

AGC INFORMATION SERIES
ERRATA SHEET 30-1
28 January 1966

(This Errata Sheet applies to Issue 30 updated to 10 December 1965)

1. Remove title page and insert new title page attached.
2. Remove pages v/vi and insert new pages v/vi attached.
3. Remove pages 30-43/30-44 and insert new pages 30-43/
30-44 attached.
4. Remove pages 30-51/30-52 and insert new pages 30-51/
30-52 attached.
5. Remove pages 30-57/30-57A and insert new pages 30-57/
30-57A attached.
6. Remove Appendix A (pages 30A-1/30A-2 through 30A-23/
30A-24) and insert new pages 30A-1/30A-2 through 30A-23/
30A-24 attached.
7. Insert Appendix B (pages 30B-1/30B-2 through 30B-19/
30B-20) between Appendix A and Appendix C of Issue 30.

APOLLO GUIDANCE COMPUTER

Information Series

ISSUE 30

BLOCK II APOLLO GUIDANCE
COMPUTER SUBSYSTEM

FR-2-130

31 August 1965

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ILLUSTRATIONS

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TABLE 30-4

E LOCATION ASSIGNMENTS AND COUNTER OPERATIONS (cont)


EMA	Initials	Signal Entered into Counter Priority Control	Instruction Executed	Remarks 
0055	THRUST	THRSTD	DINC THRUST	Output counter THRUST is used to control pulse bursts driving the Thrust Control of the LEM. Output counter EMS is used to control pulse bursts driving the EMS (entry monitor system) of the CM or the LEM monitor. The counters are preset by program. Whenever the EMS and Thrust Drive Control sends a signal to the Counter Priority Control, the execution of a certain instruction is requested as shown at the left. Each time a DINC instruction is executed, the content of the addressed counter is diminished by one and a related drive pulse is transmitted if the respective counter did not contain zero before the execution of the DIM instruction. If the counter contained zero, the Drive Control is reset to zero to stop further transmission of drive pulses related to that counter.
0056	EMS	EMSD	DINC EMS	

TABLE 30-4

E LOCATION ASSIGNMENTS AND COUNTER OPERATIONS (cont)

EMA	Initials	Signal Entered into Counter Priority Control	Instruction Executed	Remarks ^{△2}
0057	OUTLNK	OTLNKM	SHINC OUTLNK	<p>These output counters are used to convert parallel outlink information (CM and LEM) or altitude information (LEM only) into serial data. Outlink or altitude words are entered into a counter by program. Whenever the Outlink Control, or the Altitude Meter Control, sends a signal to the Counter Priority Control, the execution of a certain instruction is requested. When a SHINC instruction is executed, the content of the addressed counter is shifted one place to the left. Each time a ZERO is shifted out, a ZERO is transmitted by the Output Control or the Altitude Meter Control; each time a ONE is shifted out, a ONE is transmitted.</p> <p style="text-align: center;"><u>Output Signals Generated</u></p> <p>A ZERO shifted out of counter OUTLINK: Signal 078</p> <p>A ONE shifted out of counter OUTLINK: Signal 079</p> <p>A ZERO shifted out of counter ALT: Signal 003 or 012</p> <p>A ONE shifted out of counter ALT: Signal 002 or 010</p>
0060	ALT	ALTM	SHINC ALT	

^{△1} Numbers in () refer to signals listed in Appendices A and B


^{△2} Refer also to figure 30-6.

TABLE 30-5B
OUTPUT CHANNEL 13

Bit Position	Purpose in CM	Purpose in LEM
1	radar mode selection c	} same as in CM
2	radar mode selection b	
3	radar mode selection a	
4	transmit a control signal to radar	
Selection Bits a b c		Signals generated by Radar Control, used in LEM only
0 0 0		none
0 0 1		RRRANG (041), supply rendezvous radar range data
0 1 0		RRRARA (042), supply rendezvous radar range rate
0 1 1		none
1 0 0		LRXVEL (043), supply landing radar X velocity data
1 0 1		LRVEL (044), supply landing radar Y velocity data
1 1 0		LRZVEL (045), supply landing radar Z velocity data
1 1 1		LRRANG (046), supply landing radar range data
5	inhibit uplink, enable crosslink	} same as in CM
6	block inlink	
7	downlink order bit	
8	enable BMAG counter	enable RHC counter
9	not used	start RHC read
10	test alarm	} same as in CM
11	enable standby	
12	reset trap 31-A	
13	reset trap 31-B	
14	reset trap 32	
15	enable T6RUPT	

① Numbers in () refer to signals listed in Appendices A and B.

TABLE 30-5C
OUTPUT CHANNEL 14

Bit Position	Purpose in CM	Purpose in LEM
1	transmit one outlink word	same as in CM
2	not used	altitude rate selection
3	not used	transmit one altitude meter word
4	not used	drive thrust
5	drive EMS	drive monitor
6	enable gyro	} same as in CM
7	gyro selection b	
8	gyro selection a	
9	gyro selection c (minus sign)	
10	drive gyro	
Selection Bits c a b		Signals Generated by Gyro Drive Control 
0 0 0		none
1 0 0		none
0 0 1		GYXP (142), drive X gyro positive
1 0 1		GYXM (143), drive X gyro negative
0 1 0		GYYP (144), drive Y gyro positive
1 1 0		GYYM (145), drive Y gyro negative
0 1 1		GYZP (146), drive Z gyro positive
1 1 1		GYZM (147), drive Z gyro negative
11	drive Optics CDU S	} same as in CM
12	drive Optics CDU T	
13	drive IMU CDU Z	
14	drive IMU CDU Y	
15	drive IMU CDU X	


 Numbers in () indicate related interface signals listed in Appendices A and B.

TABLE 30-5G
INPUT CHANNEL 33

Bit Position	Channel ^① Input Signal	Indication in CM	Indication in LEM
1	-	spare	spare
2	RRPONA (064)	not used	rendezvous radar on automatic
3	RRRLSC (069)	not used	rendezvous radar on low scale
4	ZEROP (104)	zero optics	rendezvous radar data good
5	OPMSW2 (106)	AGC has control	landing radar data good
6	OPMSW3 (107)	star tracker on	landing radar in position 1 (descent)
7	STRPRS (183)	star present	landing radar in position 2 (hover)
8	LVDAGD (039)	not used	landing velocity data good
9	LRRLSC (061)	not used	landing radar on low scale
10	BLKUPL (083)	accept uplink data	} same as in CM
11	no name ^③	inlink too fast	
12	no name ^④	downlink too fast	
13	PIPAFL ^②	PIPA fail	
14	AGCW AR ^②	AGC warning	
15	OSCALM ^②	oscillator alarm	

① Numbers in () refer to signals listed in Appendices A and B.

② Signal is supplied by Alarm Control

③ Signal is supplied by Downlink Converter

④ Signal is supplied by Inlink Control

TABLE 30-5H
OUTPUT CHANNELS 05 AND 06

Bit Position	Channel Output Signal ^①	Purpose in CM ^② ^③	Purpose in LEM ^②
Channel 05			
1	RC + X + P (801)	# 1 RCS + X + P	# 1 RCS 4U
2	RC - X - P (806)	# 2 RCS - X - P	# 2 RCS 4D
3	RC - X + P (805)	# 5 RCS - X + P	# 5 RCS 3U
4	RC + X - P (802)	# 6 RCS + X - P	# 6 RCS 3D
5	RC + X + Y (803)	# 9 RCS + X + Y	# 9 RCS 2U
6	RC - X - Y (808)	# 10 RCS - X - Y	# 10 RCS 2D
7	RC - X + Y (807)	# 13 RCS - X + Y	# 13 RCS 1U
8	RC + X - Y (804)	# 14 RCS + X - Y	# 14 RCS 1D
Channel 06			
1	RC + Z + R (813)	# 7 RCS + Z + R	# 7 RCS 3F
2	RC - Z - R (816)	# 3 RCS - Z - R	# 3 RCS 4F
3	RC - Z + R (815)	# 15 RCS - Z + R	# 15 RCS 1F
4	RC + Z - R (814)	# 11 RCS + Z - R	# 11 RCS 2F
5	RC + Y + R (809)	# 12 RCS + Y + R	# 12 RCS 2S
6	RC - Y - R (812)	# 8 RCS - Y - R	# 8 RCS 3S
7	RC - Y + R (811)	# 4 RCS - Y + R	# 4 RCS 4S
8	RC + Y - R (810)	# 16 RCS + Y - R	# 16 RCS 1S

^① Numbers in () refer to signals listed in Appendices A and B.

^② RCS means Reaction Control System

^③ P, Y, and R mean pitch, yaw, and roll, respectively.