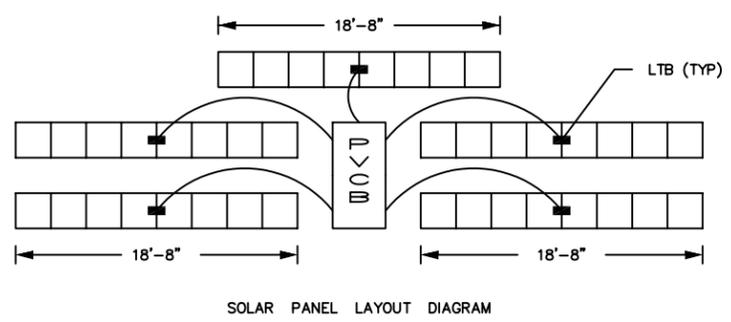
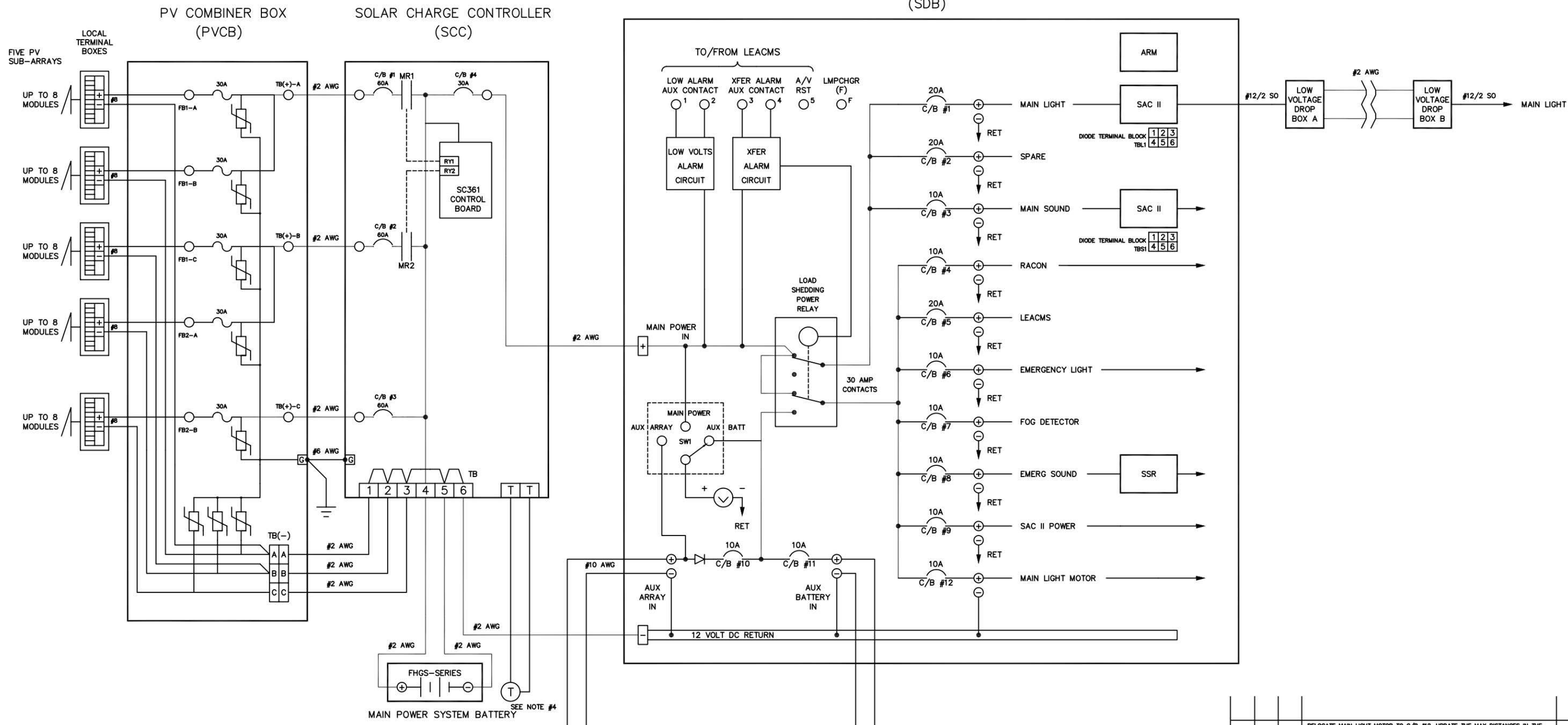


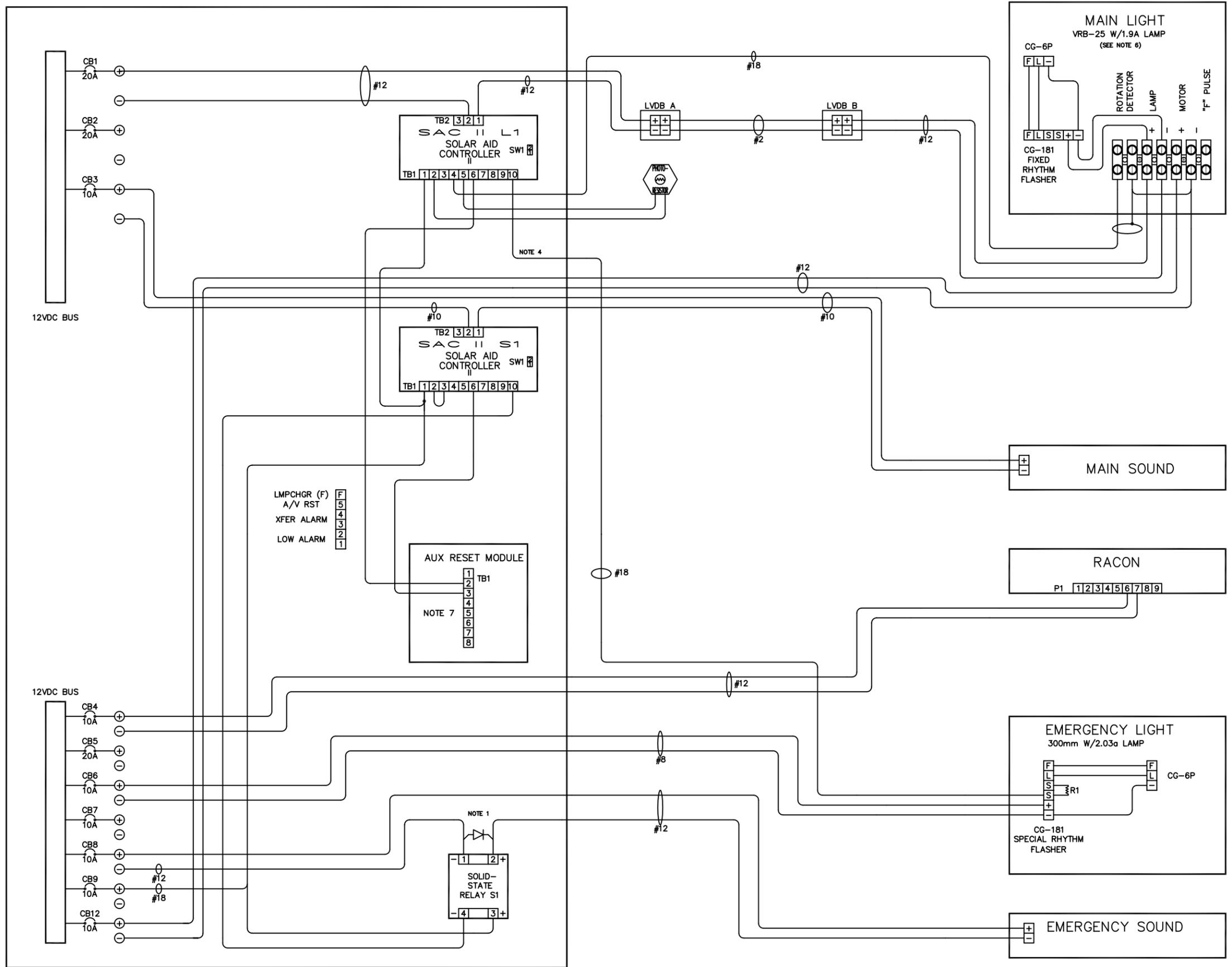
SOLAR DISTRIBUTION BOX (SDB)



- NOTES:
- SEE SHEET 3 FOR WIRE RUNNING LIST, LOAD INTERCONNECTION, AND MATERIALS LIST.
 - REFER TO SHEET 2 FOR LOAD WIRING DETAILS.
 - THIS SYSTEM SHOULD BE TEMPORARILY ASSEMBLED AND TEST-OPERATED SUCCESSFULLY AT THE BASE PRIOR TO TRANSPORTING TO THE AID FOR PERMANENT INSTALLATION.
 - INSTALL CHARGE CONTROLLER TEMPERATURE COMPENSATION SENSOR ON SIDE OF MAIN BATTERY.
 - MAIN LIGHT MOTOR RELOCATED TO C/B #12 TO PREVENT SUN DAMAGE TO LAMPCHANGER DURING MAIN LIGHT OR MAIN POWER FAILURE. RELABEL C/B'S ACCORDINGLY.
 - WHEN VRB-25 BEACON IS INSTALLED ON A STRUCTURE PRONE TO VIBRATION, EITHER DUE TO WIND, CURRENTS, ICE, OR A CO-LOCATED ELECTRONIC SOUND SIGNAL, IT IS NECESSARY TO INSTALL VIBRATION ISOLATION GROMMETS BETWEEN THE BEACON AND THE STRUCTURE (SEE TECHNICAL DATA SHEET TD-98-03 FOR MORE DETAILS).

REV.	DATE	APPR.	DESCRIPTION	BY
B	4/98	HRC	RELOCATE MAIN LIGHT MOTOR TO C/B #12. UPDATE THE MAX DISTANCES IN THE WIRE RUNNING LIST, AND ADD A NOTE ON VRB-25 ISOLATION.	STN
A	1/97	HRC	INCLUDE SOME CHANGES TO BETTER REPRESENT SDB.	STN
U.S. COAST GUARD HEADQUARTERS CIVIL ENGINEERING STANDARD AID TO NAVIGATION CATEGORY I I SOLAR POWERED LIGHTHOUSE SYSTEM (REGULATED)				
DESIGNED BY:	HRC/STN			
DRAWN BY:	STN			
TRACED BY:	STN			
CHECKED BY:	JTG			
REVIEWED BY:				
REVIEWED BY:	H.R. CLEVELAND			
REVIEWED BY:	G-ECV-3C			
REVIEWED BY:	L.E. JAEGER			
APPROVED:	CAPT. J.A. RAUCH			DATE
G-ECV-3	CHIEF, CIVIL ENGINEERING DIVISION			10/6/95
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES. TOLERANCES: DIM. ANG.				
DRAWING NUMBER				REV.
1 4 0 4 1 2				B
SCALE: NONE				SHEET 1 OF 3

PLOTTING SCALE:



- NOTES:**
1. INSTALL ONE 1N4001 BACK-EMF DIODE ACROSS SOLID STATE RELAY S1 OUTPUT TERMINALS TO PROTECT IT FROM THE INDUCTIVE LOAD OF THE SOUND SIGNAL.
 2. SEE SHEET 3 FOR WIRE RUNNING LIST, LOAD INTERCONNECTION, AND MATERIALS LIST.
 3. THIS SYSTEM SHOULD BE TEMPORARILY ASSEMBLED AND TEST-OPERATED SUCCESSFULLY AT THE BASE PRIOR TO TRANSPORTING TO THE AID FOR PERMANENT INSTALLATION.
 4. THE LEAD FROM SACII L1, TERMINAL TB1-10 MUST BE CONNECTED TO THE EMERGENCY LIGHT FLASHER AT THE 'S' TERMINAL CLOSEST TO THE BLACK AND WHITE POWER TERMINALS.
 5. SACII'S MUST OPERATE WITH SW-1 IN POSITION 1.
 6. ENSURE SACII L1 CURRENT SENSING THRESHOLD IS SET TO 0.77A IN ACCORDANCE WITH G-SEC-2A PROCEDURE FOR LOW CURRENT MAIN LAMPS.
 7. AUX RESET MODULE FACTORY INSTALLED IN SDB MANUFACTURED AFTER NOV 96. WIRES PREATTACHED TO TB1-2, 3, AND 5 OF THE ARM ARE ROUTED BENEATH THE SDB PANEL AND EMERGE NEAR THE SACIS FOR CONNECTION TO THE SACIS. CONNECTIONS TO TB1-6 OF BOTH SACIS MUST BE MADE, BUT LEAVE THE WIRE FROM ARM TB1-5 TO SACII L1 UNATTACHED. REFER TO DWG 140412 FOR OLDER VERSIONS OF SDBS IN WHICH AUX RESET MODULE IS ADDED AS A FIELD CHANGE VICE FACTORY INSTALLED.
 8. MAIN LIGHT MOTOR RELOCATED TO C/B #12 TO PREVENT SUN DAMAGE TO LAMPCHANGER DURING MAIN LIGHT OR MAIN POWER FAILURE. RELABEL C/B'S ACCORDINGLY.
 9. WHEN VRB-25 ROTATING BEACON IS INSTALLED ON A STRUCTURE PRONE TO VIBRATION, EITHER DUE TO WIND, CURRENTS, ICE, OR A CO-LOCATED ELCTRONIC SOUND SIGNAL, IT IS NECESSARY TO INSTALL VIBRATION ISOLATION GROMMETS BETWEEN THE BEACON AND THE STRUCTURE (SEE TECHNICAL DATA SHEET TD-98-03 FOR MORE DETAILS).

REV.	DATE	APPR.	DESCRIPTION	BY
B	4/98	HRC	RELOCATE MAIN LIGHT MOTOR TO C/B #12, UPDATE THE MAX DISTANCES IN THE WIRE RUNNING LIST, AND ADD A NOTE ON VRB-25 ISOLATION.	STN
A	1/97	HRC	INCLUDE SOME CHANGES TO BETTER REPRESENT SDB.	STN
U.S. COAST GUARD HEADQUARTERS CIVIL ENGINEERING STANDARD AID TO NAVIGATION CATEGORY I I SOLAR POWERED LIGHTHOUSE SYSTEM (REGULATED)				
REVIEWED BY: H.R. CLEVELAND			APPROVED: CAPT. J.A. RAUCH	DATE: 10/6/95
REVIEWED BY: G-ECV-3C			APPROVED: L.E. JAEGER	
REVIEWED BY: G-ECV-3			APPROVED: CAPT. J.A. RAUCH	
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES. TOLERANCES: DIM. ANG.				
DRAWING NUMBER				REV.
1 4 0 4 1 2				B
SCALE: NONE				SHEET 2 OF 3

PLOTTING SCALE:

POINT TO POINT WIRE RUNNING LIST

FROM	WIRE SIZE (AWG)	MAX DISTANCE (FT)	TO
MAIN PV SUB-ARRAY, LTB, A(+)	8	6	PV COMBINER BOX, FB1-A
MAIN PV SUB-ARRAY, LTB, A(-)	8	6	PV COMBINER BOX, TB(-)
MAIN PV SUB-ARRAY, LTB, B(+)	8	6	PV COMBINER BOX, FB1-B
MAIN PV SUB-ARRAY, LTB, B(-)	8	6	PV COMBINER BOX, TB(-)
MAIN PV SUB-ARRAY, LTB, C(+)	8	6	PV COMBINER BOX, FB1-C
MAIN PV SUB-ARRAY, LTB, C(-)	8	6	PV COMBINER BOX, TB(-)
MAIN PV SUB-ARRAY, LTB, D(+)	8	6	PV COMBINER BOX, FB2-A
MAIN PV SUB-ARRAY, LTB, D(-)	8	6	PV COMBINER BOX, TB(-)
MAIN PV SUB-ARRAY, LTB, E(+)	8	6	PV COMBINER BOX, FB2-B
MAIN PV SUB-ARRAY, LTB, E(-)	8	6	PV COMBINER BOX, TB(-)
PV COMBINER BOX, TB(+) A	2	24	CHARGE CONTROLLER, CB1
PV COMBINER BOX, TB(-) A	2	24	CHARGE CONTROLLER, TB-1
PV COMBINER BOX, TB(+) B	2	24	CHARGE CONTROLLER, CB2
PV COMBINER BOX, TB(-) B	2	24	CHARGE CONTROLLER, TB-2
PV COMBINER BOX, TB(+) C	2	48	CHARGE CONTROLLER, CB3
PV COMBINER BOX, TB(-) C	2	48	CHARGE CONTROLLER, TB-3
PV COMBINER BOX, GROUND LUG	6	80	CHARGE CONTROLLER, GROUND LUG
CHARGE CONTROLLER, TB-4, BATTERY(+)	2	3.6	BATTERY BANK(+)
CHARGE CONTROLLER, TB-5, BATTERY(-)	2	3.6	BATTERY BANK(-)
CHARGE CONTROLLER, CB4, LOAD(+)	2	10	SDB, MAIN POWER IN TERM(+)
CHARGE CONTROLLER, TB-6, LOAD(-)	2	10	SDB, MAIN POWER IN TERM(-)
SDB, AUX BATTERY IN TERM(+)	6	12	AUX BATTERY(+)
SDB, AUX BATTERY IN TERM(-)	6	12	AUX BATTERY(-)
AUX PV ARRAY(+)	10	96	SDB, AUX ARRAY IN TERM(+)
AUX PV ARRAY(-)	10	96	SDB, AUX ARRAY IN TERM(-)
SDB, PIN 1(+)	12	5	LOW VOLTAGE DROP BOX, A(+)
SDB, PIN 1(-)	12	2	SAC II L1, TB2-2
SAC II L1, TB2-1	12	5	LOW VOLTAGE DROP BOX, A(-)
LOW VOLTAGE DROP BOX, A(+)	6	145	LOW VOLTAGE DROP BOX, B(+)
LOW VOLTAGE DROP BOX, A(-)	6	145	LOW VOLTAGE DROP BOX, B(-)
LOW VOLTAGE DROP BOX, B(+)	12	5	MAIN LIGHT, LAMP(+)
LOW VOLTAGE DROP BOX, B(-)	12	5	MAIN LIGHT, LAMP(-)
MAIN LIGHT, LAMP(+)	12	2.5	MAIN LIGHT, CG-181(+)
MAIN LIGHT, LAMP(-)	12	2.5	MAIN LIGHT, CG-181(-)
SDB, PIN 2(+)	12	150	MAIN LIGHT, MOTOR(+)
SDB, PIN 2(-)	12	150	MAIN LIGHT, MOTOR(-)
MAIN LIGHT, ROTATION DETECTOR	12		MAIN LIGHT, MOTOR(-)
SAC II L1, TB1-4	18	150	MAIN LIGHT, ROTATION DETECTOR
SAC II L1, TB1-5	18	150	PHOTORESISTOR, 1ST LEAD
SAC II L1, TB1-2	18	150	PHOTORESISTOR, 2ND LEAD
SDB, PIN 3(+)	10	40	MAIN SOUND SIGNAL(+)
SDB, PIN 3(-)	10	6	SAC II S1, TB2-2
MAIN SOUND SIGNAL(-)	10	40	SAC II S1, TB2-1
SDB, PIN 4(+)	12	160	RACON, P1-6(+)
SDB, PIN 4(-)	12	160	RACON, P1-7(-)
SAC II L1, TB1-10	18	100	EMERGENCY LIGHT, FLASHER(S)
SDB, PIN 6(+)	8	73	EMERGENCY LIGHT, FLASHER(+)
SDB, PIN 6(-)	8	73	EMERGENCY LIGHT, FLASHER(-)
SDB, PIN 8(+)	12	30	EMERGENCY SOUND SIGNAL(+)
SDB, PIN 8(-)	12	2	SOLID STATE RELAY S1, PIN 1
EMERGENCY SOUND SIGNAL(-)	12	30	SOLID STATE RELAY S1, PIN 2
SDB, PIN 9(+)	18		SAC II S1, TB1-1
SAC II S1, TB1-1	18		SAC II L1, TB1-1
SAC II S1, TB1-1	18		SOLID STATE RELAY S1, PIN 3
SAC II S1, TB1-2	18		SAC II S1, TB1-3
SAC II S1, TB1-10	18		SOLID STATE RELAY S1, PIN 4
SAC II L1, TB1-6	18		SDB, AUXILIARY RESET MODULE, TB1-2
SAC II S1, TB1-6	18		SDB, AUXILIARY RESET MODULE, TB1-3

MAXIMUM DISTANCES SHOWN ABOVE ARE BASED ON THE CONFIGURATION SHOWN ON SHEETS 1 & 2.
CONSULT WITH THE WIRING SIZING CHAPTER OF COMDTINST M16500.24 WHEN CONFIGURATION IS DIFFERENT.

BILL OF MATERIALS

ITEM	TYPE	SOURCE OF SUPPLY	QUANTITY
SOLAR PANEL (35-WATT)	G-SEC QPL 401A	E/G-ICP	SEE NOTE 1
MAIN BATTERY, LEAD ACID, SIX 2-VOLT CELLS	FHGS-SERIES	EXIDE	SEE NOTE 1
AUX SOLAR PANEL (35-WATT)	SX-38MM OR M-75	SOLAREX, SIEMENS	1
AUX BATTERY, NI-CAD, 240 AH, TEN 1.2-VOLT CELLS	ED-240	SAFT NIFE, INC.	1
LOCAL TERMINAL BOX	N/A	G-SEC	4
PV COMBINER BOX	N/A	G-SEC	1
CHARGE CONTROLLER	N/A	G-SEC	1
SOLAR DISTRIBUTION BOX	SDB	G-SEC	1
SOLAR AID CONTROLLER II	SAC II	G-SEC	2
LOW VOLTAGE DROP KIT	N/A	G-SEC	SEE NOTE 5
ROTATING BEACON, 12 VOLT	VRB-25	G-SEC	1
LAMPCHANGER, 12 VOLT	CG-6P	E/G-ICP	2
FIXED RHYTHM FLASHER	CG-181	E/G-ICP	1
PHOTORESISTOR	L	E/G-ICP	1
MAIN LAMPS	12VDC, 1.9A	E/G-ICP	6, SEE NOTE 6
SOUND SIGNAL	FA-232/02	AUTOMATIC POWER, INC.	1
EMERGENCY LIGHT	300 MM	TIDELAND SIGNAL COR.	1
EMERGENCY LIGHT FLASHER	CG-181	C-R CONTROL SYSTEMS, INC.	1, SEE NOTE 4
EMERGENCY LAMPS	12VDC, 2.03A	E/G-ICP	6
EMERGENCY SOUND SIGNAL	FA-232	AUTOMATIC POWER, INC.	1
RACON	TIDELAND SIGNAL CORP.	G-OPN	1
SOLID-STATE RELAY S1 12 AMP, NORMALLY OPEN	MODEL D1D12	CRYDOM OR EQUIVALENT	1
RESISTOR R1	6800 OHM, 1/2 WATT 5% TOLERANCE	COMMERCIAL	1
DIODE	1N4001	COMMERCIAL	1

NOTES:

- THE MAIN PV ARRAY CONSISTS OF 35-WATT PANELS, DIVIDED INTO UP TO 5 SUB-ARRAYS. EACH SUB-ARRAY CONSISTS OF UP TO 8 PANELS CONNECTED AS SHOWN IN SHEET 1, AND TERMINATED AT A LOCAL TERMINAL BOX. THE AUXILIARY PV ARRAY CONSISTS OF ONE SX-38MM PANEL CONNECTED TO THE SDB. THE NUMBER OF PANELS AND TILT ANGLE SHALL BE DETERMINED BY THE SOLARCALC COMPUTER PROGRAM.
- SYSTEM DESIGNED ON THE PREMISE THAT SOLAR PANELS AND BATTERIES WILL BE LOCATED NEAR EACH OTHER WITH SIGNAL LOADS FARTHER UP THE LIGHTHOUSE STRUCTURE. SAC II'S SHOULD BE MOUNTED IN OR ADJACENT TO THE SDB ENCLOSURE. ASSURE A GOOD THERMAL CONTACT BETWEEN THE SAC AND THE PANEL IT IS ATTACHED TO.
- WIRE SIZES ARE BASED ON MAXIMUM ANTICIPATED LOADS. WIRES MAY BE RESIZED ONLY IF LOAD AND CHARGING CIRCUIT VOLTAGE DROPS DO NOT EXCEED 0.35 VOLT AND 0.75 VOLT, RESPECTIVELY.
- ONLY C-R CONTROL SYSTEMS, INC., FLASHER WILL PERFORM EMERGENCY LIGHT CIRCUIT FUNCTION.
- THE LOW VOLTAGE DROP KIT CONSISTS OF TWO TERMINAL BOXES AND TWO #12/2 AWG CABLES (6 FT. EA.).
- OTHER LAMPS SUITABLE FOR THIS CONFIGURATION INCLUDE 1.0A(CC8) AND 35W(T-H) LAMPS.
- MAIN LIGHT MOTOR RELOCATED TO C/B #12 TO PREVENT SUN DAMAGE TO LAMPCHANGER DURING MAIN LIGHT OR MAIN POWER FAILURE. RELABEL C/B'S ACCORDINGLY.
- WHEN VRB-25 ROTATING BEACON IS INSTALLED ON A STRUCTURE PRONE TO VIBRATION, EITHER DUE TO WIND, CURRENTS, ICE, OR A CO-LOCATED ELECTRONIC SOUND SIGNAL, IT IS NECESSARY TO INSTALL VIBRATION ISOLATION GROMMETS BETWEEN THE BEACON AND THE STRUCTURE (SEE TECHNICAL DATA SHEET TD-98-03 FOR MORE DETAILS).

REV.	DATE	APPR.	DESCRIPTION	BY
B	4/98	HRC	RELOCATE MAIN LIGHT MOTOR TO C/B #12, UPDATE THE MAX DISTANCES IN THE WIRE RUNNING LIST, AND ADD A NOTE ON VRB-25 ISOLATION.	STN
A	1/97	HRC	INCLUDE SOME CHANGES TO BETTER REPRESENT SDB.	STN
U.S. COAST GUARD HEADQUARTERS CIVIL ENGINEERING STANDARD AID TO NAVIGATION CATEGORY I I SOLAR POWERED LIGHTHOUSE SYSTEM (REGULATED)				
DESIGNED:	HRC/STN			
DRAWN:	STN			
TRACED:				
CHECKED:	JTG			
REVIEWED BY:				
REVIEWED BY:	H.R.CLEVELAND			
REVIEWED BY:	L.E.JAEGER	APPROVED:	CAPT. J.A. RAUCH	DATE 10/6/95
G-ECV-3C		CHIEF, CIVIL ENGINEERING DIVISION		
UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES. TOLERANCES: DIM. ANG.				
DRAWING NUMBER 1 4 0 4 1 2				REV. B
SCALE: NONE		SHEET 3 OF 3		