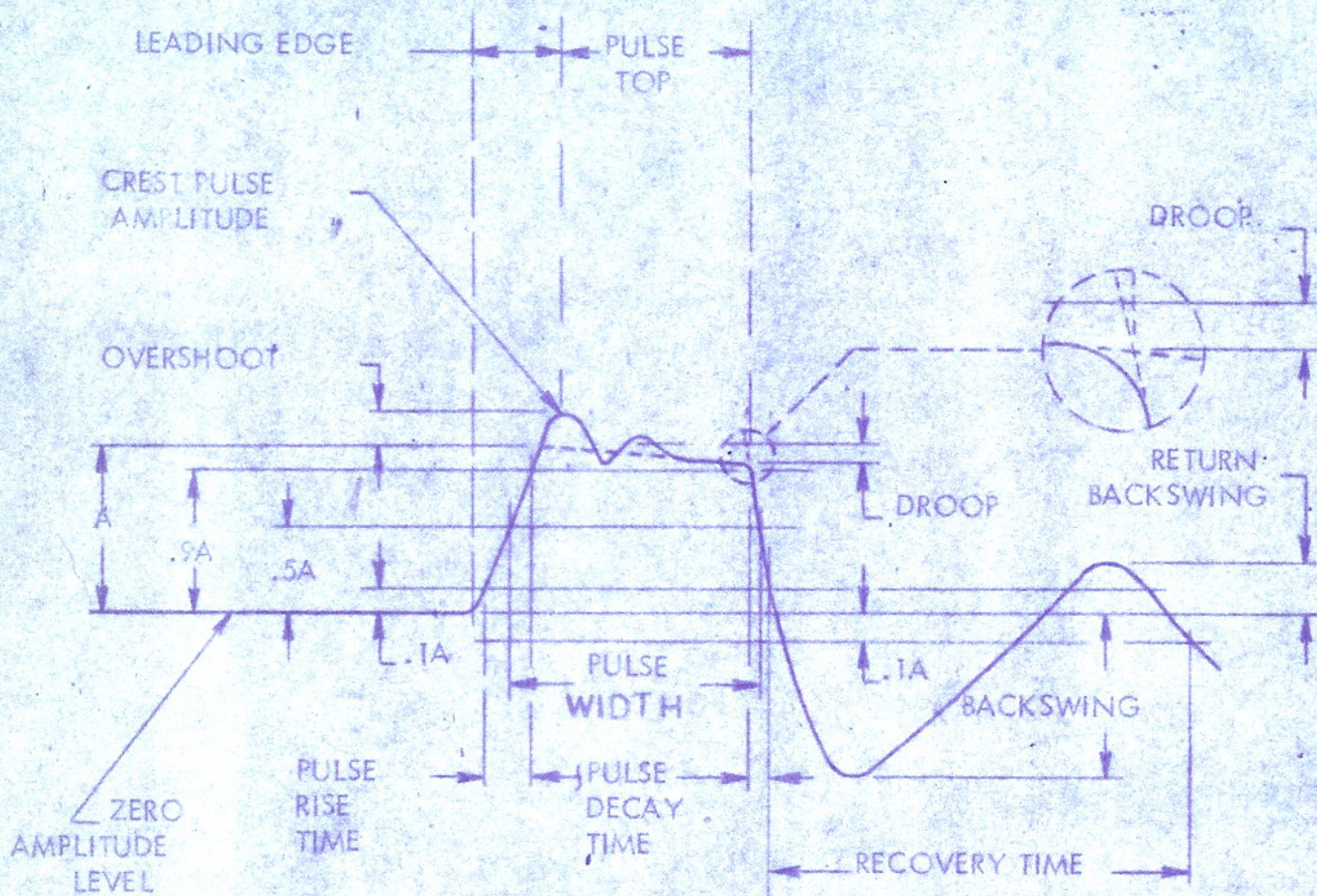


GRUMMAN AIRCRAFT ENGINEERING CORPORATION
BETHPAGE, L. I., NEW YORK

PULSE WAVEFORM



A = PEAK PULSE AMPLITUDE

APPENDIX A

TDRR 38154

JUN 11 1970

INTERFACE CONTROL DOCUMENT

SHEET
110 OF 114

ICD NO.

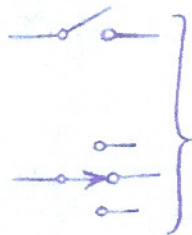
LIS 370-10004

REV

D

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

GLOSSARY OF SYMBOLS USED IN THIS ICD :



SWITCH,
MAINTAINED
CONTACTS



SWITCH,
MOMENTARY



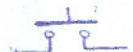
SWITCH,
MOMENTARY,
CENTER MAINTAINED



SWITCH, MOMENTARY
PUSH-BUTTON
NORMALLY OPEN



SWITCH, MOMENTARY
PUSH-BUTTON
NORMALLY CLOSED



SWITCH, MAINTAINED
PUSH-BUTTON
NORMALLY OPEN



RELAY CONTACT,
NORMALLY OPEN
(COIL DE-ENERGIZED)



RELAY CONTACT,
NORMALLY CLOSED
(COIL DE-ENERGIZED)



LATCHING RELAY CONTACT,
NORMALLY OPEN



LATCHING RELAY CONTACT,
NORMALLY CLOSED



RELAY COIL



CIRCUIT BREAKER



GROUND, CHASSIS OR
LM STRUCTURE



CIRCUIT GROUND
RETURNED TO VEHICLE
GROUND POINT

APPENDIX B

TDRR 38154

JUN 11 1970

INTERFACE CONTROL DOCUMENT

SHEET
11 OF 114

ICD NO.
LIS 370-10004

REV
D

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

INDEX

AGS Initialization 95-97	Key Code 1 100, 103-105
Altitude "0" 91, 93-94	Key Code 2 100, 103-105
Altitude "1" 91, 93-94	Key Code 3 100, 103-105
Altitude Rate "0" 91, 93-94	Key Code 4 100, 103-105
Altitude Rate "1" 91, 93-94	Key Code 5 100, 103-105
Apparent Gimbal Fail 34, 42-43	Key Release 100-102, 105
Attitude Hold Mode 8-9, 19	Keyboard Reset 100, 103-105
Automatic Mode 8-9, 19	
	LGC Warning 76-79, 100-102, 105
Bit Sync. Pulse 68, 70-72	LGC Warning (LMP) 80-81, 83, 85
	LPD Azimuth + 26-27, 30, 32
Caution Light Reset 100, 103-105	LPD Azimuth - 26-27, 30, 33
Computer Activity 100-102, 105	LPD Elevation + 26-27, 30-31
	LPD Elevation - 26-27, 30, 32
Decrease Throttle 34-37	LR Antenna Pos. 1 Indication 48, 64-65
Digital Autopilot in Control 8, 11, 20	LR Antenna Pos. 2 Indication 48, 64-65
Display Inertial Data 8, 13-15, 21	LR Antenna Pos. Command 48, 59, 61
Downlink Start 68, 70-72	LR Counter Read-Out Command 48, 56, 58
Downlink Stop 68, 70-72	LR in "0" (data flow) 48, 53-54
DSKY El Numeric Dimming 98-99	LR in "1" (data flow) 48, 53-54
DSKY Ground 82, 100, 102	LR Position Command 100-102, 105
	LR Range Data Good 48, 64-65
Engine Armed 8, 10, 20	LR Range Gate Strobe 48, 55, 57
Engine Off 34-35, 38, 40	LR Range Low Scale Factor 48, 66-67
Engine On 34-35, 40	LR Reset Strobe 48, 55, 57
	LR Velocity Data Good 48, 66-67
Gimbal Off 34, 42-43	LR Xa Velocity Gate Strobe 48, 55, 58
	LR Ya Velocity Gate Strobe 48, 56, 58
In Auto Throttle 8, 11, 20	LR Za Velocity Gate Strobe 48, 56, 58
Increase Throttle 34-37	
ISS Warning 76-79, 100-102, 105	Mark Reset 8, 18, 22
ISS Warning (LMP) 80-81, 83, 85	Mark X 8, 18, 22
	Mark Y 8, 18, 22

TDRE 38154

JUN 11 1970

INTERFACE CONTROL DOCUMENT

SHEET
112 OF 114

ICD NO.
LIS 370-10004

REV
D

GRUMMAN AIRCRAFT ENGINEERING CORPORATION

BETHPAGE, L. I., - NEW YORK

INDEX

Operator Error (flash) 100-102, 105
 Out "0" Bit 1 to Bit 15 100-102, 105
 Out "0" Bit 1 to Bit 8 (LMP) 80-82
 Out "0" Bit 12 to Bit 15 (LMP) 80-82
 Out of Detent 8-9, 19

PCMS Caution 76-77, 7
 Pitch Gimbal Off 34, 42-43
 Pitch Pulse Command + 26, 30-31
 Pitch Pulse Command - 26, 30-31
 Pitch Rate Command 26, 28-29
 Pitch Trim + 34, 39-40
 Pitch Trim - 34, 39, 41
 Power Sync. 100-102, 105
 Proceed 100, 104, 105
 Pulse Torque Power Sup. Inhibit 106, 107

Rate of Descent + 8, 12, 20
 Rate of Descent - 8, 12, 21
 Rate of Descent Reset 8, 12, 20
 Reject Mark 8, 18, 22
 Restart 100-102, 105
 Roll Gimbal Off 34, 42-43
 Roll Pulse Command + 26, 30, 32
 Roll Pulse Command - 26, 30, 32
 Roll Rate Command 26, 28-29
 Roll Trim + 34, 39, 41
 Roll Trim - 34, 39, 41

RR Auto Angle Track Enable 48, 60-61
 RR Counter Read-Out Command 48, 55, 57
 RR Data Good 48, 62-63
 RR Enable Lock-on 100-102, 105
 RR in "0" (data flow) 48, 53-54
 RR in "1" (data flow) 48, 53-54

RR Power on & in LGC Mode 48, 62-63
 RR Range Gate Strobe 48, 55, 57
 RR Range Low Scale Factor 48, 62-63
 RR Range Rate Gate Strobe 48, 55, 57
 RR Reset Strobe 48, 55, 57

Serial Digital Data 68, 73, 75
 Staging Verified 8, 13-15, 21
 Standby 100, 103, 105
 Standby Lamp 100-102, 105
 Start Abort/Program 8, 10, 19
 Start Abort/Stage Program 8, 10, 19

Temperature Caution 100-102, 105
 Thruster 1d Command 44-46
 Thruster 2d Command 44-46
 Thruster 3d Command 44-46
 Thruster 4d Command 44-46
 Thruster 1f Command 44-45, 47
 Thruster 2f Command 44-45, 47
 Thruster 3f Command 44-45, 47
 Thruster 4f Command 44-45, 47
 Thruster 1s Command 44-46
 Thruster 2s Command 44-46
 Thruster 3s Command 44-45, 47
 Thruster 4s Command 44-46
 Thruster 1u Command 44-46
 Thruster 2u Command 44-46
 Thruster 3u Command 44-46
 Thruster 4u Command 44-46
 Thrusters 1d & 1s Fail 8, 16-17, 22
 Thrusters 2d & 2f Fail 8, 16-17, 22
 Thrusters 3d & 3f Fail 8, 16-17, 22
 Thrusters 4d & 4s Fail 8, 16-17, 22

TDRR 38154

JUN 11 1970

INTERFACE CONTROL DOCUMENT

SHEET
1130FL14

ICD NO.
LIS 370-10004

REV
D