

## 482CRM Series Multicolor LED CAN (J1939) Rocker Module

The 482CRM series is a programmable multi-color LED rocker module, designed to operate within a Controller Area Network (CAN).

This innovative new product incorporates independently controlled LED's, allowing custom-configured color selection on a per LED basis. Via configuration utility software, each LED is capable of being configured to produce up to 16 unique colors without the need for special ordering or assembly.

The 482CRM utilizes a patented system of optical interrupters to create a switch output, which means no electrical contacts within the switch. The 482CRM provides interchangeable cams, including switch configurations:

- 1 & 2 position momentary
- 2 & 3 position stationary
- 2 position momentary / 1 position stationary

These cams are designed on a simple snap-in platform that allows for easy and inexpensive assemblies and modifications. In addition, switch banks greater than eight positions can be combined by dovetailing multiple units together.



### features

- LED configuration - choose from 8-color palette
- Each LED can be configured with up to four unique system-status colors
- Interchangeable cams create different switch modes
- Laser-etched actuators (customer-specified legends)
- Rocker module uses optical interrupters (no contacts)
- Panel assembly is water-proof
- Free configuration software for programming and diagnostics

### design specifications

- Shock: Mil Std 202 method 213 test condition 1
- Moisture resistance : IP68
- PCB characteristics : UL94V-0
- Salt Spray: Mil Std-202G, method 101E, test condition B, 48 hours
- Thermal Shock: MIL-STD-202G, Method 107G, test condition A-1, 5 cycles
- UVB certification: UVB 400 hours

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## electrical specifications

Description	Minimum	Nominal	Maximum
Operating Voltage	10 VDC	12 / 24 VDC	32 VDC
Operating Current	75 mA	—	350 mA
Sleep mode current	1.5 mA	—	—

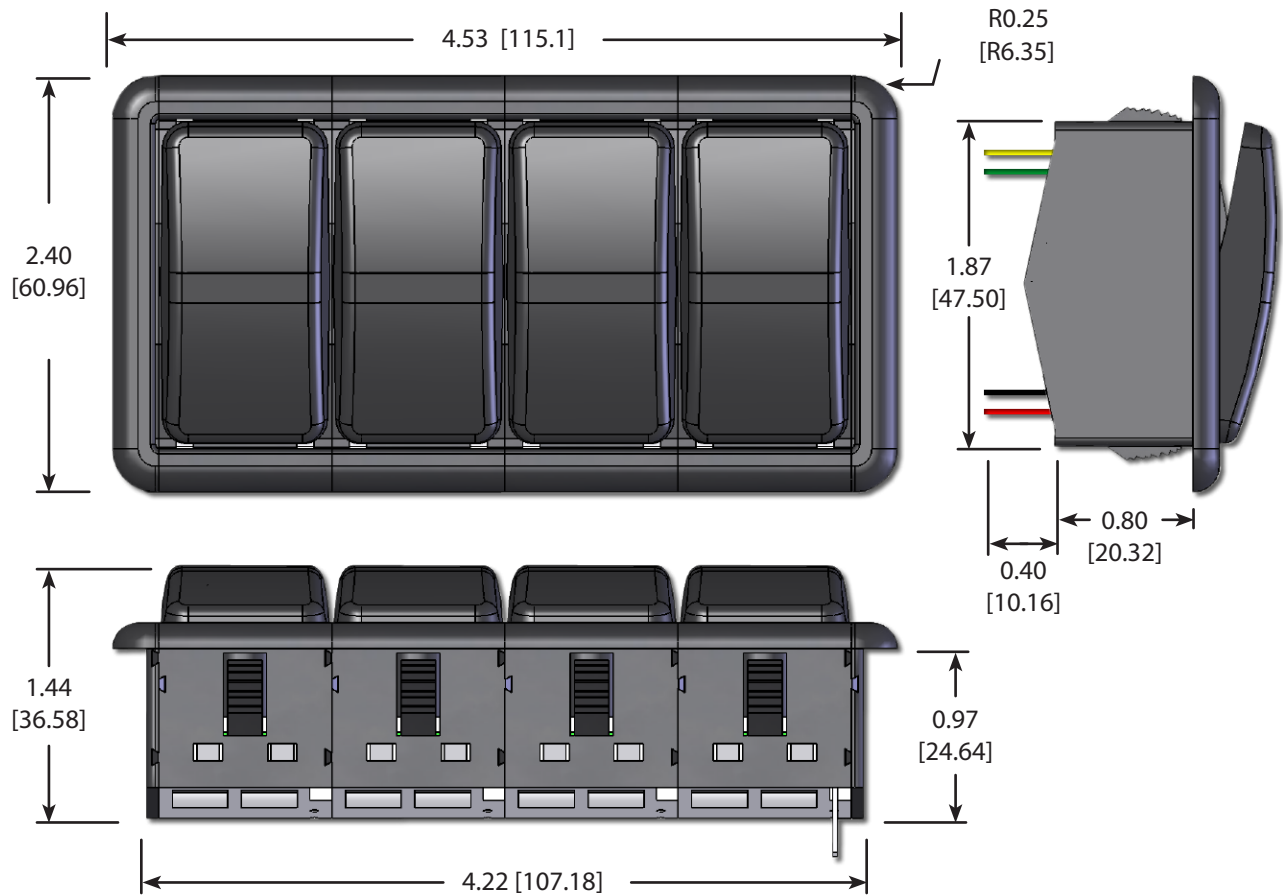
## physical specifications

Description	Color	Intensity
Visible Lighting (without actuator installed)	Red	1500 ~ 2100 mcd
	Green	4200 ~ 5800 mcd
	Blue	1100 ~ 1500 mcd
Housing	UL 94 V-0 rated Polycarbonate	
CAM, Arm, Arm Housing	UL 94 V-0 rated Polycarbonate	
Arm Spring	SUS304	
Actuator	Lexan®, laser etched with clear coat	
Actuator Guard	UL 94 V-0 rated Polycarbonate	
Operating Temperature	-40°C to 85°C	
Storage Temperature	-40°C to 85°C	
Operating Humidity	0% to 100% (condensing)	
Weight (8 position)	0.375 lb (170 g)	
Endurance	Tested to 250,000 cycles	

## wiring specifications

Wiring Inputs & Outputs	V+ (red wire)	GND (black wire)	CANL (green wire)	CANH (yellow wire)
	Input	Input	I/O	I/O
Description	Power Input	Ground	CAN Data Bus L	CAN Data Bus H
Recommended Wire Gauge	18AWG	18AWG	18AWG	18AWG

## dimensional mounting diagram



## mounting specifications

In order to mount the 482CRM, the panel opening cut out needs to fall within the minimum and maximum allowances, see the 4-switch dimensional drawings below to determine.

Recommended hole cutout: length of 4.22" (107.18mm) and a width of 1.90" (48.26mm). For each additional unit, add 1.00" (25.4mm) to the length.

Maximum panel thickness is 0.35" (8.89mm), for rocker switch assembly to lock into place.

## electrical test reference J1113 / ISO11452-2

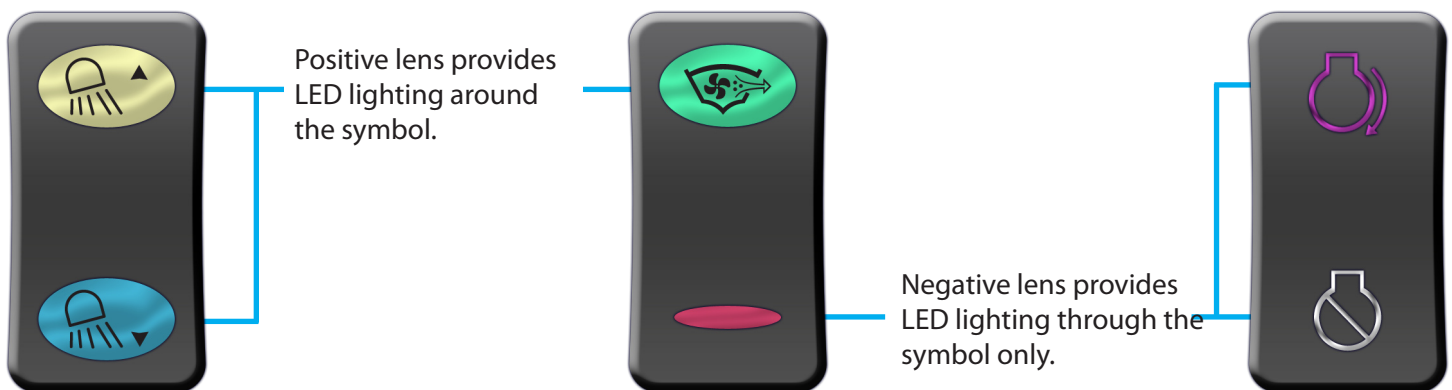
- Conducted Immunity of transients (J1113/11)
  - Performed at 12 and 24V DC
  - Test Pulse 1, 2a, 2b, 3a, 3b, 4 and 5
- Coupled Immunity – Capacitive Coupling Clamp Transients (J1113/12)
  - Performed at 12 and 24V DC
  - Pulse a and b
- Coupled Immunity – Direct Capacitor Coupling transients
  - Performed at 12V DC
  - Pulse a, b, c, and d
- Coupled Immunity – Chattering Relay (J1113/12)
  - Performed at 12V
  - 300V minimum random transient spikes
- Conducted Immunity – Electrostatic Discharge (J1113/13)
  - Performed while powered and un-powered
  - Maximum contact discharge  $\pm 8\text{kV}$
  - Maximum air discharge  $\pm 25\text{kV}$
- Radiated RF Emissions (J1113/41)
  - Vertical and horizontal antenna orientation
  - 0.15 MHz to 6.2MHz, 30 MHz to 200 MHz, and 200MHz to 1GHz ranges
- Radiated Immunity – ALSE (J1113/21)
  - Vertical and horizontal polarization
  - 100V/m test levels
  - 30MHz to 200 MHz and 200 MHz to 3000 MHz ranges
- Conducted Emission Frequency (J1113/41)
  - 0.15MHz to 108 MHz ranges
  - Resulting in performance to Class 1 thresholds across all broadband and narrowband measurements
- Conducted Immunity Sine wave (J1113/2)
  - 3V peak to peak level applied to positive power terminal
  - 15kHz to 250 kHz range
- Radiated Immunity Bulk Current Injection (ISO11452-2)
  - 150 mm probe position with 60mA test level
  - 20MHz to 400MHz range

## ordering information










































Please consult the factory for a factory-assigned part number which will utilize the following options:

Actuator Style	rocker, toggle, locking, finger guard
Body Color	black, red, blue, green, orange, yellow
Finish	fuzzy-coat, textured
Cams	1 position momentary, 2 position momentary, 2 position stationary, 3 position stationary, 2 position stationary and 1 position momentary
Legend Lens Type	positive lens, negative lens
Legends	see the following pages for what's available, consult factory for custom legends































Legends can be laser-etched into the face plate with either a positive or negative lens. You can have 2 positive lens, 2 negative lens, no lens at all (blank), or a combination there of on any switch. Contact the factory for additional legends and for custom designs. LED colors are specified via configuration utility.





























# legends

SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE
	NONE	00		WATER TANK	14		RUNNING LIGHTS	28
	INDICATOR STYLE 1	01		RIGHT STABILIZER	15	 <b>SPOTLIGHT</b>	MASTER LIGHT SWITCH (SPOTLIGHT)	29
	INDICATOR STYLE 2	02		LEFT STABILIZER	16	 <b>OVERHEAD</b>	MASTER LIGHT SWITCH (OVERHEAD)	30
 <b>WIPER</b>	WIPER WITH TEXT	03		DEPTH SOUNDER	17	 <b>ENTRY</b>	MASTER LIGHT SWITCH (ENTRY)	31
	WIPER	04		BATTERIES	18	 <b>HULL</b>	MASTER LIGHT SWITCH (HULL)	32
 <sup>1</sup>	WIPER (#1)	05		LAMP 01	19	 <b>DIMMER</b>	MASTER LIGHT SWITCH (DIMMER)	33
	WINDSHIELD WASHER / WIPER	06		LAMP 02	20	 <b>COCKPIT</b>	MASTER LIGHT SWITCH (COCKPIT)	34
 <b>WASHER</b>	WINDSHIELD WASHER WITH TEXT	07		LAMP (BRIGHTER)	21	 <b>BRIDGE</b>	MASTER LIGHT SWITCH (BRIDGE)	35
	WINDSHIELD WASHER	08		LAMP (DIMMER)	22	 <b>BILGE</b>	MASTER LIGHT SWITCH (BILGE)	36
	REAR WINDSHIELD WASHER	09		INTERIOR LIGHTS	23		MASTER LIGHT SWITCH	37
	DEFROSTER	10		HIGH BEAM LIGHTS	24		LIGHTS	38
	HORN	11		LOW BEAM LIGHTS	25		TURN SIGNALS	39
	TRIM TAB 1	12		ANCHOR / RUNNING LIGHTS	26		VENTILATION FAN / BLOWER	40
	TRIM TAB 2	13		ANCHOR LIGHTS	27		GENERATOR	41

## legends (cont)






































SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE
	FUEL	42		MUTE	56		ACCESSORY (TEXT)	70
	ENGINE STOP	43		MUSIC	57	<b>LOW MEDIUM HI</b>	SPEED CONTROL (TEXT)	71
	ENGINE START	44		ANCHOR	58	<b>TENDER HATCH</b>	TENDER HATCH (TEXT)	72
	EMERGENCY START	45		ANCHOR w/ MAIN	59	<b>ENGINE HATCH</b>	ENGINE HATCH (TEXT)	73
	ENGINE PREHEAT	46		ANCHOR (UP)	60	<b>CLOSE</b>	CLOSE (TEXT)	74
	DRIVE TILT UP	47		ANCHOR (DOWN)	61	<b>NAV EQUIP</b>	NAVIGATIONAL EQUIPMENT (TEXT)	75
	BILGE PUMP	48		ANCHOR (UP/DOWN)	62	<b>CHART LIGHT</b>	CHART LIGHT (TEXT)	76
	BILGE PUMP (#1)	49		STOP REQUEST	63	<b>LED</b>	LED (TEXT)	77
	BILGE PUMP (#2)	50		HAZARD WARNING	64		ENGINE BAY LIGHTS	78
	BILGE PUMP (#3)	51	<b>ENGINE SYNC</b>	ENGINE SYNC (TEXT)	65		LIGHT w/ TEXT "LIGHTS OVERHEAD"	79
	BILGE PUMP (#4)	52	<b>ELECT</b>	ELECTRIC (TEXT)	66		LIGHT w/ TEXT "COCKPIT INDIRECT"	80
	BILGE PUMP w/ FWD	53	<b>AUTO PILOT</b>	AUTO PILOT (TEXT)	67		LIGHT w/ TEXT "ENTRY INDIRECT"	81
	BILGE PUMP w/ AFT	54	<b>RADAR</b>	RADAR (TEXT)	68		LIGHT w/ TEXT "HULL LIGHTS"	82
	BILGE BLOWER	55	<b>THRUSTER MAIN</b>	THRUSTER MAIN (TEXT)	69		LIGHT w/ TEXT "OVERHEAD AFT"	83

# legends
















SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE
 <b>OVERHEAD OUTER</b>	LIGHT w/ TEXT "OVERHEAD OUTER"	84	<b>STEP LIGHTS</b>	"STEP LIGHTS" (TEXT)	98	<b>SIREN HORN</b>	"SIREN HORN" (TEXT)	112
 <b>OVERHEAD INNER</b>	LIGHT w/ TEXT "OVERHEAD INNER"	85	<b>NAV LTS</b>	NAVIGATION LIGHTS "NAV LTS" (TEXT)	99	 <b>AFT 2 BILGE</b>	AFT 2 BILGE PUMP w/ TEXT "AFT 2"	113
 <b>FWD INDIRECT</b>	LIGHT w/ TEXT "FWD INDIRECT"	86	<b>ANCH LTS</b>	ANCHOR LIGHTS "ANCH LTS" (TEXT)	100	 <b>WIPER ON</b>	WIPER w/ TEXT "WIPER ON"	114
 <b>AFT INDIRECT</b>	LIGHT w/ TEXT "AFT INDIRECT"	87	<b>WELCOME ABOARD</b>	"WELCOME ABOARD" (TEXT)	101	 <b>WIPER OFF</b>	WIPER w/ TEXT "WIPER OFF"	115
<b>BLACK</b>	"BLACK" (TEXT)	88	<b>PLATFORM</b>	"PLATFORM" (TEXT)	102	 <b>UW LIGHT</b>	HIGH BEAM LIGHTS w/ TEXT "UW LIGHT"	116
 <b>POWER WINDOW UP</b>	POWER WINDOW UP	89	<b>STEPS</b>	"STEPS" (TEXT)	103	 <b>CABIN</b>	INTERIOR LIGHTS w/ TEXT "CABIN"	117
 <b>POWER WINDOW DOWN</b>	POWER WINDOW DOWN	90	<b>STEPS/ PLATFORM</b>	"STEPS / PLATFORM" (TEXT)	104	 <b>ENG RM</b>	INTERIOR LIGHTS w/ TEXT "ENG RM"	118
<b>AUX</b>	"AUX" (TEXT)	91	<b>GRILL</b>	"GRILL" (TEXT)	105	 <b>DECK</b>	LIGHT w/ TEXT "DECK"	119
 <b>FWD BILGE</b>	FORWARD BILGE PUMP w/ TEXT "FWD BILGE"	92	 <b>FOG</b>	FOG HORN w/ TEXT "FOG"	106	 <b>HARDTOP</b>	INTERIOR LIGHTS w/ TEXT "HARDTOP"	120
 <b>MID BILGE</b>	MID BILGE PUMP w/ TEXT "MID BILGE"	93	 <b>POWER WINDOW UP / DOWN</b>	POWER WINDOW UP / DOWN	107	 <b>HELM LT</b>	LAMP 2 w/ TEXT "HELM LT"	121
 <b>AFT 1 BILGE</b>	AFT 1 BILGE PUMP w/ TEXT "AFT 1"	94	<b>MASTER</b>	"MASTER" (TEXT)	108	 <b>NAV LT</b>	RUNNING LIGHTS w/ TEXT "NAV LT"	122
 <b>ACC</b>	ACCESSORY SWITCH w/ TEXT "ACC"	95	<b>PRI/SEC</b>	"PRI / SEC" (TEXT)	109	 <b>ANCHOR</b>	ANCHOR LIGHTS w/ TEXT "ANCHOR"	123
 <b>OVERHEAD AFT</b>	MASTER LIGHT SWITCH w/ TEXT "OVERHEAD AFT"	96	<b>FRONT LT BAR</b>	"FRONT LT BAR" (TEXT)	110	 <b>PORT</b>	BATTERIES w/ TEXT "PORT"	124
<b>SEARCH LIGHT</b>	"SEARCH LIGHT" (TEXT)	97	<b>CORNER LIGHTS</b>	"CORNER LIGHTS" (TEXT)	111	 <b>HOUSE</b>	BATTERIES w/ TEXT "HOUSE"	125



## legends (cont)

SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE
 <b>STBD</b>	BATTERIES w/ TEXT "STBD"	126		REAR BILGE PUMP	140		RAISE LIGHT	154
 <b>EMERG</b>	BATTERIES w/ TEXT "EMERG"	127	 <b>BILGE</b>	BILGE LIGHTS	141		LOWER LIGHT	155
 <b>GEN START</b>	ENGINE START w/ TEXT "GEN START"	128	 <b>INDIRECT</b>	INDIRECT LIGHTS	142	 <b>WINDLASS ENABLE</b>	"WINDLASS ENABLE" (TEXT)	156
 <b>GEN STOP</b>	ENGINE STOP w/ TEXT "GEN STOP"	129	 <b>WHITE</b>	WHITE OVERHEAD LIGHTS	143	 <b>BLUE</b>	BLUE OVERHEAD LIGHTS	157
 <b>ELEC- TRONIC</b>	ACCESSORY SWITCH w/ TEXT "ELECTRONIC"	130	 <b>RED</b>	RED OVERHEAD LIGHTS	144	 <b>ELEC</b>	ELECTRONIC SONAR	158
 <b>BLOWER</b>	BILGE BLOWER w/ TEXT "BLOWER"	131	 <b>WHITE</b>	WHITE SIDE MARKER LIGHT	145	 <b>HORN</b>	HORN w/ TEXT "HORN"	159
 <b>HATCH</b>	HATCH UP ARROW w/ TEXT "HATCH"	132	 <b>RED</b>	RED SIDE MARKER LIGHT	146	 <b>WATER</b>	WATER PUMP	160
 <b>HATCH</b>	HATCH DOWN ARROW w/ TEXT "HATCH"	133	 <b>BRDNG</b>	BOARDING LIGHTS	147	 <b>SWIM PLATFORM</b>	SWIM PLATFORM	161
 <b>WINDLASS</b>	ACCESSORY SWITCH w/ TEXT "WINDLASS"	134	 <b>CRTSY</b>	COURTESY LIGHTS	148	 <b>SWIM PLAT- FORM</b> ↑	RAISE SWIM PLATFORM POSITION	162
<b>SWITCH DIMMER</b>	"SWITCH DIMMER" (TEXT)	135		UNDERWATER LIGHTS	149	 <b>SWIM PLAT- FORM</b> ↓	LOWER SWIM PLATFORM POSITION	163
 <b>WINDLASS</b>	ANCHOR UP 2 w/ TEXT "WINDLASS"	136		RAISE TV POSITION	150	<b>MASTER</b>	"MASTER" (TEXT)	164
 <b>WINDLASS</b>	ANCHOR DOWN 2 w/ TEXT "WINDLASS"	137		LOWER TV POSITION	151	<b>PRI / SEC</b>	"PRI / SEC" (TEXT)	165
	FWD BILGE PUMP	138		RAISE TABLE POSITION	152	<b>FRONT LT BAR</b>	"FRONT LIGHT BAR" (TEXT)	166
	MID BILGE PUMP	139		LOWER TABLE POSITION	153	<b>CORNER LIGHTS</b>	"CORNER LIGHTS" (TEXT)	167

# legends

SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE	SYMBOL	DESCRIPTION	CODE
<b>SIREN HORN</b>	"SIREN HORN" (TEXT)	168	<b>HATCH DOWN</b>	"HATCH DOWN" (TEXT)	182	<b>HI</b>	"HI" (TEXT)	196
<b>LEFT FLOOD</b>	LEFT FLOOD LIGHTS "LEFT FLOOD" (TEXT)	169	 <b>PARALLEL</b>	BATTERIES IN PARALLEL	183	<b>LOW</b>	"LOW" (TEXT)	197
<b>RIGHT FLOOD</b>	RIGHT FLOOD LIGHTS "RIGHT FLOOD" (TEXT)	170	<b>HORN COMPRESSOR</b>	"HORN COMPRESSOR" (TEXT)	184		BILGE PUMP w/ TEXT "5"	198
<b>REAR LOAD</b>	"REAR LOAD" (TEXT)	171	 <b>PORT ON</b>	PORT WINDSHIELD WIPERS ON	185	<b>PORT</b> 	"PORT" (TEXT) w/ LIGHTED INDICATOR	199
<b>PATIENT HEAT A / C</b>	"PATIENT HEAT A/C" (TEXT)	172	 <b>PORT DELAY</b>	PORT WINDSHIELD WIPERS DELAY	186	<b>STBD</b> 	"STBD" (TEXT) w/ LIGHTED INDICATOR	200
<b>BACK UP ALARM</b>	"BACK UP ALARM" (TEXT)	173	 <b>STBD ON</b>	STBD WINDSHIELD WIPERS ON	187			
<b>LEFT DOMES</b>	"LEFT DOMES" (TEXT)	174	 <b>STBD DELAY</b>	STBD WINDSHIELD WIPERS DELAY	188			
<b>RIGHT DOMES</b>	"RIGHT DOMES" (TEXT)	175	 <b>INT STEP</b>	INTERIOR STEP LIGHT	189			
<b>FLOUR LIGHTS</b>	FLUORESCENT LIGHTS "FLOUR LIGHTS" (TEXT)	176	 <b>PILOTHOUSE</b>	RAISE PILOT LIGHT	190			
<b>EXHAUST FAN</b>	"EXHAUST FAN" (TEXT)	177	 <b>PILOTHOUSE</b>	LOWER PILOT LIGHT	191			
<b>SUCTION PUMP</b>	"SUCTION PUMP" (TEXT)	178	 <b>UP</b>	RAISE ANCHOR POSITION	192			
 <b>COCKPIT</b>	RAISE COCKPIT LIGHT	179	 <b>DOWN</b>	LOWER ANCHOR POSITION	193			
 <b>COCKPIT</b>	LOWER COCKPIT LIGHTS	180	<b>AFT SPREADER</b>	"AFT SPREADER" (TEXT)	194			
<b>HATCH UP</b>	"HATCH UP" (TEXT)	181	<b>FWD SPREADER</b>	"FWD SPREADER" (TEXT)	195			



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