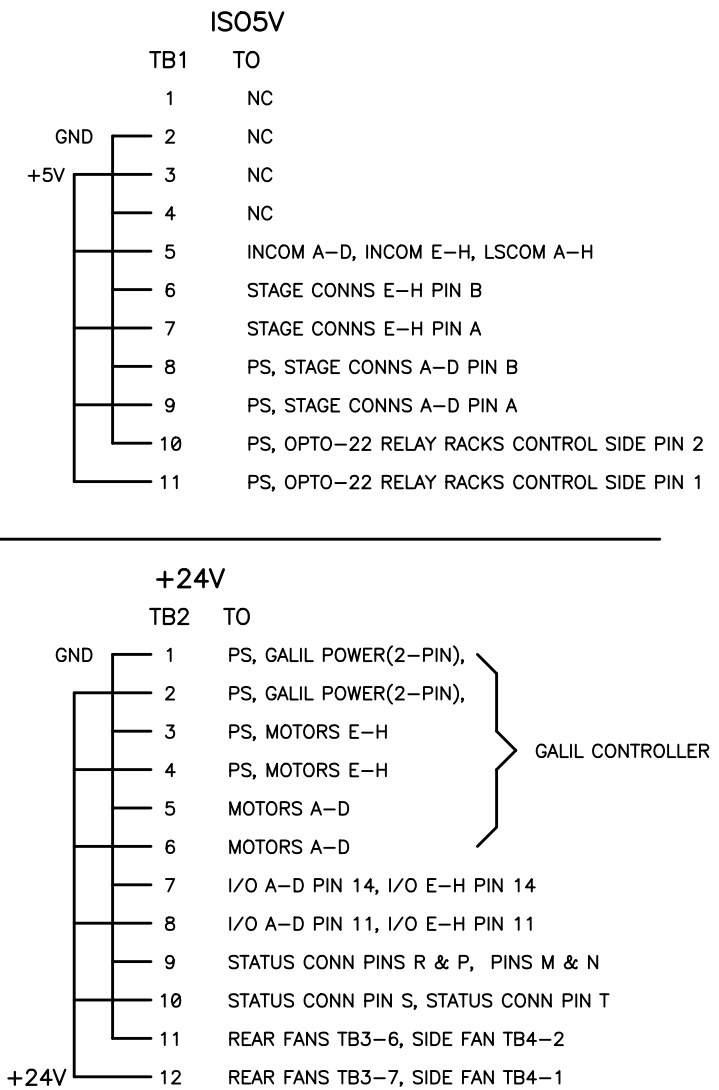


### 8-CHANNEL CONTROL BOX WIRING LIST

GALIL J2 A-D TO SIGNAL			GALIL J2 E-H TO SIGNAL			GALIL J1 A-D TO SIGNAL			GALIL J1 E-H TO SIGNAL			GALIL JA1 TO SIGNAL			GALIL JE1 TO SIGNAL		
2	GFO-N (A)	ERROR	2	DEC-N (E)	ERROR	2	GFL-F (C)	STEP	2	CAL-F (G)	STEP	1	GFO-K (A)	INDEX	1	DEC-K (E)	INDEX
3	SLT-N (D)	ERROR	3	SP1-N (H)	ERROR	5	GFL-G (C)	DIRECTION	5	CAL-G (G)	DIRECTION	5	GFO-D (A)	GND	5	DEC-D (E)	GND
6	TB2-5	LSCOM	6	TB2-5	LSCOM	7	GFO-E (A)	ENABLE	7	DEC-E (E)	ENABLE	15	GFO-C (A)	+5V	15	DEC-C (E)	+5V
7	GFO-J (A)	HOME	7	DEC-J (E)	HOME	8	SLT-E (D)	ENABLE	8	SP1-E (H)	ENABLE						
8	DWH-J (B)	HOME	8	FIL-J (F)	HOME	16	GFO-F (A)	STEP	16	DEC-F (E)	STEP	JB1			JF1		
9	GFL-J (C)	HOME	9	CAL-J (G)	HOME	18	SLT-F (D)	STEP	18	SP1-F (H)	STEP	1	DWH-K (B)	INDEX	1	FIL-K (F)	INDEX
10	SLT-J (D)	HOME	10	SP1-J (H)	HOME	19	GFO-G (A)	DIRECTION	19	DEC-G (E)	DIRECTION	5	DWH-D (B)	GND	5	FIL-D (F)	GND
11	+24V	OPWR	17	TB2-5	INCOM	21	SLT-G (D)	DIRECTION	21	SP1-G (H)	DIRECTION	15	DWH-C (B)	+5V	15	FIL-C (F)	+5V
12	GFL-L (D)	24DISABLE	18	CAL-N (G)	ERROR	23	GFL-E (C)	ENABLE	23	CAL-E (G)	ENABLE	JC1			JG1		
13	FIL-I (F)	24DISABLE	22	DEC-I (E)	REV_LIM	31	DWH-F (B)	STEP	31	FIL-F (F)	STEP	1	GFL-K (C)	INDEX	1	CAL-K (G)	INDEX
14	TB2-?	ORET	23	FIL-I (F)	REV_LIM	34	DWH-G (B)	DIRECTION	34	FIL-G (B)	DIRECTION	5	GFL-D (C)	GND	5	CAL-D (G)	GND
17	TB2-5	INCOM	24	CAL-I (G)	REV_LIM	37	DWH-E (B)	ENABLE	37	FIL-E (F)	ENABLE	15	GFL-C (C)	+5V	15	CAL-C (G)	+5V
18	GFL-N (C)	ERROR	25	SP1-I (H)	REV_LIM							JD1			JH1		
22	GFO-I (A)	REV_LIM	32	FIL-N (F)	ERROR							1	SLT-K (D)	INDEX	1	SP1-K (H)	INDEX
23	DWH-I (B)	REV_LIM	36	DEC-H (E)	FWD_LIM							5	SLT-D (D)	GND	5	SP1-D (H)	GND
24	GFL-I (C)	REV_LIM	37	FIL-H (F)	FWD_LIM							15	SLT-C (D)	+5V	15	SP1-C (H)	+5V
25	SLT-I (D)	REV_LIM	38	CAL-H (G)	FWD_LIM												
27	DWH-L (B)	24DISABLE	39	SP1-H (H)	FWD_LIM												
28	DEC-L (E)	24DISABLE															
29	SP1-L (H)	24DISABLE															
32	DWH-N (B)	ERROR															
36	GFO-H (A)	FWD_LIM															
37	DWH-H (B)	FWD_LIM															
38	GFL-H (C)	FWD_LIM															
39	SLT-H (D)	FWD_LIM															
41	GFO-L (A)	24DISABLE															
42	SLT-L (D)	24DISABLE															
43	CAL-L (G)	24DISABLE															



WIRE COLORS

MS PIN	COLOR	SIGNAL
E	BRN	ENABLE
F	RED	STEP
G	ORN	DIRECTION

WIRE COLORS

MS PIN	COLOR	SIGNAL
K	BRN	INDEX
D	BLK	GND
C	RED	+5V

\*BRN FOR AXIS A, RED FOR AXIS B, ETC.

SIGNALS	AXES A - D				AXES E - H			
	GUIDE CAMERA FOCUS (GFO)	DEWAR HEIGHT (DWH)	GUIDE CAMERA FILTER (GFL)	SLIT (SLT)	DECKER (DEC)	FILTER WHEEL (FIL)	CAL LAMPS (CAL)	SPARE 1 (SP1)
A	ISO5V	A TB1-9	A TB1-9	A TB1-9	A TB1-7	A TB1-7	A TB1-7	A TB1-7
B	ISO_RTN	B TB1-8	B TB1-8	B TB1-8	B TB1-6	B TB1-6	B TB1-6	B TB1-6
C	ENCODER +5V	C JA1-15	C JB1-15	C JC1-15	C JA1-15	C JB1-15	C JC1-15	C JD1-15
D	ENCODER GND	D JA1-5	D JB1-5	D JC1-5	D JA1-5	D JB1-5	D JC1-5	D JD1-5
E	ENABLE	E J1-7	E J1-37	E J1-23	E J1-7	E J1-37	E J1-23	E J1-8
F	DIR	F J1-19	F J1-34	F J1-5	F J1-19	F J1-34	F J1-5	F J1-21
G	STEP	G J1-16	G J1-31	G J1-2	G J1-16	G J1-31	G J1-2	G J1-18
H	FWD_LIM	H J2-36	H J2-37	H J2-38	H J2-36	H J2-37	H J2-38	H J2-39
I	REV_LIM	I J2-22	I J2-23	I J2-24	I J2-22	I J2-23	I J2-24	I J2-25
J	HOME	J J2-7	J J2-8	J J2-9	J J2-7	J J2-8	J J2-9	J J2-10
K	INDEX	K JA1-1	K JB1-1	K JC1-1	K JA1-1	K JB1-1	K JC1-1	K JD1-1
L	24DISABLE	L J2-41 (A-D)	L J2-27 (A-D)	L J2-12 (A-D)	L J2-28 (A-D)	L J2-13 (A-D)	L J2-43 (A-D)	L J2-29 (A-D)
M	24V_RTN	M J1-33 (A-D)	M J1-33 (A-D)	M J1-39 (A-D)	M J1-33 (E-H)	M J1-33 (E-H)	M J1-39 (E-H)	M J1-39 (E-H)
N	ERROR	N J2-2	N J2-32	N J2-18	N J2-2	N J2-32	N J2-18	N J2-3

REAR FANS		SIDE FAN	
TB3	TO	TB4	TO
1	NC	1	FAN +24V (RED), TB2-12
2	NC	2	FAN GND (BLK), TB2-11
3	FAN OUT 2 (YEL) - TACH	3	FAN OUT 3 (YEL) - TACH
4	FAN OUT 1 (YEL) - TACH	4	NC
5	GND		
6	FAN GND (BLK), TB2-11		
7	FAN +24V (RED), TB2-12		

REVISIONS [http://loel.ucolick.org/manual/Hamilton\\_II/schematics/HAM\\_II\\_box\\_wiring\\_sh\\_4.pdf](http://loel.ucolick.org/manual/Hamilton_II/schematics/HAM_II_box_wiring_sh_4.pdf)

10-28-09 ADDED THIS SHEET  
 01-14-10 ADDED 24DISABLE SIGNALS AND CORRECTED 24V\_RTN SOURCE ON STAGE CABLE TABLE  
 09-28-10 ADDED LSCOM WIRING TO TB1-5 - AS VERIFIED IN CONTROLLER  
 11-01-10 SWAPPED GRATING TILT & DEWAR FOCUS WITH GUIDE CAMERA FOCUS AND FILTER STAGES TO ALLOW USE OF CN1,-1 ON HARDY AND CN1,1 ON LAUREL.

UNIVERSITY OF CALIFORNIA LICK OBSERVATORY		8-CHANNEL CONTROLLER POINT-TO-POINT WIRING HAMILTON SPECTROGRAPH II	
DES'N BY: B. Alcott	ORIGIN DATE: 06-27-08	DWG. NO.	NUM. 4 OF 12
Last SN	MODIFY DATE: 11-01-10	EL-4003	REV. A
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