	--
EAGE09	5-3-11-09	5	3118-09/20TSP/1000FT	--
EAGE10	5-3-11-10	5	3118-10/20TSP/1000FT	--
EAGE11	5-3-12-01	5	3118-11/20TSP/1000FT	--
EAGE12	5-3-12-02	5	3118-12/20TSP/1000FT	--
EAGE13	5-3-12-03	5	3118-13/20TSP/1000FT	--
EAGE14	5-3-12-04	5	3118-14/20TSP/1000FT	--
EAGE15	5-3-12-05	5	3118-15/20TSP/1000FT	--
EAGE16	5-3-12-06	5	3118-16/20TSP/1000FT	--
EAGE17	5-3-12-07	5	3118-17/20TSP/1000FT	--
EAGE18	5-3-12-08	5	3118-18/20TSP/1000FT	--
EAGE19	5-3-12-09	5	3118-19/20TSP/1000FT	--
EAGE20	5-3-12-10	5	3118-20/20TSP/1000FT	--
EAGE21	5-3-13-01	5	3117-01/20TSP/1000FT	--
EAGE22	5-3-13-02	5	3117-02/20TSP/1000FT	--
EAGE23	5-3-13-03	5	3117-03/20TSP/1000FT	--
EAGE24	5-3-13-04	5	3117-04/20TSP/1000FT	--
EAGE25	5-3-13-05	5	3117-05/20TSP/1000FT	--
EAGE26	5-3-13-06	5	3117-06/20TSP/1000FT	--

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
EAGE27	5-3-13-07	5	3117-07/20TSP/1000FT	--
EAGE28	5-3-13-08	5	3117-08/20TSP/1000FT	--
EAGE29	5-3-13-09	5	3117-09/20TSP/1000FT	--
EAGE30	5-3-13-10	5	3117-10/20TSP/1000FT	--
EAGE31	5-4-10-01	5	3117-11/20TSP/1000FT	--
EAGE32	5-4-10-02	5	3117-12/20TSP/1000FT	--
EAGE33	5-4-10-03	5	3117-13/20TSP/1000FT	--
EAGE34	5-4-10-04	5	3116-17/20TSP/1000FT	--
EAGE35	5-4-10-05	5	J1004(J,<I>)EAGE	--
EAGE36	5-4-10-06	5	J1004(K,L)EAGE	--
EAGE37	5-4-10-07	5	J1004(M,N)EAGE	--
EAGE38	5-4-10-08	5	J1004(P,R)EAGE	--
EAGE39	5-4-10-09	5	TB401-09,10EAGE	--
EAGE40	5-4-10-10	5	TB401-11,12EAGE	--
EAGE41	5-4-11-01	5	TB402-01,02EAGE	--
EAGE42	5-4-11-02	5	TB402-04,05EAGE	--
EAGE43	5-4-11-03	5	TB405-09,10EAGE	--
EAGE44	5-4-11-04	5	TB406-04,05EAGE	--
EAGE45	5-4-11-05	5	TB406-09,10EAGE	--
EAGE46	5-4-11-06	5	TB406-11,12EAGE	--
EAGE47	5-4-11-07	5		--
EAGE48	5-4-11-08	5		--
FIDU2	2-1-14-02	2		--
FIDU3	3-1-14-02	3		--
FIDU4	4-1-14-02	4		--
FIDU5A	5(1/2)14-02	5		--
FIDU5B	5(3/4)14-02	5		--
FIDU6	6(1/2)14-02	6		--
GAMMA	438	4	3044/RG-214/1000FT	10SW
GAMMAHV	438	4	3050/RG-213/1000FT	--
GAMMATG		6	3029/RG-331/1000FT	--
IRIG1	1-1-14	1		--
IRIG2	2-1-14-03	2		--
IRIG3	3-1-14-03	3		--
IRIG4	4-1-14-03	4		--
IRIG5A	5(1/2)14-03	5		--
IRIG5B	5(3/4)14-04	5		--
IRIG6	6(1/2)14-03	6		--
NSA/T&F	5(1/2)14-10	5	MINUS2S,PLUS1.5S	--
NSACLK	5-2-13	5		--
SFIDU	5(3/4)14-03	5		--
SPARE	5-4-12-01	5		--
SPARE	5-4-12-02	5		--
SPARE	5-4-12-03	5		--
SPARE	5-4-12-04	5		--
SPARE	5-4-12-05	5		--
SPARE	5-4-12-06	5		--
SPARE	5-4-12-07	5		--
SPARE	5-4-12-08	5		--
SPARE	5-4-12-09	5		--

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
SPARE	5-4-12-10	5		--
SPARE	5-4-13-03	5		--
SPARE01	5-3-02-10	5	3101-20/20TSP/1000FT	--
SPARE02	5-3-03-04	5	3102-04/20TSP/1000FT	--
SPARE03	5-3-03-05	5	3102-05/20TSP/1000FT	--
SPARE04	5-3-03-06	5	3102-06/20TSP/1000FT	--
SPARE05	6-1-01	6	0902/RG-214/1000FT	--
SPARE11	5-4-04-07	5	3107-17/20TSP/1000FT	--
SPARE12	5-4-04-08	5	3107-18/20TSP/1000FT	--
SPARE13	5-4-04-09	5	3107-19/20TSP/1000FT	--
SPARE14	5-4-04-10	5	3107-20/20TSP/1000FT	--
SPARE15	5-4-08-02	5	3109-18/20TSP/1000FT	--
SPARE16	5-4-09-04	5	3110-15/20TSP/1000FT	--
SPARE17	2-1-04	2		--
SPARE19	5-4-13-06	5		--
SPARE20	5-4-13-07	5		--
SPARE21	5-4-13-08	5		--
SPARE22	5-4-13-10	5		--
SPARE24	5-3-03-07	5	3102-07/20TSP/1000FT	--
SPARE25	5-3-03-08	5	3102-08/20TSP/1000FT	--
SPARE26	2-1-06	2		--
SPARE27	5-1-1	5		--
SPARE30	245	4		--
SPARE31	4-1-10	4		--
SPARE32	4-1-11	4		--
SPARE33	4-1-12	4	3048/RG-214/1000FT	--
SPARE46	6-1-04	6	0917/RG-214/1000FT	--
SPARE47	5-4-08-01	5	3109-17/20TSP/1000FT	--
SPARE48	2-1-07	2		--
SPARE49	6-1-05	6		--
SPARE50	4-1-02	4		--
SYNC	5-3-03-06	5	J1203(LL,BB)EAGE	--
SYNCIN	J1202IN	5	3103-17/20TSP/1000FT	--
TPMN1-1	1-1-10	1		--
TPMN2-1	2-1-01	2		--
TPMN3-1	3-1-13	3		--
TPMN4-1	4-1-08	4		--
TPMN5-1	5-1-11	5		--
TPMN5-2	5-2-11	5		--
TPMN5-3	5-3-05	5		--
TPMN5-4	5-4-12	5		--
TPMN6-1	6-1-06	6		--
UNUSED		2	2852/RG-214/1000FT	--
UNUSED		4	3046/RG-214/1000FT	--
UNUSED		5	3103-19/20TSP/1000FT	--
UNUSED		5	3103-20/20TSP/1000FT	--
UNUSED		5	3108-20/20TSP/1000FT	--
UNUSED		5	3109-19/20TSP/1000FT	--
UNUSED		5	3109-20/20TSP/1000FT	--
UNUSED		5	3110-16/20TSP/1000FT	--

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
UNUSED		5	3110-17/20TSP/1000FT	--
UNUSED		5	3110-18/20TSP/1000FT	--
UNUSED		5	3110-19/20TSP/1000FT	--
UNUSED		5	3110-20/20TSP/1000FT	--
XRD1	137	1	2815/RG-331/900FT	20
XRD1	240	2	2815/RG-331/900FT	20
XRD2	138	1	2816/RG-331/900FT	20
XRD2	241	2	2816/RG-331/900FT	20
XRD3	341	3	3007/RG-331/900FT	20
XRD3	430	4	3007/RG-331/900FT	20
XRD4	342	3	3008/RG-331/900FT	20
XRD4	431	4	3008/RG-331/900FT	20
1	304	3	2904/RG-333/1000FT	10
2	121-2	1	2739/RG-333/1800FT	15
3	126-1	1	2723/RG-333/1000FT	5
4	301	3	2901/RG-333/1000FT	10
5A	123-2	1	2741/RG-333/1800FT	15
5MHZ	J617@JBOX	5	3122/RG-214/1000FT	--
5MHZ	J615@JBOX	5	3147/RG-214/1000FT	--
5MHZ	J616@JBOX	5	3148/RG-214/1000FT	--
6	306	3	2905/RG-333/1000FT	10
7	402	4	3002/RG-333/1000FT	10
8	108-1	1	2708/RG-333/1000FT	10
9	309	3	2908/RG-333/1000FT	10
10	209	2	2809/RG-333/1000FT	10
12	302	3	2902/RG-333/1000FT	10
13	123-1	1	2720/RG-333/1000FT	5
14	124-1	1	2721/RG-333/1000FT	5
15	125-1	1	2722/RG-333/1000FT	5
16	303	3	2903/RG-333/1000FT	10
17	121-1	1	2718/RG-333/1000FT	5
18	122-2	1	2740/RG-333/1800FT	15
19	122-1	1	2719/RG-333/1000FT	5
21	307	3	2906/RG-333/1000FT	10
23	105-1	1	2705/RG-333/1000FT	10
24	104	1	2704/RG-333/1000FT	10
26A	203	2	2803/RG-333/1000FT	10
27	113-2	1	2737/RG-333/1800FT	30
28	126-2	1	2738/RG-333/1800FT	30
29	109-1	1	2709/RG-333/1000FT	10
30	114	1	2714/RG-333/1000FT	5
31R	212-1	2	2812/RG-333/1000FT	10
32R	212-2	2	2843/RG-331/1800FT	30
35	120-1	1	2744/RG-331/1000FT	10
36	115	1	2715/RG-333/1000FT	5
37	110-1	1	2710/RG-333/1000FT	5
38	102	1	2702/RG-333/1000FT	5
40	204	2	2804/RG-333/1000FT	10
41	205	2	2805/RG-333/1000FT	10
42	206	2	2806/RG-333/1000FT	10

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
43	401	4	3001/RG-333/1000FT	10
44	124-2	1	2742/RG-333/1800FT	15
45	107-1	1	2707/RG-333/1000FT	10
46	439	4	2725/RG-333/1000FT	10
47	426	4	3039/RG-331/1000FT	10
48	105-2	1	2729/RG-333/1800FT	30
49	106-1	1	2706/RG-333/1000FT	10
50	207	2	2807/RG-333/1000FT	10
51	111-1	1	2711/RG-333/1000FT	10
53	210	2	2810/RG-333/1000FT	10
54	101	1	2701/RG-333/1000FT	5
55	403	4	3003/RG-333/1000FT	10
57	201	2	2801/RG-333/1000FT	10
57A	128	1	2724/RG-333/1000FT	5
58A	310	3	2909/RG-333/1000FT	10
59	308	3	2907/RG-333/1000FT	10
60	211-2	2	2814/RG-333/1800FT	30
61	103	1	2703/RG-333/1000FT	10
62	111-2	1	2735/RG-333/1800FT	30
63	112-2	1	2736/RG-333/1800FT	30
65	125-2	1	2743/RG-333/1800FT	30
68	404	4	3004/RG-333/1000FT	10
69	108-2	1	2732/RG-333/1800FT	30
74	109-2	1	2733/RG-333/1800FT	30
75	112-1	1	2712/RG-333/1000FT	10
76	345	3	2726/RG-333/1000FT	10
77	346	3	2727/RG-333/1800FT	10
78	113-1	1	2713/RG-333/1000FT	5
81	211-1	2	2811/RG-333/1000FT	10
82	208	2	2808/RG-333/1000FT	10
83	106-2	1	2730/RG-333/1800FT	30
84	107-2	1	2731/RG-333/1800FT	30
85	405	4	3005/RG-333/1000FT	10
86	118	1	2758/RG-331/1000FT	10
87	116	1	2716/RG-333/1000FT	10
88	117	1	2717/RG-333/1000FT	10
89	127	1	2752/RG-331/1000FT	10
90	129	1	2746/RG-331/1000FT	10
90A	305	3	2961/RG-214/1000FT	10SW
91-1	130	1	2747/RG-331/1000FT	10
91-2	130	1	2747/RG-331/1000FT	10
92-1	131	1	2748/RG-331/1000FT	10
92-2	131	1	2748/RG-331/1000FT	10
93	213-2	2	2844/RG-331/1800FT	30
94-1	432	4	3006/RG-333/1000FT	10
94-2	432	4	3006/RG-333/1000FT	10
95	213-1	2	2813/RG-333/1000FT	10
95C	132	1	2760/RG-331/1000FT	10
96	202	2	2802/RG-333/1000FT	10
96C	6-1-02	6	0902/RG-214/1000FT	--

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
96D	135	1	3047/RG-214/1000FT	10SW
96E	5-4-02-10	5	3106-20/20TSP/1000FT	--
96G	213-1	2	2813/RG-333/1000FT	10
96J	119	1	2759/RG-331/1000FT	10
101	134	1	2749/RG-331/1000FT	10
101A	221	2	2824/RG-331/1000FT	10
101LF	5-4-13-04	5	3123/RG-214/1000FT	--
102	222	2	2825/RG-331/1000FT	10
102LF	5-4-13-05	5	0908/RG-214/1000FT	--
103	326	3	2924/RG-331/1000FT	10
104	327	3	2925/RG-331/1000FT	10
104A	321-2	3	2950/RG-331/1800FT	30
105	322-1	3	2920/RG-331/1000FT	10
107	328	3	2926/RG-331/1000FT	10
108	424	4	3027/RG-331/1000FT	10
109	329	3	2927/RG-331/1000FT	10
109LF	5-4-13-09	5	3125/RG-214/1000FT	--
110	415	4	3018/RG-331/1000FT	10
110A	601	6	0904/RG-214/1000FT	10SW
110A	420	4	3023/RG-331/1000FT	10
110B	421	4	3024/RG-331/1000FT	10
110C	602	6	0907/RG-214/1000FT	10SW
110C	422	4	3025/RG-331/1000FT	10
111	416	4	3019/RG-331/1000FT	10
111	618	6	3132/RG-214/1000FT	10SW
112	225	2	2828/RG-331/1000FT	10
112A	410	4	3013/RG-331/1000FT	10
112B	411-2	4	3040/RG-331/1800FT	30
112C	414-1	4	3017/RG-331/1000FT	10
112D	337	3	2935/RG-331/1000FT	10
112E	220-1	2	2823/RG-331/1000FT	10
113	226	2	2829/RG-331/1000FT	10
113A	217-2	2	2848/RG-331/1800FT	30
113B	406-1	4	3009/RG-331/1000FT	10
113C	408-1	4	3011/RG-331/1000FT	10
122	5-4-05-08	5	3108-08/20TSP/1000FT	--
122A	228	2	2831/RG-331/1000FT	10
122B	229	2	2832/RG-331/1000FT	10
122C	603	6	0909/RG-214/1000FT	10SW
122C	224	2	2827/RG-331/1000FT	10
122D	437	4	3051/RG-331/1000FT	10
122D	617	6	3144/RG-214/1000FT	10SW
123	5-4-06-02	5	3108-12/20TSP/1000FT	--
123A	230	2	2833/RG-331/1000FT	10
124	3-1-12	3	2962/RG-214/1000FT	--
125	218	2	2821/RG-331/1000FT	10
125A	219-2	2	2850/RG-331/1800FT	30
125B	434	4	3034/RG-331/1000FT	10
125B	608	6	3124/RG-214/1000FT	10SW
126	324-1	3	2922/RG-331/1000FT	10

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
127	248	2	2849/RG-331/1800FT	30
127A	435	4	0945/RG-331/1000FT	10
127A	609	6	3126/RG-214/1000FT	10SW
128	219-1	2	2822/RG-331/1000FT	10
128A	220-2	2	2851/RG-331/1800FT	30
129	311-1	3	2910/RG-331/1000FT	10
130	312-1	3	2911/RG-331/1000FT	10
131	323-2	3	2952/RG-331/1800FT	30
131A	231	2	2834/RG-331/1000FT	10
131B	436	4	0946/RG-331/1000FT	10
131B	610	6	3127/RG-214/1000FT	10SW
132	216-2	2	2847/RG-331/1800FT	30
132A	232	2	2835/RG-331/1000FT	10
132B	236	2	2839/RG-331/1000FT	10
132C	607	6	0916/RG-214/1000FT	10SW
132C	237	2	2840/RG-331/1000FT	10
133	425	4	3028/RG-331/1000FT	10
134	233	2	2836/RG-331/1000FT	10
134A	5-4-05-10	5	3108-10/20TSP/1000FT	--
134B	5-4-05-09	5	3108-09/20TSP/1000FT	--
135	418	4	3021/RG-331/1000FT	10
136	419	4	3022/RG-331/1000FT	10
136A	5-4-02-09	5	3106-19/20TSP/1000FT	--
137	611	6	0911/RG-214/1000FT	10SW
138	612	6	0912/RG-214/1000FT	10SW
139	234	2	2837/RG-331/1000FT	10
140	235	2	2838/RG-331/1000FT	10
141	313-1	3	2912/RG-331/1000FT	10
141C				
142	314-2	3	2943/RG-331/1800FT	30
147	4-1-09	4	3045/RG-214/1000FT	--
148	2-1-09	2	2853/RG-214/1000FT	--
149	5-1-12	5	3130/RG-214/1000FT	--
150	6-2-04	6	0921/RG-214/1000FT	--
151	6-2-05	6	0922/RG-214/1000FT	--
152	223	2	2826/RG-331/1000FT	10
153	433	4	3033/RG-331/1000FT	10
153	616	6	3143/RG-214/1000FT	10SW
154	6-1-03	6	0923/RG-214/1000FT	--
155	6-2-07	6	0924/RG-214/1000FT	--
156	6-2-08	6	0925/RG-214/1000FT	--
157	417	4	3020/RG-331/1000FT	10
158	6-2-09	6	0926/RG-214/1000FT	--
159	6-2-10	6	0919/RG-214/1000FT	--
160	604	6	0910/RG-214/1000FT	10SW
160	242	2	2745/RG-331/1000FT	10
161	6-2-11	6	0920/RG-214/1000FT	--
162	6-2-12	6	0903/RG-214/1000FT	--
163	2-1-13	2	2857/RG-214/1000FT	--
164	6-2-13	6	0918/RG-214/1000FT	--

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
165	4-1-01	4	3049/RG-214/1000FT	--
166	4-1-03	4	3128/RG-214/1000FT	--
167	4-1-04	4	3129/RG-214/1000FT	--
168	5-1-13	5	3146/RG-214/1000FT	--
169	3-1-05	3	2955/RG-214/1000FT	--
170	613	6	0913/RG-214/1000FT	10SW
171	3-1-06	3	2956/RG-214/1000FT	--
172	3-1-07	3	2957/RG-214/1000FT	--
173	3-1-08	3	2958/RG-214/1000FT	--
174	3-1-09	3	2959/RG-214/1000FT	--
175	3-1-10	3	2960/RG-214/1000FT	--
176	614	6	0914/RG-214/1000FT	10SW
177	605	6	0905/RG-214/1000FT	10SW
178	2-1-10	2	2854/RG-214/1000FT	--
179	615	6	0915/RG-214/1000FT	10SW
180	2-1-11	2	2855/RG-214/1000FT	--
181	2-1-12	2	2856/RG-214/1000FT	--
185	315-2	3	2944/RG-331/1800FT	30
186	316-2	3	2945/RG-331/1800FT	30
187	429	4	3032/RG-331/1000FT	10
190	317-1	3	2916/RG-331/1000FT	10
190C				
191	318-2	3	2947/RG-331/1800FT	30
194	5-3-01-01	5	3101-01/20TSP/1000FT	--
195	5-3-01-02	5	3101-02/20TSP/1000FT	--
196	5-3-01-03	5	3101-03/20TSP/1000FT	--
197	5-3-01-04	5	3101-04/20TSP/1000FT	--
198	5-3-01-05	5	3101-05/20TSP/1000FT	--
199	5-3-01-06	5	3101-06/20TSP/1000FT	--
200	5-3-01-07	5	3101-07/20TSP/1000FT	--
201	5-3-01-08	5	3101-08/20TSP/1000FT	--
202	5-3-01-09	5	3101-09/20TSP/1000FT	--
203	5-3-01-10	5	3101-10/20TSP/1000FT	--
204	5-3-02-01	5	3101-11/20TSP/1000FT	--
205	5-3-02-02	5	3101-12/20TSP/1000FT	--
206	5-3-02-03	5	3101-13/20TSP/1000FT	--
207	5-3-02-04	5	3101-14/20TSP/1000FT	--
208	5-3-02-05	5	3101-15/20TSP/1000FT	--
209	5-3-02-06	5	3101-16/20TSP/1000FT	--
210	5-3-03-01	5	3102-01/20TSP/1000FT	--
211	5-3-03-02	5	3102-02/20TSP/1000FT	--
212	5-3-03-03	5	3102-03/20TSP/1000FT	--
213	5-3-04-07	5	3102-17/20TSP/1000FT	--
214	5-3-04-08	5	3102-18/20TSP/1000FT	--
215	5-3-04-09	5	3102-19/20TSP/1000FT	--
216	5-3-04-10	5	3102-20/20TSP/1000FT	--
219	5-3-03-09	5	3102-09/20TSP/1000FT	--
220	5-3-03-10	5	3102-10/20TSP/1000FT	--
221	5-3-04-01	5	3102-11/20TSP/1000FT	--
222	5-3-04-02	5	3102-12/20TSP/1000FT	--

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
223	5-3-04-03	5	3102-13/20TSP/1000FT	--
224	5-3-04-04	5	3102-14/20TSP/1000FT	--
225	5-3-04-05	5	3102-15/20TSP/1000FT	--
226	5-3-04-06	5	3102-16/20TSP/1000FT	--
227	5-4-03-01	5	3107-01/20TSP/1000FT	--
228	5-4-03-02	5	3107-02/20TSP/1000FT	--
229	5-4-03-05	5	3107-05/20TSP/1000FT	--
230	5-4-03-06	5	3107-06/20TSP/1000FT	--
231	5-4-03-09	5	3107-09/20TSP/1000FT	--
232	5-4-03-10	5	3107-10/20TSP/1000FT	--
233	5-4-04-03	5	3107-13/20TSP/1000FT	--
234	5-4-04-04	5	3107-14/20TSP/1000FT	--
235	5-3-02-07	5	3101-17/20TSP/1000FT	--
236	5-3-02-08	5	3101-18/20TSP/1000FT	--
237	5-3-02-09	5	3101-19/20TSP/1000FT	--
256	5-4-03-03	5	3107-03/20TSP/1000FT	--
256A	5-4-03-04	5	3107-04/20TSP/1000FT	--
257	5-4-03-07	5	3107-07/20TSP/1000FT	--
257A	5-4-03-08	5	3107-08/20TSP/1000FT	--
258	5-4-04-01	5	3107-11/20TSP/1000FT	--
258A	5-4-04-02	5	3107-12/20TSP/1000FT	--
259	5-4-04-05	5	3107-15/20TSP/1000FT	--
259A	5-4-04-06	5	3107-16/20TSP/1000FT	--
260	319-1	3	2939/RG-331/1000FT	10
261	239	2	2842/RG-331/1000FT	10
262	136	1	2751/RG-331/1000FT	10
263	320-1	3	2918/RG-331/1000FT	10
264	325-1	3	2923/RG-331/1000FT	10
265	311-2	3	2940/RG-331/1800FT	30
266	312-2	3	2941/RG-331/1800FT	30
267	313-2	3	2942/RG-331/1800FT	30
270	423	4	3026/RG-331/1000FT	10
272	317-2	3	2946/RG-331/1800FT	30
273	318-1	3	2917/RG-331/1000FT	10
274	319-2	3	2948/RG-331/1800FT	30
274	619	6	3145/RG-214/1000FT	10SW
275	330	3	2928/RG-331/1000FT	10
276	320-2	3	2949/RG-331/1800FT	30
277	331	3	2929/RG-331/1000FT	10
282	325-2	3	2954/RG-331/1800FT	30
283	332	3	2930/RG-331/1000FT	10
289	5-3-07-01	5	3104-01/20TSP/1000FT	--
290	5-3-07-02	5	3104-02/20TSP/1000FT	--
291	5-3-07-03	5	3104-03/20TSP/1000FT	--
292	5-3-07-04	5	3104-04/20TSP/1000FT	--
293	5-3-07-05	5	3104-05/20TSP/1000FT	--
294	5-3-07-06	5	3104-06/20TSP/1000FT	--
295	5-3-07-07	5	3104-07/20TSP/1000FT	--
296	5-3-07-08	5	3104-08/20TSP/1000FT	--
297	5-3-07-09	5	3104-09/20TSP/1000FT	--

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL
298	5-3-07-10	5	3104-10/20TSP/1000FT	--
299	5-3-08-01	5	3104-11/20TSP/1000FT	--
300	5-3-08-02	5	3104-12/20TSP/1000FT	--
301	5-3-08-03	5	3104-13/20TSP/1000FT	--
302	5-3-08-04	5	3104-14/20TSP/1000FT	--
303	5-3-08-05	5	3104-15/20TSP/1000FT	--
304	5-3-08-06	5	3104-16/20TSP/1000FT	--
305	5-3-08-07	5	3104-17/20TSP/1000FT	--
306	5-3-08-08	5	3104-18/20TSP/1000FT	--
307	5-3-08-09	5	3104-19/20TSP/1000FT	--
308	5-3-08-10	5	3104-20/20TSP/1000FT	--
309	5-3-09-01	5	3105-01/20TSP/1000FT	--
310	5-3-09-02	5	3105-02/20TSP/1000FT	--
311	5-3-09-03	5	3105-03/20TSP/1000FT	--
312	5-3-09-04	5	3105-04/20TSP/1000FT	--
313	5-3-09-05	5	3105-05/20TSP/1000FT	--
314	5-3-09-06	5	3105-06/20TSP/1000FT	--
315	5-3-09-07	5	3105-07/20TSP/1000FT	--
316	5-3-09-08	5	3105-08/20TSP/1000FT	--
317	5-3-09-09	5	3105-09/20TSP/1000FT	--
318	5-3-09-10	5	3105-10/20TSP/1000FT	--
319	5-3-10-01	5	3105-11/20TSP/1000FT	--
320	5-3-10-02	5	3105-12/20TSP/1000FT	--
321	5-3-10-03	5	3105-13/20TSP/1000FT	--
322	5-3-10-04	5	3105-14/20TSP/1000FT	--
323	5-3-10-05	5	3105-15/20TSP/1000FT	--
324	5-3-10-06	5	3105-16/20TSP/1000FT	--
325	5-3-10-07	5	3105-17/20TSP/1000FT	--
326	5-3-10-08	5	3105-18/20TSP/1000FT	--
327	5-3-10-09	5	3105-19/20TSP/1000FT	--
328	5-3-10-10	5	3105-20/20TSP/1000FT	--
329	5-4-01-01	5	3106-01/20TSP/1000FT	--
330	5-4-01-02	5	3106-02/20TSP/1000FT	--
331	5-4-01-03	5	3106-03/20TSP/1000FT	--
332	5-4-01-04	5	3106-04/20TSP/1000FT	--
333	5-4-01-05	5	3106-05/20TSP/1000FT	--
334	5-4-01-06	5	3106-06/20TSP/1000FT	--
335	5-4-01-07	5	3106-07/20TSP/1000FT	--
336	5-4-01-08	5	3106-08/20TSP/1000FT	--
337	5-4-01-09	5	3106-09/20TSP/1000FT	--
338	5-4-01-10	5	3106-10/20TSP/1000FT	--
339	5-2-01	5	3133/RG-214/1000FT	--
340	5-2-02	5	3134/RG-214/1000FT	--
341	5-2-03	5	3135/RG-214/1000FT	--
342	5-2-04	5	3136/RG-214/1000FT	--
343	5-2-05	5	3137/RG-214/1000FT	--
344	5-2-06	5	3138/RG-214/1000FT	--
345	5-2-07	5	3139/RG-214/1000FT	--
346	5-2-08	5	3140/RG-214/1000FT	--
347	5-2-09	5	3141/RG-214/1000FT	--

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
348	5-2-10	5	3142/RG-214/1000FT	--
353	5-4-02-01	5	3106-11/20TSP/1000FT	--
354	5-4-02-02	5	3106-12/20TSP/1000FT	--
355	5-4-02-03	5	3106-13/20TSP/1000FT	--
356	5-4-02-04	5	3106-14/20TSP/1000FT	--
357	5-4-02-05	5	3106-15/20TSP/1000FT	--
358	5-4-02-06	5	3106-16/20TSP/1000FT	--
359	5-4-06-01	5	3108-11/20TSP/1000FT	--
360	321-1	3	2919/RG-331/1000FT	10
361	322-2	3	2951/RG-331/1800FT	30
363	333	3	2931/RG-331/1000FT	10
366	5-4-05-01	5	3108-01/20TSP/1000FT	--
367	5-4-05-02	5	3108-02/20TSP/1000FT	--
368	5-4-05-03	5	3108-03/20TSP/1000FT	--
369	5-4-05-04	5	3108-04/20TSP/1000FT	--
370	324-2	3	2953/RG-331/1800FT	30
371	406-2	4	3035/RG-331/1800FT	30
372	407-2	4	3036/RG-331/1800FT	30
373	408-2	4	3037/RG-331/1800FT	30
374	334	3	2932/RG-331/1000FT	10
375	5-4-02-07	5	3106-17/20TSP/1000FT	--
376	5-4-02-08	5	3106-18/20TSP/1000FT	--
380	409-2	4	3038/RG-331/1800FT	10
383	335	3	2933/RG-331/1000FT	10
384	412-2	4	3041/RG-331/1800FT	30
385	5-4-05-05	5	3108-05/20TSP/1000FT	--
386	413-1	4	3016/RG-331/1000FT	10
389	336	3	2934/RG-331/1000FT	10
392	5-4-05-07	5	3108-07/20TSP/1000FT	--
394	5-4-06-04	5	3108-14/20TSP/1000FT	--
395	5-4-06-03	5	3108-13/20TSP/1000FT	--
396	5-4-05-06	5	3108-06/20TSP/1000FT	--
397	5-4-06-06	5	3108-16/20TSP/1000FT	--
398	5-4-06-10	5	3108-18/20TSP/1000FT	--
399	5-4-06-08&09	5	3108-19/20TSP/1000FT	--
406	5-4-06-05	5	3108-15/20TSP/1000FT	--
407	606	6	0906/RG-214/1000FT	10SW
409	5-4-06-07	5	3108-17/20TSP/1000FT	--
410	407-1	4	3010/RG-331/1000FT	10
411	428	4	3031/RG-331/1000FT	10
411A	412-1	4	3015/RG-331/1000FT	10
411B	427	4	3030/RG-331/1000FT	10
411C	315-1	3	2914/RG-331/1000FT	10
411D	340	3	2938/RG-331/1000FT	10
415	BIAS	5	3110-01/20TSP/1000FT	--
415	5-4-08-05	5	3110-02/20TSP/1000FT	--
416	BIAS	5	3110-03/20TSP/1000FT	--
416	5-4-08-06	5	3110-04/20TSP/1000FT	--
417	BIAS	5	3110-05/20TSP/1000FT	--
417	5-4-08-07	5	3110-06/20TSP/1000FT	--

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
418	BIAS	5	3110-07/20TSP/1000FT	--
418	5-4-08-08	5	3110-08/20TSP/1000FT	--
419	BIAS	5	3110-09/20TSP/1000FT	--
419	5-4-08-09	5	3110-10/20TSP/1000FT	--
422	BIAS	5	3109-01/20TSP/1000FT	--
422	5-4-07-01	5	3109-02/20TSP/1000FT	--
423	BIAS	5	3109-03/20TSP/1000FT	--
423	5-4-07-02	5	3109-04/20TSP/1000FT	--
424	BIAS	5	3109-05/20TSP/1000FT	--
424	5-4-07-03	5	3109-06/20TSP/1000FT	--
425	BIAS	5	3109-07/20TSP/1000FT	--
425	5-4-07-04	5	3109-08/20TSP/1000FT	--
426	BIAS	5	3109-09/20TSP/1000FT	--
426	5-4-07-05	5	3109-10/20TSP/1000FT	--
427	BIAS	5	3109-11/20TSP/1000FT	--
427	5-4-07-06	5	3109-12/20TSP/1000FT	--
434	5-4-08-10	5	3110-11/20TSP/1000FT	--
435	5-4-09-01	5	3110-12/20TSP/1000FT	--
436	5-4-09-02	5	3110-13/20TSP/1000FT	--
437	5-4-09-03	5	3110-14/20TSP/1000FT	--
438	5-4-07-07	5	3109-13/20TSP/1000FT	--
439	5-4-07-08	5	3109-14/20TSP/1000FT	--
440	5-4-07-09	5	3109-15/20TSP/1000FT	--
441	5-4-07-10	5	3109-16/20TSP/1000FT	--
444	238	2	2841/RG-331/1000FT	10
445	409-1	4	3012/RG-331/1000FT	10
446	227	2	2830/RG-331/1000FT	10
447	217-1	2	2936/RG-331/1000FT	10
448	314-1	3	2913/RG-331/1000FT	10
449	316-1	3	2915/RG-331/1000FT	10
450	411-1	4	3014/RG-331/1000FT	10
451	339	3	2937/RG-331/1000FT	10
452	323-1	3	2921/RG-331/1000FT	10
458	414-2	4	3043/RG-331/1800FT	30
459	413-2	4	3042/RG-331/1800FT	30
501	120-2	1	2753/RG-331/1800FT	30
502	110-2	1	2734/RG-333/1800FT	30
503	5(3/4)14-05	5	J1003(HH,PP)EAGE	--
507	5(3/4)14-06	5	J1003(<A>,<B>)EAGE	--
509	5(3/4)14-07	5	J1003(A,B)EAGE	--
510	5(3/4)14-08	5	J1003(<W>,<X>)EAGE	--
511	5(3/4)14-09	5	J1003(C,D)EAGE	--
512	5-1-02	5	J1003(E,F)EAGE	--
514	5-4-08-04	5	J1003(H,G)EAGE	--
515	5-4-09-05	5	J1003(J,<I>)EAGE	--
516	5-4-09-06	5	J1003(K,L)EAGE	--
517	5-4-09-07	5	J1003(M,N)EAGE	--
518	5-4-09-08	5	J1003(P,R)EAGE	--
519	5-4-11-09	5	J1003(S,<F>)EAGE	--
520	5-4-11-10	5	J1003(T,U)EAGE	--

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SENSOR #	SAI CHANNEL #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
521	5(1/2)14-04	5	J1003(V,W)EAGE	--
522	5(1/2)14-05	5	J1003(X,<T>)EAGE	--
523	5(1/2)14-06	5	J1003(Z,<U>)EAGE	--
524	5(1/2)14-07	5	J1004(HH,PP)EAGE	--
525	5(1/2)14-08	5	J1004(LL,BB)EAGE	--
526	214-1	2	2817/RG-331/1000FT	10
527	215-1	2	2818/RG-331/1000FT	10
530	5-1-03	5	J1004(<A>,<B>)EAGE	--
530	5-4-13-01	5		--
531	5-1-04	5	J1004(KK,<Z>)EAGE	--
531	5-4-13-02	5		--
532	214-2	2	2845/RG-331/1800FT	30
533	215-2	2	2846/RG-331/1800FT	30
534	5-1-05	5	J1004(A,B)EAGE	--
535	5-1-06	5	J1004(<W>,<X>)EAGE	--
536	5-1-07	5	J1004(C,D)EAGE	--
537	5-1-08	5	J1004(E,F)EAGE	--
538	5-1-09	5	J1004(H,G)EAGE	--
543	216-1	2	2819/RG-331/1000FT	10
544	249	2	2820/RG-331/1000FT	10
545	5-1-10	5	3131/RG-214/1000FT	--
547	5-4-09-09	5	NSA/KIR-23RESET	--
548	5-4-09-10	5	NSA/KIR-23MESSAGE DATA	--
549	5-2-12	5	NSA/R-28DATA OUT	--
550	5(1/2)14-09	5	J1004(DD,EE)EAGE	--

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
	141C			
	190C			
	GAMMATG	6	3029/RG-331/1000FT	--
	UNUSED	2	2852/RG-214/1000FT	--
	UNUSED	4	3046/RG-214/1000FT	--
	UNUSED	5	3103-19/20TSP/1000FT	--
	UNUSED	5	3103-20/20TSP/1000FT	--
	UNUSED	5	3108-20/20TSP/1000FT	--
	UNUSED	5	3109-19/20TSP/1000FT	--
	UNUSED	5	3109-20/20TSP/1000FT	--
	UNUSED	5	3110-16/20TSP/1000FT	--
	UNUSED	5	3110-17/20TSP/1000FT	--
	UNUSED	5	3110-18/20TSP/1000FT	--
	UNUSED	5	3110-19/20TSP/1000FT	--
	UNUSED	5	3110-20/20TSP/1000FT	--
BIAS	415	5	3110-01/20TSP/1000FT	--
BIAS	416	5	3110-03/20TSP/1000FT	--
BIAS	417	5	3110-05/20TSP/1000FT	--
BIAS	418	5	3110-07/20TSP/1000FT	--
BIAS	419	5	3110-09/20TSP/1000FT	--
BIAS	422	5	3109-01/20TSP/1000FT	--
BIAS	423	5	3109-03/20TSP/1000FT	--
BIAS	424	5	3109-05/20TSP/1000FT	--
BIAS	425	5	3109-07/20TSP/1000FT	--
BIAS	426	5	3109-09/20TSP/1000FT	--
BIAS	427	5	3109-11/20TSP/1000FT	--
J1202IN	BIT00	5	3103-16/20TSP/1000FT	--
J1202IN	BIT01	5	3103-15/20TSP/1000FT	--
J1202IN	BIT02	5	3103-14/20TSP/1000FT	--
J1202IN	BIT03	5	3103-13/20TSP/1000FT	--
J1202IN	BIT04	5	3103-12/20TSP/1000FT	--
J1202IN	BIT05	5	3103-11/20TSP/1000FT	--
J1202IN	BIT06	5	3103-10/20TSP/1000FT	--
J1202IN	BIT07	5	3103-09/20TSP/1000FT	--
J1202IN	BIT08	5	3103-08/20TSP/1000FT	--
J1202IN	BIT09	5	3103-07/20TSP/1000FT	--
J1202IN	BIT10	5	3103-06/20TSP/1000FT	--
J1202IN	BIT11	5	3103-05/20TSP/1000FT	--
J1202IN	BIT12	5	3103-04/20TSP/1000FT	--
J1202IN	BIT13	5	3103-03/20TSP/1000FT	--
J1202IN	BIT14	5	3103-02/20TSP/1000FT	--
J1202IN	BIT15	5	3103-01/20TSP/1000FT	--
J1202IN	CLKIN	5	3103-18/20TSP/1000FT	--
J1202IN	SYNCIN	5	3103-17/20TSP/1000FT	--
J6150JBOX	5MHZ	5	3147/RG-214/1000FT	--
J6160JBOX	5MHZ	5	3148/RG-214/1000FT	--
J6170JBOX	5MHZ	5	3122/RG-214/1000FT	--
1-1-10	TPMN1-1	1		--
1-1-14	IRIG1	1		--
2-1-01	TPMN2-1	2		--

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
2-1-04	SPARE17	2		--
2-1-06	SPARE26	2		--
2-1-07	SPARE48	2		--
2-1-09	148	2	2853/RG-214/1000FT	--
2-1-10	178	2	2854/RG-214/1000FT	--
2-1-11	180	2	2855/RG-214/1000FT	--
2-1-12	181	2	2856/RG-214/1000FT	--
2-1-13	163	2	2857/RG-214/1000FT	--
2-1-14-02	FIDU2	2		--
2-1-14-03	IRIG2	2		--
3-1-05	169	3	2955/RG-214/1000FT	--
3-1-06	171	3	2956/RG-214/1000FT	--
3-1-07	172	3	2957/RG-214/1000FT	--
3-1-08	173	3	2958/RG-214/1000FT	--
3-1-09	174	3	2959/RG-214/1000FT	--
3-1-10	175	3	2960/RG-214/1000FT	--
3-1-12	124	3	2962/RG-214/1000FT	--
3-1-13	TPMN3-1	3		--
3-1-14-02	FIDU3	3		--
3-1-14-03	IRIG3	3		--
4-1-01	165	4	3049/RG-214/1000FT	--
4-1-02	SPARE50	4		--
4-1-03	166	4	3128/RG-214/1000FT	--
4-1-04	167	4	3129/RG-214/1000FT	--
4-1-08	TPMN4-1	4		--
4-1-09	147	4	3045/RG-214/1000FT	--
4-1-10	SPARE31	4		--
4-1-11	SPARE32	4		--
4-1-12	SPARE33	4	3048/RG-214/1000FT	--
4-1-14-02	FIDU4	4		--
4-1-14-03	IRIG4	4		--
5-1-01	SPARE27	5		--
5-1-02	512	5	J1003(E,F)EAGE	--
5-1-03	530	5	J1004(<A>,<B>)EAGE	--
5-1-04	531	5	J1004(KK,<Z>)EAGE	--
5-1-05	534	5	J1004(A,B)EAGE	--
5-1-06	535	5	J1004(<W>,<X>)EAGE	--
5-1-07	536	5	J1004(C,D)EAGE	--
5-1-08	537	5	J1004(E,F)EAGE	--
5-1-09	538	5	J1004(H,G)EAGE	--
5-1-10	545	5	3131/RG-214/1000FT	--
5-1-11	TPMN5-1	5		--
5-1-12	149	5	3130/RG-214/1000FT	--
5-1-13	168	5	3146/RG-214/1000FT	--
5(1/2)14-02	FIDU5A	5		--
5(1/2)14-03	IRIG5A	5		--
5(1/2)14-04	521	5	J1003(V,W)EAGE	--
5(1/2)14-05	522	5	J1003(X,<T>)EAGE	--
5(1/2)14-06	523	5	J1003(Z,<U>)EAGE	--
5(1/2)14-07	524	5	J1004(HH,PP)EAGE	--

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
5(1/2)14-08	525	5	J1004(LL,BB)EAGE	--
5(1/2)14-09	550	5	J1004(DD,EE)EAGE	--
5(1/2)14-10	NSA/T&F	5	MINUS2S,PLUS1.5S	--
5-2-01	339	5	3133/RG-214/1000FT	--
5-2-02	340	5	3134/RG-214/1000FT	--
5-2-03	341	5	3135/RG-214/1000FT	--
5-2-04	342	5	3136/RG-214/1000FT	--
5-2-05	343	5	3137/RG-214/1000FT	--
5-2-06	344	5	3138/RG-214/1000FT	--
5-2-07	345	5	3139/RG-214/1000FT	--
5-2-08	346	5	3140/RG-214/1000FT	--
5-2-09	347	5	3141/RG-214/1000FT	--
5-2-10	348	5	3142/RG-214/1000FT	--
5-2-11	TPMN5-2	5		--
5-2-12	549	5	NSA/R-28DATA OUT	--
5-2-13	NSACLK	5		--
5-3-01-01	194	5	3101-01/20TSP/1000FT	--
5-3-01-02	195	5	3101-02/20TSP/1000FT	--
5-3-01-03	196	5	3101-03/20TSP/1000FT	--
5-3-01-04	197	5	3101-04/20TSP/1000FT	--
5-3-01-05	198	5	3101-05/20TSP/1000FT	--
5-3-01-06	199	5	3101-06/20TSP/1000FT	--
5-3-01-07	200	5	3101-07/20TSP/1000FT	--
5-3-01-08	201	5	3101-08/20TSP/1000FT	--
5-3-01-09	202	5	3101-09/20TSP/1000FT	--
5-3-01-10	203	5	3101-10/20TSP/1000FT	--
5-3-02-01	204	5	3101-11/20TSP/1000FT	--
5-3-02-02	205	5	3101-12/20TSP/1000FT	--
5-3-02-03	206	5	3101-13/20TSP/1000FT	--
5-3-02-04	207	5	3101-14/20TSP/1000FT	--
5-3-02-05	208	5	3101-15/20TSP/1000FT	--
5-3-02-06	209	5	3101-16/20TSP/1000FT	--
5-3-02-07	235	5	3101-17/20TSP/1000FT	--
5-3-02-08	236	5	3101-18/20TSP/1000FT	--
5-3-02-09	237	5	3101-19/20TSP/1000FT	--
5-3-02-10	SPARE01	5	3101-20/20TSP/1000FT	--
5-3-03-01	210	5	3102-01/20TSP/1000FT	--
5-3-03-02	211	5	3102-02/20TSP/1000FT	--
5-3-03-03	212	5	3102-03/20TSP/1000FT	--
5-3-03-04	SPARE02	5	3102-04/20TSP/1000FT	--
5-3-03-05	DATA	5	J1203(HH,PP)EAGE	--
5-3-03-05	SPARE03	5	3102-05/20TSP/1000FT	--
5-3-03-06	SPARE04	5	3102-06/20TSP/1000FT	--
5-3-03-06	SYNC	5	J1203(LL,BB)EAGE	--
5-3-03-07	CLK	5	J1203(MM,NN)EAGE	--
5-3-03-07	SPARE24	5	3102-07/20TSP/1000FT	--
5-3-03-08	SPARE25	5	3102-08/20TSP/1000FT	--
5-3-03-09	219	5	3102-09/20TSP/1000FT	--
5-3-03-10	220	5	3102-10/20TSP/1000FT	--
5-3-04-01	221	5	3102-11/20TSP/1000FT	--

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
5-3-04-02	222	5	3102-12/20TSP/1000FT	--
5-3-04-03	223	5	3102-13/20TSP/1000FT	--
5-3-04-04	224	5	3102-14/20TSP/1000FT	--
5-3-04-05	225	5	3102-15/20TSP/1000FT	--
5-3-04-06	226	5	3102-16/20TSP/1000FT	--
5-3-04-07	213	5	3102-17/20TSP/1000FT	--
5-3-04-08	214	5	3102-18/20TSP/1000FT	--
5-3-04-09	215	5	3102-19/20TSP/1000FT	--
5-3-04-10	216	5	3102-20/20TSP/1000FT	--
5-3-05	TPMN5-3	5		--
5-3-07-01	289	5	3104-01/20TSP/1000FT	--
5-3-07-02	290	5	3104-02/20TSP/1000FT	--
5-3-07-03	291	5	3104-03/20TSP/1000FT	--
5-3-07-04	292	5	3104-04/20TSP/1000FT	--
5-3-07-05	293	5	3104-05/20TSP/1000FT	--
5-3-07-06	294	5	3104-06/20TSP/1000FT	--
5-3-07-07	295	5	3104-07/20TSP/1000FT	--
5-3-07-08	296	5	3104-08/20TSP/1000FT	--
5-3-07-09	297	5	3104-09/20TSP/1000FT	--
5-3-07-10	298	5	3104-10/20TSP/1000FT	--
5-3-08-01	299	5	3104-11/20TSP/1000FT	--
5-3-08-02	300	5	3104-12/20TSP/1000FT	--
5-3-08-03	301	5	3104-13/20TSP/1000FT	--
5-3-08-04	302	5	3104-14/20TSP/1000FT	--
5-3-08-05	303	5	3104-15/20TSP/1000FT	--
5-3-08-06	304	5	3104-16/20TSP/1000FT	--
5-3-08-07	305	5	3104-17/20TSP/1000FT	--
5-3-08-08	306	5	3104-18/20TSP/1000FT	--
5-3-08-09	307	5	3104-19/20TSP/1000FT	--
5-3-08-10	308	5	3104-20/20TSP/1000FT	--
5-3-09-01	309	5	3105-01/20TSP/1000FT	--
5-3-09-02	310	5	3105-02/20TSP/1000FT	--
5-3-09-03	311	5	3105-03/20TSP/1000FT	--
5-3-09-04	312	5	3105-04/20TSP/1000FT	--
5-3-09-05	313	5	3105-05/20TSP/1000FT	--
5-3-09-06	314	5	3105-06/20TSP/1000FT	--
5-3-09-07	315	5	3105-07/20TSP/1000FT	--
5-3-09-08	316	5	3105-08/20TSP/1000FT	--
5-3-09-09	317	5	3105-09/20TSP/1000FT	--
5-3-09-10	318	5	3105-10/20TSP/1000FT	--
5-3-10-01	319	5	3105-11/20TSP/1000FT	--
5-3-10-02	320	5	3105-12/20TSP/1000FT	--
5-3-10-03	321	5	3105-13/20TSP/1000FT	--
5-3-10-04	322	5	3105-14/20TSP/1000FT	--
5-3-10-05	323	5	3105-15/20TSP/1000FT	--
5-3-10-06	324	5	3105-16/20TSP/1000FT	--
5-3-10-07	325	5	3105-17/20TSP/1000FT	--
5-3-10-08	326	5	3105-18/20TSP/1000FT	--
5-3-10-09	327	5	3105-19/20TSP/1000FT	--
5-3-10-10	328	5	3105-20/20TSP/1000FT	--

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
5-3-11-01	EAGE01	5	3118-01/20TSP/1000FT	--
5-3-11-02	EAGE02	5	3118-02/20TSP/1000FT	--
5-3-11-03	EAGE03	5	3118-03/20TSP/1000FT	--
5-3-11-04	EAGE04	5	3118-04/20TSP/1000FT	--
5-3-11-05	EAGE05	5	3118-05/20TSP/1000FT	--
5-3-11-06	EAGE06	5	3118-06/20TSP/1000FT	--
5-3-11-07	EAGE07	5	3118-07/20TSP/1000FT	--
5-3-11-08	EAGE08	5	3118-08/20TSP/1000FT	--
5-3-11-09	EAGE09	5	3118-09/20TSP/1000FT	--
5-3-11-10	EAGE10	5	3118-10/20TSP/1000FT	--
5-3-12-01	EAGE11	5	3118-11/20TSP/1000FT	--
5-3-12-02	EAGE12	5	3118-12/20TSP/1000FT	--
5-3-12-03	EAGE13	5	3118-13/20TSP/1000FT	--
5-3-12-04	EAGE14	5	3118-14/20TSP/1000FT	--
5-3-12-05	EAGE15	5	3118-15/20TSP/1000FT	--
5-3-12-06	EAGE16	5	3118-16/20TSP/1000FT	--
5-3-12-07	EAGE17	5	3118-17/20TSP/1000FT	--
5-3-12-08	EAGE18	5	3118-18/20TSP/1000FT	--
5-3-12-09	EAGE19	5	3118-19/20TSP/1000FT	--
5-3-12-10	EAGE20	5	3118-20/20TSP/1000FT	--
5-3-13-01	EAGE21	5	3117-01/20TSP/1000FT	--
5-3-13-02	EAGE22	5	3117-02/20TSP/1000FT	--
5-3-13-03	EAGE23	5	3117-03/20TSP/1000FT	--
5-3-13-04	EAGE24	5	3117-04/20TSP/1000FT	--
5-3-13-05	EAGE25	5	3117-05/20TSP/1000FT	--
5-3-13-06	EAGE26	5	3117-06/20TSP/1000FT	--
5-3-13-07	EAGE27	5	3117-07/20TSP/1000FT	--
5-3-13-08	EAGE28	5	3117-08/20TSP/1000FT	--
5-3-13-09	EAGE29	5	3117-09/20TSP/1000FT	--
5-3-13-10	EAGE30	5	3117-10/20TSP/1000FT	--
5(3/4)14-02	FIDU5B	5		--
5(3/4)14-03	SFIDU	5		--
5(3/4)14-04	IRIG5B	5		--
5(3/4)14-05	503	5	J1003(HH,PP)EAGE	--
5(3/4)14-06	507	5	J1003(<A>,<B>)EAGE	--
5(3/4)14-07	509	5	J1003(A,B)EAGE	--
5(3/4)14-08	510	5	J1003(<W>,<X>)EAGE	--
5(3/4)14-09	511	5	J1003(C,D)EAGE	--
5-4-01-01	329	5	3106-01/20TSP/1000FT	--
5-4-01-02	330	5	3106-02/20TSP/1000FT	--
5-4-01-03	331	5	3106-03/20TSP/1000FT	--
5-4-01-04	332	5	3106-04/20TSP/1000FT	--
5-4-01-05	333	5	3106-05/20TSP/1000FT	--
5-4-01-06	334	5	3106-06/20TSP/1000FT	--
5-4-01-07	335	5	3106-07/20TSP/1000FT	--
5-4-01-08	336	5	3106-08/20TSP/1000FT	--
5-4-01-09	337	5	3106-09/20TSP/1000FT	--
5-4-01-10	338	5	3106-10/20TSP/1000FT	--
5-4-02-01	353	5	3106-11/20TSP/1000FT	--
5-4-02-02	354	5	3106-12/20TSP/1000FT	--

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
5-4-02-03	355	5	3106-13/20TSP/1000FT	--
5-4-02-04	356	5	3106-14/20TSP/1000FT	--
5-4-02-05	357	5	3106-15/20TSP/1000FT	--
5-4-02-06	358	5	3106-16/20TSP/1000FT	--
5-4-02-07	375	5	3106-17/20TSP/1000FT	--
5-4-02-08	376	5	3106-18/20TSP/1000FT	--
5-4-02-09	136A	5	3106-19/20TSP/1000FT	--
5-4-02-10	96E	5	3106-20/20TSP/1000FT	--
5-4-03-01	227	5	3107-01/20TSP/1000FT	--
5-4-03-02	228	5	3107-02/20TSP/1000FT	--
5-4-03-03	256	5	3107-03/20TSP/1000FT	--
5-4-03-04	256A	5	3107-04/20TSP/1000FT	--
5-4-03-05	229	5	3107-05/20TSP/1000FT	--
5-4-03-06	230	5	3107-06/20TSP/1000FT	--
5-4-03-07	257	5	3107-07/20TSP/1000FT	--
5-4-03-08	257A	5	3107-08/20TSP/1000FT	--
5-4-03-09	231	5	3107-09/20TSP/1000FT	--
5-4-03-10	232	5	3107-10/20TSP/1000FT	--
5-4-04-01	258	5	3107-11/20TSP/1000FT	--
5-4-04-02	258A	5	3107-12/20TSP/1000FT	--
5-4-04-03	233	5	3107-13/20TSP/1000FT	--
5-4-04-04	234	5	3107-14/20TSP/1000FT	--
5-4-04-05	259	5	3107-15/20TSP/1000FT	--
5-4-04-06	259A	5	3107-16/20TSP/1000FT	--
5-4-04-07	SPARE11	5	3107-17/20TSP/1000FT	--
5-4-04-08	SPARE12	5	3107-18/20TSP/1000FT	--
5-4-04-09	SPARE13	5	3107-19/20TSP/1000FT	--
5-4-04-10	SPARE14	5	3107-20/20TSP/1000FT	--
5-4-05-01	366	5	3108-01/20TSP/1000FT	--
5-4-05-02	367	5	3108-02/20TSP/1000FT	--
5-4-05-03	368	5	3108-03/20TSP/1000FT	--
5-4-05-04	369	5	3108-04/20TSP/1000FT	--
5-4-05-05	385	5	3108-05/20TSP/1000FT	--
5-4-05-06	396	5	3108-06/20TSP/1000FT	--
5-4-05-07	392	5	3108-07/20TSP/1000FT	--
5-4-05-08	122	5	3108-08/20TSP/1000FT	--
5-4-05-09	134B	5	3108-09/20TSP/1000FT	--
5-4-05-10	134A	5	3108-10/20TSP/1000FT	--
5-4-06-01	359	5	3108-11/20TSP/1000FT	--
5-4-06-02	123	5	3108-12/20TSP/1000FT	--
5-4-06-03	395	5	3108-13/20TSP/1000FT	--
5-4-06-04	394	5	3108-14/20TSP/1000FT	--
5-4-06-05	406	5	3108-15/20TSP/1000FT	--
5-4-06-06	397	5	3108-16/20TSP/1000FT	--
5-4-06-07	409	5	3108-17/20TSP/1000FT	--
5-4-06-08&09	399	5	3108-19/20TSP/1000FT	--
5-4-06-10	398	5	3108-18/20TSP/1000FT	--
5-4-07-01	422	5	3109-02/20TSP/1000FT	--
5-4-07-02	423	5	3109-04/20TSP/1000FT	--
5-4-07-03	424	5	3109-06/20TSP/1000FT	--

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
5-4-07-04	425	5	3109-08/20TSP/1000FT	--
5-4-07-05	426	5	3109-10/20TSP/1000FT	--
5-4-07-06	427	5	3109-12/20TSP/1000FT	--
5-4-07-07	438	5	3109-13/20TSP/1000FT	--
5-4-07-08	439	5	3109-14/20TSP/1000FT	--
5-4-07-09	440	5	3109-15/20TSP/1000FT	--
5-4-07-10	441	5	3109-16/20TSP/1000FT	--
5-4-08-01	SPARE47	5	3109-17/20TSP/1000FT	--
5-4-08-02	SPARE15	5	3109-18/20TSP/1000FT	--
5-4-08-04	514	5	J1003(H,G)EAGE	--
5-4-08-05	415	5	3110-02/20TSP/1000FT	--
5-4-08-06	416	5	3110-04/20TSP/1000FT	--
5-4-08-07	417	5	3110-06/20TSP/1000FT	--
5-4-08-08	418	5	3110-08/20TSP/1000FT	--
5-4-08-09	419	5	3110-10/20TSP/1000FT	--
5-4-08-10	434	5	3110-11/20TSP/1000FT	--
5-4-09-01	435	5	3110-12/20TSP/1000FT	--
5-4-09-02	436	5	3110-13/20TSP/1000FT	--
5-4-09-03	437	5	3110-14/20TSP/1000FT	--
5-4-09-04	SPARE16	5	3110-15/20TSP/1000FT	--
5-4-09-05	515	5	J1003(J,<I>)EAGE	--
5-4-09-06	516	5	J1003(K,L)EAGE	--
5-4-09-07	517	5	J1003(M,N)EAGE	--
5-4-09-08	518	5	J1003(P,R)EAGE	--
5-4-09-09	547	5	NSA/KIR-23RESET	--
5-4-09-10	548	5	NSA/KIR-23MESSAGE DATA	--
5-4-10-01	EAGE31	5	3117-11/20TSP/1000FT	--
5-4-10-02	EAGE32	5	3117-12/20TSP/1000FT	--
5-4-10-03	EAGE33	5	3117-13/20TSP/1000FT	--
5-4-10-04	EAGE34	5	3116-17/20TSP/1000FT	--
5-4-10-05	EAGE35	5	J1004(J,<I>)EAGE	--
5-4-10-06	EAGE36	5	J1004(K,L)EAGE	--
5-4-10-07	EAGE37	5	J1004(M,N)EAGE	--
5-4-10-08	EAGE38	5	J1004(P,R)EAGE	--
5-4-10-09	EAGE39	5	TB401-09,10EAGE	--
5-4-10-10	EAGE40	5	TB401-11,12EAGE	--
5-4-11-01	EAGE41	5	TB402-01,02EAGE	--
5-4-11-02	EAGE42	5	TB402-04,05EAGE	--
5-4-11-03	EAGE43	5	TB405-09,10EAGE	--
5-4-11-04	EAGE44	5	TB406-04,05EAGE	--
5-4-11-05	EAGE45	5	TB406-09,10EAGE	--
5-4-11-06	EAGE46	5	TB406-11,12EAGE	--
5-4-11-07	EAGE47	5		--
5-4-11-08	EAGE48	5		--
5-4-11-09	519	5	J1003(S,<F>)EAGE	--
5-4-11-10	520	5	J1003(T,U)EAGE	--
5-4-12	TPMN5-4	5		--
5-4-12-01	SPARE	5		--
5-4-12-02	SPARE	5		--
5-4-12-03	SPARE	5		--

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
5-4-12-04	SPARE	5		--
5-4-12-05	SPARE	5		--
5-4-12-06	SPARE	5		--
5-4-12-07	SPARE	5		--
5-4-12-08	SPARE	5		--
5-4-12-09	SPARE	5		--
5-4-12-10	SPARE	5		--
5-4-13-01	530	5		--
5-4-13-02	531	5		--
5-4-13-03	SPARE	5		--
5-4-13-04	101LF	5	3123/RG-214/1000FT	--
5-4-13-05	102LF	5	0908/RG-214/1000FT	--
5-4-13-06	SPARE19	5		--
5-4-13-07	SPARE20	5		--
5-4-13-08	SPARE21	5		--
5-4-13-09	109LF	5	3125/RG-214/1000FT	--
5-4-13-10	SPARE22	5		--
6-1-01	SPARE05	6	0901/RG-214/1000FT	--
6-1-02	96C	6	0902/RG-214/1000FT	--
6-1-03	154	6	0923/RG-214/1000FT	--
6-1-04	SPARE46	6	0917/RG-214/1000FT	--
6-1-05	SPARE49	6		--
6-1-06	TPMN6-1	6		--
6(1/2)14-02	FIDU6	6		--
6(1/2)14-03	IRIG6	6		--
6-2-04	150	6	0921/RG-214/1000FT	--
6-2-05	151	6	0922/RG-214/1000FT	--
6-2-07	155	6	0924/RG-214/1000FT	--
6-2-08	156	6	0925/RG-214/1000FT	--
6-2-09	158	6	0926/RG-214/1000FT	--
6-2-10	159	6	0919/RG-214/1000FT	--
6-2-11	161	6	0920/RG-214/1000FT	--
6-2-12	162	6	0903/RG-214/1000FT	--
6-2-13	164	6	0918/RG-214/1000FT	--
101	54	1	2701/RG-333/1000FT	5
102	38	1	2702/RG-333/1000FT	5
103	61	1	2703/RG-333/1000FT	10
104	24	1	2704/RG-333/1000FT	10
105-1	23	1	2705/RG-333/1000FT	10
105-2	48	1	2729/RG-333/1800FT	30
106-1	49	1	2706/RG-333/1000FT	10
106-2	83	1	2730/RG-333/1800FT	30
107-1	45	1	2707/RG-333/1000FT	10
107-2	84	1	2731/RG-333/1800FT	30
108-1	8	1	2708/RG-333/1000FT	10
108-2	69	1	2732/RG-333/1800FT	30
109-1	29	1	2709/RG-333/1000FT	10
109-2	74	1	2733/RG-333/1800FT	30
110-1	37	1	2710/RG-333/1000FT	5
110-2	502	1	2734/RG-333/1800FT	30

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
111-1	51	1	2711/RG-333/1000FT	10
111-2	62	1	2735/RG-333/1800FT	30
112-1	75	1	2712/RG-333/1000FT	10
112-2	63	1	2736/RG-333/1800FT	30
113-1	78	1	2713/RG-333/1000FT	5
113-2	27	1	2737/RG-333/1800FT	30
114	30	1	2714/RG-333/1000FT	5
115	36	1	2715/RG-333/1000FT	5
116	87	1	2716/RG-333/1000FT	10
117	88	1	2717/RG-333/1000FT	10
118	86	1	2758/RG-331/1000FT	10
119	96J	1	2759/RG-331/1000FT	10
120-1	35	1	2744/RG-331/1000FT	10
120-2	501	1	2753/RG-331/1800FT	30
121-1	17	1	2718/RG-333/1000FT	5
121-2	2	1	2739/RG-333/1800FT	15
122-1	19	1	2719/RG-333/1000FT	5
122-2	18	1	2740/RG-333/1800FT	15
123-1	13	1	2720/RG-333/1000FT	5
123-2	5A	1	2741/RG-333/1800FT	15
124-1	14	1	2721/RG-333/1000FT	5
124-2	44	1	2742/RG-333/1800FT	15
125-1	15	1	2722/RG-333/1000FT	5
125-2	65	1	2743/RG-333/1800FT	30
126-1	3	1	2723/RG-333/1000FT	5
126-2	28	1	2738/RG-333/1800FT	30
127	89	1	2752/RG-331/1000FT	10
128	57A	1	2724/RG-333/1000FT	5
129	90	1	2746/RG-331/1000FT	10
130	91-1	1	2747/RG-331/1000FT	10
130	91-2	1	2747/RG-331/1000FT	10
131	92-1	1	2748/RG-331/1000FT	10
131	92-2	1	2748/RG-331/1000FT	10
132	95C	1	2760/RG-331/1000FT	10
134	101	1	2749/RG-331/1000FT	10
135	96D	1	3047/RG-214/1000FT	10SW
136	262	1	2751/RG-331/1000FT	10
137	XRD1	1	2815/RG-331/900FT	20
138	XRD2	1	2816/RG-331/900FT	20
201	57	2	2801/RG-333/1000FT	10
202	96	2	2802/RG-333/1000FT	10
203	26A	2	2803/RG-333/1000FT	10
204	40	2	2804/RG-333/1000FT	10
205	41	2	2805/RG-333/1000FT	10
206	42	2	2806/RG-333/1000FT	10
207	50	2	2807/RG-333/1000FT	10
208	82	2	2808/RG-333/1000FT	10
209	10	2	2809/RG-333/1000FT	10
210	53	2	2810/RG-333/1000FT	10
211-1	81	2	2811/RG-333/1000FT	10

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
211-2	60	2	2814/RG-333/1800FT	30
212-1	31R	2	2812/RG-333/1000FT	10
212-2	32R	2	2843/RG-331/1800FT	30
213-1	95	2	2813/RG-333/1000FT	10
213-1	96G	2	2813/RG-333/1000FT	10
213-2	93	2	2844/RG-331/1800FT	30
214-1	526	2	2817/RG-331/1000FT	10
214-2	532	2	2845/RG-331/1800FT	30
215-1	527	2	2818/RG-331/1000FT	10
215-2	533	2	2846/RG-331/1800FT	30
216-1	543	2	2819/RG-331/1000FT	10
216-2	132	2	2847/RG-331/1800FT	30
217-1	447	2	2936/RG-331/1000FT	10
217-2	113A	2	2848/RG-331/1800FT	30
218	125	2	2821/RG-331/1000FT	10
219-1	128	2	2822/RG-331/1000FT	10
219-2	125A	2	2850/RG-331/1800FT	30
220-1	112E	2	2823/RG-331/1000FT	10
220-2	128A	2	2851/RG-331/1800FT	30
221	101A	2	2824/RG-331/1000FT	10
222	102	2	2825/RG-331/1000FT	10
223	152	2	2826/RG-331/1000FT	10
224	122C	2	2827/RG-331/1000FT	10
225	112	2	2828/RG-331/1000FT	10
226	113	2	2829/RG-331/1000FT	10
227	446	2	2830/RG-331/1000FT	10
228	122A	2	2831/RG-331/1000FT	10
229	122B	2	2832/RG-331/1000FT	10
230	123A	2	2833/RG-331/1000FT	10
231	131A	2	2834/RG-331/1000FT	10
232	132A	2	2835/RG-331/1000FT	10
233	134	2	2836/RG-331/1000FT	10
234	139	2	2837/RG-331/1000FT	10
235	140	2	2838/RG-331/1000FT	10
236	132B	2	2839/RG-331/1000FT	10
237	132C	2	2840/RG-331/1000FT	10
238	444	2	2841/RG-331/1000FT	10
239	261	2	2842/RG-331/1000FT	10
240	XRD1	2	2815/RG-331/900FT	20
241	XRD2	2	2816/RG-331/900FT	20
242	160	2	2745/RG-331/1000FT	10
243	B2	4	2728/RG-333/1000FT	10
244	B3	4	2750/RG-331/1000FT	10
245	SPARE30	4		--
246	CI1	4	RG-331/1000FT	10SW
248	127	2	2849/RG-331/1800FT	30
249	544	2	2820/RG-331/1000FT	10
301	4	3	2901/RG-333/1000FT	10
302	12	3	2902/RG-333/1000FT	10
303	16	3	2903/RG-333/1000FT	10

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
304	1	3	2904/RG-333/1000FT	10
305	90A	3	2961/RG-214/1000FT	10SW
306	6	3	2905/RG-333/1000FT	10
307	21	3	2906/RG-333/1000FT	10
308	59	3	2907/RG-333/1000FT	10
309	9	3	2908/RG-333/1000FT	10
310	58A	3	2909/RG-333/1000FT	10
311-1	129	3	2910/RG-331/1000FT	10
311-2	265	3	2940/RG-331/1800FT	30
312-1	130	3	2911/RG-331/1000FT	10
312-2	266	3	2941/RG-331/1800FT	30
313-1	141	3	2912/RG-331/1000FT	10
313-2	267	3	2942/RG-331/1800FT	30
314-1	448	3	2913/RG-331/1000FT	10
314-2	142	3	2943/RG-331/1800FT	30
315-1	411C	3	2914/RG-331/1000FT	10
315-2	185	3	2944/RG-331/1800FT	30
316-1	449	3	2915/RG-331/1000FT	10
316-2	186	3	2945/RG-331/1800FT	30
317-1	190	3	2916/RG-331/1000FT	10
317-2	272	3	2946/RG-331/1800FT	30
318-1	273	3	2917/RG-331/1000FT	10
318-2	191	3	2947/RG-331/1800FT	30
319-1	268	3	2933/RG-331/1000FT	10
319-2	274	3	2948/RG-331/1800FT	30
320-1	263	3	2918/RG-331/1000FT	10
320-2	276	3	2949/RG-331/1800FT	30
321-1	360	3	2919/RG-331/1000FT	10
321-2	104A	3	2950/RG-331/1800FT	30
322-1	105	3	2920/RG-331/1000FT	10
322-2	361	3	2951/RG-331/1800FT	30
323-1	452	3	2921/RG-331/1000FT	10
323-2	131	3	2952/RG-331/1800FT	30
324-1	126	3	2922/RG-331/1000FT	10
324-2	370	3	2953/RG-331/1800FT	30
325-1	264	3	2923/RG-331/1000FT	10
325-2	282	3	2954/RG-331/1800FT	30
326	103	3	2924/RG-331/1000FT	10
327	104	3	2925/RG-331/1000FT	10
328	107	3	2926/RG-331/1000FT	10
329	109	3	2927/RG-331/1000FT	10
330	275	3	2928/RG-331/1000FT	10
331	277	3	2929/RG-331/1000FT	10
332	283	3	2930/RG-331/1000FT	10
333	363	3	2931/RG-331/1000FT	10
334	374	3	2932/RG-331/1000FT	10
335	383	3	2933/RG-331/1000FT	10
336	389	3	2934/RG-331/1000FT	10
337	112D	3	2935/RG-331/1000FT	10
339	451	3	2937/RG-331/1000FT	10

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
340	411D	3	2938/RG-331/1000FT	10
341	XRD3	3	3007/RG-331/900FT	20
342	XRD4	3	3008/RG-331/900FT	20
343	CI3	3	SAI1/RG-214/500FT	10SW
344	B4	3	SAI2/RG-214/50FT	--
345	76	3	2726/RG-333/1000FT	10
346	77	3	2727/RG-333/1800FT	10
401	43	4	3001/RG-333/1000FT	10
402	7	4	3002/RG-333/1000FT	10
403	55	4	3003/RG-333/1000FT	10
404	68	4	3004/RG-333/1000FT	10
405	85	4	3005/RG-333/1000FT	10
406-1	113B	4	3009/RG-331/1000FT	10
406-2	371	4	3035/RG-331/1800FT	30
407-1	410	4	3010/RG-331/1000FT	10
407-2	372	4	3036/RG-331/1800FT	30
408-1	113C	4	3011/RG-331/1000FT	10
408-2	373	4	3037/RG-331/1800FT	30
409-1	445	4	3012/RG-331/1000FT	10
409-2	380	4	3038/RG-331/1800FT	10
410	112A	4	3013/RG-331/1000FT	10
411-1	450	4	3014/RG-331/1000FT	10
411-2	112B	4	3040/RG-331/1800FT	30
412-1	411A	4	3015/RG-331/1000FT	10
412-2	384	4	3041/RG-331/1800FT	30
413-1	396	4	3016/RG-331/1000FT	10
413-2	459	4	3042/RG-331/1800FT	30
414-1	112C	4	3017/RG-331/1000FT	10
414-2	458	4	3043/RG-331/1800FT	30
415	110	4	3018/RG-331/1000FT	10
416	111	4	3019/RG-331/1000FT	10
417	157	4	3020/RG-331/1000FT	10
418	135	4	3021/RG-331/1000FT	10
419	136	4	3022/RG-331/1000FT	10
420	110A	4	3023/RG-331/1000FT	10
421	110B	4	3024/RG-331/1000FT	10
422	110C	4	3025/RG-331/1000FT	10
423	270	4	3026/RG-331/1000FT	10
424	108	4	3027/RG-331/1000FT	10
425	133	4	3028/RG-331/1000FT	10
426	47	4	3039/RG-331/1000FT	10
427	411B	4	3030/RG-331/1000FT	10
428	411	4	3031/RG-331/1000FT	10
429	187	4	3032/RG-331/1000FT	10
430	XRD3	4	3007/RG-331/900FT	20
431	XRD4	4	3008/RG-331/900FT	20
432	94-1	4	3006/RG-333/1000FT	10
432	94-2	4	3006/RG-333/1000FT	10
433	153	4	3033/RG-331/1000FT	10
434	125B	4	3034/RG-331/1000FT	10

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SAI CHANNEL #	SENSOR #	TRAILER	CABLE#/TYPE/LENGTH	EQUAL.
435	127A	4	0945/RG-331/1000FT	10
436	131B	4	0946/RG-331/1000FT	10
437	122D	4	3051/RG-331/1000FT	10
430	GAMMA	4	3044/RG-214/1000FT	10SW
438	GAMMAHV	4	3050/RG-213/1000FT	--
439	46	4	2725/RG-333/1000FT	10
601	110A	6	0904/RG-214/1000FT	10SW
602	110C	6	0907/RG-214/1000FT	10SW
603	122C	6	0909/RG-214/1000FT	10SW
604	160	6	0910/RG-214/1000FT	10SW
605	177	6	0905/RG-214/1000FT	10SW
606	407	6	0906/RG-214/1000FT	10SW
607	132C	6	0916/RG-214/1000FT	10SW
608	125B	6	3124/RG-214/1000FT	10SW
609	127A	6	3126/RG-214/1000FT	10SW
610	131B	6	3127/RG-214/1000FT	10SW
611	137	6	0911/RG-214/1000FT	10SW
612	138	6	0912/RG-214/1000FT	10SW
613	170	6	0913/RG-214/1000FT	10SW
614	176	6	0914/RG-214/1000FT	10SW
615	179	6	0915/RG-214/1000FT	10SW
616	153	6	3143/RG-214/1000FT	10SW
617	122D	6	3144/RG-214/1000FT	10SW
618	111	6	3132/RG-214/1000FT	10SW
619	274	6	3145/RG-214/1000FT	10SW

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CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
				141C
				190C
	--	1-1-10	1	TPMN1-1
	--	1-1-14	1	IRIG1
	--	2-1-01	2	TPMN2-1
	--	2-1-04	2	SPARE17
	--	2-1-06	2	SPARE26
	--	2-1-07	2	SPARE48
	--	2-1-14-02	2	FIDU2
	--	2-1-14-03	2	IRIG2
	--	3-1-13	3	TPMN3-1
	--	3-1-14-02	3	FIDU3
	--	3-1-14-03	3	IRIG3
	--	4-1-02	4	SPARE50
	--	4-1-08	4	TPMN4-1
	--	4-1-10	4	SPARE31
	--	4-1-11	4	SPARE32
	--	4-1-14-02	4	FIDU4
	--	4-1-14-03	4	IRIG4
	--	5-1-01	5	SPARE27
	--	5-1-11	5	TPMN5-1
	--	5(1/2)14-02	5	FIDU5A
	--	5(1/2)14-03	5	IRIG5A
	--	5-2-11	5	TPMN5-2
	--	5-2-13	5	NSACLK
	--	5-3-05	5	TPMN5-3
	--	5(3/4)14-02	5	FIDU5B
	--	5(3/4)14-03	5	SFIDU
	--	5(3/4)14-04	5	IRIG5B
	--	5-4-11-07	5	EAGE47
	--	5-4-11-08	5	EAGE48
	--	5-4-12	5	TPMN5-4
	--	5-4-12-01	5	SPARE
	--	5-4-12-02	5	SPARE
	--	5-4-12-03	5	SPARE
	--	5-4-12-04	5	SPARE
	--	5-4-12-05	5	SPARE
	--	5-4-12-06	5	SPARE
	--	5-4-12-07	5	SPARE
	--	5-4-12-08	5	SPARE
	--	5-4-12-09	5	SPARE
	--	5-4-12-10	5	SPARE
	--	5-4-13-01	5	530
	--	5-4-13-02	5	531
	--	5-4-13-03	5	SPARE
	--	5-4-13-06	5	SPARE19
	--	5-4-13-07	5	SPARE20
	--	5-4-13-08	5	SPARE21
	--	5-4-13-10	5	SPARE22
	--	6-1-05	6	SPARE49

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CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
	--	6-1-06	6	TPMN6-1
	--	6(1/2)14-02	6	FIDU6
	--	6(1/2)14-03	6	IRIG6
	--	245	4	SPARE30
	10SW	246	4	CI1
RG-331/1000FT	--	5(3/4)14-06	5	507
J1003(<A>,<B>)EAGE	--	5(3/4)14-08	5	510
J1003(<W>,<X>)EAGE	--	5(3/4)14-07	5	509
J1003(A,B)EAGE	--	5(3/4)14-09	5	511
J1003(C,D)EAGE	--	5-1-02	5	512
J1003(E,F)EAGE	--	5-4-08-04	5	514
J1003(H,G)EAGE	--	5(3/4)14-05	5	503
J1003(HH,PP)EAGE	--	5-4-09-05	5	515
J1003(J,<I>)EAGE	--	5-4-09-06	5	516
J1003(K,L)EAGE	--	5-4-09-07	5	517
J1003(M,N)EAGE	--	5-4-09-08	5	518
J1003(P,R)EAGE	--	5-4-11-09	5	519
J1003(S,<F>)EAGE	--	5-4-11-10	5	520
J1003(T,U)EAGE	--	5(1/2)14-04	5	521
J1003(V,W)EAGE	--	5(1/2)14-05	5	522
J1003(X,<T>)EAGE	--	5(1/2)14-06	5	523
J1003(Z,<U>)EAGE	--	5-1-03	5	530
J1004(<A>,<B>)EAGE	--	5-1-06	5	535
J1004(<W>,<X>)EAGE	--	5-1-05	5	534
J1004(A,B)EAGE	--	5-1-07	5	536
J1004(C,D)EAGE	--	5(1/2)14-09	5	550
J1004(DD,EE)EAGE	--	5-1-08	5	537
J1004(E,F)EAGE	--	5-1-09	5	538
J1004(H,G)EAGE	--	5(1/2)14-07	5	524
J1004(HH,PP)EAGE	--	5-4-10-05	5	EAGE35
J1004(J,<I>)EAGE	--	5-4-10-06	5	EAGE36
J1004(K,L)EAGE	--	5-1-04	5	531
J1004(KK,<Z>)EAGE	--	5(1/2)14-08	5	525
J1004(LL,DD)EAGE	--	5-4-10-07	5	EAGE37
J1004(M,N)EAGE	--	5-4-10-08	5	EAGE38
J1004(P,R)EAGE	--	5-3-03-05	5	DATA
J1203(HH,PP)EAGE	--	5-3-03-06	5	SYNC
J1203(LL,BB)EAGE	--	5-3-03-07	5	CLK
J1203(MM,NN)EAGE	--	5(1/2)14-10	5	NSA/T&F
MINUS2S,PLUS1.5S	--	5-2-12	5	549
NSA/R-28DATA OUT	--	5-4-09-09	5	547
NSA/KIR-23RESET	--	5-4-09-10	5	548
NSA/KIR-23MESSAGE DATA	10SW	343	3	CI3
SAI1/RG-214/500FT	--	344	3	B4
SAI2/RG-214/50FT	--	5-4-10-09	5	EAGE39
TB401-09,10EAGE	--	5-4-10-10	5	EAGE40
TB401-11,12EAGE	--	5-4-11-01	5	EAGE41
TB402-01,02EAGE	--	5-4-11-02	5	EAGE42
TB402-04,05EAGE	--	5-4-11-03	5	EAGE43
TB405-09,10EAGE	--	5-4-11-04	5	EAGE44
TB406-04,05EAGE				

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TB406-09,10EAGE	--	5-4-11-05	5	EAGE45
TB406-11,12EAGE	--	5-4-11-06	5	EAGE46
0901/RG-214/1000FT	--	6-1-01	6	SPARE05
0902/RG-214/1000FT	--	6-1-02	6	96C
0903/RG-214/1000FT	--	6-2-12	6	162
0904/RG-214/1000FT	10SW	601	6	110A
0905/RG-214/1000FT	10SW	605	6	177
0906/RG-214/1000FT	10SW	606	6	407
0907/RG-214/1000FT	10SW	602	6	110C
0908/RG-214/1000FT	--	5-4-13-05	5	102LF
0909/RG-214/1000FT	10SW	603	6	122C
0910/RG-214/1000FT	10SW	604	6	160
0911/RG-214/1000FT	10SW	611	6	137
0912/RG-214/1000FT	10SW	612	6	138
0913/RG-214/1000FT	10SW	613	6	170
0914/RG-214/1000FT	10SW	614	6	176
0915/RG-214/1000FT	10SW	615	6	179
0916/RG-214/1000FT	10SW	607	6	132C
0917/RG-214/1000FT	--	6-1-04	6	SPARE46
0918/RG-214/1000FT	--	6-2-13	6	164
0919/RG-214/1000FT	--	6-2-10	6	159
0920/RG-214/1000FT	--	6-2-11	6	161
0921/RG-214/1000FT	--	6-2-04	6	150
0922/RG-214/1000FT	--	6-2-05	6	151
0923/RG-214/1000FT	--	6-1-03	6	154
0924/RG-214/1000FT	--	6-2-07	6	155
0925/RG-214/1000FT	--	6-2-08	6	156
0926/RG-214/1000FT	--	6-2-09	6	158
0945/RG-331/1000FT	10	435	4	127A
0946/RG-331/1000FT	10	436	4	131B
2701/RG-333/1000FT	5	101	1	54
2702/RG-333/1000FT	5	102	1	38
2703/RG-333/1000FT	10	103	1	61
2704/RG-333/1000FT	10	104	1	24
2705/RG-333/1000FT	10	105-1	1	23
2706/RG-333/1000FT	10	106-1	1	49
2707/RG-333/1000FT	10	107-1	1	45
2708/RG-333/1000FT	10	108-1	1	8
2709/RG-333/1000FT	10	109-1	1	29
2710/RG-333/1000FT	5	110-1	1	37
2711/RG-333/1000FT	10	111-1	1	51
2712/RG-333/1000FT	10	112-1	1	75
2713/RG-333/1000FT	5	113-1	1	78
2714/RG-333/1000FT	5	114	1	30
2715/RG-333/1000FT	5	115	1	36
2716/RG-333/1000FT	10	116	1	87
2717/RG-333/1000FT	10	117	1	88
2718/RG-333/1000FT	5	121-1	1	17
2719/RG-333/1000FT	5	122-1	1	19
2720/RG-333/1000FT	5	123-1	1	13

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CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
2721/RG-333/1000FT	5	124-1	1	14
2722/RG-333/1000FT	5	125-1	1	15
2723/RG-333/1000FT	5	126-1	1	3
2724/RG-333/1000FT	5	128	1	57A
2725/RG-333/1000FT	10	439	4	46
2726/RG-333/1000FT	10	345	3	76
2727/RG-333/1800FT	10	346	3	77
2728/RG-333/1000FT	10	243	4	B2
2729/RG-333/1800FT	30	105-2	1	48
2730/RG-333/1800FT	30	106-2	1	83
2731/RG-333/1800FT	30	107-2	1	84
2732/RG-333/1800FT	30	108-2	1	69
2733/RG-333/1800FT	30	109-2	1	74
2734/RG-333/1800FT	30	110-2	1	502
2735/RG-333/1800FT	30	111-2	1	62
2736/RG-333/1800FT	30	112-2	1	63
2737/RG-333/1800FT	30	113-2	1	27
2738/RG-333/1800FT	30	126-2	1	28
2739/RG-333/1800FT	15	121-2	1	2
2740/RG-333/1800FT	15	122-2	1	18
2741/RG-333/1800FT	15	123-2	1	5A
2742/RG-333/1800FT	15	124-2	1	44
2743/RG-333/1800FT	30	125-2	1	65
2744/RG-331/1000FT	10	120-1	1	35
2745/RG-331/1000FT	10	242	2	160
2746/RG-331/1000FT	10	129	1	90
2747/RG-331/1000FT	10	130	1	91-2
2747/RG-331/1000FT	10	130	1	91-1
2748/RG-331/1000FT	10	131	1	92-2
2748/RG-331/1000FT	10	131	1	92-1
2749/RG-331/1000FT	10	134	1	101
2750/RG-331/1000FT	10	244	4	B3
2751/RG-331/1000FT	10	136	1	262
2752/RG-331/1000FT	10	127	1	89
2753/RG-331/1800FT	30	120-2	1	501
2758/RG-331/1000FT	10	118	1	86
2759/RG-331/1000FT	10	119	1	96J
2760/RG-331/1000FT	10	132	1	95C
2801/RG-333/1000FT	10	201	2	57
2802/RG-333/1000FT	10	202	2	96
2803/RG-333/1000FT	10	203	2	26A
2804/RG-333/1000FT	10	204	2	40
2805/RG-333/1000FT	10	205	2	41
2806/RG-333/1000FT	10	206	2	42
2807/RG-333/1000FT	10	207	2	50
2808/RG-333/1000FT	10	208	2	82
2809/RG-333/1000FT	10	209	2	10
2810/RG-333/1000FT	10	210	2	53
2811/RG-333/1000FT	10	211-1	2	81
2812/RG-333/1000FT	10	212-1	2	31R

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CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
2813/RG-333/1000FT	10	213-1	2	96G
2813/RG-333/1000FT	10	213-1	2	95
2814/RG-333/1800FT	30	211-2	2	60
2815/RG-331/900FT	20	137	1	XRD1
2815/RG-331/900FT	20	240	2	XRD1
2816/RG-331/900FT	20	138	1	XRD2
2816/RG-331/900FT	20	241	2	XRD2
2817/RG-331/1000FT	10	214-1	2	526
2818/RG-331/1000FT	10	215-1	2	527
2819/RG-331/1000FT	10	216-1	2	543
2820/RG-331/1000FT	10	249	2	544
2821/RG-331/1000FT	10	218	2	125
2822/RG-331/1000FT	10	219-1	2	128
2823/RG-331/1000FT	10	220-1	2	112E
2824/RG-331/1000FT	10	221	2	101A
2825/RG-331/1000FT	10	222	2	102
2826/RG-331/1000FT	10	223	2	152
2827/RG-331/1000FT	10	224	2	122C
2828/RG-331/1000FT	10	225	2	112
2829/RG-331/1000FT	10	226	2	113
2830/RG-331/1000FT	10	227	2	446
2831/RG-331/1000FT	10	228	2	122A
2832/RG-331/1000FT	10	229	2	122B
2833/RG-331/1000FT	10	230	2	123A
2834/RG-331/1000FT	10	231	2	131A
2835/RG-331/1000FT	10	232	2	132A
2836/RG-331/1000FT	10	233	2	134
2837/RG-331/1000FT	10	234	2	139
2838/RG-331/1000FT	10	235	2	140
2839/RG-331/1000FT	10	236	2	132B
2840/RG-331/1000FT	10	237	2	132C
2841/RG-331/1000FT	10	238	2	444
2842/RG-331/1000FT	10	239	2	261
2843/RG-331/1800FT	30	212-2	2	32R
2844/RG-331/1800FT	30	213-2	2	93
2845/RG-331/1800FT	30	214-2	2	532
2846/RG-331/1800FT	30	215-2	2	533
2847/RG-331/1800FT	30	216-2	2	132
2848/RG-331/1800FT	30	217-2	2	113A
2849/RG-331/1800FT	30	248	2	127
2850/RG-331/1800FT	30	219-2	2	125A
2851/RG-331/1800FT	30	220-2	2	128A
2852/RG-214/1000FT	--		2	UNUSED
2853/RG-214/1000FT	--	2-1-09	2	148
2854/RG-214/1000FT	--	2-1-10	2	178
2855/RG-214/1000FT	--	2-1-11	2	180
2856/RG-214/1000FT	--	2-1-12	2	181
2857/RG-214/1000FT	--	2-1-13	2	163
2901/RG-333/1000FT	10	301	3	4
2902/RG-333/1000FT	10	302	3	12

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CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
2903/RG-333/1000FT	10	303	3	16
2904/RG-333/1000FT	10	304	3	1
2905/RG-333/1000FT	10	306	3	6
2906/RG-333/1000FT	10	307	3	21
2907/RG-333/1000FT	10	308	3	59
2908/RG-333/1000FT	10	309	3	9
2909/RG-333/1000FT	10	310	3	58A
2910/RG-331/1000FT	10	311-1	3	129
2911/RG-331/1000FT	10	312-1	3	130
2912/RG-331/1000FT	10	313-1	3	141
2913/RG-331/1000FT	10	314-1	3	448
2914/RG-331/1000FT	10	315-1	3	411C
2915/RG-331/1000FT	10	316-1	3	449
2916/RG-331/1000FT	10	317-1	3	190
2917/RG-331/1000FT	10	318-1	3	273
2918/RG-331/1000FT	10	320-1	3	263
2919/RG-331/1000FT	10	321-1	3	360
2920/RG-331/1000FT	10	322-1	3	105
2921/RG-331/1000FT	10	323-1	3	452
2922/RG-331/1000FT	10	324-1	3	126
2923/RG-331/1000FT	10	325-1	3	264
2924/RG-331/1000FT	10	326	3	103
2925/RG-331/1000FT	10	327	3	104
2926/RG-331/1000FT	10	328	3	107
2927/RG-331/1000FT	10	329	3	109
2928/RG-331/1000FT	10	330	3	275
2929/RG-331/1000FT	10	331	3	277
2930/RG-331/1000FT	10	332	3	283
2931/RG-331/1000FT	10	333	3	363
2932/RG-331/1000FT	10	334	3	374
2933/RG-331/1000FT	10	335	3	383
2934/RG-331/1000FT	10	336	3	389
2935/RG-331/1000FT	10	337	3	112D
2936/RG-331/1000FT	10	217-1	2	447
2937/RG-331/1000FT	10	339	3	451
2938/RG-331/1000FT	10	340	3	411D
2939/RG-331/1000FT	10	319-1	3	260
2940/RG-331/1800FT	30	311-2	3	265
2941/RG-331/1800FT	30	312-2	3	266
2942/RG-331/1800FT	30	313-2	3	267
2943/RG-331/1800FT	30	314-2	3	142
2944/RG-331/1800FT	30	315-2	3	185
2945/RG-331/1800FT	30	316-2	3	186
2946/RG-331/1800FT	30	317-2	3	272
2947/RG-331/1800FT	30	318-2	3	191
2948/RG-331/1800FT	30	319-2	3	274
2949/RG-331/1800FT	30	320-2	3	276
2950/RG-331/1800FT	30	321-2	3	104A
2951/RG-331/1800FT	30	322-2	3	361
2952/RG-331/1800FT	30	323-2	3	131

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CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
2953/RG-331/1800FT	30	324-2	3	370
2954/RG-331/1800FT	30	325-2	3	282
2955/RG-214/1000FT	--	3-1-05	3	169
2956/RG-214/1000FT	--	3-1-06	3	171
2957/RG-214/1000FT	--	3-1-07	3	172
2958/RG-214/1000FT	--	3-1-08	3	173
2959/RG-214/1000FT	--	3-1-09	3	174
2960/RG-214/1000FT	--	3-1-10	3	175
2961/RG-214/1000FT	10SW	305	3	90A
2962/RG-214/1000FT	--	3-1-12	3	124
3001/RG-333/1000FT	10	401	4	43
3002/RG-333/1000FT	10	402	4	7
3003/RG-333/1000FT	10	403	4	55
3004/RG-333/1000FT	10	404	4	68
3005/RG-333/1000FT	10	405	4	85
3006/RG-333/1000FT	10	432	4	94-2
3006/RG-333/1000FT	10	432	4	94-1
3007/RG-331/900FT	20	341	3	XRD3
3007/RG-331/900FT	20	430	4	XRD3
3008/RG-331/900FT	20	342	3	XRD4
3008/RG-331/900FT	20	431	4	XRD4
3009/RG-331/1000FT	10	406-1	4	113B
3010/RG-331/1000FT	10	407-1	4	410
3011/RG-331/1000FT	10	408-1	4	113C
3012/RG-331/1000FT	10	409-1	4	445
3013/RG-331/1000FT	10	410	4	112A
3014/RG-331/1000FT	10	411-1	4	450
3015/RG-331/1000FT	10	412-1	4	411A
3016/RG-331/1000FT	10	413-1	4	386
3017/RG-331/1000FT	10	414-1	4	112C
3018/RG-331/1000FT	10	415	4	110
3019/RG-331/1000FT	10	416	4	111
3020/RG-331/1000FT	10	417	4	157
3021/RG-331/1000FT	10	418	4	135
3022/RG-331/1000FT	10	419	4	136
3023/RG-331/1000FT	10	420	4	110A
3024/RG-331/1000FT	10	421	4	110B
3025/RG-331/1000FT	10	422	4	110C
3026/RG-331/1000FT	10	423	4	270
3027/RG-331/1000FT	10	424	4	108
3028/RG-331/1000FT	10	425	4	133
3029/RG-331/1000FT	--		6	GAMMATG
3030/RG-331/1000FT	10	427	4	411B
3031/RG-331/1000FT	10	428	4	411
3032/RG-331/1000FT	10	429	4	187
3033/RG-331/1000FT	10	433	4	153
3034/RG-331/1000FT	10	434	4	125B
3035/RG-331/1800FT	30	406-2	4	371
3036/RG-331/1800FT	30	407-2	4	372
3037/RG-331/1800FT	30	408-2	4	373

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CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
3038/RG-331/1800FT	10	409-2	4	380
3039/RG-331/1000FT	10	426	4	47
3040/RG-331/1800FT	30	411-2	4	112B
3041/RG-331/1800FT	30	412-2	4	384
3042/RG-331/1800FT	30	413-2	4	459
3043/RG-331/1800FT	30	414-2	4	458
3044/RG-214/1000FT	10SW	438	4	GAMMA
3045/RG-214/1000FT	--	4-1-09	4	147
3046/RG-214/1000FT	--		4	UNUSED
3047/RG-214/1000FT	10SW	135	1	96D
3048/RG-214/1000FT	--	4-1-12	4	SPARE33
3049/RG-214/1000FT	--	4-1-01	4	165
3050/RG-213/1000FT	--	438	4	GAMMAHV
3051/RG-331/1000FT	10	437	4	122D
3101-01/20TSP/1000FT	--	5-3-01-01	5	194
3101-02/20TSP/1000FT	--	5-3-01-02	5	195
3101-03/20TSP/1000FT	--	5-3-01-03	5	196
3101-04/20TSP/1000FT	--	5-3-01-04	5	197
3101-05/20TSP/1000FT	--	5-3-01-05	5	198
3101-06/20TSP/1000FT	--	5-3-01-06	5	199
3101-07/20TSP/1000FT	--	5-3-01-07	5	200
3101-08/20TSP/1000FT	--	5-3-01-08	5	201
3101-09/20TSP/1000FT	--	5-3-01-09	5	202
3101-10/20TSP/1000FT	--	5-3-01-10	5	203
3101-11/20TSP/1000FT	--	5-3-02-01	5	204
3101-12/20TSP/1000FT	--	5-3-02-02	5	205
3101-13/20TSP/1000FT	--	5-3-02-03	5	206
3101-14/20TSP/1000FT	--	5-3-02-04	5	207
3101-15/20TSP/1000FT	--	5-3-02-05	5	208
3101-16/20TSP/1000FT	--	5-3-02-06	5	209
3101-17/20TSP/1000FT	--	5-3-02-07	5	235
3101-18/20TSP/1000FT	--	5-3-02-08	5	236
3101-19/20TSP/1000FT	--	5-3-02-09	5	237
3101-20/20TSP/1000FT	--	5-3-02-10	5	SPARE01
3102-01/20TSP/1000FT	--	5-3-03-01	5	210
3102-02/20TSP/1000FT	--	5-3-03-02	5	211
3102-03/20TSP/1000FT	--	5-3-03-03	5	212
3102-04/20TSP/1000FT	--	5-3-03-04	5	SPARE02
3102-05/20TSP/1000FT	--	5-3-03-05	5	SPARE03
3102-06/20TSP/1000FT	--	5-3-03-06	5	SPARE04
3102-07/20TSP/1000FT	--	5-3-03-07	5	SPARE24
3102-08/20TSP/1000FT	--	5-3-03-08	5	SPARE25
3102-09/20TSP/1000FT	--	5-3-03-09	5	219
3102-10/20TSP/1000FT	--	5-3-03-10	5	220
3102-11/20TSP/1000FT	--	5-3-04-01	5	221
3102-12/20TSP/1000FT	--	5-3-04-02	5	222
3102-13/20TSP/1000FT	--	5-3-04-03	5	223
3102-14/20TSP/1000FT	--	5-3-04-04	5	224
3102-15/20TSP/1000FT	--	5-3-04-05	5	225
3102-16/20TSP/1000FT	--	5-3-04-06	5	226

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CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
3102-17/20TSP/1000FT	--	5-3-04-07	5	213
3102-18/20TSP/1000FT	--	5-3-04-08	5	214
3102-19/20TSP/1000FT	--	5-3-04-09	5	215
3102-20/20TSP/1000FT	--	5-3-04-10	5	216
3103-01/20TSP/1000FT	--	J1202IN	5	BIT15
3103-02/20TSP/1000FT	--	J1202IN	5	BIT14
3103-03/20TSP/1000FT	--	J1202IN	5	BIT13
3103-04/20TSP/1000FT	--	J1202IN	5	BIT12
3103-05/20TSP/1000FT	--	J1202IN	5	BIT11
3103-06/20TSP/1000FT	--	J1202IN	5	BIT10
3103-07/20TSP/1000FT	--	J1202IN	5	BIT09
3103-08/20TSP/1000FT	--	J1202IN	5	BIT08
3103-09/20TSP/1000FT	--	J1202IN	5	BIT07
3103-10/20TSP/1000FT	--	J1202IN	5	BIT06
3103-11/20TSP/1000FT	--	J1202IN	5	BIT05
3103-12/20TSP/1000FT	--	J1202IN	5	BIT04
3103-13/20TSP/1000FT	--	J1202IN	5	BIT03
3103-14/20TSP/1000FT	--	J1202IN	5	BIT02
3103-15/20TSP/1000FT	--	J1202IN	5	BIT01
3103-16/20TSP/1000FT	--	J1202IN	5	BIT00
3103-17/20TSP/1000FT	--	J1202IN	5	SYNCIN
3103-18/20TSP/1000FT	--	J1202IN	5	CLKIN
3103-19/20TSP/1000FT	--		5	UNUSED
3103-20/20TSP/1000FT	--		5	UNUSED
3104-01/20TSP/1000FT	--	5-3-07-01	5	289
3104-02/20TSP/1000FT	--	5-3-07-02	5	290
3104-03/20TSP/1000FT	--	5-3-07-03	5	291
3104-04/20TSP/1000FT	--	5-3-07-04	5	292
3104-05/20TSP/1000FT	--	5-3-07-05	5	293
3104-06/20TSP/1000FT	--	5-3-07-06	5	294
3104-07/20TSP/1000FT	--	5-3-07-07	5	295
3104-08/20TSP/1000FT	--	5-3-07-08	5	296
3104-09/20TSP/1000FT	--	5-3-07-09	5	297
3104-10/20TSP/1000FT	--	5-3-07-10	5	298
3104-11/20TSP/1000FT	--	5-3-08-01	5	299
3104-12/20TSP/1000FT	--	5-3-08-02	5	300
3104-13/20TSP/1000FT	--	5-3-08-03	5	301
3104-14/20TSP/1000FT	--	5-3-08-04	5	302
3104-15/20TSP/1000FT	--	5-3-08-05	5	303
3104-16/20TSP/1000FT	--	5-3-08-06	5	304
3104-17/20TSP/1000FT	--	5-3-08-07	5	305
3104-18/20TSP/1000FT	--	5-3-08-08	5	306
3104-19/20TSP/1000FT	--	5-3-08-09	5	307
3104-20/20TSP/1000FT	--	5-3-08-10	5	308
3105-01/20TSP/1000FT	--	5-3-09-01	5	309
3105-02/20TSP/1000FT	--	5-3-09-02	5	310
3105-03/20TSP/1000FT	--	5-3-09-03	5	311
3105-04/20TSP/1000FT	--	5-3-09-04	5	312
3105-05/20TSP/1000FT	--	5-3-09-05	5	313
3105-06/20TSP/1000FT	--	5-3-09-06	5	314

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CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
3105-07/20TSP/1000FT	--	5-3-09-07	5	315
3105-08/20TSP/1000FT	--	5-3-09-08	5	316
3105-09/20TSP/1000FT	--	5-3-09-09	5	317
3105-10/20TSP/1000FT	--	5-3-09-10	5	318
3105-11/20TSP/1000FT	--	5-3-10-01	5	319
3105-12/20TSP/1000FT	--	5-3-10-02	5	320
3105-13/20TSP/1000FT	--	5-3-10-03	5	321
3105-14/20TSP/1000FT	--	5-3-10-04	5	322
3105-15/20TSP/1000FT	--	5-3-10-05	5	323
3105-16/20TSP/1000FT	--	5-3-10-06	5	324
3105-17/20TSP/1000FT	--	5-3-10-07	5	325
3105-18/20TSP/1000FT	--	5-3-10-08	5	326
3105-19/20TSP/1000FT	--	5-3-10-09	5	327
3105-20/20TSP/1000FT	--	5-3-10-10	5	328
3106-01/20TSP/1000FT	--	5-4-01-01	5	329
3106-02/20TSP/1000FT	--	5-4-01-02	5	330
3106-03/20TSP/1000FT	--	5-4-01-03	5	331
3106-04/20TSP/1000FT	--	5-4-01-04	5	332
3106-05/20TSP/1000FT	--	5-4-01-05	5	333
3106-06/20TSP/1000FT	--	5-4-01-06	5	334
3106-07/20TSP/1000FT	--	5-4-01-07	5	335
3106-08/20TSP/1000FT	--	5-4-01-08	5	336
3106-09/20TSP/1000FT	--	5-4-01-09	5	337
3106-10/20TSP/1000FT	--	5-4-01-10	5	338
3106-11/20TSP/1000FT	--	5-4-02-01	5	353
3106-12/20TSP/1000FT	--	5-4-02-02	5	354
3106-13/20TSP/1000FT	--	5-4-02-03	5	355
3106-14/20TSP/1000FT	--	5-4-02-04	5	356
3106-15/20TSP/1000FT	--	5-4-02-05	5	357
3106-16/20TSP/1000FT	--	5-4-02-06	5	358
3106-17/20TSP/1000FT	--	5-4-02-07	5	375
3106-18/20TSP/1000FT	--	5-4-02-08	5	376
3106-19/20TSP/1000FT	--	5-4-02-09	5	136A
3106-20/20TSP/1000FT	--	5-4-02-10	5	96E
3107-01/20TSP/1000FT	--	5-4-03-01	5	227
3107-02/20TSP/1000FT	--	5-4-03-02	5	228
3107-03/20TSP/1000FT	--	5-4-03-03	5	256
3107-04/20TSP/1000FT	--	5-4-03-04	5	256A
3107-05/20TSP/1000FT	--	5-4-03-05	5	229
3107-06/20TSP/1000FT	--	5-4-03-06	5	230
3107-07/20TSP/1000FT	--	5-4-03-07	5	257
3107-08/20TSP/1000FT	--	5-4-03-08	5	257A
3107-09/20TSP/1000FT	--	5-4-03-09	5	231
3107-10/20TSP/1000FT	--	5-4-03-10	5	232
3107-11/20TSP/1000FT	--	5-4-04-01	5	258
3107-12/20TSP/1000FT	--	5-4-04-02	5	258A
3107-13/20TSP/1000FT	--	5-4-04-03	5	233
3107-14/20TSP/1000FT	--	5-4-04-04	5	234
3107-15/20TSP/1000FT	--	5-4-04-05	5	259
3107-16/20TSP/1000FT	--	5-4-04-06	5	259A

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CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
3107-17/20TSP/1000FT	--	5-4-04-07	5	SPARE11
3107-18/20TSP/1000FT	--	5-4-04-08	5	SPARE12
3107-19/20TSP/1000FT	--	5-4-04-09	5	SPARE13
3107-20/20TSP/1000FT	--	5-4-04-10	5	SPARE14
3108-01/20TSP/1000FT	--	5-4-05-01	5	366
3108-02/20TSP/1000FT	--	5-4-05-02	5	367
3108-03/20TSP/1000FT	--	5-4-05-03	5	368
3108-04/20TSP/1000FT	--	5-4-05-04	5	369
3108-05/20TSP/1000FT	--	5-4-05-05	5	385
3108-06/20TSP/1000FT	--	5-4-05-06	5	396
3108-07/20TSP/1000FT	--	5-4-05-07	5	392
3108-08/20TSP/1000FT	--	5-4-05-08	5	122
3108-09/20TSP/1000FT	--	5-4-05-09	5	134B
3108-10/20TSP/1000FT	--	5-4-05-10	5	134A
3108-11/20TSP/1000FT	--	5-4-06-01	5	359
3108-12/20TSP/1000FT	--	5-4-06-02	5	123
3108-13/20TSP/1000FT	--	5-4-06-03	5	395
3108-14/20TSP/1000FT	--	5-4-06-04	5	394
3108-15/20TSP/1000FT	--	5-4-06-05	5	406
3108-16/20TSP/1000FT	--	5-4-06-06	5	397
3108-17/20TSP/1000FT	--	5-4-06-07	5	409
3108-18/20TSP/1000FT	--	5-4-06-10	5	398
3108-19/20TSP/1000FT	--	5-4-06-08&09	5	399
3108-20/20TSP/1000FT	--		5	UNUSED
3109-01/20TSP/1000FT	--	BIAS	5	422
3109-02/20TSP/1000FT	--	5-4-07-01	5	422
3109-03/20TSP/1000FT	--	BIAS	5	423
3109-04/20TSP/1000FT	--	5-4-07-02	5	423
3109-05/20TSP/1000FT	--	BIAS	5	424
3109-06/20TSP/1000FT	--	5-4-07-03	5	424
3109-07/20TSP/1000FT	--	BIAS	5	425
3109-08/20TSP/1000FT	--	5-4-07-04	5	425
3109-09/20TSP/1000FT	--	BIAS	5	426
3109-10/20TSP/1000FT	--	5-4-07-05	5	426
3109-11/20TSP/1000FT	--	BIAS	5	427
3109-12/20TSP/1000FT	--	5-4-07-06	5	427
3109-13/20TSP/1000FT	--	5-4-07-07	5	438
3109-14/20TSP/1000FT	--	5-4-07-08	5	439
3109-15/20TSP/1000FT	--	5-4-07-09	5	440
3109-16/20TSP/1000FT	--	5-4-07-10	5	441
3109-17/20TSP/1000FT	--	5-4-08-01	5	SPARE47
3109-18/20TSP/1000FT	--	5-4-08-02	5	SPARE15
3109-19/20TSP/1000FT	--		5	UNUSED
3109-20/20TSP/1000FT	--		5	UNUSED
3110-01/20TSP/1000FT	--	BIAS	5	415
3110-02/20TSP/1000FT	--	5-4-08-05	5	415
3110-03/20TSP/1000FT	--	BIAS	5	416
3110-04/20TSP/1000FT	--	5-4-08-06	5	416
3110-05/20TSP/1000FT	--	BIAS	5	417
3110-06/20TSP/1000FT	--	5-4-08-07	5	417

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CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
3110-07/20TSP/1000FT	--	BIAS	5	418
3110-08/20TSP/1000FT	--	5-4-08-08	5	418
3110-09/20TSP/1000FT	--	BIAS	5	419
3110-10/20TSP/1000FT	--	5-4-08-09	5	419
3110-11/20TSP/1000FT	--	5-4-08-10	5	434
3110-12/20TSP/1000FT	--	5-4-09-01	5	435
3110-13/20TSP/1000FT	--	5-4-09-02	5	436
3110-14/20TSP/1000FT	--	5-4-09-03	5	437
3110-15/20TSP/1000FT	--	5-4-09-04	5	SPARE16
3110-16/20TSP/1000FT	--		5	UNUSED
3110-17/20TSP/1000FT	--		5	UNUSED
3110-18/20TSP/1000FT	--		5	UNUSED
3110-19/20TSP/1000FT	--		5	UNUSED
3110-20/20TSP/1000FT	--		5	UNUSED
3116-17/20TSP/1000FT	--	5-4-10-04	5	EAGE34
3117-01/20TSP/1000FT	--	5-3-13-01	5	EAGE21
3117-02/20TSP/1000FT	--	5-3-13-02	5	EAGE22
3117-03/20TSP/1000FT	--	5-3-13-03	5	EAGE23
3117-04/20TSP/1000FT	--	5-3-13-04	5	EAGE24
3117-05/20TSP/1000FT	--	5-3-13-05	5	EAGE25
3117-06/20TSP/1000FT	--	5-3-13-06	5	EAGE26
3117-07/20TSP/1000FT	--	5-3-13-07	5	EAGE27
3117-08/20TSP/1000FT	--	5-3-13-08	5	EAGE28
3117-09/20TSP/1000FT	--	5-3-13-09	5	EAGE29
3117-10/20TSP/1000FT	--	5-3-13-10	5	EAGE30
3117-11/20TSP/1000FT	--	5-4-10-01	5	EAGE31
3117-12/20TSP/1000FT	--	5-4-10-02	5	EAGE32
3117-13/20TSP/1000FT	--	5-4-10-03	5	EAGE33
3118-01/20TSP/1000FT	--	5-3-11-01	5	EAGE01
3118-02/20TSP/1000FT	--	5-3-11-02	5	EAGE02
3118-03/20TSP/1000FT	--	5-3-11-03	5	EAGE03
3118-04/20TSP/1000FT	--	5-3-11-04	5	EAGE04
3118-05/20TSP/1000FT	--	5-3-11-05	5	EAGE05
3118-06/20TSP/1000FT	--	5-3-11-06	5	EAGE06
3118-07/20TSP/1000FT	--	5-3-11-07	5	EAGE07
3118-08/20TSP/1000FT	--	5-3-11-08	5	EAGE08
3118-09/20TSP/1000FT	--	5-3-11-09	5	EAGE09
3118-10/20TSP/1000FT	--	5-3-11-10	5	EAGE10
3118-11/20TSP/1000FT	--	5-3-12-01	5	EAGE11
3118-12/20TSP/1000FT	--	5-3-12-02	5	EAGE12
3118-13/20TSP/1000FT	--	5-3-12-03	5	EAGE13
3118-14/20TSP/1000FT	--	5-3-12-04	5	EAGE14
3118-15/20TSP/1000FT	--	5-3-12-05	5	EAGE15
3118-16/20TSP/1000FT	--	5-3-12-06	5	EAGE16
3118-17/20TSP/1000FT	--	5-3-12-07	5	EAGE17
3118-18/20TSP/1000FT	--	5-3-12-08	5	EAGE18
3118-19/20TSP/1000FT	--	5-3-12-09	5	EAGE19
3118-20/20TSP/1000FT	--	5-3-12-10	5	EAGE20
3122/RG-214/1000FT	--	J6170JBOX	5	5MHZ
3123/RG-214/1000FT	--	5-4-13-04	5	101LF

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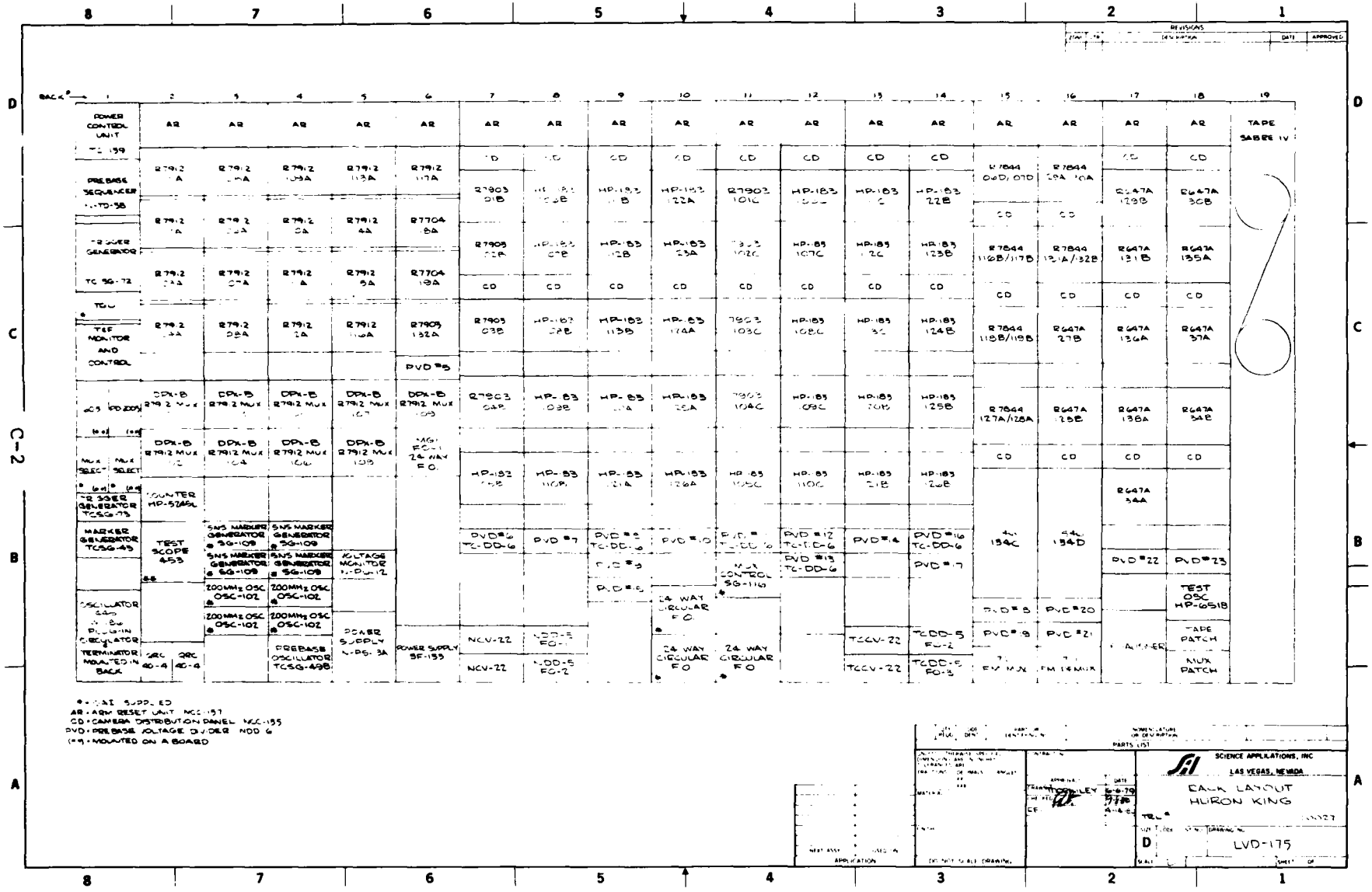
CABLE#/TYPE/LENGTH	EQUAL.	SAI CHANNEL #	TRAILER	SENSOR #
3124/RG-214/1000FT	10SW	608	6	125B
3125/RG-214/1000FT	--	5-4-13-09	5	109LF
3126/RG-214/1000FT	10SW	609	6	127A
3127/RG-214/1000FT	10SW	610	6	131B
3128/RG-214/1000FT	--	4-1-03	4	166
3129/RG-214/1000FT	--	4-1-04	4	167
3130/RG-214/1000FT	--	5-1-12	5	149
3131/RG-214/1000FT	--	5-1-10	5	545
3132/RG-214/1000FT	10SW	618	6	111
3133/RG-214/1000FT	--	5-2-01	5	339
3134/RG-214/1000FT	--	5-2-02	5	340
3135/RG-214/1000FT	--	5-2-03	5	341
3136/RG-214/1000FT	--	5-2-04	5	342
3137/RG-214/1000FT	--	5-2-05	5	343
3138/RG-214/1000FT	--	5-2-06	5	344
3139/RG-214/1000FT	--	5-2-07	5	345
3140/RG-214/1000FT	--	5-2-08	5	346
3141/RG-214/1000FT	--	5-2-09	5	347
3142/RG-214/1000FT	--	5-2-10	5	348
3143/RG-214/1000FT	10SW	616	6	153
3144/RG-214/1000FT	10SW	617	6	122D
3145/RG-214/1000FT	10SW	619	6	274
3146/RG-214/1000FT	--	5-1-13	5	168
3147/RG-214/1000FT	--	J615@JBOX	5	5MHZ
3148/RG-214/1000FT	--	J616@JBOX	5	5MHZ

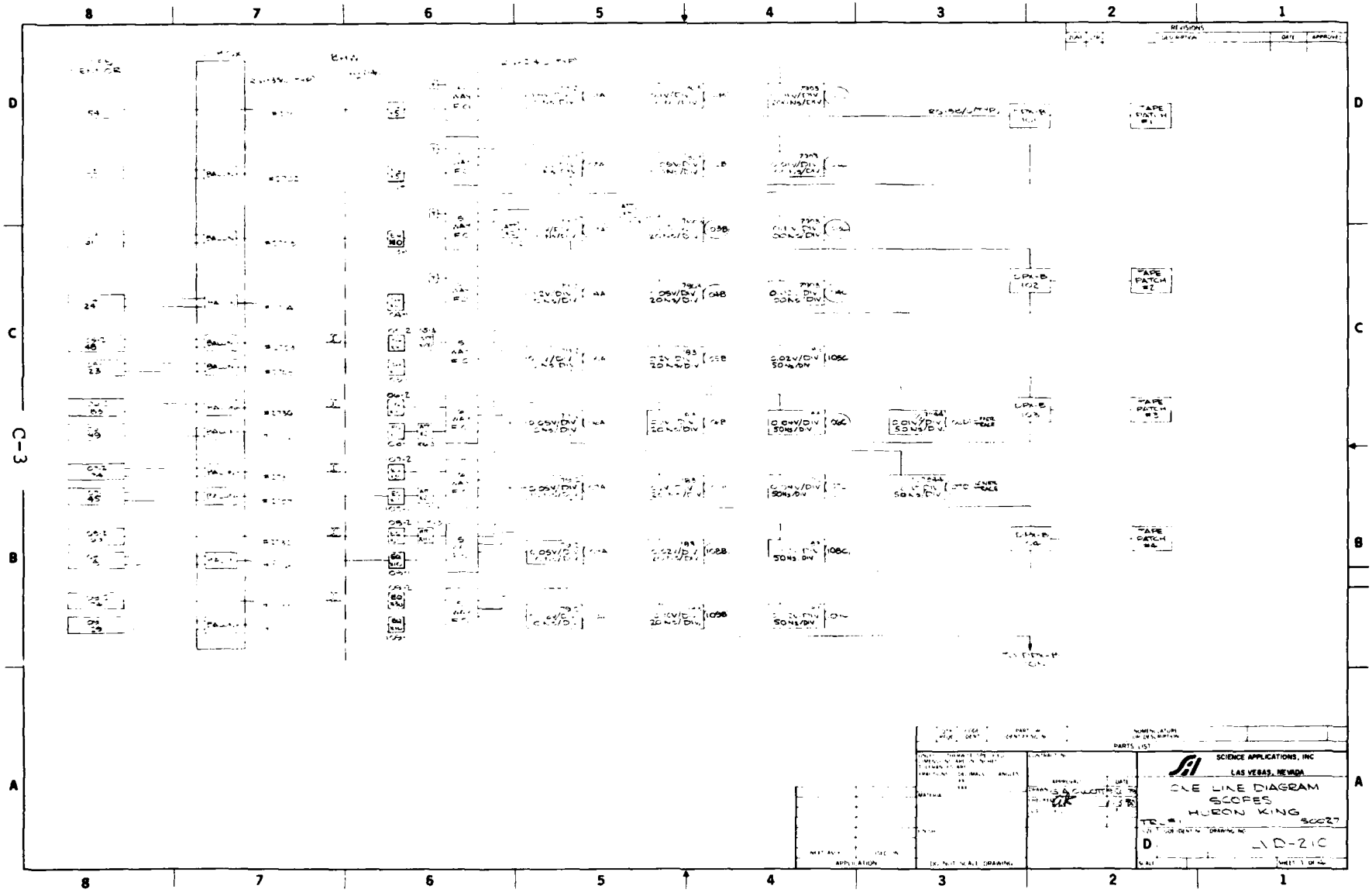
APPENDIX C

RECORDING SYSTEM DIAGRAMS

THIS APPENDIX INCLUDES DIAGRAMS THAT SHOW EQUIPMENT LOCATIONS ON TRAILER RACK LAYOUTS AND WIRING DIAGRAMS THAT DOCUMENT SENSOR TO RECORDING INSTRUMENT INTERCONNECTIONS. DIAGRAMS ALSO ARE INCLUDED FOR THE SIGNAL SIMULATIONS SYSTEMS THAT WERE USED TO AID SYSTEM OPERATION AND CALIBRATION.



AR - ARM RESET UNIT NCC-157
CD - CAMERA DISTRIBUTION PANEL NCC-155
PVD - PREBASE VOLTAGE DIVIDER NDD-6
(#) - MOUNTED ON A BOARD


SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
SCOPES
HURON KING
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TAPE PATCH #1
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TAPE PATCH #3
TAPE PATCH #4
PARTS LIST
REVISIONS
APPLICATION
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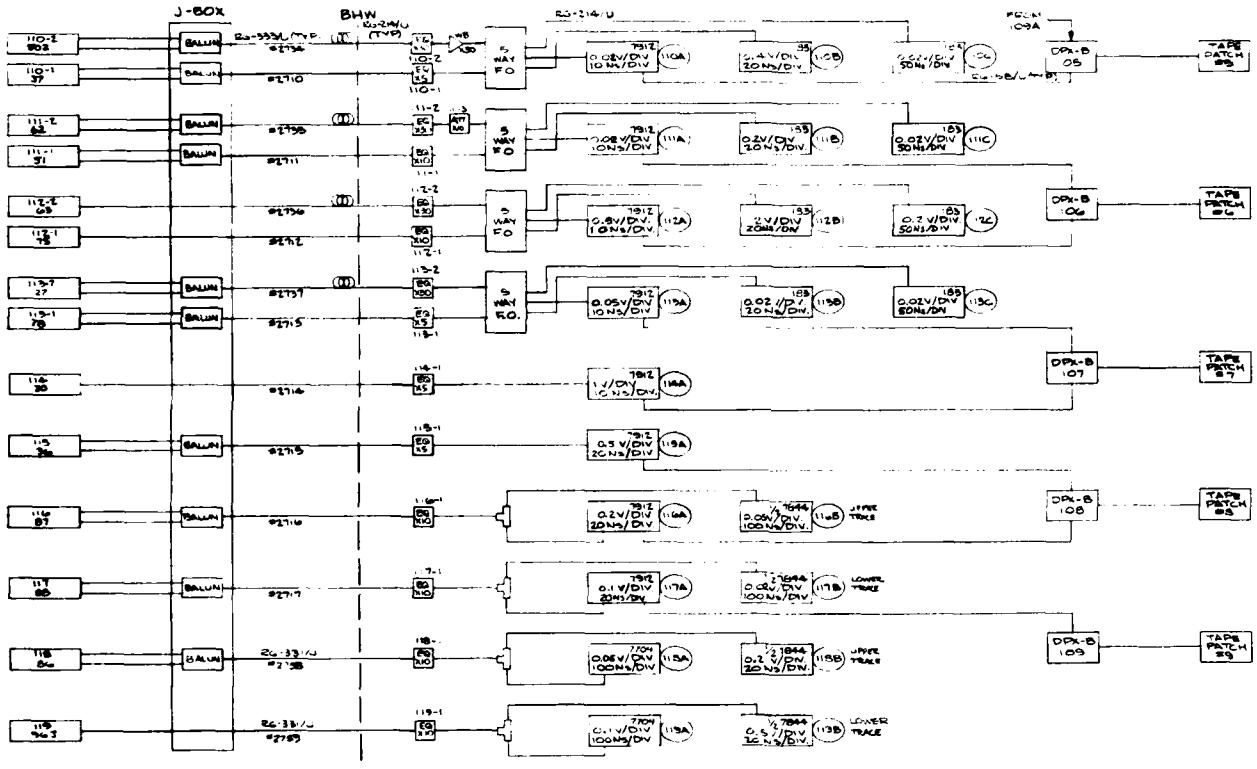


REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPROVED

PARTS LIST

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES

MATERIAL

FINISH

NEXT ASSY USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO

APPROVALS DATE

DRAWN 9-21-78

CHECKED

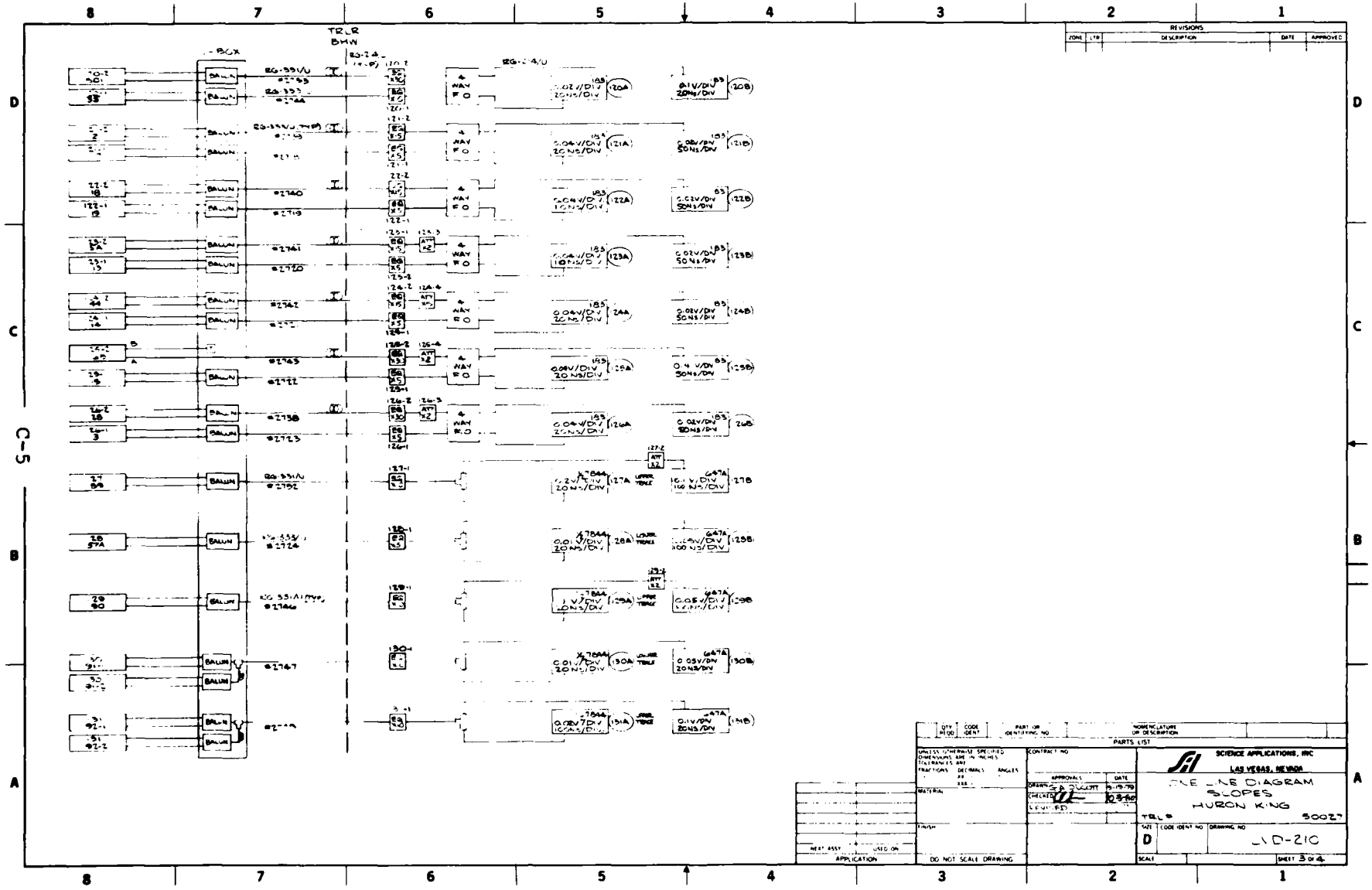
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

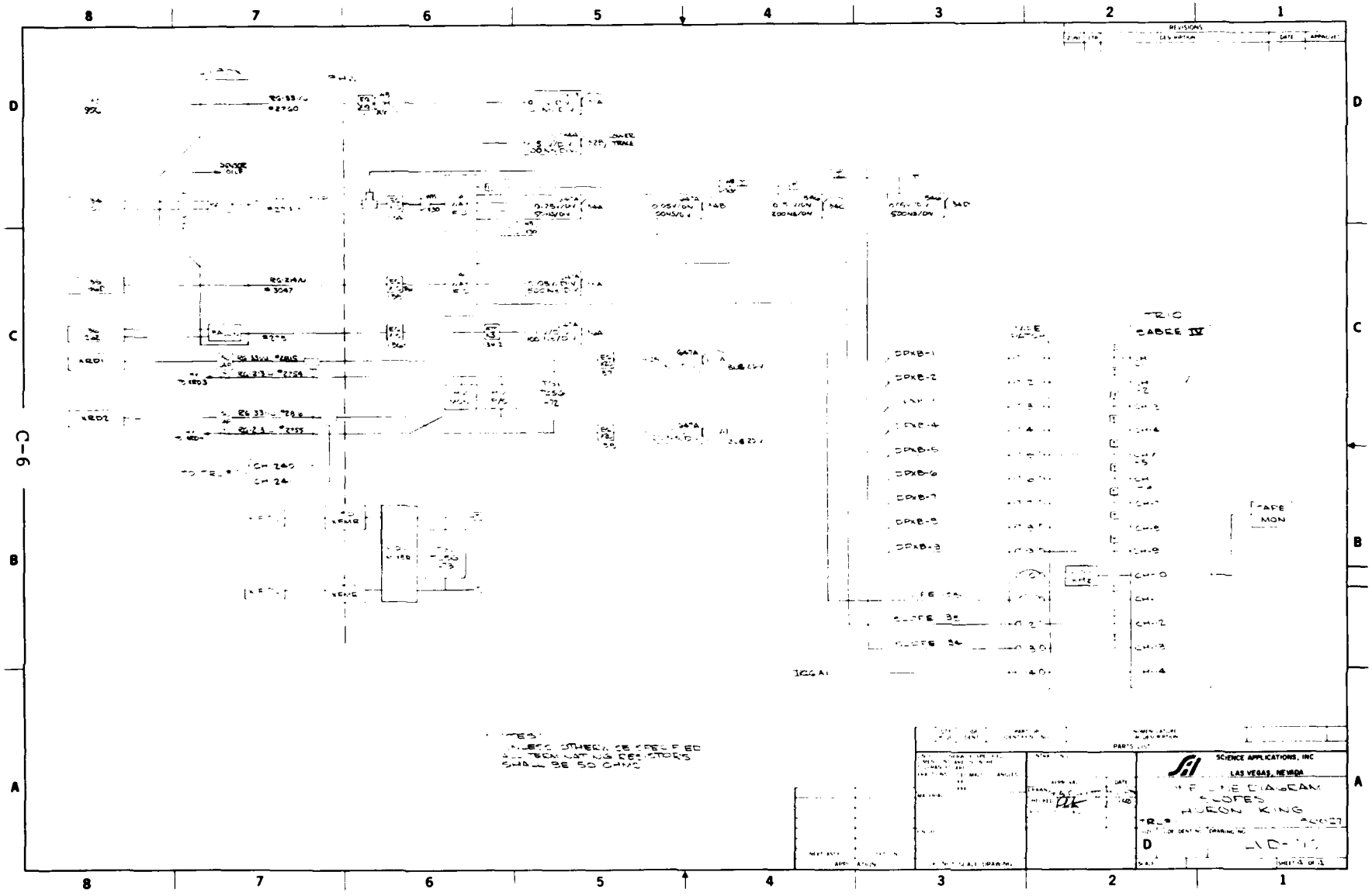
ONE LINE DIAGRAM
SCOPES
HURON KING

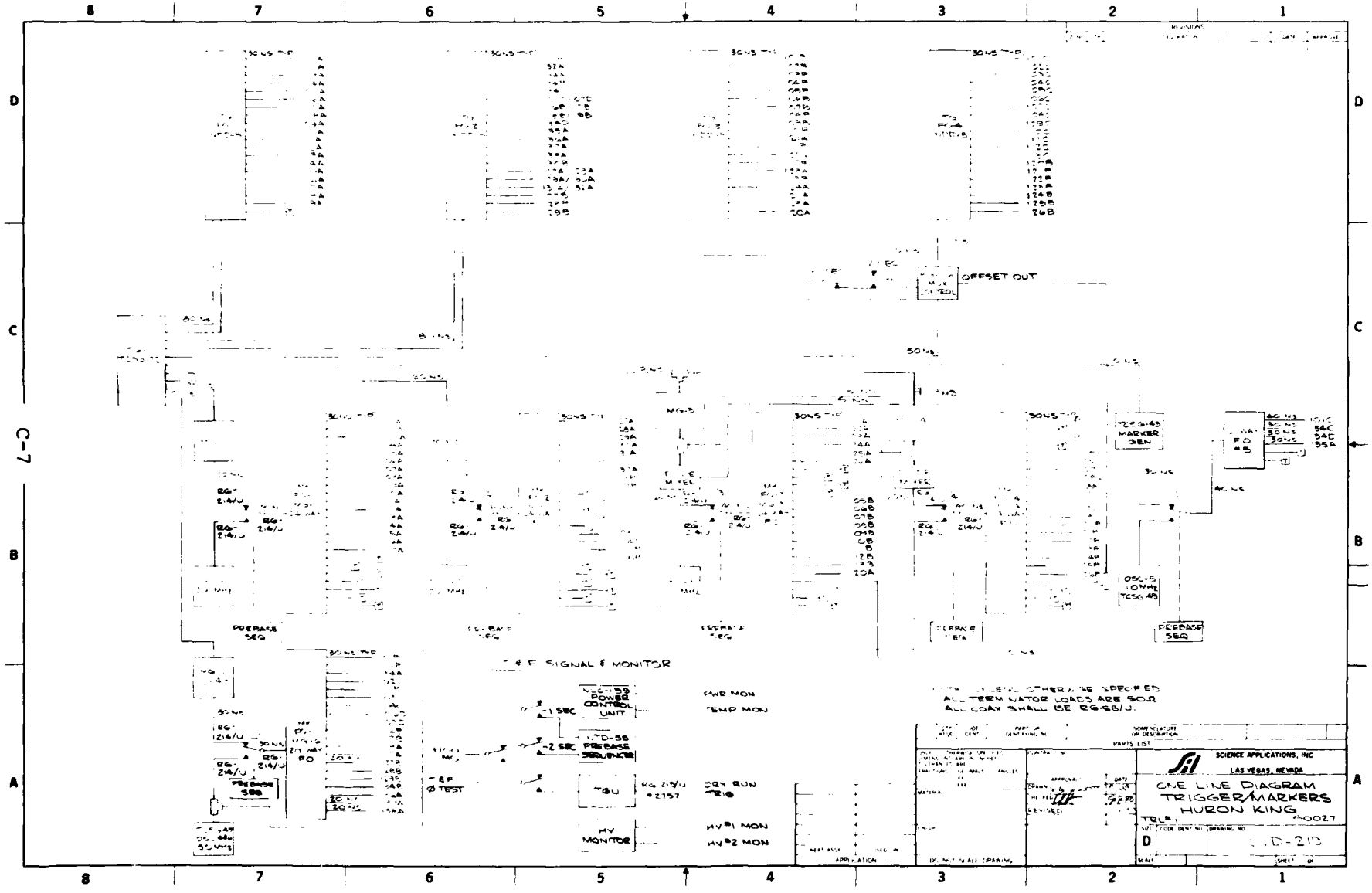
TRL# 50027

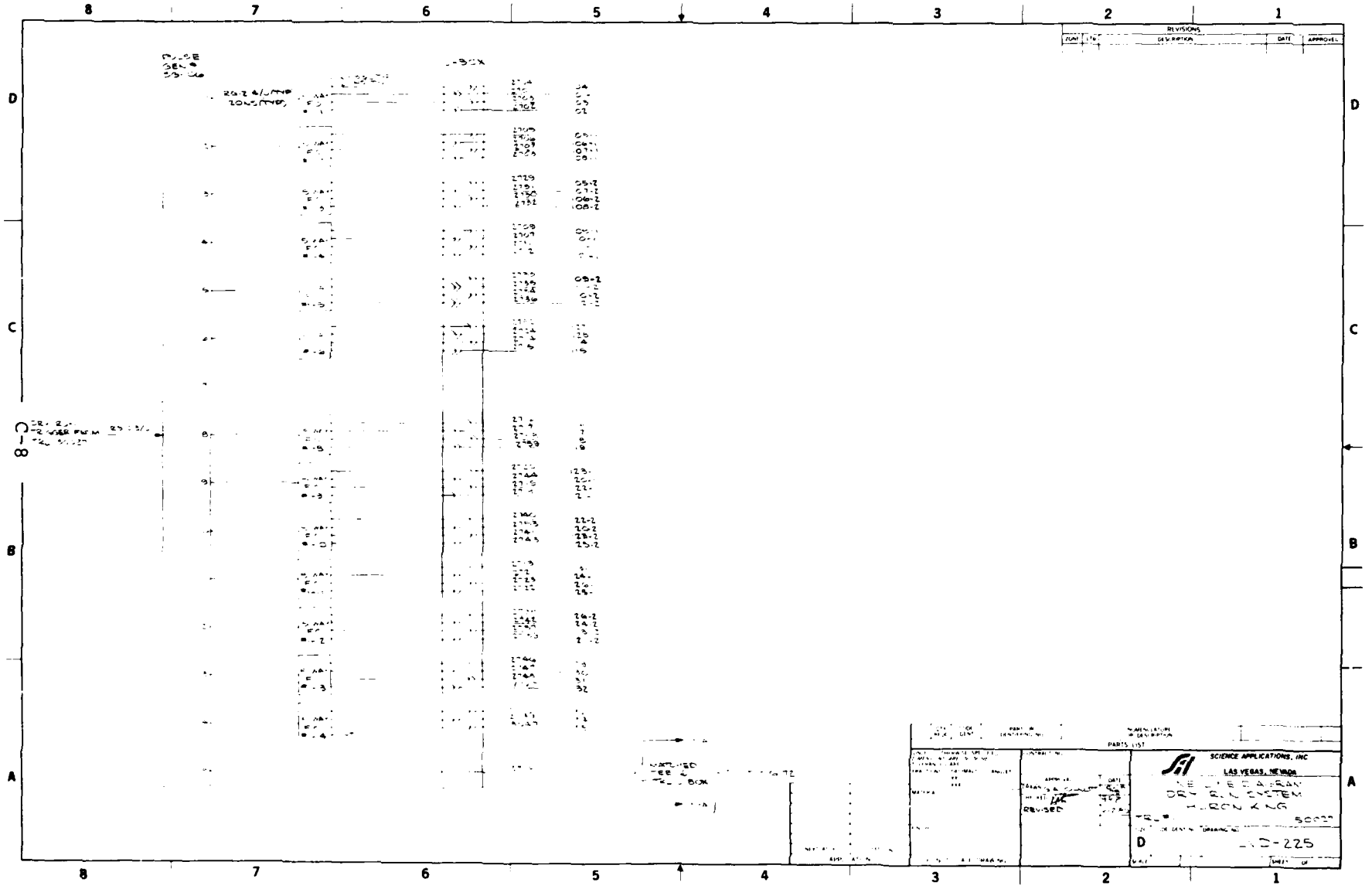
SIZE D CODE IDENT NO DRAWING NO LVD-2 C

SCALE SHEET 2 OF 4


TRLR
BMW
BALUN
4 WAY F.O.
REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
PARTS LIST
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO
NOMENCLATURE OR DESCRIPTION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS
DECIMALS
ANGLES
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO
APPROVALS
DATE
DRAWN
CHECKED
ENGINEERING
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
SLOPES
HURON KING
TBL#
5002
SIZE
D
CODE IDENT NO
DRAWING NO
D-210
SCALE
SHEET 3 OF 4


REVISIONS
TRIO
CABEE IV
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
SLOPES
HURON KING


OFFSET OUT
MARKER GEN
PREBASE SEQ
POWER CONTROL UNIT
PREBASE SEQUENCER
MV MONITOR
PWR MON
TEMP MON
MV#1 MON
MV#2 MON
ALL TERMINATOR LOADS ARE 50Ω
ALL COAX SHALL BE RG58/U
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
TRIGGER/MARKERS
HURON KING
D-210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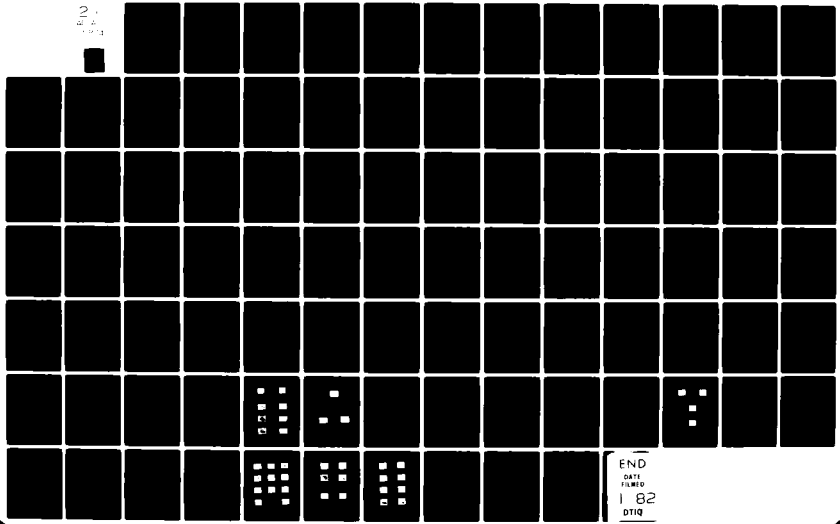
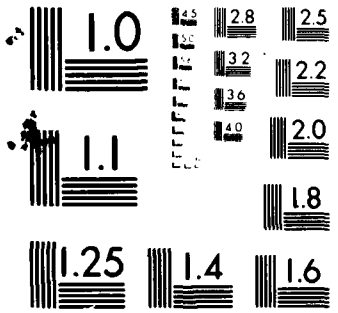
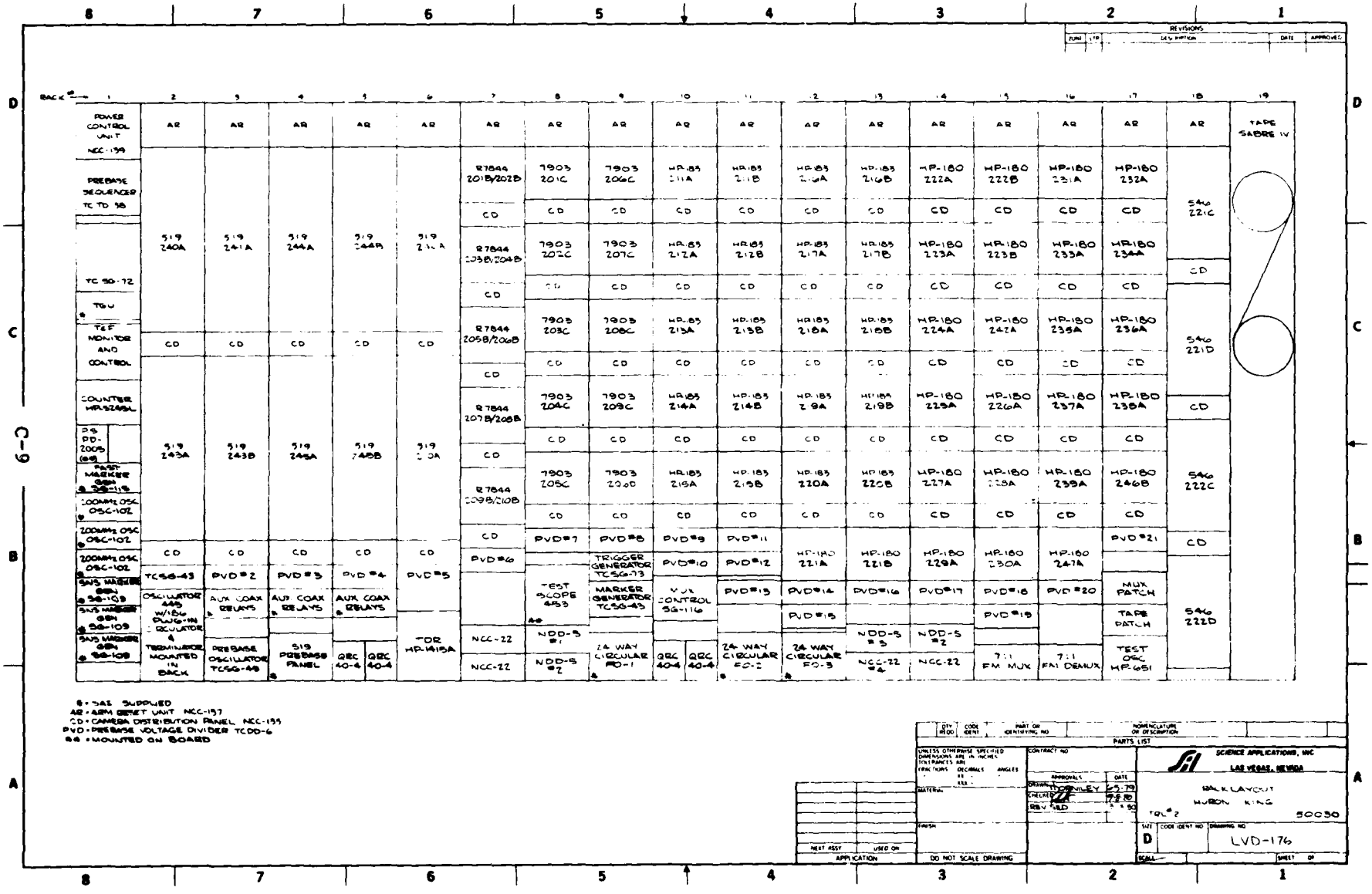
ZONE
LTR
DESCRIPTION
DATE
APPROVED
PARTS LIST
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
DRY RUN SYSTEM
HURON KING
REVISED
D
ND-225

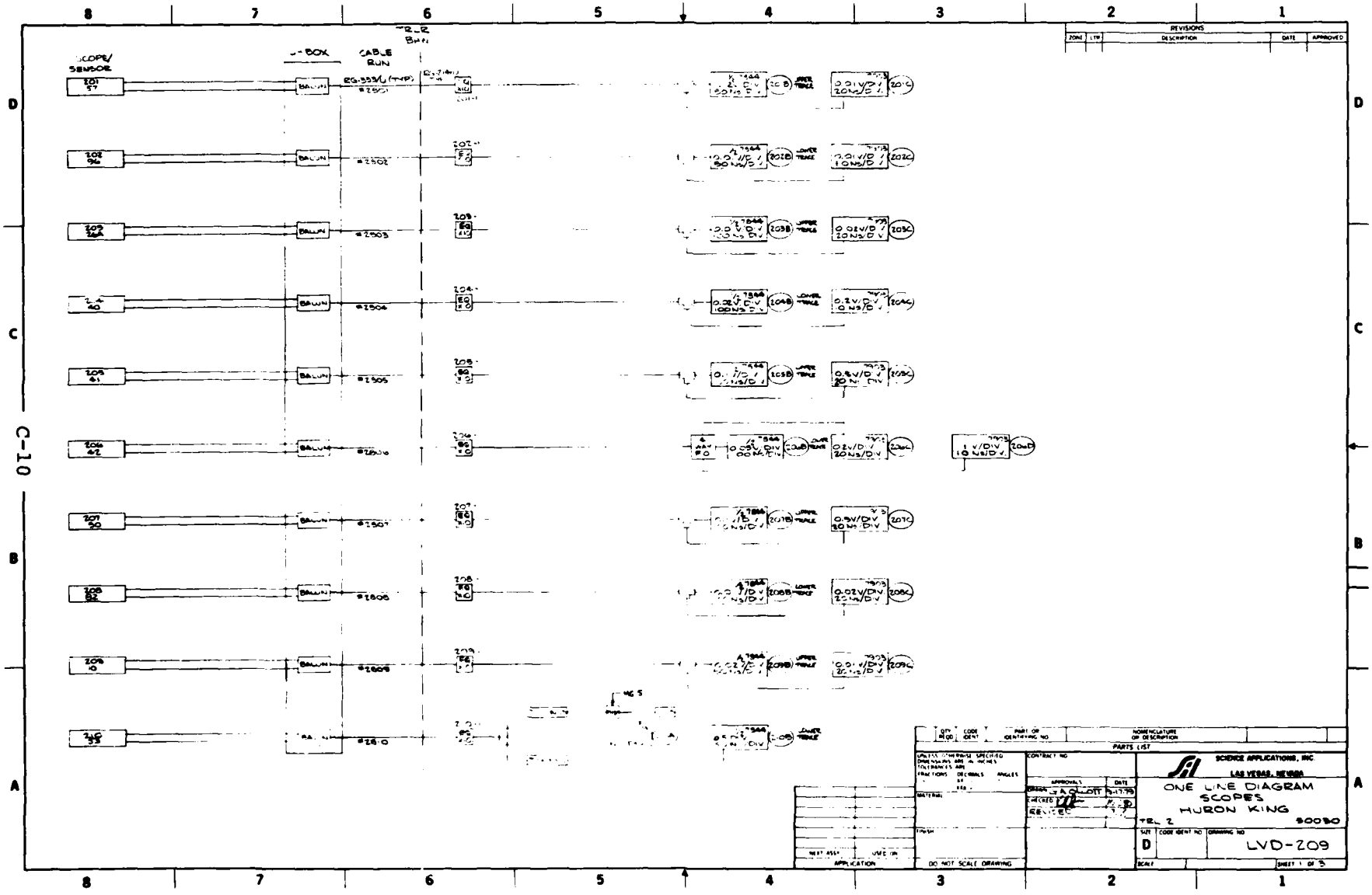
AD-A108 742 SCIENCE APPLICATIONS INC LAS VEGAS NV F/G 18/3
INSTRUMENTATION SUPPORT FOR THE HURON KING UNDERGROUND TEST.(U)
DEC 80 K R SITES, D E WOODWARD DNA001-79-C-0389
UNCLASSIFIED SAI-81-36-LV DNA-5548F NL

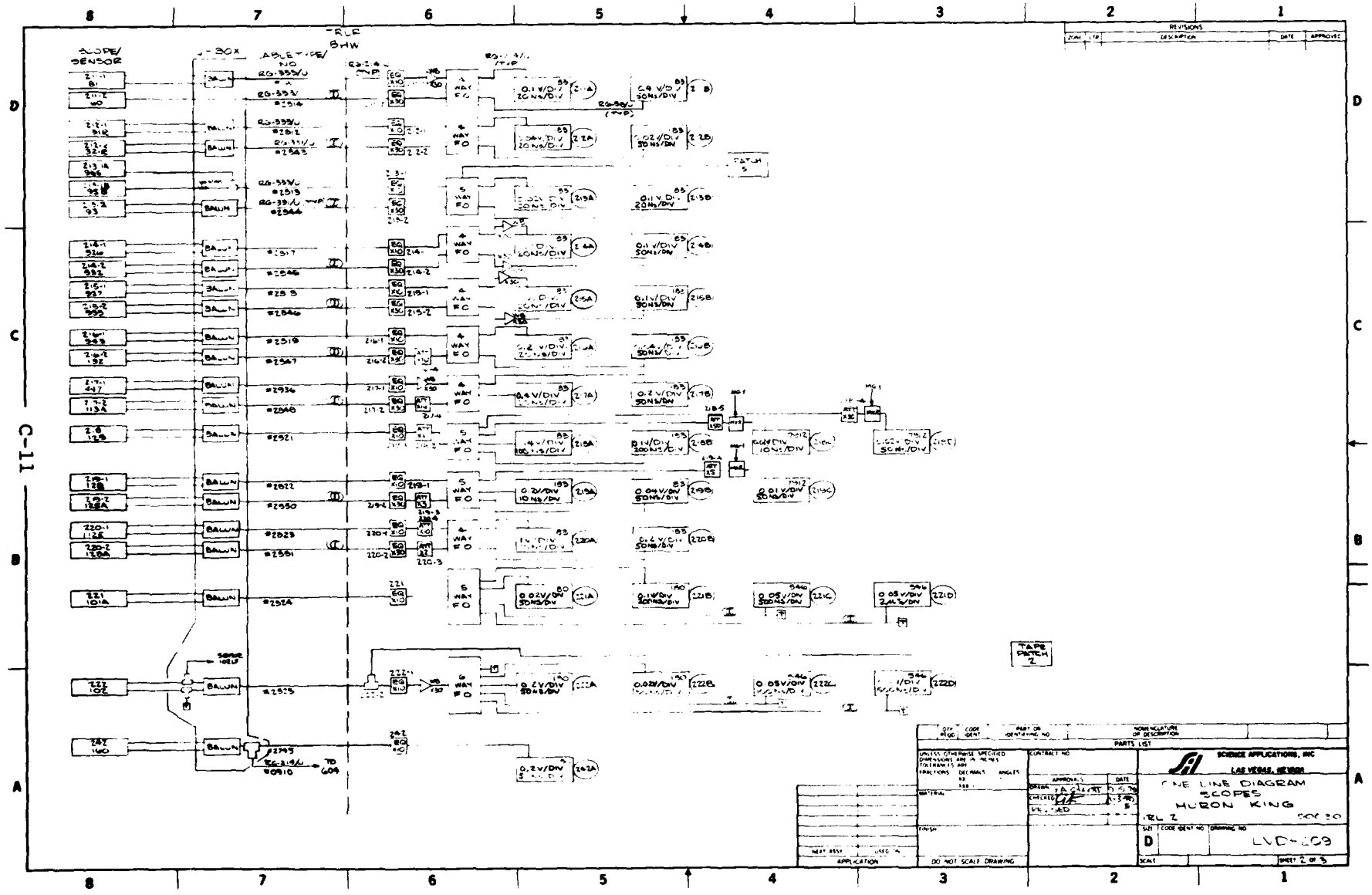


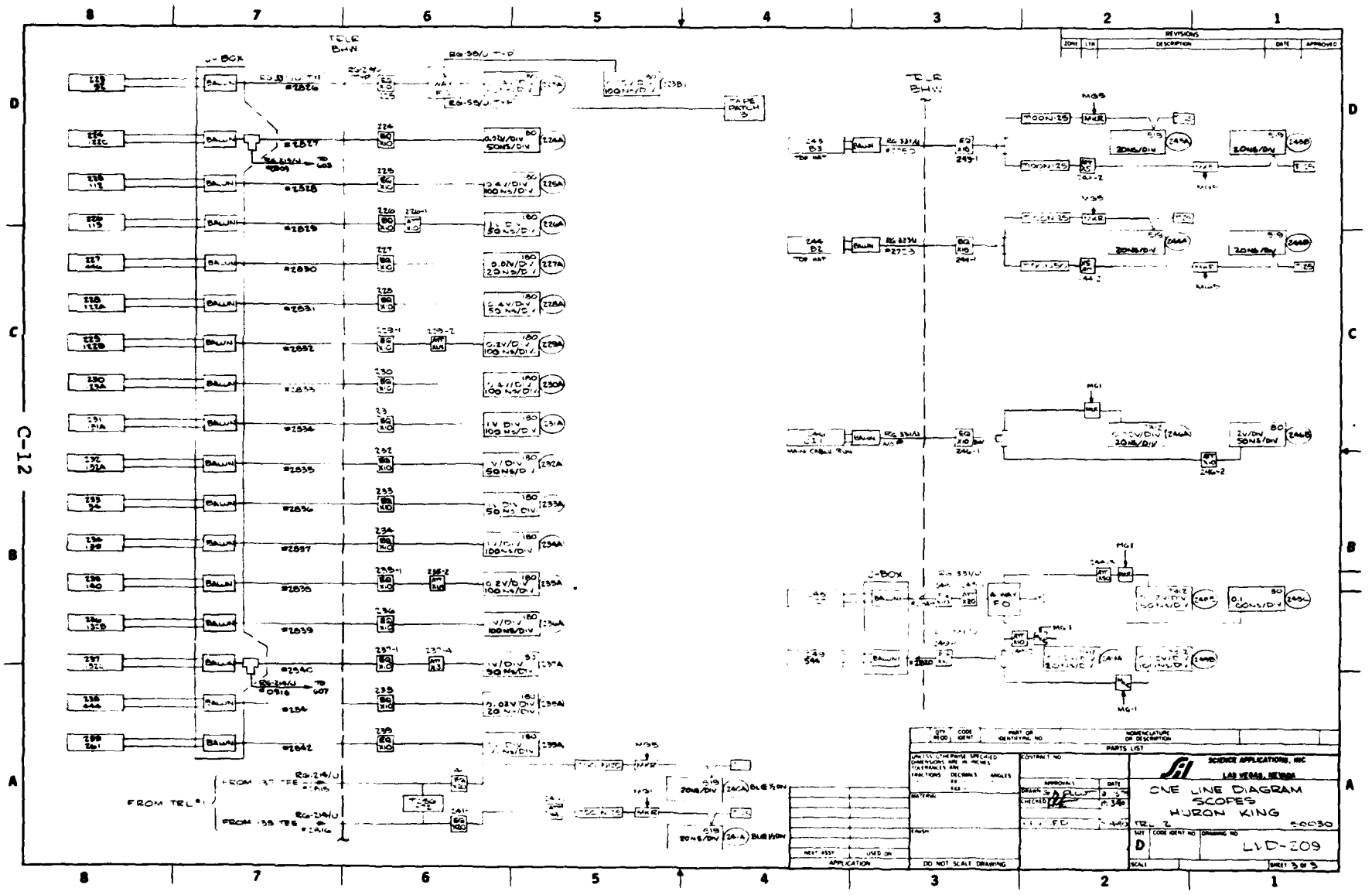


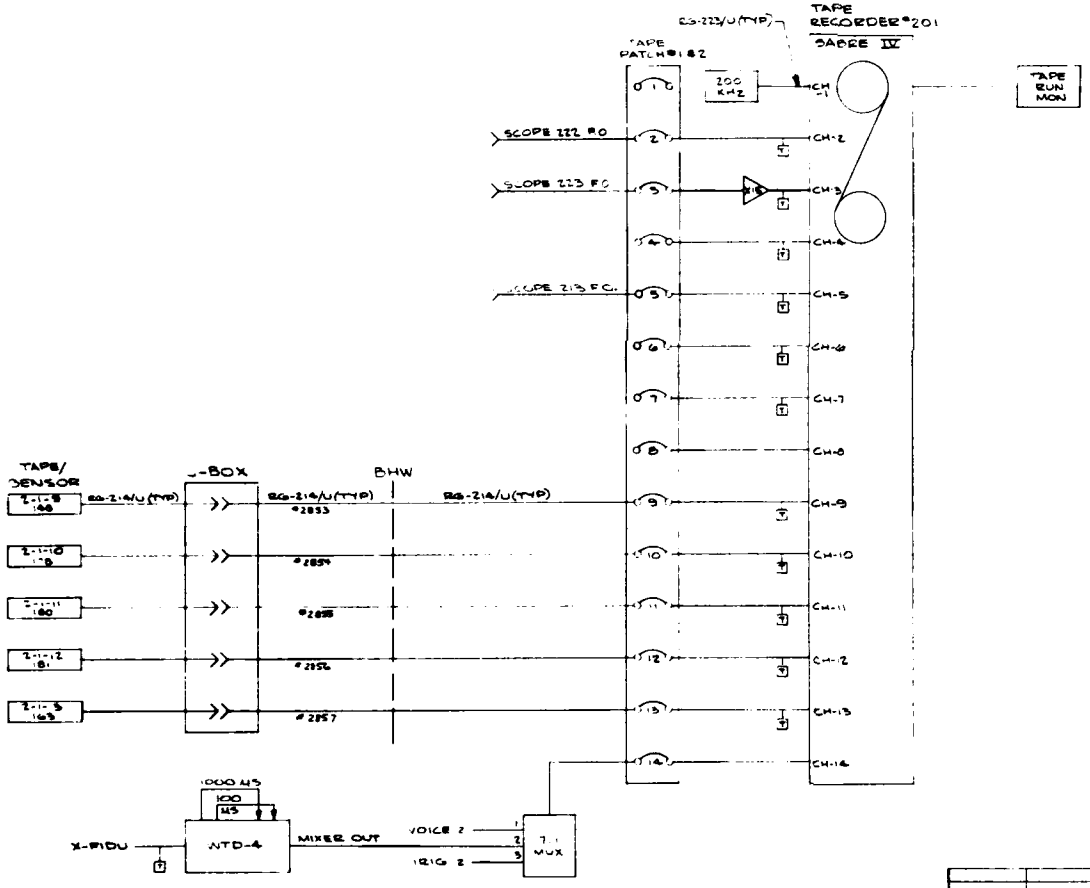
MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS 1963 A


REVISIONS
BACK
POWER CONTROL UNIT NCC-159
PREBASE SEQUENCER TC TD 58
TC 50-72
TGU
TEF MONITOR AND CONTROL
COUNTER HP-5245L
PS PD-2005
PART MARKER GEN 58-115
200MHz OSC OSC-102
200MHz OSC OSC-102
200MHz OSC OSC-102
SNS MARKER GEN 58-109
SNS MARKER GEN 58-109
SNS MARKER GEN 58-109
AR
CD
519 240A
519 241A
519 244A
519 244B
519 243A
519 243B
519 245A
519 245B
TCS6-43
PVD #2
PVD #3
PVD #4
PVD #5
OSCILLATOR 445 W/186 PLUG-IN REGULATOR
AUX COAX RELAYS
TERMINATOR MOUNTED IN BACK
PREBASE OSCILLATOR TCSG-48
519 PREBASE PANEL
QRC 40-4
TDR HP-1415A
R7844 201B/202B
R7844 203B/204B
R7844 205B/206B
R7844 207B/208B
R7844 209B/210B
NCC-22
7903 201C
7903 202C
7903 203C
7903 204C
7903 205C
7903 206C
7903 207C
7903 208C
7903 209C
7903 210C
HP-185 211A
HP-185 211B
HP-185 212A
HP-185 212B
HP-185 213A
HP-185 213B
HP-185 214A
HP-185 214B
HP-185 215A
HP-185 215B
PVD #7
PVD #8
PVD #9
PVD #10
PVD #11
PVD #12
PVD #13
PVD #14
PVD #15
PVD #16
PVD #17
PVD #18
PVD #19
PVD #20
PVD #21
TRIGGER GENERATOR TCSG-73
MARKER GENERATOR TCSG-45
VUX CONTROL SG-116
TEST SCOPE 453
NDD-5 #1
NDD-5 #2
NDD-5 #3
NCC-22 #4
24 WAY CIRCULAR FO-1
24 WAY CIRCULAR FO-2
24 WAY CIRCULAR FO-3
HP-180 221A
HP-180 221B
HP-180 222A
HP-180 222B
HP-180 223A
HP-180 223B
HP-180 224A
HP-180 224B
HP-180 225A
HP-180 225B
HP-180 226A
HP-180 226B
HP-180 227A
HP-180 227B
HP-180 228A
HP-180 228B
HP-180 229A
HP-180 229B
HP-180 230A
HP-180 230B
HP-180 231A
HP-180 231B
HP-180 232A
HP-180 232B
HP-180 233A
HP-180 233B
HP-180 234A
HP-180 235A
HP-180 236A
HP-180 237A
HP-180 238A
HP-180 239A
HP-180 240A
HP-180 241A
7:1 FM MUX
7:1 FM DEMUX
MUX PATCH
TAPE PATCH
TEST OSC HP-651
546 221C
546 221D
546 222C
546 222D
TAPE SABRE IV
B = SAI SUPPLIED
AR = ARM RESET UNIT NCC-157
CD = CAMERA DISTRIBUTION PANEL NCC-159
PVD = PREBASE VOLTAGE DIVIDER TCDD-6
SA = MOUNTED ON BOARD
PARTS LIST
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
BALK LAYOUT
HURON KING
TRL #2
50030
LVD-176
D
DO NOT SCALE DRAWING
APPLICATION
NEXT ASSY
USED ON


SCOPE/ SENSOR
BALUN BOX
CABLE RUN
BALUN
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
SCOPES
HURON KING
LVD-209
DO NOT SCALE DRAWING


SCOPE/ SENSOR
ABLE TYPE/ PID
TRUE BHW
BALUN
4 WAY EQ
5 WAY EQ
6 WAY EQ
PATCH 5
TAPE PATCH 2
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
SCOPES
HURON KING
LVD-209
SHEET 2 OF 5
DO NOT SCALE DRAWING
PARTS LIST
REVISIONS


REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
J-BOX
TELR BHW
RG-58/U T-D
TAPE PATCH 3
RG-58/U
RG-214/U
RG-331/U
RG-223/U
RG-174/U
BALUN
EQ NO
ATT NO
MGS
MGI
MGR
MGL
MGMB
MGSC
MGUB
MGUC
MAIN CABLE RUN
TOP HAT
4 WAY FO
FROM TRL 1
FROM 37 TEE
FROM 38 TEE
PARTS LIST
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO
NOMENCLATURE OR DESCRIPTION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES
CONTRACT NO
MATERIAL
FINISH
NEXT ASSY
USED ON
APPROVALS
DATE
DRAWN
CHECKED
APPLICATION
DO NOT SCALE DRAWING
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
SCOPES
HURON KING
TRL 2
50030
SIZE
D
CODE IDENT NO
DRAWING NO
LVD-209
SCALE
SHEET 5 OF 5



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
± .XX ±
.XXX ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

NEXT ASSY	USED ON
APPLICATION	

CONTRACT NO

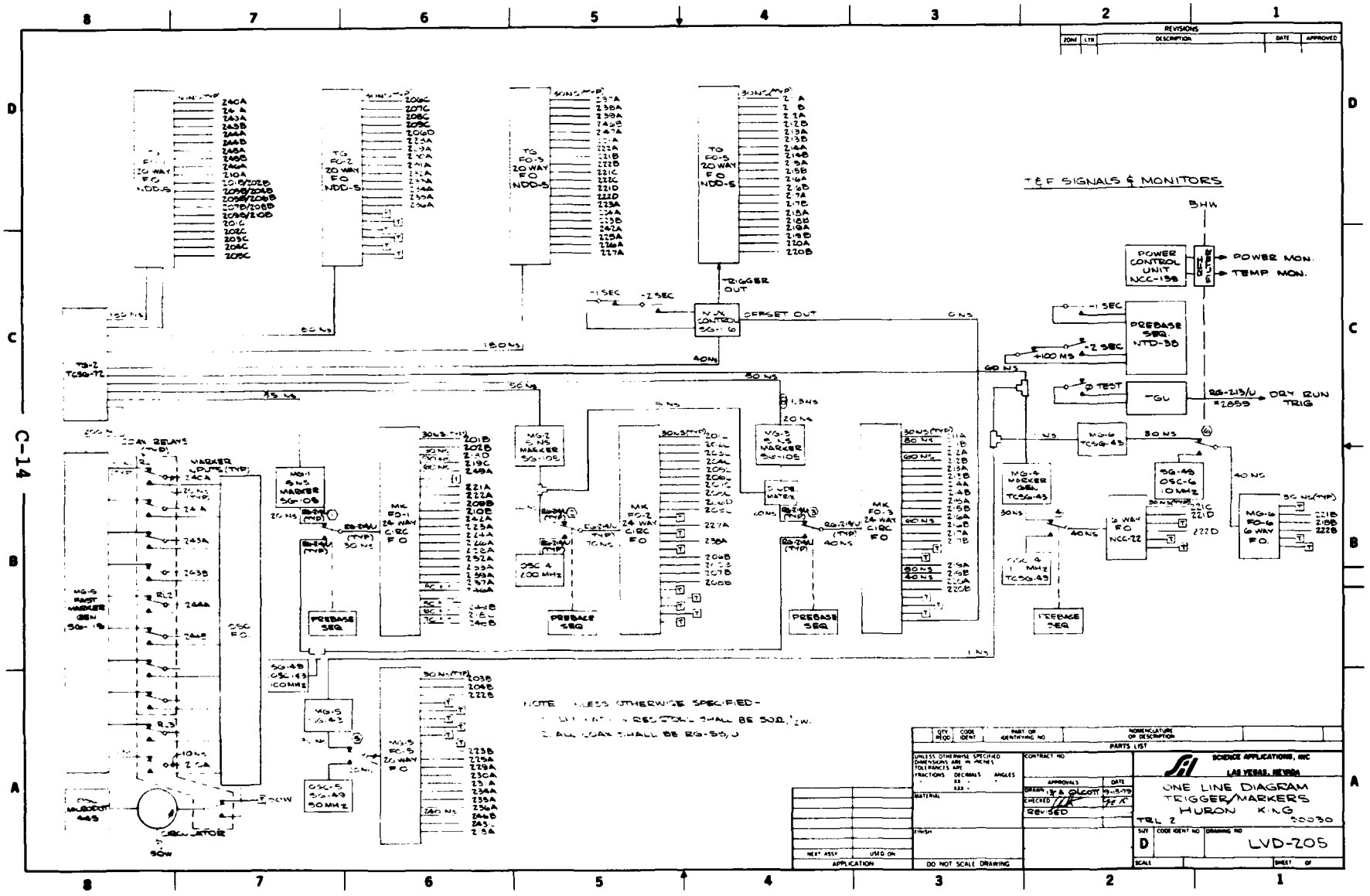
APPROVALS	DATE
DRAWN S.A. GLOTT	9-26-78
CHECKED	9-27-78
REVISED	

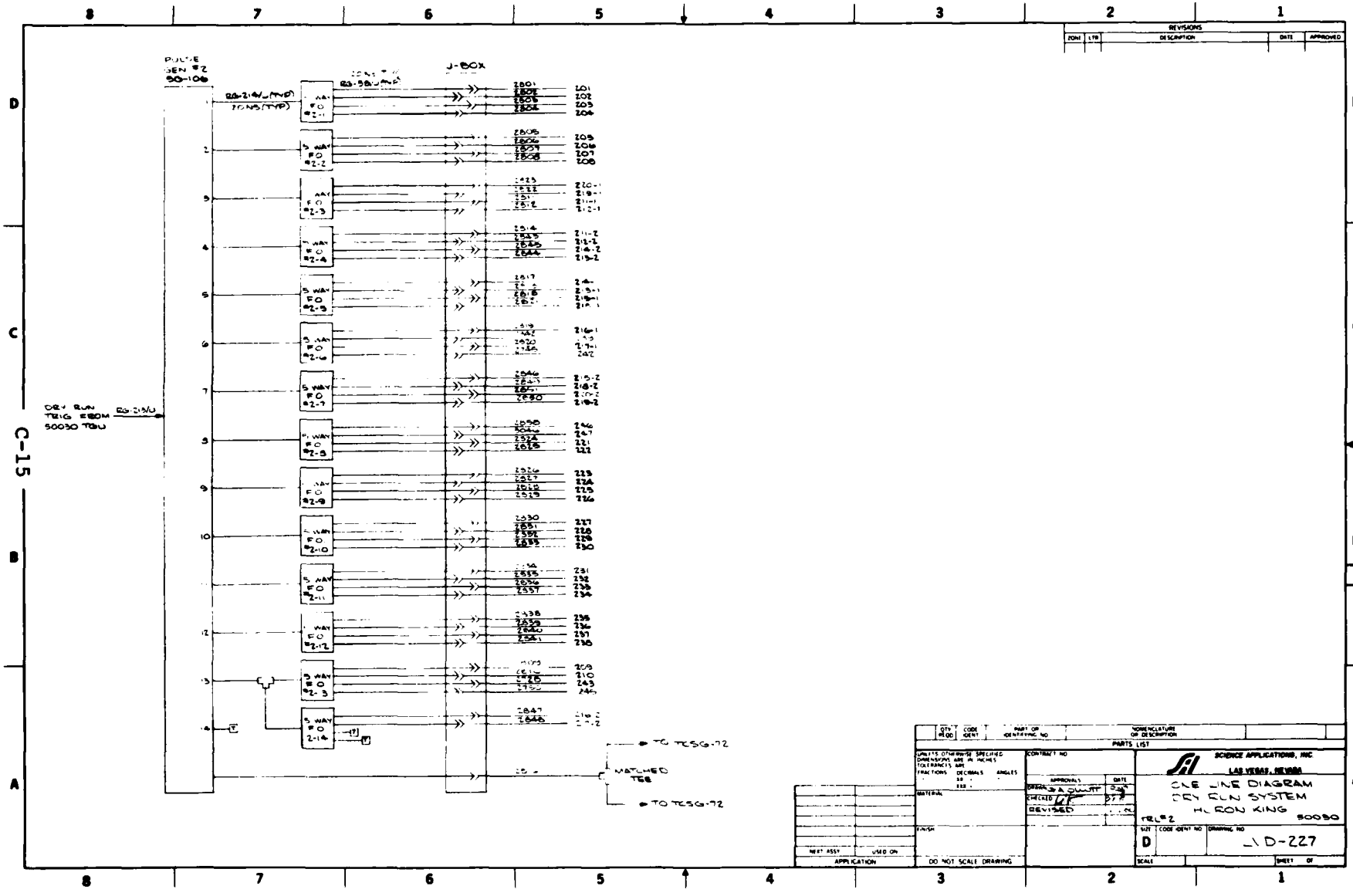
SCIENCE APPLICATIONS, INC.
LAS VEGAS, NEVADA

SYSTEM LINE DIAGRAM
VIDEOBAND TAPE CHANNELS
HURON KING
TRL #2 500B0

SIZE	CODE IDENT NO	DRAWING NO
D		LVD-211

SCALE SHEET 1 OF 1


T&F SIGNALS & MONITORS
POWER CONTROL UNIT NCC-198
POWER MON.
TEMP. MON.
PREBASE SEQ. NTD-30
DRY RUN TRIG
MG-6 TC56-43
SG-48 OSC-6 10 MHz
MG-6 FO-6 6 WAY F.O.
16 WAY F.O. NCC-22
MG-4 MARKER GEN. TC56-43
4 MHz TC56-43
MG-1 8 NS MARKER SG-105
MG-2 5 NS MARKER SG-105
MG-3 2.5 NS MARKER SG-105
MK FO-1 24 WAY CIRC F.O.
MK FO-2 24 WAY CIRC F.O.
MK FO-3 24 WAY CIRC F.O.
OSC 4 200 MHz
PREBASE SEQ
MG-9 FAST MARKER GEN SG-19
OSC F.O.
SG-49 OSC-13 10 MHz
MG-5 16.43
OSC-5 SG-49 50 MHz
MG-5 FO-5 26 WAY F.O.
TRIGGER OUT
OFFSET OUT
NOTE UNLESS OTHERWISE SPECIFIED-
1. ALL RESISTORS SHALL BE 50Ω, 1/2W.
2. ALL COAX SHALL BE RG-58/U
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
TRIGGER/MARKERS
HURON KING
LVD-205
D
DO NOT SCALE DRAWING


REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
PULSE GEN #2 50-106
J-BOX
DRY RUN TRIG FROM 50050 TGU
5 WAY FO #2-1
5 WAY FO #2-2
5 WAY FO #2-3
5 WAY FO #2-4
5 WAY FO #2-5
5 WAY FO #2-6
5 WAY FO #2-7
5 WAY FO #2-8
5 WAY FO #2-9
5 WAY FO #2-10
5 WAY FO #2-11
5 WAY FO #2-12
5 WAY FO #2-13
5 WAY FO #2-14
TO TESG-72
MATCHED TEE
TO TESG-72
PARTS LIST
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
CLE LINE DIAGRAM
DRY RUN SYSTEM
HL RON KING
50050
D
D-227
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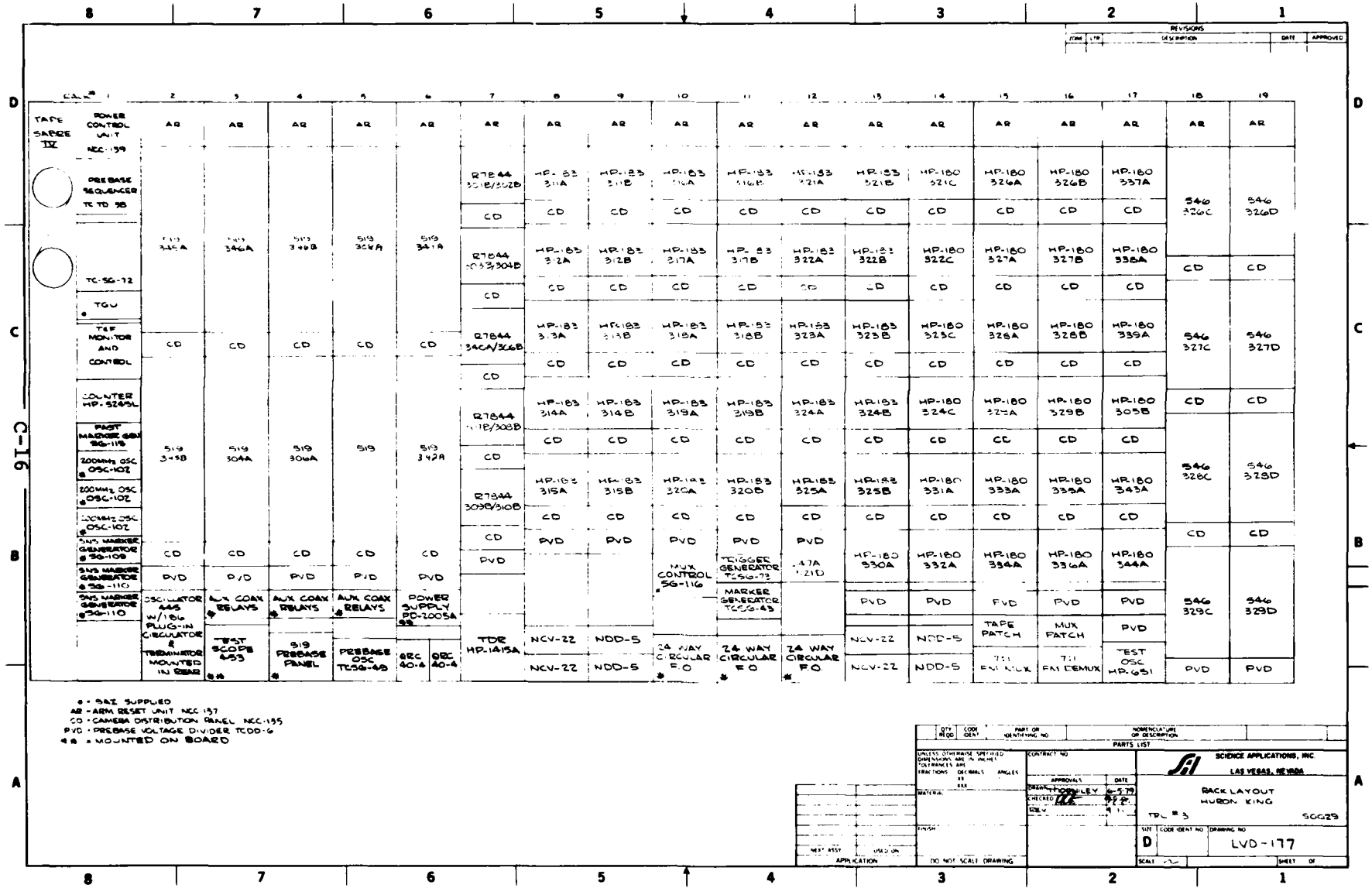
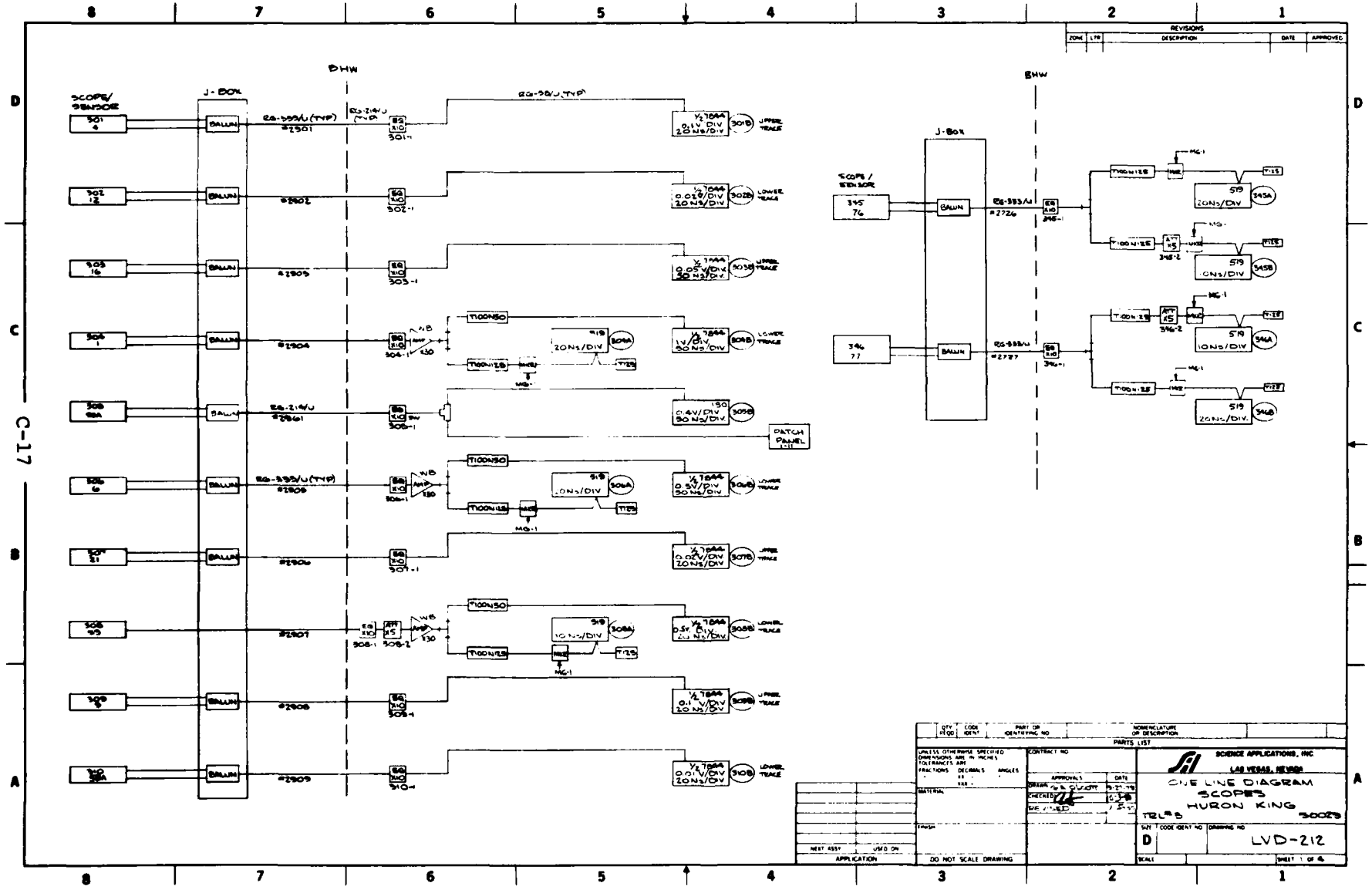
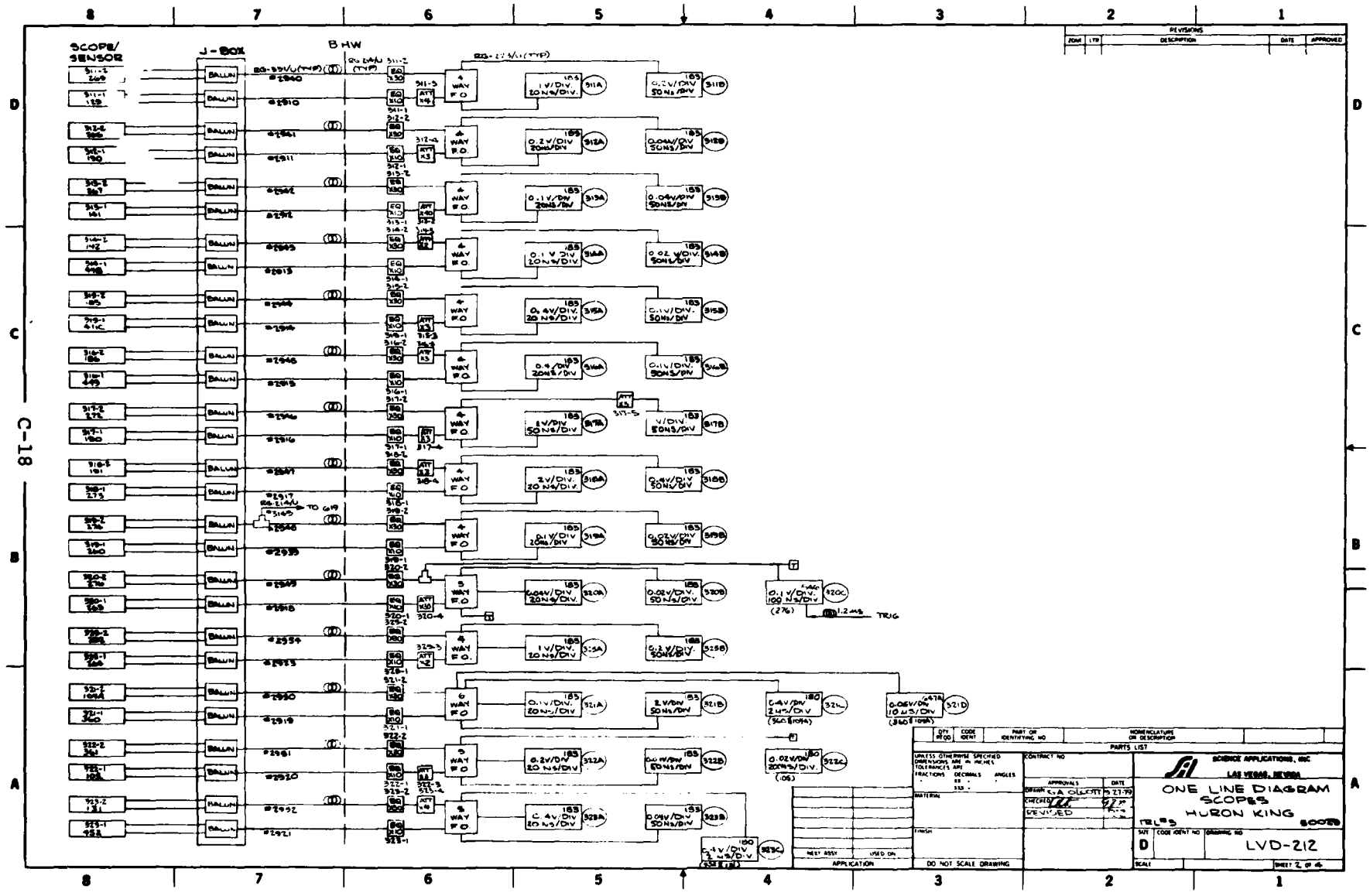
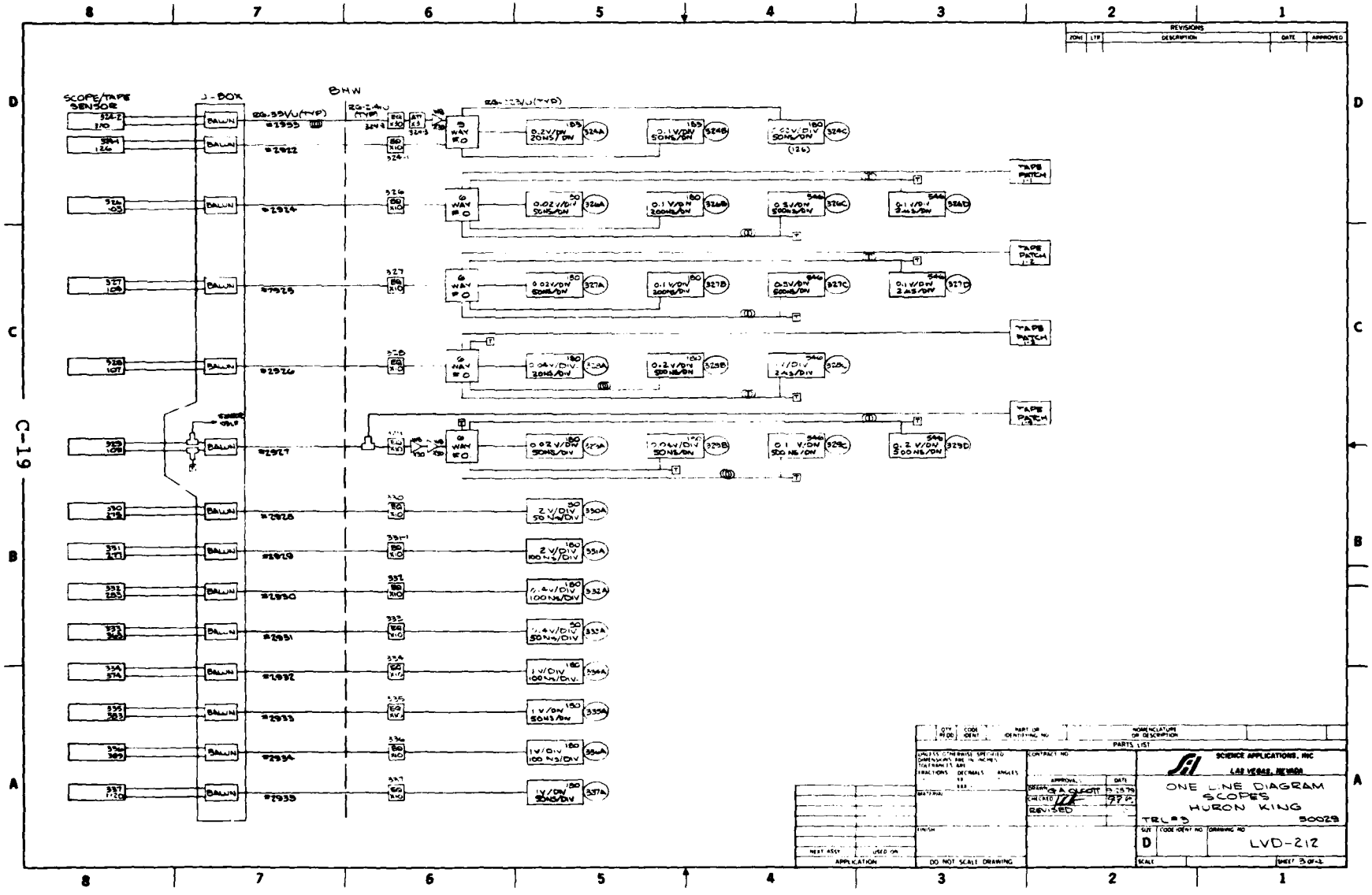
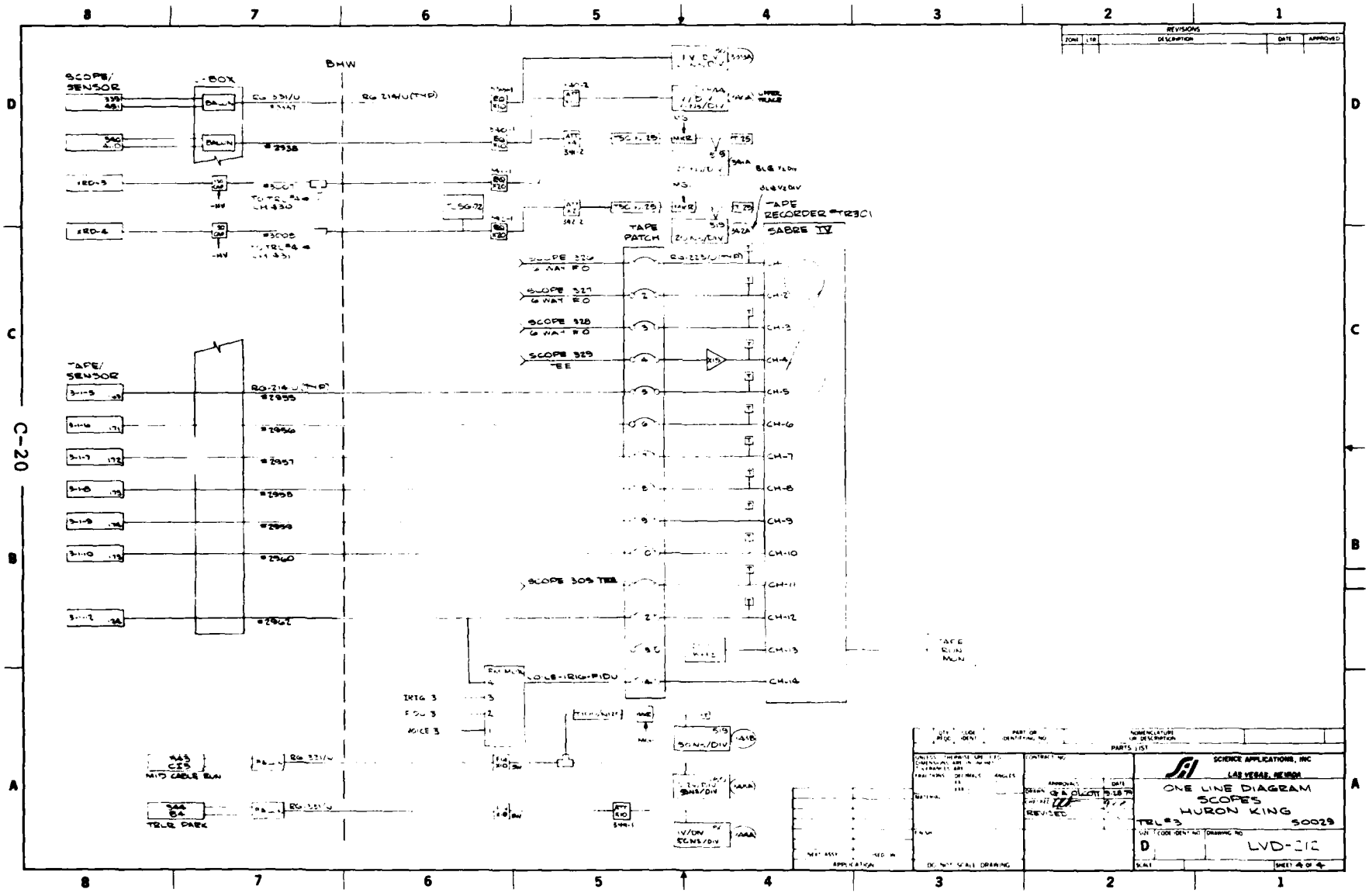

REVISIONS
TAPE SAPPE IV
POWER CONTROL UNIT NCC-139
PREBASE SEQUENCER TC TO 98
TC-SG-72
TGU
T&F MONITOR AND CONTROL
COUNTER HP-5245L
FAST MARKER GEN SG-118
200MHz OSC OSC-102
200MHz OSC OSC-102
200MHz OSC OSC-102
SYS MARKER GENERATOR SG-109
SYS MARKER GENERATOR SG-110
SYS MARKER GENERATOR SG-110
OSCILLATOR 445 W/186 PLUG-IN CIRCULATOR & TERMINATOR MOUNTED IN REAR
AUX COAX RELAYS
TEST SCOPE 453
AUX COAX RELAYS
519 PREBASE PANEL
AUX COAX RELAYS
PREBASE OSC TC56-45
POWER SUPPLY PD-2005A
REC 40-4
REC 40-4
TDR HP-1415A
AUX CONTROL SG-116
TRIGGER GENERATOR TC56-72
MARKER GENERATOR TC56-43
24 WAY CIRCULAR F.O.
TAPE PATCH
MUX PATCH
TEST OSC HP-651
FM MUX
FM DEMUX
AR
CD
PVD
NCV-22
NDD-5
546 326C
546 326D
546 327C
546 327D
546 328C
546 328D
546 329C
546 329D
PARTS LIST
SCIENCE APPLICATIONS, INC.
LAS VEGAS, NEVADA
RACK LAYOUT
HURON KING
TDL #3
50029
LVD-177
DO NOT SCALE DRAWING

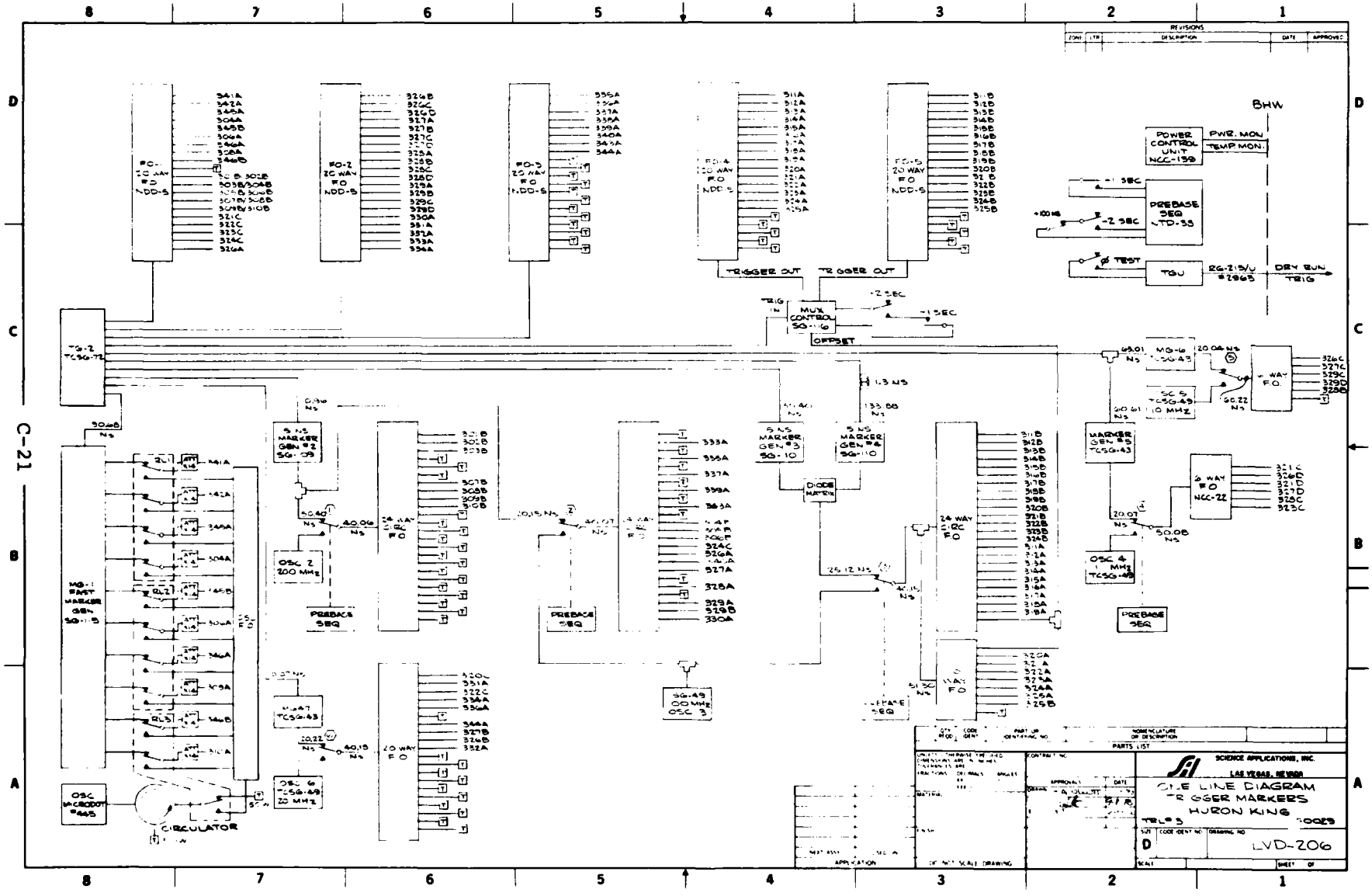
C-16


REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
BHW
J-BOX
SCOPE/ SENSOR
BALUN
RG-393/U (TYP)
RG-214/U (TYP)
#2501
#2502
#2503
#2504
#2506
#2507
#2508
#2509
PATCH PANEL
MG-1
SCOPE / SENSOR
#2726
#2727
PARTS LIST
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO
NOMENCLATURE OR DESCRIPTION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS
DECIMALS
ANGLES
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO
APPROVALS
DATE
DRAWN
CHECKED
ENGINEERED
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
SCOPES
HURON KING
TRLS
SIZE
CODE IDENT NO
DRAWING NO
D
LVD-212
SCALE
SHEET 1 OF 4


SCOPE/ SENSOR
J-BOX
BHW
BALUN
4 WAY P.O.
5 WAY P.O.
6 WAY P.O.
TRIG
REVISIONS
PARTS LIST
SCIENCE APPLICATIONS, INC.
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
SCOPES
HURON KING
LVD-212
DO NOT SCALE DRAWING
APPLICATION
NEXT ASSY
USED ON
SHEET 2 OF 4


SCOPE/TAPE SENSOR
J-BOX
BHW
BALUN
6 WAY RO
TAPE PATCH
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
SCOPES
HURON KING
LVD-212
DO NOT SCALE DRAWING


SCOPE/ SENSOR
BOX
BHW
TAPE/ SENSOR
TAPE PATCH
TAPE RECORDER SABRE IV
SCOPE 326 4 WAY FO
SCOPE 327 6 WAY FO
SCOPE 328 6 WAY FO
SCOPE 329 TEE
SCOPE 309 TEE
CH-2
CH-3
CH-4
CH-5
CH-6
CH-7
CH-8
CH-9
CH-10
CH-11
CH-12
CH-13
CH-14
TAPE RUN MON
IRIG 3
FSU 3
VOICE 3
MID CABLE RUN
TELE PATCH
REVISIONS
PARTS LIST
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
SCOPES
HURON KING
TEL#3
50029
D
LVD-212
SHEET 4 OF 4
DO NOT SCALE DRAWING


REVISIONS
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LTR
DESCRIPTION
DATE
APPROVED
BHW
POWER CONTROL UNIT NCC-138
PWR. MON
TEMP MON.
PREBASE SEQ NTD-33
TGU
RG-215/U #2965
DRY RUN TRIG
TRIGGER OUT
TRIGGER OUT
MUX CONTROL SG-116
OFFSET
MG-6 TCSG-43
SG 5 TCSG-49 10 MHZ
6 WAY F.O.
MARKER GEN #5 TCSG-43
6 WAY F.O. NCC-22
OSC 4 1 MHZ TCSG-48
PREBASE SEQ
5 NS MARKER GEN #2 SG-109
OSC 2 200 MHZ
PREBASE SEQ
5 NS MARKER GEN #3 SG-110
DIODE MATRIX
PREBASE SEQ
24 WAY F.O.
SG-49 100 MHZ OSC 3
PREBASE SEQ
MG-1 FAST MARKER GEN SG-115
OSC MICROLOCK #445
CIRCULATOR
OSC 6 TCSG-49 20 MHZ
20 WAY F.O.
PARTS LIST
SCIENCE APPLICATIONS, INC.
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
TRIGGER MARKERS
HURON KING
TELS
LVD-206
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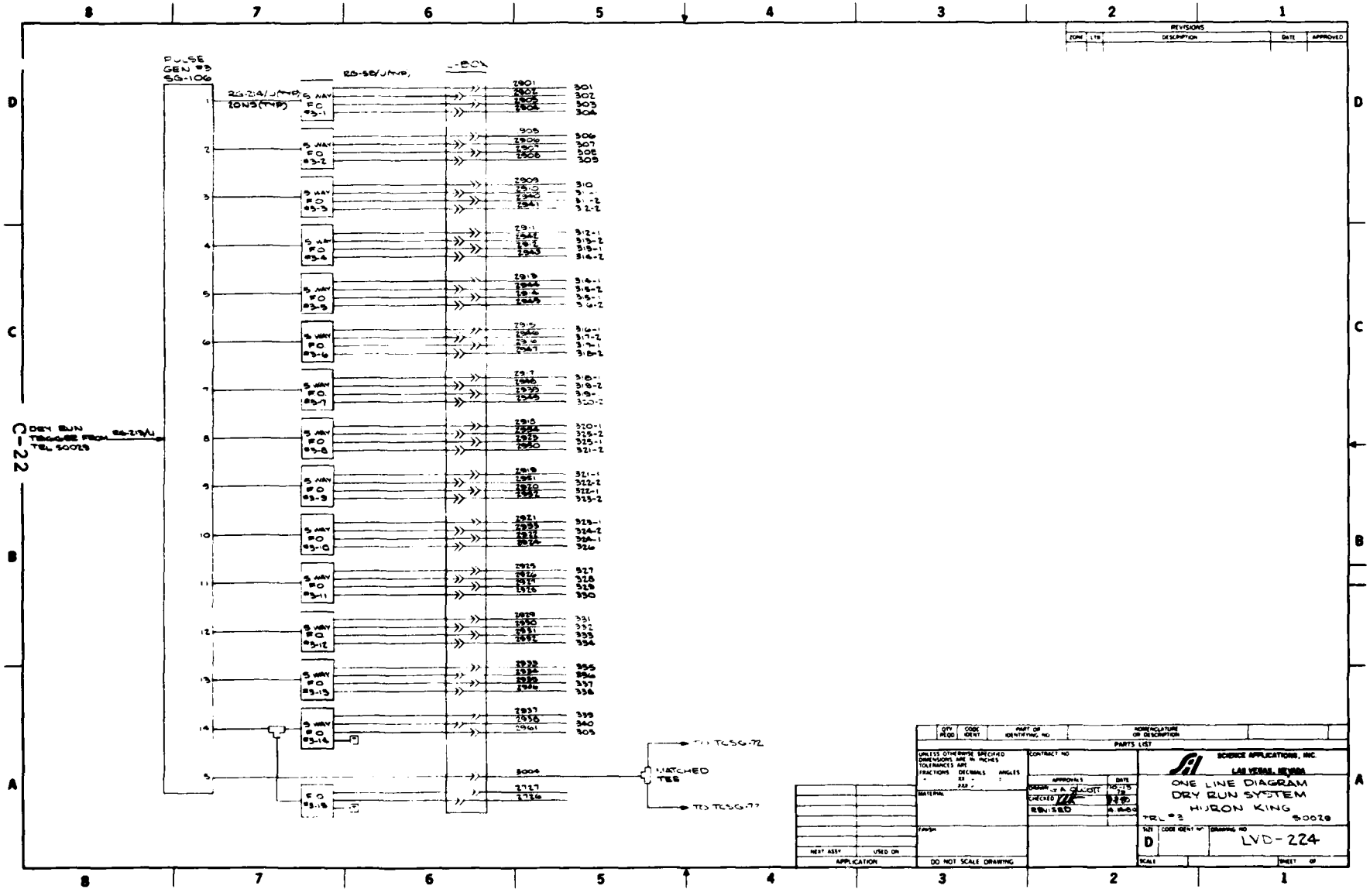
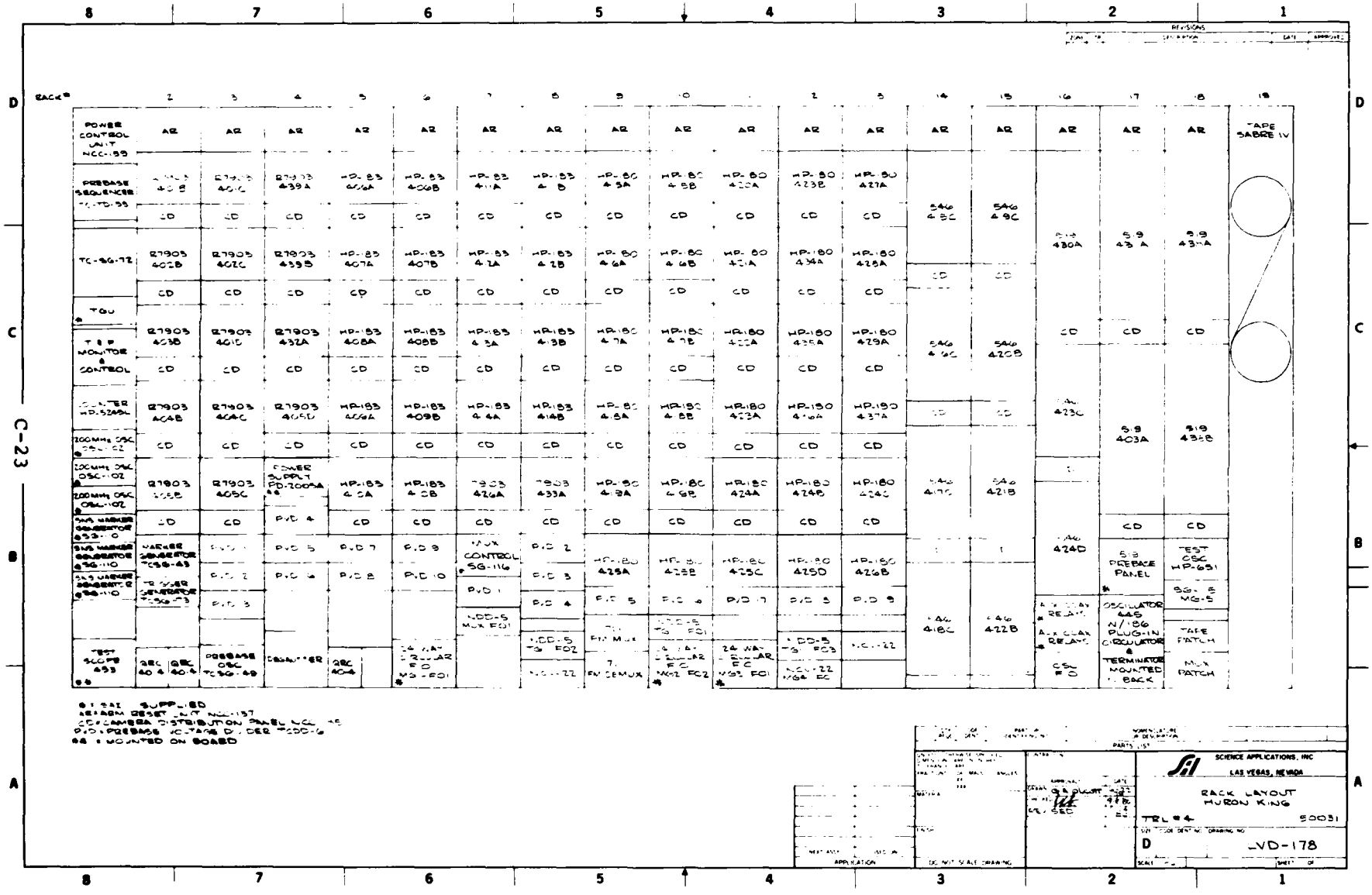
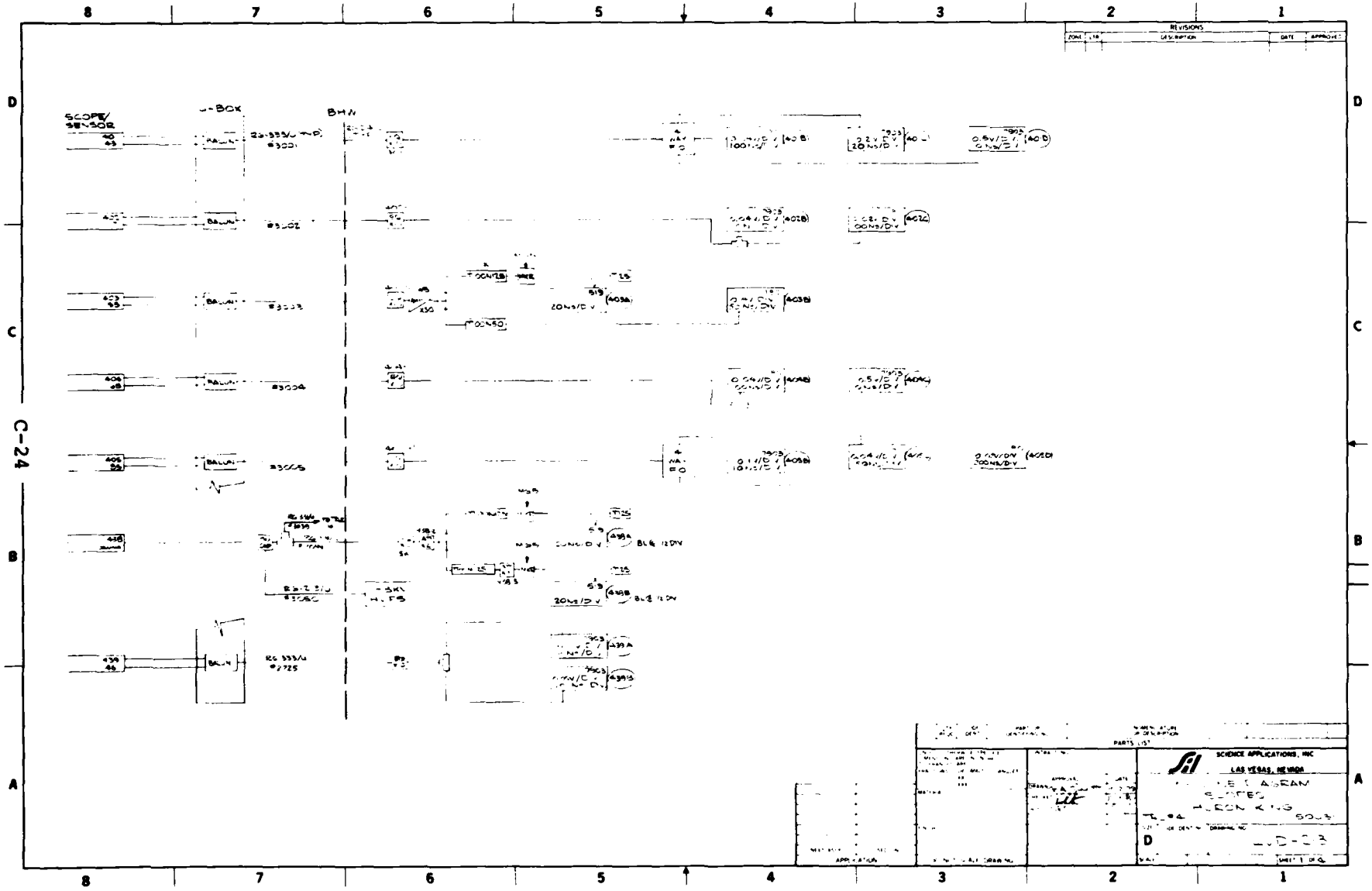
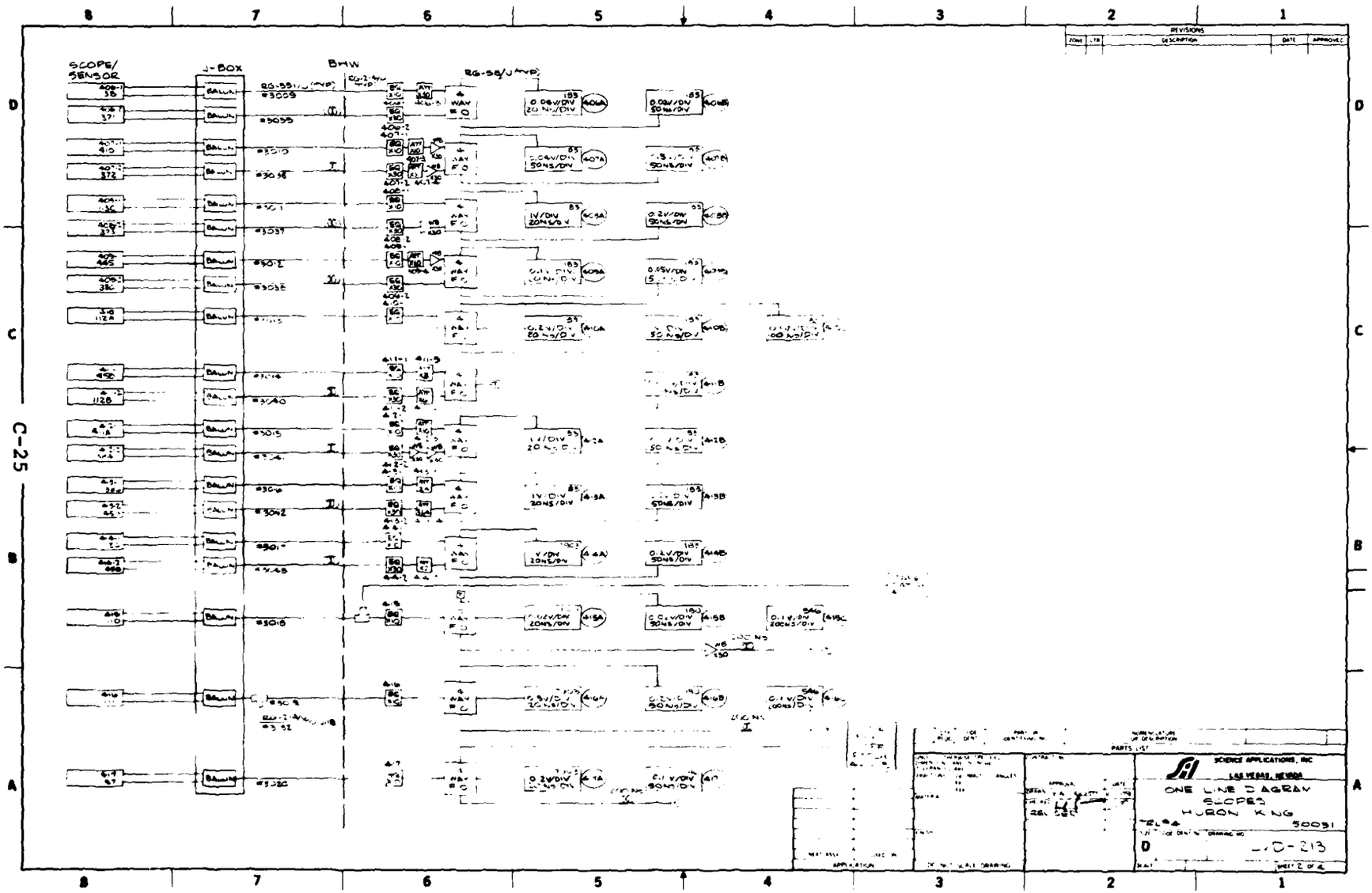
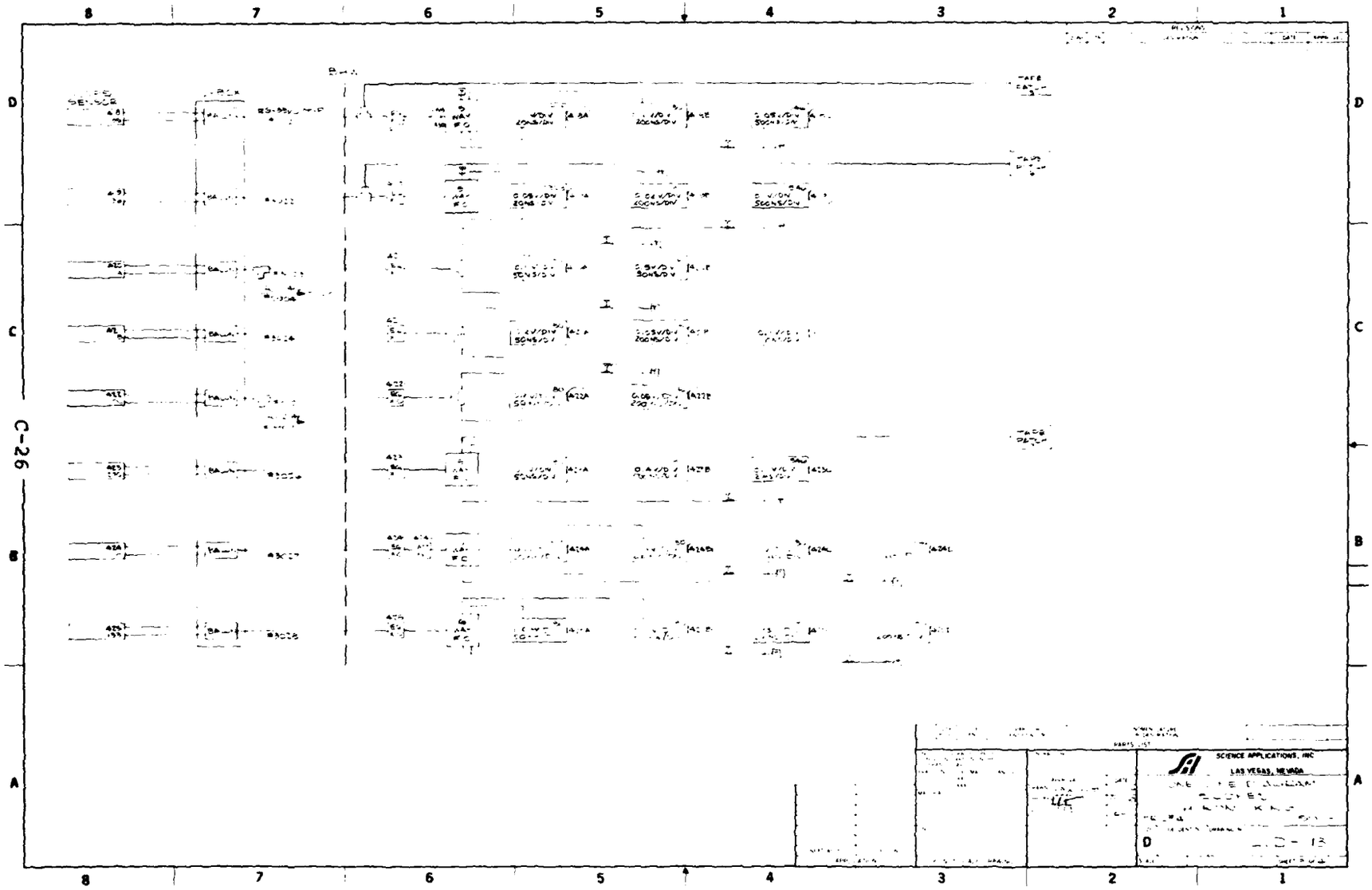
DO NOT SCALE DRAWING
APPLICATION

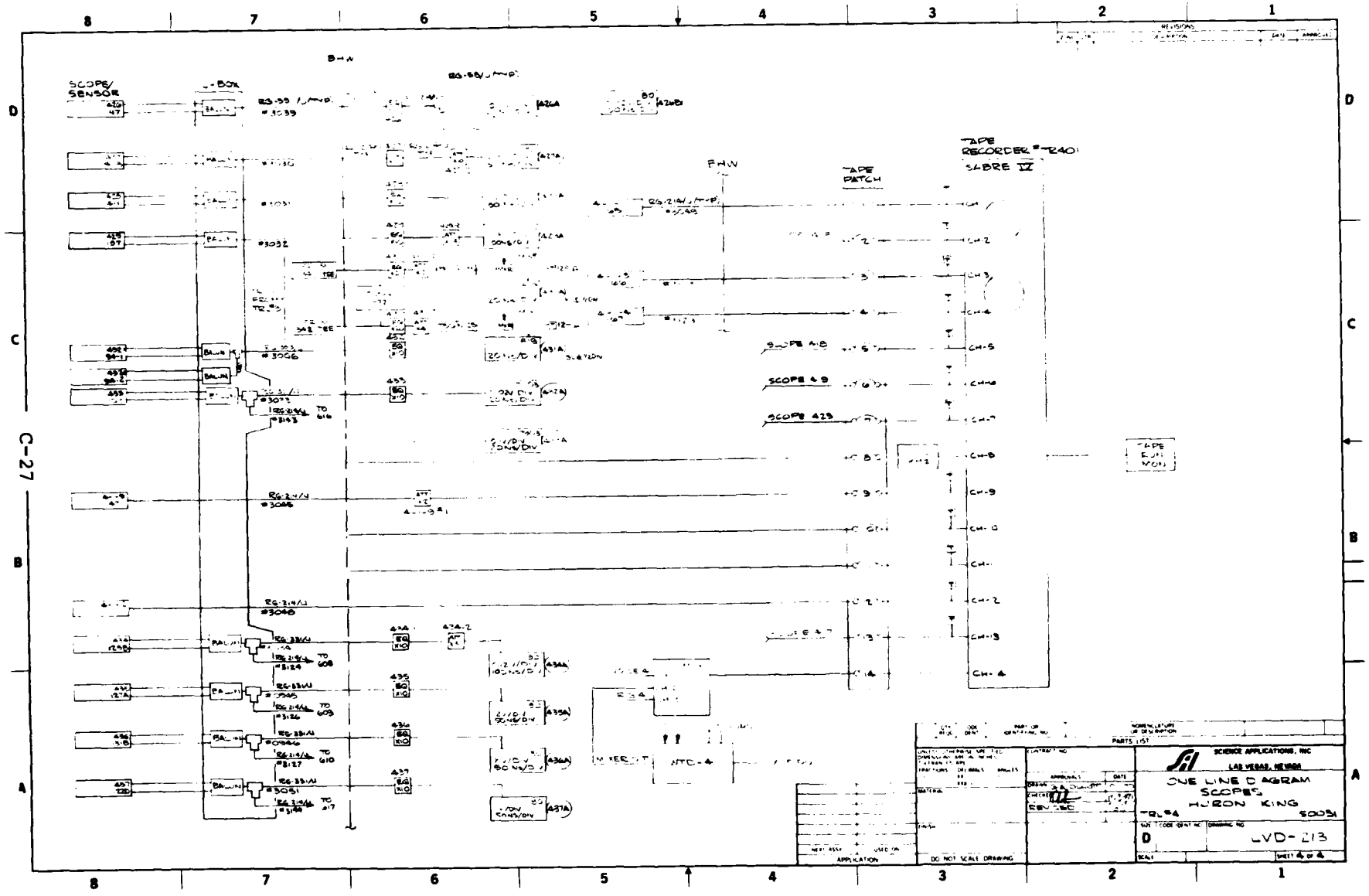

PULSE GEN #3 SG-106
DRY RUN TRIGGER FROM TEL 50029
S WAY FO #3-1
S WAY FO #3-2
S WAY FO #3-3
S WAY FO #3-4
S WAY FO #3-5
S WAY FO #3-6
S WAY FO #3-7
S WAY FO #3-8
S WAY FO #3-9
S WAY FO #3-10
S WAY FO #3-11
S WAY FO #3-12
S WAY FO #3-13
S WAY FO #3-14
FO #3-15
MATCHED TEE
TO TCSG-72
TO TCSG-77
REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
PARTS LIST
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO.
NOMENCLATURE OR DESCRIPTION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS
DECIMALS
ANGLES
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO
APPROVALS
DATE
DRAWN J. A. GLIOTT
CHECKED
ENGINEER
SCIENCE APPLICATIONS, INC.
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
DRY RUN SYSTEM
HURON KING
TEL #2
50029
SIZE D
CODE IDENT NO
DRAWING NO LVD-224
SCALE
SHEET OF

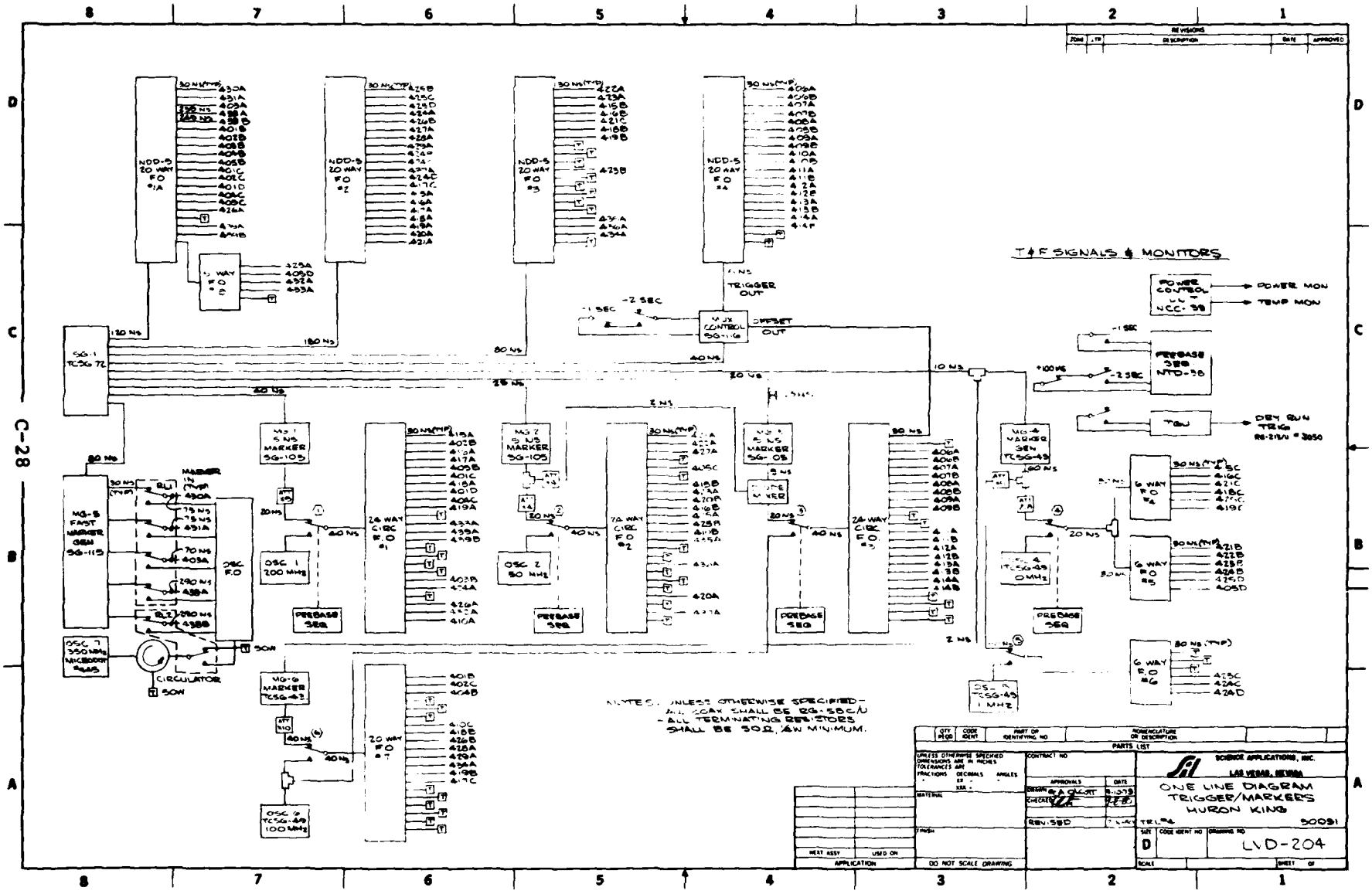

RACK #
POWER CONTROL UNIT NCC-159
PREBASE SEQUENCER
TC-SG-72
TQU
T & P MONITOR & CONTROL
COUNTER HP-5245L
200 MHz OSC
100 MHz OSC
MARKER GENERATOR
TEST SCOPE 453
TAPE SABRE IV
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
RACK LAYOUT
HURON KING
TRL #4
50031
D
VD-178
DO NOT SCALE DRAWING
APPLICATION
PARTS LIST
REVISIONS
C-23

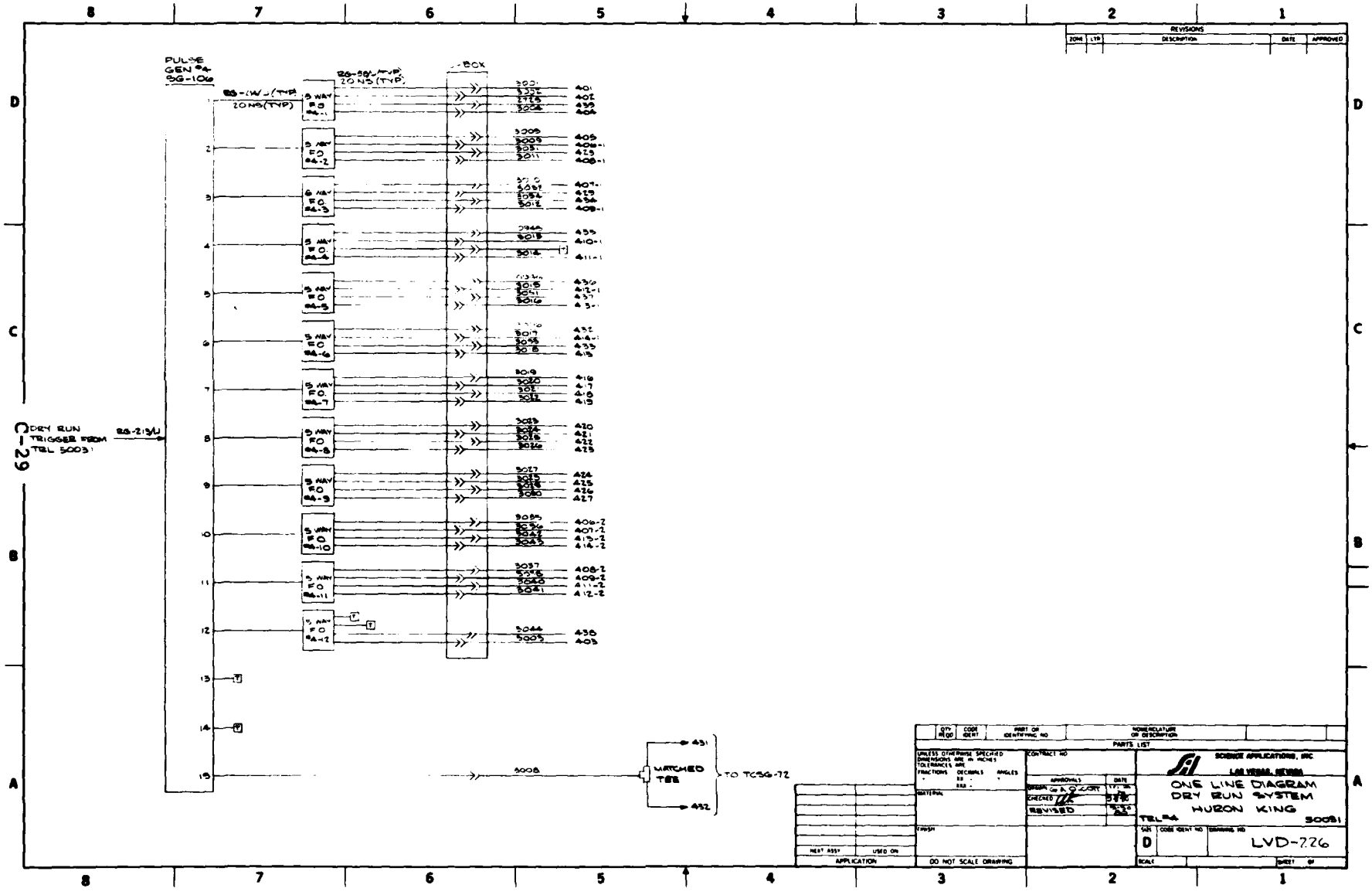

REVISIONS
SCOPE/ SENSOR
BALUN
BHN
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
PARTS LIST

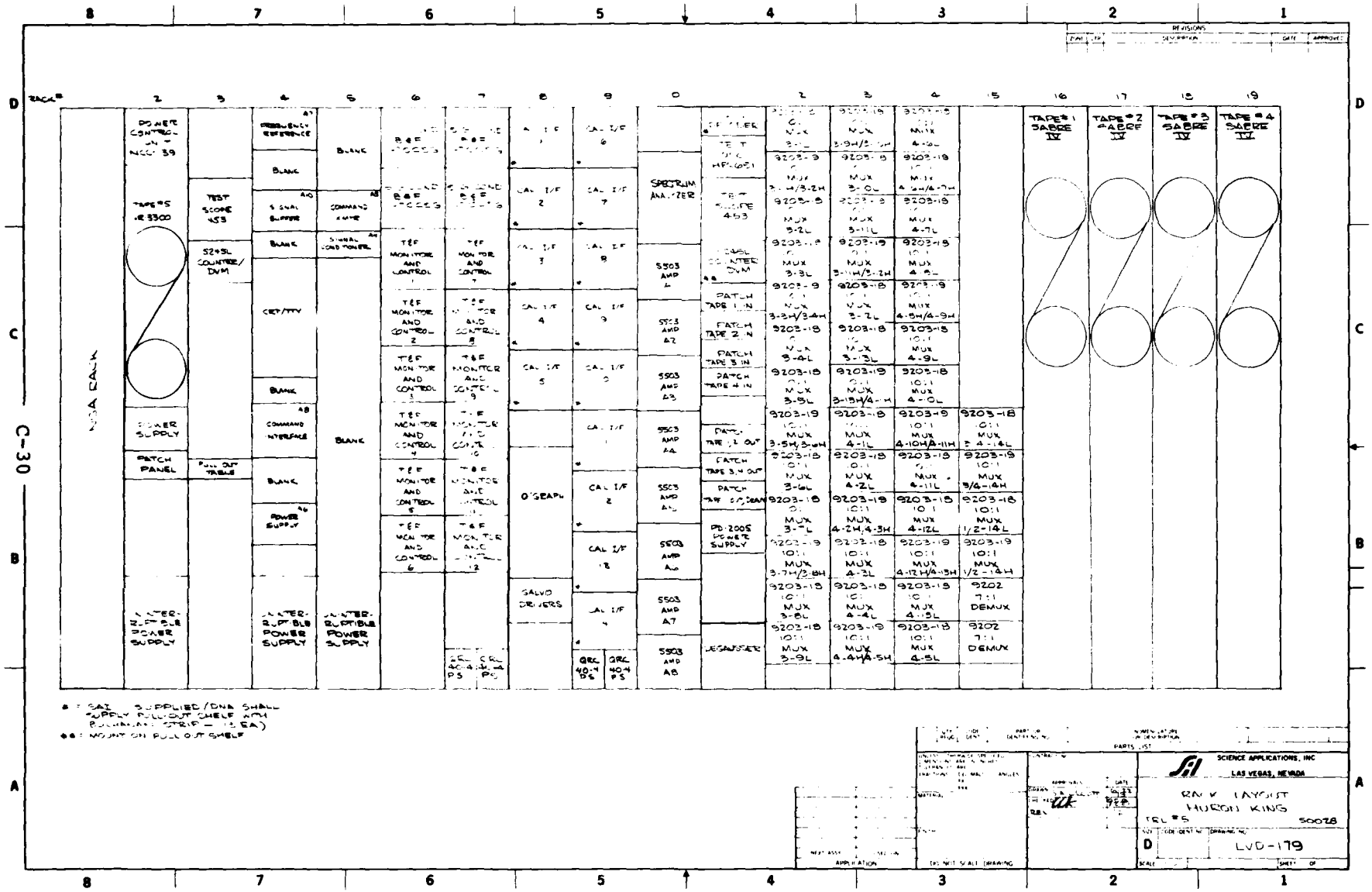

SCOPE/ SENSOR
J-BOX
BMW
RG-58/U (TYP)
REVISIONS
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
SCOPES
HURON KING
50031
D
PARTS LIST

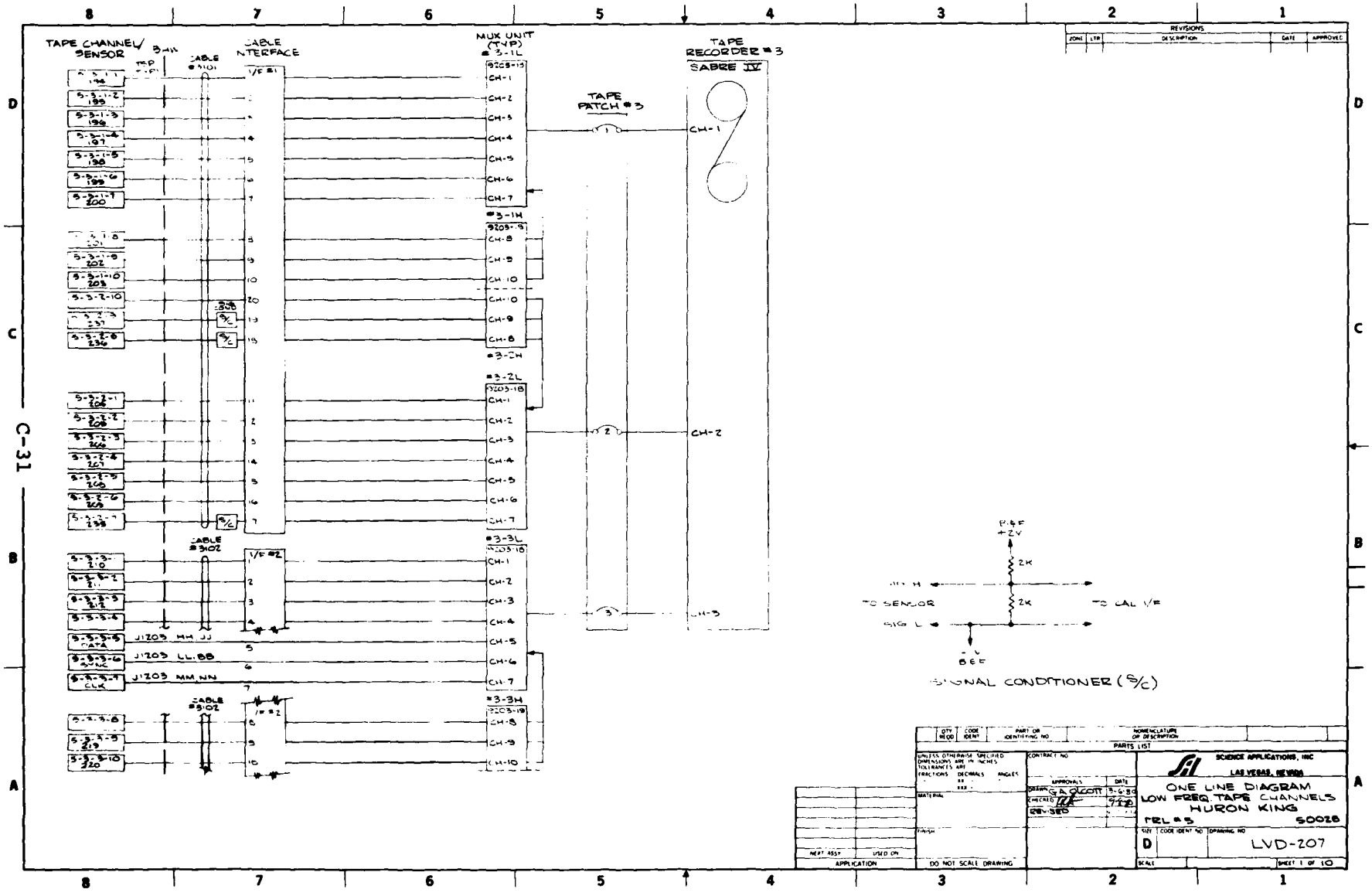

SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

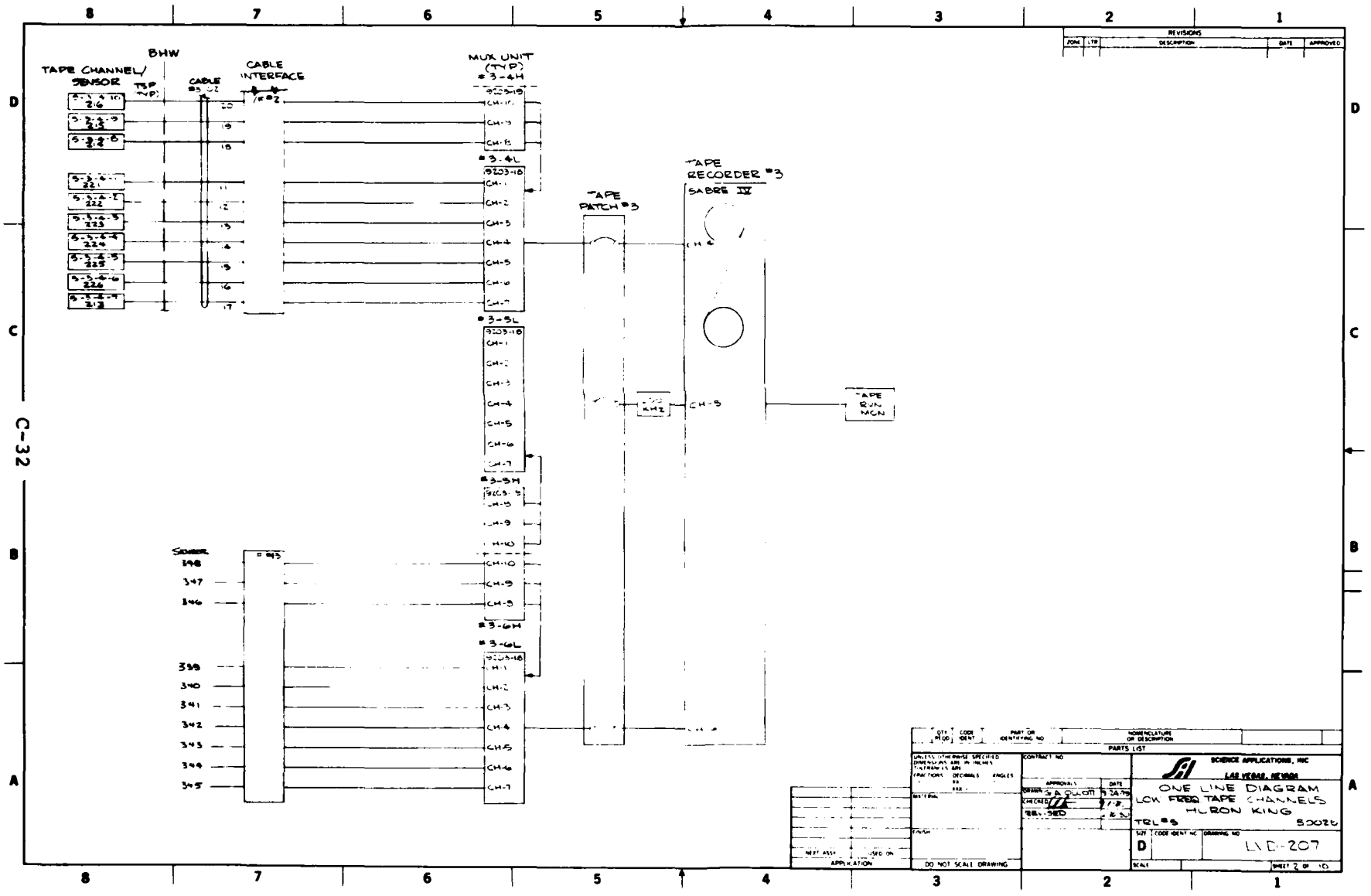

SCOPE/ SENSOR
TAPE RECORDER #-2401 SABRE IV
TAPE PATCH
SCOPE A-B
SCOPE 4-9
SCOPE 4-23
TAPE RUN MON
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM SCOPES HURON KING
LVD-213
DO NOT SCALE DRAWING
PARTS LIST
APPLICATION

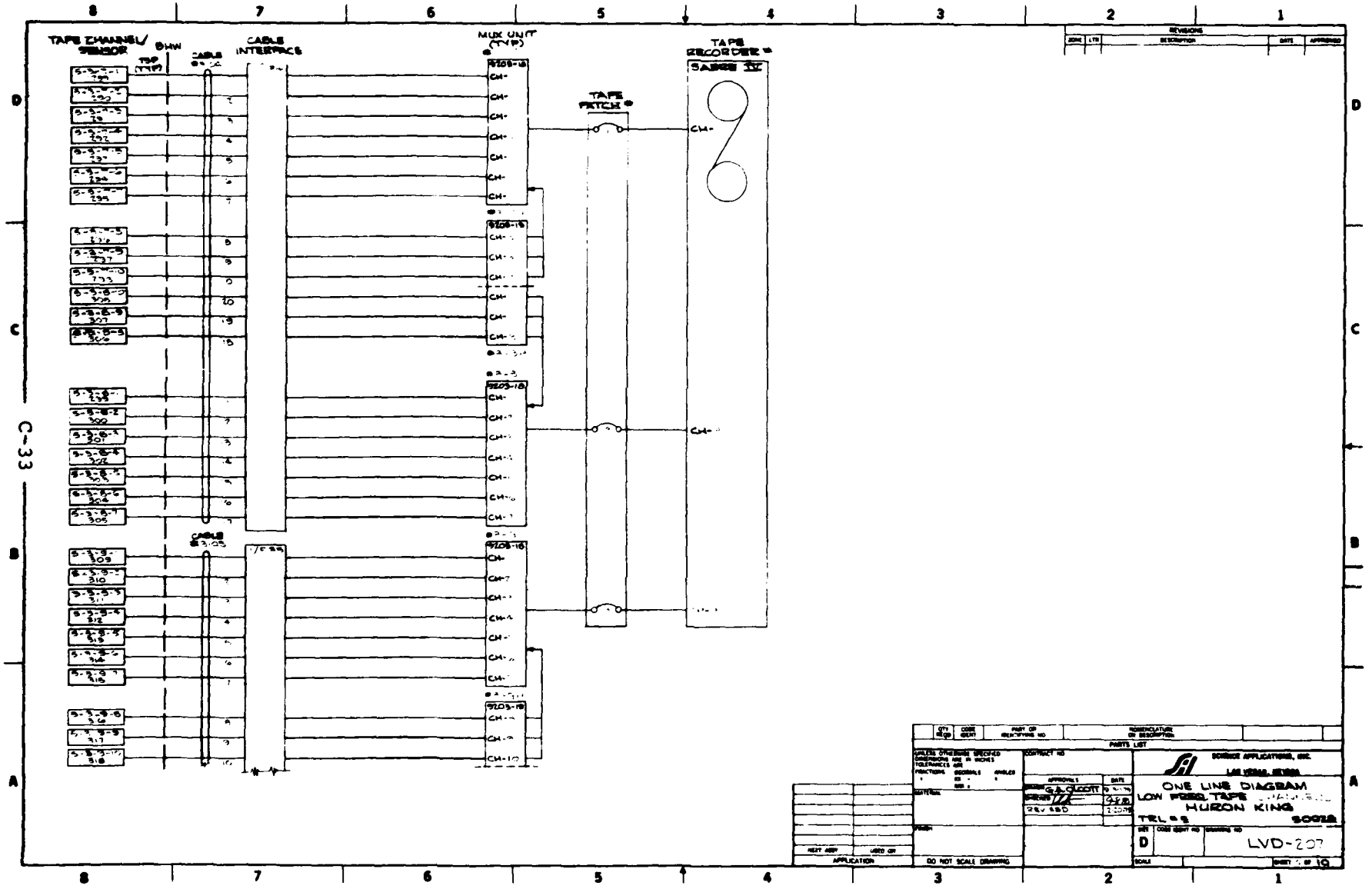

T & F SIGNALS & MONITORS
POWER CONTROL
POWER MON
TEMP MON
TRIGGER OUT
OFFSET OUT
DRY RUN TRIG
NOTES: UNLESS OTHERWISE SPECIFIED
- ALL COAX SHALL BE RG-58 C/U
- ALL TERMINATING RESISTORS SHALL BE 50Ω, ¼W MINIMUM.
PARTS LIST
SCIENCE APPLICATIONS, INC.
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
TRIGGER/MARKERS
HURON KING
LVD-204
DO NOT SCALE DRAWING

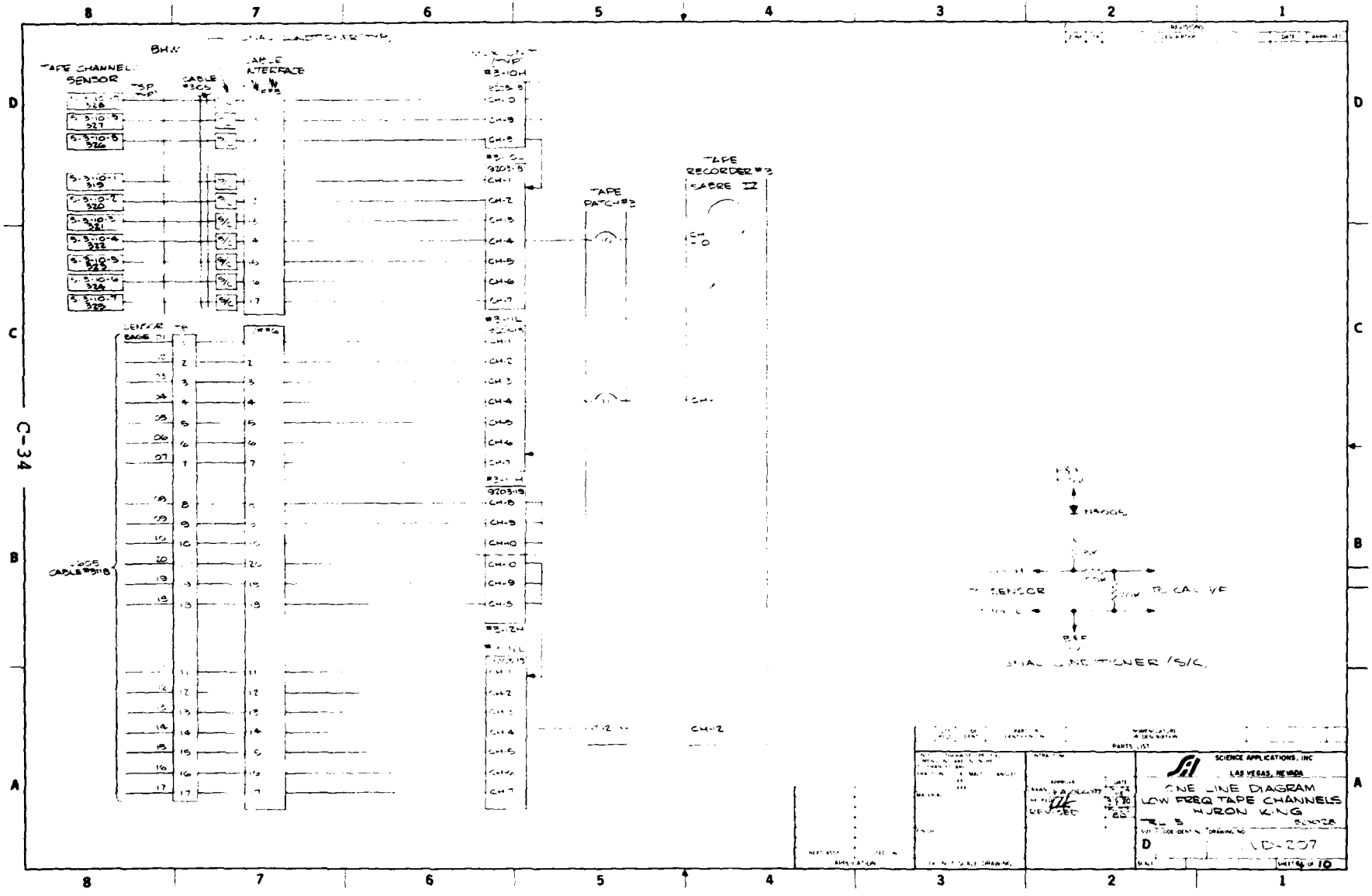

PULSE GEN #4 SG-106
DRY RUN TRIGGER FROM TEL 5003
TO TCSG-72
WATCHED TEE
DO NOT SCALE DRAWING
ONE LINE DIAGRAM
DRY RUN SYSTEM
HURON KING
LVD-226

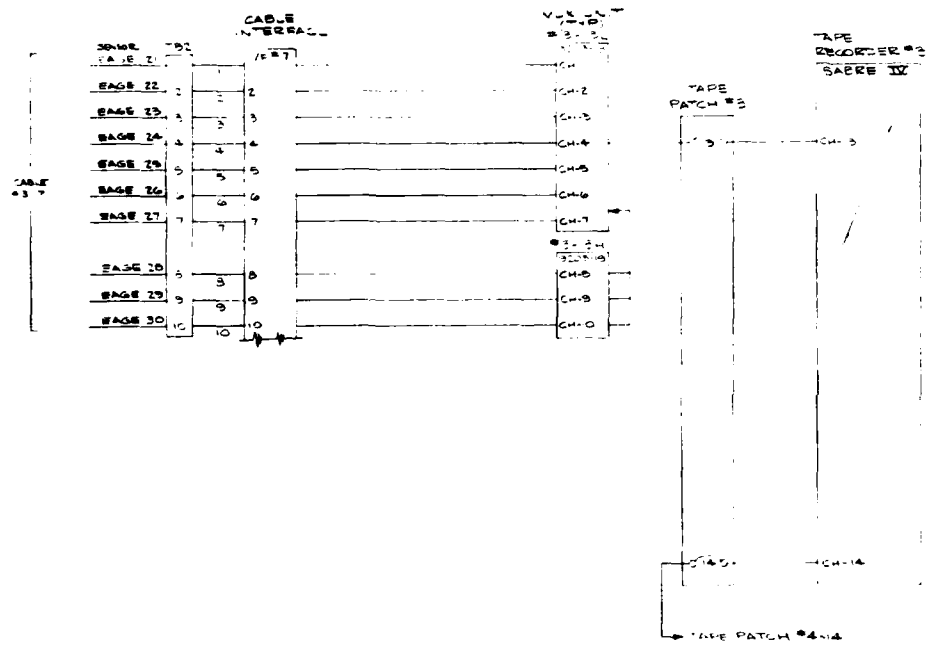

RACK #
NASA RACK
POWER CONTROL UNIT NCC 39
TAPE #5 IRIG 3300
POWER SUPPLY
PATCH PANEL
INTER-RUPTIBLE POWER SUPPLY
TEST SCOPE 453
5245L COUNTER/DVM
FREQUENCY REFERENCE
BLANK
SIGNAL BUFFER
CRT/TTY
COMMAND INTERFACE
POWER SUPPLY
INTER-RUPTIBLE POWER SUPPLY
COMMAND AMPS
SIGNAL CONDITIONER
T&F MONITOR AND CONTROL
CAL I/F
SPECTRUM ANALYZER
5503 AMP
O'SCOPE
SALVO DRIVERS
QRC 40-4 PS
PATCH TAPE 1 IN
PATCH TAPE 2 IN
PATCH TAPE 3 IN
PATCH TAPE 4 IN
PATCH TAPE 1,2 OUT
PATCH TAPE 3,4 OUT
PD-2005 POWER SUPPLY
DEGAUSSER
9203-19 10:1 MUX
9202 7:1 DEMUX
TAPE #1 SABRE IV
TAPE #2 SABRE IV
TAPE #3 SABRE IV
TAPE #4 SABRE IV
C-30
* : SAI SUPPLIED/DNA SHALL SUPPLY PULLOUT SHELF WITH PUSHMAN STRIP — 12 EA)
** : MOUNT ON PULL OUT SHELF
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
RACK LAYOUT
HUROLI KING
TEL #5
50078
LVD-179
DO NOT SCALE DRAWING
APPLICATION
PARTS LIST
REVISIONS


TAPE CHANNEL SENSOR
CABLE INTERFACE
MUX UNIT (TYP) #3-1L
TAPE RECORDER #3
SABRE IV
TAPE PATCH #3
CABLE #3101
CABLE #3102
I/F #1
I/F #2
#3-1H
#3-2H
#3-2L
#3-3L
#3-3H
CH-1
CH-2
CH-3
CH-4
CH-5
CH-6
CH-7
CH-8
CH-9
CH-10
J1203 MM JJ
J1203 LL.BB
J1203 MM.NN
S/C
P.&F +2V
2K
TO SENSOR
TO CAL I/F
SIG L
-1V BEF
SIGNAL CONDITIONER (S/C)
REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
PARTS LIST
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO
NOMENCLATURE OR DESCRIPTION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO
APPROVALS
DATE
DRAWN G.A. OLCOTT
CHECKED
REVISED
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
LOW FREQ. TAPE CHANNELS
HURON KING
REL #5
50028
SIZE
CODE IDENT NO
DRAWING NO
D
LVD-207
SCALE
SHEET 1 OF 10


TAPE CHANNEL/ SENSOR
BHW
TSP (TYP)
CABLE #5 OZ
CABLE INTERFACE
MUX UNIT (TYP) #3-4H
#3-4L
#3-5L
#3-5H
#3-6H
#3-6L
TAPE PATCH #3
TAPE RECORDER #3
SABRE IV
TAPE RUN MON
SENSOR
REVISIONS
PARTS LIST
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
LOW FREQ TAPE CHANNELS
HURON KING
TRL #5
LVD-207
DO NOT SCALE DRAWING


TAPE CHANNEL/ SENSOR
BHW
TYP (TYP)
CABLE
CABLE INTERFACE
MUX UNIT (TYP)
TAPE PATCH
TAPE RECORDER
SABER IV
CH-
ONE LINE DIAGRAM
LOW FREQ. TAPE
HURON KING
LVD-207
DO NOT SCALE DRAWING
PARTS LIST
REVISIONS
APPROVALS
APPLICATION
NEXT ASSY
USED ON


TAPE CHANNEL SENSOR
CABLE #3C6
CABLE INTERFACE
TAPE PATCH #3
TAPE RECORDER #3
SABRE II
CABLE #3118
SIGNAL CONDITIONER (S/C)
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
LOW FREQ TAPE CHANNELS
NIRON KING
D
ND-207
PARTS LIST



REVISIONS

ZONE	DESCRIPTION	DATE	APPROVED

PARTS LIST

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS ANGLES

MATERIAL

FINISH

NEXT ASSY USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO

APPROVALS DATE

DRAWN 8-26-79

CHECKED 9-7-79

REVISED 8-5-80

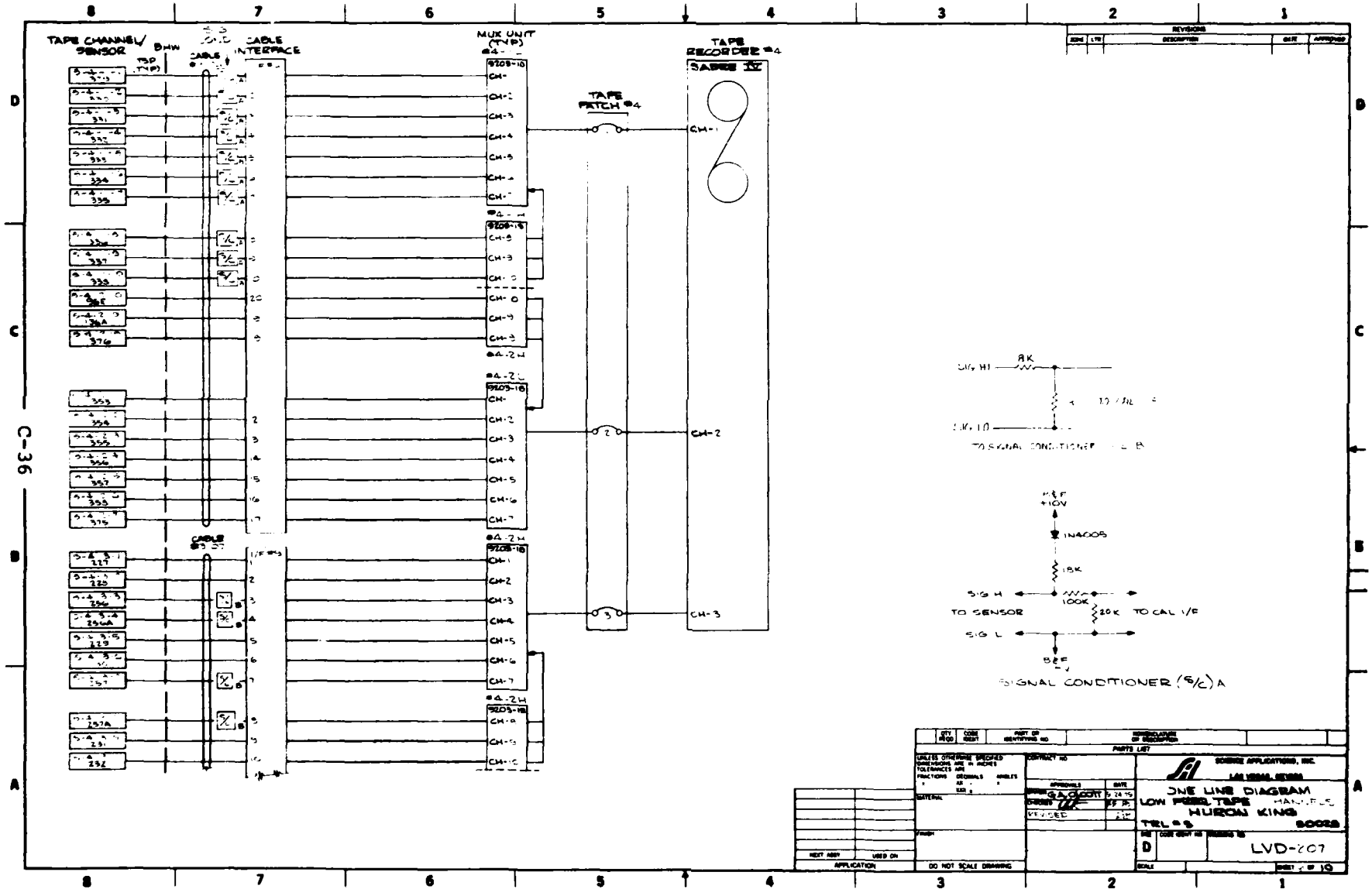
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

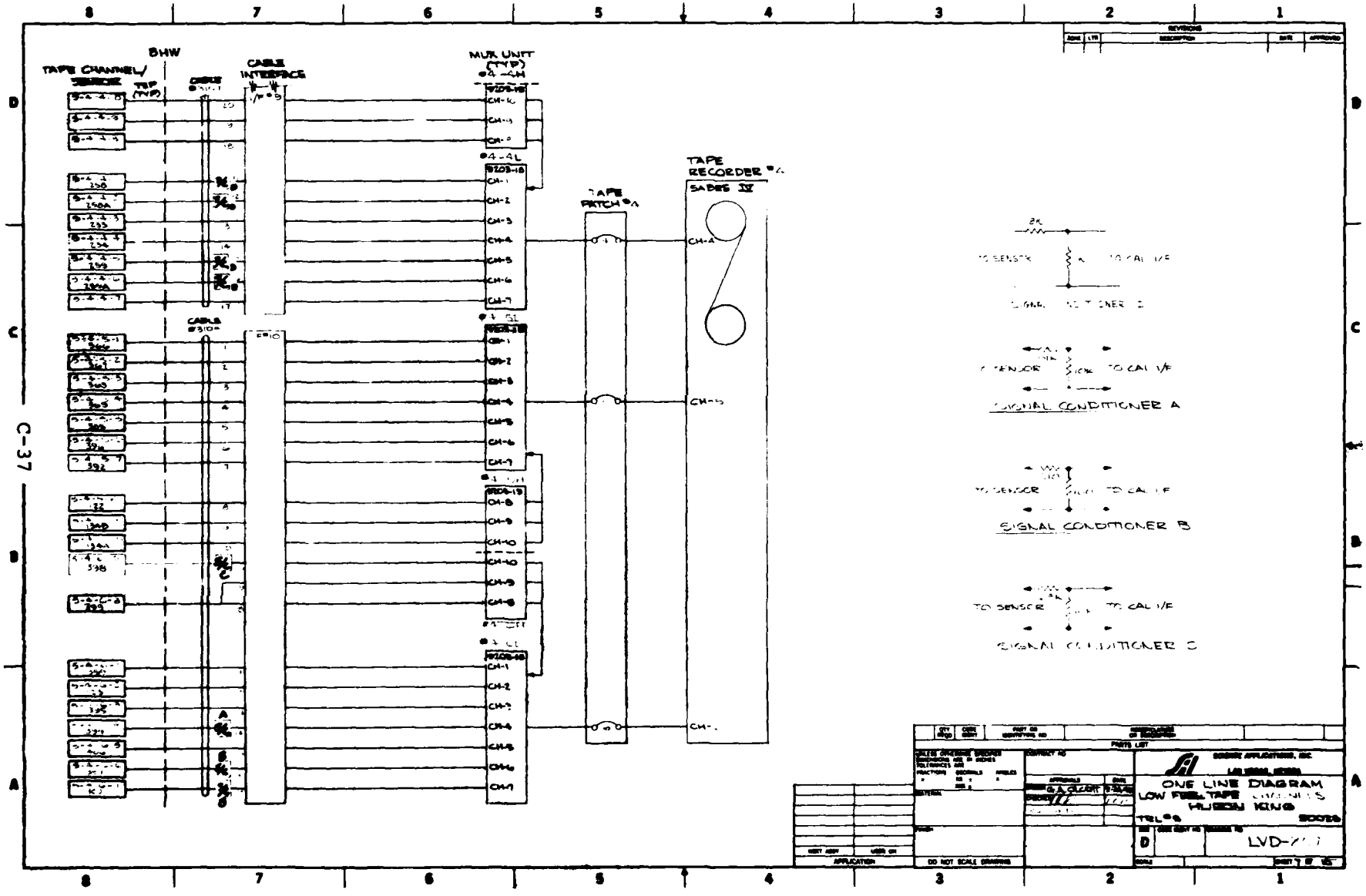
ONE LINE DIAGRAM
LOW FREQ TAPE CHANNELS
HURON KING

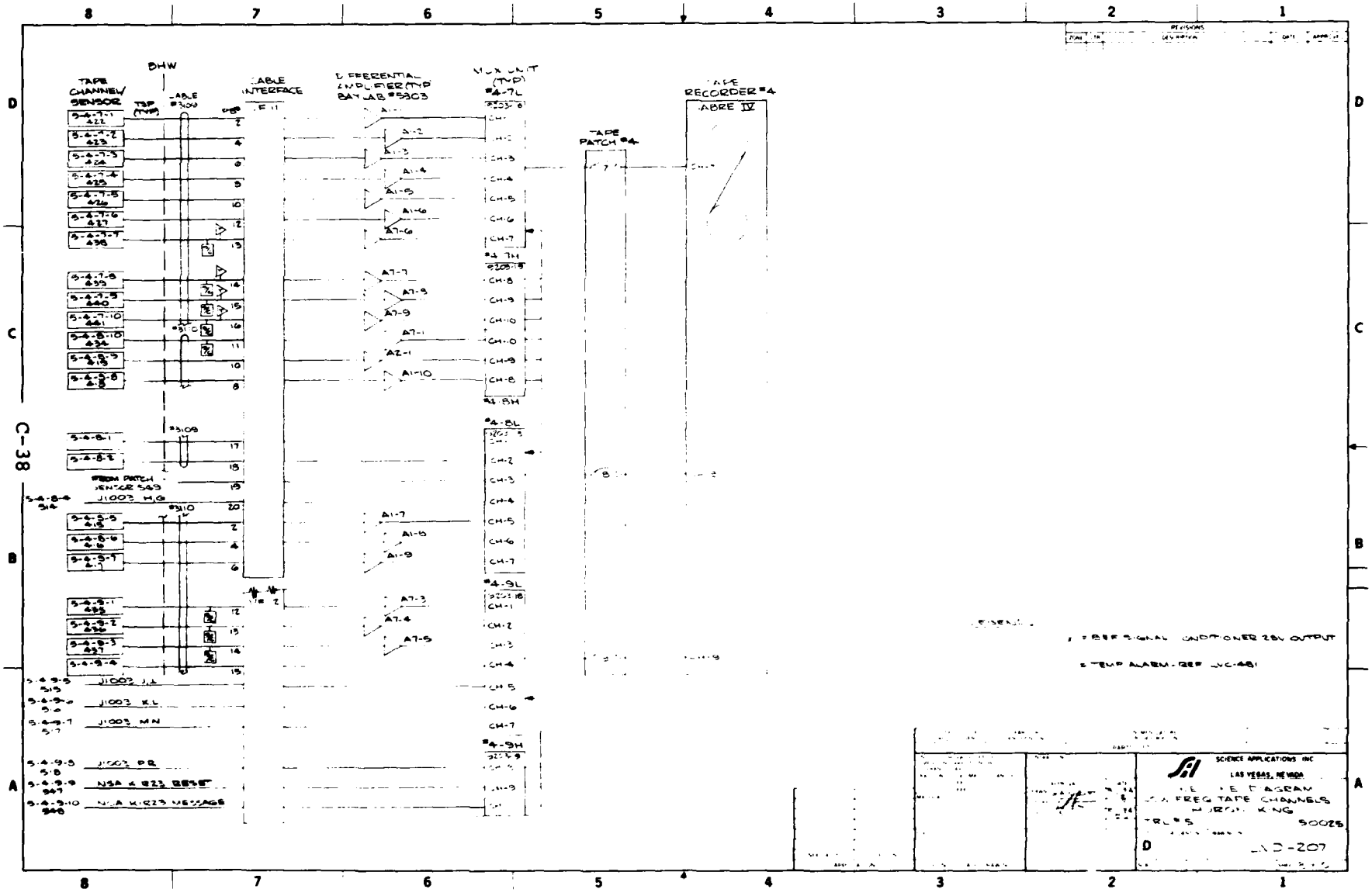
TRL=5 80028

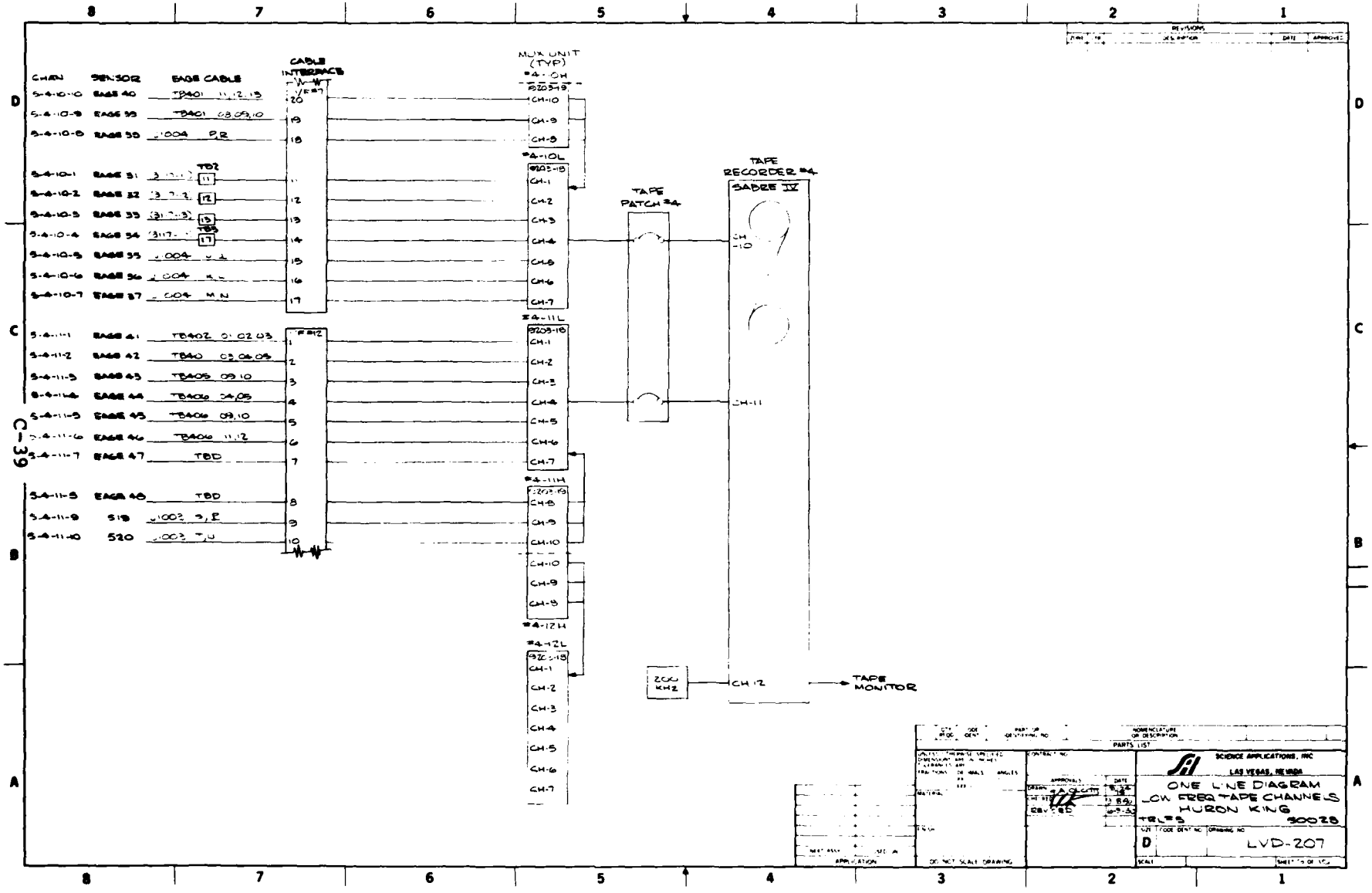
SIZE D CODE IDENT NO DRAWING NO LVD-207

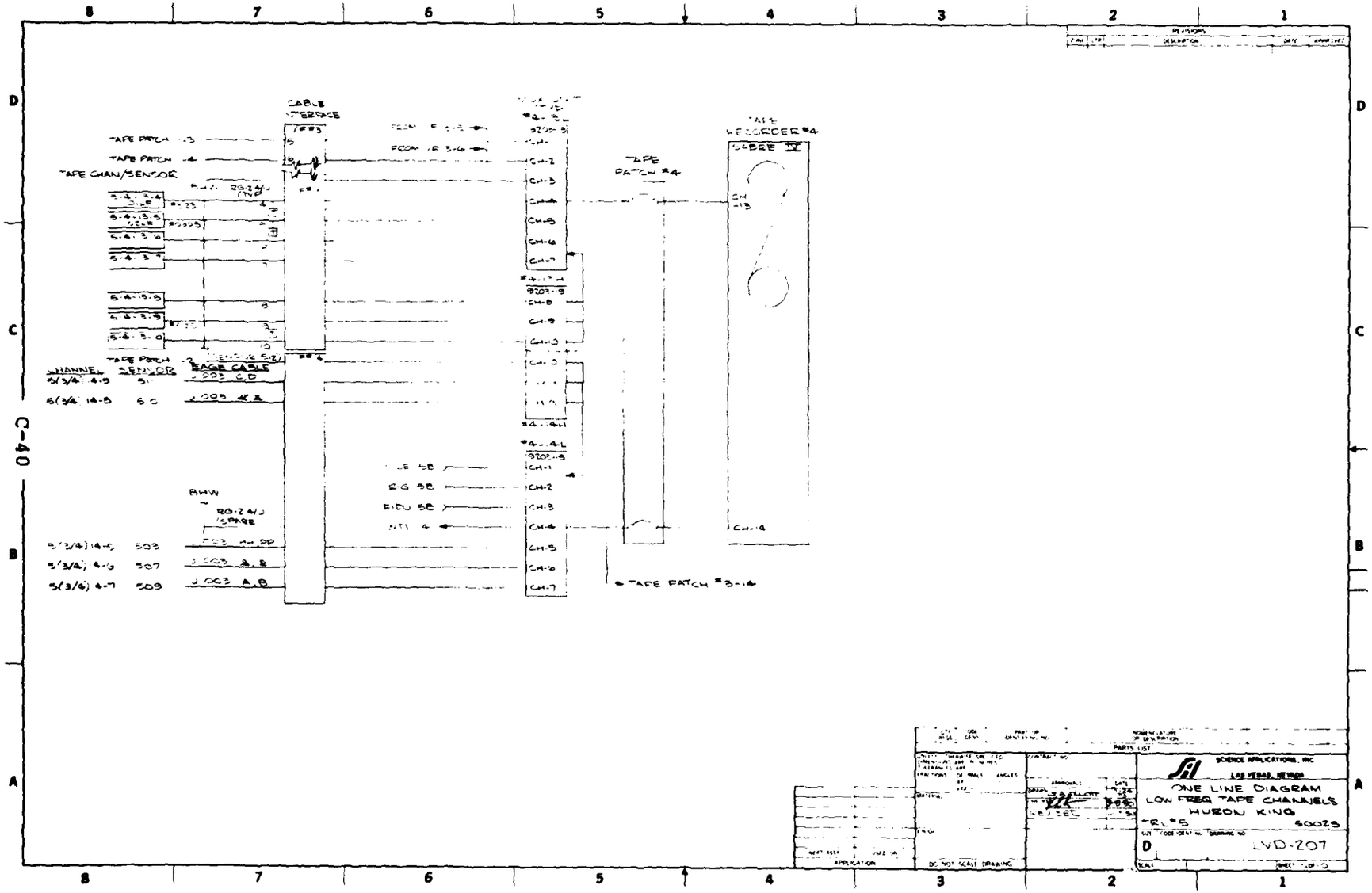
SCALE SHEET 5 OF 10

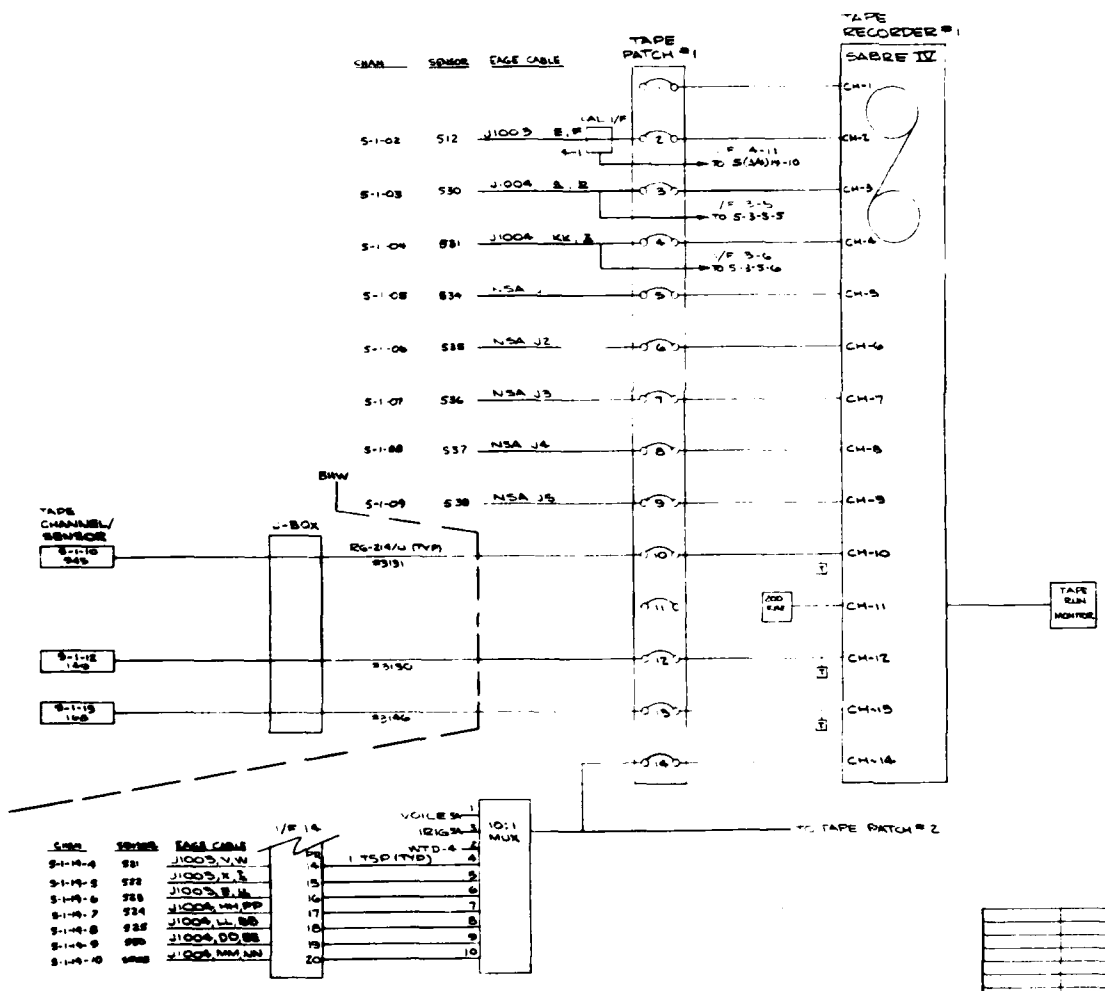

TAPE CHANNEL/ SENSOR
BHW
CABLE INTERFACE
MUX UNIT (TYP)
TAPE RECORDER #4
SABER IV
TAPE PATCH #4
CH-1
CH-2
CH-3
TO SIGNAL CONDITIONER
+10V
1N4005
18K
SIG H
100K
TO SENSOR
20K
TO CAL I/F
SIG L
SIGNAL CONDITIONER (S/C) A
REVISIONS
PARTS LIST
SCIENCE APPLICATIONS, INC.
ONE LINE DIAGRAM
LOW FREQ. TAPE HANDLER
HURON KING
LVD-207
DO NOT SCALE DRAWING
APPLICATION

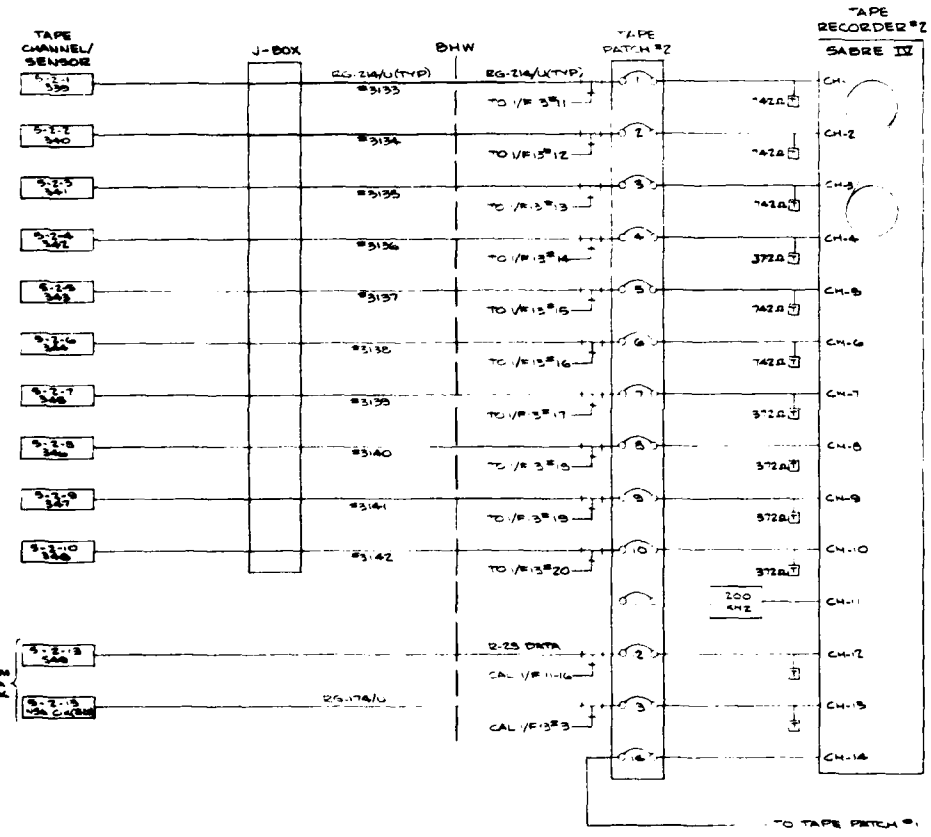

TAPE CHANNEL/ SENSOR
BHW
TRP (TYP)
CABLE #310
CABLE INTERFACE
MUX UNIT (TYP)
TAPE PATCH #1
TAPE RECORDER #1
SABER IV
CH-A
CH-B
CH-C
TO SENSOR
TO CAL I/F
SIGNAL CONDITIONER A
SIGNAL CONDITIONER B
SIGNAL CONDITIONER C
REVISIONS
PARTS LIST
DO NOT SCALE DRAWING
ONE LINE DIAGRAM
LOW FREQ TAPE CHANNELS
HUDSON KING
LVD-


TAPE CHANNEL/ SENSOR
DHW
TSP (TYP)
CABLE #3109
CABLE INTERFACE
DIFFERENTIAL AMPLIFIER (TYP) BAY JAB #5303
MUX UNIT (TYP)
TAPE PATCH #4
TAPE RECORDER #4
ABRE IV
FROM PATCH SENSOR 549
J1003 H,G
J1003 J,L
J1003 K,L
J1003 M,N
J1003 P,R
NSA & RZ3 RESET
NSA & RZ3 MESSAGE
SCIENCE APPLICATIONS INC
LAS VEGAS, NEVADA
50025


CHAN
SENSOR
EAGE CABLE
CABLE INTERFACE
MUX UNIT (TYP)
TAPE PATCH #4
TAPE RECORDER #4
SABRE IV
200 KHZ
TAPE MONITOR
PARTS LIST
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
LOW FREQ TAPE CHANNELS
HURON KING
TRES
80028
LVD-207
DO NOT SCALE DRAWING


CABLE INTERFACE
TAPE PATCH
TAPE CHAN/SENSOR
CHANNEL
SENSOR
SAGE CABLE
BHW
SPARE
TAPE RECORDER #4
TAPE PATCH #4
TAPE PATCH #3-14
PARTS LIST
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
LOW FREQ TAPE CHANNELS
HURON KING
D
LVD-207
DO NOT SCALE DRAWING


TAPE PATCH #1
TAPE RECORDER #1
SABRE IV
CHAN
SENSOR
PAGE CABLE
S-1-02 512 J1003 E,F
S-1-03 530 J1004 A,B
S-1-04 531 J1004 KK,LL
S-1-05 534 NSA J1
S-1-06 535 NSA J2
S-1-07 536 NSA J3
S-1-08 537 NSA J4
S-1-09 538 NSA J5
CAL I/F
I/F 4-11 TO S(3A)14-10
I/F 3-5 TO S-3-5-5
I/F 3-6 TO S-3-5-6
CH-1
CH-2
CH-3
CH-4
CH-5
CH-6
CH-7
CH-8
CH-9
CH-10
CH-11
CH-12
CH-13
CH-14
TAPE CHANNEL/ SENSOR
S-1-10 945
S-1-12 1548
S-1-13 1548
U-BOX
BNW
RG-214/U (TYP)
#3131
#3130
#3146
ADD CAL
TAPE RUN MONITOR
TO TAPE PATCH #2
CHAN
SENSOR
PAGE CABLE
S-1-14-4 531 J1003,V,W
S-1-14-5 532 J1003,X,Y
S-1-14-6 533 J1003,Z,AA
S-1-14-7 534 J1004,MM,PP
S-1-14-8 535 J1004,LL,RR
S-1-14-9 536 J1004,DD,EE
S-1-14-10 537 J1004,NN,JJ
I/F 14
VOICE
IRIG
WTD-4
TSP (TYP)
10:1 MUX
REVISIONS
DESCRIPTION
DATE
APPROVED
PARTS LIST
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO
NOMENCLATURE OR DESCRIPTION
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO
APPROVALS
DATE
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
WIDEBAND TAPE CHANNELS
HURON KING
TRL-5
SIZE D
CODE IDENT NO
DRAWING NO
LVD-208
SCALE
SHEET 1 OF 2



REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPROVED

PARTS LIST

QTY REQ	CODE IDENT	PART OR IDENTIFYING NO.	NOMENCLATURE OR DESCRIPTION

SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

ONE LINE DIAGRAM
WIDEBAND TAPE CHANNELS
HURON KING

TEL 5 90028

SIZE D | CODE IDENT NO | DRAWING NO LVD-208

SCALE | SHEET 2 OF 2

CONTRACT NO

APPROVALS | DATE
DRAWN | 8-4
CHECKED | 8-7-78
RELEASED | 8-8-80

MATERIAL

FINISH

NEXT ASSY | USED ON
APPLICATION

DO NOT SCALE DRAWING

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

CONTROLS

	T1	T2	T3	T4	T5	T6
1	1 R15 EAGE - INT	2 R16 GP-STDBY	3 R17 GP-ON	4 R18 GP-OFF	5 R19 EMERG. S/C OFF	6 R20 BS-STDBY
2	7 R21 BS-ON	8 R22 BS-OFF	9 R23 GP-.125	10 R24 GP-.25	11 R25 GP-.5	12 R26 GP-1.0
3	13 R27 GP-2.0	14 R28 GP-4.0	15 R29 GP-5.0	16 R30 GPRM-ON	17 R31 GPRM-OFF	18 R32 BRM-ON
4	19 R33 BRM-OFF	20 R34 S/C INT	24 R38 PRU OV-UV EN	25 R39 SURV MODE INIT	26 R40 SURV MODE RESET	27 R41 LOAD SHED
5	28 R42	29 R43	30 R44	31 R45	32 R46	33 R1 RST CMD I/F
6	34 R2 ABORT	35 R3 EAGE BATT-ON	36 R4 EAGE BATT-OFF	37 R5 EAGE CHG-CNT	38 R6 EAGE CHG-DCNT	39 R7 S/C MIN LOAD

MONITORS

	M1	M2	M3	M4
1	1 I1 BAT-ON	2 I2 GP-ON	3 I3 EAGE BAT-ON	4 I4 CMD-COMP
2	5 I5 EAGE P/B ON	6 I6 TBD	7 I7 TBD	8 I8 TBD
3	9 I9 TBD	13 I13	14 I14	
4				
5				
6				

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES
TOLERANCES ARE
FRACTIONS · DECIMALS XX · XXX · ANGLES ·

MATERIAL

FINISH

DO NOT SCALE DRAWING

NEXT ASSY	USED ON
APPLICATION	

CONTRACT NO

APPROVALS	DATE
DRAWN	12-8-79
CHECKED	3-8-82
REV	2-14-83

SCIENCE APPLICATIONS, INC.
LAS VEGAS, NEVADA

HURON KING
T&F AND MONITOR RELAY ASSIGNMENTS
TRLR #5 5002B

SIZE	CODE IDENT NO	DRAWING NO
C		LVC-454

SCALE

SHEET 1 OF 2

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

CONTROLS

	T1	T2	T3	T4	T5	T6
7	40 R8 EM MAN CMD INIT	41 R9 ACE/BEN RECON	42 R10 K124/K1224 SEL	43 R11 TURN-ON SEQ	44 R12 N.P. TURN-ON SEQ	45 R13 BEN ENABLE SEQ
8	46 R14 TURN OFF SEQ	47 R47 BEN EXECUTE	48 R48 POST SHOT SEQ.	49 R49	50 R50	51 R51
9	15M	-14.5M	13.34M	-13M	-10M	-4M
10	-3M	-2.5M	1M	30S NSA	-2S NSA	-1.5 SEC
11	Ø TEST	+100ms	+1 SEC NSA	TPD		
12	+5MIN SC OFF	POWER KILL	AUTO HOLD	MANUAL HOLD	22 R36 COOL-ON	23 R37 PURGE-ON

MONITORS

	M1	M2	M3	M4
7				
8	JAYCOR U.PS	TRAILER UPS		
9	POWER	TEMP		
10	TAPE 1	TAPE 2	TAPE 3	TAPE 4
11	TAPE 5			
12	10 I10 COOLING-ON	11 I11 PURGE-ON	12 I12 PURGE-CMPT	

QTY REQD	CODE IDENT	PART OR IDENTIFYING NO	NOMENCLATURE OR DESCRIPTION

PARTS LIST

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS . DECIMALS .XX . .XXX . ANGLES .

MATERIAL

FINISH

DO NOT SCALE DRAWING

NEXT ASSY	USED ON
APPLICATION	

CONTRACT NO

APPROVALS	DATE
DRAWN	12-8-79
CHECKED	
REV	

SCIENCE APPLICATIONS, INC.
LAS VEGAS, NEVADA

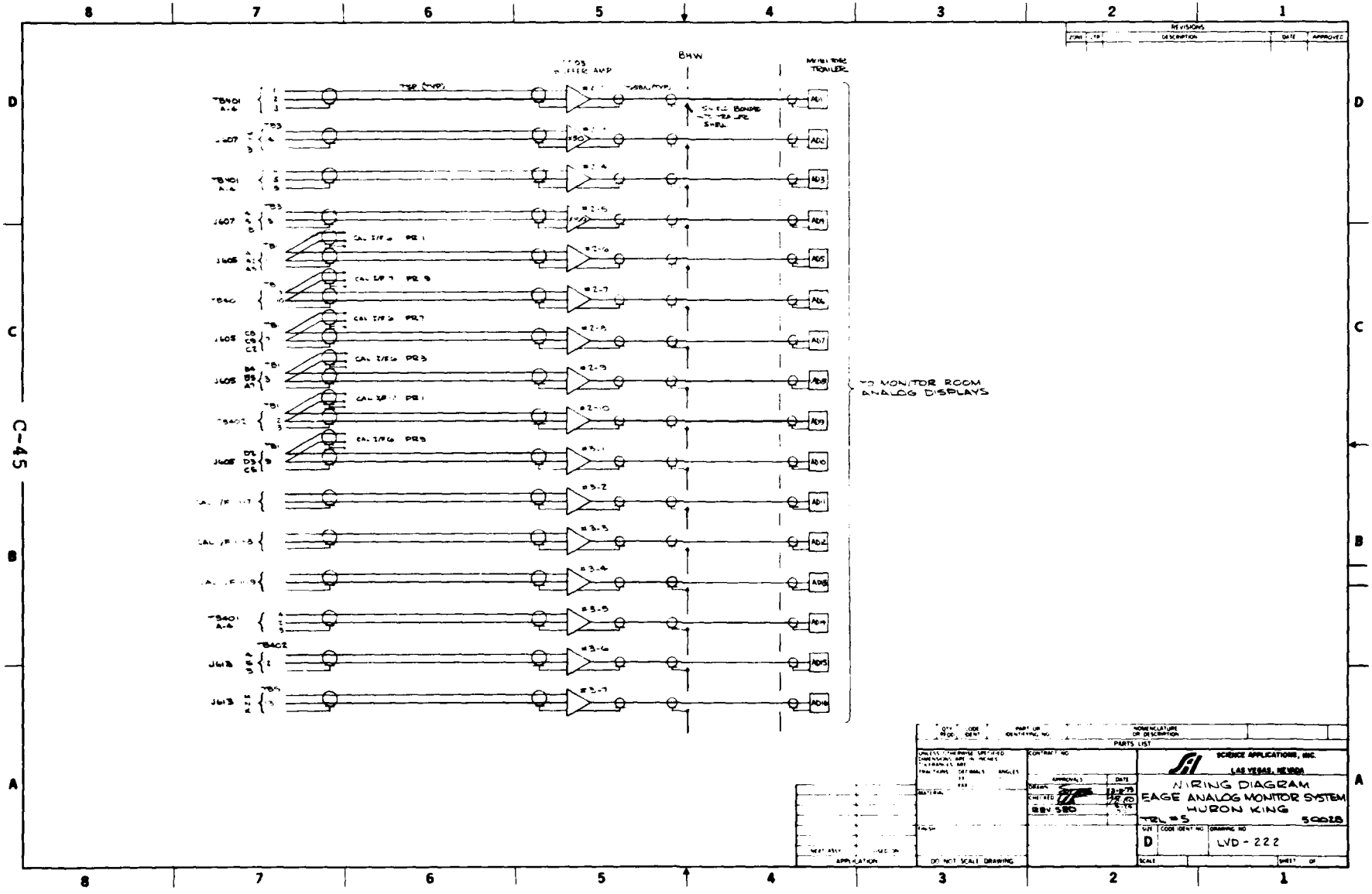
HURON KING
T&F AND MONITOR RELAY ASSIGNMENTS

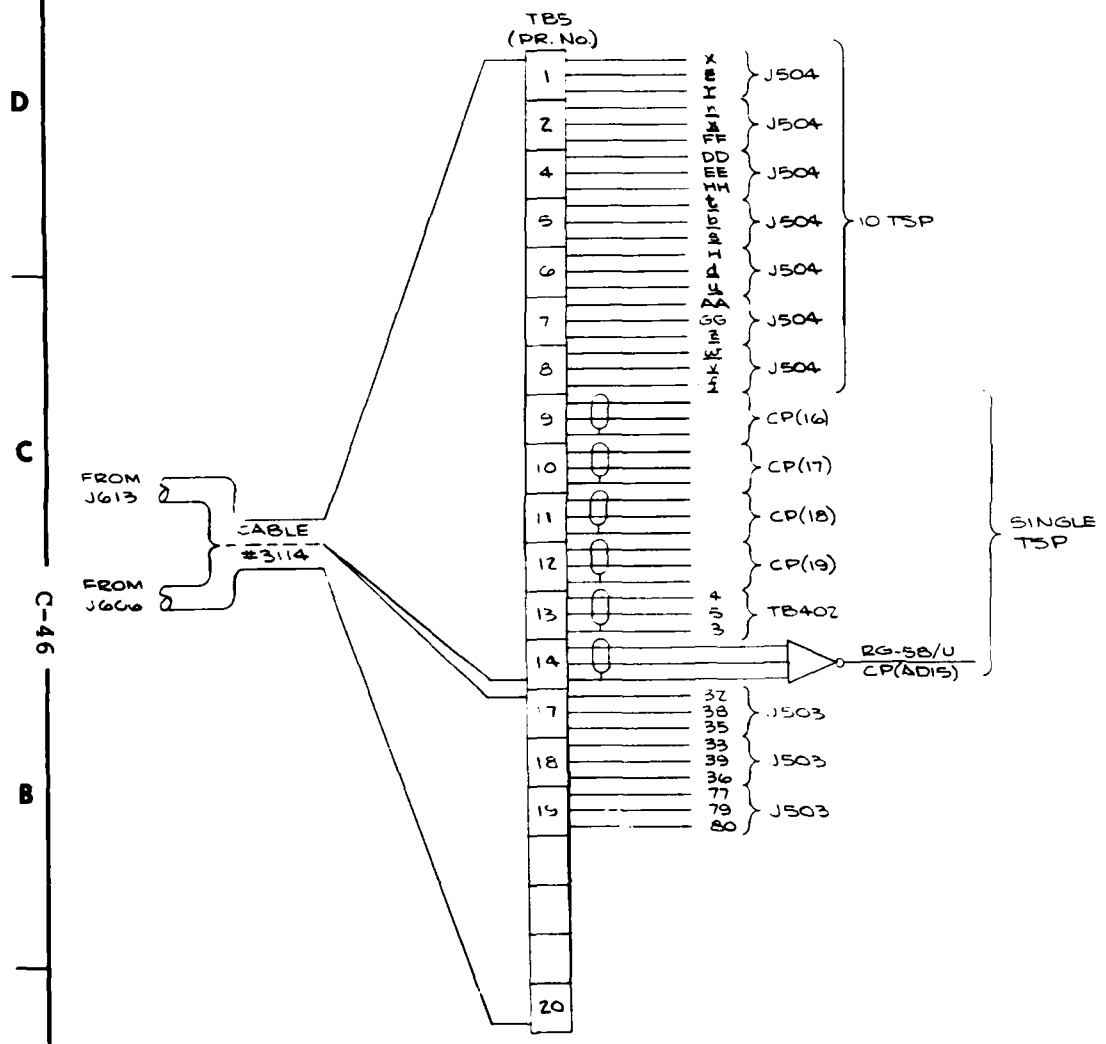
TRLR #05 50028

SIZE	CODE IDENT NO	DRAWING NO
C		LVC-454

SCALE

SHEET 2 OF 2


BHW
TO MONITOR ROOM ANALOG DISPLAYS
SCIENCE APPLICATIONS, INC.
LAS VEGAS, NEVADA
WIRING DIAGRAM
EAGE ANALOG MONITOR SYSTEM
HURON KING
LVD - 222
DO NOT SCALE DRAWING



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

NEXT ASSY	USED ON	APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
.XX ±
.XXX ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO

APPROVALS	DATE
DRAWN G A OLCOTT	1-15-85
CHECKED	9 8 80
REVISED	4-3-85

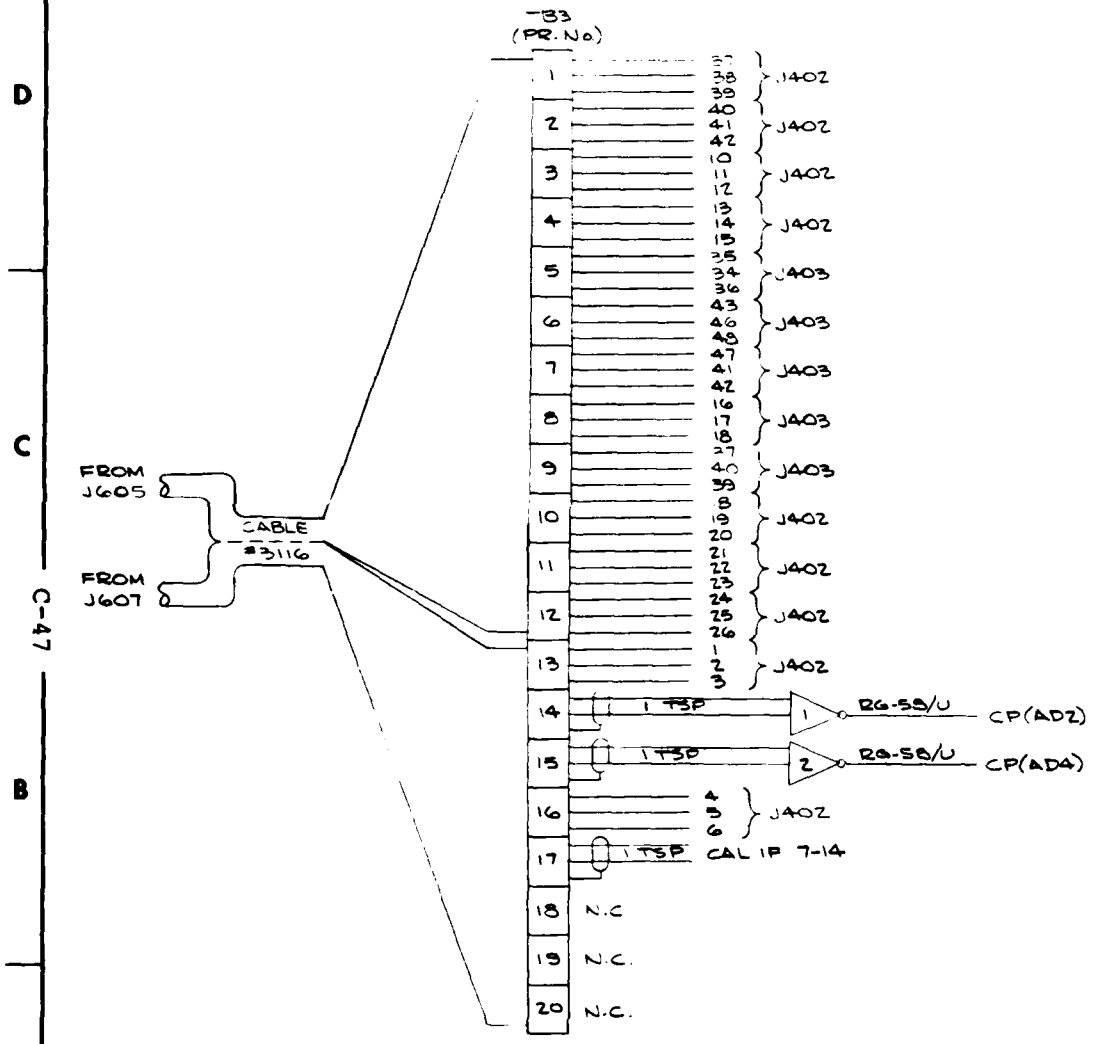
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
EAGE INTERFACE
HURON KING
TRL 5 30028

SIZE	CODE IDENT NO	DRAWING NO
C		LVC-464

SCALE

SHEET 1 OF 8



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
.XX
.XXX

MATERIAL

FINISH

DO NOT SCALE DRAWING

NEXT ASSY | USED ON
APPLICATION

CONTRACT NO

APPROVALS	DATE
DRAWN G A OLCOTT	1-18-80
CHECKED	3-5-80
REVISED	4-4-80

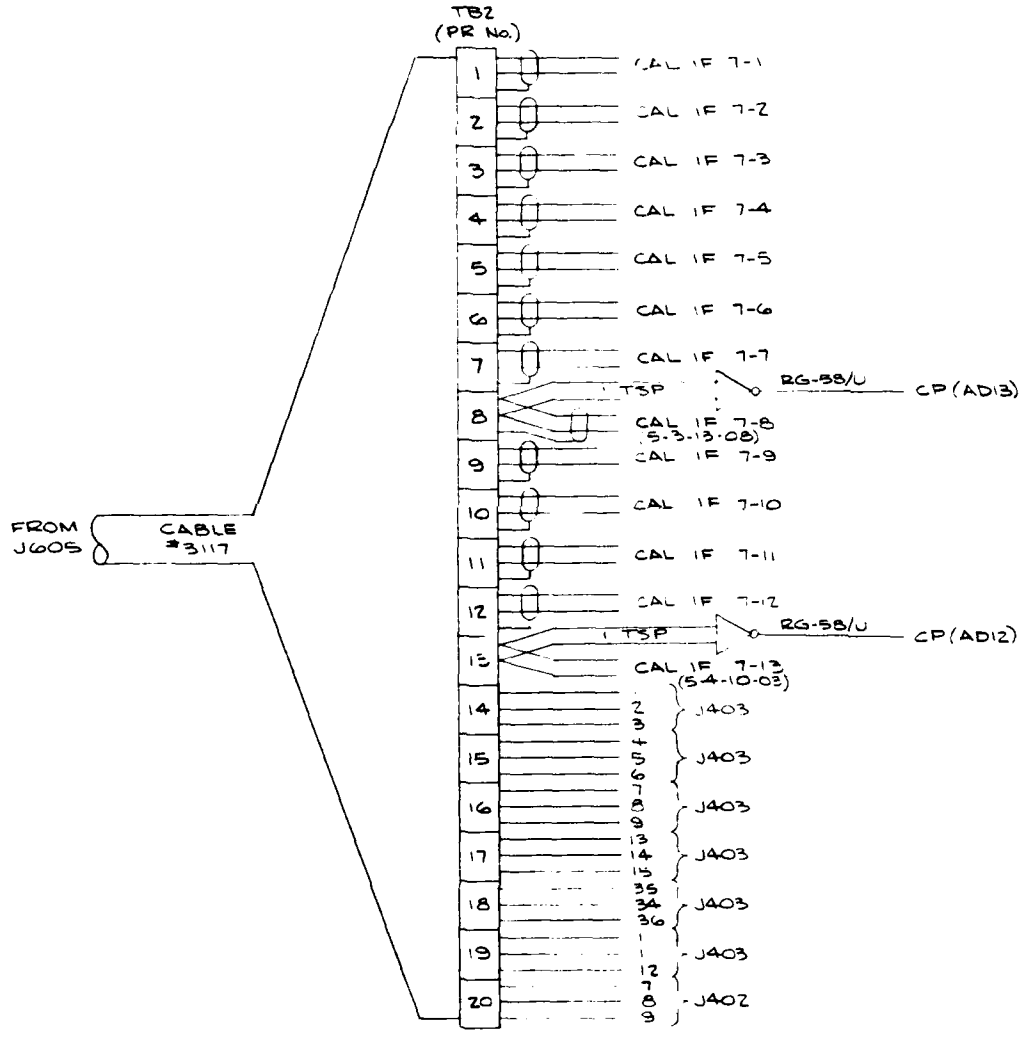
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
EAGE INTERFACE
HURON KING

TRL 5 50028

SIZE C | CODE IDENT NO | DRAWING NO LVC-464

SCALE | SHEET 2 OF 8



NOTE: CABLE TO CAL INTERFACE SHALL BE 16TSP

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO

APPROVALS		DATE
DRAWN	G A OLCOTT	1-28-80
CHECKED		9-8-80
REVISED		4-4-80

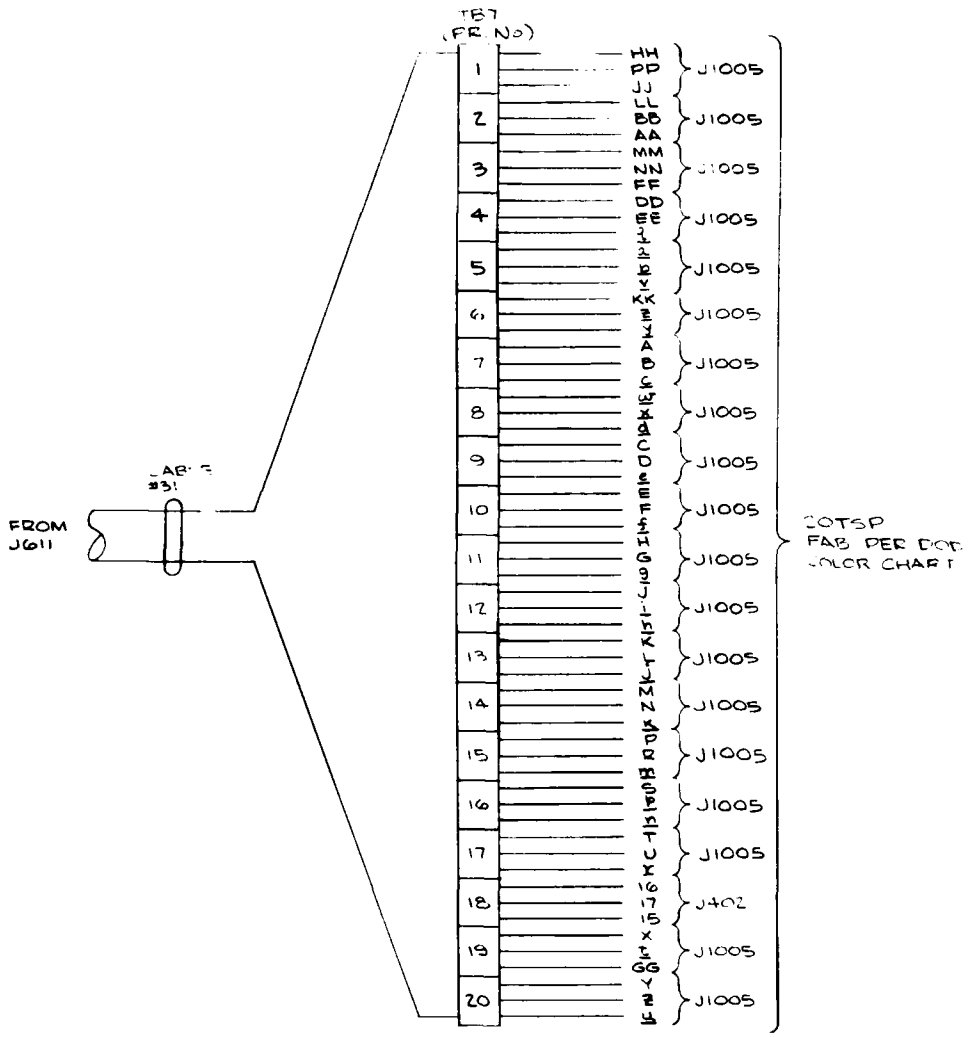
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
EAGE INTERFACE
HURON KING

TRL 5 50028

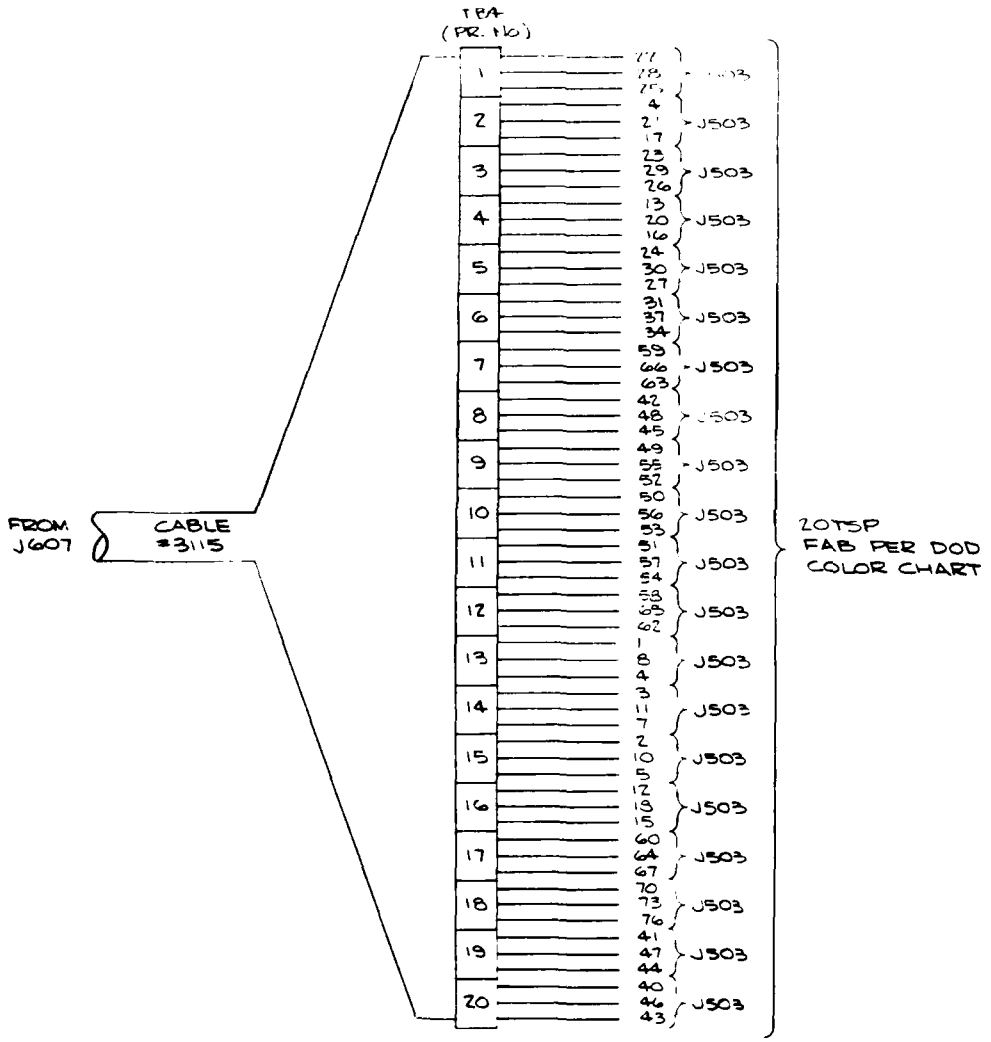
SIZE C | CODE IDENT NO | DRAWING NO LVC-464

SCALE | SHEET 3 OF 8



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES	CONTRACT NO	SCIENCE APPLICATIONS, INC LAS VEGAS, NEVADA	
MATERIAL	APPROVALS / DRAWN G.A. OLCOTT	WIRING DIAGRAM EAGE INTERFACE HURON KING TRL 5 50028	
FINISH	CHECKED	SIZE C	CODE IDENT NO / DRAWING NO LVC-464
NEXT ASSY / USED ON		SCALE	SHEET 4 OF 8
APPLICATION	DO NOT SCALE DRAWING		



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

NEXT ASSY	USED ON	APPLICATION	

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO

APPROVALS	DATE
DRAWN	1-18-86
CHECKED	5/17

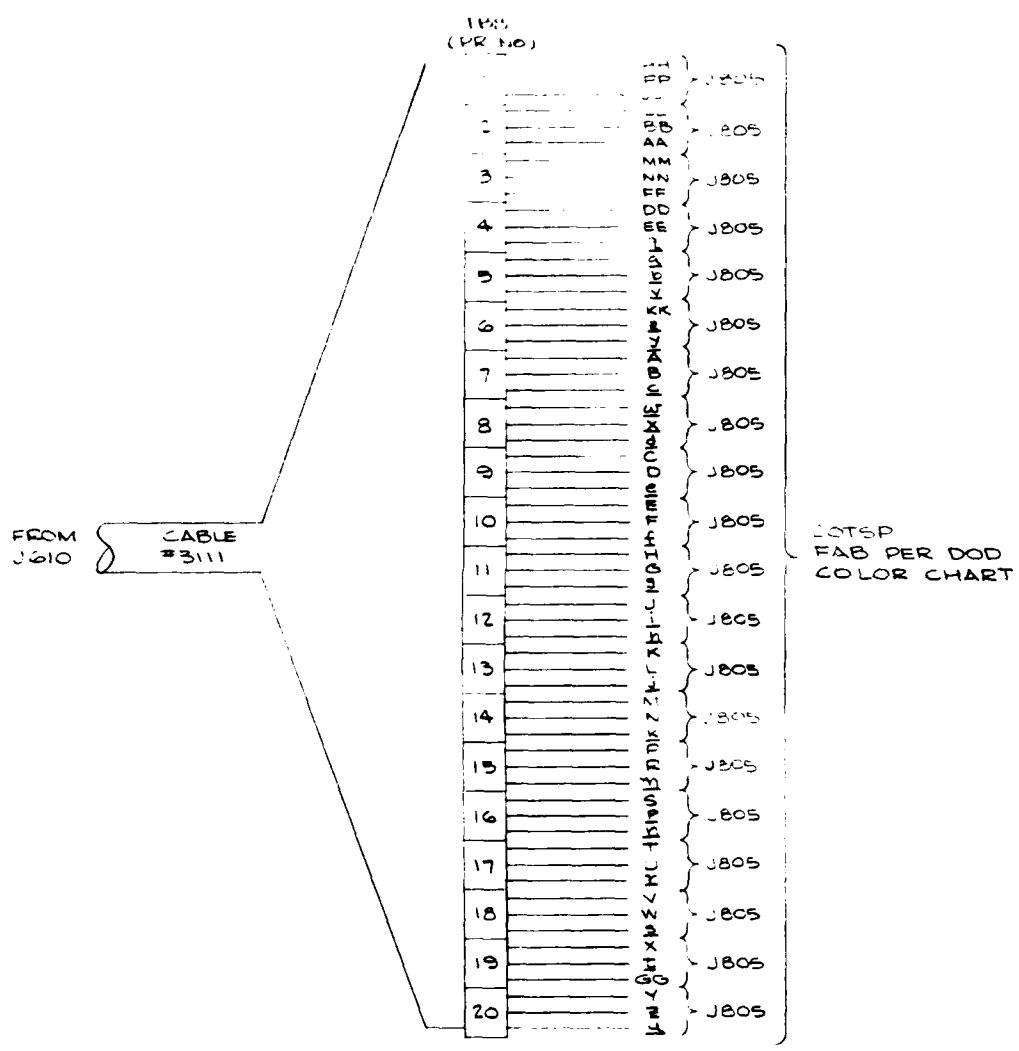
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
EAGE INTERFACE
HURON KING

TRL 3 50028

SIZE	CODE IDENT NO	DRAWING NO
C		LVA-464

SCALE | SHEET 5 OF 3



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

NEXT ASSY	USED ON	
APPLICATION		

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
MATERIAL
FINISH
DO NOT SCALE DRAWING

CONTRACT NO

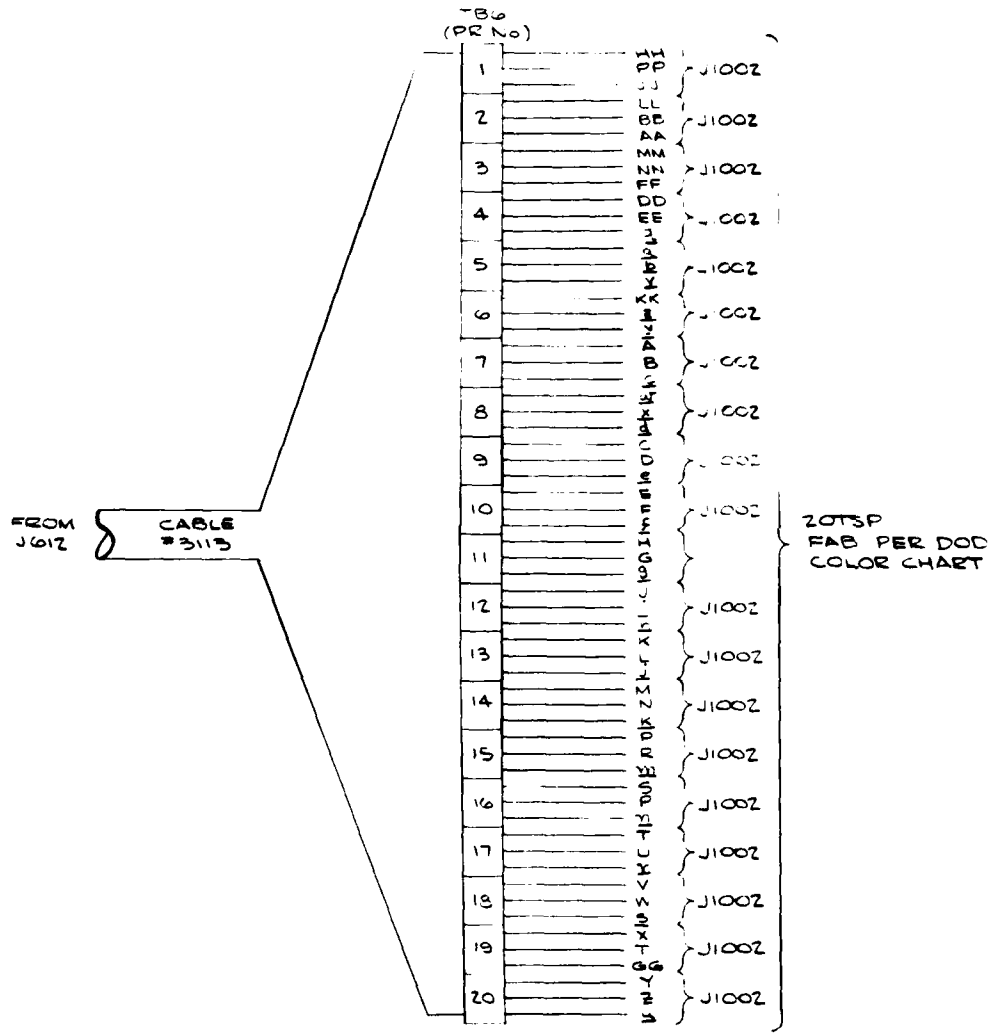
APPROVALS	DATE
DRAWN	
CHECKED	

SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

J RING DIAGRAM
EAGE INTERFACE
HURON KING
TRL 5 80029

SIZE	CODE IDENT NO	DRAWING NO
C		LVC-464

SCALE SHEET 6 OF 8



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
.XX ±
.XXX ±

MATERIAL

FINISH

DO NOT SCALE DRAWING

CONTRACT NO

APPROVALS	DATE
DRAWN	
CHECKED	9/10

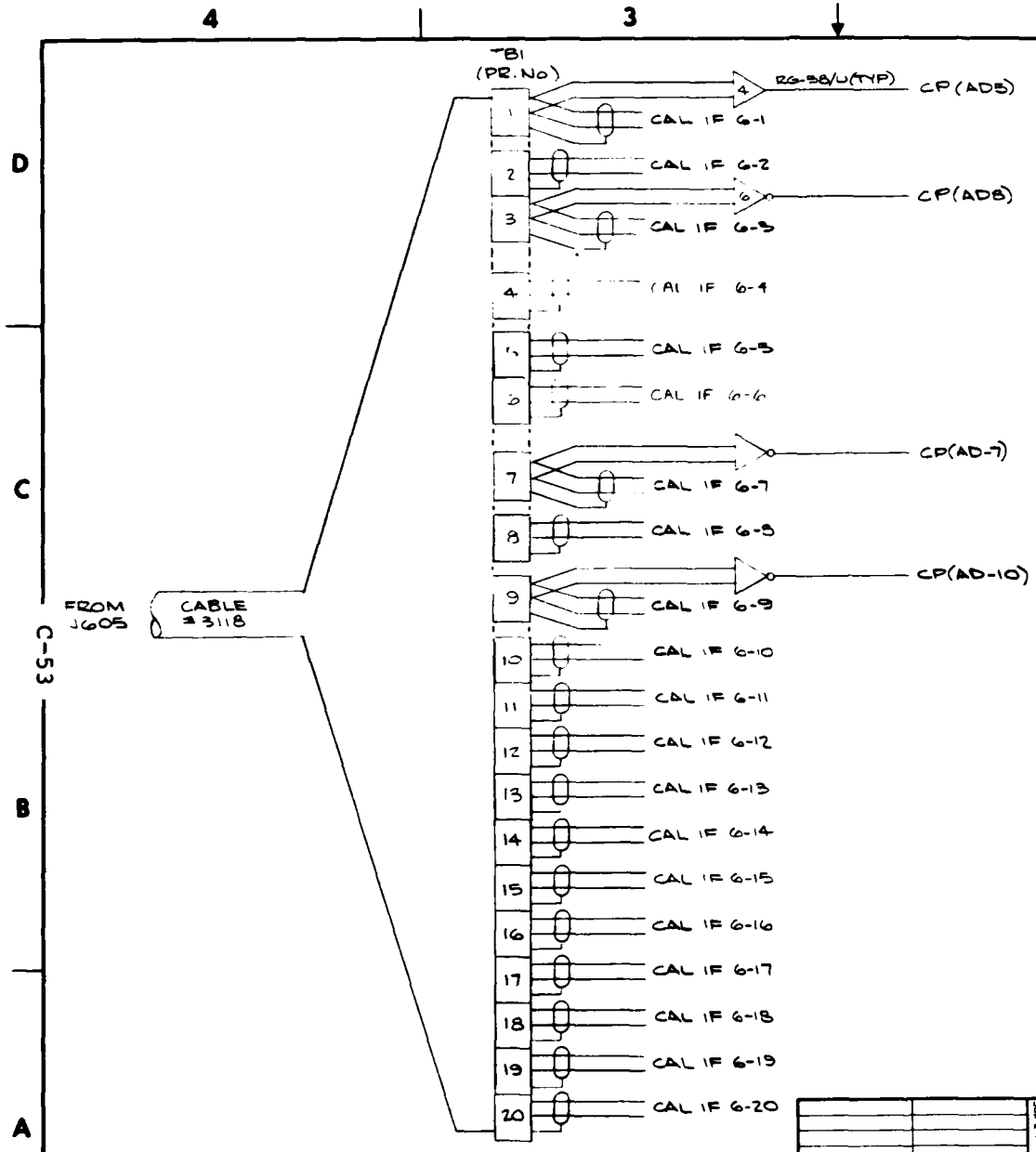
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
EAGE INTERFACE
HURON KING
TRL 5 50028

SIZE C | CODE IDENT NO | DRAWING NO LVL-464

SCALE | SHEET 7 OF 9

NEXT ASSY | USED ON
APPLICATION



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
± XX ± ±
XXX ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO

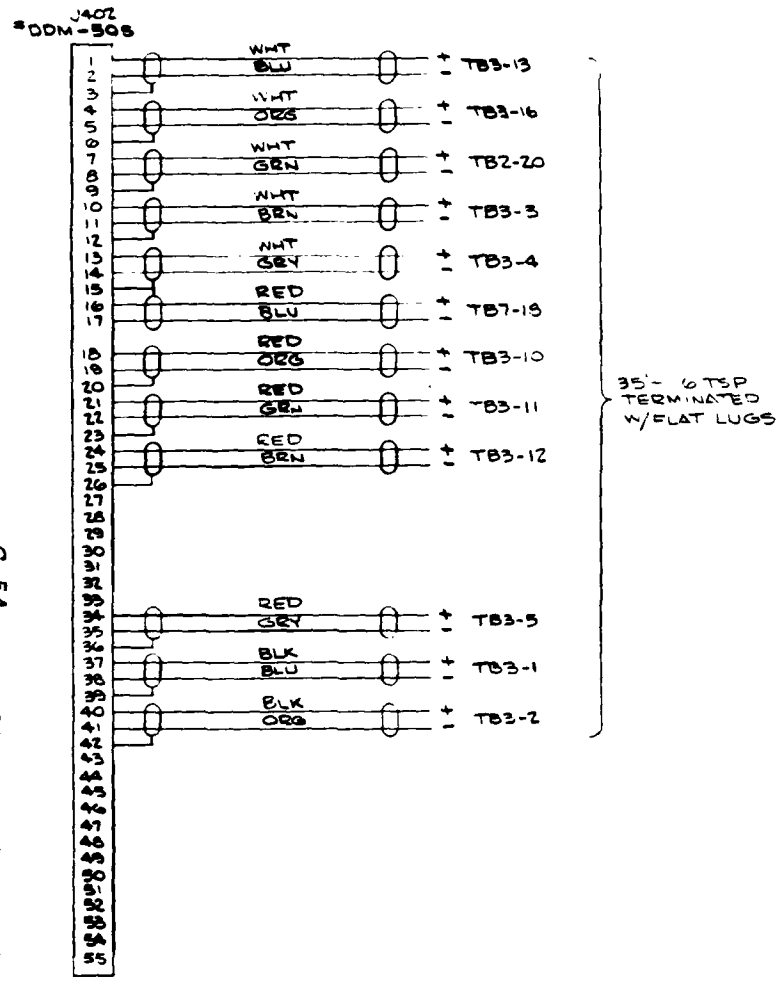
APPROVALS	DATE
DRAWN S. A. DUCOTT	2-1-80
CHECKED	3-9-80

SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
EAGE INTERFACE
HURON KING
TRL 5 80028

SIZE C | CODE IDENT NO | DRAWING NO LI C-464

SCALE | SHEET 8 OF 3



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

SCIENCE APPLICATIONS INC
LAS VEGAS NEVADA

WIRING DIAGRAM
GE EAGE INTERFACE
HURON KING 50028
TR-S

SIZE	CODE IDENT NO	DRAWING NO
C		LVC-470

SCALE | SHEET 1 OF 9

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES .XX .XXX

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

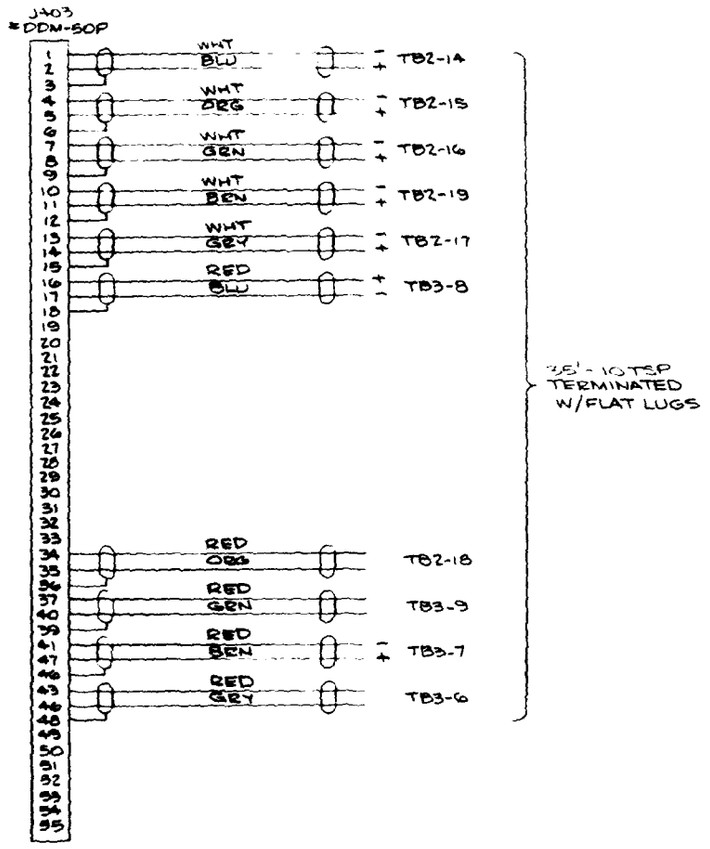
DO NOT SCALE DRAWING

CONTRACT NO

APPROVALS | DATE

DRAWN G.A. Olcott | 7-13-70

CHECKED | 7/70



REVISIONS

ZONE	LTR	DESCRIPTION	DATE	APPROVED

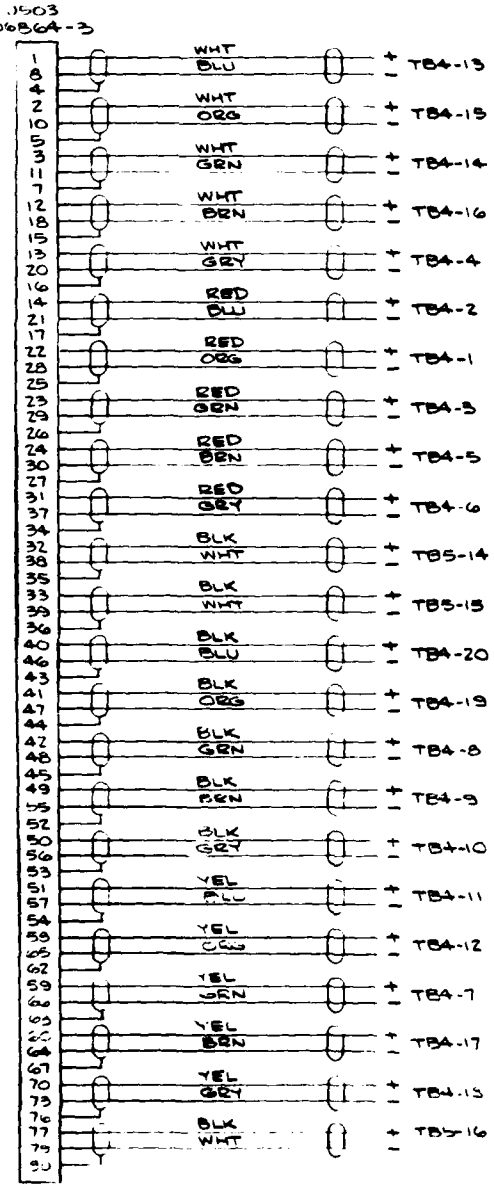
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
MATERIAL
FINISH
NEXT ASSY | USED ON
APPLICATION
DO NOT SCALE DRAWING

CONTRACT NO
APPROVALS | DATE
DRAWN J. A. SCOTT 9-13-83
CHECKED 9-7-80

SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
GE EAGE INTERFACE
TRL 5 HURON KING 50028

SIZE C | CODE IDENT NO | DRAWING NO LVC-470
SCALE | SHEET 2 OF 9



NOTES:
1. ALL CABLES SHALL BE 5'-0", TERMINATED W/SPADE LUGS.
2. TB4 CABLES SHALL BE 20 TSP; TB5 CABLES SHALL BE 1 TSP.

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES ± ± ± ±

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO

APPROVALS	DATE
DRAWN G.A. OLCOTT	8-13-85
CHECKED	8-8-70

SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

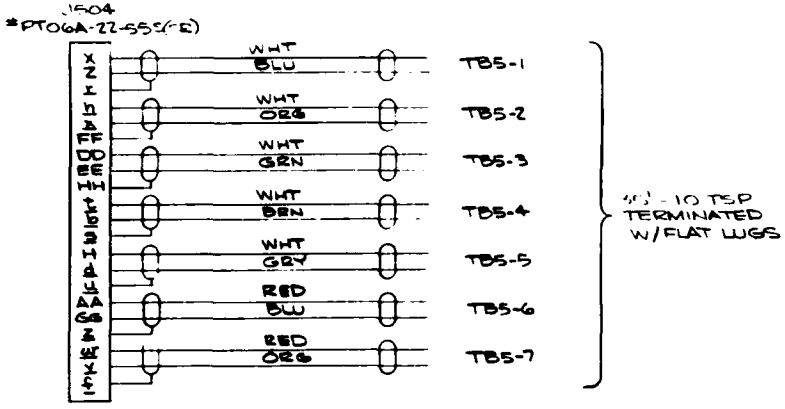
WIRING DIAGRAM
GE EAGE INTERFACE
HURON KING

TRL 5 50028

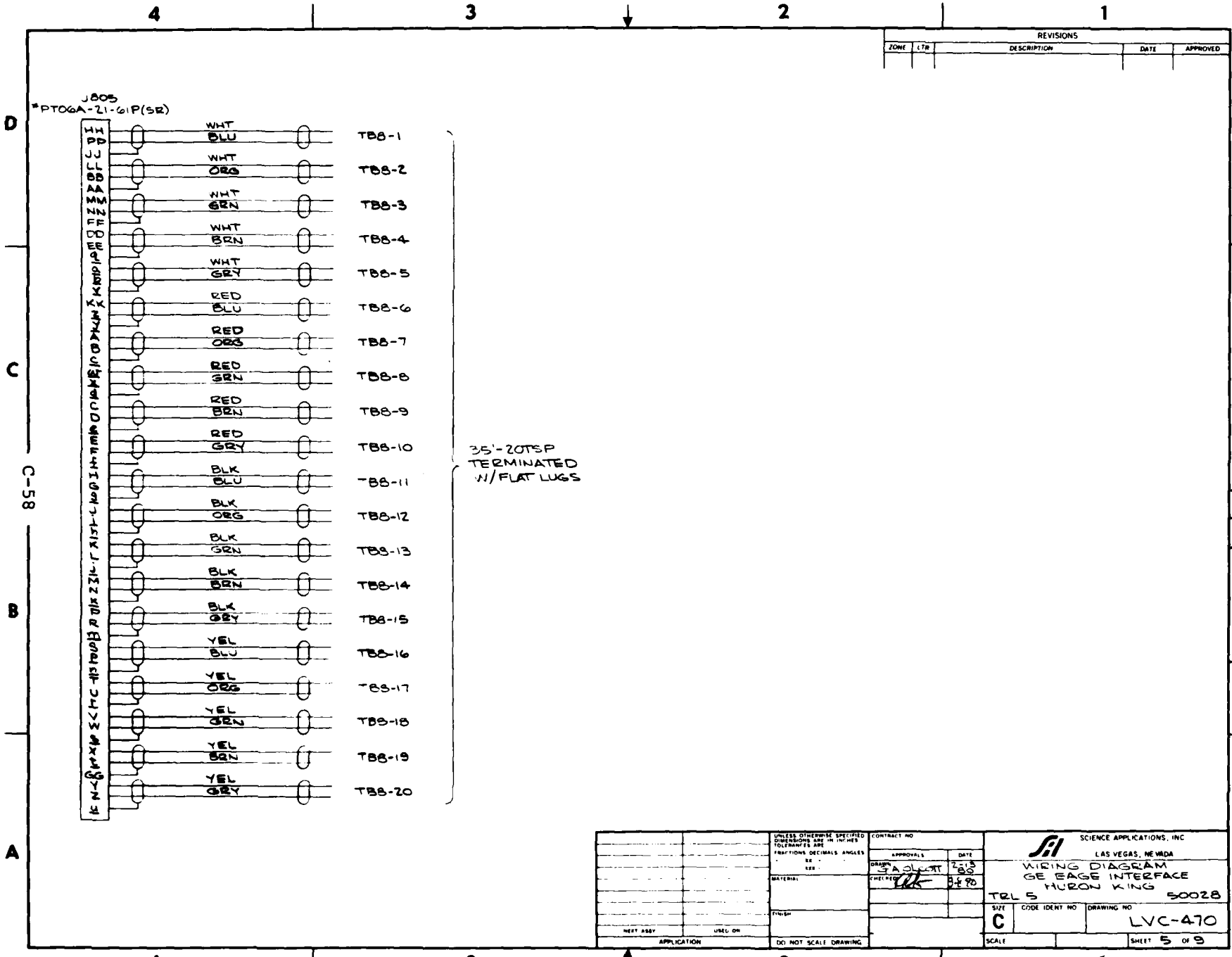
SIZE C | CODE IDENT NO | DRAWING NO LVC-470

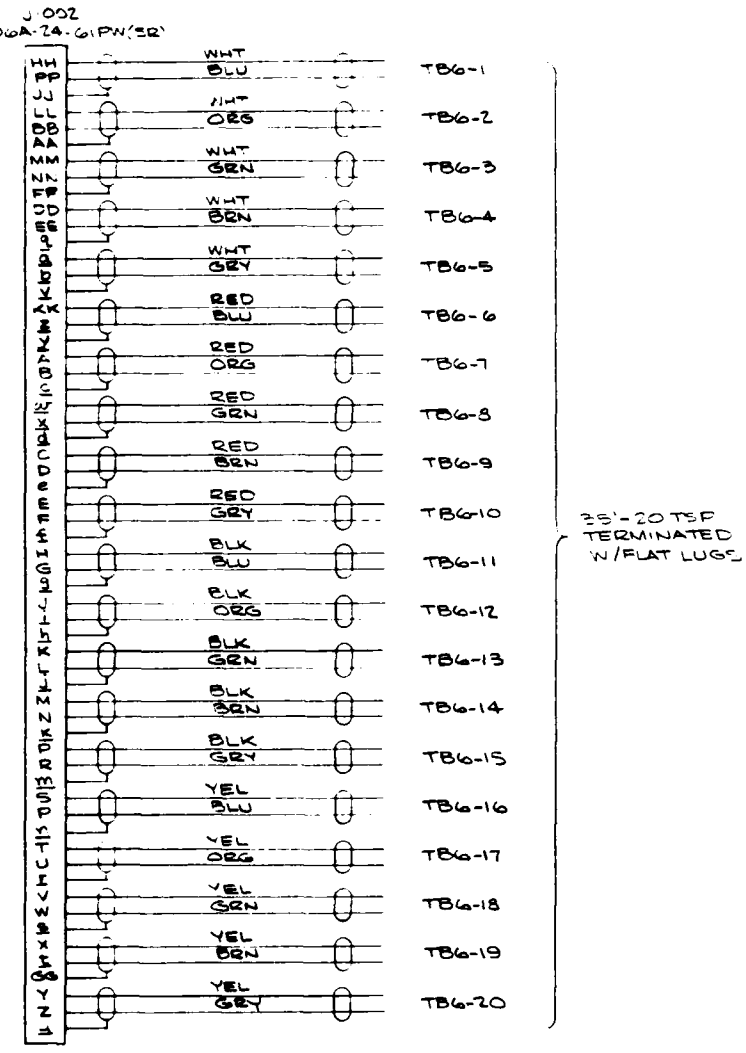
SCALE | SHEET 3 OF 9

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED



NEXT ASSY	USED ON	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES	CONTRACT NO	SCIENCE APPLICATIONS, INC LAS VEGAS, NEVADA
APPLICATION		MATERIAL	APPROVALS / DATE	WIRING DIAGRAM GE EAGE INTERFACE TRL 5 HURON KING 50028
		FINISH	DRAWN / CHECKED	SIZE C · CODE IDENT NO · DRAWING NO LVC-470
		DO NOT SCALE DRAWING		SCALE · SHEET 4 OF 9


J805
*PTOGA-21-61P(SR)
WHT BLU TB8-1
WHT ORG TB8-2
WHT GRN TB8-3
WHT BRN TB8-4
WHT GRY TB8-5
RED BLU TB8-6
RED ORG TB8-7
RED GRN TB8-8
RED BRN TB8-9
RED GRY TB8-10
BLK BLU TB8-11
BLK ORG TB8-12
BLK GRN TB8-13
BLK BRN TB8-14
BLK GRY TB8-15
YEL BLU TB8-16
YEL ORG TB8-17
YEL GRN TB8-18
YEL BRN TB8-19
YEL GRY TB8-20
35'-20TSP
TERMINATED
W/FLAT LUGS
REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO
APPROVALS
DATE
DRAWN
CHECKED
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
WIRING DIAGRAM
GE EAGE INTERFACE
HURON KING
TRL 5
50028
SIZE
C
CODE IDENT NO
DRAWING NO
LVC-470
SCALE
SHEET 5 OF 9



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO

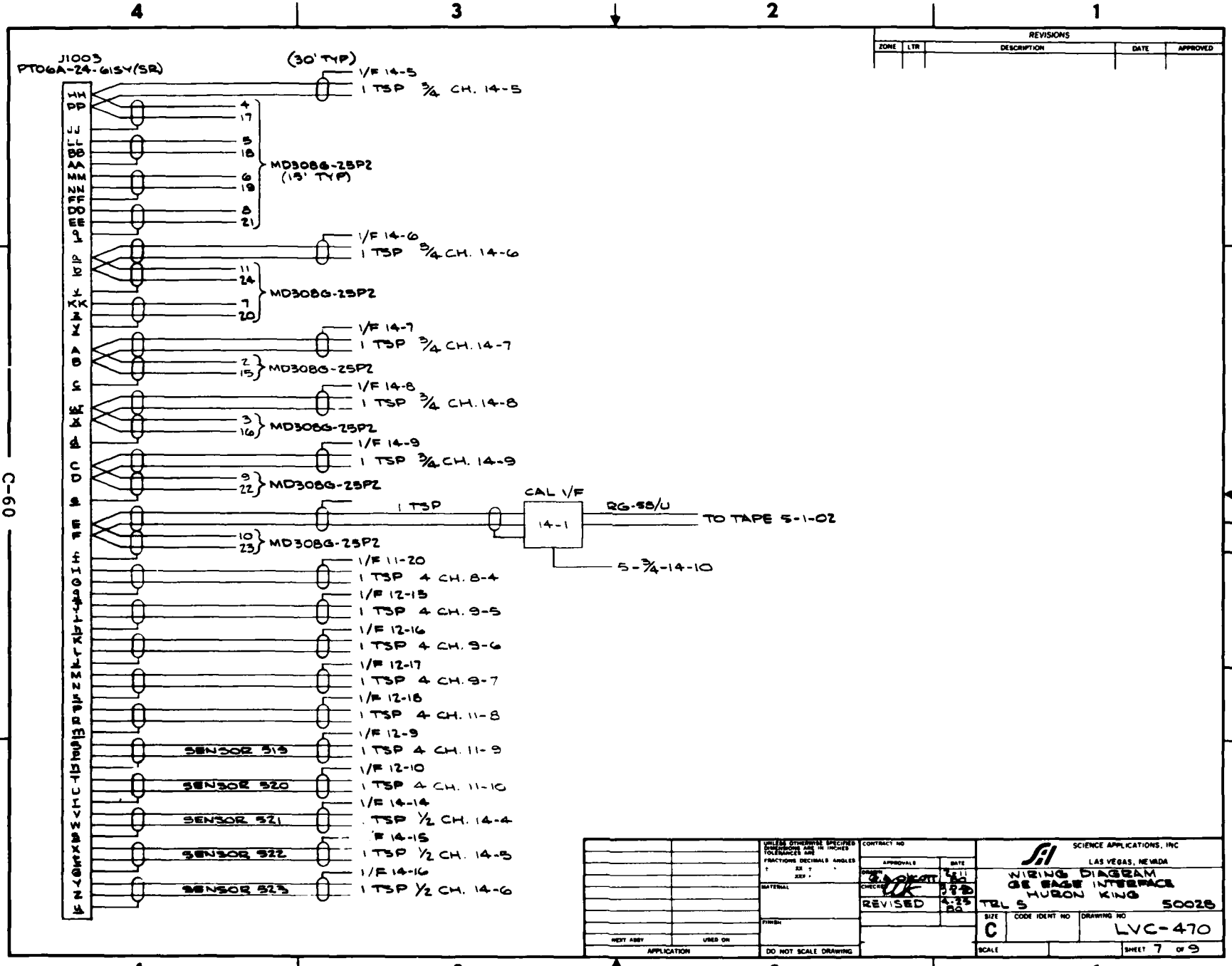
APPROVALS	DATE
DRAWN G A Olcott	2-13-80
CHECKED	2-2-80

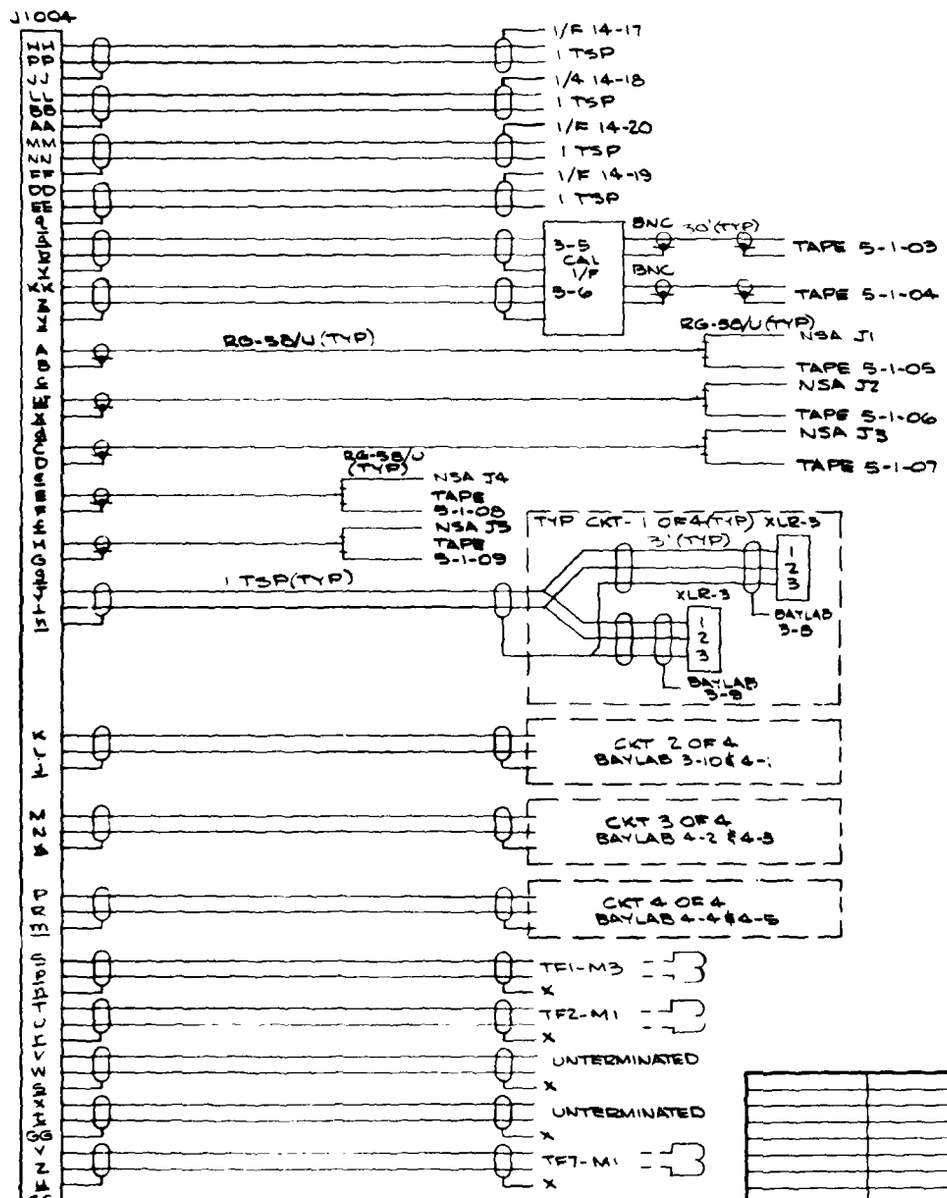
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
GE EAGE INTERFACE
TRL 5 HURON KING 50025

SIZE C | CODE IDENT NO | DRAWING NO LVC-470

SCALE | SHEET 6 OF 9


J1003
PT06A-24-61SY(SR)
(30' TYP)
1/F 14-5
1 TSP 3/4 CH. 14-5
MD308G-25P2
(15' TYP)
1/F 14-6
1 TSP 3/4 CH. 14-6
MD308G-25P2
1/F 14-7
1 TSP 3/4 CH. 14-7
MD308G-25P2
1/F 14-8
1 TSP 3/4 CH. 14-8
MD308G-25P2
1/F 14-9
1 TSP 3/4 CH. 14-9
MD308G-25P2
CAL I/F
14-1
1 TSP
RG-58/U
TO TAPE 5-1-02
5-3/4-14-10
MD308G-25P2
1/F 11-20
1 TSP 4 CH. 8-4
1/F 12-15
1 TSP 4 CH. 9-5
1/F 12-16
1 TSP 4 CH. 9-6
1/F 12-17
1 TSP 4 CH. 9-7
1/F 12-18
1 TSP 4 CH. 11-8
1/F 12-9
SENSOR 519
1 TSP 4 CH. 11-9
1/F 12-10
SENSOR 520
1 TSP 4 CH. 11-10
1/F 14-14
SENSOR 521
TSP 1/2 CH. 14-4
F 14-15
SENSOR 522
1 TSP 1/2 CH. 14-5
1/F 14-16
SENSOR 523
1 TSP 1/2 CH. 14-6
REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
CONTRACT NO
APPROVALS
DATE
DRAWN
CHECKED
REVISED
4-25
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
WIRING DIAGRAM
GE GAGE INTERFACE
SHURON KING
TEL 5
50028
SIZE
C
CODE IDENT NO
DRAWING NO
LVC-470
SCALE
SHEET 7 OF 9



NOTE
1 TSP CABLES SHALL BE TERMINATED WITH FLAT LUGS.

REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

NEXT ASSY	USED ON	APPLICATION	DO NOT SCALE DRAWING

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES

MATERIAL

FINISH

CONTRACT NO

APPROVALS	DATE
DRAWN G.A. GLOTT	5-12-80
CHECKED	9-8-80

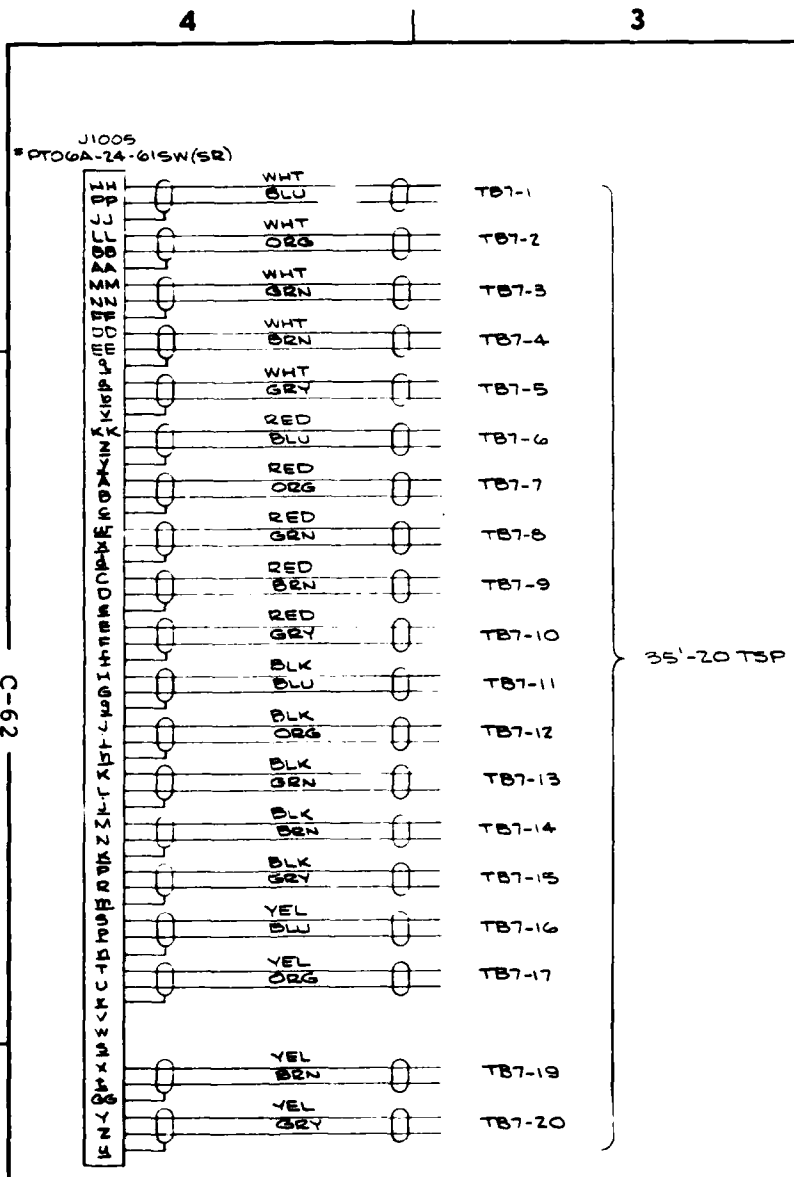
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
GE EAGE INTERFACE
HURON KING

TRL 5 50028

SIZE	CODE IDENT NO	DRAWING NO
C		LVC-470

SCALE SHEET 5 OF 9



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO

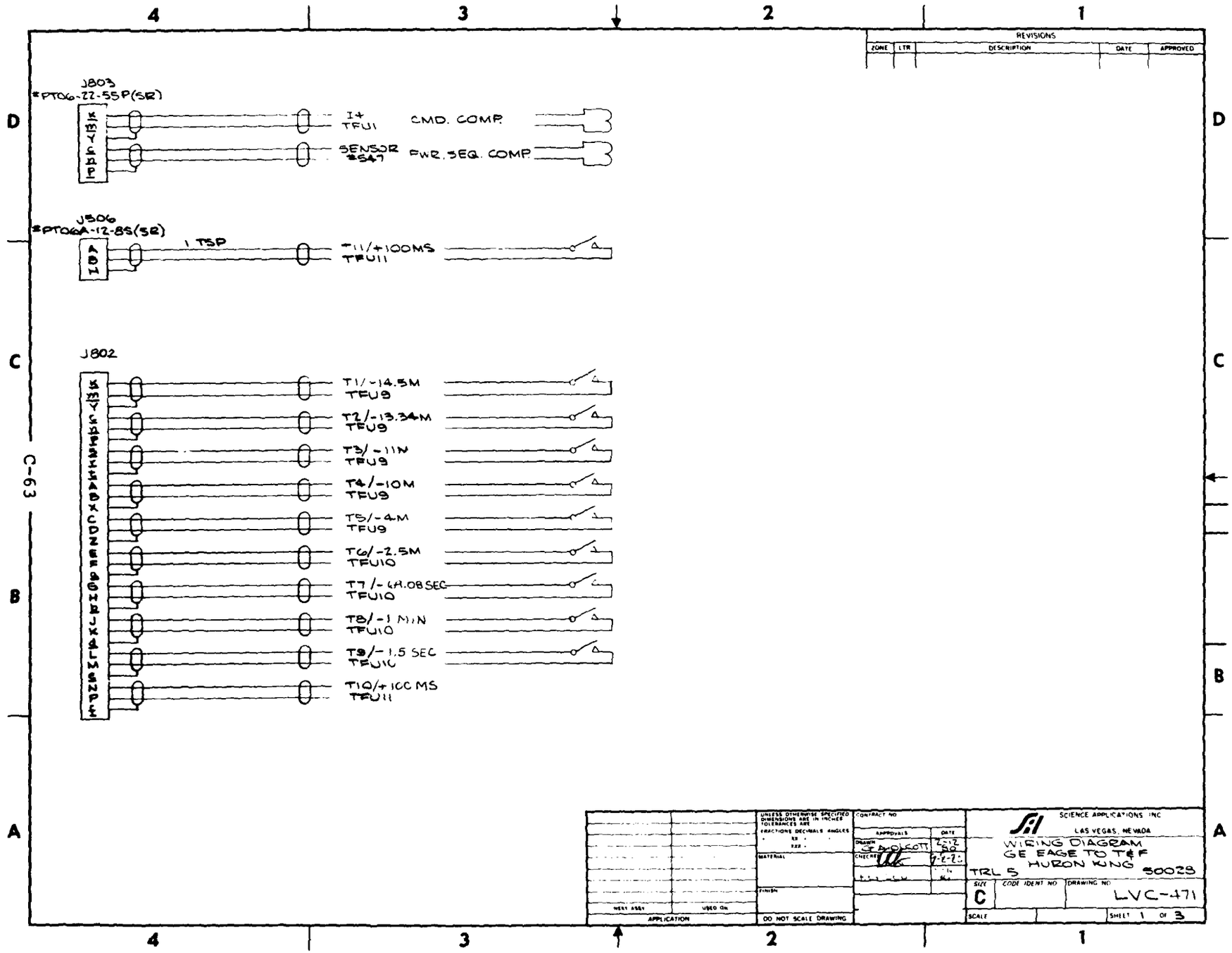
APPROVALS	DATE
DRAWN G A Sharott	2-13 80
CHECKED	1 9 80

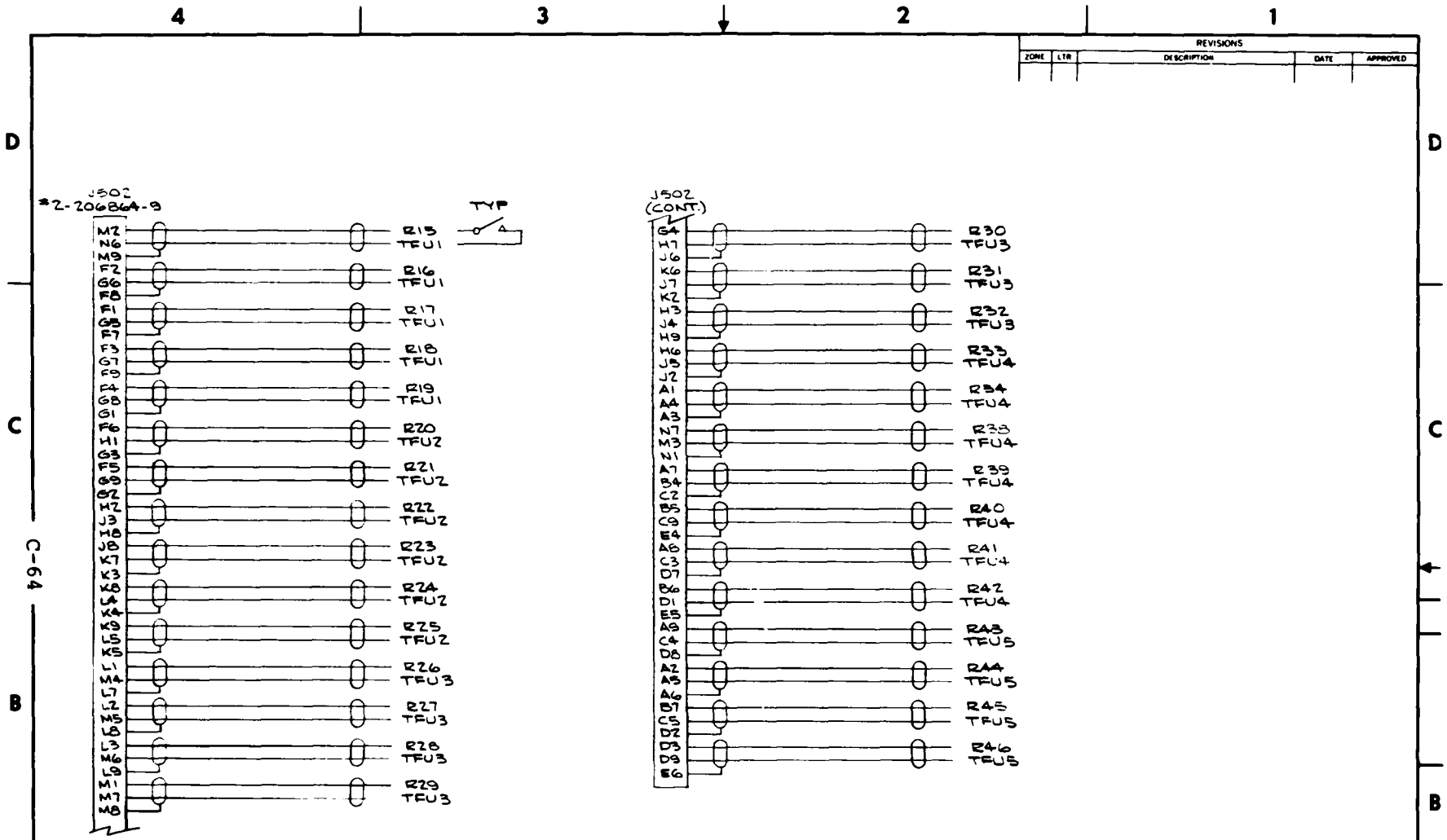
SCIENCE APPLICATIONS INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
GE EAGE INTERFACE
HURON KING
TEL 5

SIZE	CODE IDENT NO	DRAWING NO
C	50028	LVC-470

SCALE | SHEET 9 OF 9


REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
J803
*PT06-22-55P(SR)
I4
TFU1
CMD. COMP.
SENSOR
#547
PWR. SEQ. COMP.
J506
*PT06A-12-8S(SR)
1 TSP
T11/+100MS
TFU11
J802
T1/-14.5M
TFU9
T2/-13.34M
TFU9
T3/-11M
TFU9
T4/-10M
TFU9
T5/-4M
TFU9
T6/-2.5M
TFU10
T7/-4A.08SEC
TFU10
T8/-1 MIN
TFU10
T9/-1.5 SEC
TFU10
T10/+100 MS
TFU11
C-63
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO
APPROVALS
DATE
DRAWN
CHECKED
SCIENCE APPLICATIONS INC
LAS VEGAS, NEVADA
WIRING DIAGRAM
GE EAGE TO T&F
HURON KING
TRL 5
50028
SIZE
C
CODE IDENT NO
DRAWING NO
LVC-471
SCALE
SHEET 1 OF 3


J502
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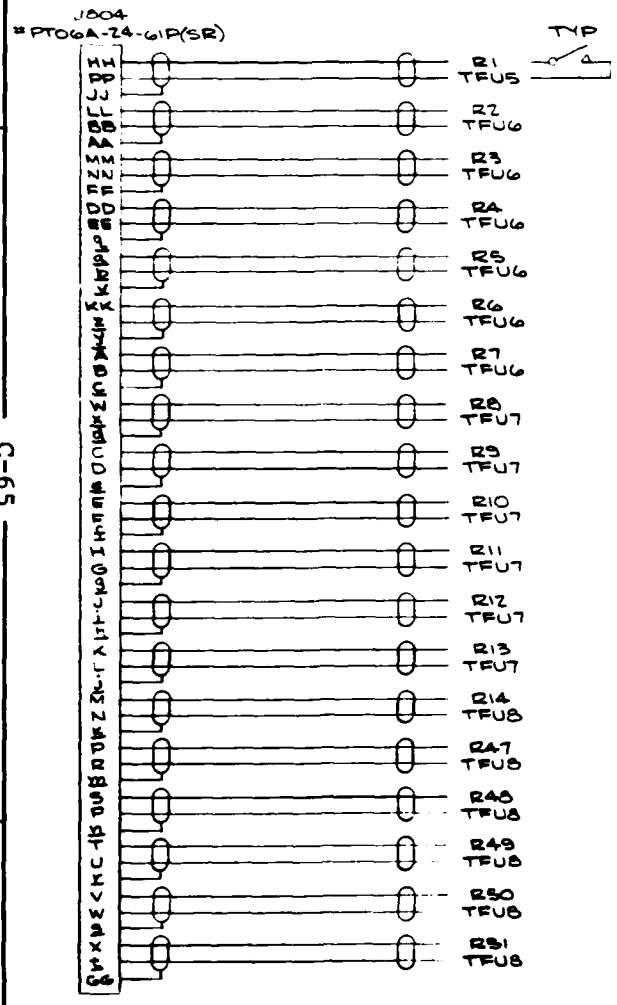
TYP
M2 R15 TFU1
N6
M9
F2 R16 TFU1
G6
F8
F1 R17 TFU1
G8
F7
F3 R18 TFU1
G7
F9
F4 R19 TFU1
G8
G1
F6 R20 TFU2
H1
G3
F5 R21 TFU2
G9
G2
H2 R22 TFU2
J3
H8
J8 R23 TFU2
K7
K3
K8 R24 TFU2
L4
K4
K9 R25 TFU2
L5
K5
L1 R26 TFU3
M4
L7
L2 R27 TFU3
M5
L8
L3 R28 TFU3
M6
L9
M1 R29 TFU3
M7
M8
J502
(CONT.)
G4 R30 TFU3
H7
J6
K6 R31 TFU3
J7
K2
H3 R32 TFU3
J4
H9
H6 R33 TFU4
J5
J2
A1 R34 TFU4
A4
A3
N7 R38 TFU4
M3
N1
A7 R39 TFU4
B4
C2
B5 R40 TFU4
C9
E4
A8 R41 TFU4
C3
D7
B6 R42 TFU4
D1
E5
A9 R43 TFU5
C4
D8
A2 R44 TFU5
A5
A6
B7 R45 TFU5
C5
D2
D3 R46 TFU5
D9
E6
REVISIONS
ZONE | LTR | DESCRIPTION | DATE | APPROVED
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE
FRACTIONS DECIMALS ANGLES
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO
APPROVALS
DATE
DRAWN
CHECKED
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
WIRING DIAGRAM
GE BAGE TOT&F
HURON KING
TEL 5
50028
SIZE
C
CODE IDENT NO
DRAWING NO
LVC-471
SCALE
SHEET 2 OF 3



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APPLICATION

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CONTRACT NO

APPROVALS	DATE
DRAWN G.A. OLCOTT	2-13-80
CHECKED	2-18-80

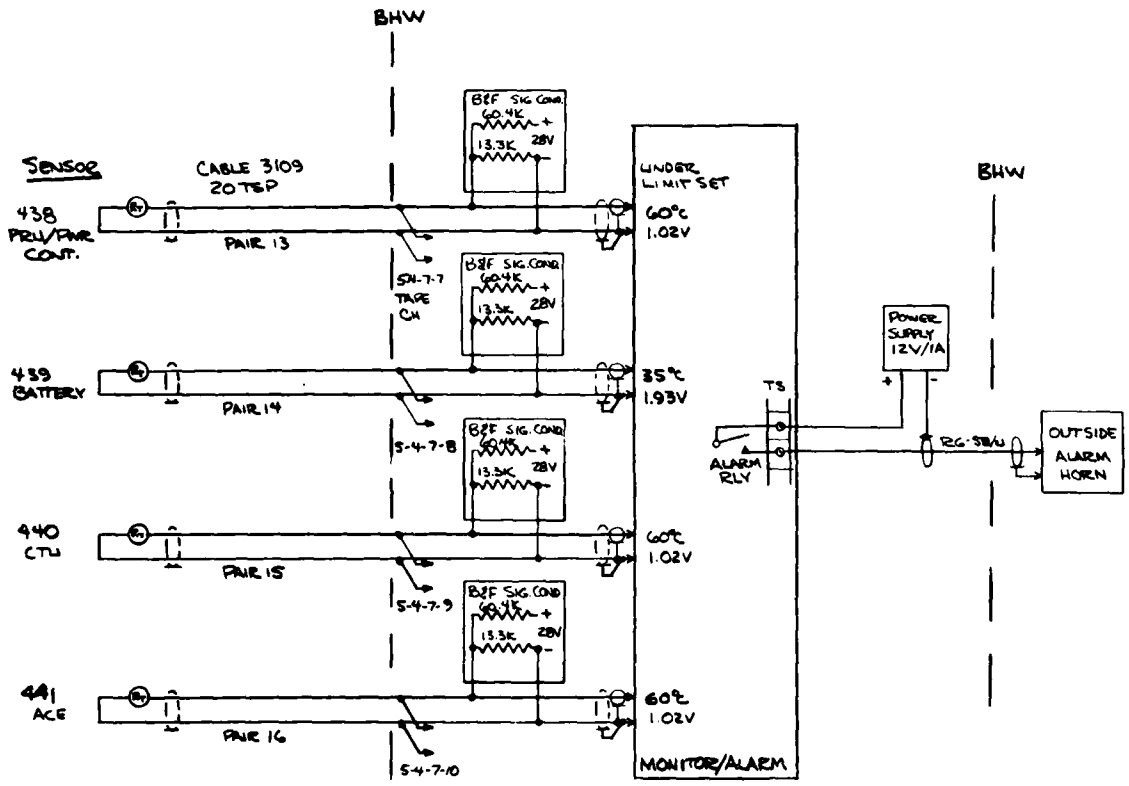
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
GE EAGETO T&F
HURON KING

TRL 5 50028

SIZE C | CODE IDENT NO | DRAWING NO LVC-471

SCALE | SHEET 3 OF 3



REVISIONS				
ZONE	LTR	DESCRIPTION	DATE	APPROVED

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES

MATERIAL

FINISH

NEXT ASSY | USED ON

APPLICATION

DO NOT SCALE DRAWING

CONTRACT NO

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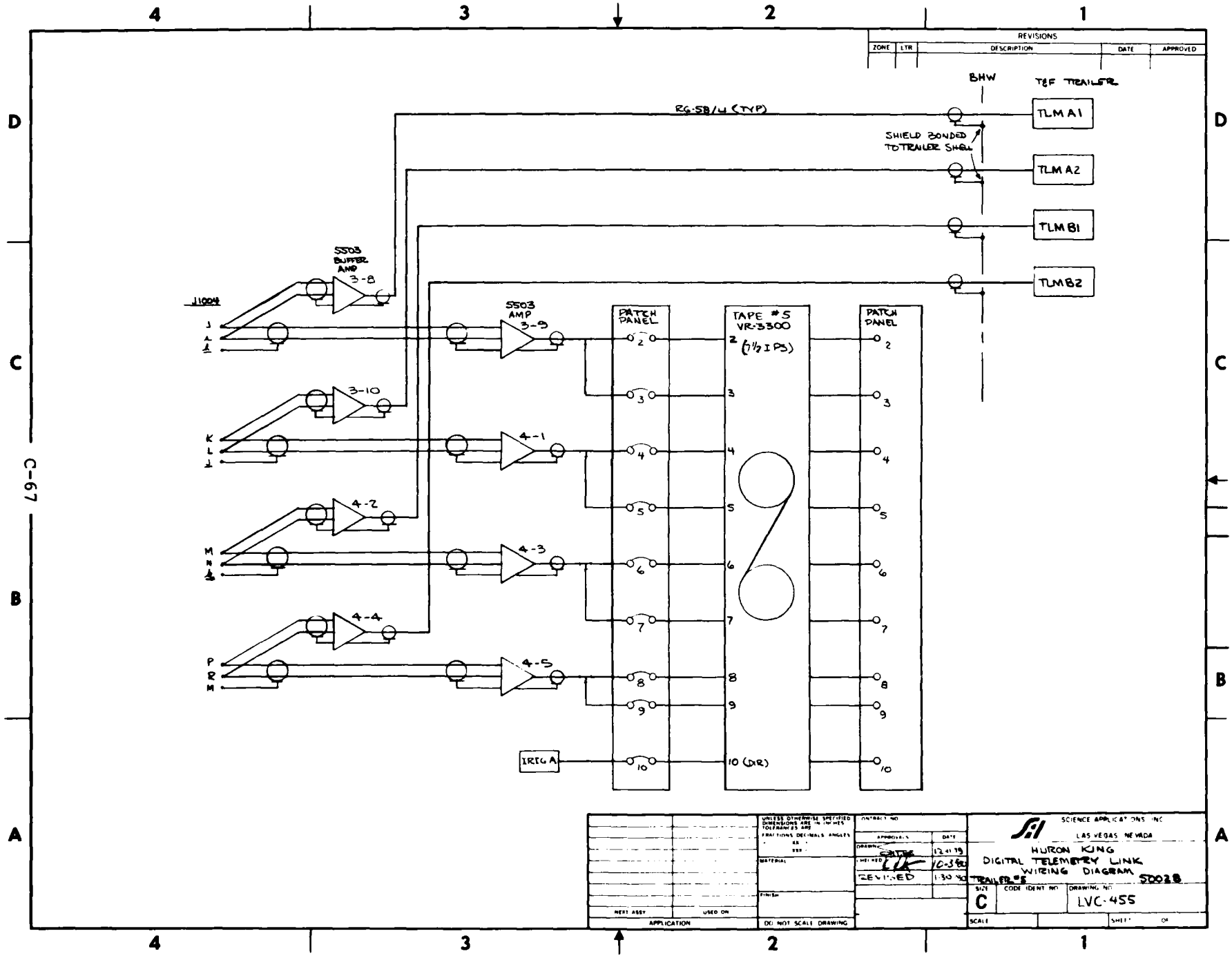
DRAWN	3-13-80
CHECKED	9-7-80

SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

WIRING DIAGRAM
SPACECRAFT TEMPERATURE ALARM
TRL #3 50028

SIZE C | CODE IDENT NO | DRAWING NO LVC-481

SCALE | SHEET OF


REVISIONS
ZONE
LTR
DESCRIPTION
DATE
APPROVED
BHW
T&F TRAILER
RG-58/U (TYP)
TLM A1
SHIELD BONDED TO TRAILER SHELL
TLM A2
TLM B1
TLM B2
5503 BUFFER AMP 3-8
J1004
J
K
L
M
N
P
R
3-10
5503 AMP 3-9
4-1
4-2
4-3
4-4
4-5
PATCH PANEL
TAPE #5 VR-3300 (7½ IPS)
PATCH PANEL
IRIG A
10 (DR)
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE FRACTIONS DECIMALS ANGLES
MATERIAL
FINISH
NEXT ASSY
USED ON
APPLICATION
DO NOT SCALE DRAWING
CONTRACT NO
APPROVALS
DATE
DRAWN
CHECKED
12-21-79
10-3-80
REVISED
1-30-80
SCIENCE APPLICATIONS INC
LAS VEGAS NEVADA
HURON KING
DIGITAL TELEMETRY LINK
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TRAILER #5
SD028
SIZE
C
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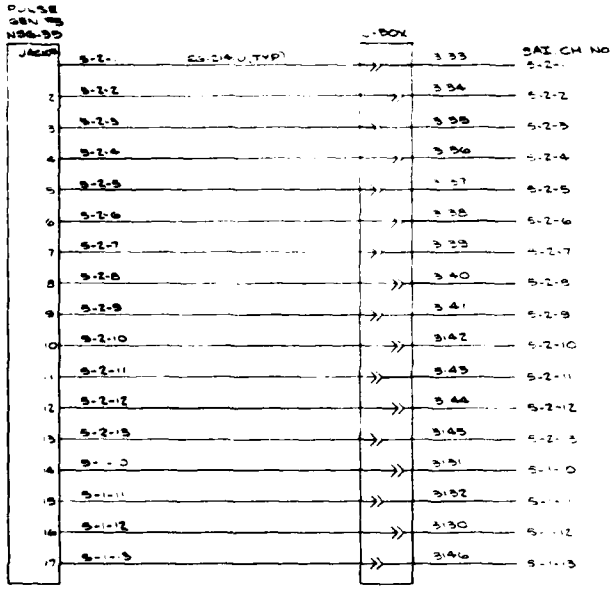
DRAWING NO
LVC-455
SCALE
SHEET
OF



REVISIONS

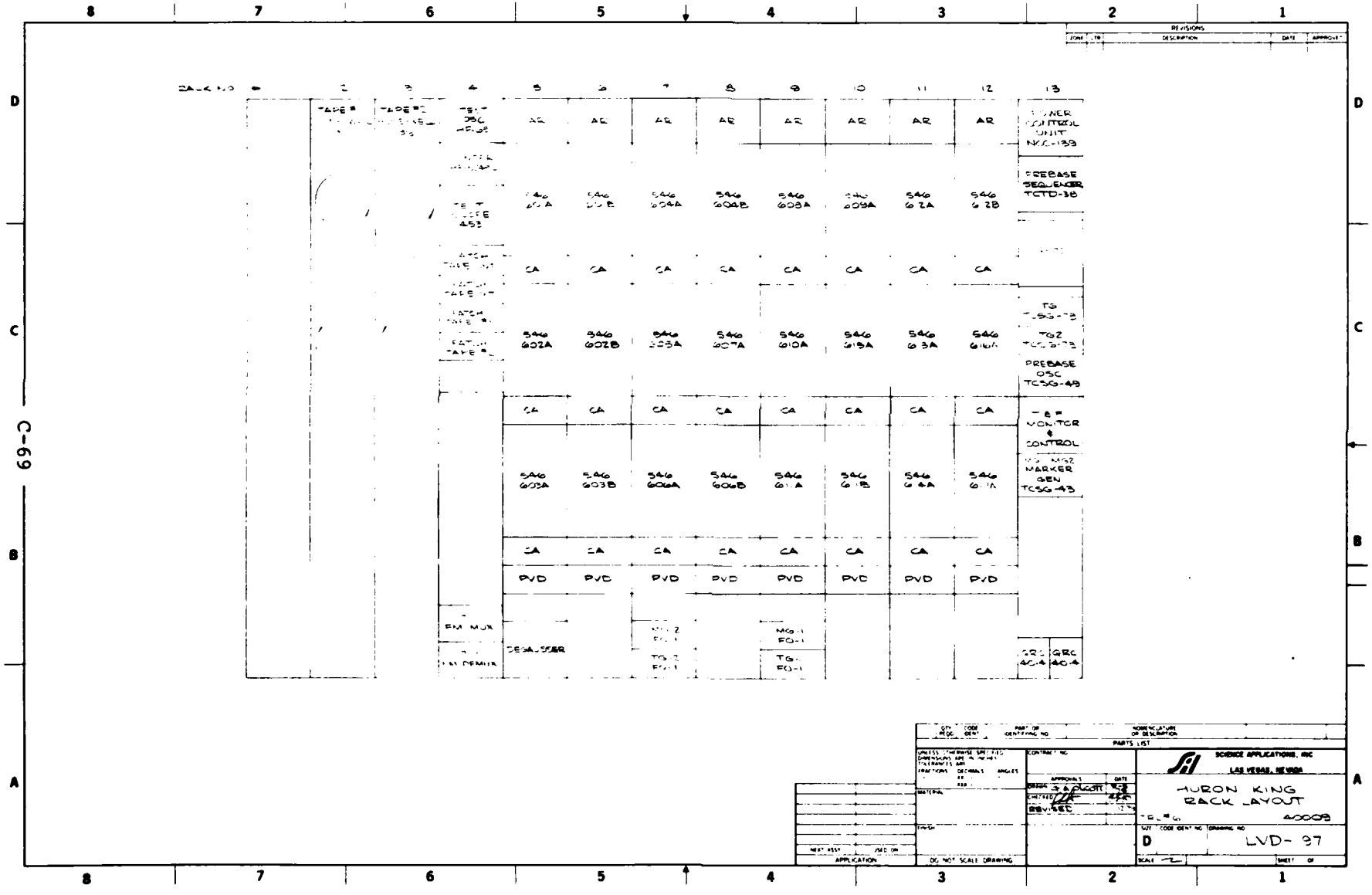
PARTS LIST

SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

ONE LINE DIAGRAM
DRY RUN SYSTEM
HURON KING

TELES 50028

D LVD-233


REVISIONS
DESCRIPTION
DATE
APPROVED
AR
CA
PVD
DESCRIBER
FREEBASE SEQUENCER TCTD-38
PREBASE OSC TCSG-49
MONITOR & CONTROL
MARKER GEN TCSG-43
PARTS LIST
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
HURON KING RACK LAYOUT
LVD-97
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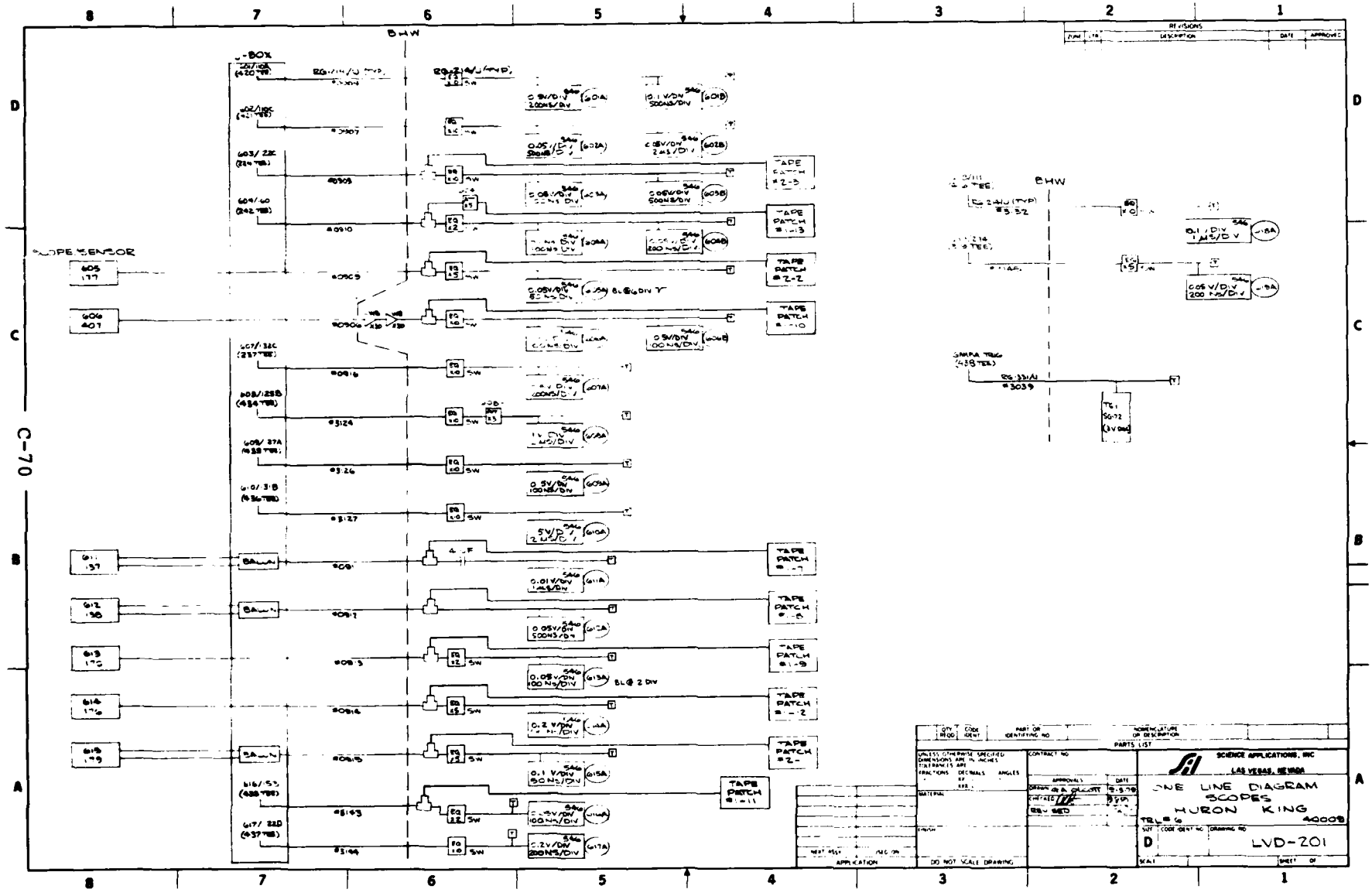
APPLICATION


SCOPE SENSOR
TAPE PATCH
BHW
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
SCOPES
HURON KING
LVD-201
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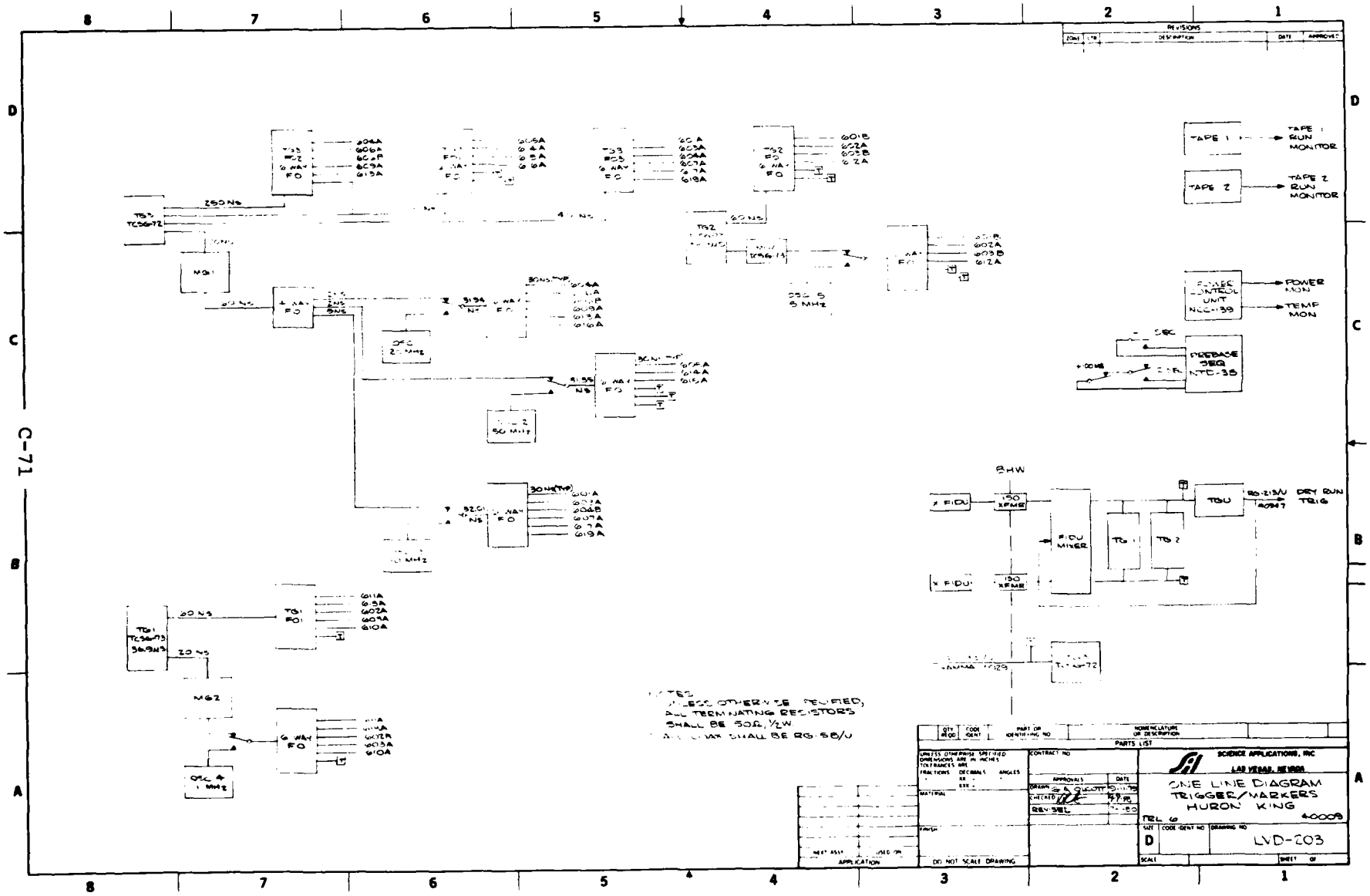
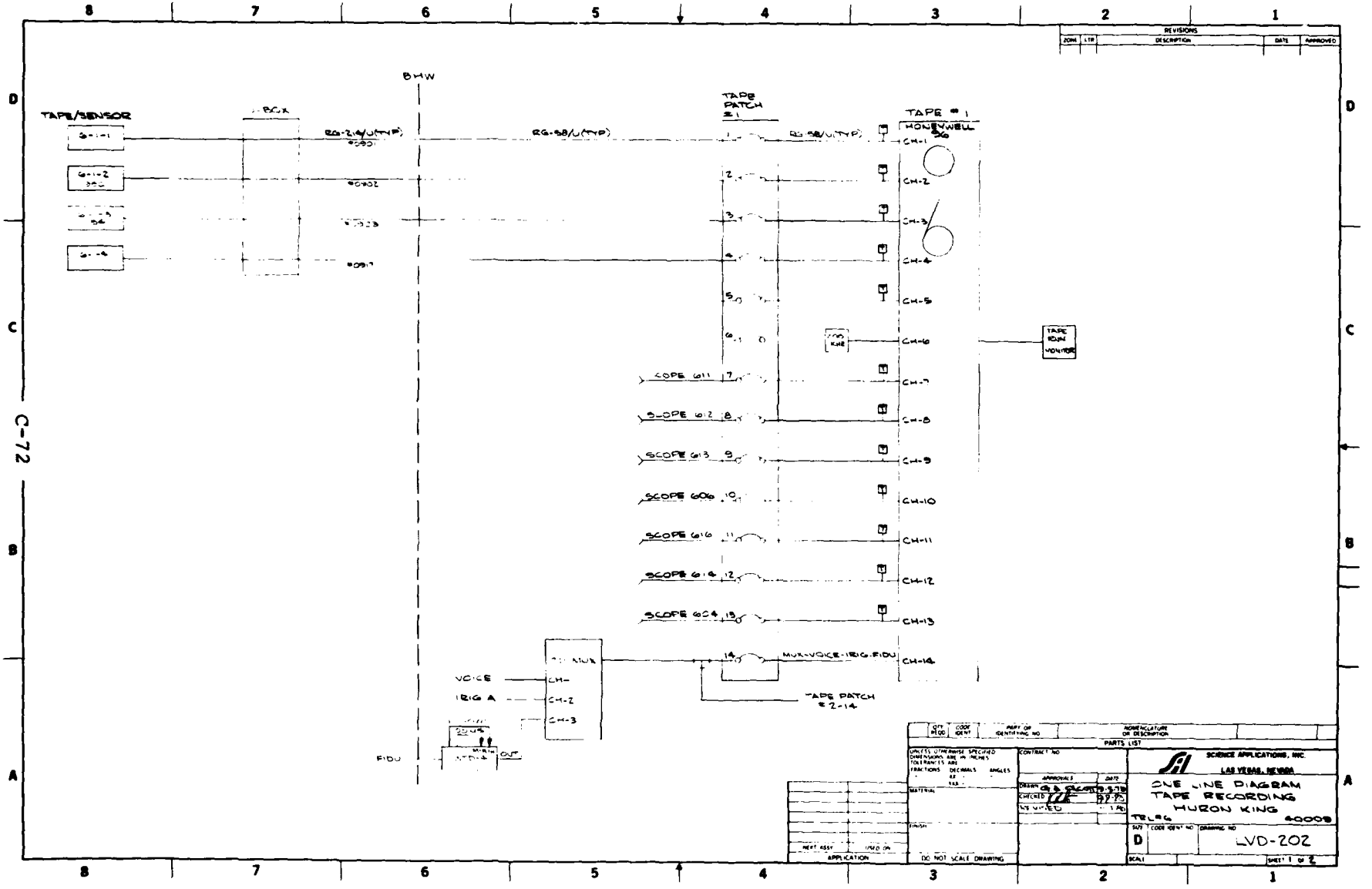

TAPE 1
TAPE 1 RUN MONITOR
TAPE 2
TAPE 2 RUN MONITOR
POWER MON
TEMP MON
PREBASE SEQ
DRY RUN TRIG
TGU
FIDU MIXER
X FIDU
Y FIDU
150 KFMR
5 MHz
50 MHz
2 MHz
1 MHz
4 MHz
6 WAY FO
NOTES
UNLESS OTHERWISE SPECIFIED, ALL TERMINATING RESISTORS SHALL BE 50Ω, 1/2W
ALL COAX SHALL BE RG-58/U
PARTS LIST
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
TRIGGER/MARKERS
HURON KING
LVD-203
DO NOT SCALE DRAWING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BHW
TAPE PATCH #1
TAPE #1
HONEYWELL
RG-58/U(TYP)
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SCOPE 6C12
SCOPE 6C13
SCOPE 6C6
SCOPE 6C16
SCOPE 6C4
CH-1
CH-2
CH-3
CH-4
CH-5
CH-6
CH-7
CH-8
CH-9
CH-10
CH-11
CH-12
CH-13
CH-14
MUX-VOICE-IRIG-FIDU
TAPE PATCH #2-14
TAPE RUN MONITOR
VOICE
IRIG A
FIDU
MUX
ON
REVISIONS
ZONE
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DESCRIPTION
DATE
APPROVED
PARTS LIST
QTY REQD
CODE IDENT
PART OR IDENTIFYING NO
NOMENCLATURE OR DESCRIPTION
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ENGINEERING
MATERIAL
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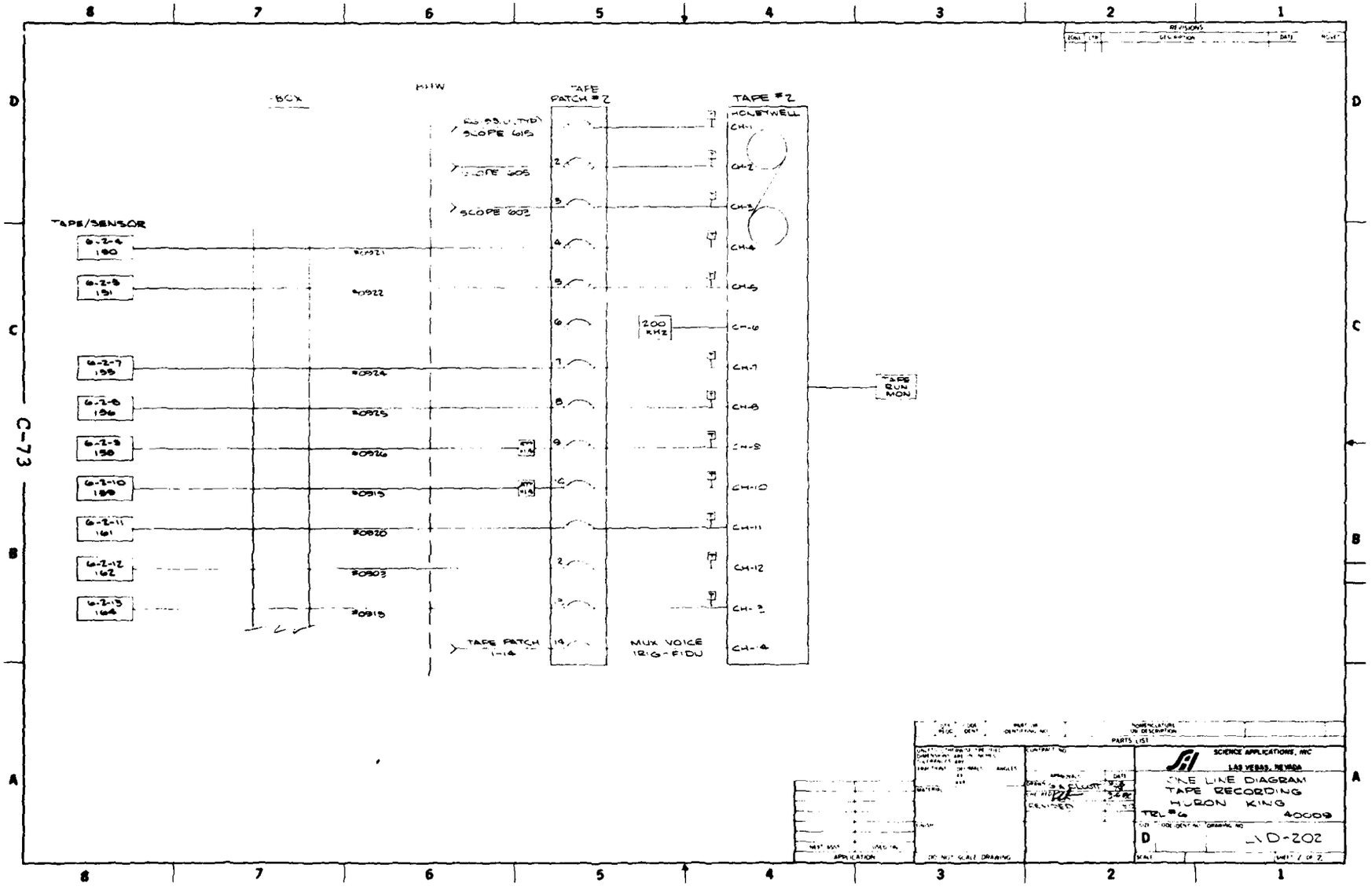
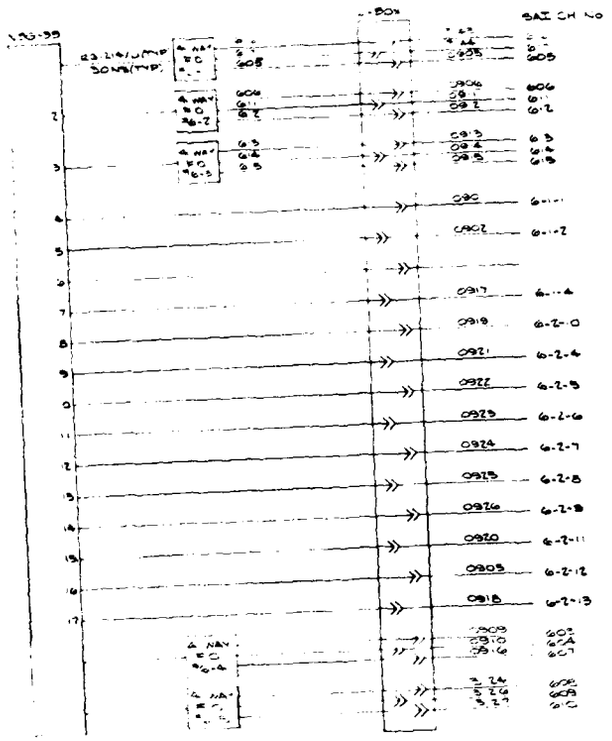
USED ON
APPLICATION
DO NOT SCALE DRAWING
SCIENCE APPLICATIONS, INC.
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
TAPE RECORDING
HURON KING
TELEG
40009
SIZE
D
CODE IDENT NO
DRAWING NO
LVD-202
SCALE
SHEET 1 OF 2

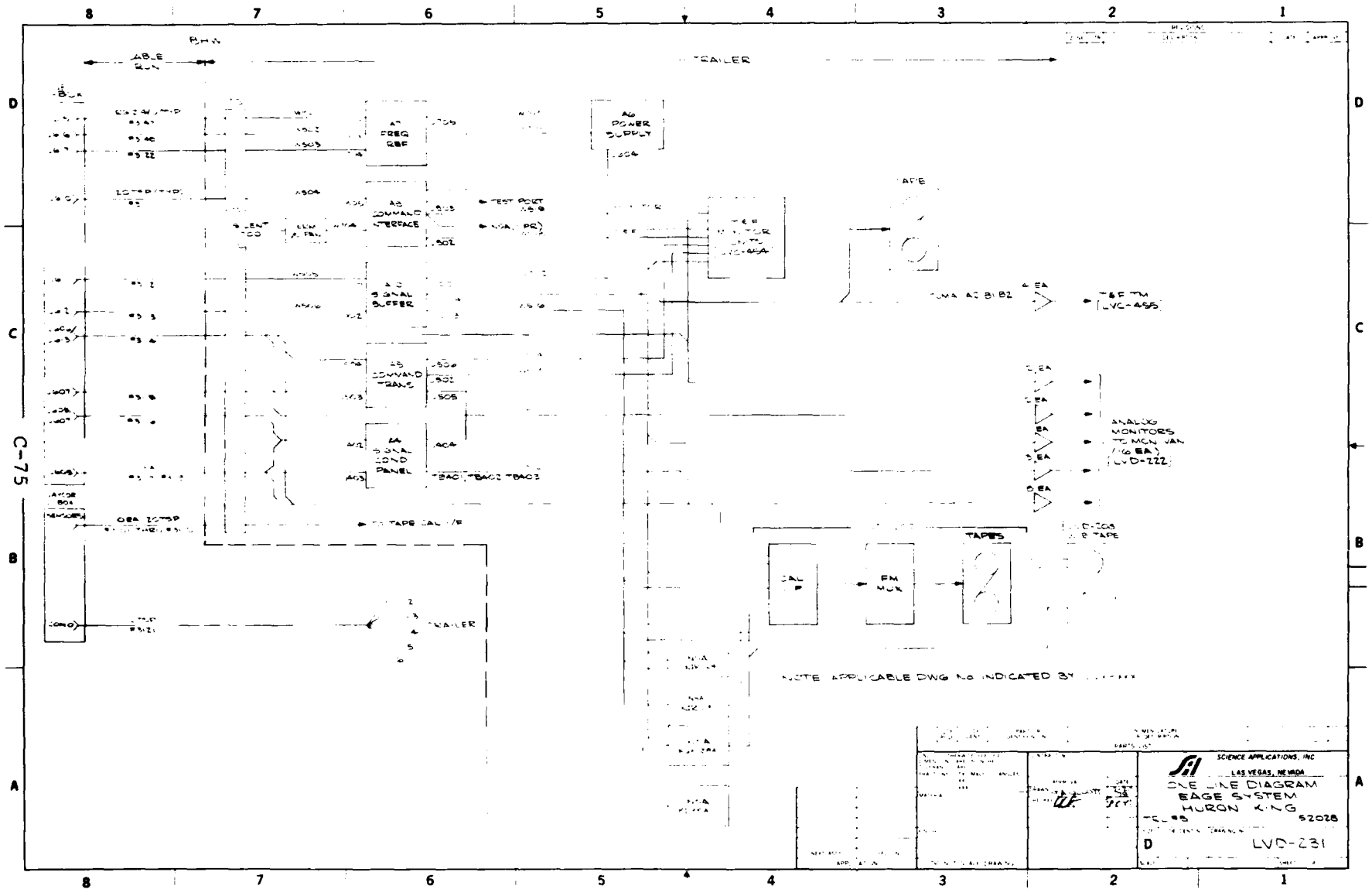

TAPE/SENSOR
6-2-4 180
6-2-5 151
6-2-7 155
6-2-8 156
6-2-9 158
6-2-10 159
6-2-11 161
6-2-12 162
6-2-13 164
BCX
MIW
SCOPE 605
SCOPE 602
TAPE PATCH 1-14
TAPE PATCH #2
TAPE #2
HONEYWELL
CH-1
CH-2
CH-3
CH-4
CH-5
CH-6
CH-7
CH-8
CH-9
CH-10
CH-11
CH-12
CH-13
CH-14
200 KHZ
MUX VOICE IRIG-FIDU
TAPE RUN MON
REVISIONS
PARTS LIST
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
LINE LINE DIAGRAM
TAPE RECORDING
HURON KING
TEL #4
40009
D
LD-202
DO NOT SCALE DRAWING
APPLICATION
SHEET 1 OF 2



SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA

ONE LINE DIAGRAM
DRY RUN SYSTEM
HURON KING

LVD-228


TRAILER
A7 FREQ REF
A6 POWER SUPPLY
A5 COMMAND INTERFACE
A4 SIGNAL BUFFER
A3 COMMAND TRANS
A2 SIGNAL COND PANEL
TEST POINT
TAPE
T&F TM (LVC-455)
ANALOG MONITORS TO MCW VAN (16 EA) (LVD-222)
TAPES
CAL
FM MUX
NOTE APPLICABLE DWG No INDICATED BY
SCIENCE APPLICATIONS, INC
LAS VEGAS, NEVADA
ONE LINE DIAGRAM
EAGE SYSTEM
HURON KING
52028
LVD-231

APPENDIX D

CURRENT PROBES, SAI MODELS 40TML AND 80TML

MEMORANDUM

DATE: 18 February 1980

TO: Joe Klisch/GE

FROM: Ken Sites/Las Vegas

SUBJECT: SAI Current Probes, Model 40-TML

Here are the first two probes that we have built, along with our calibration data. These probes are designed for sensors 122C and 135. They have a high frequency characteristic that I did not expect. The problem is described below. In view of the schedule, we do not have time to rebuild them; however, I think you will be able to get most of your SGEMP data and all of the TREE data.

In Figure 1 we plot the lower 3 dB frequency as a function of static current through the probe. For sensor 122C (7.25 amps static), we have 10 kHz, and for sensor 135 (2 amps static) we have 2.5 kHz.

Figure 2 shows the frequency response for the probe. Note that the upper frequency rolls off at 20 MHz but we get additional peaks at about 100 MHz and 200 MHz. This behavior can be explained by examination of the probe transient response.

Figure 3 shows the input current pulse used for the transient tests. The rise time is less than 1 ns and the top of the pulse is flat. Figure 4 shows the probe output for current pulse widths of 60 ns down to 3 ns. Note the step in the rise and fall which is constant at each pulse width. The step duration is about 10 ns, and for pulse widths of less than 10 ns we see a double pulse. The initial step follows the input pulse as shown in Figure 5. The second step shows some pulse roll off that is characteristic of transmission line loss. The second step is caused by propagation delay through the probe's internal transmission line. In order to get rid of the step, the probe needs to be rebuilt.

As shown in Figure 5, the first step follows the input pulse for about 8 ns. During this period the probe response is 1 ns rise or less (350 MHz bandwidth). Thus, the initial SGEMP response can be accurately recorded. For rise times of 5 ns or longer, or pulse widths greater than 10 ns, the probe operates satisfactorily (see Figure 6).

The estimated transient frequency response is shown in Figure 2. The roll off at 20 MHz, and the peak at 100 MHz and 200 MHz, are due to phase addition of the incident and delayed signal. Thus, at 100 MHz and 200 MHz, the delayed signal is in phase and adds while the minimums occur at about 50 MHz and 150 MHz.

KRS:bt

Enclosures

cc: Maj. Russ Bonn/DNA (FCTMD)

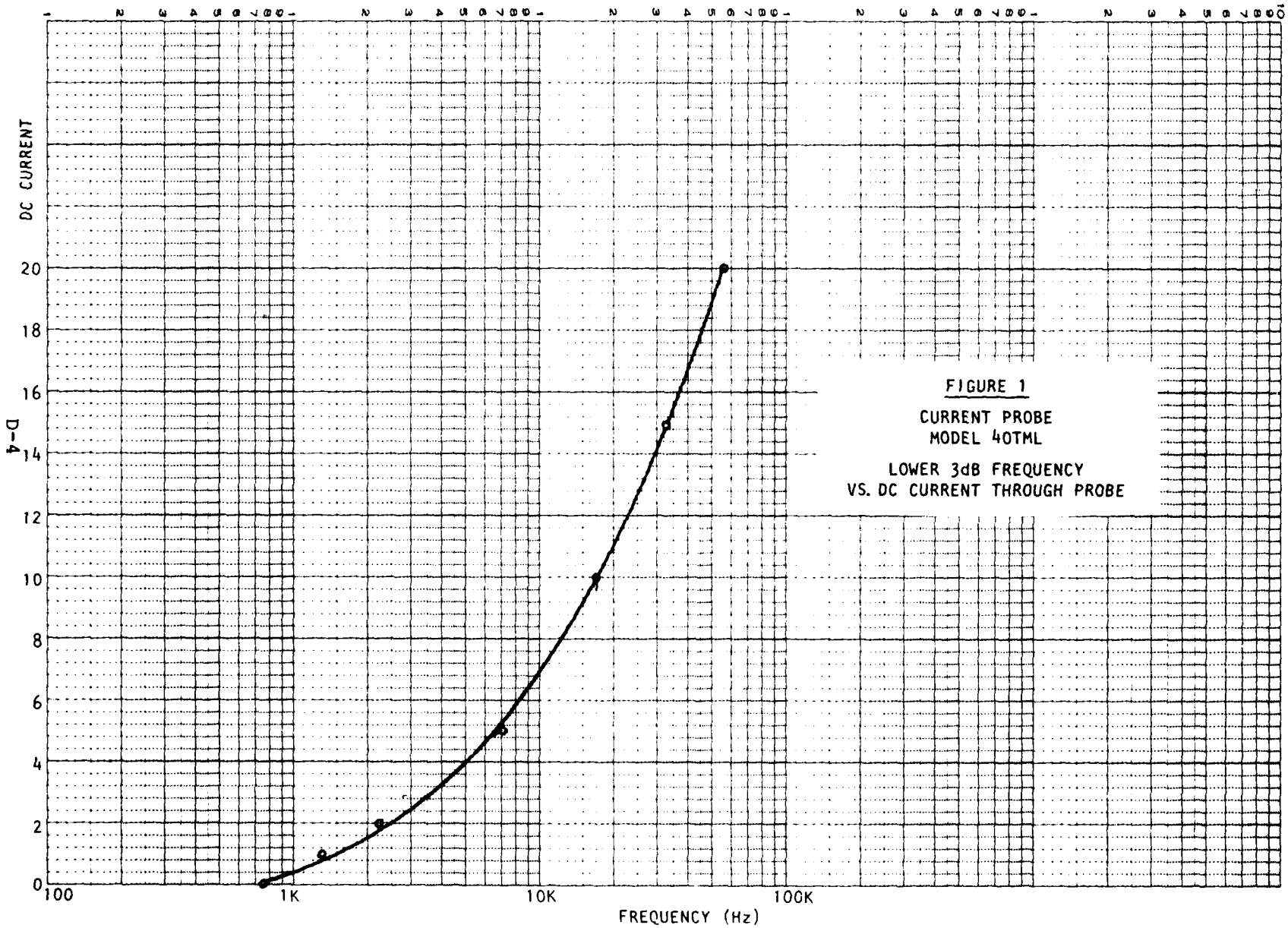


FIGURE 1

CURRENT PROBE
MODEL 40TML

LOWER 3dB FREQUENCY
VS. DC CURRENT THROUGH PROBE

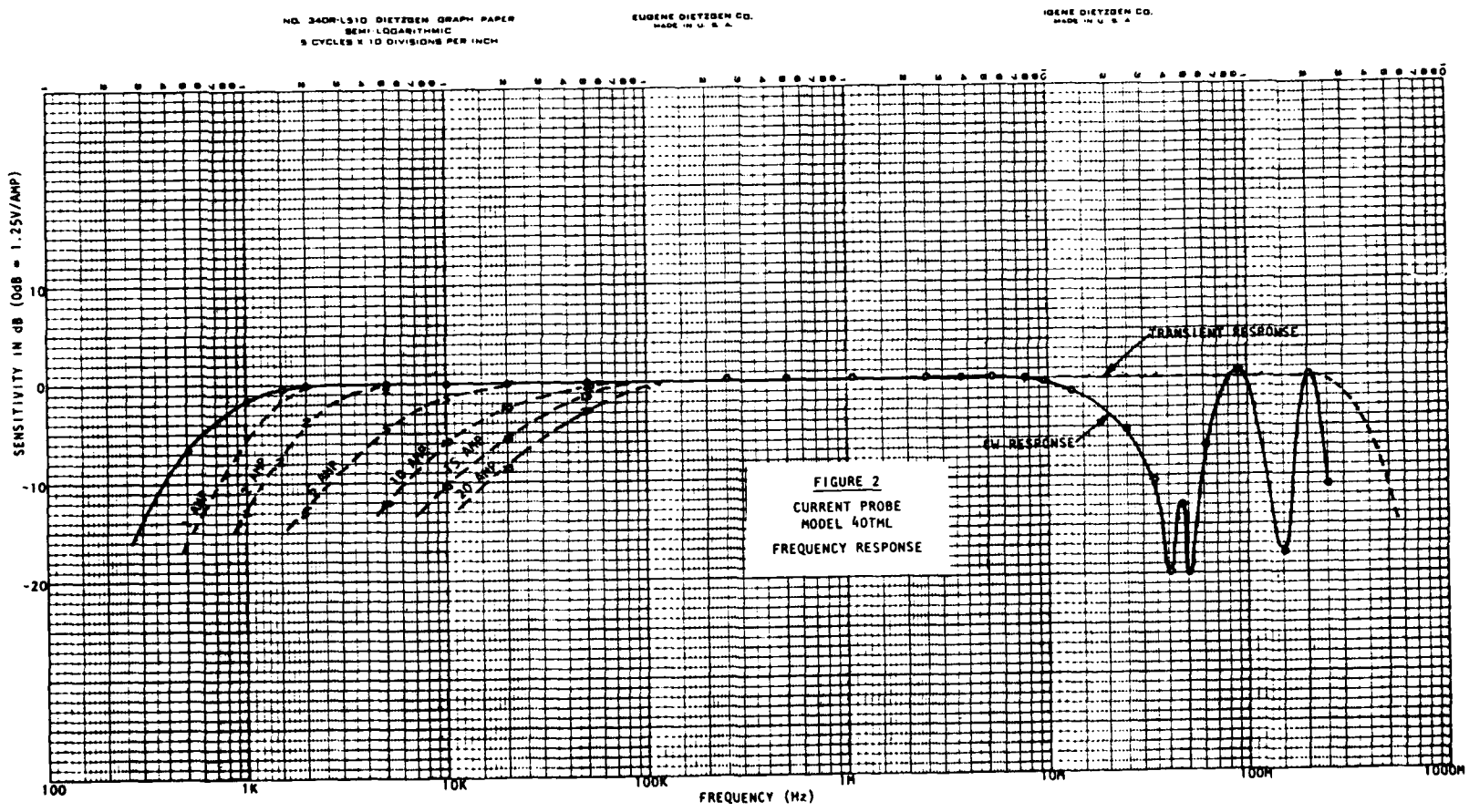
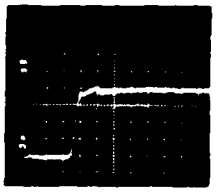


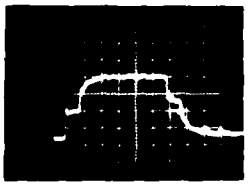
FIGURE 2
CURRENT PROBE
MODEL 40TML
FREQUENCY RESPONSE

10ns/Div

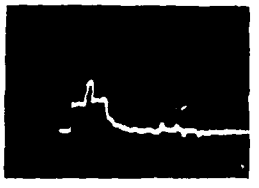


2ns/Div

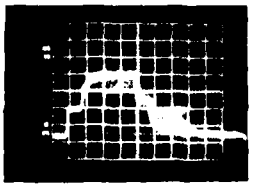
Figure 3. Input Current Pulse



60ns

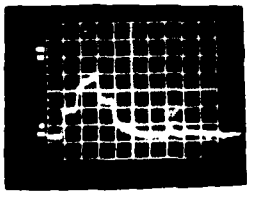


11ns

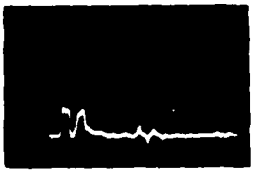


40ns

5ns

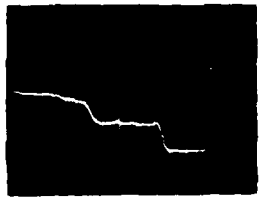


20ns



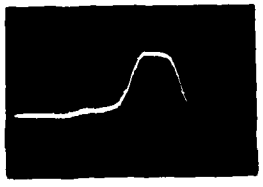
3ns

Figure 4. Current Probe Output vs Input Pulse Width
(All at IONS/Div.)

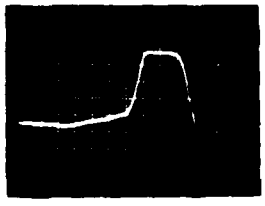


2ns/Div

Figure 5. Expanded Probe Output Pulse



Input, 20ns/Div



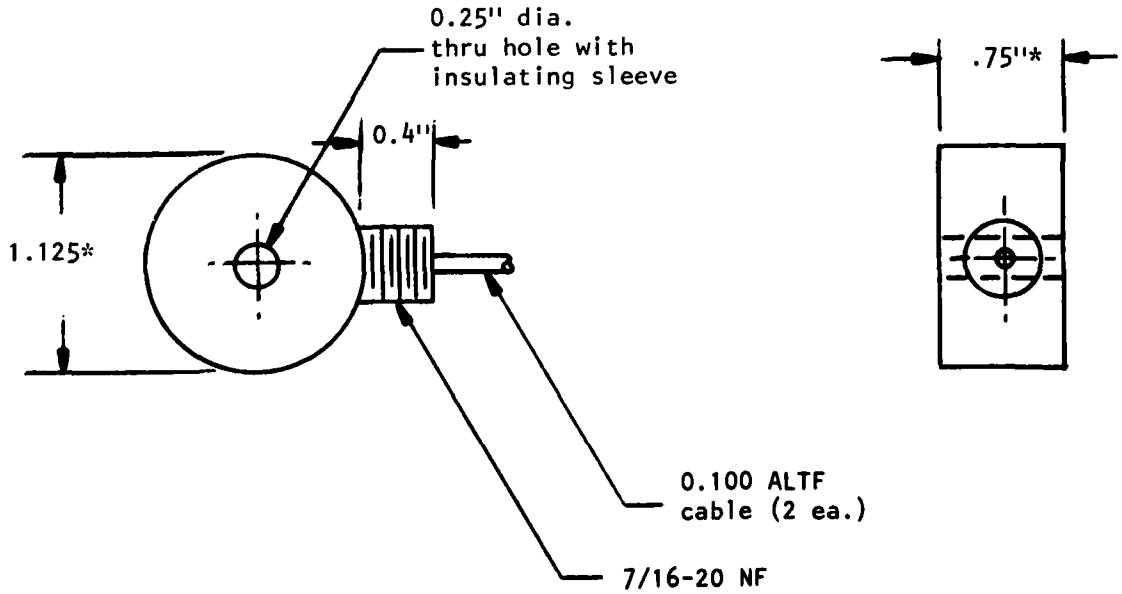
Output, 20ns/Div

Figure 6. Slower Pulse Response of Probe

CURRENT PROBE, TYPE 40TML

SENSITIVITY	1.25V/AMP
INSERTION IMPEDANCE	0.016Ω
OUTPUT	DIFFERENTIAL
OUTPUT IMPEDANCE	50Ω EACH OUTPUT
FREQUENCY RANGE (f_{3dB})	800Hz TO 20MHz

OUTLINE DRAWING



* Dimensions include 0.005" lead and 0.004" AL outside cover.

MEMORANDUM

DATE: 25 February 1980

TO: Joe Klisch/GE

FROM: Ken Sites/Las Vegas

SUBJECT: SAI Current Probe, Model 80-TML

Here is the calibration data on the last probe that we sent to you. This probe is designed for Sensor 110.

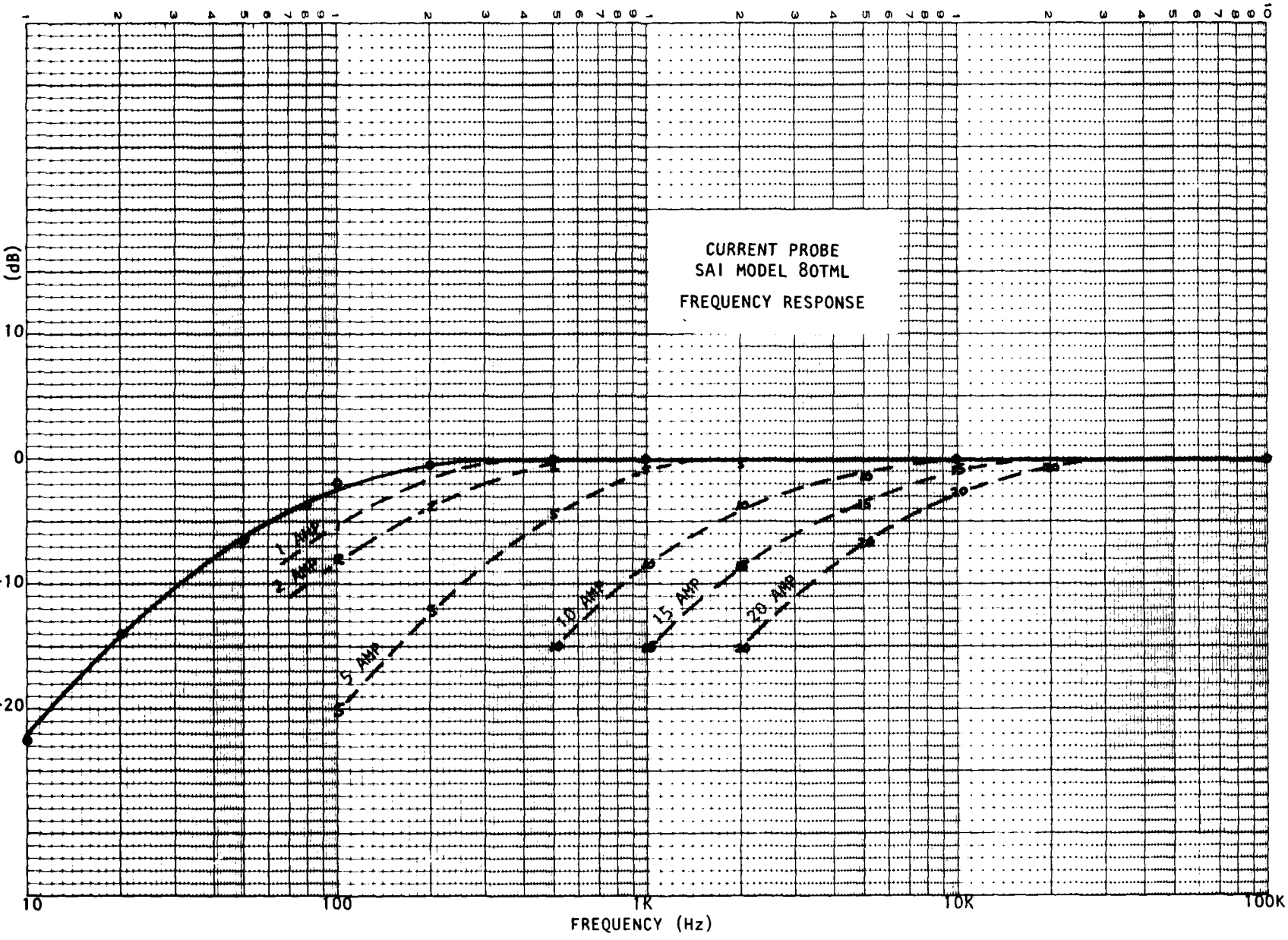
The probe construction is similar to the two probes that we sent previously (Model 40-TML). The main difference is that it is designed for lower frequency response. In doing so, the upper frequency rolloff (13 MHz) is also lower as indicated on the attached data sheets. Note that there is significant response at various frequencies above 13 MHz which is verified by the transient response photographs. The reason for the structure is twofold. (1) The internal transmission line is two times the length of the previous probes, and (2) the transmission line impedance has been raised.

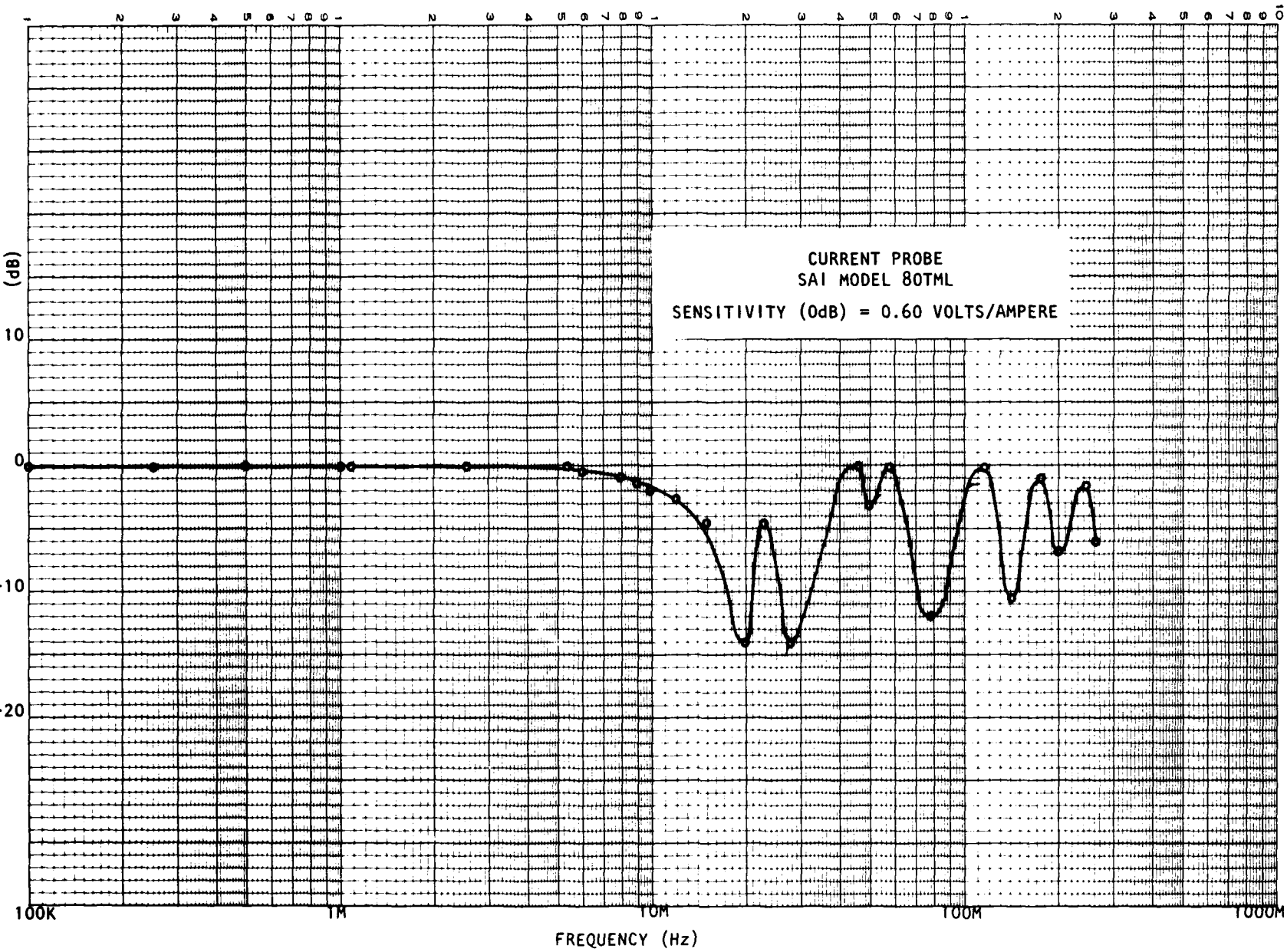
As with the previous probes we get a delayed step in the probe response; however, it now appears at about 18 ns because of the longer internal transmission line. Thus, the initial SGEMP response could be recorded for this period of time.

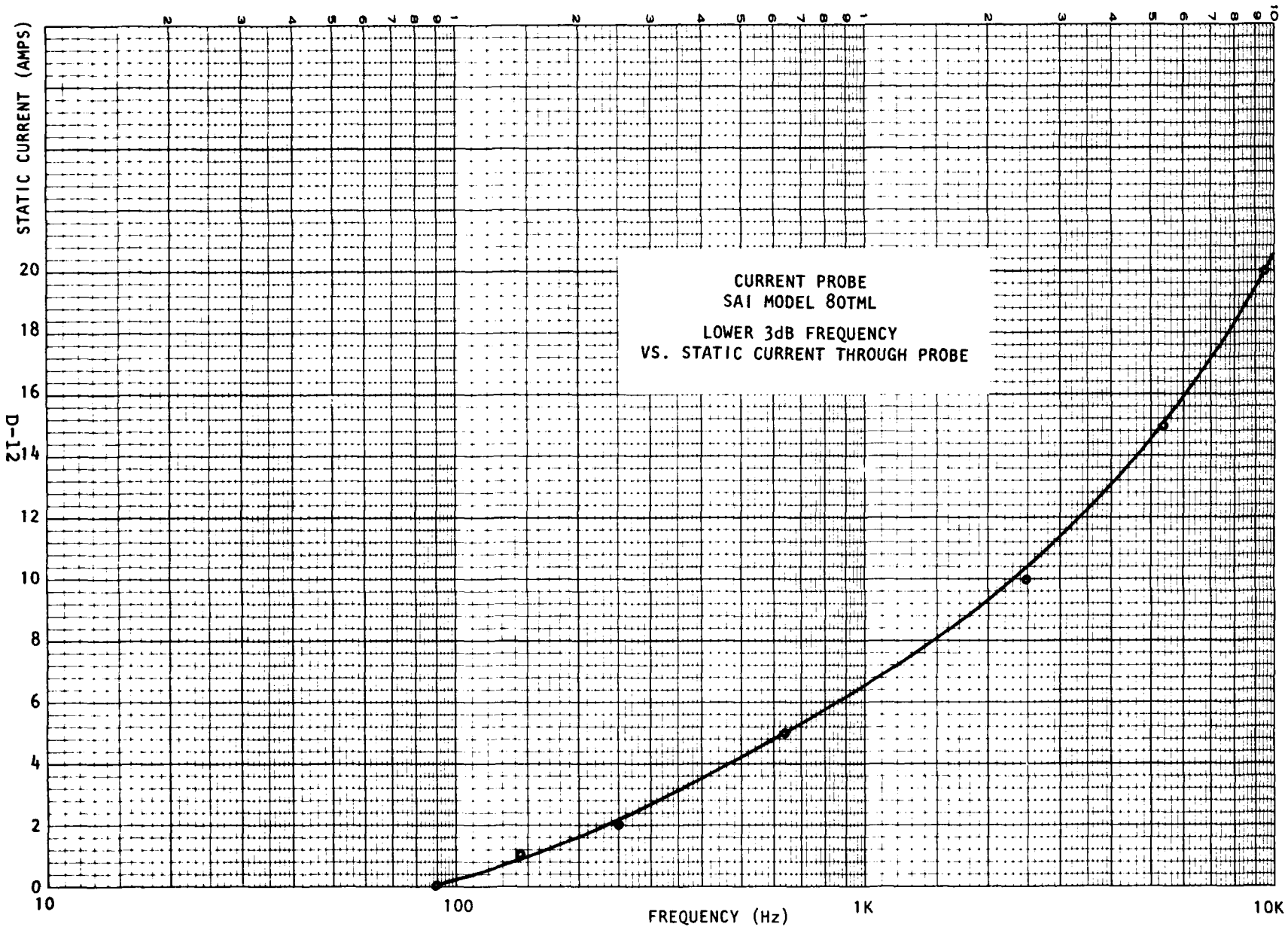
The internal impedance of the previous probes was on the order of 40 ohms. We changed the design in an attempt to bring it up to 50 ohms, but it came out closer to 60 ohms. This higher impedance, plus variations along its length, causes the structure on the top of the probe output pulses. This structure is not too bad for short pulses such as the 12 ns example shown. The 60 ns pulse example shows structure that lasts for a longer period due to reflections caused by the internal impedance mismatch.

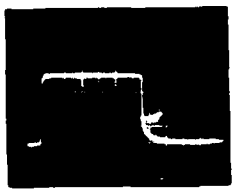
KRS:bt

Enclosures:
cc: Major Bonn (FCTMD)
Major Gullickson (RAEV)


CURRENT PROBE
SAI MODEL 80TML
FREQUENCY RESPONSE
(dB)
10
0
-10
-20
10
100
1K
10K
100K
FREQUENCY (Hz)
1 AMP
2 AMP
5 AMP
10 AMP
15 AMP
20 AMP


CURRENT PROBE
SAI MODEL 80TML
SENSITIVITY (0dB) = 0.60 VOLTS/AMPERE
(dB)
10
0
-10
-20
100K
1M
10M
100M
1000M
FREQUENCY (Hz)


CURRENT PROBE
SAI MODEL 80TML
LOWER 3dB FREQUENCY
VS. STATIC CURRENT THROUGH PROBE
STATIC CURRENT (AMPS)
0
2
4
6
8
10
12
14
16
18
20
10
100
1K
10K
FREQUENCY (Hz)

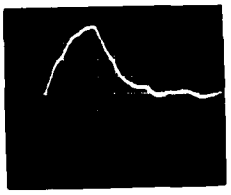


Probe Input

Probe Output

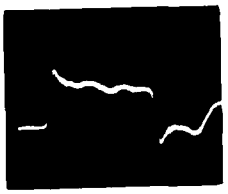
10ns/Div

60ns Input Pulse
Risetime <1ns



20ns/Div

60ns Input Pulse
Risetime 20ns



2ns/Div

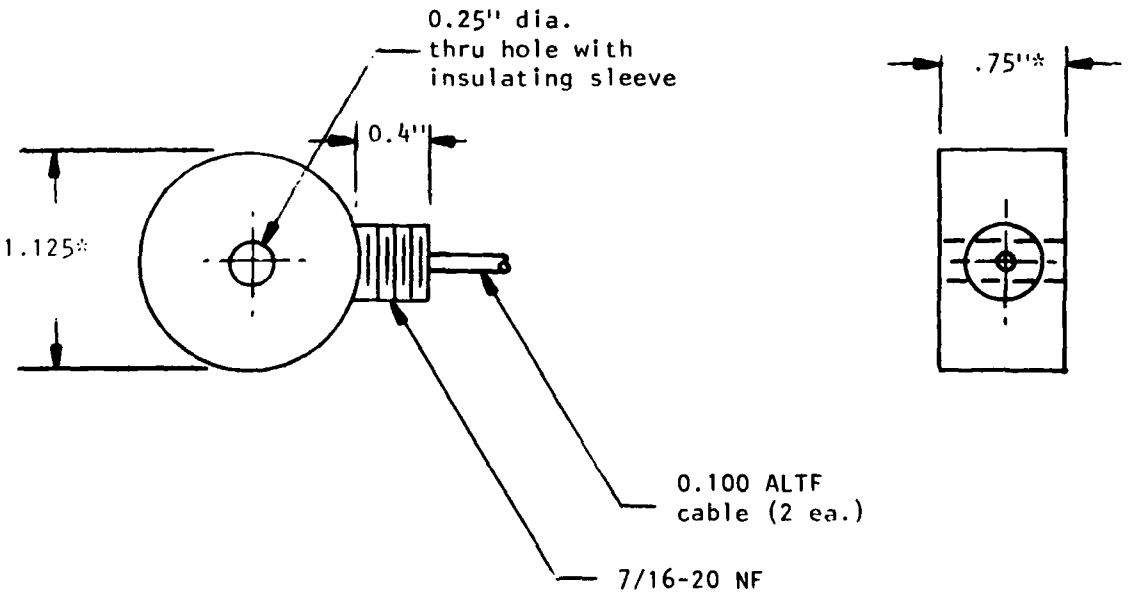
12ns Input Pulse
Risetime <1ns

Transient Response of Current Probe Type 80TML

CURRENT PROBE, TYPE 80TML

SENSITIVITY	0.62V/AMP
INSERTION IMPEDANCE	0.004Ω
OUTPUT	DIFFERENTIAL
OUTPUT IMPEDANCE	50Ω EACH OUTPUT
FREQUENCY RANGE	90HZ TO 13MHZ

OUTLINE DRAWING



* Dimensions include 0.005" lead and 0.004" AL outside cover.

APPENDIX E

WIDEBAND AMPLIFIERS, SAI MODEL SC-114

MEMORANDUM

DATE: 28 July 1980

TO: Distribution

FROM: Ken Sites/Las Vegas

SUBJECT: Wideband Amplifiers Used on HURON KING

We have completed post shot testing of the wideband amplifiers that were built and installed by SAI on HURON KING. The tests show that no amplifiers failed on the shot; however, some were dead prior to the shot and I am embarrassed to report that due to some procedural errors they were installed in the system and caused loss of data. The following channels had dead amplifiers going into the shot.

SAI Channel	Sensor Number
304	1
306	6
308	59
324-2	370
403	55

In the remainder of this memo I will review the circumstances that caused the errors and then present data on the amplifiers which may be useful in interpreting the scope traces on channels that used the 25 good amplifiers.

Fabrication and testing of the wideband amplifiers was done at the SAI Las Vegas lab. Each chassis contained 10 amplifiers and 5 chassis were built (50 amps total). During testing each amplifier was required to meet certain specifications which included low noise and low crosstalk. Some amplifiers would not meet specifications. A few were replaced with spare amplifier chips (TRW Model CA2820) that we had on hand. Delivery of additional chips from the manufacturer could not be made before the shot. The bad amplifiers then were disconnected inside the

chassis so that they would not cause noise on the good channels. The first two units to go to the field had the connectors to the defective channels clearly marked as being bad. The third chassis had ten channels operating. The last two chassis, however, had bad channels that were not marked. Instead, a test report was sent with the units showing test results and indicating which channels were good. This was error number 1. No one in the field remembers seeing the test report. As a result, the trailer operators installed those units believing that all ten channels were operations. Error number 2 occurred in the field when the units were installed after the simulation system was dismantled.

Installation of amplifiers in the signal lines after the simulation system is dismantled is not a normal procedure. However, it was not known where all the amplifiers were to be installed until the experimenter predictions were provided. The predictions were late which delayed the final system calibration. System calibrations were not complete until the last few days before the shot (normally complete two weeks before the test). Then the amplifiers were installed. A simple verification test could have been done by injecting a signal from the J-box on each channel that had amplifiers. It was not done because no one thought about doing a verification test and we were pressed for time doing the final preparations for the shot.

The amplifiers are specified by the manufacturer to have a band width of 2 MHz to 520 MHz. The measured response is plotted in Figure 1. The actual response at 3 dB is from 1 MHz to, at least, 500 MHz. The nominal gain for all units was 30 dB across the band. The plot in Figure 1 is for the sinewave response. Typical sinewave data are shown in Figure 2. Note that there is no distortion even below the lower 3 dB frequency.

The step response is shown in Figure 3. Here the flat top portion of the pulse rolls off rapidly because there are low frequency components in the pulse. A pulse train also exhibits similar behavior as shown in Figure 4.

The response to various non-step pulses are shown in Figure 5. In Figure 5a the input pulse width is 2 to 3ns wide at the fifty percent level (FWHM). The output pulse follows quite well. In Figure 5b the input pulse width is on the order of 7ns. The output pulse follows but there is a small overshoot on the pulse trailing edge. The same pulse is shown in Figure 5b. Note that the overshoot recovery time is on the order of 150ns. Figure 5d

shows a much wider pulse with an exponential decay. The output pulse does not resemble the input pulse other than its envelope seems to follow the pulse decay.

To summarize, the wideband amplifiers are not capable of handling transient pulse widths of greater than a few tens of nanoseconds. For signals generated by the B-Dot and I-Dot probes, they work well. For other sensor types, such as voltage or current probes, the data will have to be examined to determine if the recorded signal is data or if it is amplifier response limited.

When the amplifiers were purchased we were expecting to operate the scopes at 10 to 20 ns/div. At these sweep speeds we saw no problem. The predictions, however, forced a change of many scope sweep speeds to 50ns/div and longer. Amplifiers were used on some of these scopes. I caution the analysts to examine these data to determine if it is real data or data modified by the amplifier response.

KRS:bt

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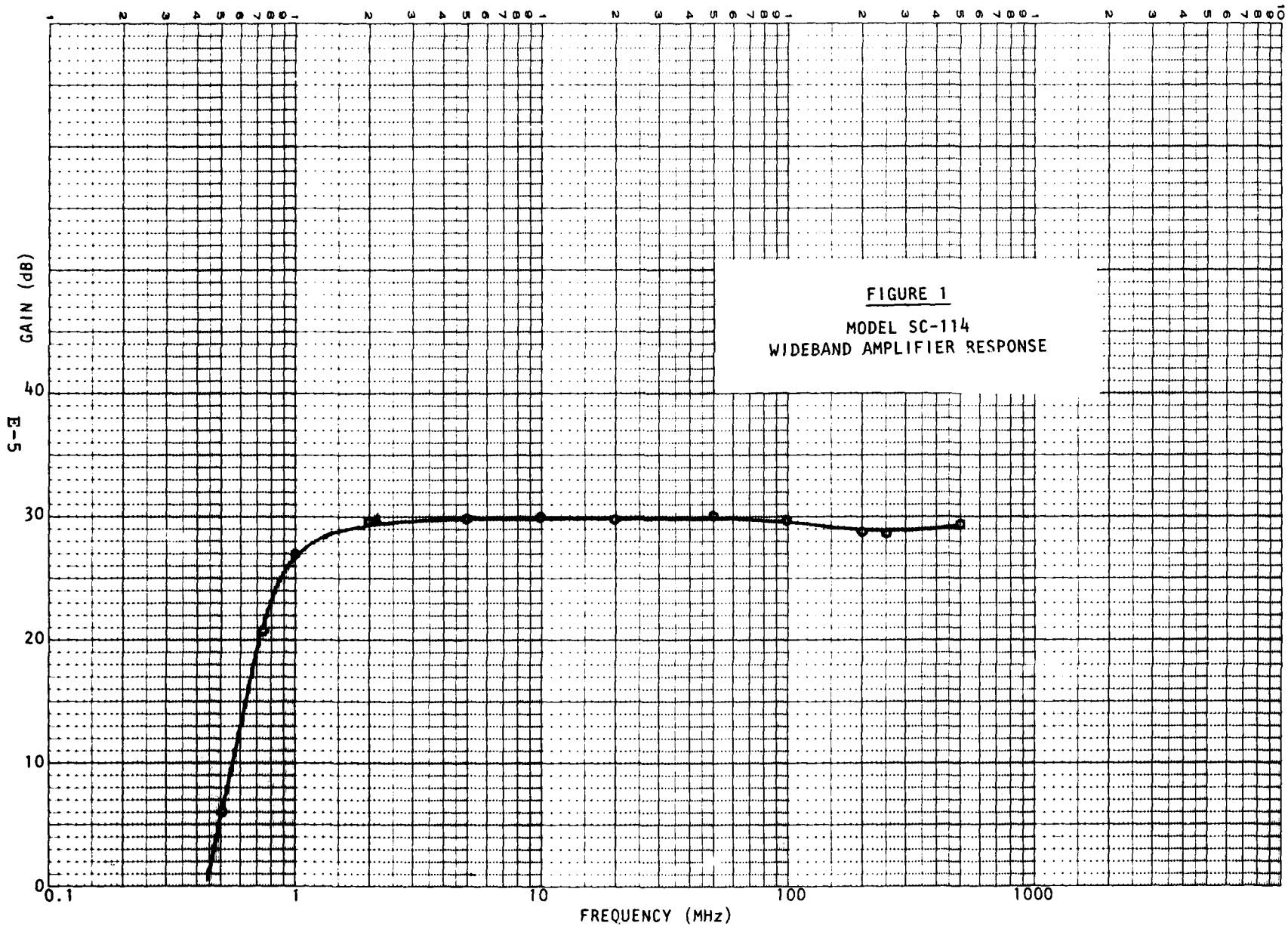


FIGURE 1

MODEL SC-114
WIDEBAND AMPLIFIER RESPONSE

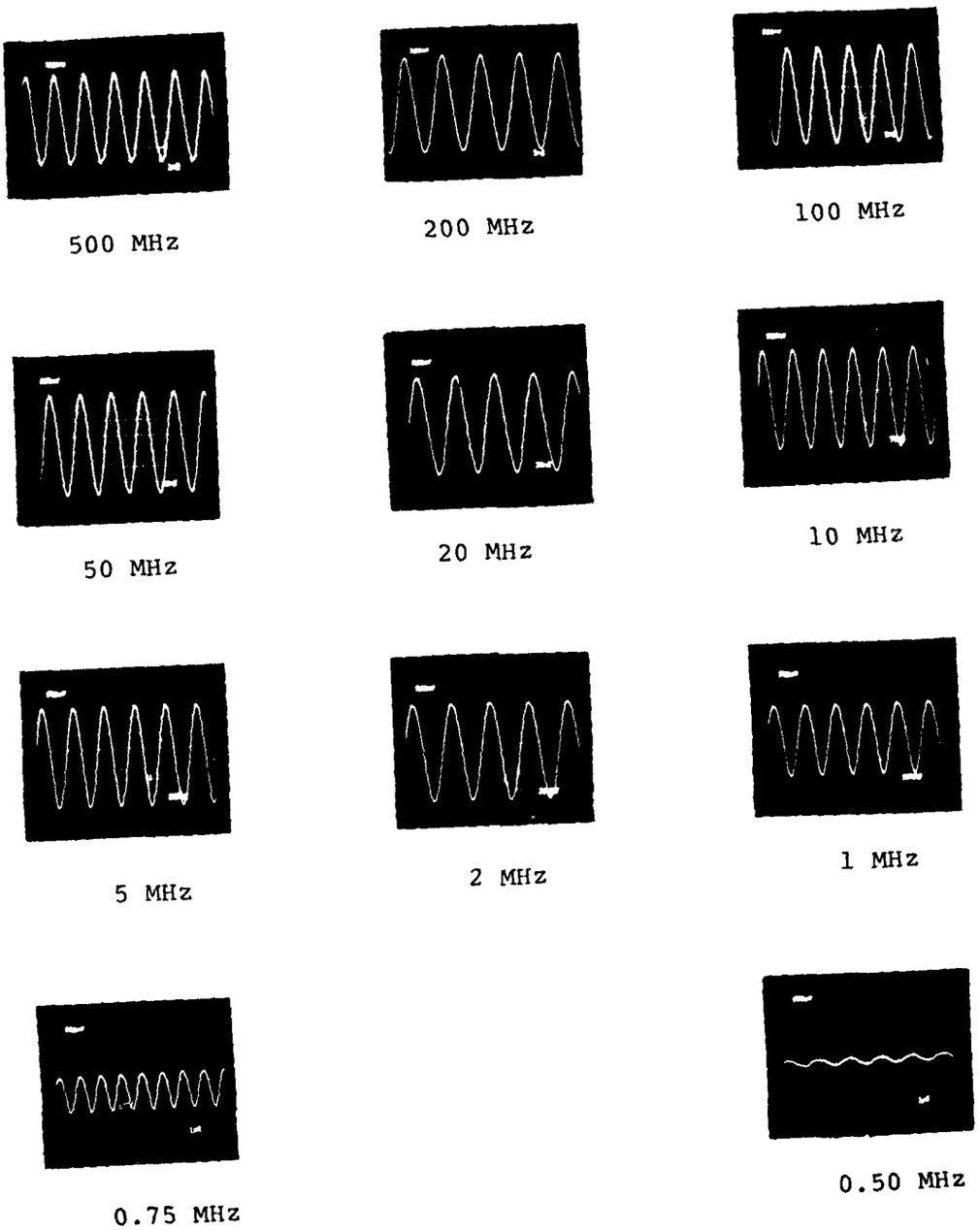


Figure 2. Wideband Amplifiers Output (0.5V/div)
Sine-Wave Input equals 0.1V P-P

Input
10ns/div

(a)

Output
10ns/div

Input
20ns/div

(b)

Output
20ns/div

Figure 3. Single Step Pulse Response

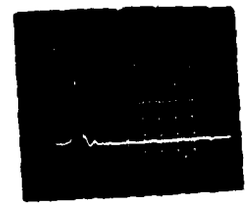
Input
20ns/div

Output
20ns/div

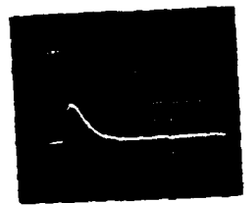
Figure 4. Pulse Train Response

Input
50mV/div; 5ns/div

(a)

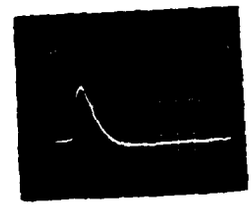


Output
1V/div; 5ns/div

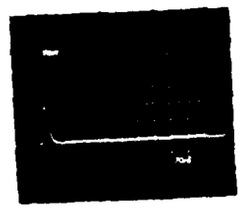


Input
50mV/div; 5ns/div

(b)

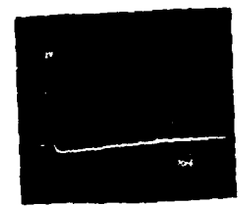


Output
1V/div; 5ns/div

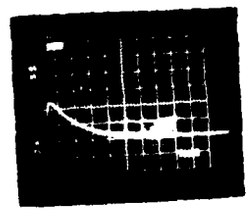


Input
50mV/div; 20ns/div

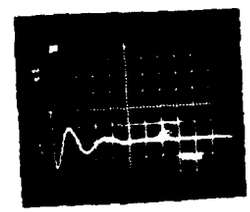
(c)



Output
1V/div; 20ns/div



Input
50mV/div; 500ns/div



Output
1V/div; 500ns/div

Figure 5. Pulse Response

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