KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

RF AND TELEMETRY MEASUREMENTS TEST

2. KSC TEST NO.

V-27056-IU 502

3. STAGE, VEHICLE OR GSE

SATURN V - IU

4. TEST OBJECTIVES

1. TO VERIFY PROPER OPERATION OF TELEMETRY, AZUSA, C BAND RADAR AND OTHER TRACKING SYSTEM MEASUREMENTS.

2. TO CALIBRATE SIGNAL CONDITIONERS ASSOCIATED WITH RF AND TM MEASUREMENTS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DC AMPLIFIERS ARE TESTED AND THEIR VALUES COMPARED WITH THEIR CALIBRATION CURVES.

FUNCTIONAL CHECKS TO VERIFY PROPER OPERATION ARE PERFORMED WITH RF AND TM PERSONNEL.

A. POWER REQUIREMENTS:
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU MEASURING RACKS VOLTAGE
   4. IU TM F2 AND P1
   5. CALIBRATE TEST STATION POWER

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. RF SYSTEM SUPPORT (IBM 907)
   3. TM SYSTEM SUPPORT (IBM 907)
   4. SIVB SUPPORT

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.G. Marondo	E.O. Raley	
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
I.B.M.	LVO-121	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
RF AMD TELEMETRY MEASUREMENTS TEST	V-27056-IU 502
	11. VEHICLE EFFECTIVITY
	AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[X] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[X] 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
[X] 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	[X] 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

VIBRATION MEASUREMENTS TEST

2. KSC TEST NO.

V-27057-IU 502

3. STAGE, VEHICLE OR GSE

SATURN V - IU

4. TEST OBJECTIVES

1. TO VERIFY THE PROPER OPERATION OF VIBRATION MEASUREMENTS.

2. TO CALIBRATE SIGNAL CONDITIONERS ASSOCIATED WITH VIBRATION MEASUREMENTS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

AMPLIFIERS ARE TESTED AND THE OUTPUT VALUES ARE CHECKED AGAINST ASSOCIATED CALIBRATION CURVES. A DYNAMIC CHECK IS PERFORMED ON THE VIBRATION TRANSDUCER TO VERIFY PROPER OPERATION OF THE VIBRATION MEASUREMENTS.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU MEASURING VOLTAGE
   3. IU MEASURING RACKS VOLTAGE
   4. IU 115VAC 400 CPS CALIBRATION VOLTAGE
   5. CALIBRATE TEST STATION POWER
   6. IU TM S1

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. TM GROUND STATION SUPPORT (IBM 907)

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.B. Marrow U. Rice	J.J.W. E.D. Raley	
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
I.B.M.	LVO-121	AS- 502

KSC FORM 23-191A (2/66)

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF
1. TEST TITLE VIBRATION MEASUREMENTS TEST	2. KSC TEST NO. V-27057-IU 502 11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[X] 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
[X] 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	[X] 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

ACCELERATION MEASUREMENTS TEST

2. KSC TEST NO.

V-27058-IU 502

3. STAGE, VEHICLE OR GSE

SATURN V - IU

4. TEST OBJECTIVES

1. TO VERIFY PROPER OPERATION OF ACCELEROMETER MEASUREMENTS.

2. TO CALIBRATE SIGNAL CONDITIONERS ASSOCIATED WITH ACCELEROMETER MEASUREMENTS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

SIGNAL CONDITIONERS ARE TESTED AND THEIR OUTPUT VALUES ARE COMPARED WITH THEIR CALIBRATION CURVES.

THE FORCE BALANCE ACCELEROMETER IS PLACED IN VARIOUS POSITIONS, ON A TILT TABLE, AND THE MEASUREMENT OUTPUT VALUES ARE RECORDED AND COMPARED WITH THE CALIBRATION CURVE.

CONTROL ACCELEROMETERS ARE CHECKED, WITH FLIGHT CONTROL PERSONNEL TO VERIFY PROPER OPERATION OF THE ACCELERATION MEASUREMENTS.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU MEASURING RACKS VOLTAGE
   4. IU TM F2 AND P1
   5. CALIBRATE TEST STATION POWER

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. FLIGHT CONTROL SYSTEM SUPPORT (IBM 918)
   3. SIVB SUPPORT

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.G. Marondy U.Rice	J.W. E.O. Raley	
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
I.B.M.	LVO-121	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
ACCELERATION MEASUREMENTS TEST	V-27058-IU 502
	11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] 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	[ ] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[X] 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	[X] 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 ACOUSTIC MEASUREMENTS TEST	2. KSC TEST NO. V-27059-IU 502 3. STAGE, VEHICLE OR GSE SATURN V - IU

4. TEST OBJECTIVES

1. TO VERIFY THE PROPER OPERATION OF THE ACOUSTIC MEASUREMENTS.
2. TO CALIBRATE THE SIGNAL CONDITIONERS ASSOCIATED WITH ACOUSTIC MEASUREMENTS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

AC AMPLIFIERS ARE TESTED AND THE OUTPUT VALUES ARE CHECKED AGAINST ASSOCIATED CALIBRATION CURVES.

A DYNAMIC CHECK IS PERFORMED ON THE MICROPHONE TO VERIFY PROPER OPERATION OF THE ACOUSTIC MEASUREMENT.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU MEASURING RACKS VOLTAGE
   4. IU 115VAC 400 CPS CALIBRATION VOLTAGE.
   5. CALIBRATION TEST STATION POWER
   6. IU TM S1

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. TM GROUND STATION SUPPORT (IBM 907)

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.R. Marondo	JAW E.D. Kaley	
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
I.B.M.	LVO-121	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
ACOUSTIC MEASUREMENTS TEST	V-27059-IU 502
	11. VEHICLE EFFECTIVITY
	AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[ ] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[X] 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
[X] 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	[X] 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

POSITION MEASUREMENTS TEST

2. KSC TEST NO.
V-27060-IU 502

3. STAGE, VEHICLE OR GSE
SATURN V - IU

4. TEST OBJECTIVES

TO VERIFY THE PROPER OPERATION OF THE ACTUATOR POSITION AND VALVE POSITION MEASUREMENTS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

ENGINE ACTUATOR POSITION AND COOLING SYSTEM VALVE POSITION MEASUREMENTS ARE TESTED AND COMPARED WITH THEIR CALIBRATION CURVES.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU TM F2 AND P1
   4. CALIBRATE TEST STATION POWER

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. FLIGHT CONTROL SYSTEM SUPPORT (IBM 916)
   3. MECHANICAL COOLING SYSTEM SUPPORT (IBM 906)
   4. SIVB SUPPORT

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.G. Marcado U Price	J.J.W. E.D. Raley	
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
I.B.M.	LVO-121	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
POSITION MEASUREMENTS TEST	V-27060-IU 502
	11. VEHICLE EFFECTIVITY
	AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] 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	[ ] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[X] 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	[X] 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 TEMPERATURE MEASUREMENTS TEST	2. KSC TEST NO. V-27061-IU 502 3. STAGE, VEHICLE OR GSE SATURN V - IU

4. TEST OBJECTIVES

1. TO VERIFY PROPER OPERATION OF TEMPERATURE MEASUREMENTS.
2. TO CALIBRATE THE ASSOCIATED SIGNAL CONDITIONERS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

TEMPERATURE AMPLIFIERS ARE TESTED AND OUTPUT CHECKED AGAINST THEIR CALIBRATION CURVES. TEMPERATURE MEASUREMENTS ARE FUNCTIONALLY CHECKED TO VERIFY PROPER OPERATION.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU MEASURING RACKS VOLTAGE
   4. CALIBRATE TEST STATION POWER
   5. IU TM F_2 AND P1

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. SIVB SUPPORT

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.G. MacDonald	J.J. M. E.O. Kaley	
7. ORGANIZATION I.B.M.	9. ORGANIZATION LVO-121	11. VEHICLE EFFECTIVITY AS- 502

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF
1. TEST TITLE TEMPERATURE MEASUREMENTS TEST	2. KSC TEST NO. V-27061-IU 502 11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] 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	[ ] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[X] 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	[X] 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 SIGNAL MEASUREMENTS TEST	2. KSC TEST NO. V-27062-IU 502 3. STAGE, VEHICLE OR GSE SATURN V - IU

4. TEST OBJECTIVES

1. TO VERIFY THE PROPER OPERATION OF VEHICLE SIGNAL TYPE MEASUREMENTS.
2. TO CALIBRATE SIGNAL CONDITIONERS ASSOCIATED WITH THE SIGNAL MEASUREMENTS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

SIGNAL CONDITIONERS ARE TESTED AND THEIR OUTPUT VALUES ARE COMPARED WITH THEIR ASSOCIATED CALIBRATION CURVES.

FUNCTIONAL CHECKS TO VERIFY PROPER OPERATION OF VEHICLE ON-OFF TYPE MEASUREMENTS ARE NORMALLY OBTAINED DURING VEHICLE SYSTEMS TEST.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU MEASURING RACKS VOLTAGE
   4. IU TM F2 AND P1
   5. CALIBRATE TEST STATION POWER

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. SIVB SUPPORT

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.G. Macrodo U. Ruiz	J.J.W. E.O. Kaley	
7. ORGANIZATION I.B.M.	9. ORGANIZATION LVO-121	11. VEHICLE EFFECTIVITY AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
SIGNAL MEASUREMENTS TEST	V-27062-IU 502
	11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] 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	[ ] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[X] 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	[X] 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

ANGULAR VELOCITY MEASUREMENTS TEST

2. KSC TEST NO.

V-27063-IU 502

3. STAGE, VEHICLE OR GSE

SATURN V - IU

4. TEST OBJECTIVES

1. TO VERIFY PROPER OPERATION OF THE ANGULAR VELOCITY MEASUREMENTS.

2. TO CALIBRATE SIGNAL CONDITIONERS ASSOCIATED WITH THE ANGULAR VELOCITY MEASUREMENTS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

SIGNAL CONDITIONERS ARE TESTED AND THEIR OUTPUT VALUES COMPARED WITH THE ASSOCIATED CALIBRATION CURVES. A DYNAMIC CHECK IS PERFORMED ON RATE GYRO'S TO VERIFY PROPER OPERATION OF THE ANGULAR VELOCITY MEASUREMENTS. THESE CHECKS ARE PERFORMED WITH FLIGHT CONTROL PERSONNEL SUPPORT.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU MEASURING RACKS VOLTAGE
   4. IU TM F2 AND P1
   5. CALIBRATE TEST STATION POWER

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. FLIGHT CONTROL SYSTEM SUPPORT (IBM 918)
   3. SIVB SUPPORT

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.R. Mavrodp U.Muir	J.J.W. E.O. Kaley	
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
I.B.M.	LVO-121	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
ANGULAR VELOCITY MEASUREMENTS TEST	V-27063-IU 502
	11. VEHICLE EFFECTIVITY
	AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] 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	[ ] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[X] 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	[X] 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 VOLTAGE, CURRENT, AND FREQUENCY MEASUREMENTS TEST	2. KSC TEST NO. V-27064-IU 502 3. STAGE, VEHICLE OR GSE SATURN V - IU

4. TEST OBJECTIVES

1. TO VERIFY THE PROPER OPERATION OF VOLTAGE, CURRENT, AND FREQUENCY MEASUREMENTS.

2. TO CALIBRATE THE ASSOCIATED SIGNAL CONDITIONERS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

SIGNAL CONDITIONER OUTPUTS ARE COMPARED WITH THE ASSOCIATED CALIBRATION CURVE.

MEASUREMENTS ARE FUNCTIONALLY CHECKED WHEN THE SYSTEM BEING MEASURED IS OPERATING.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU MEASURING RACKS VOLTAGE
   4. IU TM F2 AND P1
   5. CALIBRATE TEST STATION POWER

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. SIVB SUPPORT

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.G. Mavrodo U Muir	J.J.W. E.O. Raley	
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
I.B.M.	LVO-121	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
VOLTAGE, CURRENT, FREQUENCY MEASUREMENTS TEST	V-27064-IU 502
	11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] 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	[ ] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[X] 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	[X] 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

FLOW RATE MEASUREMENTS TEST

2. KSC TEST NO.
V-27065-IU 502

3. STAGE, VEHICLE OR GSE
SATURN V - IU

4. TEST OBJECTIVES

1. TO PROVIDE AN OPERATIONAL CHECK OF THE FLOW RATE MEASUREMENTS.

2. TO CALIBRATE THE ASSOCIATED D. C. CONVERTERS AND D. C. AMPLIFIERS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

SIGNAL CONDITIONERS ARE TESTED BY APPLYING A KNOWN INPUT. MEASURING THE OUTPUT, AND COMPARING THIS VALUE WITH THE CALIBRATION CURVE. FLOWMETERS ARE TESTED WITH MECHANICAL PERSONNEL DURING SYSTEM OPERATION TO VERIFY PROPER OPERATION OF THE FLOW RATE MEASUREMENTS.

NOTE: FLOWMETERS ARE TIME SENSITIVE THEREFORE THEY MUST BE UNLOCKED JUST PRIOR TO TESTING AND LOCKED IMMEDIATELY FOLLOWING THE TEST.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU MEASURING RACKS VOLTAGE
   4. IU AC 400 CPS CALIBRATION POWER
   5. IU TM F2 AND P1
   6. CALIBRATE TEST STATION POWER

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. IU COOLING SYSTEM SUPPORT (IBM 906)
   3. SIVB SUPPORT

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.B. Mauldy U Rice	J.J.W. E.D. Kaley	
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
I.B.M.	LVO-121	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
FLOW RATE MEASUREMENTS TEST	V-27065-IU 502
	11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] 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	[ ] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[X] 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	[X] 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

GUIDANCE AND CONTROL MEASUREMENTS TEST

2. KSC TEST NO.

V-27066-IU 502

3. STAGE, VEHICLE OR GSE

SATURN V - IU

4. TEST OBJECTIVES

1. TO VERIFY THE PROPER OPERATION OF GUIDANCE AND CONTROL MEASUREMENTS.

2. TO CALIBRATE SIGNAL CONDITIONERS ASSOCIATED WITH THE GUIDANCE AND CONTROL MEASUREMENTS.

5. TEST DESCRIPTION/EQUIPMENT STATUS

DC AMPLIFIERS ARE TESTED AND OUTPUT VALUES ARE COMPARED WITH THEIR CALIBRATION CURVES. FUNCTIONAL CHECKS ARE MADE DURING GUIDANCE AND CONTROL TEST.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU MEASURING RACKS VOLTAGE
   4. IU TM F2 AND P1
   5. CALIBRATE TEST STATION POWER

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. TM GROUND STATION SUPPORT (IBM 907)
   3. GUIDANCE AND CONTROL SYSTEM SUPPORT (IBM 918)
   4. SIVB SUPPORT

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.G. Marrow	J.W. E.O. Raley	
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
I.B.M.	LVO-121	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
GUIDANCE AND CONTROL MEASUREMENTS TEST	V-27066-IU 502
	11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] GSE MEASURING (LVO)	[ ] LOCAL COMMAND (C.L.)
[X] S-IVB STAGE POWER	[ ] GSE MEASURING (INS)	[ ] ALDS
[X] IU POWER	[ ] LCC DATA DISPLAY	[X] 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
[X] 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	[X] 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

PRESSURE MEASUREMENTS TEST

2. KSC TEST NO.

V-27067-IU 502

3. STAGE, VEHICLE OR GSE

SATURN V - IU

4. TEST OBJECTIVES

TO VERIFY THE PRESSURE MEASUREMENTS ARE OPERATING PROPERLY, WITHIN PRESCRIBED TOLERANCES.

5. TEST DESCRIPTION/EQUIPMENT STATUS

A RECORD IS OBTAINED, OF APPLIED PRESSURE AND TRANSDUCER OUTPUT, AND COMPARED WITH THE ASSOCIATED CALIBRATION CURVE.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU TM F2, AND P1
   4. CALIBRATE TEST STATION POWER
   5. IU FIRING ROOM RECORDER POWER

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. IU FIRING ROOM RECORDERS
   3. SIVB SUPPORT

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.L. Macondo	E.O. Kaley	
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
I.B.M.	LVO-121	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
PRESSURE MEASUREMENTS TEST	V-27067-IU 502
	11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] 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	[ ] DDAS	[ ] CIF TM STA. (MONITOR)
[ ] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[X] 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	[X] 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

Q-BALL MEASUREMENTS TEST

2. KSC TEST NO.

V-27068-IU 502

3. STAGE, VEHICLE OR GSE

SATURN V - IU

4. TEST OBJECTIVES

TO VERIFY PROPER OPERATION OF THE Q-BALL AND ITS ASSOCIATED CIRCUITRY.

5. TEST DESCRIPTION/EQUIPMENT STATUS

THIS TEST CONSISTS OF FOUR PARTS.

1. TEMPERATURE AMPLIFIER IS CALIBRATED AND AMBIENT TEMPERATURE CHECKED.
2. TEMPERATURE MEASUREMENT IS FUNCTIONALLY CHECKED IN CONJUNCTION WITH TESTING THE HEATER SYSTEM.
3. DELTA P PITCH AND DELTA P YAW ARE CALIBRATED BY APPLYING KNOWN PRESSURE TO THE TRANSDUCERS AND COMPARING THE OUTPUT TO THE ASSOCIATED CALIBRATION CURVE.
4. VECTOR SUM MEASUREMENT IS CALIBRATED BY APPLYING KNOWN PRESSURES TO THE TRANSDUCERS WITH MANNED SPACECRAFT PERSONNEL RECORDING THE TELEMETERED OUTPUT.

A. POWER REQUIREMENTS
   1. IU VEHICLE POWER
   2. IU VEHICLE MEASURING VOLTAGE
   3. IU MEASURING RACKS VOLTAGE
   4. 60 CPS HEATER POWER
   5. IU TM F2 AND P1
   6. CALIBRATE TEST STATION POWER

B. EQUIPMENT
   1. CALIBRATE TEST STATION
   2. ACE SYSTEM SUPPORT (MSO)
   3. PNEUMATIC ANALYSER
   4. SIVB SUPPORT

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
D.B. Macrae	J.J.N. E.O. Kaley	
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
I.B.M.	LVO-121	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
Q-BALL MEASUREMENTS TEST	V-27068-IU 502
	11. VEHICLE EFFECTIVITY
	AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB HIGH BAY C/O AREA	N/A	

15. TEST CONFIGURATION

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	[X] 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	[ ] DDAS	[ ] CIF TM STA. (MONITOR)
[X] CM POWER	[ ] DDAS TAPE RECORDING	[ ] CIF TM RECORDING
[ ] BACK-UP BATTERIES	[ ] SERVICE STRUCTURE MEAS.	[ ] CIF COMPUTER
[X] TIMING	[ ] RCA-110A COMPUTERS	[ ] CIF DATA
[ ] 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	[X] 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	2. KSC TEST NO.
Antenna Test	V-28000-GSE LCC
	3. STAGE, VEHICLE OR GSE LCC-GSE

4. TEST OBJECTIVES

The purpose of this test is to verify that the antenna, the transmission lines between the pre-amplifier and the antenna, and all RF switches, connectors, etc., are maintaining their characteristic impedance values.

5. TEST DESCRIPTION/EQUIPMENT STATUS

1. A check of the antenna mount, RF feed system and component rigidity shall be made. Manually slew antenna in azimuth and elevation, verifying proper operation of the mounting system and the RF interconnections.

2. Utilizing a step-generator and oscilloscope in a closed-loop circuit, monitor the incident and reflected voltages waves and characteristic impedance of the VHF transmission line and the VHF antenna at operating frequency.

3. Utilizing a UHF signal generator and associated test equipment, verify the SWR and characteristic impedance of the UHF coaxial line and UHF antenna at operating frequency.

STATUS:

Procedure Set-Up and Conditions: The input to the pre-amplifier must be disconnected and the test signals inserted at the transmission line termination.

GSE and Special Material Required: Time Domain Reflectometer, UHF Signal Generator, UHF SWR and Impedance Bridge.

Support Required:

1. Clearance from RF Range Authority will be required for the UHF antenna test as a weak RF signal will be radiated.

2. Power (115V. AC, 60 cps) at antenna location.

Test Type and When Conducted:

Pre-Launch (6 month interval)

3G102

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
R. C. Anfield	B. C. McMath	5/26/66
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
Boeing-TCE	LVO-13	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
Antenna Test	V-28000-GSE LCC
	11. VEHICLE EFFECTIVITY: AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Rm. 2P10 LCC-LC39	N/A	N/A

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
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☐	☐	☐

OTHERS:

3G102

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

Tape Degausser Test

2. KSC TEST NO.

V-28001-GSE LCC

3. STAGE, VEHICLE OR GSE

LCC-GSE

4. TEST OBJECTIVES

The purpose of this test is to verify the ability of the degausser to demagnetize magnetic tape within the specified limits.

5. TEST DESCRIPTION/EQUIPMENT STATUS

1. Record data of various known signals and test frequencies on magnetic tape.
2. Insert pre-recorded tape into tape degausser and perform normal degauss cycle.
3. Check operating time of degaussing cycle.
4. Verify specified degree of data erasure utilizing recorder playback.

STATUS:

Procedure Set-Up and Conditions:

This test will be performed after tape recorder operation verification.

GSE and Special Materials Required: None

Test Type and When Conducted:

Pre-Launch (6 month interval)

8/16

3G114

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
R. C. Anfield R C Anfield	D. C. McMath D C McMath	5/26/66
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
Boeing-TCE	LVO-13	AS- 502

APOLLO/SATURN TEST CATALOG (Continuation Sheet)	PAGE 2 OF 2
1. TEST TITLE Tape Degausser Test	2. KSC TEST NO. V-28001-GSE LCC 11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Rm. 2P10 LCC-LC39	N/A	N/A

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
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OTHERS:

3G114

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

Audio Amplifier Test

2. KSC TEST NO.

V-28002-GSE LCC

3. PAGE, VEHICLE OR GSE

LCC-GSE

4. TEST OBJECTIVES

The purpose of this test is to verify operation of the audio amplifier and speaker unit.

5. TEST DESCRIPTION/EQUIPMENT STATUS

Utilizing an audio frequency generator, check the audio amplifier for frequency response, gain and power output in accordance with design specifications.

STATUS:

Procedure Set-Up and Conditions:

Allow sufficient warmup time.

GSE and Special Materials Required: Audio Signal Generator.

Test Type and When Conducted:

Pre-Launch (6 month interval)

016

3G115

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
R. C. Anfield (R C Anfield)	D. C. McMath (D C McMath)	5/26/66
. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
Boeing-TCE	LVO-13	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
Audio Amplifier Test	V-28002-GSE LCC
	11. VEHICLE EFFECTIVITY: AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Rm. 2P10 LCC-LC39	N/A	N/A

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	☐ ODAS	☐ CIF TM STA. (MONITOR)
☐ CM POWER	☐ ODAS 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	☐ CCP	☐ 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:

3G115

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

RF System Test

2. KSC TEST NO.

V-28003-GSE LCC

3. STAGE, VEHICLE OR GSE

LCC-GSE

4. TEST OBJECTIVES

This test will verify performance of the RF portion of the TCE System, exercising all patching options.

5. TEST DESCRIPTION/EQUIPMENT STATUS

1. Insert signal from calibrated RF source through preamplifier and coaxial cabling into RF patch panel.

2. Exercise all patching options verifying correct cabling and panel annotation.

3. Exercise all multi-coupler-receiver combinations and receiver-digitizer combinations.

STATUS:

Procedure Set-Up and Conditions:

All components and subsystems utilized in this procedure shall have been previously tested and verified.

GSE and Special Materials Required: Calibrated RF source.

Test Type and When Conducted:

Pre-Launch (Prior to processing of each vehicle)

190

3G108

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
R. C. Anfield	D. C. McMath	5/26/66
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
Boeing-TCE	LVO-13	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
RF System Test	V-28003-GSE LCC
	11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Rm. 2P10 LCC-LC39	N/A	N/A

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
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OTHERS:

3G108

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

FM Discriminator Test

2. KSC TEST NO.

V-28004-GSE LCC

3. STAGE, VEHICLE OR GSE

LCC-GSE

4. TEST OBJECTIVES

The purpose of this test is to verify that the FM Discriminators are operating within specification.

5. TEST DESCRIPTION/EQUIPMENT STATUS

This test will be performed by inserting video wave forms from the discriminator calibrator into the discriminators and observing the outputs. The test signal will be monitored on a Telemetry Indicator (TMI) and pre-emphasis levels will be checked. Outputs will be checked for amplitude, frequency, and linearity. A five-point linearity check will be performed.

STATUS:

Material Required: Oscilloscope
Pre-emphasis meters or display
Frequency Counter
Discriminator Calibrator

Test Type and When Conducted:

Pre-Launch (Prior to processing of each vehicle)

3G109

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
R. C. Anfield RC Anfield	D. C. McMath DC McMath	5/26/66
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
Boeing-TCE	LVO-13	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
FM Discriminator Test	V-28004-GSE LCC
	11. VEHICLE EFFECTIVITY
	AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Rm. 2P10 LCC-LC39	N/A	N/A

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
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OTHERS:

3G109

(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 Tape Recorder Test	2. KSC TEST NO. V-28005-GSE LCC 3. STAGE, VEHICLE OR GSE LCC-GSE

4. TEST OBJECTIVES

This test will verify proper operation of tape recorder units.

5. TEST DESCRIPTION/EQUIPMENT STATUS

Perform tests in the following sequence:

1. Check capstan speed, flutter, wow, and control operation of tape transport unit.
2. Utilizing a test tape check operation of reproduce heads and reproduce amplifiers.
3. Utilizing a signal generator, check operation of record amplifiers and record heads.
4. Utilizing calibrated test signals, check system performance in both recording and reproducing test signals.
5. Exercise all patching and switching options.
6. Verify that the system displays bi-directional operation with no degradation in performance.

STATUS:

GSE and Special Materials Required:

Test-tape Signal Generator Frequency-Counter Oscilloscope

Test Type and When Conducted:

Pre-Launch (Prior to processing of each vehicle)

3G112

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
R. C. Anfield R C Anfield	D. C. McMath D C McMath	5/26/66
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
Boeing-TCE	LVO-13	AS- 502

KSC FORM 23-191 (2/66)

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

1. TEST TITLE	2. KSC TEST NO.
Tape Recorder Test	V-28005-GSE LCC
	11. VEHICLE EFFECTIVITY
	AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Rm. 2P10 LCC-LC39	N/A	N/A

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
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☐	☐	☐

OTHERS:

3G112

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

SS/FM Operational Readiness Test

2. KSC TEST NO.

V-28006-GSE LCC

3. STAGE, VEHICLE OR GSE

LCC-GSE

4. TEST OBJECTIVES

The purpose of this test is to verify that the SS/FM equipment, associated cabling and switching devices are in operating condition.

5. TEST DESCRIPTION/EQUIPMENT STATUS

The complete SS/FM Demultiplexing System will be verified during this test. The RF signal generator will be modulated by the output of the SS/FM calibrator. The modulated signal is patched to the receivers, then through each SS/FM demultiplexer. The output display system (Meters, digital voltmeter, digital printer, and converters) will be checked to insure operation within specification limits.

STATUS:

Procedure Set-Up and Conditions:

Pre-requisites - SS/FM Demultiplexer Test, SS/FM Signal Conditioning and Identification Tests.

Material Required:

RF Signal Generator, SSB Calibrator.

Test Type and When Conducted:

Pre-Launch (Prior to processing of each vehicle)

Fig 6

3G119

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
R. C. Anfield	D. C. McMath	5/26/66
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
Boeing-TCE	LVO-13	AS- 502

KSC FORM 23-191 (2/66)

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

1. TEST TITLE	2. KSC TEST NO.
SS/FM Operational Readiness Test	V-28006-GSE LCC
	11. VEHICLE EFFECTIVITY: AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Rm. 2P10 LCC-LC39	N/A	N/A

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
☐	☐	☐
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☐	☐	☐
☐	☐	☐

OTHERS:

3G119

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

PAM/FM/FM Operational Readiness Test

2. KSC TEST NO.

V-28007-GSE LCC

3. STAGE, VEHICLE OR GSE

LCC-GSE

4. TEST OBJECTIVES

This test will verify that the entire PAM/FM/FM checkout system in each stage module and in the common module will reproduce and demultiplex signals received from the launch vehicle.

5. TEST DESCRIPTION/EQUIPMENT STATUS

The test will be performed using a pre-recorded "system test tape". Each discriminator bank will be tested using an SCO simulated signal generated from the test tape and detected through their respective functional link. The PAM decommutator will be tested over each functional link with simulated signal as the discriminators are checked out.

The parameter checks to be contained on the test tape and to be monitored on the various visual and graphic displays are: zero and full scale of the PAM decommutator outputs, linearity of the PAM decommutator, and five point frequency and linearity checks on the discriminators.

STATUS:

Procedure Set-Up and Conditions:

This test will be performed to assure operational readiness of the checkout equipment prior to turning modules over to the stage contractor.

Material Required: The test will require the following:

Test Tape

Test Type and When Conducted:

Pre-Launch (Prior to processing of each vehicle)

3G122

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
R. C. Anfield	D. C. McMath	5/26/66
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
Boeing-TCE	LVO-13	AS- 502

KSC FORM 23-191 (2/66)

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

1. TEST TITLE	2. KSC TEST NO.
PAM/FM/FM Operational Readiness Test	V-28007-GSE LCC
	11. VEHICLE EFFECTIVITY: AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Rm. 2P10 LCC-LC39	N/A	N/A

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
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☐	☐	☐

OTHERS:

3G122

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

PCM Station Test

2. KSC TEST NO.

V-28008 GSE LCC

3. STAGE, VEHICLE OR GSE

LCC-GSE

4. TEST OBJECTIVES

The purpose of this test is to verify the operational status of the PCM and its supporting equipment.

5. TEST DESCRIPTION/EQUIPMENT STATUS

1. Check front panel meter of power supply panel for correct indication of all voltages.

2. Verify operation of the digital signal simulator, for clock timing, external sync output, 600 kc modulated output, "true and false" NRZ-S data output and sync word configurations.

3. Utilizing the signal simulator, exercise the synchronizer, correlator unit, data control and switching units and output registers. Exercise all bit and mode options. Verify operation of quick-look panel indicators.

4. Verify the proper operating voltages to the D/A converters. Utilizing the digital signal simulator and the D/A calibrator, monitor the digital input to each D/A converter and verify the calibration of each D/A converter output.

STATUS:

Material Required: Oscilloscope, Frequency counter.

Test Type and When Conducted:

Pre-Launch (Prior to processing of each vehicle)

39124

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
R. C. Anfield R C Anfield	D. C. McMath D C McMath	5/26/66
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
Boeing-TCE	LVO-13	AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
PCM Station Test	V-28008-GSE LCC
	11. VEHICLE EFFECTIVITY: AS - 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Rm. 2P10 LCC-LC39	N/A	N/A

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
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☐	☐	☐

OTHERS:

3G124

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION

KSC OPERATIONS
APOLLO/SATURN TEST CATALOG

1. TEST TITLE

TCE Daily Readiness Tests

2. KSC TEST NO.

V-28009 GSE LCC

3. STAGE, VEHICLE OR GSE

LCC-GSE

4. TEST OBJECTIVES

These test will verify the daily operational readiness of the Common Module, S-IC Stage Module, CIF Module and Room Entry Patch Rack.

5. TEST DESCRIPTION/EQUIPMENT STATUS

1. Perform initial equipment power turn-on and post warm-up calibration.

2. Patch and verify test configuration to support test activity scheduled.

STATUS:

Procedure Set-Up and Conditions:

These tests will be conducted on a daily basis prior to vehicle processing tests requiring TCE support.

Test Type and When Conducted:

Pre-Launch (Daily, when required to support vehicle processing)

3G125

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
R. C. Anfield R C Anfield	D. C. McMath D C McMath	5/26/66
7. ORGANIZATION	9. ORGANIZATION	11. VEHICLE EFFECTIVITY
Boeing-TCE	LVO-13	AS- 502

KSC FORM 23-191 (2/66)

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

1. TEST TITLE	2. KSC TEST NO.
TCE Daily Readiness Test	V-28009-GSE LCC
	11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
Rm. 2P10 LCC-LC39	N/A	N/A

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
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OTHERS:

3G125

(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-IC Telemetry System Spares Checkout Procedures	2. KSC TEST NO. V-28011-SIC2 3. STAGE, VEHICLE OR GSE Stage

4. TEST OBJECTIVES

The purpose of this test is to verify the proper performance and operational readiness of the spare S-IC Telemetry System components.

5. TEST DESCRIPTION/EQUIPMENT STATUS

The following spare S-IC Telemetry System components will be activated and tested in support of this procedure:

P1 Model 270 Multiplexer, RDSM, Model 301 PCM/DDAS Assembly, and PCM/RF Assembly.
S1 Model 245 Multiplexer, SS/FM Telemeter and Top Deck Assembly, and RF Assembly.
S2 Model 245 Multiplexer, SS/FM Telemeter and Top Deck Assembly, and RF Assembly.
F1 PAM/FM Telemetry Assembly and RF Assembly.
F2 PAM/FM Telemetry Assembly and RF Assembly.
F3 PAM/FM Telemetry Assembly and RF Assembly.
Tape Recorder, Telemetering Calibrator, and DC Power Isolator.

Each of the above S-IC Telemetry Subsystems will be individually tested to insure that all subsystem components are functioning properly and that all subsystem parameters are within specified limits. The format and timing of each Multiplexer Assembly is verified. Each Telemetry Assembly, as required, is tested for proper amplitude and frequency response. Each RF Assembly is tested to verify proper center frequency and output power. Each subsystem, as required, is tested to verify proper RF carrier deviation and pre-emphasis. The AC calibration signal and five DC calibration levels from the Telemetering Calibrator are checked. The record and playback characteristics of the Tape Recorder are examined.

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(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
G. A. Remaley 5/23/66	D C Mr Mull	
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
Boeing S-IC T/M 5-8554		AS- 502

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

1. TEST TITLE	2. KSC TEST NO.
S-IC Telemetry Spares Checkout Procedures	V-28011-SIC2
	11. VEHICLE EFFECTIVITY AS- 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
LCC Room 2P10	NA	24 hours.

15. TEST CONFIGURATION

Bench test using PCTE and special checkout boxes.

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
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☐	☐	☐

OTHERS:

RF Clearance

(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	2. KSC TEST NO.
S-IC Telemetry FM/FM Subsystems Checkout	V-28012-SIC2
	3. STAGE, VEHICLE OR GSE Stage

4. TEST OBJECTIVES

The purpose of this test is to verify the proper performance and readiness of the FM/FM Subsystems to support vehicle checkout and launch.

5. TEST DESCRIPTION/EQUIPMENT STATUS

The following S-IC Stage components will be activated in support of this test:

F1 PAM/FM Telemetry Assembly and RF Assembly.
F2 PAM/FM Telemetry Assembly and RF Assembly
F3 PAM/FM Telemetry Assembly and RF Assembly
Telemetering Calibrator, DC Power Isolator, and Tape Recorder

The parameters of each FM/FM Subsystem will be checked to verify the satisfactory performance and operational readiness of the SCO Assemblies, A/B Telemetering Calibrator, and A/B Tape Recorder. The modulation characteristics of each FM/FM Subsystem are examined for proper pre-emphasis and deviation. The SCO Assemblies are tested for proper center frequency, upper and lower bandedges, and linearity. The SCO Assembly preflight/inflight relay programs are verified during narrow band SCO calibration. The amplitude and frequency of the PAM wavetrain is examined. The sequence, timing, and calibration levels of the A/B Telemetering Calibrator are verified in both the preflight and inflight modes. The amplitude accuracy and record/playback characteristics of the A/B Tape Recorder are verified by comparison of the playback signal with a known input signal.

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

6. PREPARED BY	8. NASA-KSC APPROVAL	10. APPROVAL DATE
G. A. Remaley 5/23/66		
7. ORGANIZATION	**9. ORGANIZATION**	**11. VEHICLE EFFECTIVITY**
Boeing S-IC T/M 5-8554		AS- 502

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

TEST TITLE	2. KSC TEST NO.
S-IC Telemetry FM/FM Subsystems Checkout	V-28012-SIC2
	11. VEHICLE EFFECTIVITY: AS - 502

12. WHERE TEST PERFORMED	13. COMPUTER/ACE PROG. IDENT. (IF APPLICABLE)	14. EST. TEST TIME
VAB or Pad 39	NA	4 hours

15. TEST CONFIGURATION

Stage vertical, umbilicals connected, and power ON.

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	[ ] 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	[XX] LCC TM STA. (MONITOR)
[ ] LEM POWER	[ ] CIF DATA DISPLAY	[XX] 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
[XX] TIMING	[XX] 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.	[XX] 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:

RF Clearance
Access to Stage Unit 115

(CONTINUE ON KSC FORM 23-192 IF REQUIRED)

17. OTHER APPLICABLE REFERENCE DOCUMENTATION