



SEQUENCE OF OPERATION

INITIAL CONDITIONS:

ALL 12VDC AND 120VAC POWER SECURED. ALL RELAYS SHOWN DE-ENERGIZED.

SEQUENCE:

OPEN FIELD SERVICE DISCONNECT SWITCHES (G6, F6) TO MAIN LIGHT LAMPCHANGER AND MOTOR CIRCUIT. LOAD LAMPCHANGER WITH APPLICABLE LAMPS AND COCK LAMPCHANGER TO PUT THE PRIMARY LAMPS IN POSITION AS THE OPERATING LAMPS. CLOSE SERVICING DISCONNECT SWITCHES TO MAIN LIGHT LAMPCHANGER AND DRIVE MOTOR. ENERGIZE ALL 12VDC LIGHT CONTROL CIRCUITS BY CLOSING 1CB9 (E2) BATTERY POWER; 1CB15 (D3), AVC; AND 1CB11 (C3), EMERGENCY LIGHT. ENERGIZE ALL 120VAC LIGHT POWER CIRCUITS BY CLOSING CB4 (J1), AVC POWER IN THE MAIN 120VAC DISTRIBUTION PANEL, 1CB3 (I1), LIGHT; AND 1CB5 (F4), MOTOR. THE MAIN LIGHT WILL NOW ROTATE. WHEN TIME DELAY RELAY 1RY4 (I2) TIMES OUT, 1RY4 CONTACT (B5) OPENS PROVING AN AUTOMATIC POWER RESET TO THE NAVAI SENSOR MODULE. THIS DELAY ASSURES THAT ALL 120VAC POWERED EQUIPMENT HAS HAD TIME TO STABILIZE. NAVAI SENSOR MODULE K1 (D5) CONTACTS OPEN TO ENERGIZE 1RY6 (D7) AND 1RY7 (D8). 1RY6 (G3) AND 1RY7 (G4) CONTACTS CLOSE APPLYING 120VAC POWER TO THE PRIMARY LAMPS. THE MAIN LIGHT IS NOW LIT AND ROTATING. CURRENT SENSOR 1CD1 DETECTS THE CURRENT FLOW TO THE LAMP AND CLOSING ITS INTERNAL SWITCHES WHEN THE CURRENT FLOW IS GREATER THAN ITS PRESET THRESHOLD CURRENT INDICATING THAT BOTH LAMPS ARE LIT, NOT JUST ONE. THE ROTATION DETECTOR CONTACT (F7) CLOSING MOMENTARILY ONCE EACH REVOLUTION OF THE MAIN LIGHT. THE SERIES CIRCUIT CONTAINING 1CD1 CONTACT (G4) AND THE ROTATION DETECTOR CONTACT (F7) PROVIDES A PULSATING 12VDC GROUND TO THE NAVAI SENSOR CARD CHANNEL #1 (F11). IF THE TIME INTERVAL BETWEEN PULSATIONS EXCEEDS 1.5 TIMES THE TIME FOR ONE REVOLUTION OF THE MAIN LIGHT FOR ANY REASON, THE NAVAI SENSOR MODULE ACTIVITY CHANNEL #1 SENSES IMPROPER OPERATION AND OPENS K1 (D5) AND K2 (C8) CONTACTS. OPENING K1 CONTACT DE-ENERGIZES 1RY6 (D7) AND 1RY7 (D8), OPENING 1RY6 AND 1RY7 CONTACTS TO DE-ENERGIZE THE MAIN LIGHT. OPENING K2 CONTACTS DE-ENERGIZES 1RY2 (C6), CLOSING 1RY2 (C5) CONTACT TO ENERGIZE THE EMERGENCY LIGHT. THE DC CURRENT PULSES TO THE EMERGENCY LIGHT ARE SENSED BY THE DC CURRENT DETECTOR (C6), L1 AND S1 CONTACTS CLOSE EACH TIME THE EMERGENCY LIGHT FLASHES. THESE PULSATIONS ARE FED TO THE NAVAI SENSOR MODULE (B3) EM CHANNEL WHICH MONITORS THE EMERGENCY LIGHT. THE MAIN LIGHT LAMPCHANGER POSITIONS ARE INDICATED BY SIGNAL FROM THE LAMPCHANGER WHICH ENERGIZES 1RY1 (I8) AFTER THE LAMPCHANGER ROTATES TO ENERGIZE ITS SECONDARY LAMP CIRCUIT. THIS CAUSES 1RY1 CONTACTS (B5) TO CHANGE POSITION AND THEREFORE GROUND THE NAVAI SENSOR MODULE L/C, LAMPCHANGER MONITORING TERMINAL (B2). THE MAIN LIGHT LAMPCHANGER OPERATES AS FOLLOWS: WHEN THE PRIMARY LAMP IN EITHER CHANGER BURNS OUT, THAT LAMPCHANGER'S SR RELAY IS DE-ENERGIZED, CLOSING ITS SR CONTACTS TO ENERGIZE ITS TRIP SOLENOID. THIS RELEASES THE SPRING LOADED LAMPCHANGER WHICH ROTATES TO DISCONNECT THE BURNED OUT PRIMARY LAMP AND CONNECT THE SECONDARY LAMP.

NOTES:

1. TB-601 LOCATED IN NAVAI SENSOR PANEL. ALL OTHER PARTS LOCATED IN AUDIO VISUAL CONTROLLER (AVC) UNLESS NOTED.
2. THE AVC IS PROVIDED WITH 1CB3 AT 15A; CHANGE THIS CB OUT AND REPLACE WITH A 25A UNIT FOR USE WITH A DCB 224.
3. SEE AVC FIELD CHANGE #3 FOR MAIN LIGHT CURRENT SENSOR INSTALLATION AND SET UP.
4. THIS SWITCH RESETS THE NAVAI SENSOR MODULES MANUALLY, OTHERWISE IT PERFORMS THE SAME FUNCTION AS 1RY4 CONTACT (B5) AS DESCRIBED IN THE SEQUENCE OF OPERATION. THE RESET FUNCTION CLOSING K1 AND K2 CONTACTS.

CAUTION

INSURE THAT THE FREE LUGGED ENDS OF AVC WIRE #S 8, 24, 58, 94, 98, AND 99 ARE FITTED WITH INSULATED SLEEVING BEFORE OPERATION THE AVC. THESE WIRES ARE USED WITH FLASHED OPTICS AND MUST NOT CONTACT ONE ANOTHER OR THE CASE. REFER TO THE GCF-RWL-2098 TECHNICAL MANUAL.

REV.	DATE	APPR.	DESCRIPTION	BY
B	7/87	HRC	ADD FIELD CHANGE #3 TO AVC AND DELETE NOTE 5.	RAD
A	10/77	HRC	ADD RESET SWITCH AND NOTES 4 & 5.	RAD

DESIGNED: RAD	U.S. COAST GUARD	HEADQUARTERS
DRAWN:	CIVIL	ENGINEERING
TRACED:	STANDARD AID TO NAVIGATION	
CHECKED: R.A. DOUGHTY	DCB-224 ROTATING OPTIC	
REVIEWED BY: H.R. CLEVELAND	TROUBLE SHOOTING DIAGRAM	
CH ELEC SECT		
REVIEWED BY: B.C. MILLS		
CH SYS SECT		
REVIEWED BY: J.T. MONTONYE	APPROVED: J. E. GRABB	DATE: 1/21/76
CH SUP EQ BR	CHIEF OF DIVISION	

UNLESS OTHERWISE SPECIFIED: ALL DIMENSIONS ARE IN INCHES. TOLERANCES: DIM. ANG.	DRAWING NUMBER 130701	REV. B
SCALE: NONE	SHEET 1 OF 1	