

**GRUMMAN AIRCRAFT ENGINEERING CORPORATION  
BETHPAGE, L. I., NEW YORK**

SECTION IX

LM Mission Programmer

Effectivity of this section is LM-1 & LM-2 only.

Ref. Sig.	Figure	
J1	33	Out "0" bit 1 (Command word)
J2	33	Out "0" bit 2 (Command word)
J3	33	Out "0" bit 3 (Command word)
J4	33	Out "0" bit 4 (Command word)
J5	33	Out "0" bit 5 (Command word)
J6	33	Out "0" bit 6 (Command word)
J7	33	Out "0" bit 7 (Command word)
J8	33	Out "0" bit 8 (Command word)
J9	33	Out "0" bit 12 (Enable)
J10	33	Out "0" bit 13 (Enable)
J11	33	Out "0" bit 14 (Enable)
J12	33	Out "0" bit 15 (Enable)
J13	34	ISS Warning (LMP)
J14	34	LGO Warning (LMP)

Signals J1 - J12

Pulse Characteristics (See Appendix A for pulse terminology)

Amplitude:	see sheet 84
Width:	(30 ± 10) milliseconds
Droop:	not specified
Backswing:	not specified
Rise time:	less than 100 microseconds
Repetition rate:	6 words per second max.
Noise limits:	<ol style="list-style-type: none"> <li>1. Switch closed ("1"); maximum noise amplitude -50V, if noise pulse does not exceed 0.5 milli-second width at maximum repetition rate of 50 pps.</li> <li>2. Switch open ("0"); maximum noise amplitude +50V, if noise pulse does not exceed 1 milli-second width at maximum repetition rate of 50 pps.</li> </ol>

TDRE 38154

JUN 11 1970

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Signal levels, load and source impedance are specified with respect to LGC Return (interface connector P/J 222 Pin G).

Load impedance is specified for parallel combination of Program Coupler Assy. and DSKY input circuit.

Signals J13 & J14

Signal levels for J13 and J14 are specified with respect to their individual returns.

Source impedance is specified across the relay contacts.

Load impedances for J13 and J14 are specified with respect to their individual returns (negative polarity) with the voltage source replaced by a short circuit.

TDRR 38154 JUN 11 1970

INTERFACE CONTROL DOCUMENT

SHEET  
81 OF 114

ICD NO.  
EIS 370-10004

REV  
D

Fig. 33  
 LM MISSION PROGRAMMER

EFFECTIVITY FOR THIS  
 SHEET: LM-1 & LM-2

INTERFACE CONTROL DOCUMENT

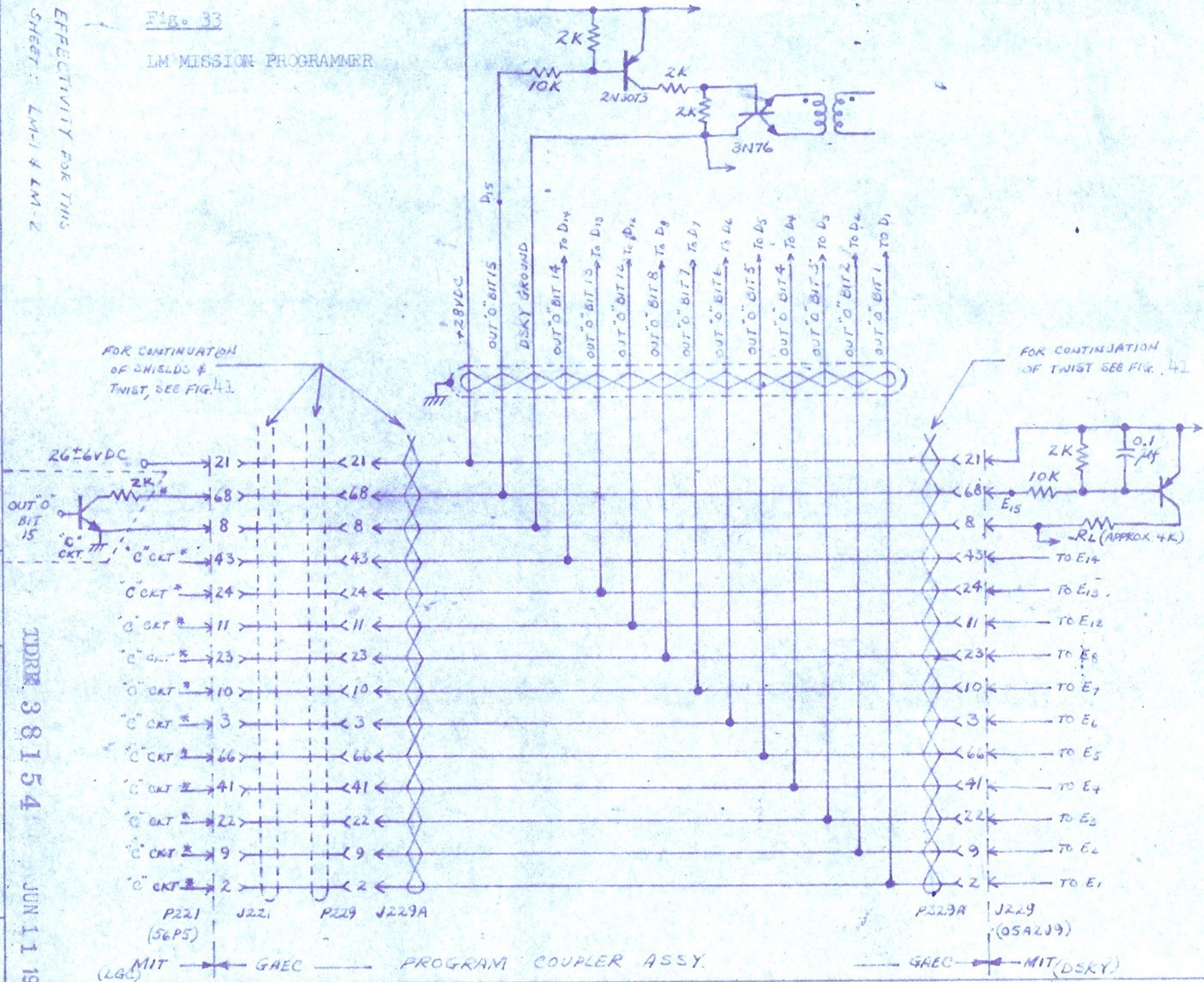
SHEET  
 82 OF 114

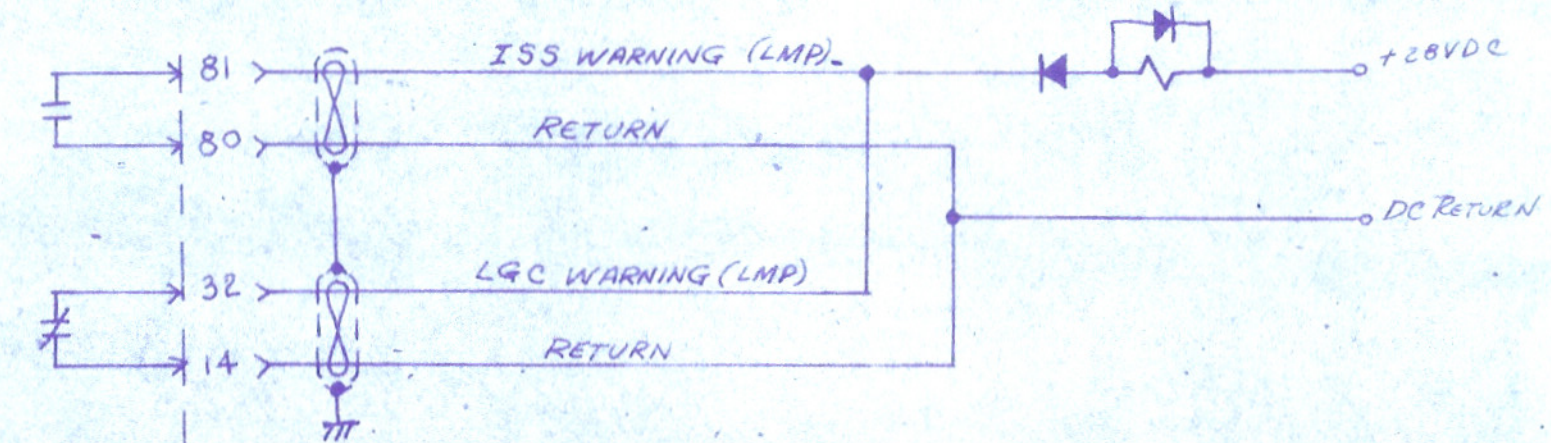
ICD NO.  
 LIS 370-10004

REV  
 D

CDRDA 38154

JUN 11 1970





J229 P229A  
 (05A2J9)

MIT ← GAEC  
 (SOURCE) (LOAD)

Fig. 34  
 LMP WARNING DISCRETES  
 EFFECTIVITY OF THIS SHEET:  
 LM-1 & 2

INTERFACE CONTROL DOCUMENT

SHEET 03 OF 114

ICD NO. LRS 370-10004

REV D

TDRR 38154

JUN 11 1970

ID	SIGNAL	SIGNAL LEVEL		Z SOURCE		Z LOAD		FUNCTIONAL DESCRIPTION	
		DC VOLTS		OHMS $\pm 10\%$		OHMS $\pm 10\%$			
		LOGIC	"1"	"0"	"1"	"0"	"1"		"0"
J1	Out "0" Bit 1 (Command word)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	Differential time for the appearance and disappearance of all bits for the command word is 100 microseconds max.  Fall time will also be less than 100 microseconds.
J2	Out "0" Bit 2 (Command word)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	
J3	Out "0" Bit 3 (Command word)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	
J4	Out "0" Bit 4 (Command word)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	
J5	Out "0" Bit 5 (Command word)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	
J6	Out "0" Bit 6 (Command word)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	
J7	Out "0" Bit 7 (Command word)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	
J8	Out "0" Bit 8 (Command word)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	
J9	Out "0" Bit 12 (Enable)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	All "1's indicate LMP word  * For $I_c \leq 5$ milliamps ** For $V_c \leq 40$ volts
J10	Out "0" Bit 13 (Enable)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	
J11	Out "0" Bit 14 (Enable)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	
J12	Out "0" Bit 15 (Enable)		8 $\pm$ 2	26 $\pm$ 6	< 3K*	> 500K**	5K	6K	

CDRE 38154

JUN 1 1970

ID	SIGNAL	SIGNAL LEVEL DC VOLTS		Z SOURCE OHMS $\pm 10\%$		Z LOAD OHMS $\pm 10\%$		FUNCTIONAL DESCRIPTION
		"1"	"0"	"1"	"0"	"1"	"0"	
J13	ISS Warning (LMP)	0±2	18±2	CLOSED	OPEN	300	300	DSKY relay closure presents a logic "1" to LMP indicating a major malfunction of the inertial sub-system of PGNS.
J14	LGC Warning (LMP)	0±2	18±2	CLOSED	OPEN	300	300	DSKY relay closure presents a logic "1" to LMP indicating a major malfunction of the computer sub-system of PGNS.  Note: Immediately following LGC turn-on, the LGC may issue an LGC warning for up to 20 seconds duration.

INTERFACE CONTROL DOCUMENT

SHEET  
85 OF 114

ICD NO.  
IIS 370-10004

REV  
D

TDRR 38154

JUN 1 1970