

C-30 Hull # Engine Wiring Harness BUILD LIST M-25 / M-25XP engine

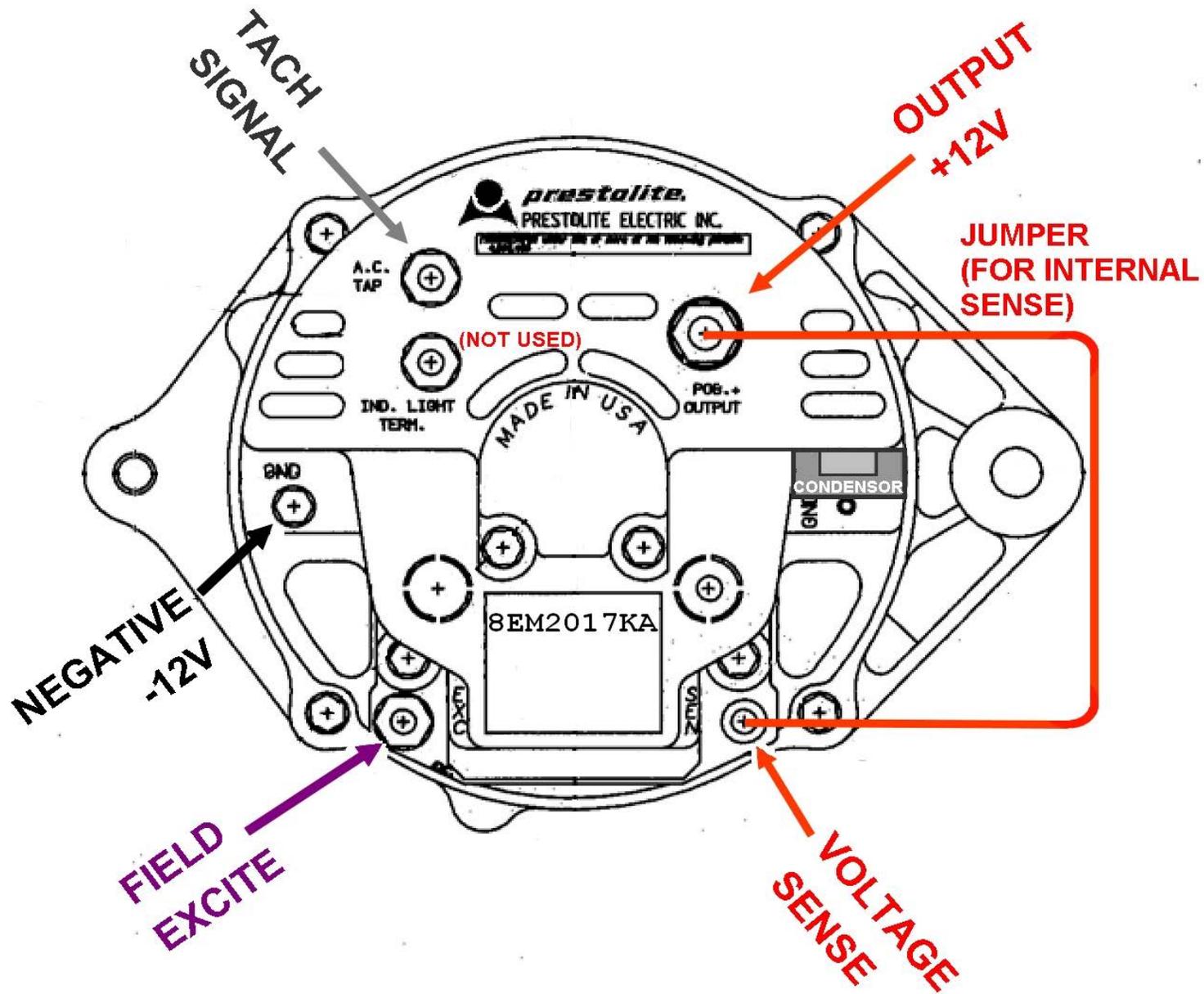
OEM "NEW"					<u>From</u>	<u>terminal</u>	<u>To</u>	<u>terminal</u>	
Wire #	Wire #	Circuit purpose	Wire AWG - Color	See note	Length	<i>(From - To sequence is in direction of normal current flow)</i>			
OEM harness (was thru the gummy bear plugs)					(w/ 24" added per owner)				
1	1	Engine panel negative return	10ga BLK	(1)	20-6"	Tach NEG terminal (panel -12v bus	#8 ring	Engine compartment -12v Busbar	#10 ring
2	2	Preheat	10ga WHT	(8)	21-7"	Key switch "S" position	#8 ring	# 3 glow plug	#10 ring
3	3	Starter motor cranking	10ga YEL	(3)	21'	PB Start switch	#8 ring	Solenoid "S" term (20a ATC fused)	FM 1/4" QC
5	5	+12v to panel	10ga RED	(5)	20-6"	Solenoid "B" post (40a ATC fused)	M8 lug	Key switch "B" terminal	#8 ring
6	6	Alternator field excite	16ga PUR	(6)	20-8"	Tach IGN terminal (panel Pos bus)	#8 ring	Alt EXC terminal w/ cap	#10 ring
7	7	Engine low-oil pressure alarm	16ga LT BLU	(7)	21'	Low oil pressure alarm "-" terminal	#6 ring	Oil pressure switch	#10 ring
8	8	Engine coolant temperature	16ga TAN		21-4"	Temp gauge "S" terminal	#8 ring	Temp sender (front of Tstat housing)	#10 ring
OEM harness (was not thru gummy bear plugs)					*per owner				
--	9	Fuel pump 12v+	16ga PUR	(6)	*25"	Alternator field excite wire w/ cap	split (butt)	Fuel pump +12v pigtail wire	M/FM 1/4" QCs
10	10	Tachometer signal	16ga GRY	(9)	20-8"	Alt "A/C TAP" post w/ cap	#10 ring	Tach "S" post	#10 ring
--	12	Fuel level	16ga PNK		17'	Fuel gauge	#8 ring	Fuel tank sender	butt
--	12	Fuel pump 12v-	16ga BLK	(1)	--	Fuel pump bracket	#10 ring	Eng compartment neg bus	#8 ring
--	--	Battery negative cable - see note (2)	4ga BLK	(2)	--	Battery negative post		Starter motor lower bolt	M8 lug
New cables					*per owner				
4	4	Alternator out	4ga RED	(11)	*8"	Alt "POS OUTPUT" post w/ cap	1/4" lug	Solenoid "B" post w/ cap	M8 lug
--	14	Alternator negative	4ga BLK	(11)	*20"	Alt "GND" post	#10 lug	Starter motor lower bolt	M8 lug
	15	Negative for harness and other use	8ga BLK	(11)	*18"	Engine 12v Neg Bus bar	1/4" lug	Starter motor lower bolt	M8 lug
	16	Engine coolant hi-temp alarm	16ga BRN	(12)	21-7"	Hi temp alarm "-" terminal	#6 ring	Hi-temp switch (side of TStat)	FM 1/4" QC
	14	Alternator voltage sense	14ga RED		8"	Alt SENSE terminal w/ cap	#10 ring	Alt "POS OUTPUT" post w/ cap	1/4" ring
Panel wiring									
		Power for panel & blower	14ga PUR	(16)		Key switch "I" terminal	#8 ring	Panel 10a PB breaker	#6 ring
		Power for panel & blower	14ga PUR			Panel 10a PB breaker	#6 ring	Tach IGN terminal (panel +12v bus)	#8 ring
		Panel for gauges/lights	16ga PUR	(14)		Tach IGN terminal (panel power)	#8 ring	Gauges "+" terminals (daisy-chained)	#8 ring
		Panel negative	16ga BLK	(14)		Gauges "-" terms (daisy-chained)	#8 ring	Tach NEG terminal (panel -12v bus)	#8 ring
		Blower switch power	14ga YEL/BRN	(17)		Tach IGN terminal (panel power)	#8 ring	Blower switch	FM QC
		Blower 12v+	14ga RED	(17)		Blower rocker switch	FM QC	Blower pigtail	butt crimp
		Blower 12v-	14ga BLK			Tach NEG terminal (panel ground)	#8 ring	Blower pigtail	butt crimp
Options					*per owner				
		Bond wire on Tstat cap	14ga GRN		*18"	Temp gauge sender (#17 clamp.)	#8 ring	Alt neg post	#10 ring
		Oil pressure gauge (option)	16ga DK BLU	(13)	21'	Oil pressure gauge "S" wire	#8 ring	Oil pressure sender	#10 ring

Notes

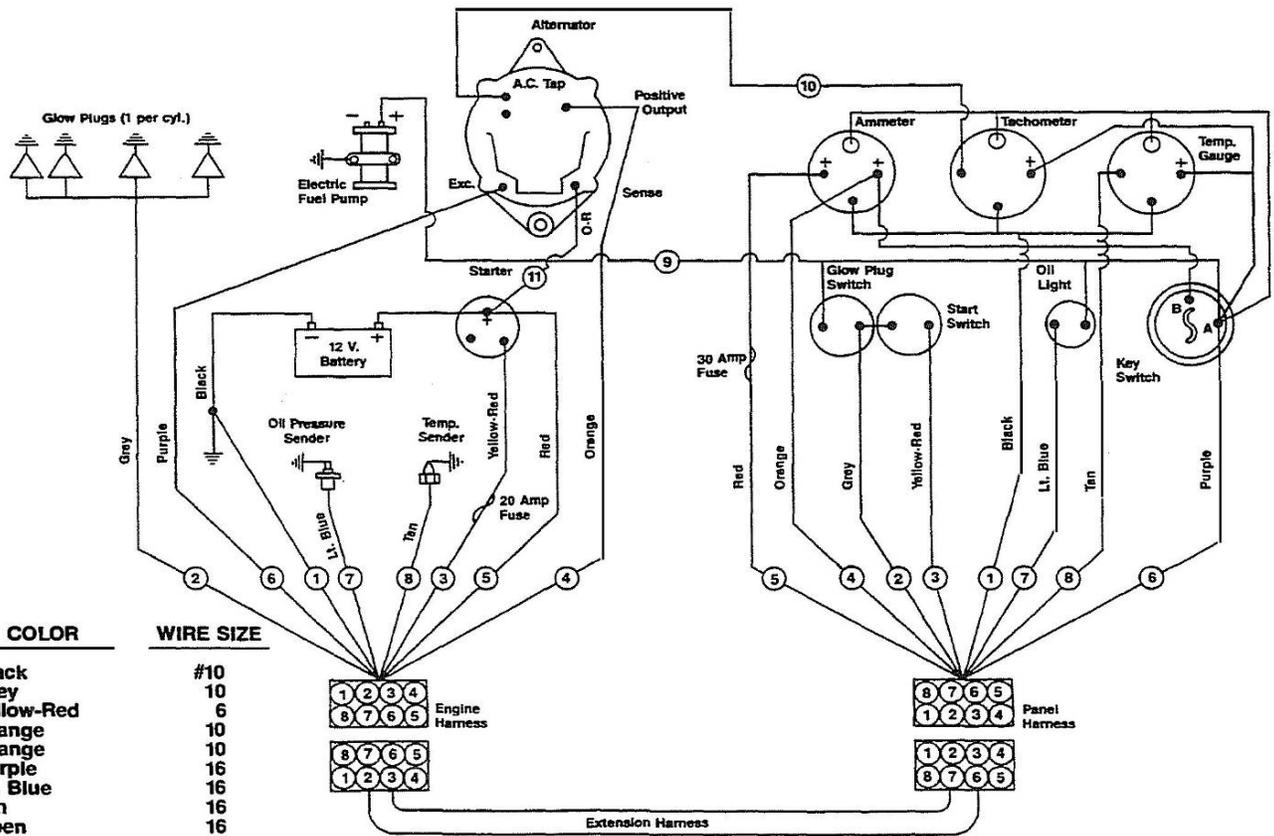
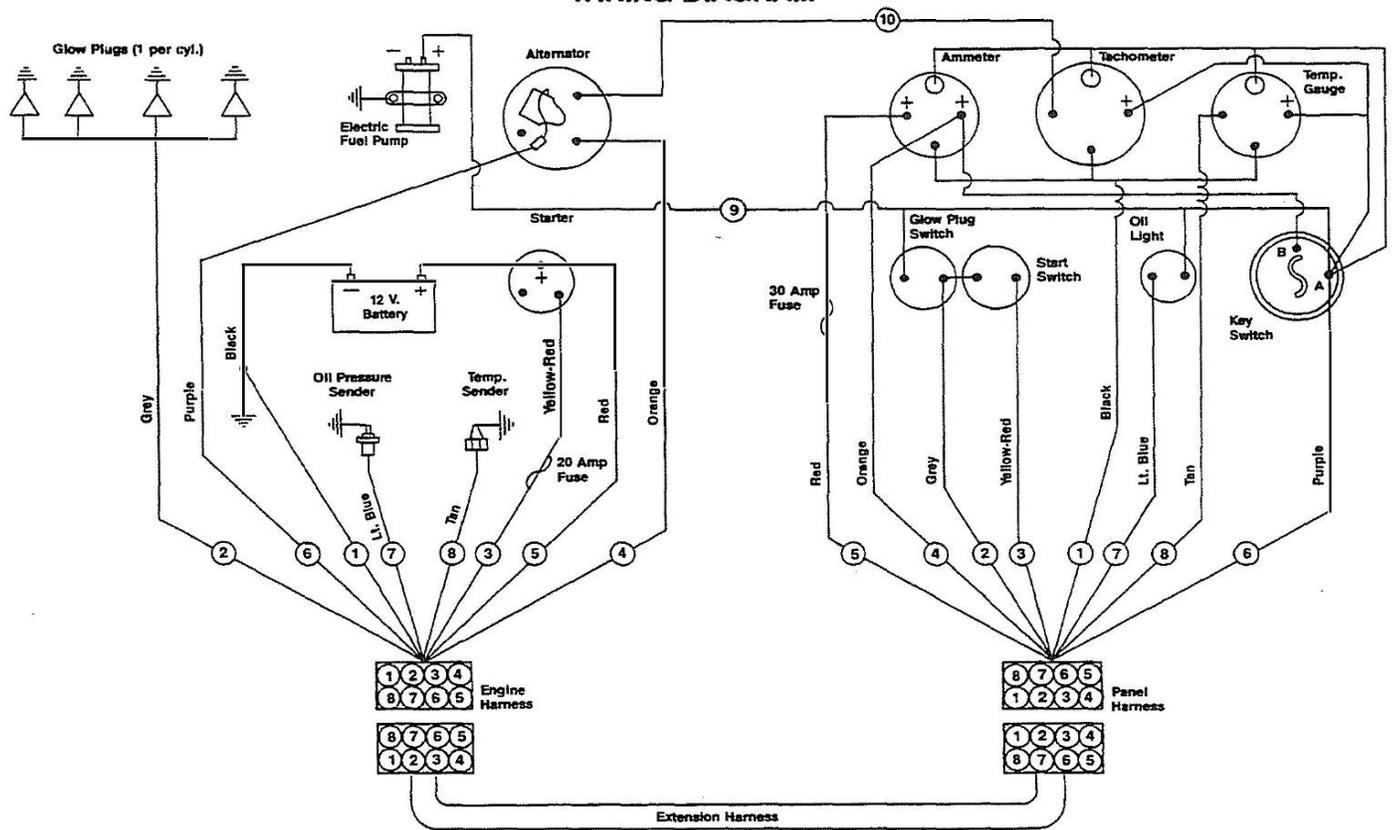
- (*nn) Length is approx - depends on location of engine neg bus and how harness is run.
- (1) OEM negative wire ran to an exhaust manifold stud (poor engine ground.) Run new neg wire to a negative bus installed in the engine compartment.
- (1) engine negative bus Blue Sea # 2300 or Whitecap S-7079 bus; [has 1/4" posts & (10) #8 screws] **OR**
 Blue Sea "Mini Busbar" # 2304 [has #10 posts & (5) #8 screws] **OR**
 Blue Sea "Power Post" # 2101 [has 1/4" post & (8) #8 screws] **OR** "Power Post" # 2103 [has 3/8" post & (8) #8 screws.]
- (2) Battery negative cable was OEM installed on bell housing (M8 bolt.) Move it to the outside starter bolt (also M8 bolt.)
- (3) Use custom QC plug setup and weather-tight 40a ATC fuse holder@ starter "S" terminal,
- (4) AO ran OEM to panel ammeter; eliminated in 1990s with ammeter to voltmeter conversion.

- (5) Install tinned, weather-tight ATC fuse holder w/in 7" of solenoid.
- (6) Alt field excite and fuel pump power wires are redundant; may use one 14 awg wire for both.
- (7) May use one wire for both low-oil-pressure sw. and hi-temp switch to a single alarm on panel.
- (8) Use 10 awg tinned weather-tight AGC 20a fuseholder and custom wire terminal connection @ solenoid "S" terminal to prevent corrosion and no-start issues.
- (9) OEM wire may have been Gray, Brown, or Orange.
- (10) OEM wire was typically Blk and run to exhaust manifold stud (engine ground.)
- (11) Size AO and Alt neg based on alt capacity and/or planned future upgrade (#8 or #6 for 55a, #6 or #4 for 90a, etc.) Alt lug sizes are typical for the 51a/55a alt. Other alts may have
- (12) From optional hi-temp switch installed in thermostat housing cap. Wire terminal depends on mfg of switch. (Packard 56 or ring or 1/4"QC)
- (13) Optional oil pressure gauge installed in panel
- (14) If daisy chaining (2) 16 awg wires use yellow #8 ring terminal.
- (15)
- (16) Install Blue Sea 20a PB circuit breaker 7058 w/ 4135 weather cap on panel (using screws/nuts, not QC terminals)
- (17) Blower wire terminal depends on type switch used; could be blue #8 ring or blue FM 1/4" QC terminal

C-30 Hull #		Harness Hook Ups					
Circuit purpose	AWG / Color		From	terminal	Connect to:	terminal	
BLOWER HOOK-UP							
Blower +12v	14ga	RED	(panel)		Blower +12v pigtail	butt crimp	Butt crimp and heat shrink
Blower -12v	14ga	BLK	(panel)		Blower -12v pigtail	butt crimp	Butt crimp and heat shrink
FUEL TANK HOOK-UP							
Fuel level	16ga	PNK	(harness)		Fuel tank sender	butt crimp	Butt crimp and heat shrink
Fuel level negative	16ga	BLK	Tank sender wire		Bond screw on fuel tank	1/4" ring	Crimp and heat shrink
ENGINE COMPARTMENT NEGATIVE BUSBAR							
-12v for harness and other	8ga	BLK	Starter bolt	M8 lug	-12v busbar	#10 lug	
Cockpit panel negative	10ga	BLK	(harness)		-12v busbar	#10 lug	
Fuel pump -12v	16ga	BLK	Pump bracket	#10 ring	-12v busbar	#8 ring	Crimp & heat shrink
HARNESS TO ENGINE HOOK-UPS							
Preheat	10ga	WHT	(harness)		#3 glow plug	#10 ring	
Fuel pump +12v	16ga	PRU	(harness)		Fuel pump +12v pigtail	1/4" QC	Crimp QCs and heat shrink
Low oil pressure alarm	16ga	L BLU	(harness)		Oil pressure switch	#10 ring	
Cockpit panel +12v	10ga	RED	(harness, fused)		Solenoid "B" post	M8 lug	Crimp fuse onto harness and heat shrink
Starter motor cranking	10ga	YEL	(harness, fused)		Solenoid "S" terminal	1/4" QC	Crimp fuse onto harness and heat shrink
Engine coolant temp	16ga	TAN	(harness)		Temp sender (on Tstat housing)	#10 ring	
Hi temp alarm	16ga	BRN	(harness)		(Tstat cap) Hi-temp switch	1/4" QC	
Tstat cap bond	14ga	GRN	Alt NEG post	#10 ring	(Tstat cap) Temp gauge sender	#17 clamp	
ALTERNATOR HOOK-UP							
Tach signal	16ga	GRY	(harness)		Alt "A/C" post	#10 ring	Use rubber cap
Alternator field excite	16ga	PUR	(harness)		Alt EXC post	#10 ring	Use rubber cap
12v charge output	4ga	RED	Alt B+ OUTPUT	1/4" lug	Solenoid "B" post	M8 lug	Battery cable on first (next to solenoid), then 4ga Alt cable; 10ga harness wire last
Alternator negative	4ga	BLK	Alt NEG post	#10 lug	Starter bolt	M8 lug	8ga bus cable on bolt first (next to bolt head,) then 4ga Alt NEG cable; Battery cable last
Battery voltage sense	14ga	RED	Alt B+ OUTPUT	1/4" ring	Alt SENSE terminal	#10 ring	
(2) Battery negative cable was OEM installed on bell housing (M8 bolt.) Move it to the outside starter bolt (also M8 bolt.)							



WIRING DIAGRAM



WIRE NO.	COLOR	WIRE SIZE
1	Black	#10
2	Grey	10
3	Yellow-Red	6
4	Orange	10
5	Orange	10
6	Purple	16
7	Lt. Blue	16
8	Tan	16
9	Open	16
10	Grey	16
11	Orange-Red	14

AWG	Ampacity Outside Engine Space	Ampacity Inside Engine Space
18	20	17
16	25	21
14	35	30
12	45	38
10	60	51
8	80	68
6	120	102
4	160	136
2	210	178
1	245	208
1/0	285	242
2/0	330	280
3/0	385	327
4/0	445	378

Marine Wire Color Code for Direct Current Electrical Systems under 50 Volts - ABYC

Color	Item	Use
Red	DC Positive Conductor	Positive Mains
Black or Yellow	DC Negative Conductor	Return, Negative Mains
Green or Green w/ Yellow Stripe	DC Grounding Conductor	Bonding System, Bonding Wires (if insulated)
Light Blue	Oil Pressure	Oil Pressure Sender to Gauge
Dark Blue	Cabin & Instrument Lights	Fuse or Switch to Lights
Brown	Generator Armature	Generator Armature to Regulator
Brown	Alternator Charge Light	Generator, Terminal/Alternator, Auxiliary Terminal to Light to Regulator
Brown	Pumps	Fuse or Switch to Pumps
Grey	Navigation Lights	Fuse or Switch to Lights
Grey	Tachometer	Tachometer Sender to Gauge
Orange	Accessory Feed	Ammeter to Alternator or Generator Output and Accessory Fuses or Switches
Orange	Common Feed	Distribution Panel to Accessory Switch
Pink	Fuel Gauge	Fuel Gauge Sender to Gauge
Purple	Ignition	Ignition Switch to Coil & Electrical Instruments
Purple	Instrument Feed	Distribution Panel Electrical Instruments
Brown w/ Yellow Stripe	Bilge Blowers	Fuse or Switch to Blower
Yellow w/ Red Stripe	Starting Circuit	Starting Switch to Solenoid
Tan	Water Temperature	Water Temperature Sender to Gauge
Green/Stripe (G/x) (except G/Y)	Tilt Down and/or Trim In	Tilt and/or Trim Circuits
Blue/Stripe (Bl/x)	Tilt Up and/or Trim Out	Tilt and/or Trim Circuits

Table A: Marine Color Code		
http://marinco.com/support/ancor/Marine_Color_Code.html		
Color	Item	Use
Red	DC Positive Conductor	Positive Mains
Black or Yellow	DC Negative Conductor	Return, Negative Mains
Green or Green w/ Yellow Stripe	DC Grounding Conductor	Bonding System Bonding Wires (if insulated)
Brown	Generator Armature	Generator Armature to Regulator
	Alternator Charge Light	Generator Terminal/Alternator Auxiliary Terminal to Light to Regulator
	Pumps	Fuse or Switch to Lights
Grey	Navigation Lights	Bonding Wires (if insulated)
	Tachometer	Tachometer Sender to Gauge
Orange	Accessory Feed	Ammeter to Alternator or Generator Output and Accessory Fuses or Switches
Orange	Common Feed	Distribution Panel to Accessory Switch
Pink	Fuel Gauge	Fuel Gauge Sender to Gauge
Purple	Ignition	Ignition Switch to Coil & Electrical Instruments
	Instrument Feed	Distribution Panel Electrical Instruments
Brown w/ Yellow Stripe	Bilge Blowers	Positive Mains (particularly unfused)
Yellow w/ Red Stripe	Starting Circuit	Starting Switch to Solenoid
Tan	Water Temperature	Water Temperature Sender to Gauge
Green/Stripe (G/x) (except G/Y)	Tilt Down and/or Trim In	Tilt and/or Trim Circuits
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Green or Green w/ Yellow Stripe	DC Grounding Conductor	Bonding System Bonding Wires (if insulated)
Brown	Generator Armature	Generator Armature to Regulator
	Alternator Charge Light	Generator Terminal/Alternator Auxiliary Terminal to Light to Regulator
	Pumps	Fuse or Switch to Lights
Grey	Navigation Lights	Bonding Wires (if insulated)
	Tachometer	Tachometer Sender to Gauge
Orange	Accessory Feed	Ammeter to Alternator or Generator Output and Accessory Fuses or Switches
	Common Feed	Distribution Panel to Accessory Switch
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Blue/Stripe (Bl/x)	Tilt Up and/or Trim Out	Tilt and/or Trim Circuits

ABYC and Merc wire colors.		
Color	Where Used / Function	
Black	All Ground	
Brown	Reference Electrode MerCathode System	
Orange	Anode Electrode MerCathode System	
Lt. Blue/White Stripe	Trim UP Switch	
Lt. Green/White Stripe	Trim DOWN Switch	
Brown/White Stripe	Trim Sender to Trim Gauge	
Purple/White Stripe	Trim "Trailer" Switch	
Gray	Tachometer Signal	
Black/Yellow Stripe	Shorting or Stop Circuit	
Pink	Fuel Sender to Gauge	
Red	Unprotected Wire from Battery	
Red/Purple Stripe	Protected (Fused) Wire from Battery	
Red/Purple Stripe	Protected (12 Volt +) to Trim Panel Control	
Purple	Ignition (Switch) to 12 Volt Positive	
Tan	Temperature Switch to Warning Horn	
Tan	Temperature Sender to Temperature Gauge	
Tan/Blue Stripe	Temperature Switch to Warning Horn	
Yellow	Starter Solenoid to Starter Motor	
Yellow	Starter to Regulator (Charging Circuit)	
Yellow/Red Stripe	Start Switch to Start Solenoid to Neutral Start Switch	
Yellow/Black Stripe	Choke (Enrichener System)	
Green with Color Stripe	Switch Box to Coil - Striped and Numbered	
White/Black Stripe	Bias Circuit (Switch Boxes)	
The ABYC Recommended Colors		
Color	Where Used / Function	
Yellow/Red	Starting Circuits	
Brown/Yellow or Yellow	Bilge Blowers	
Dark Grey	Navigation Lights & Tach Signals	
Orange	Accessory Feeds	
Brown	Pumps	
Purple	Instrument Feeds	
Dark Blue	Cabin and instrument Lights	
Light Blue	Oil Pressure	
Tan	Water Temperature	
Pink	Fuel Gauge Sender	

Table 4: Marine Wire Color Code		
BoatUS BoatTECH Guides: Choosing Cables & Terminals for Marine Service		
Color	Item	Application
Yellow or Black	Ground	Return, Negative Mains
Light Blue	Oil Pressure	Oil Pressure Sender to Gauge
Dark Blue	Cabin & Instrument	Fuse or Switch to Lights
Brown	Generator Armature	Generator Armature to Regulator
Brown	Alternator Charge Light	Generator Terminal or Alternator Auxiliary Terminal to Regulator
Brown	Pumps	Fuse or Switch to Pumps
Green	Bonding System	Bonding Wires (if insulated)
Gray	Navigation Lights	Fuse or Switch to Lights
Gray	Tachometer	Tachometer Sender to Gauge
Orange	Accessory Feed	Ammeter to Alternator, Generator Output and Accessory Fuses or Switches
Orange	Common Feed	Distribution Panel to Accessory Switch
Pink	Fuel Gauge	Fuel Gauge Sender to Gauge
Purple	Ignition	Ignition Switch to Coil & Electrical Instrument
Purple	Instrument Feed	Distribution Panel Electrical Instruments
Red	Main Power Feeds	Positive Mains (particularly unfused)
Yellow	Generator Field	Generator to Regulator Field Terminal
Brown w/Yellow	Bilge Blowers	Fuse or Switch to Blower
Yellow w/Red	Starting Circuit	Starting Switch to Solenoid