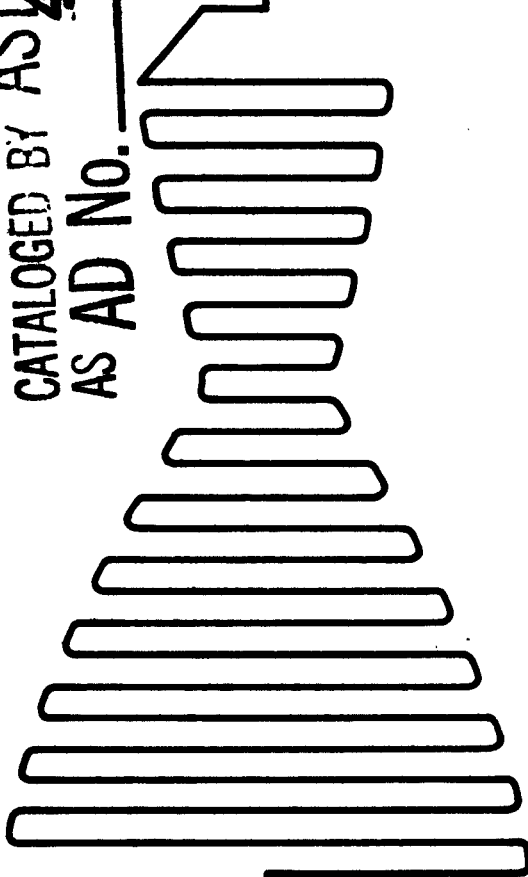


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**ROCKETDYNE**  
A DIVISION OF NORTH AMERICAN AVIATION, INC.  
CANOGA PARK, CALIFORNIA

RDR 3181-15D

**A T L A S**  
**ENGINE SYSTEM COUNTDOWN**  
**RELIABILITY REPORT**

**ROCKETDYNE**

A DIVISION OF NORTH AMERICAN AVIATION, INC.

6633 CANOGA AVENUE  
CANOGA PARK, CALIFORNIA

L/C AFOL(694)-328  
Part 1, Item 4, of Exhibit B,  
and Para. 3.4 of AFBM Exhibit 58-1

**PREPARED BY**

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NO. OF PAGES 20

**REVISIONS**

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## ATLAS ENGINE SYSTEM COUNTDOWN RELIABILITY REPORT

This report contains data applicable to the Atlas Engine System Countdown Reliability in accordance with contractual requirement.

Two listings, booster and sustainer engines, arranged in chronological order, detail all countdown tests performed during the stated period.

The tests have evaluations of Exclusion, Success or Failure and include descriptive statements of test results where pertinent.

An explanation of the headings, codes and abbreviations are included for clarification of terminology.

## HEADINGS:

```

=====
LIST TEST NUMBER
NO.  TEST STAND  DATE  ENG S/N  RESULT  TEST TYPE  REMARKS
=====
(1)   (2)         (4)   (5)      (6)      (7)         (8)
      (3)

```

(1) Numerical List Number

(2) Test Number

(3) Test Stand Identification

(4) Date on which test occurred

(5) Engine Serial Number

(6) Result-Classifies each test as either a Success, a Failure, or an Exclusion

(7) Test Type-R&D, Acceptance, etc.

(8) Remarks - A brief description of the countdown result

## ABBREVIATIONS

|   |        |                                |   |          |                                     |
|---|--------|--------------------------------|---|----------|-------------------------------------|
| A | ACCEPT | - Acceptance Test              | N | NON-SPEC | - Non-Specification                 |
|   | ACTUAT | - Actuator                     |   | NPSH     | - Net Positive Suction Heat         |
|   | AMB    | - Ambient                      |   | NO.      | - Number                            |
|   | ASSY   | - Assembly                     | O | OBS      | - Observer                          |
|   | AUTO   | - Automatic                    |   | OE       | - Operator Error                    |
| B | B/S    | - Bootstrap                    |   | OSE      | - Other Sub-Engine                  |
| C | CALIB  | - Calibration                  |   | OSPEED   | - Overspeed                         |
|   | CK     | - Check                        | P | PERF     | - Performance                       |
|   | C/O    | - Cutoff                       |   | PRESS    | - Pressure                          |
|   | CONTAM | - Contamination                |   | PROC     | - Procedure                         |
|   | CSM    | - Combustion Stability Monitor |   | PROD     | - Production                        |
| D | DECL   | - Declared                     |   | P.U.     | - Propellant Utilization            |
|   | DEV    | - Developed                    |   | PRE      | - Pretest                           |
|   | DUR    | - Duration                     | Q | QUAL     | - Qualification Test                |
| E | E      | - Exclusion                    | R | RCCD     | - Rough Combustion Cut-off Device   |
|   | ENG    | - Engine                       |   | R-D      | - Research & Development Test       |
|   | EXH    | - Exhaust                      |   | REF      | - Reference                         |
|   | EXP    | - Experimental                 |   | REG      | - Regulator                         |
| F | F      | - Failure                      |   | REL      | - Relay                             |
|   | FAC    | - Facility                     |   | REQD     | - Required                          |
|   | FACT   | - Factor                       |   | RDP      | - Reliability Demonstration Program |
| G | GG     | - Gas Generator                | S | S        | - Success                           |
| H | HDWE   | - Hardware                     |   | SE       | - Support Equipment                 |
|   | H.S.   | - Head Suppression             |   | SEQ      | - Sequence                          |
|   | HYD    | - Hydraulic                    |   | SW       | - Switch                            |
|   | HYP    | - Hypergol                     |   | SYS      | - System                            |
| I | IGN    | - Igniter (or Ignition)        |   | S/N      | - Serial Number                     |
|   | INAP   | - Inapplicable                 | T | TC       | - Thrust Chamber                    |
|   | INJ    | - Injector                     |   | TEMP     | - Temperature                       |
|   | INST   | - Installation                 |   | TRICH    | - Trichloroethylene                 |
|   | INSTR  | - Instrumentation              |   | TURB     | - Turbine                           |
|   | INT    | - Intended                     | U | UNK      | - Unknown                           |
|   | ISP    | - Specific Impulse             | V | VE       | - Vernier Engine                    |
| J | JKT    | - Jacket                       |   | VV       | - Valve                             |
| K | K      | - 1000 (lbs. Thrust)           | W | WT       | - Weighting (Factor)                |
| L | LIQ    | - Liquid                       |   |          |                                     |
| M | MAIF   | - Malfunction                  |   |          |                                     |
|   | MFV    | - Main Fuel Valve              |   |          |                                     |
|   | MLV    | - Main LOX Valve               |   |          |                                     |
|   | M/R    | - Mixture Ratio                |   |          |                                     |
|   | M/S    | - Main Stage                   |   |          |                                     |

MA-3 ATLAS ENGINE SYSTEM  
COUNTDOWN RELIABILITY PROGRAM

This report presents the MA-3 Atlas Engine System Countdown Reliability Program results received during the period from

The report is in answer to a contract requirement and in its preparation the following ground rules and definitions were applied:

Countdown Exposure Definition

Countdowns, in general, are considered to commence with the admission of one or both propellants to the engine system. This approximates the operational concept employed during launch and static testing of the missile system.

Countdown Termination Definition

There are two conditions of countdown termination; (1) The signal for engine start is given. (2) The countdown is aborted before start signal.

Countdown Evaluations

Success, "S", indicates a countdown sequence that has been accomplished with no delay or cancellation caused by an engine component malfunction and denotes that the countdown was a success.

Exclusion, "E", indicates a countdown sequence which is not applicable for reliability evaluation due to either a pretest decision, or a post test evaluation.

Any test or component which, as a part of the demonstration program, is declared inapplicable for reliability evaluation of the operation sequence is also considered inapplicable for the countdown sequence. Examples of these declared pretest Exclusions are; checkout tests on an engine following initial test stand installation, malfunction tests, tests to investigate system problems, tests involving excessive no faith hardware, etc. In the case of the specific component the countdown would be Excluded if it was interrupted because of a component failure that was declared of no faith due to it being experimental, obsolete, over-aged or damaged.

A post test countdown evaluation would result in an Exclusion if a condition similar to the following existed; facility equipment and/or instrumentation malfunctions, test operation personnel errors, or an engine malfunction during countdown which would not cause a missile countdown delay, abort or failure.

Failure "F", indicates a countdown sequence wherein an engine system malfunction occurred which would have resulted in a delay abort or mission failure had it occurred during a missile system countdown.

# MA3 BOOSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RDR 3181-15D  
Page 4

| LIST NO. | TEST NUMBER<br>TEST STAGE | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                                                                              |
|----------|---------------------------|----------|---------|--------|-----------|------------------------------------------------------------------------------------------------------|
| 1799     | 512065E<br>ALFA 1         | 03-01-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE                                  |
| 1800     | 512065F<br>ALFA 1         | 03-01-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE                                  |
| 1801     | 512066E<br>ALFA 1         | 03-02-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE                                  |
| 1802     | 512066F<br>ALFA 1         | 03-02-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE                                  |
| 1803     | 512067E<br>ALFA 1         | 03-02-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE                                  |
| 1804     | 512067F<br>ALFA 1         | 03-02-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE                                  |
| 1805     | 512068E<br>ALFA 1         | 03-02-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE                                  |
| 1806     | 512068F<br>ALFA 1         | 03-02-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE                                  |
| 1807     | 17050E<br>NEOSH0 IIA      | 03-04-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF F<br>BUILDUP WITH DRY JACKET PHASE OF INERT LEAD<br>PROGRAM. |
| 1808     | 17051E<br>NEOSH0 IIA      | 03-04-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF F<br>BUILDUP WITH INERT LEAD.                                |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

## MA3 BOOSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RDR 3181-150  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                                       |
|----------|---------------------------|----------|---------|--------|-----------|---------------------------------------------------------------|
| 1809     | 17C52E<br>NEOSPO IIA      | 03-C4-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY<br>WITH INERT LEAD. VERIFY F BUILD-UP |
| 1810     | 512069E<br>ALFA 1         | 03-C4-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1811     | 512069F<br>ALFA 1         | 03-C4-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1812     | 512070E<br>ALFA 1         | 03-C5-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1813     | 512070F<br>ALFA 1         | 03-C5-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1814     | 512071E<br>ALFA 1         | 03-C6-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1815     | 512072E<br>ALFA 1         | 03-C7-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1816     | 512072F<br>ALFA 1         | 03-C7-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1817     | 512073E<br>ALFA 1         | 03-C7-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1818     | 512073F<br>ALFA 1         | 03-C7-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>ON ENGINE HDWE. FLAME BUCKET PULSE |

• S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# MA3 BURSTIER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RIR 3181-15D  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                          |
|----------|---------------------------|----------|---------|--------|-----------|--------------------------------------------------|
| 1819     | 512074E<br>ALFA 1         | 03-07-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. |
| 1820     | 512074E<br>ALFA 1         | 03-07-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE  |
| 1821     | 512075E<br>ALFA 1         | 03-08-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE  |
| 1822     | 512075F<br>ALFA 1         | 03-08-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE  |
| 1823     | 512076E<br>ALFA 1         | 03-09-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. |
| 1824     | 512076F<br>ALFA 1         | 03-09-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. |
| 1825     | 512077E<br>ALFA 1         | 03-09-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. |
| 1826     | 512077F<br>ALFA 1         | 03-09-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. |
| 1827     | 512078E<br>ALFA 1         | 03-09-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. |
| 1828     | 512078<br>ALFA 1          | 03-09-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.



# MA3 REGSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RDR 3181-15D  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE  | REMARKS                                                             |
|----------|---------------------------|----------|---------|--------|------------|---------------------------------------------------------------------|
| 1829     | 512079E<br>ALFA 1         | 03-09-63 | 1121-2  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1830     | 512079F<br>ALFA 1         | 03-09-63 | 1218-3  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1831     | 512080E<br>ALFA 1         | 03-11-63 | 1121-2  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1832     | 512080F<br>ALFA 1         | 03-11-63 | 1218-3  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1833     | 17C53E<br>NEOSH0 IIA      | 03-12-63 | 113120  | E      | ACCEPTANCE | DECL INAP - CHECKOUT 1ST TEST.                                      |
| 1834     | 17C54E<br>NEOSH0 IIA      | 03-12-63 | 113120  | S      | ACCEPTANCE | SUCCESSFUL COUNTDOWN                                                |
| 1835     | 17C55E<br>NEOSH0 IIA      | 03-13-63 | 113120  | S      | ACCEPTANCE | SUCCESSFUL COUNTDOWN                                                |
| 1836     | 512081E<br>ALFA 1         | 03-13-63 | 1121-2  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1837     | 512081F<br>ALFA 1         | 03-13-63 | 1218-2  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1838     | 17C56E<br>NEOSH0 IIA      | 03-14-63 | 113121  | E      | ACCEPTANCE | DECL INAP - CHECKOUT 1ST TEST.                                      |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# MA3 BOOSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RDR 3181-35D  
Page 8

| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE  | REMARKS                                                                       |
|----------|---------------------------|----------|---------|--------|------------|-------------------------------------------------------------------------------|
| 1839     | 17C57E<br>NEOSH0 IIA      | 03-14-63 | 113121  | S      | ACCEPTANCE | SUCCESSFUL COUNTDOWN                                                          |
| 1840     | 17C58E<br>NEOSH0 IIA      | 03-15-63 | 113114  | E      | RVT        | DECL INAP-PROBLEM STUDY MODIFIED SYSTEM<br>RAN D PROGRAM. INERT LEAD STUDY.   |
| 1841     | 17C59E<br>NEOSH0 IIA      | 03-15-63 | 113114  | E      | RVT        | DECL INAP-PROBLEM STUDY MODIFIED SYSTEM R<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1842     | 17C6CE<br>NEOSH0 IIA      | 03-15-63 | 113114  | E      | RVT        | DECL INAP-PROBLEM STUDY MODIFIED SYSTEM R<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1843     | 512082E<br>ALFA 1         | 03-15-63 | 1121-2  | E      | R-D        | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1844     | 512C82F<br>ALFA 1         | 03-15-63 | 1218-3  | E      | R-D        | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1845     | 512083E<br>ALFA 1         | 03-15-63 | 1121-2  | E      | R-D        | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1846     | 512C83F<br>ALFA 1         | 03-15-63 | 1218-3  | E      | R-D        | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1847     | 512084E<br>ALFA 1         | 03-15-63 | 1121-2  | E      | R-D        | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1848     | 512C84F<br>ALFA 1         | 03-15-63 | 1218-3  | E      | R-D        | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# MA3 BOOSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RDR 3181-150  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                                                        |
|----------|---------------------------|----------|---------|--------|-----------|--------------------------------------------------------------------------------|
| 1849     | 512085E<br>ALFA 1         | 03-16-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE        |
| 1850     | 512085F<br>ALFA 1         | 03-16-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE        |
| 1851     | 512086E<br>ALFA 1         | 03-16-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE        |
| 1852     | 512086F<br>ALFA 1         | 03-16-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE        |
| 1853     | 512087E<br>ALFA 1         | 03-16-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE        |
| 1854     | 512087F<br>ALFA 1         | 03-16-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE        |
| 1855     | 17C61E<br>NEOSH0 11A      | 03-18-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY<br>AND D PROGRAM. INVERT LEAD STUDY. MODIFIED SYSTEM R |
| 1856     | 512088E<br>ALFA 1         | 03-18-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE        |
| 1857     | 512088F<br>ALFA 1         | 03-18-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE        |
| 1858     | 17C62E<br>NEOSH0 11A      | 03-19-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY<br>RAND D PROGRAM. INVERT LEAD STUDY. MODIFIED SYSTEM  |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# MA3 BOOSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RIR 3181-15D  
Page 10

| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                                                       |
|----------|---------------------------|----------|---------|--------|-----------|-------------------------------------------------------------------------------|
| 1859     | 17063E<br>VEOSH IIA       | 03-19-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY MODIFIED SYSTEM R<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1860     | 512065E<br>ALFA 1         | 03-19-63 | 1121-2  | E      | R-C       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1861     | 512069F<br>ALFA 1         | 03-19-63 | 1218-3  | E      | R-C       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1862     | 512050E<br>ALFA 1         | 03-19-63 | 1121-2  | E      | R-C       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1863     | 512050F<br>ALFA 1         | 03-19-63 | 1218-3  | E      | R-C       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1864     | 512051E<br>ALFA 1         | 03-19-63 | 1121-2  | E      | R-C       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1865     | 512051F<br>ALFA 1         | 03-19-63 | 1218-3  | E      | R-C       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1866     | 17064E<br>VEOSH IIA       | 03-20-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY MODIFIED SYSTEM R<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1867     | 17065E<br>VEOSH IIA       | 03-21-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY MODIFIED SYSTEM R<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1868     | 17066E<br>VEOSH IIA       | 03-21-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY MODIFIED SYSTEM R<br>AND D PROGRAM. INERT LEAD STUDY. |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# MAB BOOSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RDR 3181-150  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                                     |
|----------|---------------------------|----------|---------|--------|-----------|-------------------------------------------------------------|
| 1869     | 512092E<br>ALFA 1         | 03-21-63 | 1121-2  | E      | R-D       | DECL INAP-PR3BLE4 STUDY<br>STUDY ON ENGINE HARDWARE.        |
| 1870     | 512092F<br>ALFA 1         | 03-21-63 | 1218-3  | E      | R-D       | DECL INAP-PR3BLE4 STUDY<br>STUDY ON ENGINE HARDWARE.        |
| 1871     | 17C67E<br>NEOSH0 IIA      | 03-22-63 | 113114  | E      | RVT       | DECL INAP-PR3BLE4 STUDY<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1872     | 17068E<br>NEOSH0 IIA      | 03-22-63 | 113114  | E      | RVT       | DECL INAP-PR3BLE4 STUDY<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1873     | 17C69E<br>NEOSH0 IIA      | 03-22-63 | 113114  | E      | RVT       | DECL INAP-PR3BLE4 STUDY<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1874     | 512093E<br>ALFA 1         | 03-22-63 | 1121-2  | E      | R-D       | DECL INAP-PR3BLE4 STUDY<br>STUDY ON ENGINE HARDWARE.        |
| 1875     | 512093F<br>ALFA 1         | 03-22-63 | 1218-3  | E      | R-D       | DECL INAP-PR3BLE4 STUDY<br>STUDY ON ENGINE HARDWARE.        |
| 1876     | 512094E<br>ALFA 1         | 03-23-63 | 1121-2  | E      | R-D       | DECL INAP-PR3BLE4 STUDY<br>STUDY ON ENGINE HARDWARE.        |
| 1877     | 512094F<br>ALFA 1         | 03-23-63 | 1218-3  | E      | R-D       | DECL INAP-PR3BLE4 STUDY<br>STUDY ON ENGINE HARDWARE.        |
| 1878     | 512095E<br>ALFA 1         | 03-23-63 | 1121-2  | E      | R-D       | DECL INAP-PR3BLE4 STUDY<br>STUDY ON ENGINE HARDWARE.        |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# MA3 BOOSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RDR 3181-150  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                                     |
|----------|---------------------------|----------|---------|--------|-----------|-------------------------------------------------------------|
| 1879     | 512055F<br>ALFA 1         | 03-23-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE.        |
| 1880     | 17070E<br>NE0SH0 IIA      | 03-25-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1881     | 17071E<br>NE0SH0 IIA      | 03-26-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1882     | 17072E<br>NE0SH0 IIA      | 03-26-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1883     | 17073E<br>NE0SH0 IIA      | 03-26-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1884     | 17074E<br>NE0SH0 IIA      | 03-26-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1885     | 17075E<br>NE0SH0 IIA      | 03-26-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1886     | 17076E<br>NE0SH0 IIA      | 03-26-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1887     | 5121C2E<br>ALFA 1         | 03-26-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>INVESTIGATION                    |
| 1888     | 17077E<br>NE0SH0 IIA      | 03-27-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY<br>AND D PROGRAM. INERT LEAD STUDY. |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# MA3 BOOSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RDR 3181-15D  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                                                       |
|----------|---------------------------|----------|---------|--------|-----------|-------------------------------------------------------------------------------|
| 1889     | 17078E<br>NEOSH0 11A      | 03-27-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY MODIFIED SYSTEM R<br>AND D PROGRAM. INERT LEAD STUDY. |
| 1890     | 17079E<br>NEOSH0 11A      | 03-27-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD.   |
| 1891     | 17080E<br>NEOSH0 11A      | 03-27-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD.   |
| 1892     | 17081E<br>NEOSH0 11A      | 03-27-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD.   |
| 1893     | 17082E<br>NEOSH0 11A      | 03-27-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD.   |
| 1894     | 17083E<br>NEOSH0 11A      | 03-27-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD.   |
| 1895     | 512096E<br>ALFA 1         | 03-27-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1896     | 512096F<br>ALFA 1         | 03-27-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1897     | 512097E<br>ALFA 1         | 03-27-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |
| 1898     | 512097F<br>ALFA 1         | 03-27-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.       |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# NAB BOOSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RDR 3181-15D  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                                                     |
|----------|---------------------------|----------|---------|--------|-----------|-----------------------------------------------------------------------------|
| 1899     | 512098E<br>ALFA 1         | 03-27-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.     |
| 1900     | 512098F<br>ALFA 1         | 03-27-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.     |
| 1901     | 17084E<br>NEOSH0 11A      | 03-28-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD. |
| 1902     | 17085E<br>NEOSH0 11A      | 03-28-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD. |
| 1903     | 17086E<br>NEOSH0 11A      | 03-28-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD. |
| 1904     | 17087E<br>NEOSH0 11A      | 03-28-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD. |
| 1905     | 17088E<br>NEOSH0 11A      | 03-28-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD. |
| 1906     | 17089E<br>NEOSH0 11A      | 03-28-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD. |
| 1907     | 17090E<br>NEOSH0 11A      | 03-28-63 | 113114  | E      | RVT       | DECL INAP-PROBLEM STUDY VERIFICATION OF<br>THRUST BUILDUP USING INERT LEAD. |
| 1908     | 512099E<br>ALFA 1         | 03-28-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE.     |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.



# MA3 BOOSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RDR 3861-150  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                                                 |
|----------|---------------------------|----------|---------|--------|-----------|-------------------------------------------------------------------------|
| 1909     | 512059F<br>ALFA 1         | 03-28-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 1910     | 512100E<br>ALFA 1         | 03-28-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 1911     | 512100F<br>ALFA 1         | 03-28-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 1912     | 512101E<br>ALFA 1         | 03-28-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 1913     | 512101F<br>ALFA 1         | 03-28-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 1914     | 512102F<br>ALFA 1         | 03-29-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>INVESTIGATION. FLAME BUCKET PULSE            |
| 1915     | 512103E<br>ALFA 1         | 03-29-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE     |
| 1916     | 512103F<br>ALFA 1         | 03-29-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE     |
| 1917     | 512104E<br>ALFA 1         | 03-30-63 | 1121-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE     |
| 1918     | 512104F<br>ALFA 1         | 03-30-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE     |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# PA3 BOOSTER COUNTDOWN LIST

PERIOD ENDING 03-31-63 RDR 3181-15D  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                                             |
|----------|---------------------------|----------|---------|--------|-----------|---------------------------------------------------------------------|
| 1919     | 5121C5E<br>ALFA 1         | 03-30-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1920     | 5121C5F<br>ALFA 1         | 03-30-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1921     | 5121C6E<br>ALFA 1         | 03-30-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1922     | 5121C6F<br>ALFA 1         | 03-30-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1923     | 5121C7E<br>ALFA 1         | 03-30-63 | 1121-2  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |
| 1924     | 5121C7F<br>ALFA 1         | 03-30-63 | 1218-3  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE |

# MA3 SUSTAINER COUNTDOWN TEST LIST

PERIOD ENDING 03-31-63 RDR 3181-150  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE  | REMARKS                                                          |
|----------|---------------------------|----------|---------|--------|------------|------------------------------------------------------------------|
| 922      | 512065D<br>ALFA 1         | 03-01-63 | 2223    | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE.             |
| 923      | 512066D<br>ALFA 1         | 03-02-63 | 2223    | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE.                 |
| 924      | 512067D<br>ALFA 1         | 03-02-63 | 2223    | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE.                 |
| 925      | 512069D<br>ALFA 1         | 03-04-63 | 2223    | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE.                 |
| 926      | 512070D<br>ALFA 1         | 03-05-63 | 2223    | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE.                 |
| 927      | 514035D<br>ALFA 28        | 03-05-63 | 222894  | S      | ACCEPTANCE | SUCCESSFUL COUNTDOWN                                             |
| 928      | 512071D<br>ALFA 1         | 03-06-63 | 2223    | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE.                 |
| 929      | 512072D<br>ALFA 1         | 03-07-63 | 2223    | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE.                 |
| 930      | 514036D<br>ALFA 28        | 03-12-63 | 222555  | E      | ACCEPTANCE | DECL INAP - CHECKOUT<br>TC AND HYDRAULIC PACKAGE<br>REPLACEMENT. |
| 931      | 514037D<br>ALFA 28        | 03-12-63 | 222555  | S      | ACCEPTANCE | SUCCESSFUL COUNTDOWN                                             |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# MA3 SUSTAINER COUNTDOWN TEST LIST

PERIOD ENDING 03-31-63 RIR 3161-150  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE  | REMARKS                                                                 |
|----------|---------------------------|----------|---------|--------|------------|-------------------------------------------------------------------------|
| 932      | 5120820<br>ALFA 1         | 03-15-63 | 2222-1  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 933      | 5120830<br>ALFA 1         | 03-15-63 | 2222-1  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 934      | 5120840<br>ALFA 1         | 03-15-63 | 2222-1  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 935      | 5120850<br>ALFA 1         | 03-16-63 | 2222-1  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 936      | 5120860<br>ALFA 1         | 03-16-63 | 2222-1  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 937      | 5120870<br>ALFA 1         | 03-16-63 | 2222-1  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 938      | 5120880<br>ALFA 1         | 03-18-63 | 2222-1  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 939      | 5120910<br>ALFA 1         | 03-19-63 | 2222-1  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 940      | 5140380<br>ALFA 28        | 03-20-63 | 222897  | E      | ACCEPTANCE | DECL INAP - CHECKOUT<br>BUILDUP. FIRST TEST AFTER                       |
| 941      | 5120920<br>ALFA 1         | 03-21-63 | 2222-1  | E      | R-D        | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# MAB SUSSTAINER COUNTDOWN TEST LIST

PERIOD ENDING 03-31-63 RDR 3161-150  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE  | REMARKS                                                                 |
|----------|---------------------------|----------|---------|--------|------------|-------------------------------------------------------------------------|
| 942      | 512093D<br>ALFA 1         | 03-22-63 | 2222-1  | E      | R-D        | DECL INAP-PR3BLE4 STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE. |
| 943      | 514039D<br>ALFA 2H        | 03-22-63 | 222897  | S      | ACCEPTANCE | SUCCESSFUL COUNTDOWN                                                    |
| 944      | 512094D<br>ALFA 1         | 03-23-63 | 2222-1  | E      | R-D        | DECL INAP-PR3BLE4 STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE. |
| 945      | 512095D<br>ALFA 1         | 03-23-63 | 2222-1  | E      | R-D        | DECL INAP-PR3BLE4 STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE. |
| 946      | 512096D<br>ALFA 1         | 03-27-63 | 2222-1  | E      | R-D        | DECL INAP-PR3BLE4 STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE. |
| 947      | 512097D<br>ALFA 1         | 03-27-63 | 2222-1  | E      | R-D        | DECL INAP-PR3BLE4 STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE. |
| 948      | 512098D<br>ALFA 1         | 03-27-63 | 2222-1  | E      | R-D        | DECL INAP-PR3BLE4 STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE. |
| 949      | 512099D<br>ALFA 1         | 03-28-63 | 2222-1  | E      | R-D        | DECL INAP-PR3BLE4 STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE. |
| 950      | 512100D<br>ALFA 1         | 03-28-63 | 2222-1  | E      | R-D        | DECL INAP-PR3BLE4 STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE. |
| 951      | 512101D<br>ALFA 1         | 03-28-63 | 2222-1  | E      | R-D        | DECL INAP-PR3BLE4 STUDY FLAME BUCKET PULSE<br>STUDY ON ENGINE HARDWARE. |

\* S=SUCCESS, F=FAILURE, AND E=EXCLUSION.

# MA3 SUSTAINER COUNTDOWN TEST LIST

PERIOD ENDING 03-31-63 RIR 3181-150  
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| LIST NO. | TEST NUMBER<br>TEST STAND | DATE     | ENG S/N | RESULT | TEST TYPE | REMARKS                                                                 |
|----------|---------------------------|----------|---------|--------|-----------|-------------------------------------------------------------------------|
| 952      | 5121C2D<br>ALFA 1         | 03-29-63 | 2222-1  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>INVESTIGATION FLAME BUCKET PULSE             |
| 953      | 5121C3D<br>ALFA 1         | 03-29-63 | 2222-1  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 954      | 5121C4D<br>ALFA 1         | 03-30-63 | 2222-1  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HARDWARE. FLAME BUCKET PULSE |
| 955      | 5121C5D<br>ALFA 1         | 03-30-63 | 2222-1  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE. FLAME BUCKET PULSE     |
| 956      | 5121C6D<br>ALFA 1         | 03-30-63 | 2222-1  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE FLAME BUCKET PULSE      |
| 957      | 5121C7D<br>ALFA 1         | 03-30-63 | 2222-1  | E      | R-D       | DECL INAP-PROBLEM STUDY<br>STUDY ON ENGINE HDWE FLAME BUCKET PULSE      |