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ATTACHMENT 5

(COUNTDOWN)

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REVISIONS

SYM	DESCRIPTION	DATE	APPROVAL
I	General Revision for Run 10	2/18/59	/s/ Brand

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PREPARED BY: <i>Wendell E. Gills</i>	2/19/59	
GRP.LDR.APPD. <i>Wendell E. Gills</i>	2/19/59	
ASST. TEST COND.APPD.	1 1	
TEST COND. APPD. <i>M. ...</i>	2/19/59	
STAND SUPERVISOR <i>[Signature]</i>	2/20/59	LOT B BATTLESHIP
PROCED. GRP APPD. <i>A.W. Brand 2-21-59</i>	DATE	TEST EFFECTIVITY
TITLE: GENERAL COUNTDOWN		NUMBER 327-0010157
MODEL: XSM-68	THE MARTIN COMPANY DENVER DIVISION	PAGE 1.0 OF 18

CHANGE I

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- 1.0 PURPOSE AND SCOPE - This general countdown procedure establishes a standardized time sequencing of operations when utilizing facility propellant loading during Lot B Hot Battleship tank tests at the Denver Test Site. The procedure covers the support requirements, special considerations, the entire test sequence from T-95 minutes through Post Firing and the usage of detailed procedures. This procedure and any procedures referenced herein contain the specific operations to be performed to meet selected objectives as set forth in Systems Test Plan WDD-M-TP-8, Battleship Tanks Firing Test Program, and will be revised as necessary.
- 2.0 SUPPORT REQUIREMENTS
- 2.1 Stand Safety Personnel
 - 2.2 Emergency vehicles and crews
 - 2.3 Wash Down Facilities
 - 2.4 Nitrogen and Helium Gas Supply
 - 2.5 Other requirements as indicated in the detailed procedures that are listed in section 5.0, Detailed Procedures Usage Chart.
- 3.0 SPECIAL CONSIDERATIONS
- 3.1 The sequence of events must be adhered to at all times unless otherwise directed by the Test Conductor.
 - 3.2 Verify the presence of stand safety personnel, fire fighting equipment, and fire fighting personnel.
 - 3.3 Verify the availability of sufficient Nitrogen and Helium for the test.
 - 3.4 Verify sufficient LOX and fuel in storage tanks.
 - 3.5 Verify arrangements for the Ridge Runner.
 - 3.6 Verify that the seating arrangement is suitable for the approved number of visitors and trainees.
 - 3.7 Prior to Countdown, the weights of items of tare likely to be on the thrust ring at the time of propellant loading will be obtained and noted in Section 4.0, Countdown. The weight of actual tare will be indicated on the weight recorders at the start of propellant loading so that the correct propellant load will be indicated when the tare is removed.
 - 3.8 Verify arrangements with Stand D-2 to minimize conflict with operations scheduled.
 - 3.9 For training purposes the time allotted for each operation is sufficient for concurrent operation on Stage I, and Stage II.

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3.10 The following weights apply for tare of the weight recorder:

Complete work platform	1923 lbs.	(Stage I)
Complete work platform	1670 lbs.	(Stage II)
Rope safety net	123 lbs.	
Temporary platforms	66 lbs.	each
2 ft. Step ladder	25 lbs.	

3.11 The Test Site Safety Manual (M-M-P-58-26) and Procedure No. 327-0010029, Test Stand Safety Operating Procedure in conjunction with this procedure comprises the standard operating procedure for this test.

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4.0 COUNTDOWN

TIME	OPERATION	RESPONSIBILITY
30 MIN PRIOR TO COUNTDOWN	ALL SYSTEMS LEADMEN & SUPPORT GROUP SUPERVISORS REPORT TO TEST CONDUCTOR'S PRE-COUNTDOWN MEETING	ANNOUNCER ALL SYSTEM LEADMEN
	<u>NOTE:</u> TURN OVER ALL PRE-COUNTDOWN PROCEDURES AND VERIFY PREPARATION COMPLETE FOR ALL ETO'S. TEST CONDUCTOR'S MEETING CHECK LIST:	
	_____ PROPULSION	
	_____ FLIGHT CONTROLS	
	_____ ELECTRICAL	
	_____ FACILITIES	
	_____ TV	
	_____ CAMERA	
	_____ INSTRUMENTATION	
	_____ ASSISTANT TEST CONDUCTOR	
	_____ MANUFACTURING STAND SUPERVISOR	
	_____ MAINTENANCE STAND SUPERVISOR	
	_____ QUALITY CONTROL SUPERVISOR	
	_____ AEROJET REPRESENTATIVE	
	_____ AIR FORCE REPRESENTATIVE	
	_____ RW REPRESENTATIVE	
	_____ STAND SAFETY	
	VERIFY COMPLETION OF THE FOLLOWING ITEMS:	ASST. TEST CONDUCTOR
	_____ ENGINE PREFLIGHT CHECKS	
	_____ ENGINE DEGREASING	
	_____ ELECTRICAL POWER ON STAGE I AND STAGE II	
	_____ RP-1 TANKS FILLED - STAGE I _____ LBS. STAGE II _____ LBS.	
	_____ INSTRUMENTATION END POINT CALIBRATION COMPLETE/OR IN PROGRESS	

CHANGE I

TIME

OPERATION

RESPONSIBILITY

30 MIN PRIOR
TO COUNTDOWN

ASST. TEST COND.

IGNITORS INSTALLED/NOT ELECTRICALLY
CONNECTED STAGE I _____, STAGE II _____

THRUST CHAMBERS FILLED AND BLED
STAGE I _____, STAGE II _____

EMERGENCY POWER SET-UP

MISSILE TANK PRESSURE VENTED
STAGE I _____, STAGE II _____

CHANGE OVER TO HELIUM

WORK PLATFORM REMOVAL STAGE I _____,
STAGE II _____

REPORT HELIUM DEWPOINT _____ °F

REPORT NITROGEN DEWPOINT _____ °F

WEATHER REPORT, PHONE NO FR 7-1321

DATE _____ TIME _____

TEMPERATURE _____ °F BY _____ o'clock

DAY'S HIGH TEMP. _____ °F BY _____ o'clock

WIND VELOCITY _____ KNOTS FROM _____

BAROMETER _____ IN RISING _____ FALLING _____
STEADY _____

RELATIVE HUMIDITY _____ %

DEW POINT _____ %

GENERAL WEATHER FORECAST: _____

10 MIN PRIOR
TO CCUNTDOWN

WARNING ANNOUNCEMENT: THE COUNT WILL BE PICKED
UP AT T-95 MINUTES IN APPROXIMATELY TEN MINUTES.
ALL COUNTDOWN PERSONNEL REPORT TO YOUR STATIONS.
REMOVE ALL AUTOMOBILES FROM D-1 TEST STAND.

ANNOUNCER

CHANGE I

TIME	OPERATION	RESPONSIBILITY
5 MIN PRIOR TO COUNTDOWN	COMMAND NET COMMUNICATION CHECK LIST 1. ASST. TEST CONDUCTOR _____ 2. RED-1 LEAD _____ 3. MOC OPERATOR _____ 4. ANNOUNCER _____ 5. WATER PANEL OPERATOR _____ 6. FLIGHT CONTROL LEADMAN _____ 7. INSTRUMENTATION _____ 8. TV _____	TEST CONDUCTOR
10 SEC PRIOR TO COUNTDOWN	ANNOUNCE: ON MY MARK WE WILL BEGIN COUNTING AT T-95 MINUTES-START SEQUENCER ON COMMAND MARK	ANNOUNCER
T-95 MIN.	ANNOUNCE: MARK - T-95 MINUTES AND COUNTING	ANNOUNCER AND MOC OPERATOR
	ANNOUNCE: TEST STAND D-1 IS IN AN AMBER CONDITION	ANNOUNCER
	ANNOUNCE AND RECORD: RUN NO. _____ DATE _____	ANNOUNCER
	_____ AMBER LIGHT ON	AUTO SEQ
	_____ OPEN 24 INCH MAIN WATER VALVE	WATER PANEL OPERATOR
	_____ SEQUENCE RECORDERS ON SLOW SPEED	AUTO SEQ
	_____ MASTER MONITORS ON	AUTO SEQ
	ANNOUNCE: ATTENTION D-1 PERSONNEL, HYDRAULIC POWER IS BEING APPLIED TO STG I AND II	ANNOUNCER
	_____ APPLY HYDRAULIC POWER TO STAGES I AND II	ACCESS SYSTEM
	_____ CLEAR GRATING AREA OF ALL PERSONNEL NOT DIRECTLY CONCERNED WITH LOX LOAD	ASST TEST COND & STAND SAFETY
	_____ TAKE OUT WEIGHT RECORDERS (SEE STEP 3.10 FOR TARE WEIGHTS)	INSTR
	ANNOUNCE COUNTDOWN BY 5 MINUTE INTERVALS	ANNOUNCER
T-92 MIN	ANNOUNCE: ATTENTION STAND D-1 IS NOW IN FAIL WET CONDITION	ANNOUNCER

CHANGE I

TIME	OPERATION	RESPONSIBILITY
T-91 MIN	___ STAND CLEARED FOR LOX LOADING	ASST TEST COND & STAND SAFETY
T-90 MIN	___ START LOX PRE-COOLING-STAGE II ___ LOX DROP SIGNAL-STAGE I & II ___ FUEL SUCTION LINE HEATER ON-STAGE II	MOC, PLC, P & P AUTO SEQ. PLC
PRIOR TO T-70 MINUTES	___ SHUTDOWN HYDRAULIC POWER-STAGE II ___ SHUTDOWN FLIGHT CONTROL ELECTRICAL POWER - STAGE II ___ ANNOUNCE: ATTENTION D-1 PERSONNEL, STAGE I & II HYDRAULIC POWER HAS BEEN SHUT DOWN	ACCESS SYSTEM ACCESS SYSTEM ANNOUNCER
T-50 MIN	___ LOX LOADING COMPLETE CHECK-STAGE II STAGE II LOADED TO _____ LBS.	AUTO SEQ. PLC & BLH
T-49 MIN	___ START LOX PRE-COOLING-STAGE I ___ LOW LEVEL SENSOR CHECK STAGE I DURING LOX LOX LOADING	MOC & PLC & P & P PLC - ELEC.
T-32 MIN	___ LOX LOADING COMPLETE CHECK-STAGE I STAGE I LOADED TO _____ LBS.	AUTO SEQ PLC & BLH
T-31 MIN	___ NOTIFY ALL PERSONNEL LOX LOADING COMPLETE ON BOTH STAGE I AND II	TEST COND & ANNOUNCER
T-30 MIN	___ CONNECT IGNITERS ELECTRICALLY-STAGE I ___ CONNECT IGNITERS ELECTRICALLY-STAGE II ___ ANNOUNCE: IGNITERS STAGE I & II ARE CONNECTED AND ARMED ___ COMPLETE FINAL ENGINEERING INSPECTION	ELEC. ELEC. ANNOUNCER ASST TEST COND

CHANGE I

TIME	OPERATION	RESPONSIBILITY
T-27 MIN	<p>___ REMOVE SAFETY NETS-STAGE I & II</p> <p>___ SET ENGINE DELUGE NOZZLES-STAGE I & II</p> <p>___ CLEAR GRATING FOR ERECTOR LOWERING</p>	<p>ASST TEST COND</p> <p>ASST TEST COND</p> <p>ASST TEST COND & STAND SAFETY</p>
T-25 MIN	___ LOWER ERECTOR-STAGE I	ERECTOR OPER
T-20 MIN	___ LOWER ERECTOR-STAGE II	ERECTOR OPER
T-16 MIN	___ PROGRAMMED HOLD	AUTO SEQ.
T-15 MIN	<p>___ RED LIGHT ON</p> <p>ANNOUNCE: ATTENTION TEST STAND D-1 IS NOW IN A RED CONDITION. CLEAR THE TRANSFER AND EQUIPMENT ROOM.</p> <p>ANNOUNCE: REMOVE ALL CARS FROM TEST STAND</p> <p>ANNOUNCE: ESTABLISH ROADBLOCKS</p> <p>___ ESTABLISH ROADBLOCKS</p> <p>___ START TO CLEAR TEST STAND OF PERSONNEL</p> <p>___ VERIFY TRANSFER AND EQUIPMENT ROOM ARE CLEARED</p> <p>___ SET HELIUM REGULATOR TO 3100 LBS.</p> <p>___ VERIFY MANUAL GOX VALVES OPEN</p> <p>___ VERIFY START LINES CONNECTED TO STAGE I</p> <p>___ SET APPROACH DECK NOZZLES</p> <p>NOTE: ANNOUNCE HYDRAULIC POWER BEING APPLIED TO STAGE I MISSILE PRIOR TO APPLICATION</p> <p>___ APPLY FLIGHT CONTROL ELEC. POWER-STAGE I AND II</p> <p>___ APPLY HYDRAULIC POWER TO MISSILE</p> <p>___ FLIGHT CONTROL MONITOR CHECK IN ON COMMAND COMMAND NET.</p>	<p>AUTO SEQ.</p> <p>ANNOUNCER</p> <p>ANNOUNCER</p> <p>ANNOUNCER</p> <p>STAND SAFETY</p> <p>ASST. TEST COND.</p> <p>STAND SAFETY</p> <p>FACILITY</p> <p>ATC</p> <p>ATC</p> <p>FACILITY</p> <p>ANNOUNCER</p> <p>ACCESS SYSTEM</p> <p>ACCESS SYSTEM</p> <p>F/C GO-NO GO</p>

CHANGE I

TIME	OPERATION	RESPONSIBILITY
T-10 MIN	_____ VERIFY AREA CLEAR AND BLOCKHOUSE SECURED TO TEST CONDUCTOR _____ ANNOUNCE COUNTDOWN BY MINUTES	ASST TEST COND. & STAND SAFETY ANNOUNCER
T- 9 MIN	_____ PROGRAMMED HOLD _____ COMMAND NET COMMUNICATIONS CHECK LIST: 1. TEST CONDUCTOR _____ 2. ASST TEST COND. _____ 3. MOC OPERATOR _____ 4. ANNOUNCER _____ 5. WATER PANEL OPERATOR _____ 6. FLIGHT CONTROLS LEADMAN _____ 7. FLIGHT CONTROLS NO-GO MONITOR _____ 8. PROPELLANT LOADER OPERATOR _____ 9. INSTRUMENTATION _____ 10. RED I LEAD _____ 11. RED II LEAD _____ 12. P & P STAGE I _____ 13. P & P STAGE II _____ 14. ERECTOR OPERATOR _____ 15. CAMERA OPERATOR _____ 16. TV OPERATOR _____	AUTO SEQ. TEST COND.
	_____ TEST CONDUCTOR DIRECT INSTRUMENTATION TO CALIBRATE _____ CHECK STATUS OF LOX TOPPING _____ COMPLETE INSTR. AUTO CALIBRATION	INSTR.
T- 8 MIN	_____ PRESSURIZE FUEL TANK-STAGE I _____ HOLD - KILL SWITCHES ACTIVATED	PROPULSION AUTO SEQ.
T- 7 MIN	_____ PRESSURIZE FUEL TANK-STAGE II	PROPULSION
T- 5 MIN	_____ COMPLETE LOX TOPPING _____ STAGE I TOPPED TO _____ LBS. _____ STAGE II TOPPED TO _____ LBS. _____ VISUAL OBSERVER CHECK-IN ON COMMAND NET. _____ BLUE LINE RECORDER ON CONTINUOUS OPERATION	AUTO SEQ. TEST COND. TEST COND. ASST. TEST COND. ATUO SEQ.

TIME	OPERATION	RESPONSIBILITY
T-4 MIN	___PRESSURIZE LOX TANK-STAGE I	AUTO SEQ.
T- 3 MIN 45 SEC	___PROPELLANT VALVE POSITION CHECK-STAGE I	AUTO SEQ.
T- 3 MIN 35 SEC	___MISSILE VALVE POSITION CHECK-STAGE I	AUTO SEQ.
T- 3 MIN 25 SEC	___MISSILE TANK PRESSURE CHECK-STAGE I	AUTO SEQ.
T- 3 MIN	___PRESSURIZE LOX TANK-STAGE II ___STARTER TANK FUEL PRESSURE CHECK	PROPULSION AUTO SEQ.
T- 2 MIN 45 SEC	___PROPELLANT VALVE POSITION CHECK-STAGE II	AUTO SEQ.
T- 2 MIN 35 SEC	___MISSILE VALVE POSITION CHECK-STAGE II	AUTO SEQ.
T- 2 MIN 25 SEC	___MISSILE TANK PRESSURE CHECK-STAGE II	AUTO SEQ.
T- 2 MIN 20 SEC	___UMBILICAL BASE SPRAYS ON ___VERNIER DUCTING WATER ON ___FLAME DEFLECTOR STAGE I ON ___FLAME DEFLECTOR STAGE II ON ANNOUNCE: ALL TANK SWITCHES ON	WATER PANEL WATER PANEL WATER PANEL WATER PANEL TEST COND.
T- 2 MIN	___OPEN OSBVAP STAGE II ___THRUST CONTROL AMPLIFIERS POWER ON STAGE I AND II ___IGNITER CONT. CHECK AND ENGINE READY CHECK STAGE I AND II ___START MONITOR - ENGINE HOLDFIRE	AUTO SEQ. AUTO SEQ. AUTO SEQ. AUTO SEQ.
T- 1 MIN 30 SEC	___SIREN ON	AUTO SEQ.

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TIME	OPERATION	RESPONSIBILITY
T- 1 MIN	___ SIREN OFF SEQUENCE RECORDERS TO FAST SPEED ___ CAMERA SYSTEM ON AUTOMATIC ___ START INSTRUMENTATION PROGRAMMER ___ HYDRAULIC PUMP ON-STAGE II ___ ANNOUNCE COUNTDOWN BY 10 SEC INTERVALS	AUTO SEQ. AUTO SEQ. AUTO SEQ. AUTO SEQ. ACCESS SYSTEM ANNOUNCER
T- 50 SEC	___ FLAME DEFLECTOR PRESSURE CHECK-STAGE I & II ___ ACTIVATE HYDRAULIC PUMP BATTERY	AUTO SEQ. ACCESS SYSTEM
T- 30 SEC	___ CLOSE STAGE II HE INLET ___ FUEL SUCTION LINE HEATER OFF ___ ENGINE MALFUNCTION MONITOR ON	PLC PLC AUTO SEQ.
T- 20 SEC	___ OPEN OSBV-STAGE I ___ OPEN FDBVAP-STAGE II ___ OPEN GGVBV-STAGE II ___ TRANSFER TO HYDRAULIC BATTERY	AUTO SEQ. AUTO SEQ. AUTO SEQ. ACCESS SYSTEM
T- 16 SEC	___ EQUALIZE DISCONNECT PRESSURE-STAGE II	AUTO SEQ.
T- 15 SEC	___ DISCONNECT HYDRAULIC UMBILICALS-STAGE II	AUTO SEQ.
T- 10 SEC	___ ANNOUNCE COUNTDOWN BY SECONDS ___ HELIUM INJECT OFF	ANNOUNCER PROPULSION
T- 5 SEC	___ CLOSE TCOFV ___ OPEN GGOLPV	AUTO SEQ. AUTO SEQ.
T- 2 SEC	___ TERMINATE ALL AUTOMATIC HOLDS	AUTO SEQ.

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TIME	OPERATION	RESPONSIBILITY
T- 0 SEC	<p>___ STAGE I FS₁</p> <p>CLOSE OSBV-STAGE I</p> <p>___ CLOSE FDVAP-STAGE II</p> <p>___ CLOSE GGFVBV-STAGE II</p> <p>___ EQUALIZE HYD DISCONNECT PRESSURE-STAGE I</p> <p>___ PDA HEATER TRANSFER AC TO DC STAGE II</p> <p>___ HOLDS TRANSFERRED TO KILLS</p> <p>___ COUNT UP BY 10 SECONDS INTERVALS</p>	<p>AUTO SEQ.</p> <p>AUTO SEQ.</p> <p>AUTO SEQ.</p> <p>AUTO SEQ.</p> <p>AUTO SEQ.</p> <p>AUTO SEQ.</p> <p>AUTO SEQ.</p> <p>ANNOUNCER</p>
T+ 0.8 SEC	___ DISCONNECT HYD UMBILICALS-STAGE I	AUTO SEQ.
T+ 5 SEC	___ LOCK IN TCPS CIRCUIT	AUTO SEQ.
T+ 1 MIN 35 SEC	___ CLOSE STAGE I HE INLET	PLC
T+ 2 MIN	<p>___ STAGE II GGFS₁</p> <p>___ THRUST CHAMBER SPRAY & CO₂ ON-STAGE I</p> <p>___ LOCK IN FUEL-I L.L. SENSOR</p>	<p>AUTO SEQ.</p> <p>WATER PANEL</p> <p>AUTO SEQ.</p>
APPROX. T+ 2 MIN 5 SEC	___ STAGE I FS ₂	AUTO SEQ.
APPROX. T+ 2 MIN 6 SEC	___ BLH TRANSFERED TO MOUNT, STAGE II	AUTO SEQ.
APPROX. T+ 2 MIN 8 SEC	___ STAGE II FS ₁	AUTO SEQ.
T+ 2 MIN 12 SEC	___ START FLIGHT CONTROL PROGRAM-STAGE II	AUTO SEQ.
T+ 2 MIN 30 SEC	<p>___ THRUST CHAMBER SPRAY & CO₂ STAGE I</p> <p>___ FLAME DEFLECTOR STAGE I REDUCED TO 20 PSIA</p>	<p>WATER PANEL</p> <p>WATER PANEL</p>
	___ OPEN STAGE II HE INLET ON COMMAND	PROPULSION

TIME	OPERATION	RESPONSIBILITY
T+ 4 MIN 10 SEC	___ CO ₂ ON-STAGE II	WATER PANEL
T+ 4 MIN 18 SEC	___ STAGE II FS ₂	AUTO SEQ.
T+ 4 MIN 30 SEC	___ CO ₂ OFF-STAGE II	WATER PANEL
T+ 4 MIN 33 SEC	___ CLOSE STAGE II LOX TANK REGULATOR AND VENT LOX TANK TO APPROXIMATELY 25 PSIA FOR REMAINDER OF RUN.	PROP & PLC
T+ 5 MIN 23 SEC	___ STAGE II GGFS ₂ ___ CO ₂ ON STAGE II ___ VENT STAGE II LOX TANK	AUTO SEQ. WATER PANEL PROPULSION
	___ CO ₂ OFF ON COMMAND	WATER PANEL
GGFS ₂ + 1 MIN	___ CONDITION ON TEST STAND ___ ANNOUNCE: SECURE ALL SYSTEMS	VISUAL OBSERVER TEST COND AND ANNOUNCER
GGFS ₂ + 3 MIN	___ ASSISTANT TEST COND. TAKES OVER POSTFIRING ___ CHECK SEARCH LIGHT SHUTDOWN	
T+ 10 MIN	___ AUTO SEQUENCER OFF	MOC OPERATOR
POST FIRE PROCEDURE	___ RAISE ERECTORS-STAGE I AND II ___ WEIGHT OF MISSILE AT SHUTDOWN STAGE I _____ LBS STAGE II _____ LBS ___ UNLOAD REMAINING LOX-STAGE I AND II ___ COMPLETE LOX UNLOADING-STAGE I AND II ___ REMOVE ROAD BLOCKS ___ WEIGHT OF MISSILE PRIOR TO UNLOADING FUEL STAGE I _____ LBS STAGE II _____ LBS. ___ START FUEL UNLOADING-STAGE I AND II ___ COMPLETE FUEL UNLOADING-STAGE I AND II ___ SEND POSTFIRING INSPECTION TEAM TO STAND ON ASST TEST COND COMMAND	ERECTOR OPERATOR MOC - PLC PLC - MOC STAND SAFETY MOC - PLC PLC - MOC ASST TEST COND & STAND SAFETY

CHANGE I

TIME

OPERATION

RESPONSIBILITY

POSTFIRE
PROCEDURE
CONT'D.

PAD INSPECTION TEAM

1. FACILITY LEADMAN _____
2. SAFETY SUPERVISOR _____
3. PROPULSION REPRESENTATIVE _____

____ GO TO GREEN CONDITION ON DIRECTION OF
ASST. TEST CONDUCTOR

MOC OPERATOR

____ RETURN OPERATING PERSONNEL TO TEST STAND

ANNOUNCER

____ CLOSE MOTOR OPERATED WATER VALVE

WATER PANEL

____ CALL DON HERON EXT. 2445 HOME PHONE-
PY 4-2237 OR BOB WALKO EXT. 2445, HOME
PHONE PY 4-3412

____ COMPLETE OUTSTANDING PROCEDURES AND TURN
OVER TO TEST CONDUCTOR.

ALL

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REMARKS: _____

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Quality Control verification that
this procedure was performed on:

Test Conductor _____

Date _____

Missile _____

Stand _____

Date _____

Q.C.

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5.0 DETAILED PROCEDURES USAGE CHART

5.1 THE ASSISTANT TEST CONDUCTOR AND EACH SYSTEM LEADMAN WILL PRESENT TO THE TEST CONDUCTOR ALL COMPLETED PROCEDURES BEFORE OR AFTER THE COUNTDOWN AS INDICATED IN THE FOLLOWING CHART.

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1 PRCC NO.	2 REV	3 PCN	4 TITLE	5 BEFORE TC MEET.	6 DURING COUNT DOWN	7 POST FIRE
<u>ADMINISTRATIVE</u>						
327-0010119 029	F B		ADMIN. AND PRE-COUNT CHECK TEST STAND SAFETY PROCEDURE	X		X
<u>PROPULSION</u>						
327-0010140 143 142 141	A D A D		PROP. SYS. OPS. STAGE I PRE-FIRE CHECK XLR-91 ENGINE PRE-FIRE CHECK XLR-87 ENGINE PROP. SYS. OPS. STAGE II	X X X X	X	X X X X
<u>ELECTRICAL</u>						
327-0010190 191 192 193 194 195 196	A A A A A	2 4 3	PRE-FIRE AND POST-FIRE CHECK AIRBORNE ELECTRICAL STAGE I PRE-FIRE AND POST-FIRE CHECK AIRBORNE ELECTRICAL STAGE II COMPLEX ELEC. PRE AND SHUTDOWN MOC AND SEQ. PREPS. MOC COUNTDOWN RESET MOC PREPS. FOR ENG. FUNCTIONAL PREFIRE IGNITER CIRCUIT CHECK	X X X X X X X		X X X X X
<u>FLIGHT CONTROLS</u>						
327-0010132 131 135	A A A	8 3	COMPLEX AND CONT. SYS PRECOUNT PREPS. STAGE II COMPLEX AND CONT. SYS PRECOUNT PREPS. STAGE I CONT. SYS. COUNTDOWN STG. I & II	X X	X	
<u>FACILITY</u>						
327-0010163 164 024 160	D C E	1&2	PROC WATER SYS PREP & OPERATION (BOTH STAGES) HYD POWER PREP (C-11) & ERECTOR OPER (BOTH STAGES) POSTFIRE INSP. TEST STAND HIGH PRESS GAS PREP & PROP. SERVICING	X X X X	X X	X X X

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1 PROC NO.	2 REV	3 PCN	4	5 BEFORE TC MEET.	6 DURING COUNT DOWN	7 POST FIRE
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327-0010021	H	11	CONSOLE COUNTDOWN STAGE I & II		X	
023	F	6	INST. PREP. & CHECK STAGE I & II	X		
081	D		POST FIRE INSP. STAGE I & II			X
093	B		CAPTIVE TEST DATA HANDLING			X
104	C		GSE SYS. INST. CALIBRATION AND CHECKOUT	X		
116	C		FILM CAMERA SYSTEM CHECK		X	

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ATTACHMENT 6

(COUNT DOWN TIME HISTORY AND PROCEDURES LISTING)

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The following is a Time Sequence of the Countdown operations as gathered from the announcers notes. These times are approximate and should be used for reference only.

1205 Command net check.

1207 Pick up count.

1209 ATC I ready for lox loading.

1210 Hydraulic power to Stage I.

1212 Fail wet established for the stand.

1220 Hydraulic power removed from Stage I.

1230 Airborne battery has been installed, work platforms being removed.

1231 Hydraulic power to Stage II.

1234 Stage II ready for lox loading.

1241 Hydraulic power removed from Stage II missile.

1250 Small leak in Barco on Stage II.

1253 Holding to complete lox loading Stage II.

1301 Pull lox probes Stage II.

1301 Holdfire on PLC.

1302 Override and counting (the holdfire was caused by a defective fire detector in the engine compartment).

1309 OSBV closed.

1311 OSBV opened.

1312 OSPV closed.

1320 Holding to complete Stage I lox loading.

1325 Lox loading completed on both Stage I & II.

1328 Igniters connected electrically and armed.

1330 Fail safe on Stage II erector won't release.

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1335 Stage II engine deluge nozzles set and safety nets removed.

1342 Stage I safety net removed.

1420 Open OSBV's.

1421 Close OSBV's.

1442 Report that erector trouble was solved.

1444 OSBV's opened.

1445 OSBV's closed.

1505 OSBV's opened.

1506 OSBV's closed - forced close.

1527 Stage II erector lowered a little.

1530 OSBV's opened.

1531 OSBV's closed.

1533 Stage II erector lowered.

1538 Holding to complete lox loading Stage I.

1547 Pick up count - lox loading completing.

1551 Disconnect Stage I lox probe.

1551 Final engineering complete.

1553 Start to lower Stage I erector.

1555 Hydraulic power applied to Stage I.

1558 Umbilical lines hung up on erector.

1601 Hydraulic power applied.

1603 Holding for completion of inspection of switch idiot markers.

1604 Stage I erector lowering complete.

1605 Went to red condition.

1611 Test Stand clear of people.

OSBV's opened.

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1620 Ground power for run.
1621 Pick up count.
1622 #1 OSBV did not close.
1624 Stop topping Stage II.
1627 Override on instrumentation holdfire.
1628 Holding - lox tank pressurization instrumentation problem on P & P II.
1633 Replaced the meter relay amplifier unit.
1635 87 FS₂ - off and running.
1637 GGFS₁ - off and running.
1637:05 87 FS₂ - Clean shutdown.
1637:08 97 FS₁
1637:30 Commands given over the net - CO₂, TC spray, engine deluge, firex.
1638 Reset firex and re-established missile washdown, thrust chamber spray and engine deluge.
1640 Vent tanks.
1645 Decrease Stage I deflector plate.
Decrease Stage II deflector plate.
1650 Turned on N₂ to try to blow out fire.
1723 Thrust chamber spray and engine deluge on. 90% head pressure on water system.
1725 N₂ secured.
1728 Fire increasing - 85 psi on water system.
1733 1810 total weight reading Stage II.
1738 75 psi head pressure on water system.
1740 780 lbs. BLH.
1746 180 lbs. BLH. 60% psi head pressure on water system.

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1750 Water off, fire increased, water on.

1805 60 psi head pressure on water system.

1807 TC spray off - won't go off because of override.

1808 35 lbs. head pressure on water system.

1810 -2400 lbs. BLH.

1811 Missile washdown.

1811 Fire slowly diminishing 70% down.

1812 -2658 and holding.

1812 Water off - only fire remaining is umbilical cables.

1820 -2000 lbs. BLH.

1825 N₂ tried, NG - turned off.

1830 Fire truck crew inside blockhouse. N₂ tried.

1835 -3100 and N₂ on.

Fire decreasing.

1840 Securing party leaving for pad - Harrison, Rogers and fire truck crew.

1841 Fire out.

1842 Siren off.

1844 Harrison reports no fire to fire truck in position.

1845 Smoke between tanks.

1845 No evidence of lox or gox.

1847 Directing water on bird.

1858 P & P turned off I & II.

1852 Generating steam on structure.

1855 Harrison reports that in case of a fire, the fire fighting facilities are entirely inadequate.

Evidence of shattered turbo pump.

1857 Stage II siot is secured except with Harrison's approval.

1900 Sent for La France fire truck.

1910 Secured all systems.

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Procedures used for Run 10 of Lot B Battleship on 2-26-59 at Test Stand D-1.

327-0010021, Revision H, PCN 12, Instrumentation System Console Countdown.

023, Revision F, PCN 6, Instrumentation Preparation and Checkout.

024, Revision E, PCN 2, Post Fire Inspection of Test Stand.

029, Revision B, Test Stand Safety Procedure.

069, Revision E, Television System Checkout.

081, Revision D, Instrumentation System Post Fire Inspection.

093, Revision B, Captive Test Data Handling.

104, Revision C, GSE System Instrumentation Calibration and Checkout.

116, Revision C, Film Camera System Checkout.

119, Revision F, Administrative and Pre-Count Check.

131, Original, PCN 4, Complex and Control System Pre-Count Preparations,
Stage II.

132, Revision A, PCN 9, Complex and Control System Pre-Count Preparations,
Stage II.

135, Revision A, PCN 2 and 3, Controls System Countdown, Stage I and II.

140, Revision A, PCN 3 and 4, Propulsion System Operations, Stage I.

141, Revision E, PCN 6, 7, and 8, Propulsion System Operations, Stage II.

142, Revision A, Pre-Fire Check of XLR-87 Engine.

143, Revision D, Pre-Fire Check of XLR-91 Engine.

157, Revision I, General Countdown

160, Original PCN land 2, High Pressure Gas System Preparation and Propellant
Servicing.

163, Revision D, Process Water System Preparation and Operation.

164, Revision C, Hydraulic Power Preparator (C-1) and Erector Operation.

190, Original, PCN 1 and 2, Pre-Fire and Post-Fire Check of Airborne
Electrical System, Stage I.

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327-0010191, Revision A, PCN 3 and 4, Pre-Fire and Post-Fire Check of Airborne
Electrical System. Stage II.

192, Revision A, PCN 3, Complex Electrical System Preparation and Shutdown.

193, Revision A, MOC and Sequencer Preparations.

194, Revision A, MOC Countdown Reset.

195, Revision A, MOC Preparations for Engine Functional Check.

196, Pre-Fire Igniter Circuit Continuity Check.

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