APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF
1. TEST TITLE SATURN V GROUND COMPUTER INTERFACE TEST	2. KSC TEST NO. V-22002-GSE39 11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
N/A	NOT ESTABLISHED	

15. TEST CONFIGURATION
N/A

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[ ] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[ ] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[ ] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[ ] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[X] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[X] COUNTDOWN CLOCK	[X] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[ ] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[ ]	[ ]	[ ] FOOD SERVICE
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

OTHERS:

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

PAGE 1 OF

1. TEST TITLE

SATURN V GROUND COMPUTER TEST SUPPORT PROCEDURE

2. KSC TEST NO.
V-22003-GSE39

3. STAGE, VEHICLE OR GSE
GROUND COMPUTER

4. TEST OBJECTIVES

GROUND COMPUTER PREPARATION AND OPERATIONAL PROCEDURE FOR SATURN V TEST SUPPORT.

5. TEST DESCRIPTION/EQUIPMENT STATUS

TEST PROCEDURE INCLUDES THE FOLLOWING:

1. PREPARATION FOR SUPPORT
2. OPERATIONAL PROGRAM LOADING AND INITIALIZATION
3. DISCRETE INITIALIZATION
4. NORMAL TERMINATION
5. OPERATIONAL PROGRAM REINITIALIZATION
6. COMPUTER EMERGENCY PROCEDURE
7. APPENDIX

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
R. Bernard	R. D. Clements	7-19-66
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
IBM-GROUND COMPUTER SYSTEM	LVO 242	AS- 502

KSC FORM 23-191A (2/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 4
1. TEST TITLE SATURN V GROUND COMPUTER TEST SUPPORT PROCEDURE	2. KSC TEST NO. V-22003-GSE39
	11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
N/A	NOT ESTABLISHED	

15. TEST CONFIGURATION
N/A

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[ ] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[ ] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[ ] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[ ] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[X] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[ ] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[ ]	[ ]	[ ] FOOD SERVICE
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

OTHERS:

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

FLIGHT CONTROL ESE READINESS TEST

2. KSC TEST NO.
V-23000-GSE 39A

3. STAGE, VEHICLE OR GSE
IU ESE

4. TEST OBJECTIVES

A. TO VERIFY THAT ALL TEST SPECIFICATIONS AND DATA REQUIREMENTS FOR VEHICLE FLIGHT CONTROL SYSTEM EQUIPMENT IS AVAILABLE.

B. TO VERIFY AND PRESET LCC FLIGHT CONTROL PANEL METER AND RECORDER CONTROL SCALING CIRCUITS USING DDAS GROUND STATION COMMANDS.

C. TO VERIFY PROPER OPERATION OF THE SUBSTITUTE AND TORQUE RAMPS IN THE ML ESE.

D. TO VERIFY THE LCC RECORDER SYSTEM IS READY TO SUPPORT VEHICLE TESTS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DESCRIPTION

A. APPLICABLE TEST SPECIFICATIONS AND DATA REQUIREMENTS ARE LISTED.

B. PANEL METER AND RECORDER SCALING CIRCUITS ARE ADJUSTED FOR ZERO AND ± FULL SCALE RANGES USING DIGITAL SIGNALS SUBSTITUTED FROM THE LCC DDAS GROUND STATION.

C. THIS PROCEDURE PROVIDES STEPS FOR ADJUSTING AMPLITUDE AND SLOPE OF THE RAMP GENERATORS.

D. A TABLE WILL BE DETERMINED, BASED ON CALIBRATION VOLTAGE INPUTS. THE FUNCTIONAL RECORDER SYSTEM CHECK WILL UTILIZE TABLE REFERENCE VALUES.

STATUS

A. THIS TEST PROCEDURE MAY BE PERFORMED PRIOR TO FLIGHT HARDWARE INSTALLATION.

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
J. M. Ward	Vincent A. Elentri	June 13, 1966
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
IBM CORP.	LVO-244 NASA Flight Control	AS- 502

KSC FORM 23-181A (8/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)		PAGE 2 OF 2
1. TEST TITLE FLIGHT CONTROL ESE READINESS TEST		2. KSC TEST NO. V-23000-GSE 39A 11. VEHICLE EFFECTIVITY AS- 502
12. WHERE TEST PERFORMED LCC/ML	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE) N/A	14. EST. TEST TIME 15 HRS

15. TEST CONFIGURATION
LCC FLIGHT CONTROL RECORDERS INSTALLED

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[ ] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[ ] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[ ] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU ELECTRICAL SYS	[ ]	[ ] FOOD SERVICE
[X] IU FLIGHT CONTROL	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

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OTHERS:

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

FLIGHT CONTROL SYSTEM NULL TEST (S-IC/IU)

2. KSC TEST NO.
V-23001-SA 502

3. STAGE, VEHICLE OR GSE
IU/S-IC

4. TEST OBJECTIVES

A. TO DETERMINE THE S-IC ACTUATOR POSITION NULLS WITH HYDRAULICS ON AND NO INPUTS INTO THE CONTROL COMPUTER.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DESCRIPTION

A. WITH THE CONTROL COMPUTER AND STAGE HYDRAULICS ON, S-IC SERVO VALVE CURRENT AND ACTUATOR POSITIONS ARE RECORDED ON THE LCC FLIGHT CONTROL RECORDERS.

B. RECORDED DATA IS COMPARED WITH TEST SPECIFICATIONS.

STATUS

A. THIS PROCEDURE WILL BE JOINTLY WRITTEN AND PERFORMED BY IU AND S-IC STAGE CONTRACTORS.

B. ACTUATOR LOCKS ARE OFF FOR THIS TEST.

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
J. R. Beynting for B. T. J. M. Ward	Vincent A. Clentri	June 15, 1966
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
IBM CORP	LVO-244 NASA- Flight Control	AS- 502

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE FLIGHT CONTROL SYSTEM NULL TEST (S-IC/IU)	2. KSC TEST NO. V-23001-SA 502 11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB/PAD 39A	N/A	0.5 HRS.

15. TEST CONFIGURATION: IU AND S-IC ELECTRICALLY MATED, CONTROL COMPUTER IN NORMAL OPERATING CONDITION.

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[X] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[ ] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU FLIGHT CONTROL	[ ]	[ ] FOOD SERVICE
[X] S-IC FLIGHT CONTROL	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

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OTHERS:

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

FLIGHT CONTROL SYSTEM NULL TEST (S-II/IU)

2. KSC TEST NO.
V-23002-SA 502

3. STAGE, VEHICLE OR GSE
IU/S-II

4. TEST OBJECTIVES

A. TO DETERMINE THE S-II ACTUATOR POSITION NULLS WITH HYDRAULICS ON AND NO INPUTS INTO THE CONTROL COMPUTER.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DESCRIPTION

A. WITH THE CONTROL COMPUTER AND STAGE HYDRAULICS ON, RECORD S-II SERVO VALVE CURRENT AND ACTUATOR POSITIONS ON THE LCC FLIGHT CONTROL RECORDERS.

B. RECORDED DATA IS COMPARED WITH TEST SPECIFICATIONS.

STATUS

A. THIS PROCEDURE WILL BE JOINTLY WRITTEN AND PERFORMED BY IU AND S-II STAGE CONTRACTORS.

B. ACTUATOR LOCKS ARE OFF FOR THIS TEST.

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
L. M. Ward H.F. Crawford-NAA	Vincent A. Elentri	June 15, 1966
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
IBM corp	LVO-244 NASA-Flight Control	AS-502

KSC FORM 23-191A (2/68)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE FLIGHT CONTROL SYSTEM NULL TEST (S-II/IU)	2. KSC TEST NO. V-23002-SA 502 11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB/PAD 39A	N/A	0.5 HRS.

15. TEST CONFIGURATION: IU AND S-II ELECTRICALLY MATED, CONTROL COMPUTER IN NORMAL OPERATING CONDITION.

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[ ] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[X] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU FLIGHT CONTROL	[ ]	[ ] FOOD SERVICE
[X] S-II FLIGHT CONTROL	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

OTHERS:

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

FLIGHT CONTROL SYSTEM NULL TEST (S-IVB/IU)

2. KSC TEST NO.
V-23003-SA 502

3. STAGE, VEHICLE OR GSE
IU/S-IVB

4. TEST OBJECTIVES

A. TO DETERMINE THE S-IVB ACTUATOR POSITION NULLS WITH HYDRAULICS ON AND NO INPUTS INTO THE CONTROL COMPUTER.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DESCRIPTION

A. WITH THE CONTROL COMPUTER AND STAGE HYDRAULICS ON, S-IVB SERVO VALVE CURRENT AND ACTUATOR POSITIONS ARE RECORDED ON THE LCC FLIGHT CONTROL RECORDERS FOR BOTH ACTIVE AND SPARE CHANNELS.

B. RECORDED DATA IS COMPARED WITH TEST SPECIFICATIONS.

STATUS

A. THIS PROCEDURE WILL BE JOINTLY WRITTEN AND PERFORMED BY IU AND S-IVB STAGE CONTRACTORS.

B. ACTUATOR LOCKS ARE OFF FOR THIS TEST.

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
L. M. Ward	Vincent A. Clentis	June 15, 1966
7. ORGANIZATION	9. ORGANIZATION LVO-244	11. VEHICLE EFFECTIVITY
IBM Corp	NASA-Flight Control	AS- 502

KSC FORM 23-191A (2/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE FLIGHT CONTROL SYSTEM NULL TEST (S-IVB/IU)	2. KSC TEST NO. V-23003-SA 502 11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB/PAD 39A	N/A	0.5 HRS.

15. TEST CONFIGURATION: IU AND S-IVB ELECTRICALLY MATED, CONTROL COMPUTER IN NORMAL OPERATING CONDITION.

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[ ] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[ ] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[X] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU FLIGHT CONTROL	[X] S-IVB MEASURING	[ ] FOOD SERVICE
[X] S-IVB FLIGHT CONTROL	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

OTHERS:

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS APOLLO/SATURN TEST CATALOG	PAGE 1 OF 2
1. TEST TITLE FUNCTIONAL, POLARITY, AND MEASURING CALIBRATION OF S-IVB APS CONTROL RELAY PACKAGE	2. KSC TEST NO. V-23004-SA 502 3. STAGE, VEHICLE OR GSE IU/S-IVB

4. TEST OBJECTIVES

A. TO VERIFY PROPER OPERATION OF THE CONTROL RELAY PACKAGES.

B. TO ACHIEVE THE FOLLOWING:

(1) S-IVB TELEMETRY CALIBRATION.
(2) CALIBRATION OF S-IVB ENGINE DEFLECTION PANEL, VALVE MONITOR METERS, AND LCC FLIGHT CONTROL RECORDERS.
(3) VERIFICATION OF THE TEST (J-4) AND THE OUTPUT (J-2) CONNECTORS ON THE CONTROL RELAY PACKAGE.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DESCRIPTION

A. THE CONTROL RELAY PACKAGE WILL BE VISUALLY INSPECTED PRIOR TO CONNECTING TEST EQUIPMENT.

B. RELAY OPERATION, RESULTING FROM CONTROL COMPUTER TEST RAMPS, WILL BE MONITORED AT TEST CONNECTOR J-4 WITH THE APS TEST SET.

C. WHEN PROPER RELAY OPERATION IS VERIFIED FOR A GIVEN INPUT, TELEMETRY AND THE LCC RECORDERS AND PANEL METERS WILL BE CALIBRATED AS REQUIRED.

STATUS

A. THIS PROCEDURE WILL BE JOINTLY WRITTEN AND PERFORMED BY IU AND S-IVB STAGE CONTRACTORS.

B. THE APS LOAD BOX AND ASSOCIATED CABLES WILL BE CHECKED PRIOR TO THIS TEST.

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
J. M. Ward M. A. Tribet	Vincent A. Elentri	June 13, 1966
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
IBM CORP. DAC	LVO-244 NASA-Flight Control	AS-502

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE FUNCTIONAL, POLARITY, AND MEASURING CALIBRATION OF S-IVB APS CONTROL RELAY PACKAGE	2. KSC TEST NO. V-23004-SA 502 11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB/PAD 39A	N/A	3.0 HRS.

15. TEST CONFIGURATION

APS DUMMY LOADS WILL BE UTILIZED. CONTROL COMPUTER IN OPERATING CONDITION.

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[ ] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[ ] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[X] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU FLIGHT CONTROL	[X] S-IVB MEASURING	[ ] FOOD SERVICE
[X] S-IVB FLIGHT CONTROL	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

OTHERS:

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

PHI DOT A_1 GAIN AND DYNAMIC TEST (S-IC/IU)

2. KSC TEST NO.
V-23005-SA 502

3. STAGE, VEHICLE OR GSE
IU/S-IC

4. TEST OBJECTIVES

A. TO VERIFY THE FLIGHT CONTROL SYSTEM PHI DOT GAIN USING ATTITUDE RATE COMMANDS AND ENGINE ACTUATOR POSITIONS FOR ALL S-IC SWITCH POINTS.

B. TO VERIFY THE FLIGHT CONTROL SYSTEM DYNAMIC RESPONSE TO ATTITUDE RATE STEP COMMANDS BY RECORDING ENGINE ACTUATOR POSITIONS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DESCRIPTION

A. ATTITUDE RATE COMMANDS AND RESULTANT ACTUATOR POSITIONS ARE RECORDED FOR SPECIFIED PHI DOT INPUTS, TO VERIFY PROPER SYSTEM DC GAIN FOR THE S-IC STAGE.

B. PHI DOT STEP COMMANDS ARE GENERATED BY CHANGING THE CONTROL COMPUTER FROM THE TEST MODE TO THE BURN MODE. ENGINE ACTUATOR POSITION RECORDINGS ARE COMPARED TO PUBLISHED CURVES IN ALL AXES FOR THE DYNAMIC TEST.

STATUS

A. THIS PROCEDURE WILL BE JOINTLY WRITTEN AND PERFORMED BY IU AND S-IC STAGE CONTRACTORS.

B. THE ENGINE ACTUATORS WILL BE DISCONNECTED FOR THE DYNAMIC TEST.

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
Byron J. Tolle Jim Ward	Vincent A. Elentri	June 13, 1966
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
TBC IBM CORP	LVO-249 NASA-Flight Control	AS- 502

KSC FORM 23-501A (9/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE PHI DOT A_1 GAIN AND DYNAMIC TEST (S-IC/IU)	2. KSC TEST NO. V-23005-SA 502 11. VEHICLE EFFECTIVITY AS-502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB	NOT ESTABLISHED	2.0 HRS.

15. TEST CONFIGURATION: CONTROL EDS RATE GYRO/CONTROL SIGNAL PROCESSOR AND CONTROL COMPUTER IN NORMAL OPERATING CONDITION.

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[X] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[ ] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU FLIGHT CONTROL	[ ]	[ ] FOOD SERVICE
[X] S-IC FLIGHT CONTROL	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

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OTHERS:

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

PHI DOT A_1 GAIN AND DYNAMIC TEST (S-II/IU)

2. KSC TEST NO.
V-23006-SA 502

3. STAGE, VEHICLE OR GSE
IU/S-II

4. TEST OBJECTIVES

A. TO VERIFY THE FLIGHT CONTROL SYSTEM PHI DOT GAIN USING ATTITUDE RATE COMMANDS AND ENGINE ACTUATOR POSITIONS FOR ALL S-II SWITCH POINTS.

B. TO VERIFY THE FLIGHT CONTROL SYSTEM DYNAMIC RESPONSE TO ATTITUDE RATE STEP COMMANDS BY RECORDING ENGINE ACTUATOR POSITIONS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DESCRIPTION

A. ATTITUDE RATE COMMANDS AND RESULTANT ACTUATOR POSITIONS ARE RECORDED, FOR SPECIFIED PHI DOT INPUTS, TO VERIFY PROPER SYSTEM DC GAIN FOR THE S-II STAGE.

B. PHI DOT STEP COMMANDS ARE GENERATED BY CHANGING THE CONTROL COMPUTER FROM THE TEST MODE TO THE BURN MODE. ENGINE ACTUATOR POSITION RECORDINGS ARE COMPARED TO PUBLISHED CURVES IN ALL AXES FOR THE DYNAMIC TEST.

STATUS

A. THIS PROCEDURE WILL BE JOINTLY WRITTEN AND PERFORMED BY IU AND S-II STAGE CONTRACTORS.

B. THE ENGINE ACTUATORS WILL BE DISCONNECTED FOR THE DYNAMIC TEST.

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
H. F. Crawford-NAA J. M. Ward	Vincent A. Elentri	June 13, 1966
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
IBM COSS	LVO-244 NASA-Flight Control	AS-502

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE PHI DOT A_1 GAIN AND DYNAMIC TEST (S-II/IU)	2. KSC TEST NO. V-23006-SA 502 11. VEHICLE EFFECTIVITY AS-502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB	NOT ESTABLISHED	2.0 HRS.

15. TEST CONFIGURATION: CONTROL EDS RATE GYRO/CONTROL SIGNAL PROCESSOR, AND CONTROL COMPUTER IN NORMAL OPERATING CONDITION.

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[ ] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[X] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU FLIGHT CONTROL	[ ]	[ ] FOOD SERVICE
[X] S-II FLIGHT CONTROL	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

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OTHERS:

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

PHI DOT A_1 GAIN AND DYNAMIC TEST (S-IVB/IU)

2. KSC TEST NO.
V-23007-SA 502

3. STAGE, VEHICLE OR GSE
IU/S-IVB

4. TEST OBJECTIVES

A. TO VERIFY THE FLIGHT CONTROL SYSTEM PHI DOT GAIN USING ATTITUDE RATE COMMANDS, ENGINE ACTUATOR POSITION, APS DUTY CYCLE FOR ALL S-IVB SWITCH POINTS AND MODES.

B. TO VERIFY THE FLIGHT CONTROL SYSTEM DYNAMIC RESPONSE TO ATTITUDE RATE STEP COMMANDS BY RECORDING ENGINE ACTUATOR POSITIONS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DESCRIPTION

A. ATTITUDE RATE COMMANDS AND RESULTANT ACTUATOR POSITIONS AND APS DUTY CYCLES ARE RECORDED FOR SPECIFIED PHI DOT INPUTS, TO VERIFY PROPER SYSTEM GAINS FOR THE S-IVB BURN AND COAST MODES.

B. PHI DOT STEP COMMANDS ARE GENERATED BY CHANGING THE CONTROL COMPUTER FROM THE TEST MODE TO THE BURN MODE. ENGINE ACTUATOR POSITION RECORDINGS ARE COMPARED TO PUBLISHED CURVES FOR THE DYNAMIC TEST.

STATUS

A. THIS PROCEDURE WILL BE JOINTLY WRITTEN AND PERFORMED BY IU AND S-IVB STAGE CONTRACTORS.

B. THE ENGINE ACTUATORS WILL BE DISCONNECTED FOR THE DYNAMIC TESTS.

C. APS POWER MAY BE ON IF VALVE DUMMY LOADS ARE INSTALLED.

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
J. M. Ward, M. A. Tucker	Vincent A. Elentri	June 13, 1966
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
IBM CORP DAC	LVO-244 NASA-Flight Control	AS- 502

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE PHI DOT A_1 GAIN AND DYNAMIC TEST (S-IVB/IU)	2. KSC TEST NO. V-23007-SA 502 11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB	NOT ESTABLISHED	2.0 HRS.

15. TEST CONFIGURATION: CONTROL EDS RATE GYRO/CONTROL SIGNAL PROCESSOR AND CONTROL COMPUTER IN NORMAL OPERATING CONDITION.

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[ ] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[ ] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[X] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU FLIGHT CONTROL	[ ]	[ ] FOOD SERVICE
[X] S-IVB FLIGHT CONTROL	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

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OTHERS:

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

S-IC DYNAMIC PRESSURE FEEDBACK TEST

2. KSC TEST NO.
V-23008-SA 502

3. STAGE, VEHICLE OR GSE
IU/S-IC

4. TEST OBJECTIVES

A. TO VERIFY THAT THE DYNAMIC PRESSURE FEEDBACK (DPF) WITHIN THE S-IC SERVOACTUATOR IS FUNCTIONING PROPERLY.

B. TO VERIFY DYNAMIC RATE OF THE LOADED SERVOACTUATOR.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DESCRIPTION

A. WITH THE CONTROL COMPUTER AND HYDRAULICS ON, APPLY A STEP INPUT TO THE SERVOACTUATOR.

B. RECORD THE INPUT STEP AND THE SERVOACTUATOR MEASURING POT OUTPUT.

C. EXAMINE RECORDINGS TO VERIFY DPF OPERATION AND ACTUATOR RATE.

STATUS

A. VERIFY SERVOACTUATORS ARE CONNECTED TO THE F-1 ENGINES.

B. VERIFY ACTUATOR LOCKS OFF.

913

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
Byron J. Felle J. M. Ward	Vincent A. Elentri	June 13, 1966
7. ORGANIZATION TBC IBM CORP	9. ORGANIZATION LVO-244 NASA-Flight Control	11. VEHICLE EFFECTIVITY AS-502

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE S-IC DYNAMIC PRESSURE FEEDBACK TEST	2. KSC TEST NO. V-23008-SA 502 11. VEHICLE EFFECTIVITY AS-502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB/PAD 39A	NOT ESTABLISHED	

15. TEST CONFIGURATION

CONTROL COMPUTER IN NORMAL OPERATING CONDITION

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[X] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[ ] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU FLIGHT CONTROL	[ ]	[ ] FOOD SERVICE
[X] S-IC FLIGHT CONTROL	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

OTHERS:

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

S-II DYNAMIC PRESSURE FEEDBACK TEST

2. KSC TEST NO.
V-23009-SA 502

3. STAGE, VEHICLE OR GSE
IU/S-II

4. TEST OBJECTIVES

A. TO VERIFY THAT THE DYNAMIC PRESSURE FEEDBACK (DPF) WITHIN THE S-II SERVOACTUATOR IS FUNCTIONING PROPERLY.

B. TO VERIFY DYNAMIC RATE OF THE LOADED SERVO-ACTUATOR.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DESCRIPTION

A. WITH THE CONTROL COMPUTER AND HYDRAULICS ON, APPLY A STEP INPUT TO THE SERVOACTUATOR.

B. RECORD THE INPUT STEP AND THE SERVOACTUATOR MEASURING POT OUTPUT.

C. EXAMINE RECORDINGS TO VERIFY DPF OPERATION AND ACTUATOR RATE.

STATUS

A. VERIFY SERVOACTUATORS ARE CONNECTED TO THE J-2 ENGINES.

B. VERIFY ACTUATOR LOCKS OFF.

795

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
F. F. Crawford - NAA F. M. Ward	Vincent A. DeLentis	June 13, 1966
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
IBM CORP	LVO - 244 NASA - Flight Control	AS - 502

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE S-II DYNAMIC PRESSURE FEEDBACK TEST	2. KSC TEST NO. V-23009-SA 502 11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB/PAD 39A	NOT ESTABLISHED	

15. TEST CONFIGURATION

CONTROL COMPUTER IN NORMAL OPERATING CONDITION

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[ ] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[X] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU FLIGHT CONTROL	[ ]	[ ] FOOD SERVICE
[X] S-II FLIGHT CONTROL	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

OTHERS

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

S-IVB DYNAMIC PRESSURE FEEDBACK TEST

2. KSC TEST NO.
V-23010-SA 502

3. STAGE, VEHICLE OR GSE
IU/S-IVB

4. TEST OBJECTIVES

A. TO VERIFY THAT THE DYNAMIC PRESSURE FEEDBACK (DPF) WITHIN THE S-IVB SERVOACTUATOR IS FUNCTIONING PROPERLY.

B. TO VERIFY DYNAMIC RATE OF THE LOADED SERVO-ACTUATOR.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DESCRIPTION

A. WITH THE CONTROL COMPUTER AND HYDRAULICS ON, APPLY A STEP INPUT TO THE SERVOACTUATOR.

B. RECORD THE INPUT STEP AND THE SERVOACTUATOR MEASURING POT OUTPUT.

C. EXAMINE RECORDINGS TO VERIFY DPF OPERATION AND ACTUATOR RATE.

STATUS

A. VERIFY SERVOACTUATORS ARE CONNECTED TO THE J-2 ENGINE.

B. VERIFY ACTUATOR LOCKS OFF.

C. VERIFY APS POWER OFF.

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
J. M. Ward M. A. Tibbet	Vincent A. D'Elentri	June 13, 1966
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
IBM CORP DAC	LVO-244 NASA-Flight Control	AS-502

KSC FORM 23-101A (2/68)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE S-IVB DYNAMIC PRESSURE FEEDBACK TEST	2. KSC TEST NO. V-23010-SA 502 11. VEHICLE EFFECTIVITY AS-502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB/PAD 39A	NOT ESTABLISHED	

15. TEST CONFIGURATION
CONTROL COMPUTER IN NORMAL OPERATING CONDITION

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[ ] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[ ] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[X] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU FLIGHT CONTROL	[ ]	[ ] FOOD SERVICE
[X] S-IVB FLIGHT CONTROL	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

OTHERS:

3 10

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

PAGE 1 OF 2

1. TEST TITLE
VISUAL INSPECTION AND FUNCTIONAL TEST OF SPARE S-1C HYDRAULIC ACTUATOR IN THE LABORATORY.

2. KSC TEST NO.
V-23011-SIC2

3. STAGE, VEHICLE OR GSE
AS-502 (Test)

4. TEST OBJECTIVES

TO VERIFY BY VISUAL INSPECTION THAT NO PHYSICAL DAMAGE HAS OCCURRED DURING SHIPMENT AND TO VERIFY PROPER OPERATION OF THE S-1C ACTUATOR UNDER STATIC CONDITIONS BY PERFORMING FUNCTIONAL AND ELECTRICAL CALIBRATION TESTS IN THE LAB.

5. TEST DESCRIPTION/EQUIPMENT STATUS

TEST DESCRIPTION:

PART I:

THE HYDRAULIC ACTUATOR WILL BE VISUALLY INSPECTED FOR ANY PHYSICAL DAMAGE RELATIVE TO ACTUATOR SURFACES, PLUGS, PINS, ETC.

PART II:

INSULATION RESISTANCE AND CONTINUITY TESTS WILL BE PERFORMED ON THE TORQUE MOTOR COILS AND THE BETA MEASURING POTENTIOMETERS. BETA MEASURING POTENTIOMETER NOISE, LINEARITY, AND NULL TESTS WILL BE ACCOMPLISHED.

STATUS:

A. PROCEDURE SET-UP AND CONDITIONS:

VISUAL INSPECTION WILL BE ACCOMPLISHED PRIOR TO ANY OTHER TEST, THE FUNCTION AND ELECTRICAL CALIBRATION TEST WILL BE CONDUCTED PRIOR TO THE LENGTH ADJUSTMENT TEST.

B. LABORATORY TEST EQUIPMENT REQUIRED:

WHEATSTONE BRIDGE, LEEDS AND NORTHRUP CO. MODEL 5305; MEGGER, VIBRO TEST ASSOCIATED RESEARCH, MODEL 201; OSCILLOSCOPE, TEKTRONIX, MODEL 545B; LENGTH ADJUSTMENT FIXTURE AND MECHANICAL STROKER ADAPTER; MID-STROKE LOCKS AND BREAKOUT BOXES (SUITCASE TYPE); RECORDER, PORTABLE FOUR CHANNEL, BRUSH MARK 240 SYSTEM; DIGITAL VOLTMETER, HEWLETT PACKARD 3440A; 0-30 VDC POWER SUPPLY, HEWLETT PACKARD 721A; PORTABLE SUBSTITUTE CONTROL COMPUTER; HYDRAULIC ACTUATOR HOLDING AND HANDLING FIXTURES.

C. MANPOWER REQUIRED:

1 ENGINEER; 1 EQUIPMENT SPECIALIST

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
Byron J. Tellie	V.A. Elentri	June 13, 1966
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
Boeing S-1C Stage	LVO-244 NASA-Flight Control	AS- 502

KSC FORM 23-191A (2/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE Visual Inspection and Functional Test of Spare S-IC Hydraulic Actuator in the Laboratory	2. KSC TEST NO. V-23011-SIC2
	11. VEHICLE EFFECTIVITY AS - 502

12. WHERE TEST PERFORMED	13. COMPUTER/AGE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Saturn V Flight Control Lab	N/A	4 Hours

15. TEST CONFIGURATION
Laboratory (Bench)

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

☐ GROUND POWER	☐ LCC MEASURING (LVO)	☐ ETR/KSC RADAR
☐ S-IB OR S-IC STAGE PWR	☐ LCC MEASURING (IMS)	☐ ETR COMMAND XMITTER
☐ S-II STAGE POWER	☐ GSE MEASURING (LVG)	☐ LOCAL COMMAND (C.L.)
☐ S-IVB STAGE POWER	☐ GSE MEASURING (IMS)	☐ ALDS
☐ IU POWER	☐ LCC DATA DISPLAY	☐ LCC TM STA. (MONITOR)
☐ LEM POWER	☐ CIF DATA DISPLAY	☐ LCC TM RECORDING
☐ SM POWER	☐ DDAS	☐ CIF TM STA. (MONITOR)
☐ CM POWER	☐ DDAS TAPE RECORDING	☐ CIF TM RECORDING
☐ BACK-UP BATTERIES	☐ SERVICE STRUCTURE MEAS.	☐ CIF COMPUTER
☐ TIMING	☐ RCA-110A COMPUTERS	☐ CIF DATA
☐ COUNTDOWN CLOCK	☐ ACE	☐ TM RECORDS
☐ ETR SEQUENCER	☐ L/V W-G ECS	☐ REAL-TIME CIF COMPUT.
☐ ETR COUNTDOWN CLOCK	☐ CM W-G ECS	☐ POST-TEST CIF COMPUT.
☐ ETR S.R.O.	☐ FACILITY ECS (GAS)	☐ KSC TRACKING
☐ ETR R.S.O.	☐ H.P. GAS	☐ RFI MONITORING
☐ ETR PAD SAFETY	☐ CCF	☐ RF READOUTS (ETR)
☐ KSC PAD SAFETY	☐ FACILITY TV (OTV)	☐ RF READOUTS (KSC)
☐ SECURITY POLICE	☐ FACILITY COMM. (OIS)	☐ WEATHER FORECAST
☐ FIRE FIGHTING	☐ FILM CAMERAS	☐ MCC-C
☐ MEDICAL	☐ SEARCH LIGHTS	☐ MCC-H
☐	☐	☐ FOOD SERVICE
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

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OTHERS:
None Required

(CONTINUE ON KSC FORM [illegible] IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

S-1C HYDRAULIC ACTUATOR LENGTH SETUP IN LABORATORY

2. KSC TEST NO.
V-23012-SIC2

3. STAGE, VEHICLE OR GSE
AS-502 (OPS)

4. TEST OBJECTIVES

TO SET THE S-1C ACTUATOR LENGTH FOR A PARTICULAR VEHICLE POSITION.

5. TEST DESCRIPTION/EQUIPMENT STATUS

TEST DESCRIPTION:

A. THE S-1C ACTUATOR WILL BE SET FOR A PARTICULAR VEHICLE POSITION USING A LENGTH ADJUSTMENT FIXTURE. THE ACTUATOR LENGTH WILL BE SET AS SPECIFIED IN THE FINAL ALIGNMENT REPORT FOR VEHICLE.

B. PROCEDURE SETUP AND CONDITIONS:

THIS TEST WILL BE CONDUCTED IN THE LABORATORY ONLY IF AN ACTUATOR REPLACEMENT ON THE VEHICLE IS REQUIRED.

STATUS:

A. LABORATORY TEST EQUIPMENT REQUIRED:

LENGTH ADJUSTMENT FIXTURE
HYDRAULIC ACTUATOR HANDLING FIXTURE
MICROMETER (3")

B. MANPOWER REQUIRED:

(1) ENGINEER; (1) EQUIPMENT SPECIALIST

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
Byron J. Fellers	V. A. Elantri	June 13, 1966
7. ORGANIZATION	9. ORGANIZATION LVO-244	11. VEHICLE EFFECTIVITY
Boeing S-1C Stage	NASA-Flight Control	AS-502

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF
1. TEST TITLE S-IC Hydraulic Actuator Length Setup in the Laboratory	2. KSC TEST NO. V-23012-SIC2 11. VEHICLE EFFECTIVITY AS-502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Saturn V Flight Control Lab	N/A	4 Hours

15. TEST CONFIGURATION

Laboratory (Bench)

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional).*

☐ GROUND POWER	☐ LCC MEASURING (LVO)	☐ ETR/KSC RADAR
☐ S-IB OR S-IC STAGE PWR	☐ LCC MEASURING (INS)	☐ ETR COMMAND XMITTER
☐ S-II STAGE POWER	☐ GSE MEASURING (LVO)	☐ LOCAL COMMAND (C.L.)
☐ S-IVB STAGE POWER	☐ GSE MEASURING (INS)	☐ ALDS
☐ IU POWER	☐ LCC DATA DISPLAY	☐ LCC TM STA. (MONITOR)
☐ LEM POWER	☐ CIF DATA DISPLAY	☐ LCC TM RECORDING
☐ SM POWER	☐ DDAS	☐ CIF TM STA. (MONITOR)
☐ CM POWER	☐ DDAS TAPE RECORDING	☐ CIF TM RECORDING
☐ BACK-UP BATTERIES	☐ SERVICE STRUCTURE MEAS.	☐ CIF COMPUTER
☐ TIMING	☐ RCA-110A COMPUTERS	☐ CIF DATA
☐ COUNTDOWN CLOCK	☐ ACE	☐ TM RECORDS
☐ ETR SEQUENCER	☐ L/V W-G ECS	☐ REAL-TIME CIF COMPUT.
☐ ETR COUNTDOWN CLOCK	☐ CM W-G ECS	☐ POST-TEST CIF COMPUT.
☐ ETR S.R.O.	☐ FACILITY ECS (GAS)	☐ KSC TRACKING
☐ ETR R.S.O.	☐ H.P. GAS	☐ RFI MONITORING
☐ ETR PAD SAFETY	☐ CCF	☐ RF READOUTS (ETR)
☐ KSC PAD SAFETY	☐ FACILITY TV (OTV)	☐ RF READOUTS (KSC)
☐ SECURITY POLICE	☐ FACILITY COMM. (OIS)	☐ WEATHER FORECAST
☐ FIRE FIGHTING	☐ FILM CAMERAS	☐ MCC-C
☐ MEDICAL	☐ SEARCH LIGHTS	☐ MCC-H
☐	☐	☐ FOOD SERVICE
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

OTHERS:

None Required

3 6 2

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

S-1C HYDRAULIC ACTUATOR VISUAL INSPECTION AND ELECTRO-MECHANICAL STATIC TEST.

2. KSC TEST NO.
V-23013-SIC2

3. STAGE, VEHICLE OR GSE
AS-502 (Test)

4. TEST OBJECTIVES

TO VERIFY VISUALLY THAT THE S-1C HYDRAULIC ACTUATORS HAVE NOT BEEN DAMAGED IN SHIPMENT OF THE STAGE, AND TO VERIFY THE RESISTANCE, CONTINUITY, AND NULL OF THE MEASURING POTENTIOMETER.

5. TEST DESCRIPTION/EQUIPMENT STATUS

TEST DESCRIPTION:

A. THE S-1C ACTUATORS WILL BE VISUALLY INSPECTED FOR DAMAGE, LEAKAGE, AND PROPER INSTALLATION. THE POTENTIOMETER WILL BE TESTED FOR CORRECT RESISTANCE AND CONTINUITY. THE POTENTIOMETER AND ACTUATOR POSITION INDICATOR WILL BE TESTED FOR NULL WITH THE MID-STROKE LOCKS INSTALLED.

B. THIS TEST IS TO BE PERFORMED FOLLOWING THE S-1C FLIGHT CONTROL TEST PREPARATIONS, PRIOR TO THE S-1C ACTUATOR MEASURING CALIBRATION TEST.

STATUS:

A. EQUIPMENT REQUIRED:

1. ACTUATOR BREAKOUT BOX
2. LEADS & NORTHRUP WHEATSTONE BRIDGE
3. HEWLETT PACKARD 3440 A DIGITAL VOLTMETER
4. HEWLETT PACKARD 721A POWER SUPPLY 0-30 VDC

B. MANPOWER REQUIRED:

1. FOUR (4) ENGINEERS
2. TWO (2) EQUIPMENT SPECIALISTS

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
Byron J. Felle	V. A. Elentri	June 13, 1966
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
Boeing S-1C Stage	LVO244 NASA-Flight Control	AS- 502

KSC FORM 23-191A (2/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF
1. TEST TITLE S-IC Hydraulic Actuator Visual Inspection and Electro-Mechanical Static Test	2. KSC TEST NO. V-23013-SIC2 11. VEHICLE EFFECTIVITY AS-502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB	N/A	8 Hours

15. TEST CONFIGURATION
Component Test

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

☐ GROUND POWER	☐ LCC MEASURING (LVO)	☐ ETR/KSC RADAR
☐ S-IB OR S-IC STAGE PWR	☐ LCC MEASURING (INS)	☐ ETR COMMAND XMITTER
☐ S-II STAGE POWER	☐ GSE MEASURING (LVO)	☐ LOCAL COMMAND (C.L.)
☐ S-IVB STAGE POWER	☐ GSE MEASURING (INS)	☐ ALDS
☐ IU POWER	☐ LCC DATA DISPLAY	☐ LCC TM STA. (MONITOR)
☐ LEM POWER	☐ CIF DATA DISPLAY	☐ LCC TM RECORDING
☐ SM POWER	☐ DDAS	☐ CIF TM STA. (MONITOR)
☐ CM POWER	☐ DDAS TAPE RECORDING	☐ CIF TM RECORDING
☐ BACK-UP BATTERIES	☐ SERVICE STRUCTURE MEAS.	☐ CIF COMPUTER
☐ TIMING	☐ RCA-110A COMPUTERS	☐ CIF DATA
☐ COUNTDOWN CLOCK	☐ ACE	☐ TM RECORDS
☐ ETR SEQUENCER	☐ L/V W-G ECS	☐ REAL-TIME CIF COMPUT.
☐ ETR COUNTDOWN CLOCK	☐ CM W-G ECS	☐ POST-TEST CIF COMPUT.
☐ ETR S.R.O.	☐ FACILITY ECS (GAS)	☐ KSC TRACKING
☐ ETR R.S.O.	☐ H.P. GAS	☐ RFI MONITORING
☐ ETR PAD SAFETY	☐ CCF	☐ RF READOUTS (ETR)
☐ KSC PAD SAFETY	☑ FACILITY TV (OTV)	☐ RF READOUTS (KSC)
☐ SECURITY POLICE	☐ FACILITY COMM. (OIS)	☐ WEATHER FORECAST
☐ FIRE FIGHTING	☐ FILM CAMERAS	☐ MCC-C
☐ MEDICAL	☐ SEARCH LIGHTS	☐ MCC-H
☐	☐	☐ FOOD SERVICE
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

OTHERS:

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS APOLLO/SATURN TEST CATALOG	PAGE 1 OF 2
1. TEST TITLE S-1C HYDRAULIC ACTUATOR MEASURING CALIBRATION CHECK	2. KSC TEST NO. V-23014-SIC2 3. STAGE, VEHICLE OR GSE AS-502 (Test)

4. TEST OBJECTIVES

TO VERIFY ASSOCIATED VEHICLE AND ESE INTERFACE DESIGN TO MONITOR S-1C ENGINE POSITION.

5. TEST DESCRIPTION/EQUIPMENT STATUS

TEST DESCRIPTION:

PART I:

EXTEND AND RETRACT EACH ACTUATOR WHILE MONITORING BOTH THE ENGINE DEFLECTION PANEL IN THE LCC AND THE PISTON POSITION INDICATOR SIMULTANEOUSLY FOR COMPATIBILITY OF INDICATION. TM TO COMPARE WITH PREDETERMINED CURVES.

PART II:

ACTUATOR "NOT ZERO" LIGHTS CALIBRATION.

STATUS:

PROCEDURE SET-UP AND CONDITIONS:

THIS TEST IS TO BE PERFORMED FOLLOWING THE S-1C HYDRAULIC ACTUATOR VISUAL INSPECTION AND ELECTRO-MECHANICAL STATIC TEST, BUT PRIOR TO THE S-1C I.U. INTERFACE TESTS.

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY Byron J. Tellee	8. NASA-KSC APPROVAL V.A. Pentri	10. APPROVAL DATE
7. ORGANIZATION Boeing S-1C Stage	9. ORGANIZATION LV0244 NASA-Flight Control	11. VEHICLE EFFECTIVITY AS- 502

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF
1. TEST TITLE S-IC Hydraulic Actuator Measuring Calibration Check	2. KSC TEST NO. V-23014-SIC2 11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB	N/A	8 Hours

15. TEST CONFIGURATION
Actuators disconnected from Stage end

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[XX] GROUND POWER	[XX] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[XX] S-IB OR S-IC STAGE PWR	[XX] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[ ] S-II STAGE POWER	[XX] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[XX] GSE MEASURING (INS)	[ ] ALDS
[XX] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[XX] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[ ] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G-ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[✓] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[XX] S-IC MECHANICAL	[ ]	[ ] FOOD SERVICE
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

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OTHERS:

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

Rev. A
PAGE 1 OF 2

1. TEST TITLE
Visual Inspection and Functional Test of Spare S-II Hydraulic Actuator in Laboratory.

2. KSC TEST NO.
V-23015-SII2

3. STAGE, VEHICLE OR GSE
S-II

4. TEST OBJECTIVES

1. To inspect spare actuator for physical damage prior to installation on stage.

2. To verify operation of measuring potentiometer of actuator in laboratory.

5. TEST DESCRIPTION/EQUIPMENT STATUS

The actuator and associated electrical connectors will be visually inspected for damage. The resistance of the potentiometer will be measured.

Equipment status:

(1) Voltage Supply
(2) Voltmeter
(3) Wheatstone Bridge
(4) Oscilloscope

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
H. F. Crawford / Gw Hall	Vincent A. Clentis	June 13, 1966
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
Electrical & Flight Control	LVO-249 NASA - Flight Control	AS-502 DOP-CXX-F001

KSC FORM 23-191 A (2/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE Visual Inspection and Functional Test of Spare S-II Hydraulic Actuator in Laboratory.	2. KSC TEST NO. V-23015-SII2 11. VEHICLE EFFECTIVITY AS-502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
F/C Laboratory	N/A	4 Hrs.

15. TEST CONFIGURATION
N/S

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

☐ GROUND POWER	☐ LCC MEASURING (LVO)	☐ ETR/KSC RADAR
☐ S-IB OR S-IC STAGE PWR	☐ LCC MEASURING (INS)	☐ ETR COMMAND XMITTER
☐ S-II STAGE POWER	☐ GSE MEASURING (LVO)	☐ LOCAL COMMAND (C.L.)
☐ S-IVB STAGE POWER	☐ GSE MEASURING (INS)	☐ ALDS
☐ IU POWER	☐ LCC DATA DISPLAY	☐ LCC TM STA. (MONITOR)
☐ LEM POWER	☐ CIF DATA DISPLAY	☐ LCC TM RECORDING
☐ SM POWER	☐ DDAS	☐ CIF TM STA. (MONITOR)
☐ CM POWER	☐ DDAS TAPE RECORDING	☐ CIF TM RECORDING
☐ BACK-UP BATTERIES	☐ SERVICE STRUCTURE MEAS.	☐ CIF COMPUTER
☐ TIMING	☐ RCA-110A COMPUTERS	☐ CIF DATA
☐ COUNTDOWN CLOCK	☐ ACE	☐ TM RECORDS
☐ ETR SEQUENCER	☐ L/V W-G-ECS	☐ REAL-TIME CIF COMPUT.
☐ ETR COUNTDOWN CLOCK	☐ CM W-G ECS	☐ POST-TEST CIF COMPUT.
☐ ETR S.R.O.	☐ FACILITY ECS (GAS)	☐ KSC TRACKING
☐ ETR R.S.O.	☐ H.P. GAS	☐ RFI MONITORING
☐ ETR PAD SAFETY	☐ CCF	☐ RF READOUTS (ETR)
☐ KSC PAD SAFETY	☐ FACILITY TV (OTV)	☐ RF READOUTS (KSC)
☐ SECURITY POLICE	☐ FACILITY COMM. (OIS)	☐ WEATHER FORECAST
☐ FIRE FIGHTING	☐ FILM CAMERAS	☐ MCC-C
☐ MEDICAL	☐ SEARCH LIGHTS	☐ MCC-H
☐	☐	☐ FOOD SERVICE
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

OTHERS:

3 of 10

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

Rev. A
PAGE 1 OF 2

1. TEST TITLE

S-II Hydraulic Actuator Length Set-Up in Laboratory.

2. KSC TEST NO.
V-23016-SII2

3. STAGE, VEHICLE OR GSE
S-II

4. TEST OBJECTIVES

To adjust spare actuator to proper length prior to installation on stage.

5. TEST DESCRIPTION/EQUIPMENT STATUS

Replacement actuator length is adjusted to required length as specified by appropriate engine and/or stage data package.

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
H. F. Crawford/Lew Hall	Vincent A. Elentri	June 13, 1966
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
Electrical & Flight Control	LVO-246 NASA-Flight Control	502 AS-DOP-CXX-F002

KSC FORM 23-191A (2/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE S-II Hydraulic Actuator Length Set-Up in Laboratory.	2. KSC TEST NO. V-23016-SII2 11. VEHICLE EFFECTIVITY AS - 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
F/C Laboratory	N/A	4 Hrs.

15. TEST CONFIGURATION

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

☐ GROUND POWER	☐ LCC MEASURING (LVO)	☐ ETR/KSC RADAR
☐ S-IB OR S-IC STAGE PWR	☐ LCC MEASURING (INS)	☐ ETR COMMAND XMITTER
☐ S-II STAGE POWER	☐ GSE MEASURING (LVO)	☐ LOCAL COMMAND (C.L.)
☐ S-IVB STAGE POWER	☐ GSE MEASURING (INS)	☐ ALDS
☐ IU POWER	☐ LCC DATA DISPLAY	☐ LCC TM STA. (MONITOR)
☐ LEM POWER	☐ CIF DATA DISPLAY	☐ LCC TM RECORDING
☐ SM POWER	☐ DDAS	☐ CIF TM STA. (MONITOR)
☐ CM POWER	☐ DDAS TAPE RECORDING	☐ CIF TM RECORDING
☐ BACK-UP BATTERIES	☐ SERVICE STRUCTURE MEAS.	☐ CIF COMPUTER
☐ TIMING	☐ RCA-110A COMPUTERS	☐ CIF DATA
☐ COUNTDOWN CLOCK	☐ ACE	☐ TM RECORDS
☐ ETR SEQUENCER	☐ L/V W-G. ECS	☐ REAL-TIME CIF COMPUT.
☐ ETR COUNTDOWN CLOCK	☐ CM W-G ECS	☐ POST-TEST CIF COMPUT.
☐ ETR S.R.O.	☐ FACILITY ECS (GAS)	☐ KSC TRACKING
☐ ETR R.S.O.	☐ H.P. GAS	☐ RFI MONITORING
☐ ETR PAD SAFETY	☐ CCF	☐ RF READOUTS (ETR)
☐ KSC PAD SAFETY	☐ FACILITY TV (OTV)	☐ RF READOUTS (KSC)
☐ SECURITY POLICE	☐ FACILITY COMM. (OIS)	☐ WEATHER FORECAST
☐ FIRE FIGHTING	☐ FILM CAMERAS	☐ MCC-C
☐ MEDICAL	☐ SEARCH LIGHTS	☐ MCC-H
☐	☐	☐ FOOD SERVICE
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

OTHERS:

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

Rev. A
PAGE 1 OF 2

1. TEST TITLE

S-II Hydraulic Actuator Visual Inspection and Electro-Mechanical Static Test.

2. KSC TEST NO.
V-23017-SII2

3. STAGE, VEHICLE OR GSE
S-II

4. TEST OBJECTIVES

1. To verify pistons are undamaged and will move freely.

2. To determine static null.

5. TEST DESCRIPTION/EQUIPMENT STATUS

Measure position potentiometer with actuator locks on. Remove the locks and move piston to full extension and retraction to verify freedom of movement and inspect piston for damage.

Test to be performed on eight (8) actuators.

Equipment Required: Breakout Box
Power Supply
Voltmeter

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
H. F. Crawford	Vincent A. Elentri	June 13, 1966
7. ORGANIZATION Electrical & Flight Control	9. ORGANIZATION LVO-294 NASA - Flight Control	11. VEHICLE EFFECTIVITY AS-502 DOP-CXX-F003

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE S-II Hydraulic Actuator Visual Inspection and Electro-Mechanical Static Test.	2. KSC TEST NO. V-23017-SII2 11. VEHICLE EFFECTIVITY AS-502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB Hi-Bay	N/A	4 Hrs.

15. TEST CONFIGURATION
Actuators in Holding Fixtures and Position Indicator Installed.

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

☐ GROUND POWER	☐ LCC MEASURING (LVO)	☐ ETR/KSC RADAR
☐ S-IB OR S-IC STAGE PWR	☐ LCC MEASURING (INS)	☐ ETR COMMAND XMITTER
☐ S-II STAGE POWER	☐ GSE MEASURING (LVO)	☐ LOCAL COMMAND (C.L.)
☐ S-IVB STAGE POWER	☐ GSE MEASURING (INS)	☐ ALDS
☐ IU POWER	☐ LCC DATA DISPLAY	☐ LCC TM STA. (MONITOR)
☐ LEM POWER	☐ CIF DATA DISPLAY	☐ LCC TM RECORDING
☐ SM POWER	☐ DDAS	☐ CIF TM STA. (MONITOR)
☐ CM POWER	☐ DDAS TAPE RECORDING	☐ CIF TM RECORDING
☐ BACK-UP BATTERIES	☐ SERVICE STRUCTURE MEAS.	☐ CIF COMPUTER
☐ TIMING	☐ RCA-110A COMPUTERS	☐ CIF DATA
☐ COUNTDOWN CLOCK	☐ ACE	☐ TM RECORDS
☐ ETR SEQUENCER	☐ L/V W-G ECS	☐ REAL-TIME CIF COMPUT.
☐ ETR COUNTDOWN CLOCK	☐ CM W-G ECS	☐ POST-TEST CIF COMPUT.
☐ ETR S.R.O.	☐ FACILITY ECS (GAS)	☐ KSC TRACKING
☐ ETR R.S.O.	☐ H.P. GAS	☐ RFI MONITORING
☐ ETR PAD SAFETY	☐ CCF	☐ RF READOUTS (ETR)
☐ KSC PAD SAFETY	☐ FACILITY TV (OTV)	☐ RF READOUTS (KSC)
☐ SECURITY POLICE	☒ FACILITY COMM. (OIS)	☐ WEATHER FORECAST
☐ FIRE FIGHTING	☐ FILM CAMERAS	☐ MCC-C
☐ MEDICAL	☐ SEARCH LIGHTS	☐ MCC-H
☒ SII Mechanical	☐	☐ FOOD SERVICE
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

OTHERS:

{a 2

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

Rev. A
PAGE 1 OF 2

1. TEST TITLE

S-II Hydraulic Actuator Measuring Calibration Check

2. KSC TEST NO.
V-23018-SII2

3. STAGE, VEHICLE OR GSE
S-II

4. TEST OBJECTIVES

1. To verify correct measuring potentiometer output versus actuator position.

2. To calibrate deflection meters and recorders versus actuator position.

5. TEST DESCRIPTION/EQUIPMENT STATUS

1. Move actuator piston to various positions. Read position indicator and position potentiometer output.

2. Calibrate control recorders, measuring recorders, and deflection panel meters versus piston position.

   Perform test for eight (8) actuators.

   STATUS:

   A. Actuator midstroke locks installed for zero only, then removed.

   B. Actuators may be moved manually or with hydraulic power, using Portable Substitute Control Computer.

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
H. F. Crawford	Vincent A. Clentri	June 13, 1966
7. ORGANIZATION Elect. & Flight Control	9. ORGANIZATION LVO-244 NASA - Flight Control	11. VEHICLE EFFECTIVITY 502 AS- DOP-CXX-F004

KSC FORM 23-191A (2/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE: S-II Hydraulic Actuator Measuring Calibration Check.	2. KSC TEST NO.: V-23018-SII2
	11. VEHICLE EFFECTIVITY: AS-502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB High Bay		8 Hrs.

15. TEST CONFIGURATION
Actuators in Holding Fixtures

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

[X] GROUND POWER	[X] LCC MEASURING (LVO)	[ ] ETR/KSC RADAR
[ ] S-IB OR S-IC STAGE PWR	[ ] LCC MEASURING (INS)	[ ] ETR COMMAND XMITTER
[X] S-II STAGE POWER	[ ] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[ ] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[ ] LCC TM RECORDING
[ ] SM POWER	[X] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[ ] TIMING	[X] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] COUNTDOWN CLOCK	[ ] ACE	[ ] TM RECORDS
[ ] ETR SEQUENCER	[ ] L/V W-G ECS	[ ] REAL-TIME CIF COMPUT.
[ ] ETR COUNTDOWN CLOCK	[ ] CM W-G ECS	[ ] POST-TEST CIF COMPUT.
[ ] ETR S.R.O.	[ ] FACILITY ECS (GAS)	[ ] KSC TRACKING
[ ] ETR R.S.O.	[ ] H.P. GAS	[ ] RFI MONITORING
[ ] ETR PAD SAFETY	[ ] CCF	[ ] RF READOUTS (ETR)
[ ] KSC PAD SAFETY	[ ] FACILITY TV (OTV)	[ ] RF READOUTS (KSC)
[ ] SECURITY POLICE	[X] FACILITY COMM. (OIS)	[ ] WEATHER FORECAST
[ ] FIRE FIGHTING	[ ] FILM CAMERAS	[ ] MCC-C
[ ] MEDICAL	[ ] SEARCH LIGHTS	[ ] MCC-H
[X] IU Measuring	[ ]	[ ] FOOD SERVICE
[X] SII Mechanical	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]
[ ]	[ ]	[ ]

OTHERS:

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

VISUAL INSPECTION AND FUNCTIONAL TEST OF SPARE S-IVB ACTUATOR IN LABORATORY

2. KSC TEST NO.

V-23019-SIVB2

3. STAGE, VEHICLE OR GSE

AS-502, SIVB

4. TEST OBJECTIVES

VERIFY THAT SPARE S-IVB ACTUATOR HAS NOT BEEN DAMAGED IN SHIPMENT.

VERIFY THAT ACTUATOR IS FUNCTIONAL ELECTRICALLY.

5. TEST DESCRIPTION/EQUIPMENT STATUS

VISUAL INSPECTION OF ALL SURFACES AND ELECTRICAL PINS OF ACTUATOR.

BETA POTENTIOMETER IS CHECKED FOR NULL POSITION WITH MID-STROKE LOCKS INSTALLED.

SERVO VALVE RESISTANCE MEASUREMENTS ARE MADE.

A. TEST WILL BE PERFORMED IN LABORATORY ON CLEAN WORK BENCH.

B. TEST EQUIPMENT REQUIRED:

5604318 RATIO BOX AND ASSOCIATED CABLES.
OHMMETER

C. REQUIREMENT SHALL EXIST FOR AN ACTUATOR REPLACEMENT ON VEHICLE BEFORE THIS TEST IS PERFORMED.

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
C. M. Townsend	V. A. Elentri	
7. ORGANIZATION	**9. ORGANIZATION** LVO-244	**11. VEHICLE EFFECTIVITY**
DOUGLAS AIRCRAFT COMPANY, INC.	NASA-Flight Control	AS- 502

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE VISUAL INSPECTION AND FUNCTIONAL TEST OF SPARE S-IVB ACTUATOR IN LABORATORY	2. KSC TEST NO. V-23019-SIVB2 11. VEHICLE EFFECTIVITY AS-502, S-IVB

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB/HYDRAULIC LABORATORY		

15. TEST CONFIGURATION

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

☐ GROUND POWER	☐ LCC MEASURING (LVO)	☐ ETR/KSC RADAR
☐ S-IB OR S-IC STAGE PWR	☐ LCC MEASURING (INS)	☐ ETR COMMAND XMITTER
☐ S-II STAGE POWER	☐ GSE MEASURING (LVO)	☐ LOCAL COMMAND (C.L.)
☐ S-IVB STAGE POWER	☐ GSE MEASURING (INS)	☐ ALDS
☐ IU POWER	☐ LCC DATA DISPLAY	☐ LCC TM STA. (MONITOR)
☐ LEM POWER	☐ CIF DATA DISPLAY	☐ LCC TM RECORDING
☐ SM POWER	☐ DDAS	☐ CIF TM STA. (MONITOR)
☐ CM POWER	☐ DDAS TAPE RECORDING	☐ CIF TM RECORDING
☐ BACK-UP BATTERIES	☐ SERVICE STRUCTURE MEAS.	☐ CIF COMPUTER
☐ TIMING	☐ RCA-110A COMPUTERS	☐ CIF DATA
☐ COUNTDOWN CLOCK	☐ ACE	☐ TM RECORDS
☐ ETR SEQUENCER	☐ L/V W-G ECS	☐ REAL-TIME CIF COMPUT.
☐ ETR COUNTDOWN CLOCK	☐ CM W-G ECS	☐ POST-TEST CIF COMPUT.
☐ ETR S.R.O.	☐ FACILITY ECS (GAS)	☐ KSC TRACKING
☐ ETR R.S.O.	☐ H.P. GAS	☐ RFI MONITORING
☐ ETR PAD SAFETY	☐ CCF	☐ RF READOUTS (ETR)
☐ KSC PAD SAFETY	☐ FACILITY TV (OTV)	☐ RF READOUTS (KSC)
☐ SECURITY POLICE	☐ FACILITY COMM. (OIS)	☐ WEATHER FORECAST
☐ FIRE FIGHTING	☐ FILM CAMERAS	☐ MCC-C
☐ MEDICAL	☐ SEARCH LIGHTS	☐ MCC-H
☐	☐	☐ FOOD SERVICE
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

OTHERS:

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

PAGE 1 OF 2

1. TEST TITLE
S-IVB HYDRAULIC ACTUATOR LENGTH SETUP IN LABORATORY

2. KSC TEST NO.
V-23020-SIVB2

3. STAGE, VEHICLE OR GSE
AS-502, SIVB

4. TEST OBJECTIVES

SET S-IVB ACTUATOR LENGTH FOR A PARTICULAR REPLACEMENT ON VEHICLE.

5. TEST DESCRIPTION/EQUIPMENT STATUS

USING ACTUATOR ADJUSTMENT KIT, ACTUATOR LENGTH IS SET FOR REPLACEMENT ON VEHICLE, USING DATA RECORDED IN J-2 ENGINE LOG BOOK.

REQUIREMENT SHALL EXIST FOR AN ACTUATOR REPLACEMENT ON VEHICLE BEFORE THIS TEST IS PERFORMED.

SETUP WILL BE PERFORMED IN LABORATORY ON CLEAN WORK BENCH.

EQUIPMENT REQUIRED:

1A67441-1 FIXTURE, ENGINE ACTUATOR ADJUSTMENT KIT.

1/17

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
C. T. Townsend	V. A. Eldentis	June 13, 1966
7. ORGANIZATION	**9. ORGANIZATION** LVO-244	**11. VEHICLE EFFECTIVITY**
DOUGLAS AIRCRAFT COMPANY, INC.	NASA - Flight Control	AS- 502

KSC FORM 23-191A (2/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE S-IVB HYDRAULIC ACTUATOR LENGTH SETUP IN LABORATORY	2. KSC TEST NO. V-23020-SIVB2
	11. VEHICLE EFFECTIVITY AS-502, SIVB

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB-HYDRAULIC LABORATORY		

15. TEST CONFIGURATION

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

☐ GROUND POWER	☐ LCC MEASURING (LVO)	☐ ETR/KSC RADAR
☐ S-IB OR S-IC STAGE PWR	☐ LCC MEASURING (INS)	☐ ETR COMMAND XMITTER
☐ S-II STAGE POWER	☐ GSE MEASURING (LVO)	☐ LOCAL COMMAND (C.L.)
☐ S-IVB STAGE POWER	☐ GSE MEASURING (INS)	☐ ALDS
☐ IU POWER	☐ LCC DATA DISPLAY	☐ LCC TM STA. (MONITOR)
☐ LEM POWER	☐ CIF DATA DISPLAY	☐ LCC TM RECORDING
☐ SM POWER	☐ DDAS	☐ CIF TM STA. (MONITOR)
☐ CM POWER	☐ DDAS TAPE RECORDING	☐ CIF TM RECORDING
☐ BACK-UP BATTERIES	☐ SERVICE STRUCTURE MEAS.	☐ CIF COMPUTER
☐ TIMING	☐ RCA-110A COMPUTERS	☐ CIF DATA
☐ COUNTDOWN CLOCK	☐ ACE	☐ TM RECORDS
☐ ETR SEQUENCER	☐ L/V W-G ECS	☐ REAL-TIME CIF COMPUT.
☐ ETR COUNTDOWN CLOCK	☐ CM W-G ECS	☐ POST-TEST CIF COMPUT.
☐ ETR S.R.O.	☐ FACILITY ECS (GAS)	☐ KSC TRACKING
☐ ETR R.S.O.	☐ H.P. GAS	☐ RFI MONITORING
☐ ETR PAD SAFETY	☐ CCF	☐ RF READOUTS (ETR)
☐ KSC PAD SAFETY	☐ FACILITY TV (OTV)	☐ RF READOUTS (KSC)
☐ SECURITY POLICE	☐ FACILITY COMM. (OIS)	☐ WEATHER FORECAST
☐ FIRE FIGHTING	☐ FILM CAMERAS	☐ MCC-C
☐ MEDICAL	☐ SEARCH LIGHTS	☐ MCC-H
☐	☐	☐ FOOD SERVICE
☐	☐	☐
☐	☐	☐
☐	☐	☐
☐	☐	☐

OTHERS:

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

CONTROL RELAY PACKAGE UNIT TEST

2. KSC TEST NO.

V-23021-SIVB2

3. STAGE, VEHICLE OR GSE

AS-502, SIVB

4. TEST OBJECTIVES

A. THIS TEST, WHICH WILL BE PERFORMED IN THE FLIGHT CONTROL LABORATORY, WILL VERIFY THE PROPER OPERATION OF THE SPARE CONTROL RELAY PACKAGE.

B. THE FOLLOWING DATA WILL BE OBTAINED FROM THIS TEST:
   1. VERIFICATION OF TEST PLUG OUTPUTS
   2. VERIFICATION OF J-2 OUTPUT PLUG CONNECTIONS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

INPUTS TO THE CONTROL RELAY PACKAGE WILL BE SUPPLIED BY THE APS TEST SET. THE RELAY OPERATION WILL BE MONITORED BY THE APS TEST SET THROUGH THE TEST CONNECTOR.

A VISUAL INSPECTION OF THE CONTROL RELAY PACKAGE WILL BE MADE PRIOR TO CONNECTING THE TEST EQUIPMENT.

A BREAKOUT BOX WILL BE USED TO MONITOR THE J2 OUTPUT PLUG AND 28 VOLTS ON THE CORRECT PINS WILL BE MEASURED TO INDICATE THE RELAYS ARE PROPERLY ROUTED TO THE CONNECTOR.

THE FOLLOWING TEST EQUIPMENT WILL BE USED:

A. 28 VOLT POWER SUPPLY (15 AMP MINIMUM)
B. APS TEST SET AND CABLES
C. APS LOAD BOX AND CABLES
D. VOLTMETER
E. CONTROL RELAY BREAKOUT BOXES AND CABLES.

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
J. K. Keller	V. A. Elentri	June 13, 1966
7. ORGANIZATION	**9. ORGANIZATION** LVO-244	**11. VEHICLE EFFECTIVITY**
DOUGLAS AIRCRAFT COMPANY, INC.	NASA - Flight Control	AS- 502

APOLLO/SATURN TEST CATALOG (Continuation Sheet) | PAGE 2 OF 2

1. TEST TITLE

CONTROL RELAY PACKAGE UNIT TEST

2. KSC TEST NO.
V-23021-SIVB2

11. VEHICLE EFFECTIVITY
AS-502, SIVB

12. WHERE TEST PERFORMED
VAB-FLIGHT CONTROL LABORATORY

13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)

14. EST. TEST TIME

15. TEST CONFIGURATION

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

- ☐ GROUND POWER
- ☐ S-IB OR S-IC STAGE PWR
- ☐ S-II STAGE POWER
- ☐ S-IVB STAGE POWER
- ☐ IU POWER
- ☐ LEM POWER
- ☐ SM POWER
- ☐ CM POWER
- ☐ BACK-UP BATTERIES
- ☐ TIMING
- ☐ COUNTDOWN CLOCK
- ☐ ETR SEQUENCER
- ☐ ETR COUNTDOWN CLOCK
- ☐ ETR S.R.O.
- ☐ ETR R.S.O.
- ☐ ETR PAD SAFETY
- ☐ KSC PAD SAFETY
- ☐ SECURITY POLICE
- ☐ FIRE FIGHTING
- ☐ MEDICAL
- ☐
- ☐
- ☐
- ☐
- ☐

- ☐ LCC MEASURING (LVO)
- ☐ LCC MEASURING (INS)
- ☐ GSE MEASURING (LVO)
- ☐ GSE MEASURING (INS)
- ☐ LCC DATA DISPLAY
- ☐ CIF DATA DISPLAY
- ☐ DDAS
- ☐ DDAS TAPE RECORDING
- ☐ SERVICE STRUCTURE MEAS.
- ☐ RCA-110A COMPUTERS
- ☐ ACE
- ☐ L/V W-G ECS
- ☐ CM W-G ECS
- ☐ FACILITY ECS (GAS)
- ☐ H.P. GAS
- ☐ CCF
- ☐ FACILITY TV (OTV)
- ☐ FACILITY COMM. (OIS)
- ☐ FILM CAMERAS
- ☐ SEARCH LIGHTS
- ☐
- ☐
- ☐
- ☐
- ☐

- ☐ ETR/KSC RADAR
- ☐ ETR COMMAND XMITTER
- ☐ LOCAL COMMAND (C.L.)
- ☐ ALDS
- ☐ LCC TM STA. (MONITOR)
- ☐ LCC TM RECORDING
- ☐ CIF TM STA. (MONITOR)
- ☐ CIF TM RECORDING
- ☐ CIF COMPUTER
- ☐ CIF DATA
- ☐ TM RECORDS
- ☐ REAL-TIME CIF COMPUT.
- ☐ POST-TEST CIF COMPUT.
- ☐ KSC TRACKING
- ☐ RFI MONITORING
- ☐ RF READOUTS (ETR)
- ☐ RF READOUTS (KSC)
- ☐ WEATHER FORECAST
- ☐ MCC-C
- ☐ MCC-H
- ☐ FOOD SERVICE
- ☐
- ☐
- ☐
- ☐

OTHERS:

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

PAGE 1 OF 2

1. TEST TITLE

S-IVB HYDRAULIC ACTUATOR VISUAL INSPECTION AND ELECTRO-MECHANICAL STATIC TEST

2. KSC TEST NO.

V-23022-SIVB2

3. STAGE, VEHICLE OR GSE

AS-502, SIVB

4. TEST OBJECTIVES

A. TO VERIFY THE HYDRAULIC ACTUATORS ARE NOT PHYSICALLY OR ELECTRICALLY DAMAGED.

B. TO VERIFY THE ELECTRO-MECHANICAL ALIGNMENT OF THE POSITION POTENTIOMETERS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

TEST DESCRIPTION:

A. BOTH ACTUATORS ARE EXAMINED FOR PHYSICAL DAMAGE AND THE SERVO VALVE COIL RESISTANCE IS CHECKED FOR CONTINUITY.

B. WITH THE ACTUATOR PISTONS LOCKED IN MID-POSITION, THE ELECTRICAL CENTER OF THE POSITION POTENTIOMETERS ARE MEASURED.

EQUIPMENT STATUS:

A. THE ACTUATORS SHALL BE DISCONNECTED FROM THE ENGINE AND SUPPORTED BY THE ACTUATOR HOLDING FIXTURES (DSV-4B-474).

B. THE FOLLOWING EQUIPMENT IS REQUIRED:

(1) 5604318 RATIO TESTER WITH TEST CABLES.

(2) SIMPSON #260 OHMMETER (OR EQUIVALENT).

401

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
C. N. Townsend	V. A. Elentri	June 13, 1966
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
DOUGLAS AIRCRAFT COMPANY, INC.	LVO-244 NASA-Flight Control	AS- 502

KSC FORM 23-191A (2/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2

1. TEST TITLE

S-IVB HYDRAULIC ACTUATOR VISUAL INSPECTION AND ELECTRO-MECHANICAL STATIC TEST

2. KSC TEST NO.

V-23022-SIVB2

11. VEHICLE EFFECTIVITY

AS-502, SIVB

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB/HI BAY		

15. TEST CONFIGURATION

16. SUPPORT REQUIREMENTS CHECKLIST *(Check appropriate boxes and add any additional)*

- ☐ GROUND POWER
- ☐ S-IB OR S-IC STAGE PWR
- ☐ S-II STAGE POWER
- ☐ S-IVB STAGE POWER
- ☐ IU POWER
- ☐ LEM POWER
- ☐ SM POWER
- ☐ CM POWER
- ☐ BACK-UP BATTERIES
- ☐ TIMING
- ☐ COUNTDOWN CLOCK
- ☐ ETR SEQUENCER
- ☐ ETR COUNTDOWN CLOCK
- ☐ ETR S.R.O.
- ☐ ETR R.S.O.
- ☐ ETR PAD SAFETY
- ☐ KSC PAD SAFETY
- ☐ SECURITY POLICE
- ☐ FIRE FIGHTING
- ☐ MEDICAL
- ☐
- ☐
- ☐
- ☐
- ☐

- ☐ LCC MEASURING (LVO)
- ☐ LCC MEASURING (INS)
- ☐ GSE MEASURING (LVO)
- ☐ GSE MEASURING (INS)
- ☐ LCC DATA DISPLAY
- ☐ CIF DATA DISPLAY
- ☐ DDAS
- ☐ DDAS TAPE RECORDING
- ☐ SERVICE STRUCTURE MEAS.
- ☐ RCA-110A COMPUTERS
- ☐ ACE
- ☐ L/V W-G ECS
- ☐ CM W-G ECS
- ☐ FACILITY ECS (GAS)
- ☐ H.P. GAS
- ☐ CCF
- ☐ FACILITY TV (OTV)
- ☐ FACILITY COMM. (OIS)
- ☐ FILM CAMERAS
- ☐ SEARCH LIGHTS
- ☐
- ☐
- ☐
- ☐
- ☐

- ☐ ETR/KSC RADAR
- ☐ ETR COMMAND XMITTER
- ☐ LOCAL COMMAND (C.L.)
- ☐ ALDS
- ☐ LCC TM STA. (MONITOR)
- ☐ LCC TM RECORDING
- ☐ CIF TM STA. (MONITOR)
- ☐ CIF TM RECORDING
- ☐ CIF COMPUTER
- ☐ CIF DATA
- ☐ TM RECORDS
- ☐ REAL-TIME CIF COMPUT.
- ☐ POST-TEST CIF COMPUT.
- ☐ KSC TRACKING
- ☐ RFI MONITORING
- ☐ RF READOUTS (ETR)
- ☐ RF READOUTS (KSC)
- ☐ WEATHER FORECAST
- ☐ MCC-C
- ☐ MCC-H
- ☐ FOOD SERVICE
- ☐
- ☐
- ☐
- ☐
- ☐

OTHERS:

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION