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VOLUME IV - APPENDIX B
INSTRUMENT UNIT DATA SHEETS

FINAL REPORT — RESEARCH ON PASSIVE INSTRUMENTATION AND STIMULI GENERATION FOR SATURN IB EQUIPMENT CHECKOUT

THE BOEING COMPANY ▪ SPACE DIVISION

D5-13268-4

RESEARCH ON PASSIVE INSTRUMENTATION AND STIMULI GENERATION FOR SATURN IB EQUIPMENT CHECKOUT

FINAL REPORT

APPENDIX B, INSTRUMENT UNIT
DATA SHEETS

31 MAY 1966

CONTRACT NAS8-20090
GEORGE C. MARSHALL SPACE FLIGHT CENTER
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

THE BOEING COMPANY
LAUNCH SYSTEMS BRANCH
HUNTSVILLE, ALABAMA

D5-13268-4

Passive Instrumentation and Stimuli Generation For Saturn IB Equipment Checkout

Period of Performance: 26 June 1965 - 31 May 1966

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ABSTRACT

This document is Volume IV, Appendix B, Instrument Unit Data Sheets, of the final technical report of the Passive Instrumentation and Stimuli Generation for Saturn V Equipment Checkout Study for the George C. Marshall Space Flight Center, National Aeronautics and Space Administration, Huntsville, Alabama, under Contract NAS8-20090. The study was conducted under the technical supervision of Kenneth L. Skinner.

The final technical report consists of four volumes:

D5-13268-1: Summary Technical Report

D5-13268-2: Detailed Technical Report

D5-13268-3: Appendix A, Laboratory Data

D5-13268-4: Appendix B, Instrument Unit Data Sheets

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FOREWORD

From June 26, 1965 to May 31, 1966, The Boeing Company conducted a study of Passive Instrumentation and Stimuli Generation for Saturn V Equipment Checkout. The purpose of the study was to perform an extensive investigation of passive techniques and methods of application to the Saturn Instrument Unit, to define appropriate passive techniques, to define the types of components that the techniques should be adapted to, to determine methods of coupling into and out of a component or a system, and to define the stimuli generation and response evaluation equipment. The systems of the Saturn Instrument Unit were used for detailed investigation as being representative of the types of space vehicle systems to which passive techniques should be applied.

Passive instrumentation and stimulus generation techniques are defined for the purposes of the study as, "those techniques for passively introducing stimuli and extracting responses from vehicle systems without impairing, altering, or affecting the system operation".

Limited experimental work was performed in the laboratory during the course of the study to verify several of the more promising techniques.

The following conclusions were reached:

a. Recent advances in sensors and devices (electronic, electromechanical, optoelectronic, etc.) make it possible to apply many new coupling techniques in stimulating or measuring responses of an item under test;

b. These advances are being applied to ordinary instrumentation problems when the ground rules, and experience of the designer, permit;

c. Passive techniques offer a powerful tool for improving isolation between the primary system and the test system;

d. The results are most effective if the passive instrumentation and stimuli couplings are functionally designed into the basic system, rather than added as an after thought; however, some presently inaccessible test points can be added by using passive techniques;

e. The most important single item in applying these techniques is the philosophy or attitude of the designer - the intent, as nearly as possible, to isolate the test system by designing the necessary sensors and transducers into the basic system;

f. Development of passive techniques should be pressed at component, subsystem, and system level to permit early implementation on space vehicles.

References made throughout these four volumes to the Sat V IU apply equally to the Sat 1B IU.

INTRODUCTION

Appendix B to the final technical report on the Passive Instrumentation and Stimuli Generation for Saturn V Equipment Checkout Study consists of data sheets which were compiled during the course of the study on existing measurement and stimulus channels in the Saturn IB Instrument Unit.

Appendix B is organized in three sections. Section I consists of data sheets for each of the umbilical connections in the Saturn IB Instrument Unit which are used for ground checkout of Instrument Unit systems via the umbilical connectors.

Section 2 contains data sheets for each umbilical connection on the Saturn IB Instrument Unit which currently is used to introduce a stimulus during ground checkout of the Instrument Unit systems.

Section 3 contains data sheets for those measurements required within the Instrument Unit which are presently routed to telemetry.

The source of information for the data sheets of Section 1 and 2 of this appendix was MSFC Contract NAS8-20240, Advanced Systems Checkout Design. The source of information for the data sheets of Section 3 was the Instrumentation Program and Components (IP&C) List, MSFC Drawing Number 50M10670, Revision A.

SECTION I

DATA SHEETS

SATURN IB INSTRUMENT UNIT UMBILICAL CONNECTORS - MEASUREMENTS

APPENDIX B

SECTION I

Each pin of each Saturn IB umbilical connector which is currently being used for transmission of a measurement required during ground checkout of the Instrument Unit has been examined to determine if the measurement transmitted through that pin is amenable to the application of passive instrumentation techniques.

Each data sheet contains the connector and pin number for the measurement, the title of the measurement, the function of the measurement, the parameter that is being measured, and the applicable passive technique which was determined to be most feasible and practical for that measurement.

CONNECTOR NUMBER: 601W2J1 Pin 1

TITLE: Meas. IU Main Power Transfer External

FROM: SIB IU TO: GSE

WIRE FUNCTION: 28 VDC External Power

TYPE OF MEASUREMENT:

Current

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect
Magneto Resistor

CONNECTOR NUMBER: 601W2J1 Pin 2

TITLE: Meas. IU Main Power Transfer Internal

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 28 VDC Internal Power

TYPE OF MEASUREMENT:

Current

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect
Magneto Resistor

CONNECTOR NUMBER: 601W2J1 Pins

TITLE: Measurement Return - ESE Bus 6D111 Regulation

FROM: SIB IU

TO: GSE

WIRE FUNCTION:

28 VDC ESE Power Source Return
Ext.

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics
MOS-FET Electrometer

CONNECTOR NUMBER: 601W2J1 Pin 6

TITLE: Meas. ESE Bus +6D111 Regulation

FROM: SIB IU TO: GSE

WIRE FUNCTION:

28 VDC ESE Power Source
Ext.

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics
MOS-FET Electrometer

CONNECTOR NUMBER: 601W2J1 Pin 9

TITLE: Meas. Return-ESE Bus +6D211 Regulation

FROM: SIB IU TO: GSE

WIRE FUNCTION:

28 VDC ESE Power Source Return

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics
MOS-FET Electrometer

CONNECTOR NUMBER: 601W2J1 Pin 10

TITLE: Meas. ESE Bus +6D211 Regulation

FROM: SIB IU

TO: GSE

WIRE FUNCTION:

28 VDC ESE Power Source

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics
MOS-FET Electrometer

CONNECTOR NUMBER: 601W2J1 Pin 37

TITLE: Meas. Return Bus 6D10 Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION:

Test Battery Current, 0 to 300A
Test Voltage Return, 28 VDC $\pm$ 2VDC

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 38

TITLE: Meas. Bus +6D10 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION:

Test Battery Current, 0 to 300A
Test Voltage, +28 VDC $\pm$ 2 VDC

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 39

TITLE: Meas. Return Bus 6D20 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION:

Test Battery Current, 0 to 300A
Test Voltage Return

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 40

TITLE: Meas. Bus +6D20 Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION:

Test Battery Current, 0 to 300A
Test Voltage, -28 VDC $\pm$ 2 VDC

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 41

TITLE: Meas. Return Bus 6D30 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION:

Test Battery Current, 0 to 300 A
Test Voltage Return, 28 VDC $\pm$ 2 VDC

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 42

TITLE: Meas. Bus +6D30 Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION:

Test Battery Current, 0 to 300A
Test Voltage, +28 VDC $\pm$ 2 VDC

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 43

TITLE: Meas. Return Bus 6D40 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION:

Test Battery Current, 0 to 300A
Test Voltage Return, 28 VDC $\pm$ 2 VDC

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 44

TITLE: Meas. Bus +6D40 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION:

Test Battery Current, 0 to 300A
Test Voltage, + 28 VDC ± 2 VDC

TYPE OF MEASUREMENT:

Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 45

TITLE: Meas. Return Bus 6D11 Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION: Ground Power Return, 28 VDC $\pm$ 2 VDC

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 46

TITLE: Meas. Bus + 6D11 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Ground Power, + 28 VDC ± 2 VDC

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 47

TITLE: Meas. Return Bus 6D21 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Ground Power Return, 28 VDC ± 2 VDC

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 48

TITLE: Meas. Bus + 6D21 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Ground Power, + 28 VDC ± 2 VDC

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 49

TITLE: Meas. Return Bus 6D31 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Ground Power Return, 28 VDC ± 2 VDC

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 50

TITLE: Meas. Bus + 6D31 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Ground Power, + 28 VDC ± 2 VDC

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 51

TITLE: Meas. Return Bus 6D41 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Ground Power Return, 28 VDC ± 2 VDC

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 52

TITLE: Meas. Bus + 6D41 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Ground Power, + 28 VDC ± 2 VDC

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 53

TITLE: Meas. Return Bus 6D51 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Ground Power Return, 28 VDC ± 2 VDC

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 54

TITLE: Meas. Bus + 6D51 Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Ground Power, + 28 VDC ± 2 VDC

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

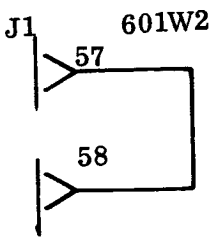
MOS-FET Electrometer
Optoelectronic Coupling

CONNECTOR NUMBER: 601W2J1 Pin 57

TITLE: Meas. Connectors Mated

FROM: SIB IU TO:

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W2J1 Pin 58

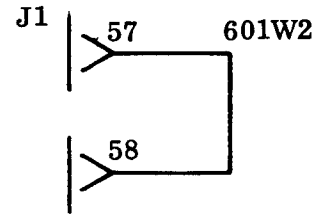
TITLE: Meas. Connectors Mated

FROM: SIB IU

TO: GSE

WIRE FUNCTION:

SAFETY



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W3J1 Pin 4

TITLE: Meas. Gas Bearing GN_2 Pressure OK

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: GN_2 3000 PSI OK
Switch 603A45

APPLICABLE PASSIVE TECHNIQUE:

Strain Gage
Semiconductor Junction Transducer
Overlapping Grating (Photo-Etched Shutter)

CONNECTOR NUMBER: 601W3J1 Pin 6

TITLE: Meas. Gas Bearing GN_2 Pressure Low

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: GN_2 1000 PSI OK
Switch 603A44

APPLICABLE PASSIVE TECHNIQUE:

Strain Gage
Semiconductor Junction Transducer
Overlapping Grating (Photo-Etched Shutter)

CONNECTOR NUMBER: 601W3J1 Pin 24

TITLE: Meas. Cooling System GN_2 Pressure OK

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Cooling System GN_2 3000 PSI OK Switch 601A46

APPLICABLE PASSIVE TECHNIQUE:

Strain Gage
Semiconductor Junction Transducer
Overlapping Grating (Photo-Etched Shutter)

CONNECTOR NUMBER: 601W3J1 Pin 49

TITLE: Meas. Return I.U. Compartment Thermister No. 1 Ambient Temperature

FROM: SIB IU TO: GSE

WIRE FUNCTION:

TYPE OF MEASUREMENT: Temp, IU Ambient -20 to 45 Deg. C

APPLICABLE PASSIVE TECHNIQUE:

Semiconductor Junction Temperature Sensor.

Present technique is passive, but this technique may be considered.

CONNECTOR NUMBER: 601W3J1 Pin 50

TITLE: Meas - IU Compartment Thermistor No. 1 Ambient Temperature

FROM: SIB IU TO: GSE

WIRE FUNCTION: Conditioned To 0 to 5 VDC

TYPE OF MEASUREMENT: -20 to 45 Deg. C

APPLICABLE PASSIVE TECHNIQUE:

Semiconductor Junction Temperature Sensor

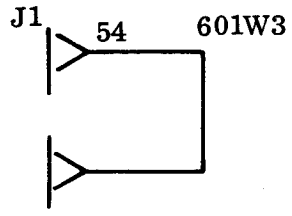
Present technique is passive, however this technique could be substituted.

CONNECTOR NUMBER: 601W3J1 Pin 54

TITLE: Meas-Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W3J1 Pin 55

TITLE: Meas - Return

FROM: SIB IU
Thermal Probe 601A47

TO: GSE

WIRE FUNCTION: Return Line

TYPE OF MEASUREMENT: -20 to + 45 Deg. C

APPLICABLE PASSIVE TECHNIQUE:

See Pin 50

CONNECTOR NUMBER: 601W3J1 Pin 56

TITLE: Meas - IU Compartment Thermistor No. 2

FROM: SIB IU TO: GSE

WIRE FUNCTION: Conditioned to 0 to 5 VDC

TYPE OF MEASUREMENT: -20 to 45 Deg. C

APPLICABLE PASSIVE TECHNIQUE:

See Pin 50

CONNECTOR NUMBER: 601W3J1 Pin 58

TITLE: Meas - Return IU Compartment Thermistor No. 3 Ambient Temperature

FROM: SIB IU
Thermal Probe 601A47

TO: GSE

WIRE FUNCTION: Return Line

TYPE OF MEASUREMENT: -20 to +45 Deg. C

APPLICABLE PASSIVE TECHNIQUE:

See Pin 50

CONNECTOR NUMBER: 601W3J1 Pin 59

TITLE: Meas - IU Compartment Thermistor No. 3 Ambient Temperature

FROM: SIB IU TO: GSE

WIRE FUNCTION: Conditioned To 0 to 5 VDC

TYPE OF MEASUREMENT: - 20 to 45 Deg. C

APPLICABLE PASSIVE TECHNIQUE:

See Pin 50

CONNECTOR NUMBER: 601W4J1 Pin 9

TITLE: Command/Measurement - SW Selector Read

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC
198 ma.

TYPE OF MEASUREMENT: Discrete

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics (Meas. Voltage)
Suggest Hall Device to monitor relay

CONNECTOR NUMBER: 601W4J1 Pin 10

TITLE: Command/Meas - SW. Select Register Enable

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 165 ma.
+28 VDC

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W4J1 Pin 11

TITLE: Command/Meas. - IU SW. Select Enable

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 87 ma.
+28 VDC

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W4J1 Pin 15

TITLE: Meas. - Let Jettison Relays De-energized

FROM: SIB IU TO: GSE

WIRE FUNCTION: 28 ± 4 VDC

TYPE OF MEASUREMENT: Relay Position (Discrete)

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Device On Relay
Optoelectronics (Meas. Voltage)

CONNECTOR NUMBER: 601W4J1 Pin 41

TITLE: Meas. - Auto Abort System (A) Enabled

FROM: SIB IU TO: GSE

WIRE FUNCTION: Bi Level Signal
0 or 28 VDC

TYPE OF MEASUREMENT: Relay Position
(Discrete)

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Device On Relay
Optoelectronics (Meas. Voltage)

CONNECTOR NUMBER: 601W4J1 Pin 48

TITLE: Meas. - SIB or SIVB Eng. Manual Cutoff Enable Command (A) Received

FROM: SIB IU

TO: GSE

WIRE FUNCTION: Bi Level Signal
0 or 28 VDC

TYPE OF MEASUREMENT: Relay Position
(Discrete)

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Device On Relay
Optoelectronics (Meas. Voltage)

CONNECTOR NUMBER: 601W4J1 Pin 49

TITLE: Meas. - Bus + 6D91 Energized

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Relay Position (Discrete)

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Transducer On Relay
Optoelectronics (Meas. Voltage)

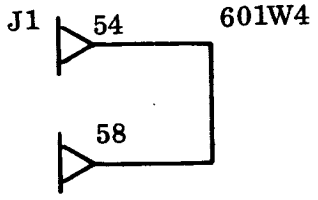
CONNECTOR NUMBER: 601W4J1 Pin 54

TITLE: Meas. - Connectors Mated

FROM: SIB IU

TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

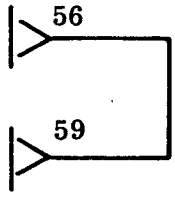
CONNECTOR NUMBER: 601W5J1 Pin 56

TITLE: Meas. - Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:

J1 601W5



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

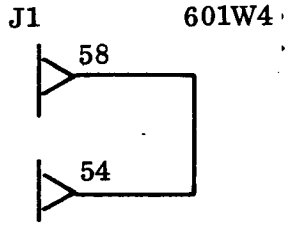
Not Applicable

CONNECTOR NUMBER: 601W4J1 Pin 58

TITLE: Meas. - Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

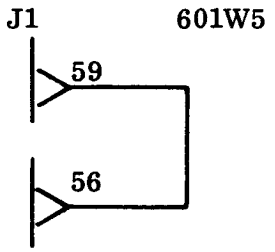
Not Applicable

CONNECTOR NUMBER: 601W5J1 Pin 59

TITLE: Meas. - Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W6J1 Pin 1

TITLE: Meas. - SW Select Address Verif. Eighth Digit

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Bi Level Signal (Discrete)

APPLICABLE PASSIVE TECHNIQUE:

Info from computer, but could be coupled with Optoelectronics or MOS-FET electrometer.

CONNECTOR NUMBER: 601W6J1 Pin 2

TITLE: Meas. - SW Select Address Verif. Seventh Digit

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Bi Level Signal

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W6J1 Pin 3

TITLE: Meas. - SW Select Address Verif. Sixth Digit

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Bi Level Signal

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W6J1 Pin 4

TITLE: Meas. - SW Select Address Verif. Fifth Digit

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Bi Level Signal

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W6J1 Pin 5

TITLE: Meas. - SW Select Address Verif. Fourth Digit

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Bi Level Signal

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W6J1 Pin 6

TITLE: Meas. - SW Selector Address Verif. Third Digit

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Bi Level Signal

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W6J1 Pin 7

TITLE: Meas. - SW Select Address Verif. Second Digit

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Bi Level Signal

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W6J1 Pin 8

TITLE: Meas. - SW Selector Address Verif. First Digit

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Bi Level Signal

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W6J1 Pin 11

TITLE: Meas. - SW. Select Actuated Latching Relays Reset

FROM: SIB IU

TO: GSE

WIRE FUNCTION: Bi-Level Signal
0 or 28 VDC

TYPE OF MEASUREMENT: Relay Position

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Device on Relay
Optoelectronic Decoupling

CONNECTOR NUMBER: 601W6J1 Pin 12

TITLE: Meas. - Auto Abort Inhibit Functions Reset

FROM: SIB IU

TO: GSE

WIRE FUNCTION: Bi-Level Signal
0 or 28 VDC

TYPE OF MEASUREMENT: Relay Position

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Device On Relay
Optoelectronic Decoupling

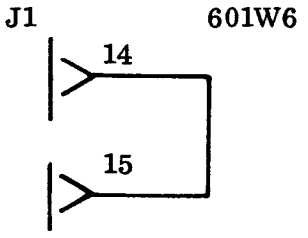
CONNECTOR NUMBER: 601W6J1 Pin 14

TITLE: Meas. - SIB/SIVB & SIVB/IU Interface Connector Mated

FROM: SIB IU

TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

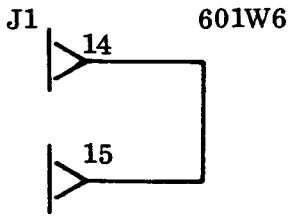
Not Applicable

CONNECTOR NUMBER: 601W6J1 Pin 15

TITLE: Meas. - SIB/SIVB & SIVB/IU Interface Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W6J1 Pin 16

TITLE: Meas. - SW Selector Register Reset

FROM: SIB IU TO: GSE

WIRE FUNCTION: Bi-Level Signal
0 or 28 VDC

TYPE OF MEASUREMENT: Relay Position

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Device On Relay
Optoelectronic Decoupling

CONNECTOR NUMBER: 601W6J1 Pin 18

TITLE: Meas. - LV/SC Separation Start Relay Reset

FROM: SIB IU

TO: GSE

WIRE FUNCTION: Bi-Level Signal
0 or 28 VDC

TYPE OF MEASUREMENT: Relay Position

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Device On Relay
Optoelectronic Decoupling

CONNECTOR NUMBER: 601W6J1 Pin 30

TITLE: Meas. - Auto/Abort Bus + 6D95

FROM: SIB IU

TO: GSE

WIRE FUNCTION: Bi-Level Signal
0 or 28 VDC

TYPE OF MEASUREMENT: Relay Position

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Device On Relay
Optoelectronic Decoupling

CONNECTOR NUMBER: 601W6J1 Pin 32

TITLE: Meas. - SIB One Engine Out Relay Energized

FROM: SIB IU

TO: GSE

WIRE FUNCTION: Bi-Level Signal
0 or 28 VDC

TYPE OF MEASUREMENT: Relay Position

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Device On Relay
Optoelectronic Decoupling

CONNECTOR NUMBER: 601W6J1 Pin 34

TITLE: Meas. - EDS Distr. LR Reset

FROM: SIB IU

TO: GSE

WIRE FUNCTION: Bi-Level Signal
0 or 28 VDC

TYPE OF MEASUREMENT: Relay Position

APPLICABLE PASSIVE TECHNIQUE:

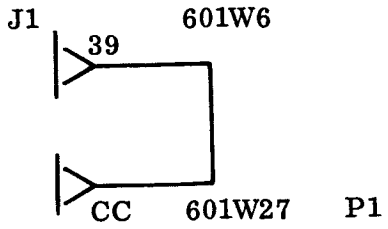
Hall Effect Device On Relay
Optoelectronic Decoupling

CONNECTOR NUMBER: 601W6J1 Pin 39

TITLE: Meas. - IU/SC Intfc Connector Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W6J1 Pin 49

TITLE: Meas. - Bus + 6D92 Power On

FROM: SIB IU TO: GSE

WIRE FUNCTION: Bus Voltage Meas.

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

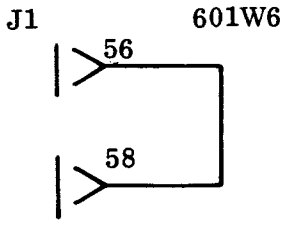
MOS-FET Electrometer
Optoelectronic Decoupling

CONNECTOR NUMBER: 601W6J1 Pin 56

TITLE: Meas. - Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

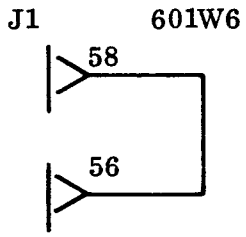
Not Applicable

CONNECTOR NUMBER: 601W6J1 Pin 58

TITLE: Meas. - Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W7J1 Pin 2

TITLE: Meas. - Telemetry Transmitters Dummy Load RF Output

FROM: SIB IU TO: GSE

WIRE FUNCTION:

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:

None Recommended - No Input Data

CONNECTOR NUMBER: 601W7J1 Pin 5

TITLE: Meas. - DDAS Output

FROM: SIB IU TO: GSE

WIRE FUNCTION:

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:

None Recommended - No Input Information

CONNECTOR NUMBER: 601W8J1 Pin 7

TITLE: Meas. Range Safety Decoder Power On

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Discrete

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronic Voltage Monitor
Hall Effect Current Monitor

CONNECTOR NUMBER: 601W8J1 Pin 8

TITLE: Meas. Command Receiver Power On

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Discrete

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronic Voltage Monitor
Hall Effect Current Meas.

CONNECTOR NUMBER: 601W8J1 Pin 9

TITLE: Meas. Range Safety Decoder Pilot Tone

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Discrete

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer - Monitor Voltage

CONNECTOR NUMBER: 601W8J1 Pin 10

TITLE: Meas. Ret. Range Safety Decoder Pilot Tone

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 9

CONNECTOR NUMBER: 601W8J1 Pin 33

TITLE: Meas. Ret S-IB Eng No. 1 or S-IVB Eng Pitch Act. Pot. Pos

FROM: SIB IU

TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 34
ESE Display

TYPE OF MEASUREMENT: Position ± 8 Deg.
S-IB H-1 Eng. Actr Stroke 3.82 In
S-IVB J-2 Eng Actr Stroke 2.9 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 34

TITLE: Meas. SIB Eng No. 1 or SIVB Eng Pitch Actr Pot. Pos.

FROM: SIB IU

TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 33
ESE Display

TYPE OF MEASUREMENT: Position ± 8 Deg.
S-IB H-1 Eng Actr Stroke 3.82 In
S-IVB J-2 Eng Actr Stroke 2.9 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 35

TITLE: Meas. Ret SIB Eng No. 2 Pitch Actr Pot. Pos.

FROM: SIB IU

TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 36
ESE Display

TYPE OF MEASUREMENT: Position ± 8 Deg.
S-IB H-1 Eng Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 36

TITLE: Meas. SIB Eng No. 2 Pitch Actr Pot. Pos.

FROM: SIB IU

TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 35
ESE Display

TYPE OF MEASUREMENT: Position ± 8 Deg.
S-IB H-1 Eng Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 37

TITLE: Meas. Ret SIB Eng No. 3 Pitch Actr Pot. Pos.

FROM: SIB IU TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 38
ESE Display

TYPE OF MEASUREMENT: Position ± 8 Deg.
S-IB H-1 Eng Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 38

TITLE: Meas. SIB Eng No. 3 Pitch Actr Pot. Pos.

FROM: SIB IU

TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 37
ESE Display

TYPE OF MEASUREMENT: Position ± 8 Deg.
S-IB II-1 Eng Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 39

TITLE: Meas. Ret SIB Eng. No. 4 Pitch Actr Pot. Pos.

FROM: SIB IU TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 40 ESE Display

TYPE OF MEASUREMENT: Position ± 8 Deg S-IB H-1 Eng. Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 40

TITLE: Meas. S-IB Eng. No. 4 Pitch Actr Pot. Pos.

FROM: SIB IU TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 39 ESE Display

TYPE OF MEASUREMENT: Position $\pm$ 8 Deg. S-IB H-1 Eng. Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 41

TITLE: Meas. Ret SIB Eng No. 1 Yaw Actr Pot. Pos.

FROM: SIB TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 42 ESE Display

TYPE OF MEASUREMENT: Position ± 8 Deg S-IB H-1 Eng Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 42

TITLE: Meas. SIB Eng No. 1 Yaw Actr Pot. Pos.

FROM: SIB IU TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 41 ESE Display

TYPE OF MEASUREMENT: Position ± 8 Deg. S-IB H-1 Eng Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 43

TITLE: Meas. Ret SIB Eng No. 2 Yaw Actr Pot. Pos.

FROM: SIB IU

TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 44 ESE Display

TYPE OF MEASUREMENT: Position $\pm$ 8 Deg S-IB H-1 Eng Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 44

TITLE: Meas. SIB Eng No. 2 Yaw Actr Pot. Pos.

FROM: SIB IU TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 43 ESE Display

TYPE OF MEASUREMENT: Position ± 8 Deg S-IB H-1 Eng Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 45

TITLE: Meas. Ret SIB Eng. No. 3 Yaw Actr Pot. Pos.

FROM: SIB IU TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 46 ESE Display

TYPE OF MEASUREMENT: Position $\pm$ 8 Deg . S-IB H-1 Eng Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 46

TITLE: Meas. SIB Eng No. 3 Yaw Actr Pot. Pos.

FROM: SIB IU

TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 45 ESE Display

TYPE OF MEASUREMENT: Position $\pm$ 8 Deg S-IB H-1 Eng. Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 47

TITLE: Meas. Ret SIB Eng No. 4 Yaw Actr Pot. Pos.

FROM: SIB IU

TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 48 ESE Display

TYPE OF MEASUREMENT: Position ± 8 Deg S-IB H-1 Eng Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 48

TITLE: Meas. SIB Eng No. 4 Yaw Actr Pot. Pos.

FROM: SIB IU

TO: GSE

WIRE FUNCTION: TW & Shld W/Pin 47 ESE Display

TYPE OF MEASUREMENT: Position $\pm$ 8 Deg S-IB H-1 Eng Actr Stroke 3.82 In

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor With Magnetic Seeding
Differential Transformer
Proximity Sensor (Capacitance or Magnetic)
Optical Displacement Sensor
Linear Digital Encoder

CONNECTOR NUMBER: 601W8J1 Pin 49

TITLE: Meas. Tape Record Ready To Record

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Signal, ESE Display (Discrete)

APPLICABLE PASSIVE TECHNIQUE:
Hall Effect Sensor On Relay

CONNECTOR NUMBER: 601W8J1 Pin 50

TITLE: Meas. Ret Flight Cont. Comptr. Beta Comd. Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 to 9 VDC

TYPE OF MEASUREMENT: Variable Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer

CONNECTOR NUMBER: 601W8J1 Pin 51

TITLE: Meas. Flight Cont Comptr Beta Comd V

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 to 9 VDC

TYPE OF MEASUREMENT: Variable Voltage

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer

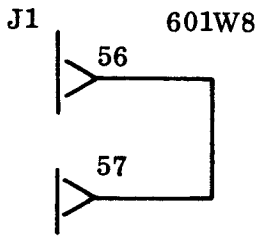
CONNECTOR NUMBER: 601W8J1 Pin 56

TITLE: Meas. Conn Mated

FROM: SIB IU

TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

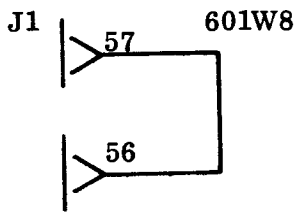
CONNECTOR NUMBER: 601W8J1 Pin 57

TITLE: Meas. Conn Mated

FROM: SIB IU

TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W9J1 Pin 25

TITLE: Meas - X_r Gimbal Reslv. Stator Output Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: 25 ma., 5.0 Volt, Frequency - <2kc

TYPE OF MEASUREMENT: Position

APPLICABLE PASSIVE TECHNIQUE:
Passive at present; however, a Moire Fringe or other optical transducer could be used as a alternate technique.

CONNECTOR NUMBER: 601W9J1 Pin 26

TITLE: Meas- X_r Gimbal Reslv Stator Output Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 25 ma., 5.0 Volt Maximum, Freq. <2kc

TYPE OF MEASUREMENT: Position

APPLICABLE PASSIVE TECHNIQUE: See Pin 25

CONNECTOR NUMBER: 601W9J1 Pin 27

TITLE: Meas- X_r Gimbal Reslv Stator Output Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: 25 ma., 5.0 Volt Maximum, Freq. < 2kc

TYPE OF MEASUREMENT: Position

APPLICABLE PASSIVE TECHNIQUE:

See Pin 25

CONNECTOR NUMBER: 601W9J1 Pin 41

TITLE: Meas- Plate Reslv Chain Amp No. 1 Output Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 to 45 VDC

TYPE OF MEASUREMENT: 3 VDC/Deg (Analog Rate Signal)

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer

CONNECTOR NUMBER: 601W9J1 Pin 42

TITLE: Meas- Plate Reslv Chain Amp No. 1 Output Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 to 45 VDC

TYPE OF MEASUREMENT: 3 VDC/Deg (Analog Rate Signal)

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer

CONNECTOR NUMBER: 601W9J1 Pin 45

TITLE: Meas-Plate Reslv Chain Amp No. 2 Output Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 to 45 VDC

TYPE OF MEASUREMENT: 3 VDC/Deg (Analog Rate Signal)

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer

CONNECTOR NUMBER: 601W9J1 Pin 46

TITLE: Meas-Plate Reslv Chain Amp. No. 2 Output Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 to 45 VDC

TYPE OF MEASUREMENT: 3 VDC/Deg (Analog Rate Signal)

APPLICABLE PASSIVE TECHNIQUE:

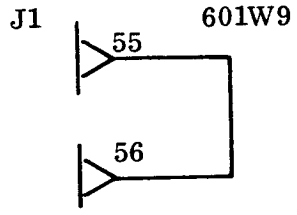
MOS-FET Electrometer

CONNECTOR NUMBER: 601W9J1 Pin 55

TITLE: Meas-Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

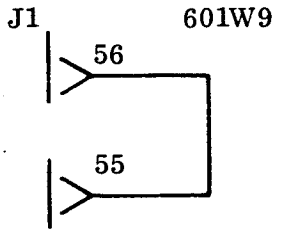
Not Applicable

CONNECTOR NUMBER: 601W9J1 Pin 56

TITLE: Meas-Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W10J1 Pin 18

TITLE: Meas-Control Attenuation Timer Zero ED

FROM: SIB IU TO: GSE

WIRE FUNCTION:

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:

No Input Information

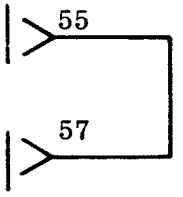
CONNECTOR NUMBER: 601W10J1 Pin 55

TITLE: Meas-Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:

J1 601W10



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

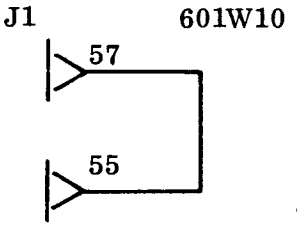
Not Applicable

CONNECTOR NUMBER: 601W10J1 Pin 57

TITLE: Meas-Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W11J1 Pin 1

TITLE: Meas-ST-124 X Accel Chan A1X

FROM: SIB IU TO: GSE

WIRE FUNCTION: Pre-Launch Accelerometer Calibration Check

TYPE OF MEASUREMENT: 0-6 Volt Min. (3 Volt Bias)
0-8 Volt Max. (4 Volt Bias)
Signal Rise Time — 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

Present technique (Moire Fringe Transducer) is passive

CONNECTOR NUMBER: 601W11J1 Pin 2

TITLE: Meas-ST-124 X Accel Chan B1X

FROM: SIB IU TO: GSE

WIRE FUNCTION: Pre-Launch Accelerometer Calibration Check

TYPE OF MEASUREMENT: 0-6 Volt Min. (3 Volt Bias)
0-8 Volt Max. (4 Volt Bias)
Signal Rise Time — 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W11J1 Pin 3

TITLE: Meas-ST-124 X Accel Chan A2X

FROM: SIB IU TO: GSE

WIRE FUNCTION:

TYPE OF MEASUREMENT: 0-6 Volt Min. (3 Volt Bias)
0-8 Volt Max. (4 Volt Bias)
Signal Rise Time — 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W11J1 Pin 4

TITLE: Meas-ST-124 X Accel Chan B2X

FROM: SIB IU TO: GSE

WIRE FUNCTION: Pre-Launch Accelerometer Calibration Check

TYPE OF MEASUREMENT:
0-6 Volt Min. (3 Volt Bias)
0-8 Volt Max. (4 Volt Bias)
Signal Rise Time — 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W11J1 Pin 5

TITLE: Meas-ST-124 Y Accel Chan A1Y

FROM: SIB IU TO: GSE

WIRE FUNCTION: Pre-Launch Accelerometer Calibration Check

TYPE OF MEASUREMENT: 0-6 Volt Min. (3 Volt Bias)
0-8 Volt Max. (4 Volt Bias)
Signal Rise Time — 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W11J1 Pin 6

TITLE: Meas-ST-124 Y Accel Chan B1Y

FROM: SIB IU TO: GSE

WIRE FUNCTION: Pre-Launch Accelerometer Calibration Check

TYPE OF MEASUREMENT:
0-6 Volt Min. (3 Volt Bias)
0-8 Volt Max. (4 Volt Bias)
Signal Rise Time — 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W11J1 Pin 7

TITLE: Meas-ST-124 Y Accel Chan A2Y

FROM: SIB IU TO: GSE

WIRE FUNCTION: Pre-Launch Accelerometer Calibration Check

TYPE OF MEASUREMENT:
0-6 Volt Min. (3 Volt Bias)
0-8 Volt Max. (4 Volt Bias)
Signal Rise Time — 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W11J1 Pin 8

TITLE: Meas-ST-124 Y Accel Chan B2Y

FROM: SIB IU TO: GSE

WIRE FUNCTION: Pre-Launch Accelerometer Calibration Check

TYPE OF MEASUREMENT: 0-6 Volt Min. (3 Volt Bias)
0-8 Volt Max. (4 Volt Bias)
Signal Rise Time — 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W11J1 Pin 9

TITLE: Meas-ST-124 Z Accel Chan AIZ

FROM: SIB IU TO: GSE

WIRE FUNCTION: Pre-Launch Accelerometer Calibration Check

TYPE OF MEASUREMENT: 0-6 Volt Min. (3 Volt Bias)
0-8 Volt Max. (4 Volt Bias)
Signal Rise Time - 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W11J1 Pin 10

TITLE: Meas-ST-124 Z Accel Chan BIZ

FROM: SIB IU TO: GSE

WIRE FUNCTION: Pre-Launch Accelerometer Calibration Check

TYPE OF MEASUREMENT: 0-6 Volt Min (3 Volt Bias)
0-8 Volt Max (4 Volt Bias)
Signal Rise Time — 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W11J1 Pin 11

TITLE: Meas-ST-124 Z Accelerometer Chan A2Z

FROM: SIB IU TO: GSE

WIRE FUNCTION: Pre-Launch Accelerometer Calibration Check

TYPE OF MEASUREMENT: 0-6 Volt Min. (3Volt Bias)
0-8 Volt Max. (4Volt Bias)
Signal Rise Time — 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W11J1 Pin 12

TITLE: Meas-ST-124 Z Accel Chan B2Z

FROM: SIB IU TO: GSE

WIRE FUNCTION: Pre-Launch Accelerometer Calibration Check

TYPE OF MEASUREMENT:
0-6 Volt Min. (3 Volt Bias)
0-8 Volt Maz. (4 Volt Bias)
Signal Rise Time — 50μSec. On Square Wave
Output Freq +60g (50 Hz/g)
-30g (50 Hz/g)

APPLICABLE PASSIVE TECHNIQUE:

See Pin 1

CONNECTOR NUMBER: 601W11J1 Pin 13

TITLE: Meas-Return ST-124 Accelerometer

FROM: SIB IU

TO: GSE

WIRE FUNCTION: Accelerometer Return Line

TYPE OF MEASUREMENT: None

APPLICABLE PASSIVE TECHNIQUE:

Common Return For 601W11J1 Pins 1 thru 12

CONNECTOR NUMBER: 601W11J1 Pin 27

TITLE: Meas- X_r Gimbal Resolver Rotor Output Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION:

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:

No Input Information.

CONNECTOR NUMBER: 601W11J1 Pin 28

TITLE: Meas- X_r Gimbal Resolver Rotor Output Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION:

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:
No Input Information.

CONNECTOR NUMBER: 601W11J1 Pin 41

TITLE: Meas- ST-124 Plate Temp. Normal

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: $+35^{o} \pm 15^{o}C$

APPLICABLE PASSIVE TECHNIQUE:

Semiconductor Junction Temperature Sensor —
Present technique is passive; however, this technique might be considered.

CONNECTOR NUMBER: 601W11J1 Pin 42

TITLE: Meas- ST-124 Plate Temp. High

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 28 VDC

TYPE OF MEASUREMENT: Voltage Present When Air Temp. 70°C or Above and/or Gimbal Mass Temp. 55°C or Above

APPLICABLE PASSIVE TECHNIQUE:

Semiconductor Junction Temperature Sensors - Present technique is passive; however, this technique provides an alternate.

CONNECTOR NUMBER: 601W11J1 Pin 43

TITLE: Meas- ST-124 Platform Gas Pressure OK

FROM: SIB IU TO: GSE

WIRE FUNCTION: 28 VDC This voltage is controlled by a pressure switch.

TYPE OF MEASUREMENT: For increasing pressure to 15 PSIG the switch shall close between 10 & 12 PSIG. For decreasing pressure from 15 PSIG the switch shall open between 12 &10 PSIG.

APPLICABLE PASSIVE TECHNIQUE:

Measure Air Flow By Thermoconductive Flowmeter at Vent of ST-124M (Overboard Vent)

CONNECTOR NUMBER: 601W11J1 Pin 44

TITLE: Meas- ST-124 Heater Conn. Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W11J1 Pin 46

TITLE: Meas- ST-124 Plate Temp. Low

FROM: SIB IU TO: GSE

WIRE FUNCTION: 28 VDC

TYPE OF MEASUREMENT: Voltage Present for Gimbal Mass Temp of 32°C or Above (Discrete)

APPLICABLE PASSIVE TECHNIQUE:

Semiconductor junction temperature sensors to replace overtemp indication, or MOS-FET Electrometer to sense voltage.

CONNECTOR NUMBER: 601W11J1 Pin 49

TITLE: Meas- Platform 1.9 KHz P/S Voltage

FROM: TO:

WIRE FUNCTION: 20V, 1.92 KHz Square Wave

TYPE OF MEASUREMENT: P/S Voltage

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics

CONNECTOR NUMBER: 601W11J1 Pin 50

TITLE: Meas- Platform 1.9 KHz P/S Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: 20V, 1.92 KHz Square Wave

TYPE OF MEASUREMENT: P/S Voltage

APPLICABLE PASSIVE TECHNIQUE:

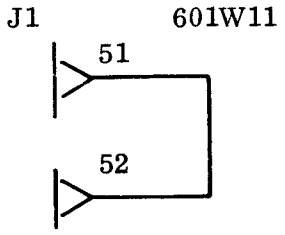
Optoelectronics

CONNECTOR NUMBER: 601W11J1 Pin 51

TITLE: Meas- Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

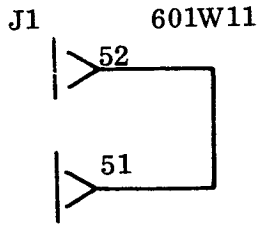
Not Applicable

CONNECTOR NUMBER: 601W11J1 Pin 52

TITLE: Meas- Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W11J1 Pin 53

TITLE: Meas- Platform 1.6 KHz P/S Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: 20 V, 1.6 KHz Square Wave

TYPE OF MEASUREMENT: P/S Voltage

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics

CONNECTOR NUMBER: 601W11J1 Pin 54

TITLE: Meas- Platform 1.6 KHz P/S Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: 20V, 1.6 KHz Square Wave

TYPE OF MEASUREMENT: P/S Voltage

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics

CONNECTOR NUMBER: 601W11J1 Pin 57

TITLE: Meas- Platform AC P/S Chan A Operating

FROM: SIB IU

TO:

WIRE FUNCTION: 26 $\pm$ 1 VAC; 400 Hz

TYPE OF MEASUREMENT: Chan A is One Phase of 3

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics Hall Device or Magneto Resistor Modulator

CONNECTOR NUMBER: 601W11J1 Pin 58

TITLE: Meas- Platform AC P/S Chan B Operating

FROM: SIB IU TO: GSE

WIRE FUNCTION: 26± 1 VAC, 400Hz

TYPE OF MEASUREMENT: Chan B Is 1 of 3

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics Hall or Magneto Resistor Modulator

CONNECTOR NUMBER: 601W12J1 Pin 4

TITLE: Meas- Return- Liftoff Relay Energized

FROM: SIB IU TO: GSE

WIRE FUNCTION: Meas. Return

TYPE OF MEASUREMENT: Discrete

APPLICABLE PASSIVE TECHNIQUE:
Hall Device on Relay

CONNECTOR NUMBER: 601W12J1 Pin 5

TITLE: Meas- Liftoff Relay Energized

FROM: SIB IU TO: GSE

WIRE FUNCTION:

TYPE OF MEASUREMENT: Discrete

APPLICABLE PASSIVE TECHNIQUE:

Hall Device on Relay

CONNECTOR NUMBER: 601W12J1 Pin 7

TITLE: Meas- Platform 400 Hz P/S ϕA Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: $+26 \pm 1$ VAC, 400 Hz

TYPE OF MEASUREMENT: P/S Voltage Meas. ϕA is 1 of 3

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics Hall or Magneto Resistor Modulator

CONNECTOR NUMBER: 601W12J1 Pin 8

TITLE: Meas- Platform 400 Hz P/S ϕB Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: + 26 $\pm$ 1 VAC, 400 Hz

TYPE OF MEASUREMENT: P/S Voltage Meas. ϕB is 1 of 3

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics Hall or Magneto Resistor Modulator

CONNECTOR NUMBER: 601W12J1 Pin 9

TITLE: Meas- Platform 400 Hz P/S ϕC Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: 26 $\pm$ 1 VAC, 400 Hz

TYPE OF MEASUREMENT: P/S Voltage Meas ϕC is 1 of 3

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics Hall or Magneto Resistor Modulator

CONNECTOR NUMBER: 601W12J1 Pin 25

TITLE: Meas-SW Selector Internal Pwr. On

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 Volts

TYPE OF MEASUREMENT: Discrete

APPLICABLE PASSIVE TECHNIQUE:

Optoelectronics MOS-FET Electrometer

CONNECTOR NUMBER: 601W12J1 Pin 41

TITLE: Meas- Auto Abort System B Enabled

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 Volts

TYPE OF MEASUREMENT: Discrete

APPLICABLE PASSIVE TECHNIQUE:
MOS-FET Electrometer, Optoelectronics

CONNECTOR NUMBER: 601W12 Pin 42

TITLE: Meas- IU Guidance System Failure

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 to 28 Volts

TYPE OF MEASUREMENT: Discrete

APPLICABLE PASSIVE TECHNIQUE:
MOS-FET Electrometer, Optoelectronics

CONNECTOR NUMBER: 601W12J1 Pin 48

TITLE: Meas- SIB or SIV B Engine Manual Cutoff Enable Command (B) Received

FROM: SIB IU TO: ESE

WIRE FUNCTION:

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:

No Input Information

CONNECTOR NUMBER: 601W12J1 Pin 49

TITLE: Meas Bus + 6D93 Energized

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Bus Voltage Measurement

APPLICABLE PASSIVE TECHNIQUE:

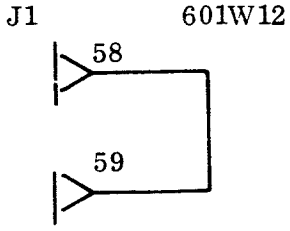
MOS-FET Electrometer, Optoelectronics

CONNECTOR NUMBER: 601W12J1 Pin 58

TITLE: Meas- Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

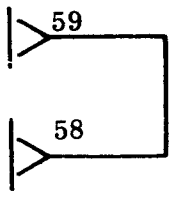
CONNECTOR NUMBER: 601W12J1 Pin 59

TITLE: Meas- Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:

J1 601W12



TYPE OF MEASUREMENT: Interlock Safety

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W13J1 Pin 4

TITLE: Meas- Z Pendulum Pre-Amp Out. Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: (Z Pendulum Output (GSE) Null $\pm$ 15 MVDC)

TYPE OF MEASUREMENT: Voltage

APPLICABLE PASSIVE TECHNIQUE:

None recommended, but could decouple after amplifier with optoelectric coupling or MOS-FET electrometer.

CONNECTOR NUMBER: 601W13J1 Pin 5

TITLE: Meas- Z Pendulum Pre-Amp Out. Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: (Z Pendulum Output (GSE) Null ± 15 MVDC)

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:

See Pin 4

CONNECTOR NUMBER: 601W13J1 Pin 6

TITLE: Meas- X Pendulum Pre-Amp Output Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: (X Pendulum Output (GSE) Null $\pm$ 15 MVDC)

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:

See Pin 4

CONNECTOR NUMBER: 601W13J1 Pin 7

TITLE: Meas- X Pendulum Pre-Amp Output Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: (X Pendulum Output (GSE) - Null $\pm$ 15 MVDC)

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:

See Pin 4

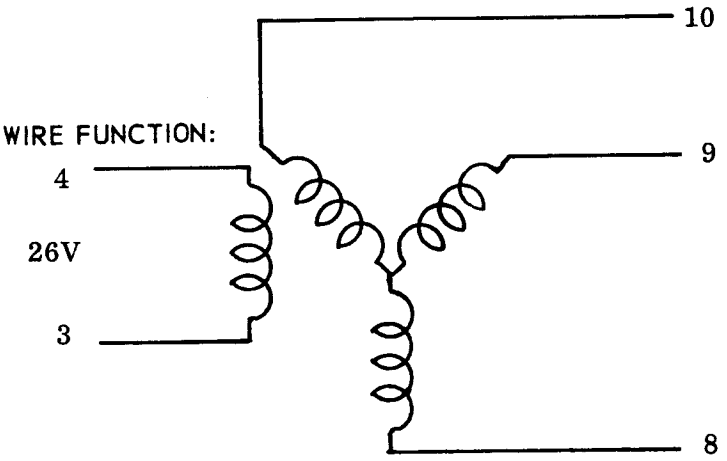
CONNECTOR NUMBER: 601W13J1 Pin 24

TITLE: Meas-Si Y_p Coarse Synchro Stator Output Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION:



Max. Coupling Voltage
$V_{9-10} = 12 \angle 1^o$
Max. Voltage To Neutral = 6.93 Volts

TYPE OF MEASUREMENT: Moving Prism Position

APPLICABLE PASSIVE TECHNIQUE:

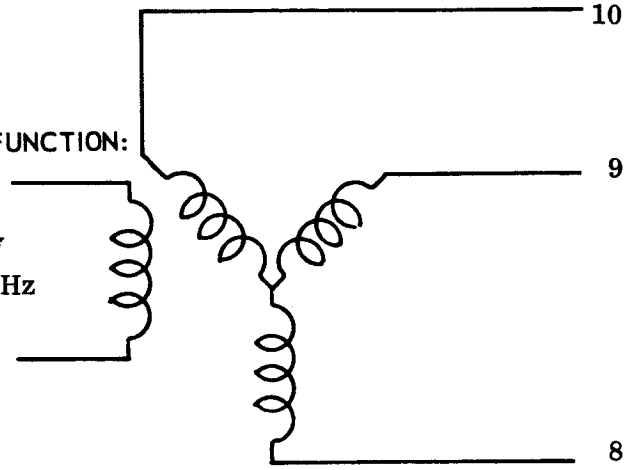
Present technique is essentially passive; however, a Moire Pattern transducer could be used to provide the decoupled measurement

CONNECTOR NUMBER: 601W12J1 Pin 25

TITLE: Meas-S2 Y_p Coarse Synchro Stator Output Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION:



Max. Coupling Voltage
$V_{10-9} = 12 \angle 1^{o}$
Max. Voltage to Neutral
= 6.93 Volts

TYPE OF MEASUREMENT: Moving Prism Position Indication

APPLICABLE PASSIVE TECHNIQUE:

See Pin 24

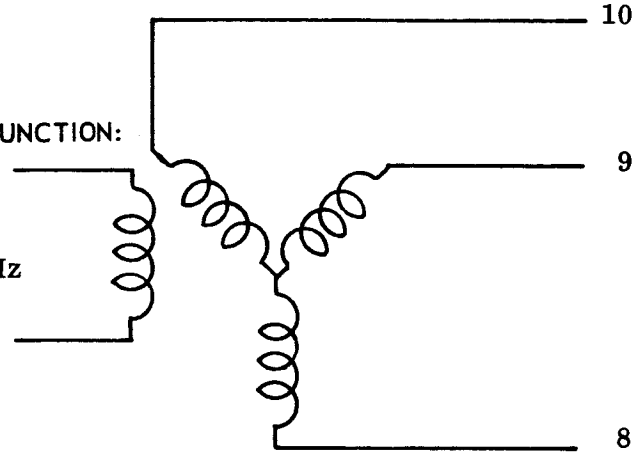
CONNECTOR NUMBER: 601W13J1 Pin 26

TITLE: Meas-S3 Y_p Coarse Synchro Stator Output Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION:



Max. Coupling Voltage
$= 12 \angle 1^{o}$
Max. Voltage To Neutral
= 6.93 Volts

TYPE OF MEASUREMENT: Moving Prism Position Indication

APPLICABLE PASSIVE TECHNIQUE:

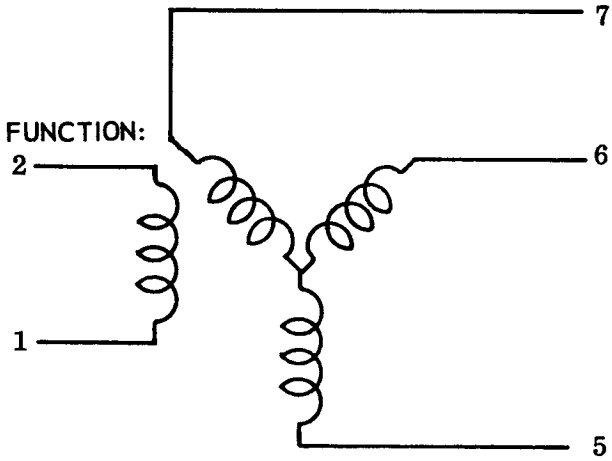
See Pin 24

CONNECTOR NUMBER: 601W13J1 Pin 27

TITLE: Meas-S1 Y_p Fine Synchro Stator Output Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION:



Max. Coupling Voltage
$= V_{7-6} = 13 \angle 20^{o}$
Max. Voltage To Neutral
= 7.5 Volts

TYPE OF MEASUREMENT: Moving Prism Position Indication

APPLICABLE PASSIVE TECHNIQUE:

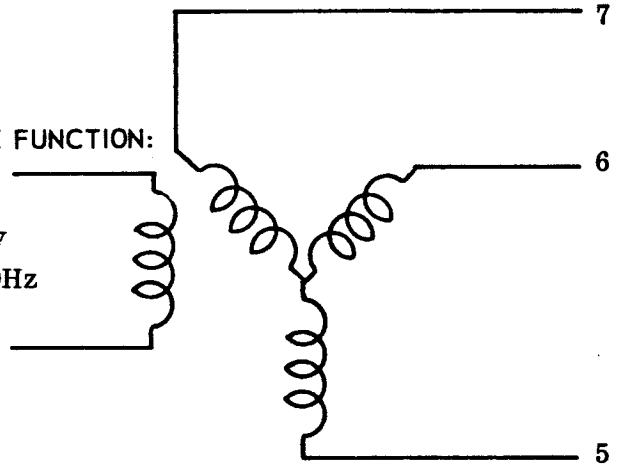
See Pin 24

CONNECTOR NUMBER: 601W13J1 Pin 28

TITLE: Meas-S2 Y_p Fine Synchro Stator Output Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION:



Max. Coupling Voltage
$V_{7-6} = 13 \angle 20^o$
Max. Voltage to Neutral
= 7.5 Volts

TYPE OF MEASUREMENT: Moving Prism Position Indication

APPLICABLE PASSIVE TECHNIQUE:

See Pin 24

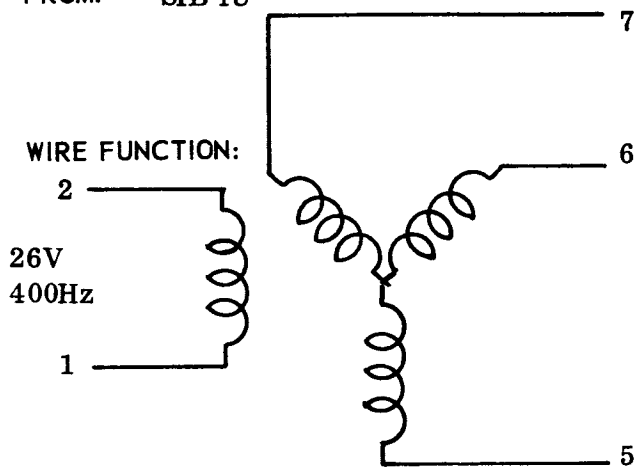
CONNECTOR NUMBER: 601W13J1 Pin 29

TITLE: Meas-S3 Y_p Fine Synchro Output Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION:



Max. Coupling Voltage
$V_{7-6} = 13 \angle 20^o$
Max. To Neutral
= 7.5 Volts

TYPE OF MEASUREMENT: Moving Prism Position Indication

APPLICABLE PASSIVE TECHNIQUE:

See Pin 24.

CONNECTOR NUMBER: 601W13J1 Pin 30

TITLE: Meas - Return - Z Axis Resolver Stator Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Analog Output

TYPE OF MEASUREMENT: None - Common Return

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W13J1 Pin 31

TITLE: Meas-Z Axis Resolver Stator Cosine Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Gimbal Angle Resolver Secondary Voltage Max = 5 Volt
Z Axis Gimbal Angles = 0 - 5.625 Deg.

TYPE OF MEASUREMENT: Position

APPLICABLE PASSIVE TECHNIQUE:

Resolver measuring position is essentially passive.

CONNECTOR NUMBER: 601W13J1 Pin 32

TITLE: Meas - Z Axis Resolver Stator Sine Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Gimbal Angle Resolver Secondary Voltage Max. = 5 Volts
Z Axis Gimbal Angles = 0 - 5.625 Deg

TYPE OF MEASUREMENT: Position

APPLICABLE PASSIVE TECHNIQUE:

See Pin 31

CONNECTOR NUMBER: 601W13J1 Pin 38

TITLE: Meas - Return X Axis Resolver Stator

FROM: SIB IU TO: GSE

WIRE FUNCTION: Analog Output

TYPE OF MEASUREMENT: Shaft Angle Encoder (Reference Line For X-Axis Resolver Output)

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W13J1 Pin 39

TITLE: Meas - X Axis Resolver Stator Cosine Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Gimbal Angle Resolver Secondary Voltage Max. = 5 Volts
Z Axis Gimbal Angles = 0 - 5.625 Deg

TYPE OF MEASUREMENT: Position

APPLICABLE PASSIVE TECHNIQUE:

See Pin 32

CONNECTOR NUMBER: 601W13J1 Pin 40

TITLE: Meas - X Axis Resolver Stator Sine Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION: Gimbal Angle Resolver Secondary Voltage Max. = 5 Volts
Z Axis Gimbal Angles = 0 - 5.625 Deg.

TYPE OF MEASUREMENT: Position

APPLICABLE PASSIVE TECHNIQUE:

See Pin 32

CONNECTOR NUMBER: 601W13J1 Pin 41

TITLE: Meas - Return - Y Axis Resolver Stator

FROM: SIB IU TO: GSE

WIRE FUNCTION: Analog Output

TYPE OF MEASUREMENT: Shaft Angle Encoder (Reference Line For Y-Axis Resolver Output)

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W13J1 Pin 42

TITLE: Meas- Y Axis Resolver Stator Cosine Voltage

FROM: SIB IU

TO: GSE

WIRE FUNCTION: Gimbal Angle Resolver Secondary Voltage
Max. = 5 Volts
Z Axis Gimbal Angles = 0 — 5.625 Deg.

TYPE OF MEASUREMENT: Position

APPLICABLE PASSIVE TECHNIQUE:

See Pin 32

CONNECTOR NUMBER: 601W13J1 Pin 43

TITLE: Meas- Y Axis Resolver Stator Sine Voltage

FROM: SIB IU TO: GSE

WIRE FUNCTION: Gimbal Angle Resolver Secondary Voltage Max. = 5 Volt
Z Axis Gimbal Angles = 0 — 5.625 Deg.

TYPE OF MEASUREMENT: Position

APPLICABLE PASSIVE TECHNIQUE:

See Pin 32

CONNECTOR NUMBER: 601W13J1 Pin 47

TITLE: Meas- Y_P Microsyn Output

FROM: SIB IU TO: GSE

WIRE FUNCTION: 200 MV RMS Per Deg./Sec.

TYPE OF MEASUREMENT: Angular Rate 0-20 Deg./Sec.

APPLICABLE PASSIVE TECHNIQUE:

This is a passive technique measuring rate gyro output.

CONNECTOR NUMBER: 601W13J1 Pin 48

TITLE: Meas-Yp Microsyn Output

FROM: SIB IU TO: GSE

WIRE FUNCTION: 200 MV RMS Per Deg./Sec.

TYPE OF MEASUREMENT: Angular Rate 0-20 Deg./Sec.

APPLICABLE PASSIVE TECHNIQUE:

See Pin 47

CONNECTOR NUMBER: 601W13J1 Pin A

TITLE: Test Conn Comd LVDA Cmptr Halt (Test)

FROM: SIB IU TO: GSE

WIRE FUNCTION:

TYPE OF MEASUREMENT:

APPLICABLE PASSIVE TECHNIQUE:

No Input Information.

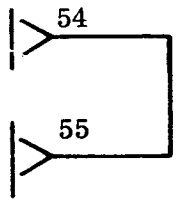
CONNECTOR NUMBER: 601W13J1 Pin 54

TITLE: Meas- Connector Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:

J1 601W13



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

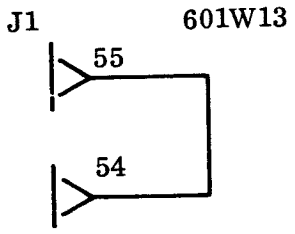
Not Applicable

CONNECTOR NUMBER: 601W13J1 Pin 55

TITLE: Meas- Connector Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT: Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

CONNECTOR NUMBER: 601W15J1 Pin 2

TITLE: Meas. LVDA Mode 4

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Mode Reg Latch 4
Discrete

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET Electrometer
Optoelectronic Coupling
> Monitor

CONNECTOR NUMBER: 601W15J1 Pin 3

TITLE: Meas. LVDA Mode 3

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Mode Reg Latch 3
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 4

TITLE: Meas. LVDA Mode 1

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Mode Reg Latch 1
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 5

TITLE: Meas. LVDA Data 5

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 5 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 6

TITLE: Meas. LVDA Data 7

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 7 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 7

TITLE: Meas. LVDA Data 9

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 10 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 8

TITLE: Meas. LVDA Real Time 1/A1

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Real Time Latch 1 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 14

TITLE: Meas. LVDA Data 21

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 21 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 15

TITLE: Meas. LVDA Data 20

FROM: Meas. LVDA Mode 5 TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 20 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 16

TITLE: Meas. LVDA Tag 2

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Tag Reg Latch 2 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 17

TITLE: Meas. LVDA Tag 1

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Tag Reg Latch 1 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 20

TITLE: Meas. LVDA Mode 6

FROM: SIB-IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Mode Reg Latch 6
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 21

TITLE: Meas. LVDA Mode 5

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Mode Reg Latch 5
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 22

TITLE: Meas. LVDA Mode 2

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Mode Reg Latch 2
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 23

TITLE: Meas. LVDA Mode 3

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 3 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 24

TITLE: Meas. LVDA Mode 6

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 6 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 25

TITLE: Meas. LVDA Data 8

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 8 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 26

TITLE: Meas. LVDA Data 11

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 11 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 27

TITLE: Meas. LVDA Data 26

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 26 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 28

TITLE: Meas. LVDA Spare Discrete Output

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Discrete Output Reg Latch 2 GSE Output

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 32

TITLE: Meas. LVDA Data 22

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 22 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 33

TITLE: Meas. LVDA Data 19

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 19 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 34

TITLE: Meas. LVDA Data 18

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 18 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 35

TITLE: Meas. LVDA Tag 4

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Tag Reg Latch 4 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 36

TITLE: Meas. LVDA Tag 3

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Tag Reg Latch 3 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 37

TITLE: Meas. LVDA Tag 5

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Tag Reg Latch 5 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 38

TITLE: Meas. LVDA Tag 7

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Tag Reg Latch 7 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 39

TITLE: Meas. LVDA Data 1

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 1 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 40

TITLE: Meas. LVDA Data 4

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 4 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 41

TITLE: Meas. LVDA Data 10

FROM: SIB

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 10 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 42

TITLE: Meas. LVDA Data 13

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT: Buffer Reg Latch 13 GSE Output Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 43

TITLE: Meas. LVDA Data 25

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT:

Buffer Reg Latch 25 GSE Output
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 44

TITLE: Meas. LVDA Data 24

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT:

Buffer Reg Latch 24 GSE Output
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 45

TITLE: Meas. LVDA Data 23

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT:

Buffer Reg Latch 23 GSE Output
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15 J1 Pin 46

TITLE: Meas. LVDA Data 17

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT:

Buffer Reg Latch 17 GSE Output
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 47

TITLE: Meas. LVDA Data 16

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT:

Buffer Reg Latch 16 GSE Output
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 48

TITLE: Meas. LVDA Tag 6

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT:

Tag Reg Latch 6 GSE Output
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 49

TITLE: Meas. LVDA Tag 8

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT:

Tag Reg Latch 8 GSE Output
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 50

TITLE: Meas. LVDA Data 2

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT:

Buffer Reg. Latch 2 GSE Output
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 51

TITLE: Meas. LVDA Data 12

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT:

Buffer Reg Latch 12 GSE Output
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 52

TITLE: Meas. LVDA Data 14

FROM: SIB IU TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT:

Buffer Reg Latch 14 GSE Output
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

CONNECTOR NUMBER: 601W15J1 Pin 53

TITLE: Meas. LVDA Data 15

FROM: SIB IU

TO: GSE

WIRE FUNCTION: 0 or 28 VDC

TYPE OF MEASUREMENT:

Buffer Reg Latch 15 GSE Output
Discrete

APPLICABLE PASSIVE TECHNIQUE:

See Pin 2

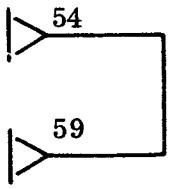
CONNECTOR NUMBER: 601W15J1 Pin 54

TITLE: Meas. Connectors Mated (59)

FROM: SIB IU TO: GSE

WIRE FUNCTION:

J1 601W15



TYPE OF MEASUREMENT:

Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

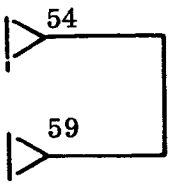
CONNECTOR NUMBER: 601W15J1 Pin 59

TITLE: Meas. Connectors Mated (54)

FROM: SIB IU TO: GSE

WIRE FUNCTION:

J1 601W15



TYPE OF MEASUREMENT:

Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

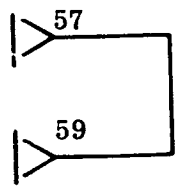
CONNECTOR NUMBER: 601W16J1 Pin 57

TITLE: Meas - Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:

J1 601W16



TYPE OF MEASUREMENT:

Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

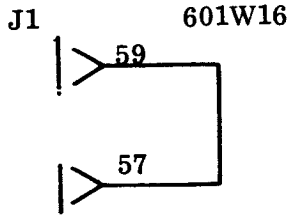
Not Applicable

CONNECTOR NUMBER: 601W16J1 Pin 59

TITLE: Meas - Connectors Mated

FROM: SIB IU TO: GSE

WIRE FUNCTION:



TYPE OF MEASUREMENT:

Interlock Safety Signal

APPLICABLE PASSIVE TECHNIQUE:

Not Applicable

SECTION 2

DATA SHEETS

SATURN IB INSTRUMENT UNIT UMBILICAL CONNECTORS - STIMULUS

APPENDIX B

SECTION 2

The data sheets of Section 2 use the same format as Section 1; however, the signals treated in Section 2 are all stimulus signals utilized in testing the Saturn IB Instrument Unit.

Utilization of passive stimuli generation techniques for the pins identified in Section 2 could best be accomplished by the use of passive de-coupling techniques such as optoelectronic devices, Hall-modulators, etc., since the majority of the stimulation required consists of current for the control of on-board relays etc.

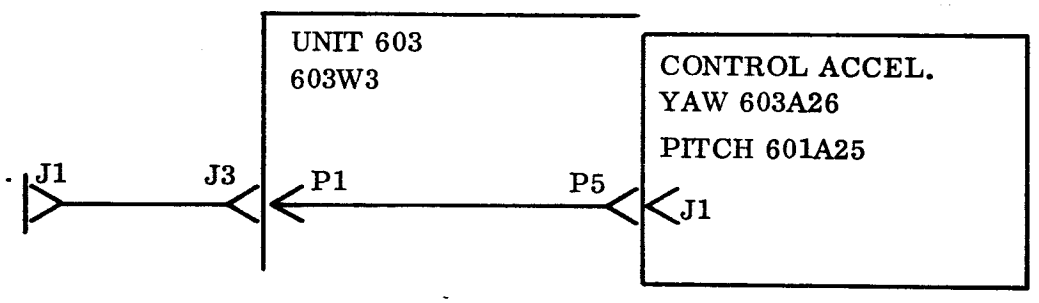
Volume 2, Detailed Technical Report describes in detail the techniques available for coupling stimulus current into systems in nondegrading ways. Full effectiveness of passive stimulation of the Instrument Unit systems may require a programmable current source on-board the vehicle.

CONNECTOR NUMBER: 601W3J1 Pins 1, 2, 3, 13, 14, 15

TITLE: Yaw, Pitch Control Accel. Force Coil

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 250 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended

CONNECTOR NUMBER: 601W3J1 Pin 39

TITLE: Comd - TM RF Output XFR Dummy Load

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 270 ma.

TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended

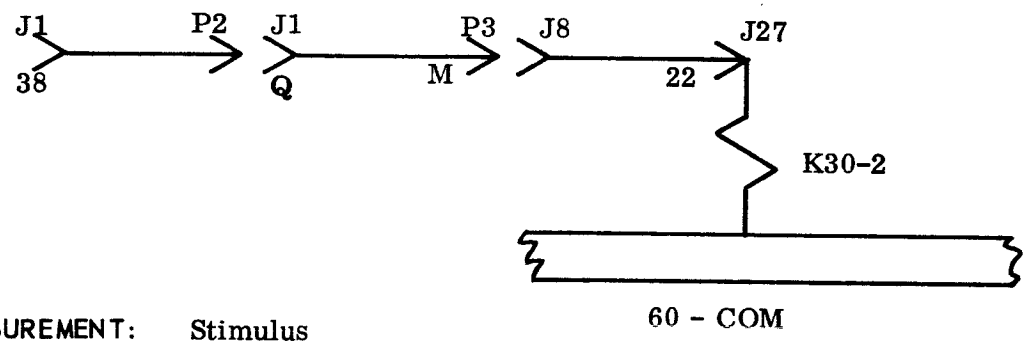
CONNECTOR NUMBER: 601W4J1 Pin 38
PIN 38

TITLE: Comd- EDS Auto Abort No. 1B Simulate

FROM: GSE

TO: SIB-IU

WIRE FUNCTION:



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended

CONNECTOR NUMBER: 601W4J1 Pin 50

TITLE: Comd- LV Engines EDS Cutoff Inhibit No. 1 Simulate

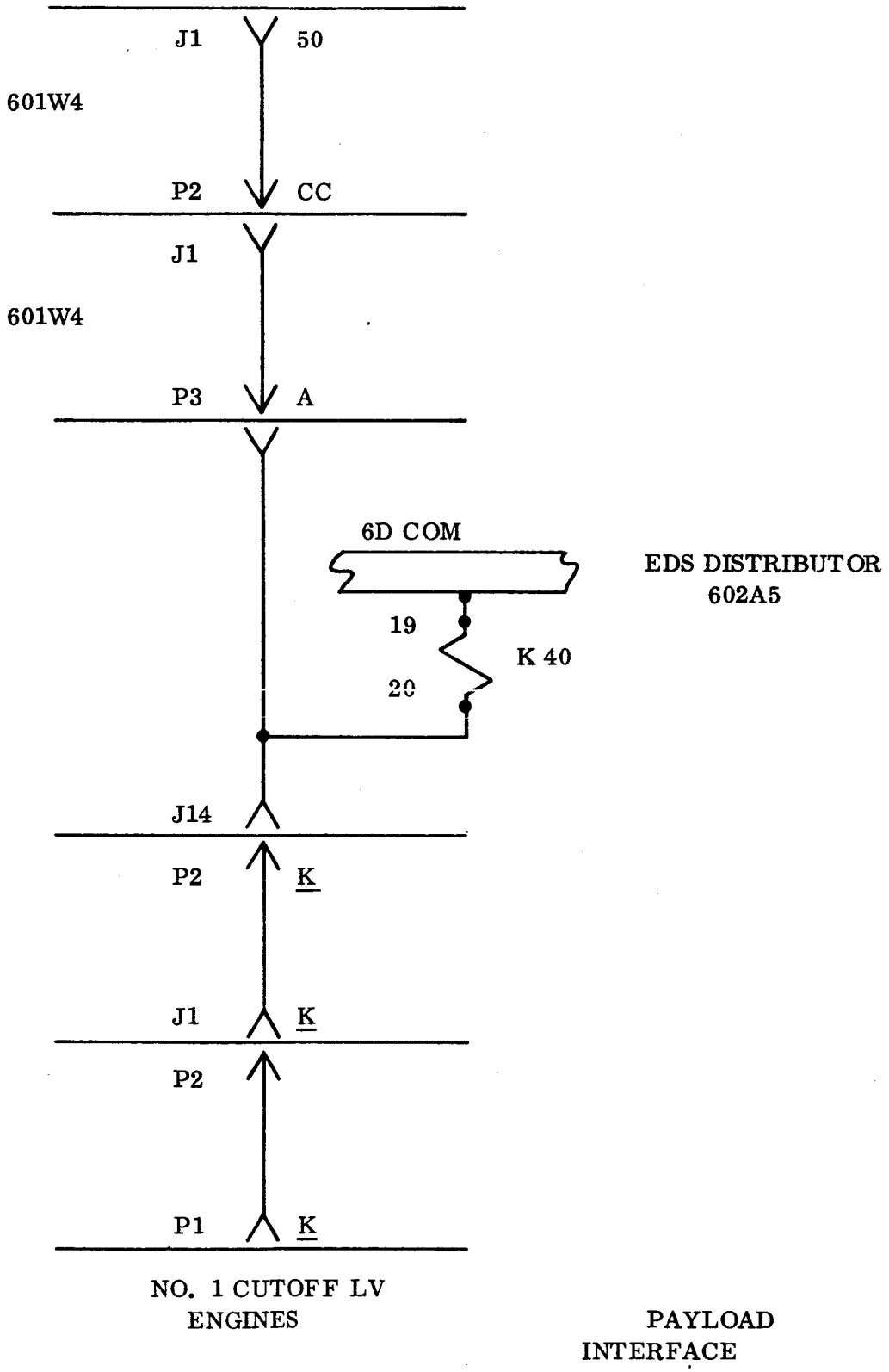
FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 50 ma.

TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended



SCHEMATIC FOR 601W4J1 PIN 50

CONNECTOR NUMBER: 601W4J1 Pin 51

TITLE: Comd- Excessive Roll Rate Auto-Abort Inhibit No. 1 Simulate

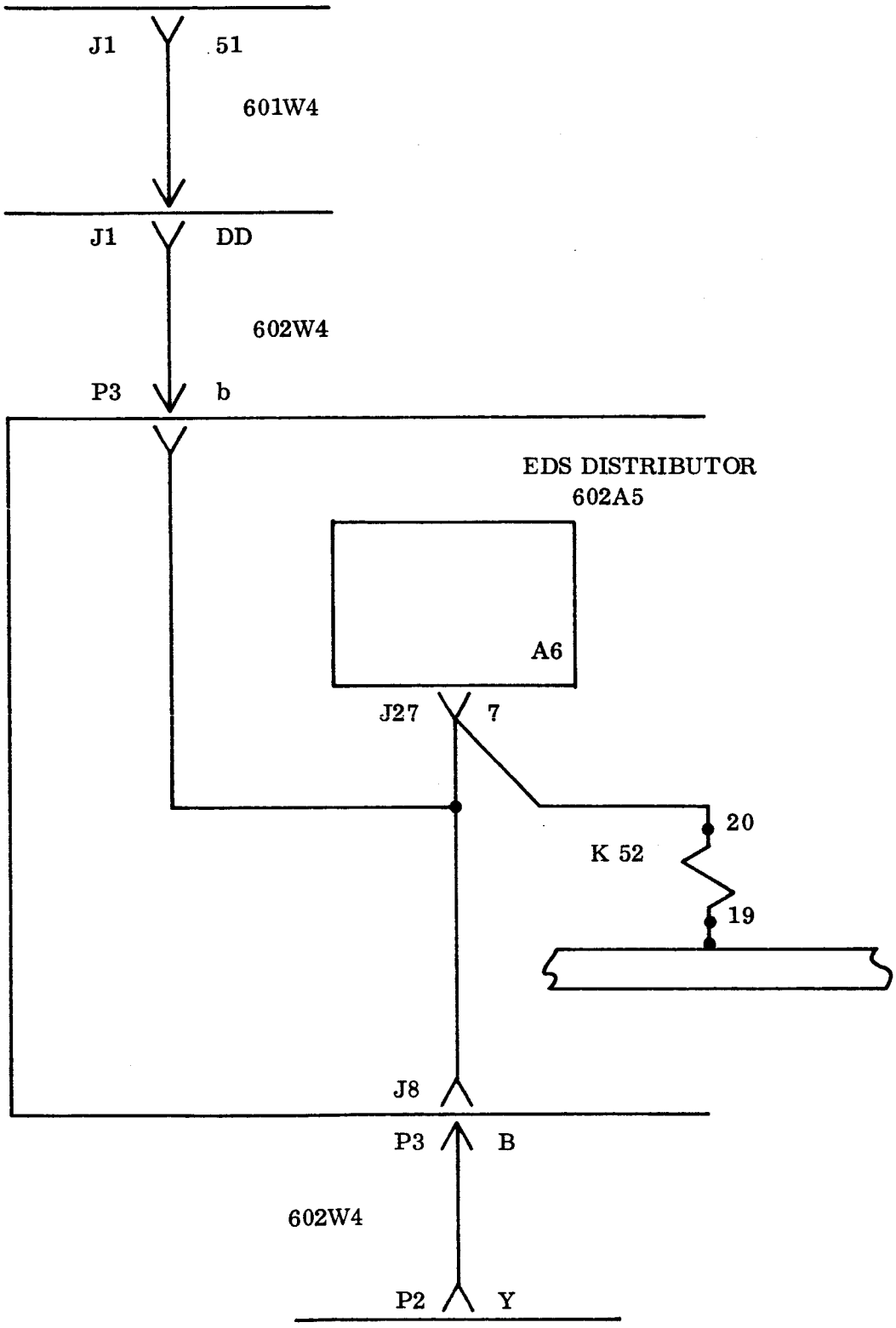
FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 50 ma.

TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended



SCHEMATIC FOR 601W4J1 PIN 51

CONNECTOR NUMBER: 601W4J1 Pins 52, 53, 59

TITLE: Comd- Excessive Roll, Pitch, Yaw Rate No. 1 Simulate

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 37 ma.

TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended

CONNECTOR NUMBER: 601W4J1 Pin 55

TITLE: Comd-Excessive Roll or Pitch or Yaw Rate Auto-Abort Inhibit No. 1 Simulate

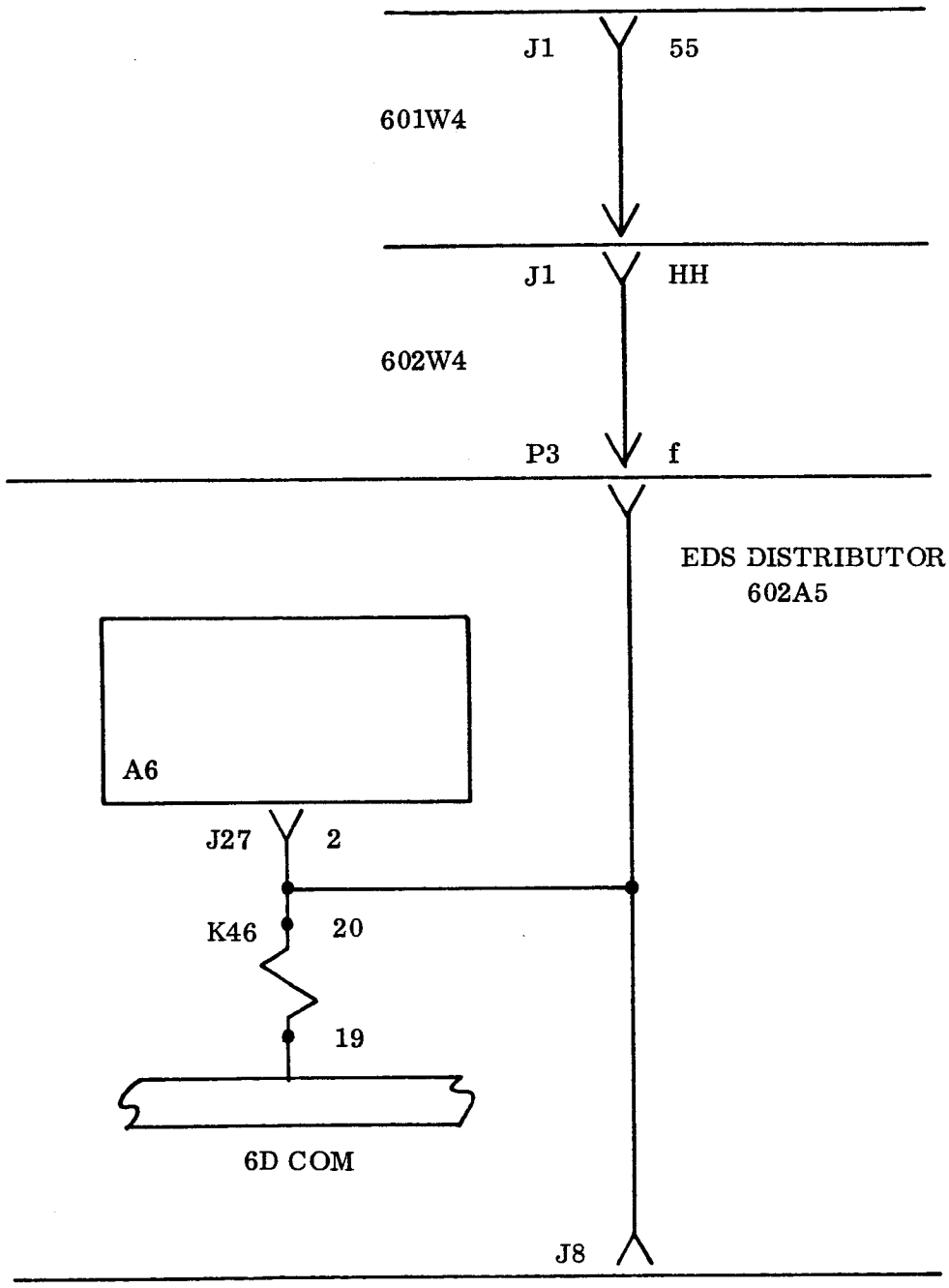
FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 100 ma.

TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended



SCHEMATIC FOR 601W4J1 PIN 55

CONNECTOR NUMBER: 601W4J1 Pin 56

TITLE: Comd- SIB two engines Out Auto-Abort Inhibit No. 1 Simulate

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 37 ma.

TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended

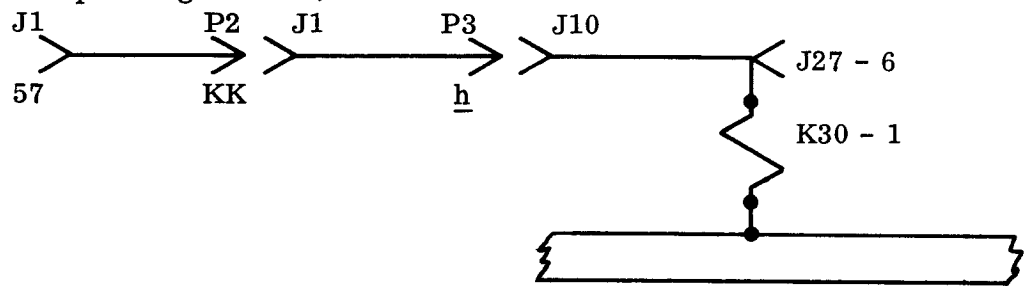
CONNECTOR NUMBER: 601W4J1 Pin 57

TITLE: Comd- EDS Auto-Abort No. 1 A Simulate

FROM: GSE

TO: SIB-IU

WIRE FUNCTION: Operating Current, 100 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

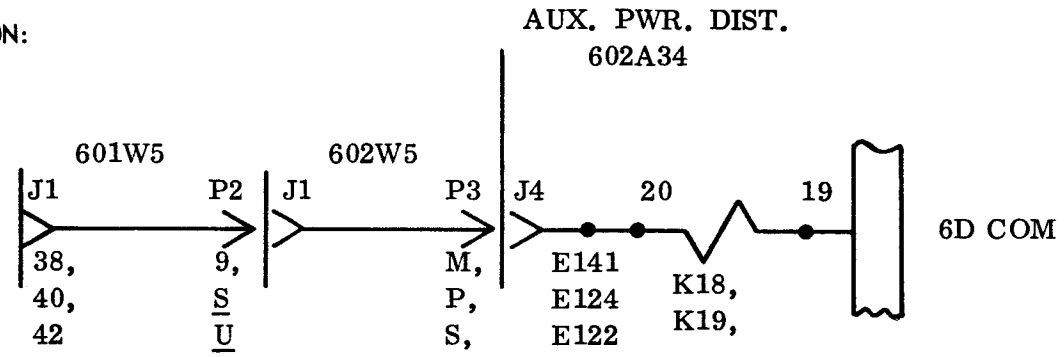
None Recommended

CONNECTOR NUMBER: 601W5J1 Pins 38, 40, 43

TITLE: Comd- Bus +6D91, +6D92, +6D93 Power Failure Simulate

FROM: GSE TO: SIB-IU

WIRE FUNCTION:



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

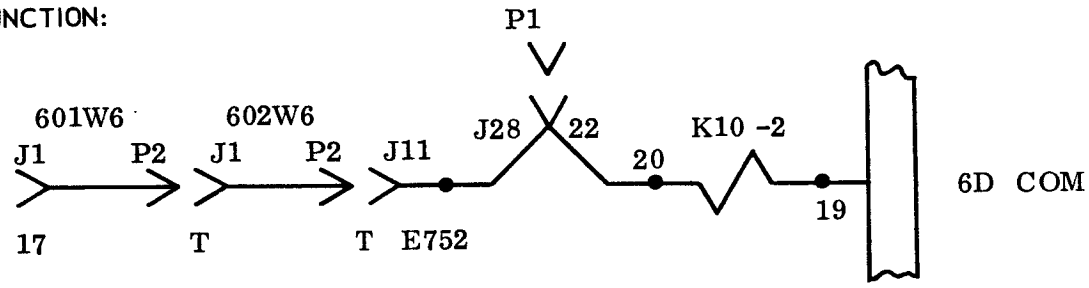
None Recommended

CONNECTOR NUMBER: 601W6J1 Pin 17

TITLE: Comd-EDS Auto-Abort No. 2B Simulate

FROM: GSE TO: SIB-IU

WIRE FUNCTION:



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended

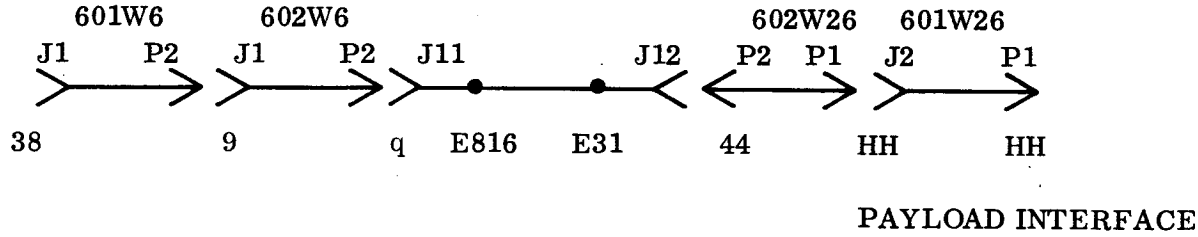
CONNECTOR NUMBER: 601W6J1 Pin 38

TITLE: Q-Ball Simulate Command

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 50 ma.

TYPE OF MEASUREMENT: Stimulus



APPLICABLE PASSIVE TECHNIQUE:

None Recommended

CONNECTOR NUMBER: 601W6J1 Pin 50

TITLE: Comd- LV Engines EDS Cutoff Inhibit No. 2 Simulate

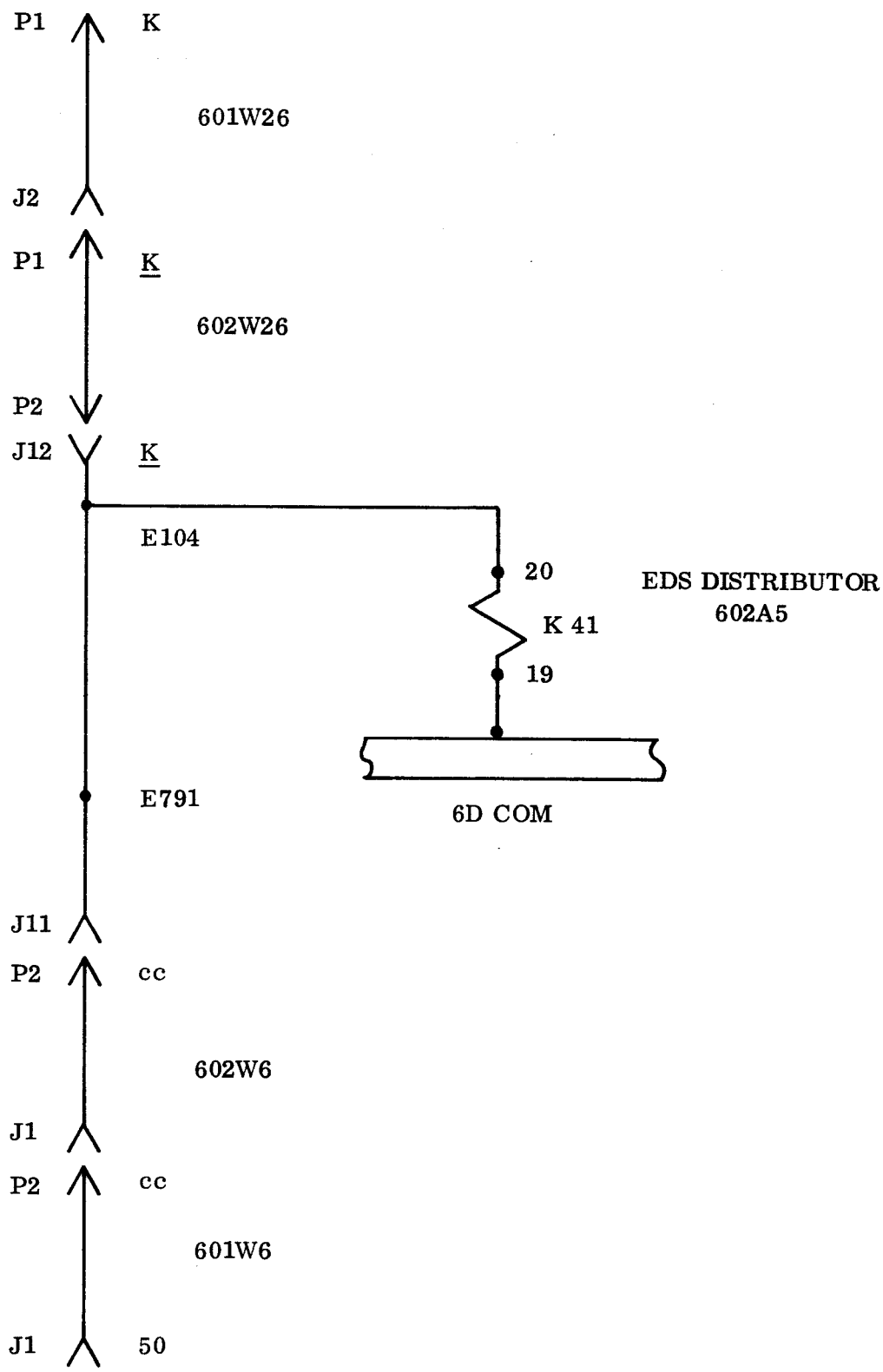
FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 50 ma.

TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended



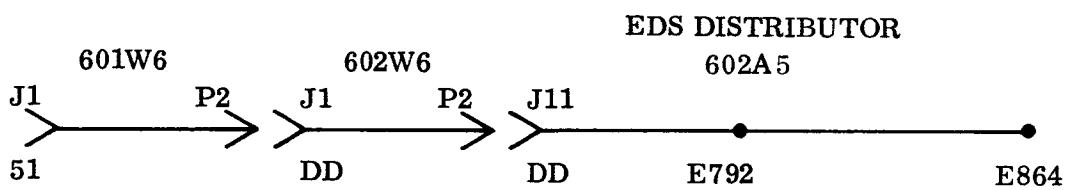
SCHEMATIC FOR 601W6J1 PIN 50

CONNECTOR NUMBER: 601W6J1 Pin 51

TITLE: Comd- Excessive Roll Rate Auto Abort Inhibit No. 2 Simulate

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 50 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

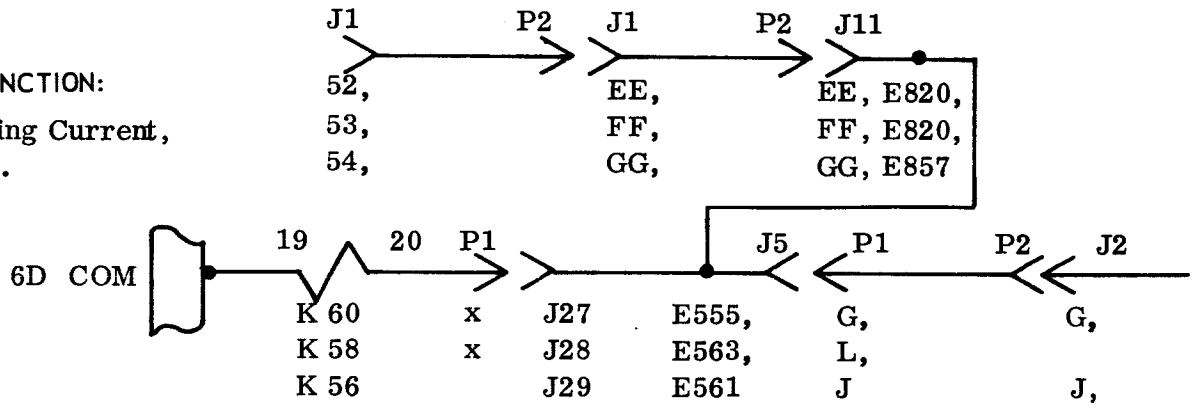
None Recommended

CONNECTOR NUMBER: 601W6J1 Pins 52, 53, 54

TITLE: Comd- Excessive Roll, Pitch, Yaw Rate No. 2 Simulate

FROM: GSE TO: SIB-IU

WIRE FUNCTION:
Operating Current,
387 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended

CONNECTOR NUMBER: 601W6J1 Pin 55

TITLE: Comd- Excessive Roll or Pitch or Yaw Rate Auto-Abort Inhibit No. 2 Simulate

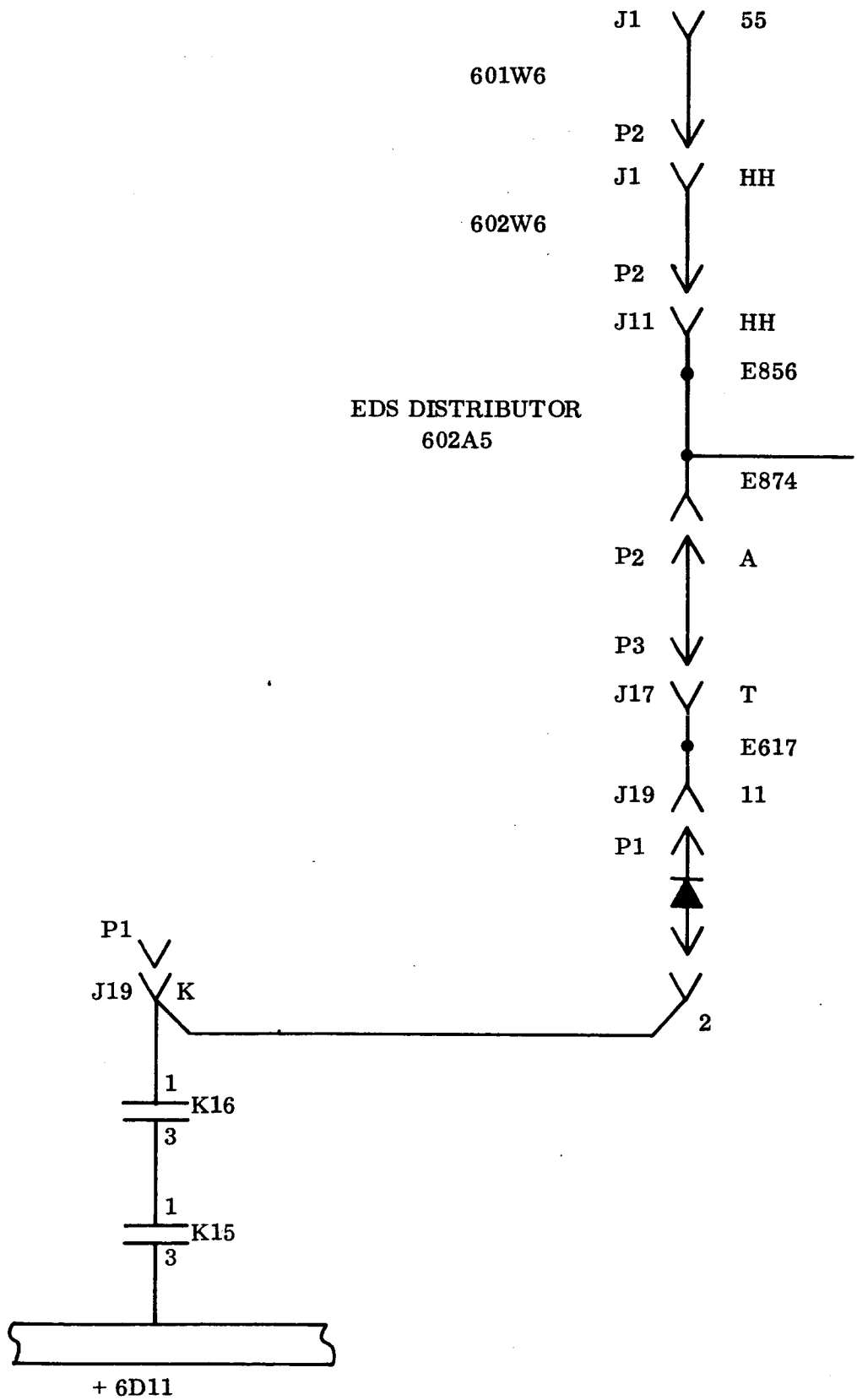
FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 100 ma.

TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended



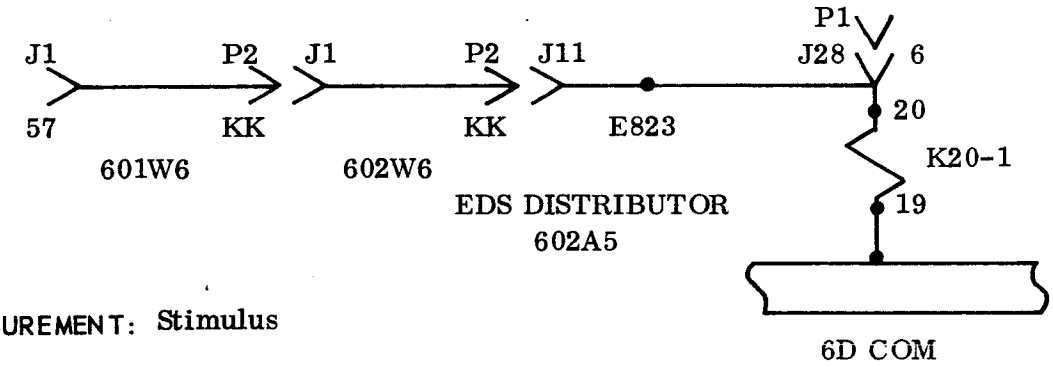
SCHEMATIC FOR 601W6J1 PIN 55

CONNECTOR NUMBER: 601W6J1 Pin 57

TITLE: Comd- EDS Auto Abort No. 2A Simulate

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 100 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

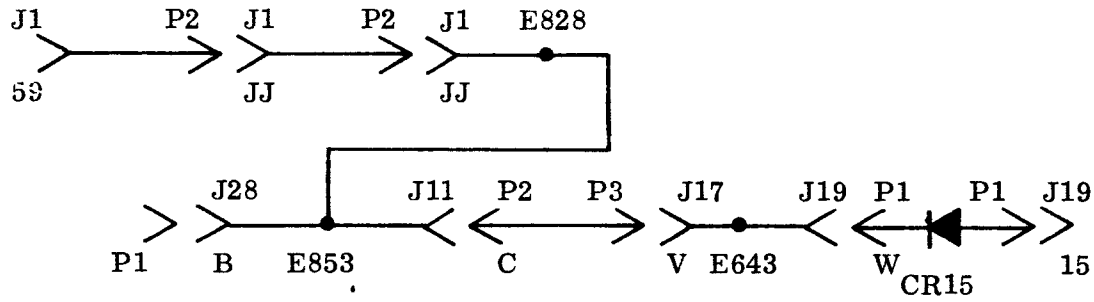
None Recommended

CONNECTOR NUMBER: 601W6J1 Pin 59

TITLE: Comd- SIB Two Engine Out Auto-Abort Inhibit No. 3 Simulate

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 37 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

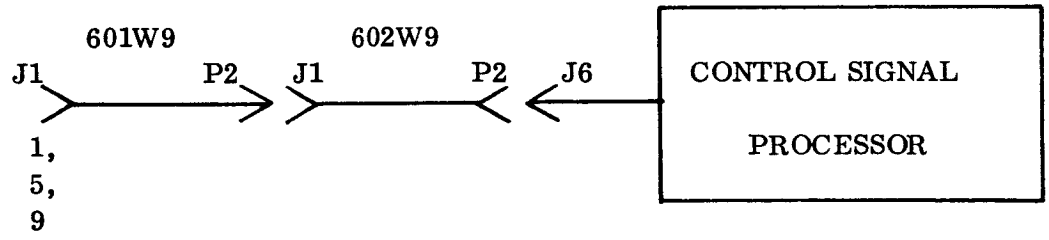
None Recommended

CONNECTOR NUMBER: 601W9J1 Pins 1, 5, 9

TITLE: Comd Return- EDS Groups 1, 2, 3 Rate Gyros

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 120 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

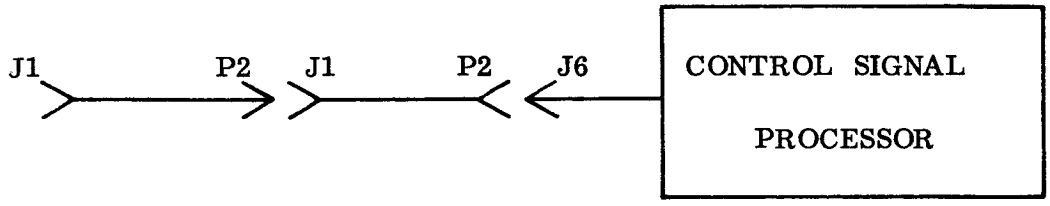
None Recommended

CONNECTOR NUMBER: 601W9J1 Pins 2, 3, 4, 6, 7, 8, 10, 11, 12

TITLE: EDS Groups 1, 2, 3 Roll, Yaw, Pitch Rate Gyro $\dot{\phi}$

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 120 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

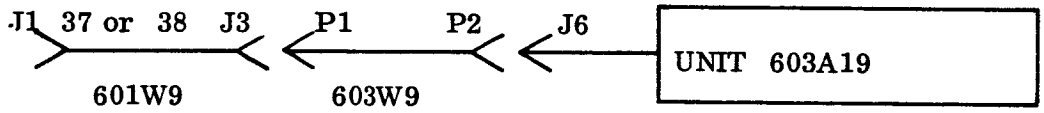
None Recommended

CONNECTOR NUMBER: 601W9J1 Pin 37 or 38

TITLE: Command Platform Resolver Chain IDB (z-x) Dummy Output

FROM: GSE TO: SIB-IU

WIRE FUNCTION:



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

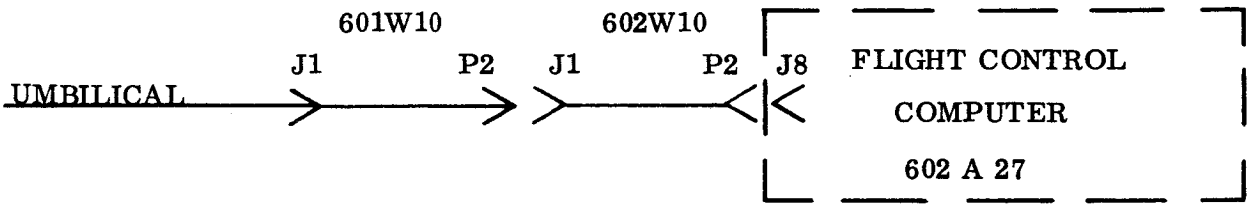
None Recommended

CONNECTOR NUMBER: 601W10J1 Pins 4, 5, 6, 7, 8, 9, 10, 11, or 12

TITLE: Command Flight Control Computer PHI Dot ($\dot{\phi}$) Roll, Yaw, or Pitch (A/B), (A), or (B) Substitute

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 2 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

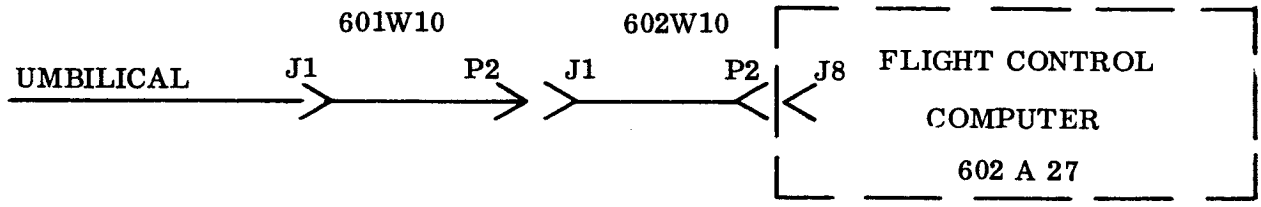
Hall or Magnetoresistor Modulator

CONNECTOR NUMBER: 601W10J1 Pins 13, 14, 15, or 16

TITLE: Command Flight Control Computer Gamma Double Dot ($\ddot{\gamma}$) Yaw or Pitch Substitute

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 2ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

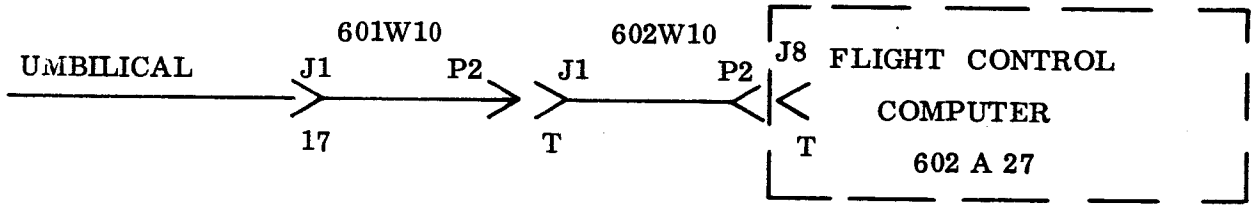
Hall or Magnetoresistor Modulator

CONNECTOR NUMBER: 601W10J1 Pin 17

TITLE: Command Flight Control Computer C.A.T. ZERO

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 50 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

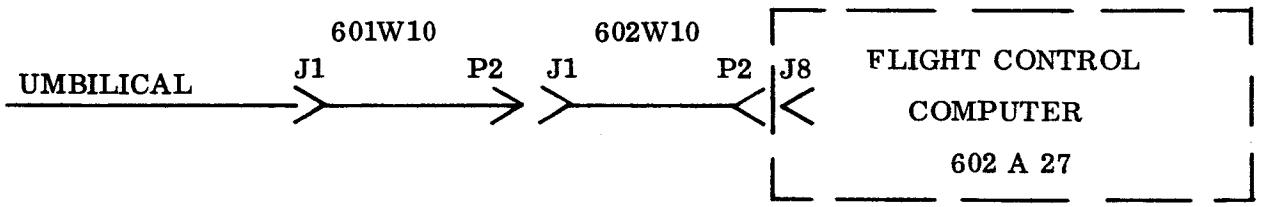
Hall or Magntoresistor Modulator

CONNECTOR NUMBER: 601W10J1 Pin 19 or 20

TITLE: Command Interrupt 60 V (A) or (B)

FROM: GSE TO: SIB-IU

WIRE FUNCTION:



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

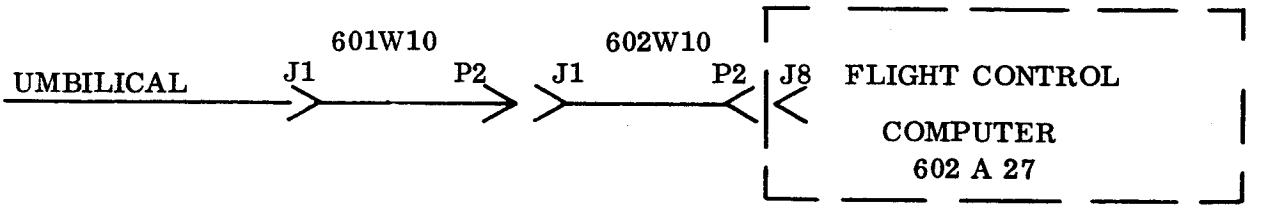
Hall or Magntoresistor Modulator

CONNECTOR NUMBER: 601W10J1 Pins 21, 22, 23, or 24

TITLE: Command Flight Control Computer Redundancy Check 1, 2, 3, or 4

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 50 ma



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

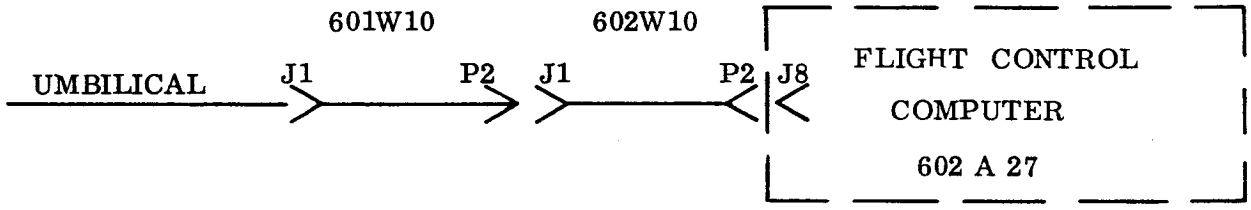
Hall or Magntoresistor Modulator

CONNECTOR NUMBER: 601W10J1 Pins 25, 26, 27, or 28

TITLE: Command Flight Control Computer S-IB or S-IVB Burn Substitute or Substitute Test

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 50 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

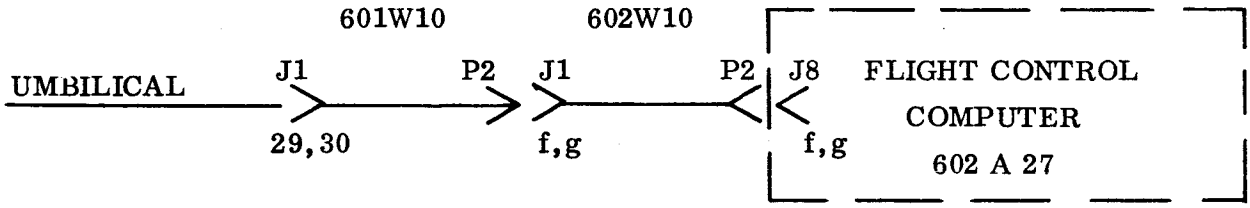
Hall or Magntoresistor Modulator

CONNECTOR NUMBER: 601W10J1 Pins 29, 30

TITLE: Command Flight Control Computer S-IVB Coast Substitute or Substitute Test

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 50 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

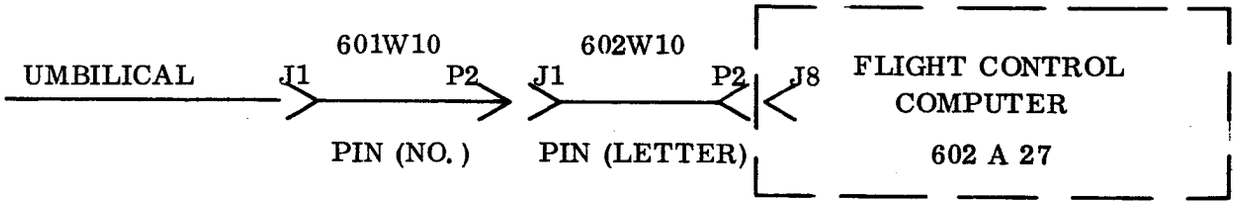
Hall or Magntoresistor Modulator

CONNECTOR NUMBER: 601W10J1 Pins 32, 33, 34, 35, or 52

TITLE: Command Flight Control Computer Simulate Switch Point 1, 2, 3, 4, or 5

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 50 ma.



TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

Hall or Magntoresistor Modulator

CONNECTOR NUMBER: 601W10J1 Pins 36, 37, 38, or 39

TITLE: Command Flight Control Computer Yaw or Pitch Simulate

FROM: GSE TO: SIB-IU

WIRE FUNCTION: Operating Current, 2 ma.

See Sheet 8

TYPE OF MEASUREMENT: Stimulus

APPLICABLE PASSIVE TECHNIQUE:

Hall or Magnetoresistor Modulator

CONNECTOR NUMBER: 601W10J1 Pins 40, 41, 42, 43, 44, 45, 46, 47, or 48

TITLE: Command Flight Control Computer Phi (ϕ) Roll, Yaw, or Pitch (A/B), (A) or (B) Substitute

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 2ma. See Sheet 8

TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

Hall or Magnetoresistor Modulator

CONNECTOR NUMBER: 601W10J1 Pin 49

TITLE: Command Flight Control Computer Comparison Circuit Reset

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 50ma. See Sheet 8

TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

Hall or Magnetoresistor Modulator

CONNECTOR NUMBER: 601W10J1 Pin 50

TITLE: Command - $\ddot{y}$ Transfer Substitute Position

FROM: GSE

TO: SIB IU

WIRE FUNCTION: See Sheet 8

TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended

CONNECTOR NUMBER: 601W10J1 Pin 53

TITLE: Command SIB Mode Interrupt

FROM: GSE TO: SIB IU

WIRE FUNCTION: See Sheet 8

TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

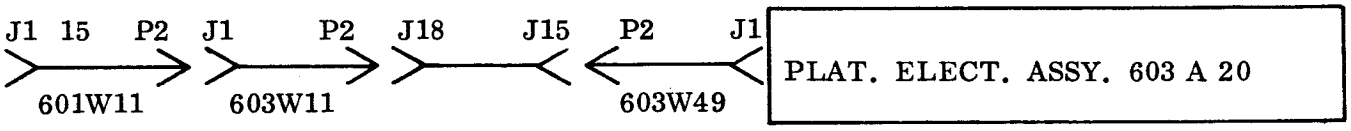
None Recommended

CONNECTOR NUMBER: 601W11J1 Pin 15

TITLE: Command ST124 Servo Damping Test Auto-Checkout (A)

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 100 ma.



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

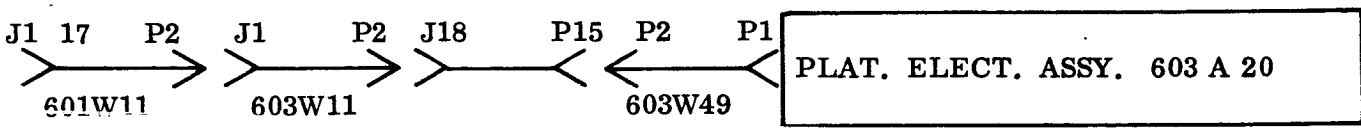
None Recommended

CONNECTOR NUMBER: 601W11J1 Pin 16

TITLE: Command ST124 Servo Damping Test Auto-Checkout (B)

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 50 ma.



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

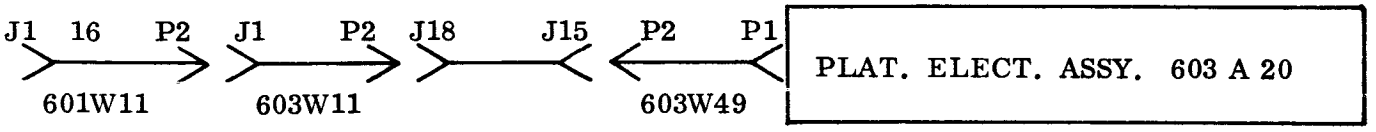
None Recommended

CONNECTOR NUMBER: 601W11J1 Pin 17

TITLE: Command ST124 Servo Damping Test Auto-Checkout (C)

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 50 ma.



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

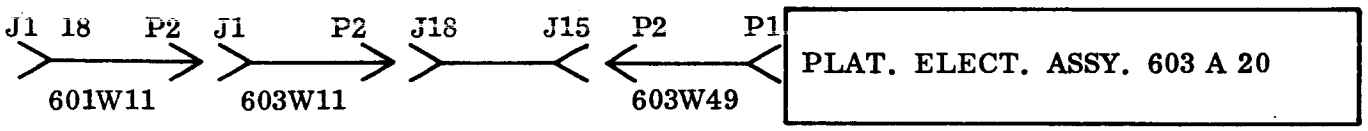
None Recommended

CONNECTOR NUMBER: 601W11J1 Pin 18

TITLE: Command ST124 Servo Damping Test, Test Pulse

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 50 ma.



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

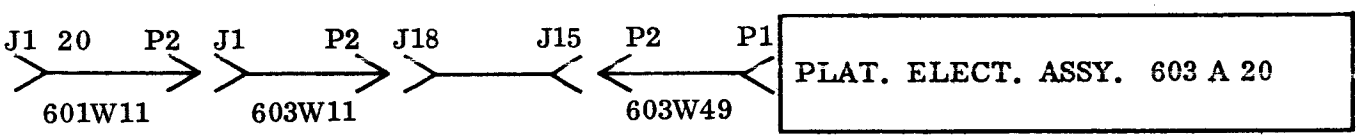
None Recommended

CONNECTOR NUMBER: 601W11J1 Pin 20

TITLE: Command X Resolver Output Transfer X_r Servo

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 50 ma.



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

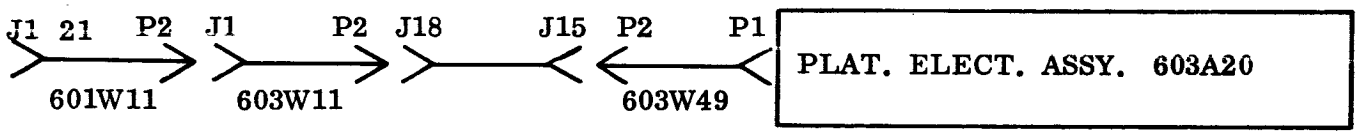
None Recommended

CONNECTOR NUMBER: 601W11J1 Pin 21

TITLE: Command X Resolver Output Measurements Transfer ESE Position

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 50 ma.



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

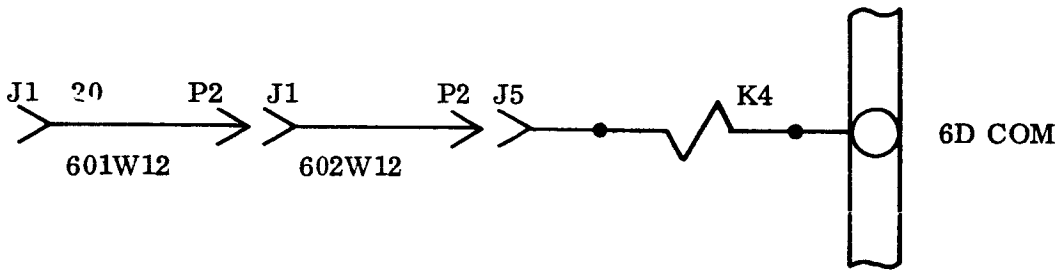
None Recommended

CONNECTOR NUMBER: 601W12J1 Pin 20

TITLE: Command Vehicle Liftoff Measurement Inhibit

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 50 ma.



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

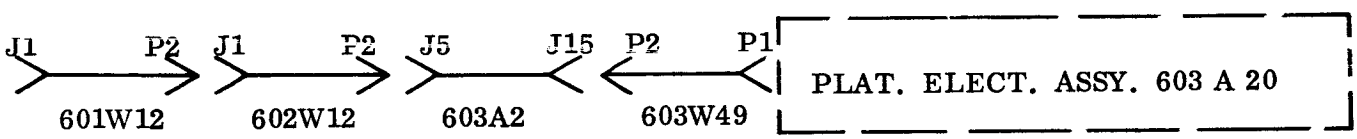
None Recommended

CONNECTOR NUMBER: 601W12J1 Pin 22, 23, or 24

TITLE: Command X_r Servo Control Transformer S_1, S_2, or S_3 Position

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 200 ma.



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

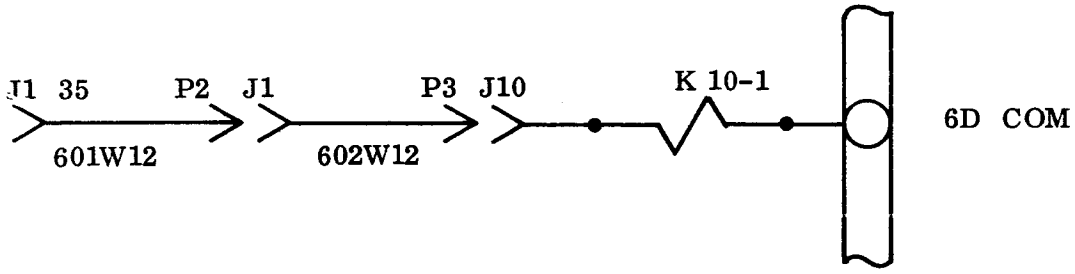
None Recommended

CONNECTOR NUMBER: 601W12J1 Pin 35

TITLE: Command EDS Auto-Abort No. 3B Simulate

FROM: GSE TO: SIB IU

WIRE FUNCTION:



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended

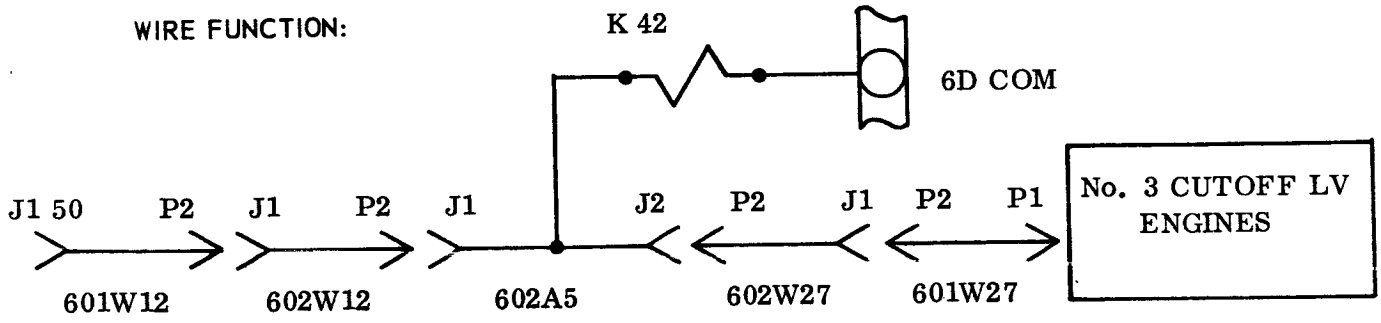
CONNECTOR NUMBER: 601W12J1 Pin 50

TITLE: Command Launch Vehicle Engines EDS Cutoff Inhibit No. 2 Simulate

FROM: GSE TO: SIB IU

Operating Current, 50 ma.

WIRE FUNCTION:



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended

CONNECTOR NUMBER: 601W12J1

TITLE: Command Excessive Roll Rate Auto-Abort Inhibit No. 3 Simulate

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 50 ma.

TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

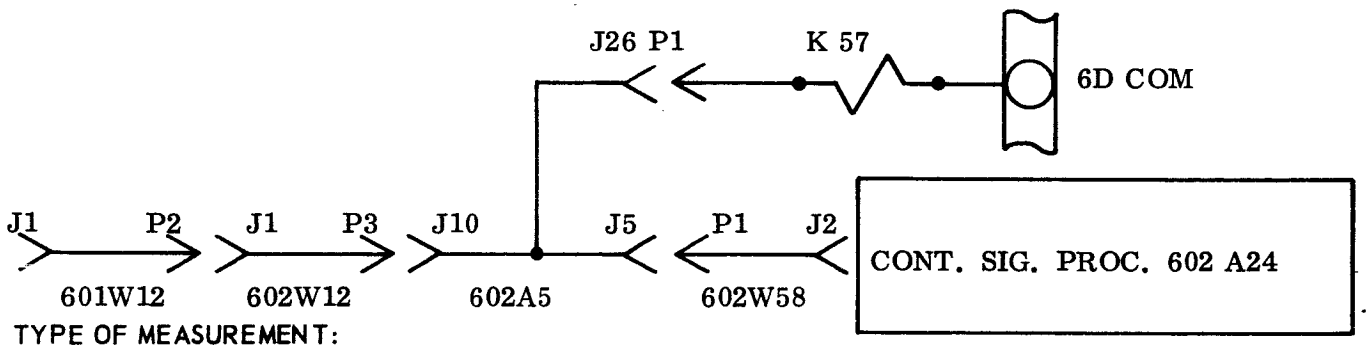
None Recommended

CONNECTOR NUMBER: 601W12J1 Pin 52, 53, or 54

TITLE: Command Excessive Roll, Pitch, or Yaw Rate No. 3 Simulate

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 350 ma.



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

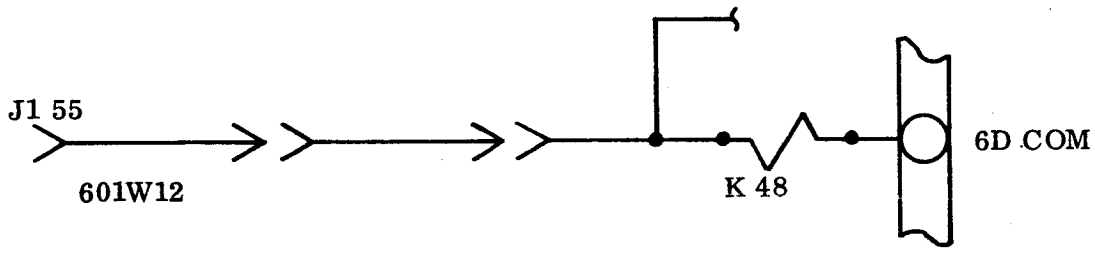
None Recommended

CONNECTOR NUMBER: 601W12J1 Pin 55

TITLE: Command Excessive Roll or Pitch or Yaw Rate Auto-Abort Inhibit No. 3 Simulate

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 100 ma.



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

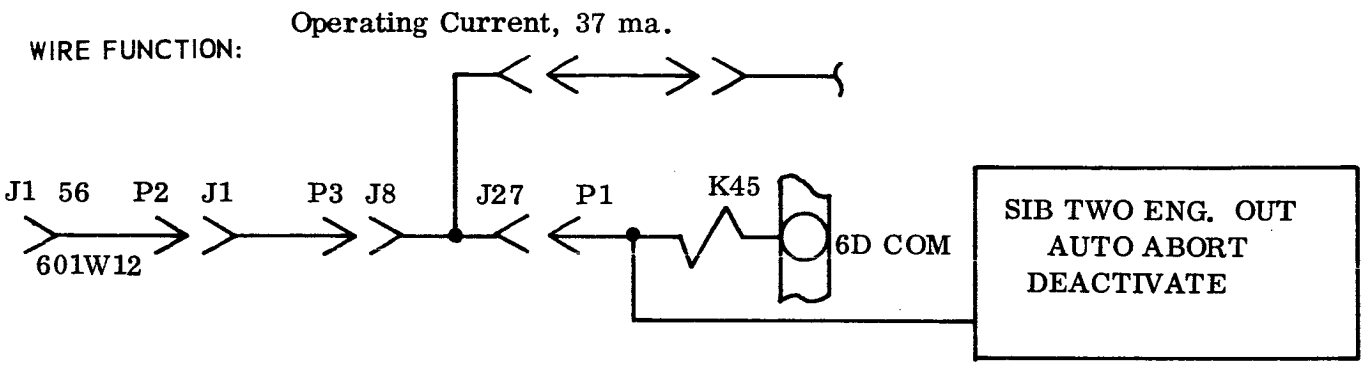
None Recommended

CONNECTOR NUMBER: 601W12J1 Pin 56

TITLE: Command SIB Two Engines Out Auto-Abort Inhibit No. 3 Simulate

FROM: GSE TO: SIB IU

WIRE FUNCTION:



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

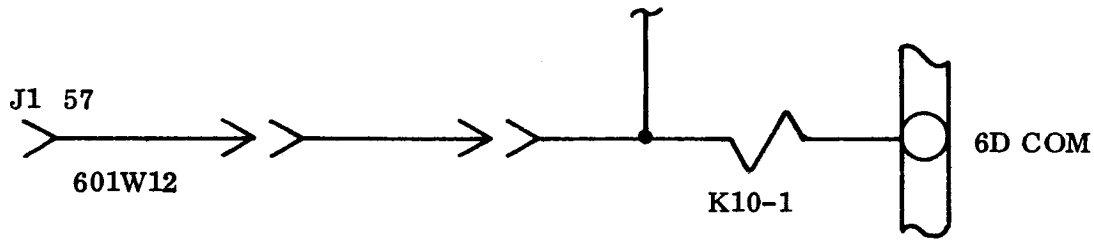
None Recommended

CONNECTOR NUMBER: 601W12J1 Pin 57

TITLE: Command EDS Auto-Abort No. 3A Simulate

FROM: GSE TO: SIB IU

WIRE FUNCTION: Operating Current, 100 ma.



TYPE OF MEASUREMENT:

Stimulus

APPLICABLE PASSIVE TECHNIQUE:

None Recommended

SECTION 3

DATA SHEETS

SATURN IB INSTRUMENTATION PROGRAM AND COMPONENTS LIST - TELEMETRY SIGNALS

APPENDIX B

SECTION 3

In addition to the measurements that are currently brought out of the Saturn IB Instrument Unit and the stimuli that are introduced into the Instrument Unit through the umbilicals, a large number of signals are routed from the Instrument Unit to the telemetry system.

The data sheets of Section 3 are slightly different in format from Sections 1 and 2. In Section 3 similar measurements have been listed on the same data sheet under the heading, "type of measurement". The measurements are identified by their measurement number, by their name, and the range of values covered by each measurement.

The passive techniques most applicable to the groups of measurements are identified.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Acceleration Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
VA 2-603 Acceleration, Longt 0 to 4.5G	25
A 3-603 Acceleration, Longt + - 0.5G	8
VA 4-601 Acceleration, Pitch Control 0 to ± 5 m/sec. sq.	20
VA 5-603 Acceleration, Yaw Control 0 to ± 5 m/sec. sq.	11

APPLICABLE PASSIVE TECHNIQUE:

The control accelerometers being used at present provide passive instrumentation. An MOSFET voltage sensitive device could be used to decouple the measurement of the voltage output from the actual signal line.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Acoustic Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response
B 1-601 Acoustic, Flush Mtg. 140 to 160 DB	3 KC

APPLICABLE PASSIVE TECHNIQUE:

The microphone presently used to make acoustic measurements is a passive device.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Temperature Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
C 6-601 Temp, Sublimator inlet water, 0 to 30°C	2.4
C 9-601 Temp, IU inlet methanol water, - 10 to 20°C	2.4
C 10-601 Temp, IU exit methanol water, - 10 to 20°C	2.4
C 11-601 Temp, sublimator inlet methanol water, 10 to 25°C	2.4
C 12-601 Temp, sublimator exit methanol water, 10 to 20°C	2.4
C 13-601 Temp, accumulator inlet coolant, 10 to 20°C	2.4
VXC 15-601 Temp, methanol/water control, 10 to 20°C	2.4
C 16-603 Temp, ST-124M shroud inlet coolant, 10 to 20°C	2.4
C 17-603 Temp, ST-124M shroud exit coolant, 15 to 25°C	2.4
C 18-602 Temp, cold plate inlet coolant (loc. 9), 10 to 20°C	2.4
C 19-601 Temp, cold plate exit coolant (loc. 5), 15 to 25°C	2.4

Note all measurements 5%

APPLICABLE PASSIVE TECHNIQUE:

Thermistor thermometers presently used are passive; however, the use of semiconductor junction temperature sensors (transistor thermometer) would provide an additional passive technique.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Temperature Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
C 20-601 Temp, cold plate exit coolant (loc. 4), 15 to 25°C	2.4
C 21-603 Temp, ST-124 methanol water exit, 15 to 25°C	2.4
C 22-602 Temp, flt. control comp. exit coolant, 15 to 25°C	2.4
C 23-603 Temp, cold plate exit coolant (loc. 20), 15 to 25°C	2.4
C 24-603 Temp, adapt/comp. meth/water exit, 15 to 25°C	2.4
C 25-602 Temp, IU/S-IVB exit coolant, 15 to 25°C	2.4
C 26-601 Temp, S-IVB exit coolant, 15 to 25°C	2.4
C 29-603 Temp, heat exchanger nitrogen exit, 10 to 20°C	2.4
C 30-603 Temp, heat exchanger methanol/water inlet, 10 to 20°C	2.4
XC 31-603 Temp, ST-124M bearing inlet, 10 to 20°C	2.4
C 33-603 Temp, ST-124M met. frame, - 25 to + 25°C	2.4
VC 34-603 Temp, ST-124M internal gimbal, 35 to 60°C	2.4

APPLICABLE PASSIVE TECHNIQUE:

Thermistor and resistance thermometers presently used are passive; however, the use of semiconductor junction temperature sensors (transistor thermometer) would provide an additional passive technique.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Temperature Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
XC 35-601 Temp, IU inlet air/GN_2, -15 to 40°C	2.4
XC 36-601 Temp, IU ambient, -20 to 45° C	2.4
C 37-601 Temp, IU inner skin #1 (loc. 4), -50 to 50°C	2.4
C 38-601 Temp, IU inner skin #2 (loc. 2), -50 to 50°C	2.4
C 39-602 Temp, IU inner skin #3 (loc. 10), -50 to 50°C	2.4
C 40-602 Temp, IU inner skin #4 (loc. 9), -50 to 50°C	2.4
C 41-602 Temp, IU inner skin #5 (loc. 16), -50 to 50°C	2.4
C 42-602 Temp, IU inner skin #6 (loc. 14), -50 to 50°C	2.4
C 43-603 Temp, IU inner skin #7 (loc. 21), -50 to 50°C	2.4
C 44-603 Temp, IU inner skin #8 (loc. 20), -50 to 50°C	2.4
C 51-603 Temp, Azusa internal, 10 to 55°C	2.4

Note: all measurements 5%

APPLICABLE PASSIVE TECHNIQUE:

Thermistor and resistance thermometers presently used are passive; however, the use of semiconductor junction temperature sensors (transistor thermometer) would provide an additional passive technique.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Temperature Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
VC53-603 Temp, guide computer (logic page), 10 to 75°C	2.4
VC54-603 Temp, guide computer (memory), 10 to 75°C	2.4
VC55-603 Temp, data adapter (2A10AS), 10 to 75°C	2.4
VC56-603 Temp, Data adapter (2A10A11), 10 to 75°C	2.4
VC62-603 Temp, accel. sig. cond., 10 to 75°C	2.4
VC63-603 Temp, ST124M electronic box, 10 to 75° C	2.4
XC64-601 Temp, battery #1 internal, 0 to 75°C	2.4
XC65-601 Temp, battery #2 internal, 0 to 75°C	2.4
XC66-601 Temp, battery #3 internal, 0 to 75°C	2.4
VC67-603 Temp, 250 VA inverter, 10 to 75°C	2.4
XC68-601 Temp, battery #4 internal, 0 to 70°C	2.4
C57-900 Temp, Q-ball, internal, 0 to 100°C	2.4
C58-602 Temp, RF assembly surface, F1, -50 to 125°C	2.4
C69-602 Temp, control computer, -100 to 200°C	2.4
C70-602 Temp, control computer, -100 to 200°C	2.4
C71-601 Temp, GN_2 bottle outlet (T.C. system), -90 to 50°C	2.4
C74-602 Temp, recorder assy tape, surface, 0 to 100°C	2.4

Note all measurements 5%

APPLICABLE PASSIVE TECHNIQUE:

Thermistor and resistance thermometers presently used are passive; however, the use of semiconductor junction temperature sensors (transistor thermometer) would provide an additional passive technique.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Pressure Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
VDI-900 EDS-delta P pitch, Q-ball, 0 to ± 4 psid	25
VD3-900 EDS-delta P yaw, Q-ball, 0 to ± 4 psid	25
XD11-603 pressure ST-124M air bearing, 0 - 35 psid	2.4
VD12-603 pressure internal ambient ST-124M, 0 - 20 psid	2.4
D19-602 Pressure, control computer, 0 - 25 psia	2.4
D20-602 pressure, control sig. proc., 0 - 25 psia	2.4
VXD24-601 inlet pressure coolant pump (W/M), 0 - 35 psia	2.4

Note all measurements 5%

APPLICABLE PASSIVE TECHNIQUE:

At the present time there are no passive techniques to measure low pressure to replace the Bourdon-tube potentiometer and strain gage types of transducers.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Pressure Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:		Response CPS
XD10-603 Pressure	- GN_2 regulator inlet (A.B.), 0 to 3500 psia	2.4
D17-601 Pressure	- Coolant manifold inlet, 0 to 60 psia	2.4
D18-601 Pressure	- S-IVB exit coolant, 0 to 45 psia	2.4
D25-601 Pressure	- GN_2 regulator inlet (T.C. sys), 0 to 3500 psia	2.4

Note all measurements 5%

APPLICABLE PASSIVE TECHNIQUE:

A strain gage or semiconductor junction transducer measuring the change in shape of a body subjected to stress by high pressure could replace the bourdon tube on measurements D10-603 and D25-601. No passive low pressure technique is available for replacing bellows used on measurements D17-601 and D18-601.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Vibration Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
E1-603 Vib. X axis, inertial gimbal ST-124M, 0 to ± 5G	3KC
E2-603 Vib. Y axis, inertial gimbal ST-124M, 0 to ± 5G	3KC
E3-603 Vib. Z axis, inertial gimbal ST-124M, 0 to ± 5G	3KC
E4-603 Vib. ST124M MTG frame, longt, 0 to ± 10G	3KC
E5-603 Vib. ST124M MTG frame, pitch, 0 to ± 10G	3KC
E6-603 Vib. ST124M MTG frame, yaw, 0 to ± 10G	3KC
E7-603 Vib. ST124M support, longt, 0 to ± 10G	3KC
E8-603 Vib. ST124M support, tang, 0 to ± 10G	3KC
E9-603 Vib. ST124M support, perp, 0 to ± 10G	3KC
E10-603 Vib. lower MTG ring, longt, 0 to ± 10G	3KC
E11-603 Vib. lower MTG ring, perp., 0 to ± 10G	3KC

Note all measurements 10%

APPLICABLE PASSIVE TECHNIQUE:

The piezoelectric accelerometers used at present are making passive measurements.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Vibration Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response
E12-603 Vib. upper MTG ring longt, 0 to ± 10G	3KC
E13-603 Vib. upper MTG ring perp, 0 to ± 10G	3KC
E14-603 Vib. upper MTG ring longt, 0 to ± 10G	3KC
E15-603 Vib. upper MTG ring perp., 0 to ± 10G	3KC
E16-603 Vib. lower MTG ring longt, 0 to ± 10G	3KC
E17-603 Vib. lower MTG ring perp., 0 to ± 10G	3KC
E18-602 Vib. RF assy, F2 panel longt, 0 to ± 10G	3KC
E19-602 Vib. RF assy., F2 panel perp, 0 to ± 10G	3KC
E20-603 Vib. Air bearing supply panel longt, 0 to ± 10G	3KC
E21-603 Vib. air bearing supply panel perp, 0 to ± 10G	3KC
E22-602 Vib. flight control computer panel longt, 0 to ± 10G	3KC
E23-602 Vib. flight control computer panel perp, 0 to ± 10G	3KC
E26-603 Vib. Dig. computer/data adapt. longt, 0 to ± 59 10G	3KC
E27-603 Vib. dig. computer/data adapt. perp. 0 to ± 10G	3KC
E28-603 Vib. dig. computer/data adapt. perp. 0 to ± 10G	3KC

Note all measurements 10%

APPLICABLE PASSIVE TECHNIQUE:

The piezoelectric accelerometers used at present are already making passive measurements.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Flow Rate Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
F1-601 Flow rate sublimator inlet water .01 to .08 GPM	2.4
F2-601 Flow rate sublimator bypass M/W 1.5 to 25 GPM	2.4
F3-601 Flow rate cold plate inlet coolant (loc. 5) 0.25 to 1.0 GPM	2.4
F4-603 Flow rate cold plate inlet coolant (loc. 20) 0.25 to 1.0 GPM	2.4
F5-603 Flow rate ST-124 shroud inlet coolant .1 to .5 GPM	2.4
F6-602 Flow rate flt. cont. comp. inlet coolant .25 to 1.0 GPM	2.4
F7-601 Flow rate cold plate inlet coolant (loc. 4) 0.25 to 1.0 GPM	2.4
F8-603 Flow rate adapt/comp. meth/water inlet 0.25 to 1.0 GPM	2.4
FVX9-602 Flow rate IU/S-IVB exit coolant 1.5 to 25 GPM	2.4
VXF10-601 Flow rate S-IVB inlet coolant 1.5 to 9 GPM	2.4
F11-603 Flow rate ST-124M shroud inlet coolant .1 to .5 GPM	2.4

Note all measurement 5% except F1-601 which is 3%

APPLICABLE PASSIVE TECHNIQUE:

Ultransonic method may be useful for flow rates above 0.5 ft./sec.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Position Measurement Summary

FROM SIB-IU-201 TO: Telemetry

TYPE OF MEASUREMENT:	Response
VG1-1 Position, pitch actuator, 0 to ± 8 Deg.	2.4
VG1-2 Position, pitch actuator, 0 to ± 8 Deg.	2.4
VG1-3 Position, pitch actuator, 0 to ±8 Deg.	2.4
VG1-4 Position, pitch actuator, 0 to ±8 Deg.	2.4
VG1-401 Position, pitch actuator, 0 to ± 8 Deg.	2.4
VG2-1 Position, pitch actuator, 0 to ± 8 Deg.	2.4
VG2-2 Position, pitch actuator, 0 to ± 8 Deg.	2.4
VG2-3 Position, pitch Actuator, 0 to ± 8 Deg.	2.4
G2-4 Position, pitch actuator, 0 to ± 8 Deg.	2.4
VG2-401 Position, pitch actuator, 0 to ± 8 Deg.	2.4
VG1-1 Position, pitch actuator, 0 to ± 8 Deg.	2.4
VG2-2 Position, pitch actuator, 0 to ± 8 Deg.	2.4
VG2-3 Position, pitch actuator, 0 to ± 8 Deg.	2.4

APPLICABLE PASSIVE TECHNIQUE:

Pitch actuator position is presently measured by a potentiometer with a mechanically positioned wiper. This device is already passive, and isolated from the control signals. However, the Hall device with magnetic seeding could be used.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Position Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
G2-104 Position yaw actuator 0 to ± 8 Deg.	35
VG2-401 Position Yaw actuator 0 to ± 7.5 Deg.	20

Note all measurements .03%

APPLICABLE PASSIVE TECHNIQUE:

Actuator position is presently measured by a potentiometer with a mechanically positioned wiper. This device is already passive, and isolated from the control signals; however, the Hall device with magnetic seeding could be used.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Position Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:		Response CPS
VXG3-601	Position, meth/water control valve, 0 to 100%	2.4
G5-601	Open position, water control valve, 0 or 28 VDC	2.4
VG 6-601	Closed position, water control valve, 0 or 28 VDC	2.4

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect Sensor with magnetic seeding
Optical Displacement Sensor

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Guidance and Control Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
VHI-1 Delta 1, Pitch Actuator, 0 to ± 14 ma.	2.4
VHI-2 Delta 1, Pitch Actuator, 0 to ± 14 ma.	2.4
VHI-3 Delta 1, Pitch Actuator, 0 to ± 14 ma.	2.4
VHI-4 Delta 1, Pitch Actuator, 0 to ± 14 ma.	2.4
VH2 -1 Delta 1, Yaw Actuator, 0 to ± 14 ma.	2.4
VH2-2 Delta 1, Yaw Actuator, 0 to ± 14 ma.	25
VH2-3 Delta 1, Yaw Actuator, 0 to ± 14 ma.	25
VH2-4 Delta 1, Yaw Actuator, 0 to ± 14 ma.	25

Note all Measurements 5%

APPLICABLE PASSIVE TECHNIQUE:

Hall effect device with flux concentrating core.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Guidance and Control Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
VHI-401 Valve current, pitch actuator, 0 to ± 50 ma.	2.4
VH2-401 Valve current, yaw actuator 0 to ± 50 ma.	2.4
VH3-400 Attitude control engine, pitch eng. relay IP-111P ± 2.5VDC	25
VH4-400 Attitude control engine, engine relay 1 11-1 IV ± 2.5VDC	25
VH5-400 Attitude control engine, engine relay 111 11-111 IV ± 2.5VDC	25

APPLICABLE PASSIVE TECHNIQUE:

Hall effect devices:

1. With flux concentrator to measure current.
2. On relay to monitor activation.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Guidance and Control Measurement Summary

TYPE OF MEASUREMENT:	Response CPS
VH10-603 X Accelerometer Pickup ST-124M 0 to ± 1 Deg.	25
VH11-603 Y Accelerometer Pickup ST-124M 0 to ± 1 Deg.	25
VH12-603 Z Accelerometer Pickup ST-124M 0 to ± 1 Deg.	25

All Measurements 5%

APPLICABLE PASSIVE TECHNIQUE:

A MOS-FET electrometer could be used to decouple the output voltage measurement from the actual signal line.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Guidance and Control Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
H13-603 X Accelerometer Servo, ST-124M 0 to ± 5 VDC	160
H14-603 Y Accelerometer Servo, ST-124M 0 to ± 5 VDC	160
H15-603 Z Accelerometer Servo, ST-124M 0 to ± 5 VDC	160

All Measurements 5%

APPLICABLE PASSIVE TECHNIQUE:

A MOS-FET electrometer could be used to decouple the output voltage measurement from the actual signal line.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Guidance and Control Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
H16-603 X accelerometer, A1 0.05M/sec/pulse	2.4
H17-603 X accelerometer, B1 0.05M/sec/pulse	1050
H18-603 X accelerometer, A2 0.05M/sec/pulse	1050
H19-603 X accelerometer, B2 0.05M/sec/pulse	1050
H20-603 Y accelerometer, A1 0.05M/sec/pulse	2.4
H21-603 Y accelerometer, B1 0.05M/sec/pulse	600
H22-603 Y accelerometer, A2 0.05M/sec/pulse	600
H23-603 Y accelerometer, B2 0.05M/sec/pulse	600
H24-603 Z accelerometer, A1 0.05M/sec/pulse	2.4
H25-603 Z accelerometer, B1 0.05M/sec/pulse	450
H26-603 Z accelerometer, A2 0.05M/sec/pulse	450
H27-603 Z accelerometer, B2 0.05M/sec/pulse	450

All Measurements 5%

APPLICABLE PASSIVE TECHNIQUE:

Opto-electronics or a MOS-FET electrometer could be used to decouple the measurement from the signal carrying line.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Guidance and Control Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
H35-603 Voltage, 4.8KC platform excitation, 8-12 VAC	2.4
H36-603 Voltage, 4.8KC platform excitation, 8-12 VAC	2.4
VH40-603 X gyro pickup, ST-124M, 0 to ± 1 Deg.	25
VH41-603 Y gyro pickup, ST-124M, 0 to ± 1 Deg.	25
VH42-603 Z gyro pickup, ST-124M, 0 to ± 1 Deg.	25

All Measurements 5%

APPLICABLE PASSIVE TECHNIQUE:

A MOS-FET electrometer could be used to decouple the measurement from the signal carrying line.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Guidance and Control Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
H44-603 output, X gyro servo 0 to ± 1.25 VDC	35
H45-603 output, Y gyro servo 0 to ± 1.25 VDC	80
H46-603 output, Z gyro servo 0 to ± 1.25 VDC	110
VH69-602 attitude error signal, ang. pos. roll, 0 to ± 45 VDC	25
VH70-602 attitude error signal, ang. pos. yaw, 0 to ± 45 VDC	25
VH71-602 attitude error signal, ang. pos. pitch, 0 to ± 45 VDC	25
H60-603 gid comp. operation 0 or 28 VDC	50

All Measurements 5% except H60-603

APPLICABLE PASSIVE TECHNIQUE:

A MOS-FET electrometer could be used to decouple the measurement from the signal carrying line.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Guidance and Control Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
VH54-603 Attitude pitch, ladder output guidance computer, 0 to ± 15 Deg.	2.4
VH55-603 Attitude yaw, ladder output guidance computer, 0 to ± 15 Deg.	2.4
VH56-603 Attitude roll, ladder output guidance computer, 0 to ± 15 Deg.	2.4

All Measurements 5%

APPLICABLE PASSIVE TECHNIQUE:

The ladder outputs are required in the calculation of attitude error signals. However, a MOS-FET voltage sensing device could be used to decouple the measurement function from the required signal line.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: RF + Telemetering Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
J1-603 AZUSA power output, 0 to 2.4 VDC	2.4
J2-603 AZUSA AGC voltage, 0 to 3.0 VDC	2.4
J7-603 C-Band receiver input signal, 0 to 1.0 VDC	2.4
J8-603 C-Band interrogation PRF, 0 to 1.0 VDC	2.4
J20-603 Command receiver limiter test voltage, (TM #1),0 to 5 VDC	2.4
J66-603 Command receiver limiter test voltage (TM #2), 0 to 5 VDC	2.4

APPLICABLE PASSIVE TECHNIQUE:

MOS-FET electrometers could be used to decouple the measurements from the signal carrying lines.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: RF + Telemetering Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
J66-603 Command receiver limiter, 0 or 5 VDC	2.4
J67-603 Incident power, C-Band, 0 to 6 VDC	2.4
J68-603 Reflected power, C-Band, 0 to 5 VDC	2.4

APPLICABLE PASSIVE TECHNIQUE:

A MOS-FET electrometer could be used to decouple the measurement from signal carrying line.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Signals Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
K3-603 SW SEL, zero indicate, 0 or 28 VDC	25
VK4-603 SE SEL, output, 0 to 5 VDC	25
VK5-603 SW SEL, stage select, 0 or 28 VDC	25
VK6-603 SW SEL, read command, 0 or 28 VDC	25
K7-603 SW SEL, reset, 0 or 28 VDC	25
VK8-603 SW SEL, register verification, 0 or 28 VDC	25
VK20-602 S-IVB, burn, 0 or 28 VDC	2.4
VK22-602 Servo amplifier comparator, pitch, 0 or 28 VDC	2.4
VK23-602 Servo amplifier comparator, yaw, 0 or 28 VDC	2.4
VK9-602 EDS, S-IB engine out (engine 1-8), 0 or 28 VDC	2.4
VK10-602 EDS, S-IB engine out (engines 2-8), 0 or 28 VDC	2.4
VK11-602 EDS, S-IB two engine out signal A, 0 or 28 VDC	2.4
VK12-602 EDS, S-IB two engine out signal B, 0 or 28 VDC	2.4
VK13-602 EDS, +6095 Bus energized, 0 or 28 VDC	2.4
VK14-602 EDS, S-IB or S-IVB engine cutoff from S.C., 0 or 28 VDC	2.4
VK15-602 EDS, or manual cutoff of S-IB or S-IVB, 0 or 28 VDC	2.4
VK16-602 EDS, or manual cutoff of S-IB or S-IVB, 0 or 28 VDC	2.4
VK17-602 EDS manual cutoff of S-IB or S-IVB engine armed, 0 or 28 VDC	2.4
VK18-602 EDS manual cutoff of S-IB or S-IVB engine armed, 0 or 28 VDC.	2.4

APPLICABLE PASSIVE TECHNIQUE:

Hall effect or opto-electronic coupling could be used to replace the measurements being made by relay closure.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Signals Measurement Summary

FROM SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response cps
VK24-602 Spacial amplifier comparator, roll-yaw 10, 0 or 28 VDC	2.4
VK25-602 Spacial amplifier comparator, pitch, 0 or 28 VDC	2.4
VK26-602 Spacial amplifier comparator, roll-yaw 11, or 28 VDC	2.4
VK32-601 Control accelerometers on indication, 0 or 28 VDC	2.4
VK33-603 Control computer on indication bus +6011, 0 or 28 VDC	2.4
VK34-603 Control computer on indication bus +6031, 0 or 28 VDC	2.4
VK35-603 Control computer on indication bus +6041, 0 or 28 VDC	2.4
VK36-602 Control signal processor on indication, 0 or 28 VDC	2.4
VK37-601 Switch selector register test, 0 or 28 VDC	2.4
K27-603 Range safety decoder output #1, 0 or 28 VDC	25
K28-603 Range safety decoder output #2, 0 or 28 VDC	25
K29-603 Range safety decoder output #3, 0 or 28 VDC	25
K30-603 Range Safety decoder output #4, 0 or 28 VDC	25
K31-603 Range safety decoder output #5, 0 or 28 VDC	25

APPLICABLE PASSIVE TECHNIQUE:

Hall effect or opto-electronic coupling could be used to replace the measurements being made by relay closure.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Signals Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response cps
VK38-601 Radar transponder power on, 0 or 28 VDC	2.4
VK39-601 AZUSA transponder power on, 0 or 28 VDC	2.4
VK42-602 F1 R.F. assembly on indication, 0 or 28 VDC	2.4
VK43-602 FL T.M. assembly on indication, 0 or 28 VDC	2.4
VK44-602 F2 R.F. assembly on indication, 0 or 28 VDC	2.4
VK45-602 F2 T.M. assembly on indication, 0 or 28 VDC	2.4
VK47-602 PCM/DDAS T.M. assembly on indication, 0 or 28 VDC	2.4
VK48-602 S1 R.F. assembly on indication, 0 or 28 VDC	2.4
VK49-602 S1 T.M. assembly on indication, 0 or 28 VDC	2.4
VK50-602 Tape recorder record on, 0 or 28 VDC	2.4
VK52-602 Tape recorder play back forward on indication, 0 or 28 VDC	2.4
VK46-602 PCM/R.F. assembly on indication, 0 or 28 VDC	2.4

APPLICABLE PASSIVE TECHNIQUE:

Hall effect, opto-electronic coupling devices could be used to decouple the measurements made by relay closure.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Signals Measurement Summary

FROM SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response cps
VK53-602 Tape recorder power on indication, 0 or 28 VDC	2.4
VK54-602 Measuring rack on indication, 0 or 28 VDC	2.4
VK55-602 Measurement transferred to DDAS measurements, 0 or 28 VDC	2.4
VK56-602 TM calibrator assembly on indication, 0 or 28 VDC	2.4
VK57-603 Q-Ball on indication bus 6021, 0 or 28 VDC	2.4
VK58-603 Q-Ball on indication bus 6041, 0 or 28 VDC	2.4
VK59-601 Cooling system electronic on indication, 0 or 28 VDC	2.4
VK60-601 Measuring rack 602A 408 on indication, 0 or 28 VDC	2.4
VK61-603 Summation gyro currents (ST-124-M-3), 0 to 7.5 VDC	2.4
VK62-603 Summation accel. currents (ST-124-M-3), 0 to 7.5 VDC	2.4
VK54-601 Measuring racks on indication, 0 or 28 VDC	2.4
VK63-602 S-IB stage separation, 0 or 28 VDC	2.4
VK86-603 EDS 40 Sec-Timer timed out, 0 to 28 VDC	2.4
VK87-602 Let jettison CMD, 0 or 28 VDC	2.4

Note VK62-603 Measurement 5%

APPLICABLE PASSIVE TECHNIQUE:

Hall effect or opto-electronic coupling could be used to replace the measurements being made by relay closure.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Voltage, Current and Frequency Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response CPS
VXMI-602 Measuring voltage, 0 to 5 VDC	2.4
V M2-602 Beta command voltage, 0 to 9 VDC	2.4
V M3-601 Voltage, 56 VDC supply, 50 to 66 VDC	2.4

APPLICABLE PASSIVE TECHNIQUE:

VXMI-602 and VM2-602-MOS-FET electrometer
VM-601-Scale voltage down to operating
voltage of light emitting diode
(opto-electronics)

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Voltage, Current and Frequency Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response cps
M4-603 Frequency, 250VA inverter, 400 ± .10 cps	2.4

APPLICABLE PASSIVE TECHNIQUE:

The output can be decoupled using a light emitting diode coupled to a light sensor. The decoupled output can then be counted. This sensing could also be done at the 4.8kHz output point.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Voltage, Current and Frequency Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:		Response cps
M6-603 Voltage, 250VA inverter, phase AB	22 to 30 VAC	2.4
M7-603 Voltage, 250VA inverter, phase BC	22 to 30 VAC	2.4
M8-603 Voltage, 250VA inverter, phase CA	22 to 30 VAC	2.4

APPLICABLE PASSIVE TECHNIQUE:

Scale voltage down to operating voltage of light emitting diode (opto-electronics)

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Voltage, Current and Frequency Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response cps
M19-601-6041 bus voltage, 24 to 32 VDC	2.4
VM21-602-EDS bus voltage +6091, 0 or 28 VDC	2.4
VM22-602-EDS bus voltage +6093, 0 or 28 VDC	2.4
VM23-602-EDS bus voltage +6093, 0 or 28 VDC	2.4
VM24-603-Data adapter +20 volt supply, 0 or +20 VDC	2.4
VM25-603-Data adapter +12 volt supply, 0 or +12 VDC	2.4
VM26-603-Data adapter +6 volt supply, (LVDC) 0 or +6 VDC	2.4

APPLICABLE PASSIVE TECHNIQUE:

Opto-Electronic Coupling.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Voltage, Current and Frequency Measurement Summary

FROM: S-IB-IU TO: Telemetry

TYPE OF MEASUREMENT:		Response cps
XM20-601 6040 Battery Current,	0 to 300A	2.4

APPLICABLE PASSIVE TECHNIQUE:

Hall Effect
Magneto Resistor

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Angular Velocity Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response cps
VR4-602 Ang. vel., pitch control, 0 to ± 10 Deg./sec.	2.4
VR5-602 Ang. vel., yaw control, 0 to ± 10 Deg./sec.	2.4
VR6-602 ang. vel., roll control, 0 to ± 10 Deg./sec.	2.4
VR7-602 Ang. vel., pitch EDS group 1, 0 to ± 10 Deg./sec.	2.4
VR8-602 Ang. vel., yaw EDS group 1, (reference) 0 to ± 10 Deg./sec.	2.4
VR9-602 Ang. vel., roll EDS group 1 (reference), 0 to ± 10 Deg./sec.	2.4
VR10-602 Ang. vel., pitch EDS group 2, 0 to ± 10 Deg./sec.	2.4
VR11-602 Ang. vel., yaw EDS group 2, 0 to ± 10 Deg./sec.	2.4
VR12-602 Ang. vel., roll EDS group 2, 0 to ± 10 Deg./sec.	2.4
VR13-602 Ang. vel., pitch EDS group 3, 0 to ± 10 Deg./sec.	2.4
VR14-602 Ang. vel., yaw EDS group 3, 0 to ± 10 Deg./sec.	2.4
VR15-602 Ang. vel., roll EDS group 3, 0 to ± 10 Deg./sec.	2.4

APPLICABLE PASSIVE TECHNIQUE:

The control rate gyro is a required input to the flight control computer. A MOS-FET could be used to decouple the measurement from the signal carrying line.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Angular Velocity Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response cps
VR16-602 Pitch rate SW, EDS group 1, 0 or 28 VDC	2.4
VR17-602 Yaw rate SW, EDS group 1, 0 or 28 VDC	2.4
VR18-602 Roll rate SW, EDS group 1, 0 or 28 VDC	2.4
VR19-602 Pitch rate SW, EDS group 2, 0 or 28 VDC	2.4
VR20-602 Yaw rate SW, EDS group 2, 0 or 28 VDC	2.4
VR21-602 Roll rate SW, EDS group 2, 0 or 28 VDC	2.4
VR22-602 Pitch rate SW, EDS group 3, 0 or 28 VDC	2.4
VR23-602 Yaw rate SW, EDS group 3, 0 or 28 VDC	2.4
VR24-602 Roll rate SW, EDS group 3, 0 or 28 VDC	2.4

APPLICABLE PASSIVE TECHNIQUE:

Hall devices, opto-electronic coupling or MOS-FET electrometers could be used to replace measurements being made by relay closure. The Hall device could be mounted in or on the relay.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Angular Velocity Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:	Response cps
VR 25-602 EDS locking relay monitor 1 (roll), 0 or 28 VDC	2.4
VR 26-602 EDS locking relay monitor 2 (yaw), 0 or 28 VDC	2.4
VR 27-602 EDS locking relay monitor 3 (pitch), 0 or 28 VDC	2.4
VR 28-602 EDS wheel speed group 1, 0 or 28 VDC	2.4
VR 29-602 EDS wheel speed group 2, 0 or 28 VDC	2.4
VR 30-602 EDS wheel speed group 3, 0 or 28 VDC	2.4

APPLICABLE PASSIVE TECHNIQUE:

VR 25 602 thru VR 27 602 - Hall Device
VR 28 602 thru VR 30 602 - The method of measuring frequency variation by magnetic seeding is already passive.

PASSIVE APPLICATIONS - TELEMETRY MEASUREMENTS

FUNCTION: Angular Velocity Measurement Summary

FROM: SIB-IU TO: Telemetry

TYPE OF MEASUREMENT:

VR 33-602 EDS, monitor ang. vel. roll group 1, 0 to ± 20 Deg./sec.
VR 34-602 EDS, monitor ang. vel. roll group 2, 0 to ± 20 Deg./sec.
VR 35-602 EDS, monitor ang. vel. roll group 3, 0 to ± 20 Deg./sec.

APPLICABLE PASSIVE TECHNIQUE:

The control rate gyro is a required input to the flight control computer and replacement of these units is not recommended. A MOS-FET could be used to decouple the measurement from the signal carrying line.