

Luminary Preliminary Program Change Approval

MIT Approved PCN

NASA Approved PCR

ADDITIONAL COPIES TO:

- D. EYLES
- B. KRIEGSMAN
- M. JOHNSTON
- A. KLUMPP

A. Coding Not Applicable

Begin coding immediately

ACTION: _____

Do not code until new GSOP material has been approved by the MIT Mission Design Review Board (MDRB) and distributed.

B. GSOP Preparation

Prepare GSOP revisions for MDRB consideration

ACTION: F. LITTLE

Technical Committee Meeting Was Not Required

Technical Committee Meeting(s) held on LM Descent Design

Attendees: Review held about 3 months ago. attended by

- Dan Lickly
- Craig Schwenker
- Don Eyles
- Barnie Kriegsmann
- Tom Price

George Ch...

George W. Cherry

Special Instructions

Try to get change into next LUMINARY GSOP.

APOLLO SPACECRAFT SOFTWARE CONFIGURATION CONTROL BOARD
- PROGRAM CHANGE REQUEST -

MIT-PCN

No. 497
(Completed by FSE)

1.0 COMPLETED BY
ORIGINATOR

1.1 ORIGINATOR: G. W. Cherry
DATE: 15 July 1968

1.2 ORGANIZATION: MIT/IL
APPROVAL: JWC DATE: 15/7/68

1.3 EFFECTIVITY: LUMINARY

1.4 TITLE OF CHANGE: Do not delay P6
Throttle-up time

1.5 REASON(S) FOR CHANGE: During the lunar landing braking phase, the throttle-up time is approximately ten times more critical than the engine ignition time. For example, if the engine ignites ten seconds later than the nominal... (See data amplification sheet)

1.6 DESCRIPTION OF CHANGE:

See data amplification sheet.

2.0 SOFTWARE CONTROL BOARD OR FLIGHT SOFTWARE BRANCH
DECISION FOR VISIBILITY IMPACT ESTIMATE BY MIT

2.1 APPROVED DISAPPROVED

2.2 REMARKS:

2.3 SOFTWARE CONTROL BOARD OR FLIGHT
SOFTWARE BRANCH SIGN OFF: _____
DATE: _____

3.0 MIT VISIBILITY IMPACT EVALUATION:

3.1 SCHEDULE IMPACT: Zero

3.2 IMPACT OF PROVIDING DETAILED EVALUATION:

3.3 STORAGE IMPACT: 4 Words

3.4 REMARKS:

Coordinated with Thomas Price and
Bill Tindall of NASA.

3.5 MIT COORDINATOR: _____
DATE: _____

4.0 SOFTWARE CONTROL
BOARD ACTION

4.1 IMPLEMENT AND PROVIDE
 DETAILED CHANGE EVAL. PROVIDE DETAILED
CHANGE EVALUATION DISAPPROVED

4.2 REMARKS:

4.3 SOFTWARE CONTROL
BOARD SIGN OFF: _____
DATE: _____

5.0 MIT DETAILED PROGRAM
CHANGE EVALUATION

5.1 MIT COORDINATOR: _____
DATE: _____

5.2 MIT EVALUATION:

Action: Steve Copps, Forbes Little, Bernie Kriegsman for GSOP change page 15/7/68
Program has already been changed.

APPROVED FOR IMPLEMENTATION

George W. Cherry

6.0 SOFTWARE CONTROL BOARD DECISION ON MIT
DETAILED PROGRAM CHANGE EVALUATION

6.1 START OR CONTINUE DISAPPROVED OR STOP
 IMPLEMENTATION IMPLEMENTATION

6.2 REMARKS:

6.3 SOFTWARE CONTROL
BOARD SIGN OFF: _____
DATE: _____

APOLLO SPACECRAFT SOFTWARE CONFIGURATION CONTROL BOARD

-DATA AMPLIFICATION SHEET -

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PROGRAM CHANGE REQUEST NO. <u>497</u>	PREPARED BY: <u>G.W. Cherry</u> DATE: <u>15 July 1968</u>	ORGANIZATION: <u>MIT/II</u>
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CONTINUATION SECTION (REFER TO BLOCK NUMBER AND TITLE
ON PROGRAM CHANGE REQUEST FORM)

1.5 Reason(s) for Change, cont'd.

...engine ignition time but the throttle-up time still occurs at the correct (the nominal) time, throttle control should be recovered and the high gate conditions should be achieved; however, if the throttle-up time slips along with the engine ignition time by ten seconds, the high gate targets may not be achieved.

1.6 Description of Change:

Let the program reference the throttle-up time relative to the nominal engine ignition time and not the actual ignition time (when the astronaut keys in PROCEED in response to FLV99N62). Thus, if the astronaut keys in PROCEED late, the engine is ignited late but the throttle-up time is held to the nominal. The effect is to decrease the 26 second trim time. But 26 seconds is more than enough time for trimming.

Remarks:

Incidentally, if the engine fails to ignite and the Delta V Monitor calls the engine fail routine, the astronaut should not recycle to "TIG-5" by keying in ENTER. This response by the astronaut would re-define the throttle-up time (slipping it by at least 13 seconds). The only purpose recycling would serve would be to supply some more automatic ullage. A preferred procedure would be to key in PROCEED to FLV97N63 and supply more ullage translation manually (if it is needed).

REMARKS