Hunter 38
Optional Freezer Installation

Approved By: JLK
Documented Date : 11-21-06
Documented By : MH
Revised Date :

ABSTRACT:
The optional freezer locates at aft galley compartment, after galley middle drawer, upper drawers, slide tracks and shelf need to be removed for freezer installation. Freezer switch locates on DC control panel with a 15 Amp breaker, wires comes with wire #37 (red/white) 10 Ga wire, ground wire #38 (yellow) to ground bus. Use barrel connectors to bridge between freezer and #37 & #38 wires.

1. **UNPLUG SHOR POWER, TURN OFF BATTERY POWER SWITCH**.
2. Remove aft galley middle and upper drawers from the galley unit.
3. Loosen screws from slide tracks then remove slide tracks.
4. After the drawer has been removed, there is a middle shelf between middle & upper drawer. This shelf will be totally remove.
5. Use jig saw to cut the unwanted shelf (the shelf divides upper & middle drawers) then remove the shelf in pieces from galley. Now, the shelf mounting screws will appear after the shelf is removed. Cut & sand mounting screws down. Make sure screws will not scratch freezer housing.
6. The freezer compartment is clear, clean this compartment.
7. From sub-floor access by galley or from QB hanging locker bottom access, look for DC wires 10 Ga, color in red/white with conduit cover. (check 38 DC Hull Harness Drawing for more details), run the wires with conduit thru sub floor cutout under freezer compartment to freezer compartment for further installation later.
8. There should be 2 face wood trims and 1 freezer wood platform come with the kit.
9. Install both face trims on freezer compartment face, using #10 x 1" long Countersunk S/S self-tapping screws, 4 pieces of screws for each trim.
10. Install the freezer platform on the freezer compartment lower platform. The platform comes with dimension of 17.75" x 16.75" x .5" thick. Use 4pieeces of #10 x7/8" long Countersunk S/S self tapping screws to secure the platform to freezer compartment.
11. Now, it's ready to connect wire #37 & #38 to freezer, use barrel connectors to perform this task. Wire #37 to red wire of freezer and wire #38 (yellow) to black wire of the freezer. Make sure to conduit all wires.
12. Insert the freezer unit in freezer compartment after wiring is complete, then secure the freezer black mounting ring holes to freezer wood face trim. The mounting ring comes with the freezer, secure the mounting ring to trim using 4 pieces #10 x 3/4" long Oval head self tapping screws.

Before freezer is installed

After freezer is installed

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Fig.1 Remove middle & upper drawer from galley

Fig.2 grind down screws that come out of receiver

Fig.3 Mount & install wood part face trims on freezer compartment face panel, secure mounting screws as arrow indicated directions. Install freezer platform as shown illustration above.

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Fig.4 Pull the freezer wires from sub floor cutout, run the wires upward.

Fig.5 Run the wires to freezer compartment, for further installation.

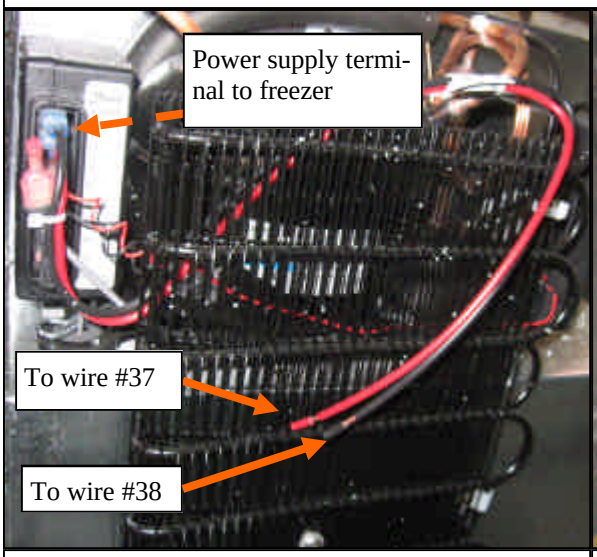


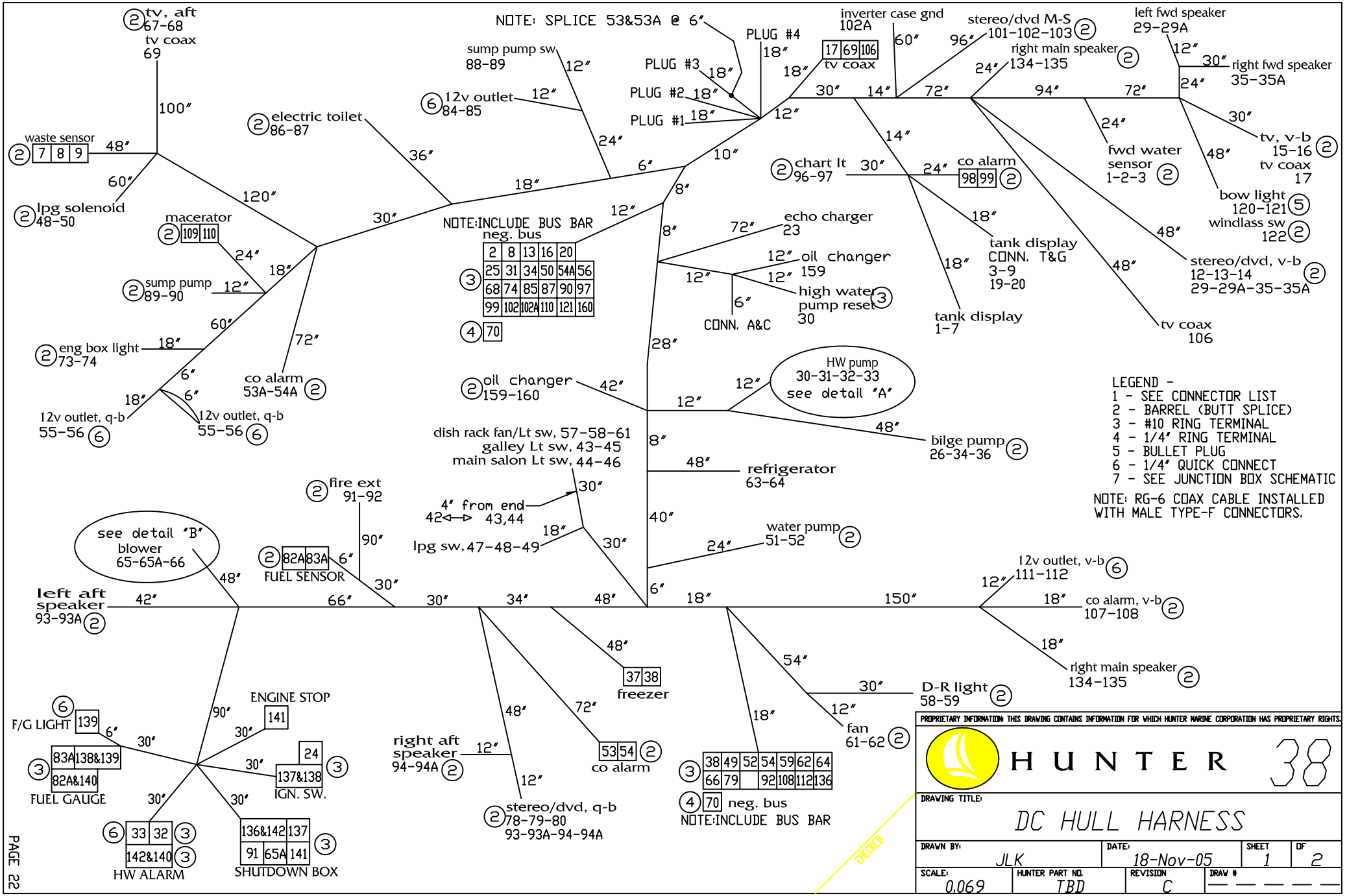
Fig.6 the freezer comes with red (+) & black (-) wires. Check on slide connector to make sure the connectors are secured.

Fig.7 the freezer comes with black mounting ring and 2 mounting holes on each side.

Fig.8 secure the ring mounting holes to freezer wood face trim. using 4 pieces #10 x 3/4” long Oval head self tapping screws.

38 HULL HARNESS WIRE LIST Date:11/18/2005

WIRE#	GAUGE	COLOR	FEET	DESCRIPTION	INCHES
1	16ga	Orange/Blue	19.667	WATER SENSOR FWD (+)	236
2	16ga	Yellow	23	WATER SENSOR FWD (-)	276
3	16ga	Pink/Black	19.667	WATER SENSOR FWD (S)	236
7	16ga	Orange/Green	25.5	WASTE SENSOR (+)	306
8	16ga	Yellow	20.167	WASTE SENSOR (-)	242
9	16ga	Pink/Gray	25.5	WASTE SENSOR (S)	306
12	14ga	Red/Yellow	16.167	STEREO/DVD, V-B (+)	194
13	14ga	Yellow	17.167	STEREO/DVD, V-B (-)	206
14	14ga	Yellow/Org	16.167	STEREO/DVD, V-B (MEM)	194
15	14ga	Red/Green	28.5	TV, V-B (+)	342
16	14ga	Yellow	29.5	TV, V-B (-)	354
17	RG-6	White	27.5	TV COAX, V-B	330
18	14ga	Orange/Red	10.833	LPG PWR (+)	130
19	16ga	Red/Org	9.8333	TANK MONITOR (+)	118
20	16ga	Yellow	8.6667	TANK MONITOR (-)	104
21	16ga	Red/Blue	5.1667	CO ALARM (+)	62
22	14ga	Yellow/Org	5.1667	STEREO MEMORY (+)	62
23	10ga	Red	7.5	ECHO CHARGER (+)	90
24	16ga	Yellow/Red	33.167	PARALLEL SOLENOID (+)	398
25	16ga	Yellow	3.1667	PARALLEL SOLENOID (-)	38
26	12ga	Brown/Org	8.8333	MAIN BILGE PUMP (AUTO)	106
27	12ga	Brown/Red	5.1667	MAIN BILGE PUMP (MANUAL), TO SW	62
28	16ga	Red/White	5.1667	START BATTERY TEST (+)	62
29	16ga	White/Red	20.833	FWD CABIN LEFT SPEAKER (+)	250
29A	16ga	White/Yellow	20.833	FWD CABIN LEFT SPEAKER (-)	250
30	8ga	White/Green	6.3333	HIGH WATER PUMP (+)	76
31	8ga	Yellow	6	HIGH WATER PUMP (-)	72
32	16ga	Brown/Red	29.5	HIGH WATER ALARM INDICATOR (+)	354
33	16ga	Yellow/Brown	29.5	HIGH WATER PUMP RELAY (FROM SW)	354
34	12ga	Yellow	9	MAIN BILGE PUMP (-)	108
35	16ga	White/Brown	22.333	FWD CABIN RIGHT SPEAKER (+)	268
35A	16ga	White/Black	22.333	FWD CABIN RIGHT SPEAKER (-)	268
36	12ga	Brown/Red	11	MAIN BILGE PUMP (MANUAL), FROM SW	132
37	10ga	Red/White	18.5	FREEZER (+)	222
38	10ga	Yellow	11	FREEZER (-)	132
42	10ga	Blue	15.167	GALLEY/MAIN SW FEED (+)	182
43	14ga	Blue	0.3333	GALLEY LIGHT SW (TO SW)	4
44	14ga	Blue	0.3333	MAIN SALON LIGHT SW (TO SW)	4
45	14ga	Blue	15.5	GALLEY LIGHT SW (FROM SW)	186
46	14ga	Blue	15.5	MAIN SALON LIGHT SW (FROM SW)	186
47	14ga	Orange/Red	14.5	LPG PWR (TO SW)	174
48	14ga	Orange/Grn	31.667	LPG SOLENOID (FROM SW)	380
49	16ga	Yellow	7	LPG INDICATOR (-)	84
50	14ga	Yellow	21.167	LPG SOLENOID (-)	254
51	12ga	Brown	12	WATER PUMP (+)	144
52	12ga	Yellow	5.5	WATER PUMP (-)	66
53	16ga	Red/Blue	24	CO ALARM, Q-B (+)	288
53A	16ga	Red/Blue	12.833	CO ALARM, Q-B (+)	154
54	16ga	Yellow	15.833	CO ALARM, Q-B (-)	190
54A	16ga	Yellow	12.167	CO ALARM, Q-B (-)	146
55	14ga	Red	16.333	12v OUTLET, AFT CABIN (+)	196
56	14ga	Yellow	15.667	12v OUTLET, AFT CABIN (-)	188
57	16ga	Blue/White	15.5	DISH RACK LIGHT (TO SW)	186
58	16ga	Blue/White	13.5	DISH RACK LIGHT (FROM SW)	162
59	16ga	Yellow	8.5	DISH RACK LIGHT (-)	102


(2) tv, aft 67-68
tv coax 69
100"
waste sensor (2) 7 8 9
48"
60"
(2) lpg solenoid 48-50
120"
(2) macerator 109 110
24"
18"
(2) sump pump 89-90
12"
60"
(2) eng box light 73-74
18"
6"
6"
18"
12v outlet, q-b 55-56 (6)
12v outlet, q-b 55-56 (6)
72"
co alarm 53A-54A (2)
(2) electric toilet 86-87
36"
30"
NOTE: SPLICE 53&53A @ 6"
sump pump sw 88-89
12"
24"
(6) 12v outlet 84-85
12"
PLUG #4
PLUG #3
PLUG #2
PLUG #1
18"
18"
18"
18"
12"
6"
18"
10"
8"
12"
8"
NOTE:INCLUDE BUS BAR
neg. bus
(3) 2 8 13 16 20 / 25 31 34 50 54A 56 / 68 74 85 87 90 97 / 99 102 102A 110 121 160
(4) 70
inverter case gnd 102A
17 69 106 tv coax
60"
96"
stereo/dvd M-S (2) 101-102-103
right main speaker (2) 134-135
24"
left fwd speaker 29-29A
12"
30"
right fwd speaker 35-35A
24"
30"
14"
72"
94"
72"
24"
tv, v-b 15-16 (2)
tv coax 17
48"
fwd water sensor 1-2-3 (2)
bow light 120-121 (5)
windlass sw 122 (2)
14"
(2) chart lt 96-97
30"
24"
co alarm 98 99 (2)
18"
tank display CONN. T&G 3-9 19-20
18"
tank display 1-7
48"
stereo/dvd, v-b 12-13-14 29-29A-35-35A (2)
48"
tv coax 106
echo charger 23
72"
12"
oil changer 159
12"
12"
high water pump reset 30 (3)
6"
CONN. A&C
(2) oil changer 159-160
42"
28"
HW pump 30-31-32-33 see detail "A"
12"
12"
48"
bilge pump 26-34-36 (2)
8"
48"
refrigerator 63-64
dish rack fan/Lt sw, 57-58-61
galley Lt sw, 43-45
main salon Lt sw, 44-46
30"
4" from end
42 <--> 43,44
18"
lpg sw, 47-48-49
30"
40"
24"
water pump (2) 51-52
6"
(2) fire ext 91-92
90"
30"
see detail "B" blower 65-65A-66
48"
(2) 82A 83A FUEL SENSOR
6"
left aft speaker 93-93A (2)
42"
66"
30"
34"
48"
18"
150"
12v outlet, v-b (6) 111-112
12"
18"
co alarm, v-b (2) 107-108
18"
right main speaker (2) 134-135
48"
37 38 freezer
54"
30"
D-R light (2) 58-59
12"
fan (2) 61-62
18"
72"
48"
53 54 (2) co alarm
right aft speaker 94-94A (2)
12"
12"
(2) stereo/dvd, q-b 78-79-80 93-93A-94-94A
(3) 38 49 52 54 59 62 64 / 66 79 92 108 112 136
(4) 70 neg. bus
NOTE:INCLUDE BUS BAR
(6) F/G LIGHT 139
6"
30"
(3) 83A 138&139 / 82A&140
FUEL GAUGE
90"
ENGINE STOP 141
30"
30"
24
137&138 (3)
IGN. SW.
30"
30"
(6) 33 32 (3) / 142&140 (3)
HW ALARM
136&142 137 (3) / 91 65A 141
SHUTDOWN BOX
LEGEND -
1 - SEE CONNECTOR LIST
2 - BARREL (BUTT SPLICE)
3 - #10 RING TERMINAL
4 - 1/4" RING TERMINAL
5 - BULLET PLUG
6 - 1/4" QUICK CONNECT
7 - SEE JUNCTION BOX SCHEMATIC
NOTE: RG-6 COAX CABLE INSTALLED WITH MALE TYPE-F CONNECTORS.
PROPRIETARY INFORMATION: THIS DRAWING CONTAINS INFORMATION FOR WHICH HUNTER MARINE CORPORATION HAS PROPRIETARY RIGHTS.
HUNTER 38
DRAWING TITLE:
DC HULL HARNESS
DRAWN BY: JLK
DATE: 18-Nov-05
SHEET 1
OF 2
SCALE: 0.069
HUNTER PART NO. TBD
REVISION C
DRAW #
CHECKED
PAGE 22

Trouble-Shooting Guide

		YES	NO
1	Turn power on and turn thermostat to "7" position	Go To 2	
2	Is the compressor running? (put your hand on top to feel slight vibration to be sure).	Go To 14	Go To 3
3	DC Breaker is in the "on" position & optional fuse is good?	Go To 5	Go To 4
4	Replace fuse or turn breaker "on". Does fuse or breaker blow?	Go To 6	Go To 5
5	Check voltage at the refrigerator "+" & "-" terminals on the black module. Is it over 12 VDC?	Go To 7	Go To 6 Go To 17 on AC/DC models
6	Check batteries, wiring and connections to the refrigerator for fault, corrosion, proper wire sizing and correct the problem.	Go To 1	
7	Put a jumper wire between terminals "C" & "T". Is the compressor running now?	Go To 11	Go To 8
8	Disconnect power. Remove electronic module (philips screw beside terminal designation label will require removal). Disconnect the plug. Measure resistance (ohms) between each of the three compressor terminal pins. Is the measured resistance APPROXIMATELY the same?	Go To 9	Go To 10
9	Replace Electronic Module.	Go To 1	
10	Have compressor replaced by qualified appliance technician who has the ability to evacuate and recharge the system. This is seldom necessary so please be sure and if possible contact Nova Kool for further instruction beforehand.		
11	Check wiring to thermostat with ohm meter to ensure there is continuity. (No broken or damaged wires or connectors). Is the wiring okay?	Go To 13	Go To 12
12	Disconnect power. Repair or replace wiring as necessary	Go To 1	

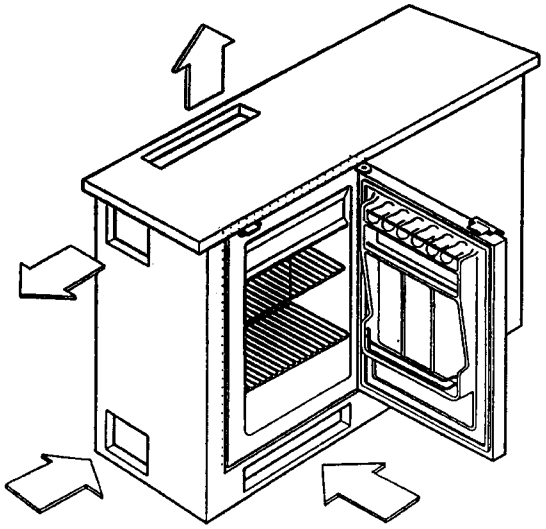
Operation (continued)

The condenser is located behind the refrigerator and can be cleaned by using a bottle brush and brushing vertically from top to bottom on the face of the condenser. An alternative method is to vacuum the condenser.

Condenser at back of fridge

Ventilation

All refrigerators, regardless of the make, are heat-transfer machines. They transfer the heat from the inside of the fridge to the outside of the fridge. If adequate ventilation is provided, the compressor will operate more efficiently, and use less power.



The *minimum* total area required for ventilation openings depends on the size of the fridge. All **single** door Nova Kools require 60 square inches of total ventilation area. It is recommended that the vents are located at the bottom (30 square inches) and the top of the fridge (30 square inches); this supports the natural convection of heat from cold (bottom) to warm (top).

Ventilation (continued)

On our double door models, 120 square inches is required (60 at the top and 60 at the bottom).

The cold air intake at the bottom of the fridge can be from the left or the right side, and if possible should be at a level below the fridge.

The warm air opening at the top of the refrigerator should be above the fridge if possible.

All openings can be of any configuration (long and narrow , square or round) as long as the 60 or 120 square inches is cut out.

If you are using grills, take into account the restriction they will give, and adjust the opening accordingly.

Electrical Hook-Up

To determine the size of the wire to be used, measure the maximum length of wire to connect one of the leads from the electronic unit (on the back of the refrigerator) to the battery. Using the chart below, size your wire accordingly. The table is based on a 3% voltage drop.

wire size	*max. lead length in feet***	
AWG	**12VDC units**	**24VDC units**
14	8	16
12	12	25
10	25	50
8	40	80

** Length is the distance between the electronic unit and the battery

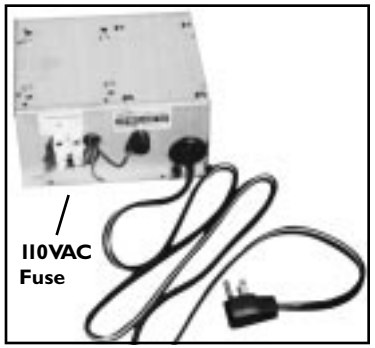
The circuit breaker must be a 20 amp capacity on the DC side and a 5 amp capacity on the (optional) AC side. Failure to size the wire or breaker correctly (too small) may cause a premature shut down of the refrigerator by the Battery Protection Device.

Electrical Hook-Up (continued)

We recommend that the refrigerator have its own circuit, without any other appliances connected to the same wires.

Using the **COMMON BUSS** for the refrigerator wiring can sometimes cause radio frequency noise and interference.

FUSE



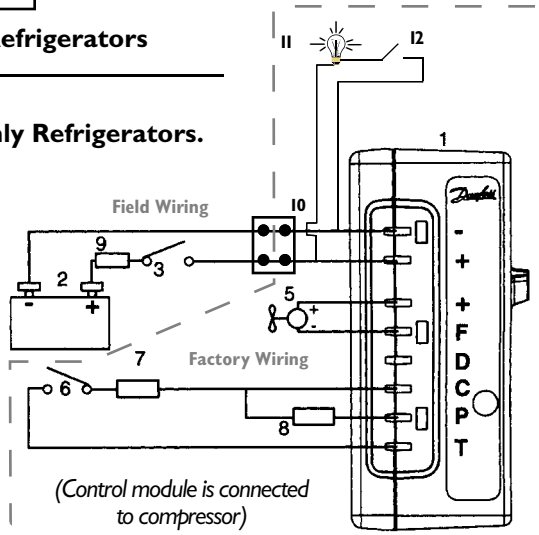
Nova Kool recommends the use of a 15 Amp Fuse (12 VAC) and a 7.5 Amp Fuse (24 VDC) as near as possible to the DC Source.

On the optional AC power supply a 4 amp (110 volt) or a 2 amp (220 volt) glass fuse, can be found under the black fuse holder cap on the power supply.

Power supply for AC/DC Refrigerators

Wiring diagram for DC only Refrigerators.

1 - Electronic Unit
2 - Battery
3 - Main switch (optional)
5 - Fan (optional)
6 - Thermostat
7 - Resistor for pre-setting speed
8 - Resistor for pre-setting battery protection voltage (optional)
9 - Fuse (Field Installed)
10 - Terminal Block
11 - Light (optional)
12 - Door Switch (optional)



(Control module is connected to compressor)

Standard battery protection settings

12V cut-out V	12V cut-in V	24V cut-out V	24V cut-in V
10.4	11.7	22.8	24.2

Operation

Our units are easy to operate. We use one thermostat, whether you have a single door or two-door model.

This thermostat is a full range thermostat that will maintain your unit at the temperature you desire. Turning the control all the way to the right (clockwise) will give you the coldest position, and turning to the left will give you a warmer temperature in the fridge. The control is also an on/off switch when you turn it to the "O" position (hard left). A good setting to start with is #2.

Defrosting

The frequency of defrost depends on the usage, (door openings) and ambient (outside) temperatures. It is time to defrost when the refrigerator builds up 1/4 inch of ice on each side of the cold plates.

The best way to defrost the refrigerator is to remove all the food, and place a towel inside the fridge, on the bottom of the cabinet(s). Turn the thermostat to the "O" position.

Never use a knife to scrape ice from the cold plate. This will rupture the cold plate and let the refrigerant escape.

Cleaning

The best time to clean the fridge is after a defrost. Wipe the inside clean using a non abrasive cleaner(watered down) for the hard to clean stains. We recommend baking soda as the first choice for a cleaner.

If you notice your refrigerator running longer than normal, clean the condenser (usually required every few years).

Trouble-Shooting Guide (continued)

		YES	NO
13	Replace thermostat.	Go To 1	
14	Have refrigerator in a well ventilated area (ie. on cabin floor). After an hour is it refrigerating?	Go To 15	Go To 16
15	Check that adequate ventilation has been provided. 60 sq. in. for single door models and 120 sq. in. for 2-door models. See ventilation suggestion on Page 3 of this manual. Add ventilation as required.		
16	Have a qualified appliance technician determine if there is a refrigerant leak or a compressor with a mechanical problem.		
From 17-24 applies to AC/DC models Only!			
17	Switch DC breaker off and AC breaker on. Does the refrigerator run?	Go To 18	Go To 19
18	Turn DC breaker on and check DC voltage on Terminal Block located on side of grey AC power supply. Is it above 12 VDC (or 24 VDC)?	Go To 24	Go To 6
19	Check fuse on grey AC power supply (4 amp 110V and 2 amp 220V). Is the fuse good?	Go To 22	Go To 20
20	Remove power supply and determine if there are any indications of a short circuit. If no, replace fuse. Does fuse blow again?	Go To 24	Go To 21
21	Check DC voltage output of power supply at black module terminals "+" & "-". Is it above 12 VDC (or 24 VDC)?	Go To 18	Go To 24
22	Is 110V (or 220V) available at the AC plug?	Go To 21	Go To 23
23	Check plug, wiring, breaker, shore power or genset for damage or fault. Repair or replace as required.	Go To 17	
24	Replace grey AC power supply.		