

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

SECTION X

LGC UPLINK

Ref. Sig.	Figure	
K1	36 & 37	Uplink Data Binary "1"
K2	36 & 37	Uplink Data Binary "0"

Pulse Characteristics (See Appendix A for pulse terminology)

Amplitude: 7 ± 3 volts
 Width: 4 ± 1 microseconds
 Droop: (max) 20%
 Backswing: (max) 4 volts
 Rise Time: (max) 1 microsecond
 Repetition rate: 1 KPPS
 Noise limits:

1. During the "ON" condition, the signal plus noise shall remain within the envelope defined by the parameters specified above.
2. During the "OFF" condition, the noise shall remain within the envelope defined by the upper limit of +0.4V, and lower limit of -4.0V, measured with respect to the amplitude reference level.

See sheet 87 for uplink timing.

In LM-1 to LM-15, turnoff of the DCA or DUA can cause a single noise pulse to appear on the "1" line and a single noise pulse to appear on the "0" line having the following characteristics: amplitude = < 10 volts peak; width = < 15 microseconds. The pulses may appear simultaneously on the "1" and "0" lines, possibly causing an "uplink too fast" program alarm. Unless the LGC registers are properly cleared at the beginning of each uplink transmission following a DCA or DUA turnoff and subsequent turn-on, the LGC may misinterpret the transmitted data. The LGC may or may not issue a program alarm. The proper procedure for clearing the registers is to send a "1" followed by 15 "0's", followed by an Error Reset.

Source and load impedances are specified between "HI" and "LO".

Signal levels are specified and/or measured with respect to "LO" as reference.

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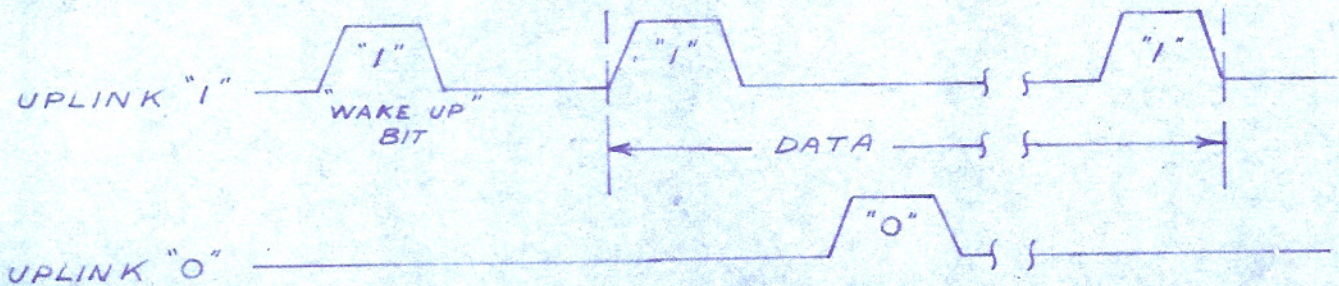
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- a. Bit rate of 0's and 1's is 1.1 KPPS maximum
- b. One word is composed of 16 pulses, a "wake up" pulse on the "1" line followed by 15 bits on the "1" or "0" lines.
- c. Minimum time between words is 0.1 seconds.

Fig. 35

UPLINK TIMING

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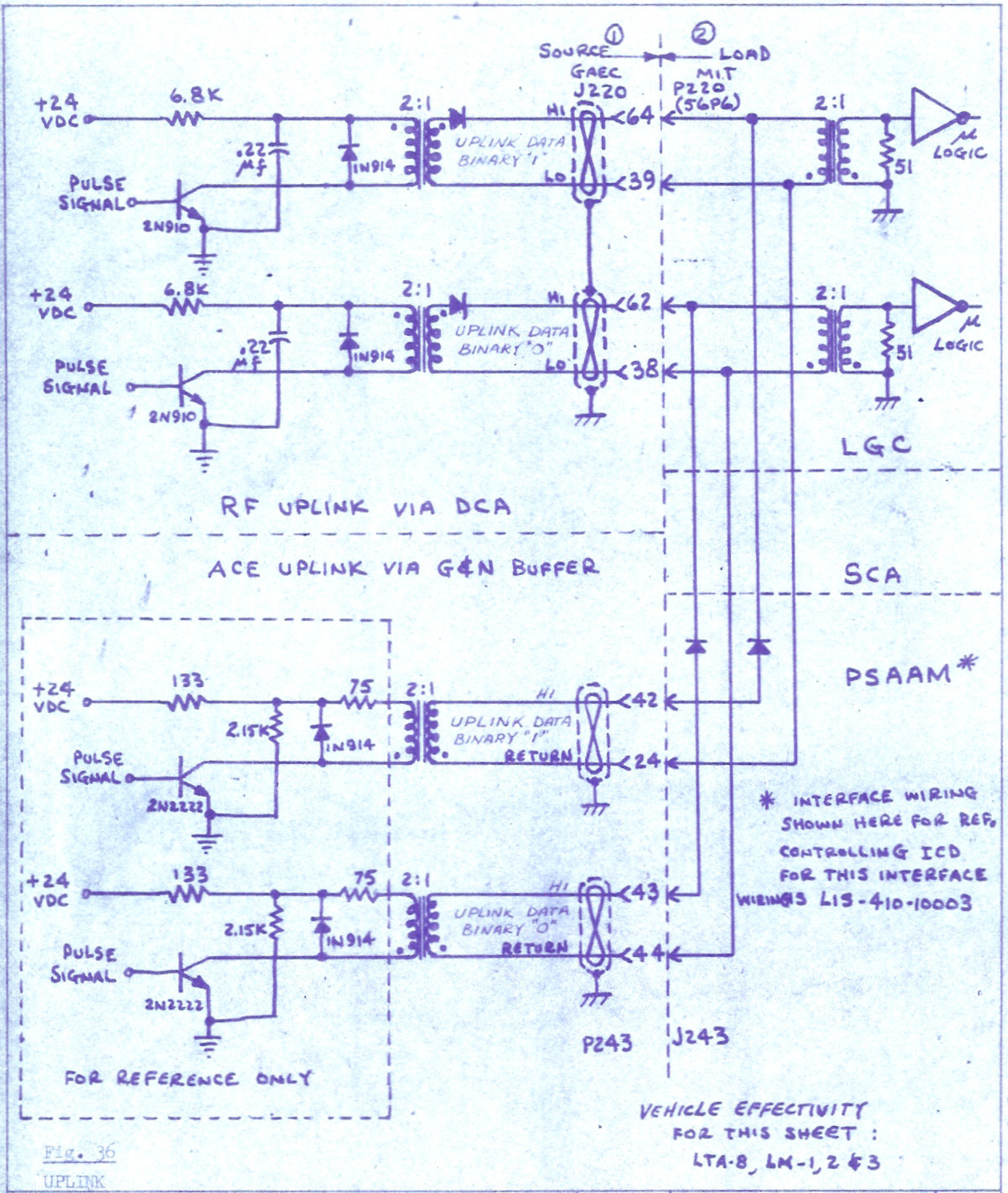


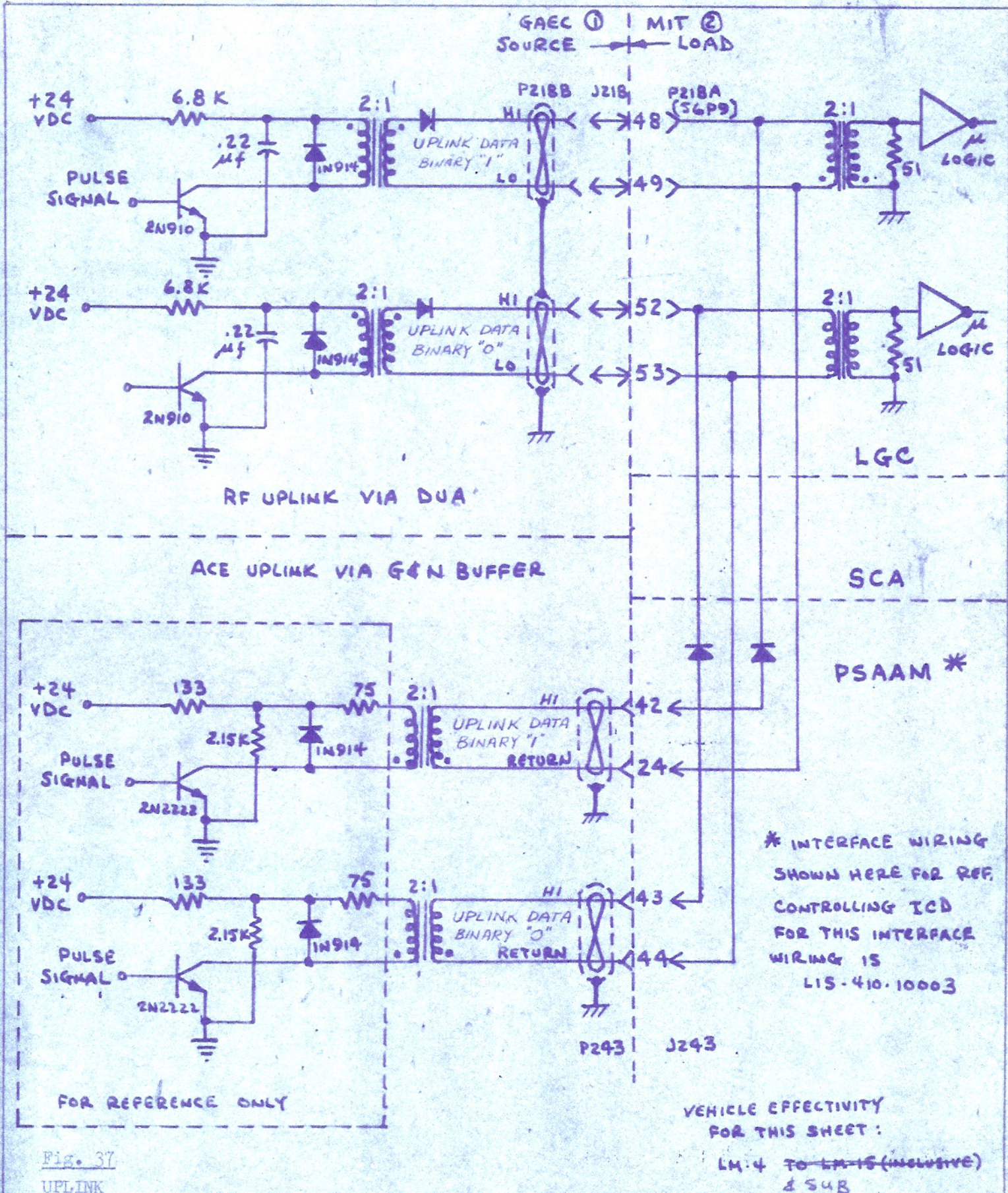
Fig. 36
 UPLINK

VEHICLE EFFECTIVITY
 FOR THIS SHEET:
 LTA-8, LM-1, 2 & 3

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* INTERFACE WIRING SHOWN HERE FOR REF. CONTROLLING ICD FOR THIS INTERFACE WIRING IS LIS-410-10003

VEHICLE EFFECTIVITY FOR THIS SHEET:

LM-4 TO LM-15 (inclusive) & SUB

Fig. 37
UPLINK

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ID	SIGNAL	Z SOURCE OHMS ±10%		Z LOAD OHMS ±10%		FUNCTIONAL DESCRIPTION	
		LOGIC	"1"	"0"	"1"		"0"
K1	Uplink Data Binary "1"		< 100	< 10 <(10mh)	200	< 20 <(20mh)	Each uplink (16 Bit) word is transmitted as 1CCC where C is a 5 bit keyboard character.
K2	Uplink Data Binary "0"		< 100	< 10 <(10mh)	200	< 20 <(20mh)	The leading "1" causes an interrupt within the IGC after all 16 bits have been shifted in from the DUA or DCA.
values in parenthesis are inductance of transformer winding "seen" at interface.							