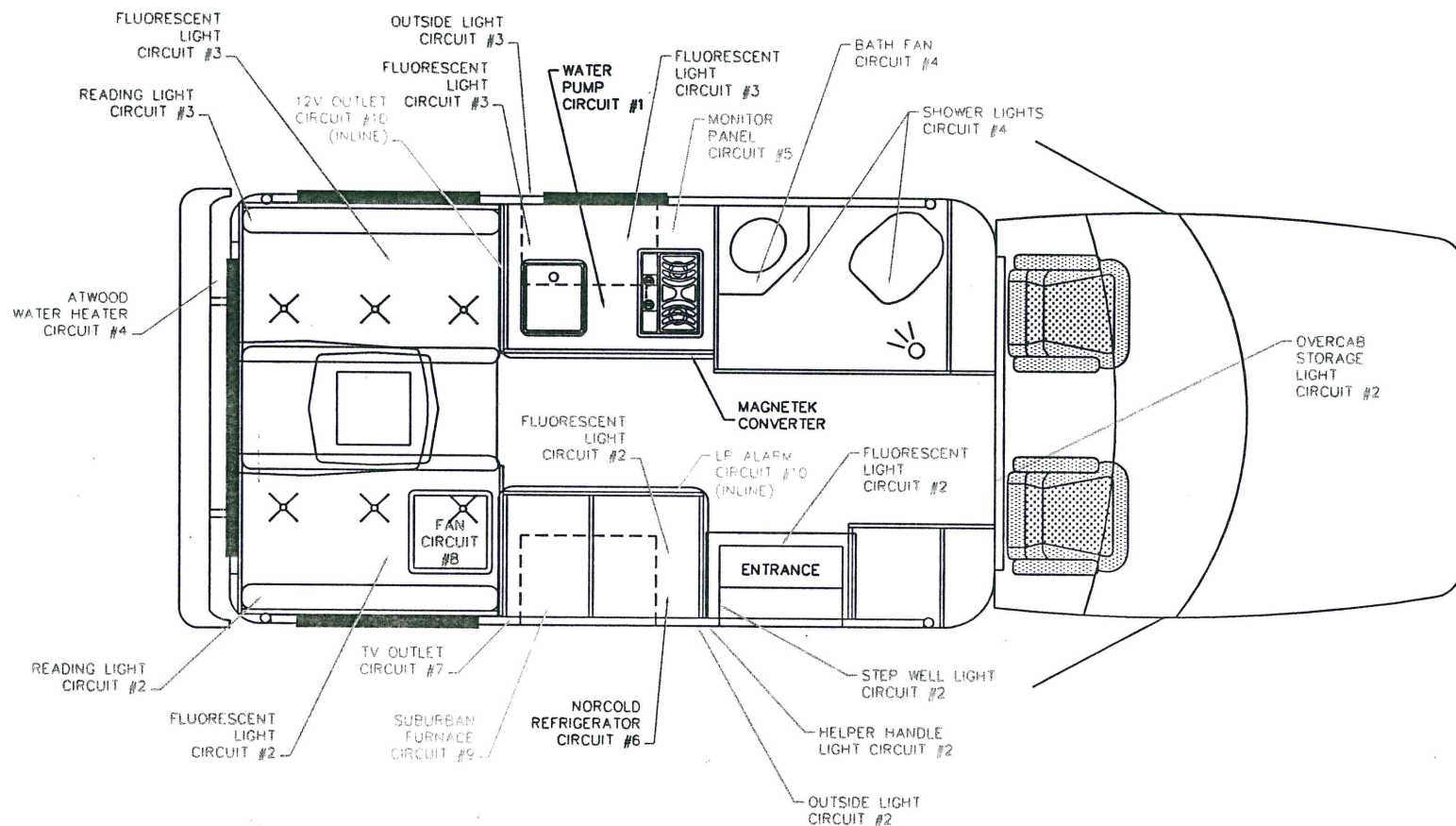


# BORN FREE BED & BREAKFAST 12 V / DC HOUSE BATTERY CIRCUITS



REFERENCE 21B&B-13 FOR  
CIRCUIT NUMBERS AND DETAILS

ALL WIRE IS 600 VOLT 125° C TYPE 3173  
CROSS LINKED POLYETHYLENE CSA CL1251

ALL 12V ITEMS ARE LISTED MATERIALS APPROVED FOR  
USE IN RECREATIONAL VEHICLES UNDER ANSI A119.2

21B&B-2

FIRM: DODGEN INDUSTRIES

BORN FREE MOTORCOACH

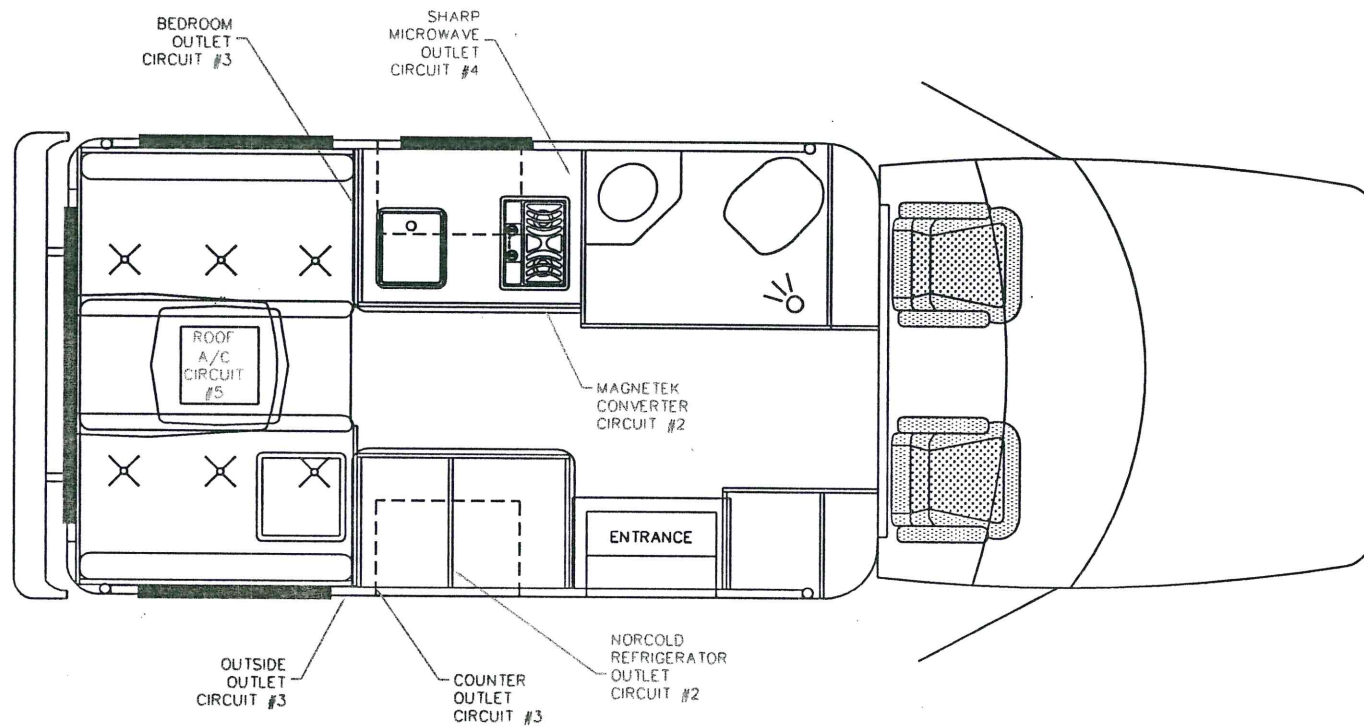
12V DC HOUSE BATTERY CIRCUITS

DATE: 12/13/02

CGK 12/13/02

IT IS HEREBY UNDERSTOOD THAT DODGEN INDUSTRIES  
OWNS ALL COPYRIGHTS AND RIGHTS OF REPRODUCTION  
TO THE DRAWINGS AND DESIGNS OF THE VEHICLE  
COMPONENT, AND THAT THE PURCHASER ACQUIRES NO  
RIGHTS OF DESIGN WHATSOEVER, NO RIGHTS OF  
REPRODUCTION ARE VESTED IN THE PURCHASER IN THE  
DESIGN OF THE VEHICLE.

# BORN FREE BED & BREAKFAST 120 V / 60 HZ AC



REFERENCE 21B&B-13 FOR  
CIRCUIT NUMBERS AND DETAILS

ALL WIRE IS 12-2 TYPE NM-B WITH  
GROUND 600 VOLT UL-E18679

ALL OUTLETS ARE WIRECON TYPE WDR

ALL 120V ITEMS ARE LISTED MATERIALS APPROVED FOR  
USE IN RECREATIONAL VEHICLES UNDER ANSI A119.2

## 21B&B-3

FIRM: DODGEN INDUSTRIES

BORN FREE MOTORCOACH

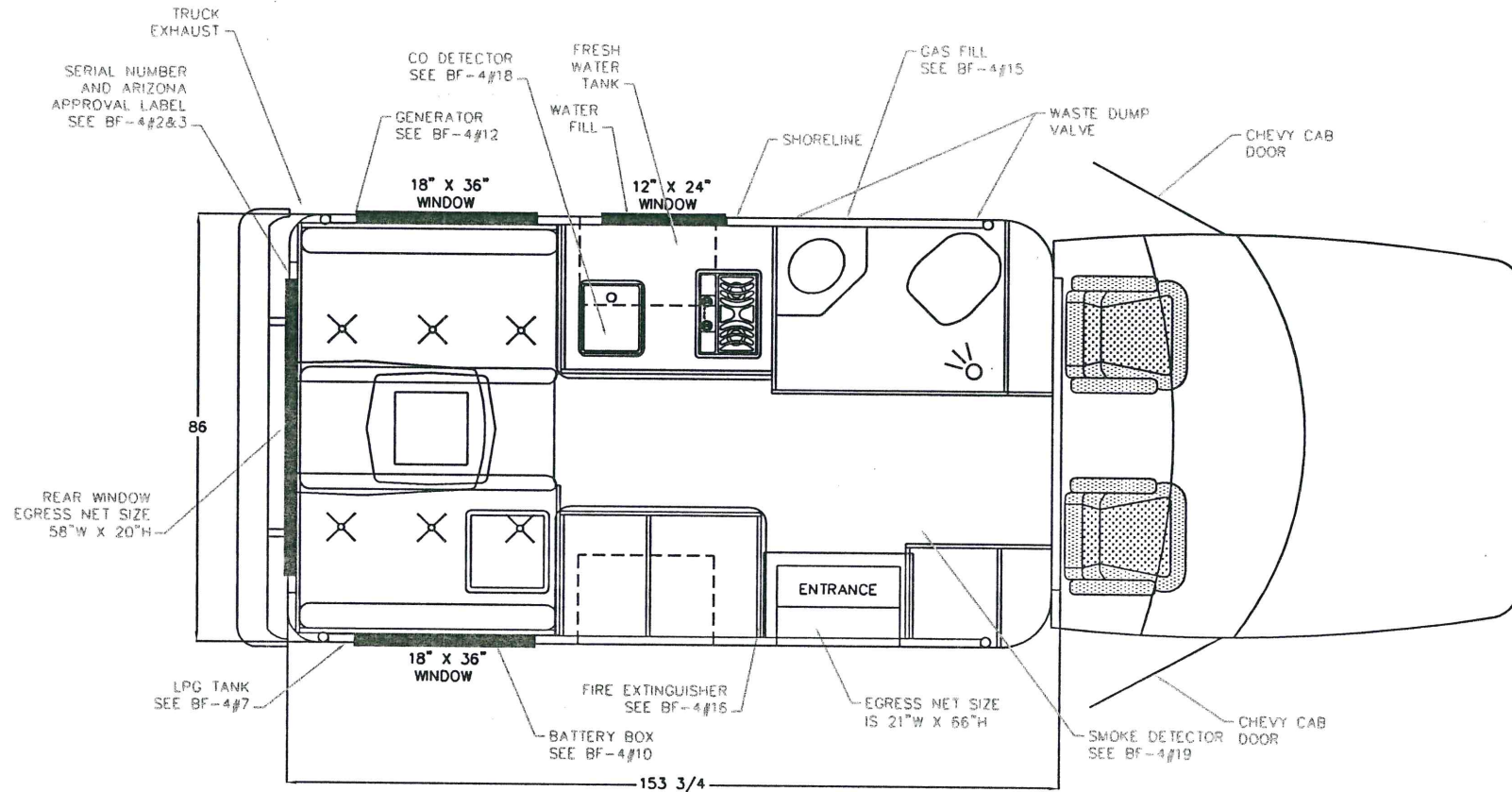
120 VOLT 60 HZ AC

DATE: 12/12/02

CHK 12/12/02

IT IS HEREBY UNDERSTOOD THAT DODGEN INDUSTRIES  
OWNS ALL COPYRIGHTS AND RIGHTS OF REPRODUCTION  
TO THE DRAWINGS AND DESIGNS OF THE VEHICLE  
COMPONENT, AND THAT THE PURCHASER ACQUIRES NO  
RIGHTS OF DESIGN WHATSOEVER, NO RIGHTS OF  
REPRODUCTION ARE VESTED IN THE PURCHASER IN THE  
DESIGN OF THE VEHICLE.

## BORN FREE BED & BREAKFAST MODEL OVERVIEW



21B&B-4

FIRM: DODGEN INDUSTRIES

BORN FREE MOTORCOACH

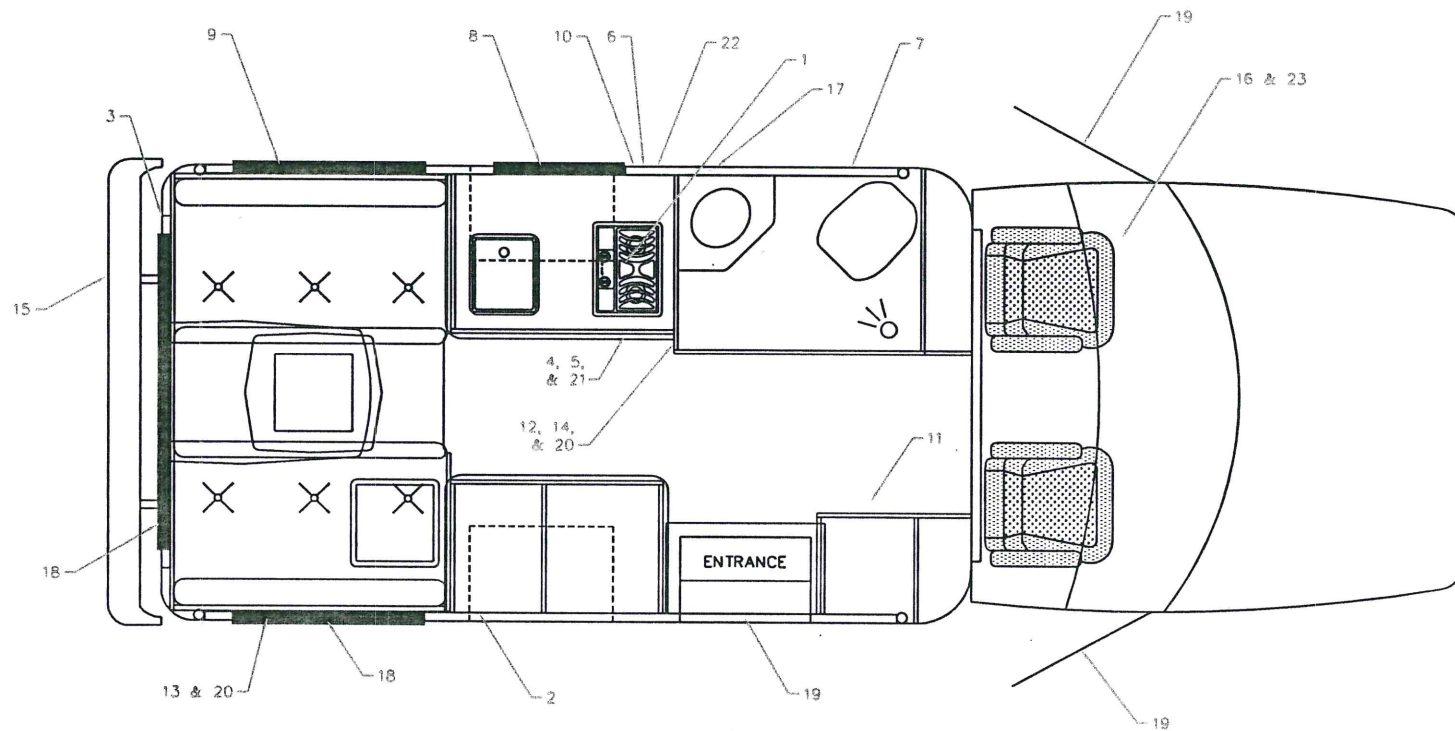
MODEL OVERVIEW

DATE: 12/12/02

CGK 12/12/02

IT IS HEREBY UNDERSTOOD THAT DODGEN INDUSTRIES OWNS ALL COPYRIGHTS AND RIGHTS OF REPRODUCTION TO THE DRAWINGS AND DESIGNS OF THE VEHICLE COMPONENT, AND THAT THE PURCHASER ACQUIRES NO RIGHTS OF DESIGN WHATSOEVER, NO RIGHTS OF REPRODUCTION ARE VESTED IN THE PURCHASER IN THE DESIGN OF THE VEHICLE.

## BORN FREE BED & BREAKFAST LABEL LOCATIONS



**21B&B-12**

FIRM: DODGEN INDUSTRIES

BORN FREE MOTORCOACH

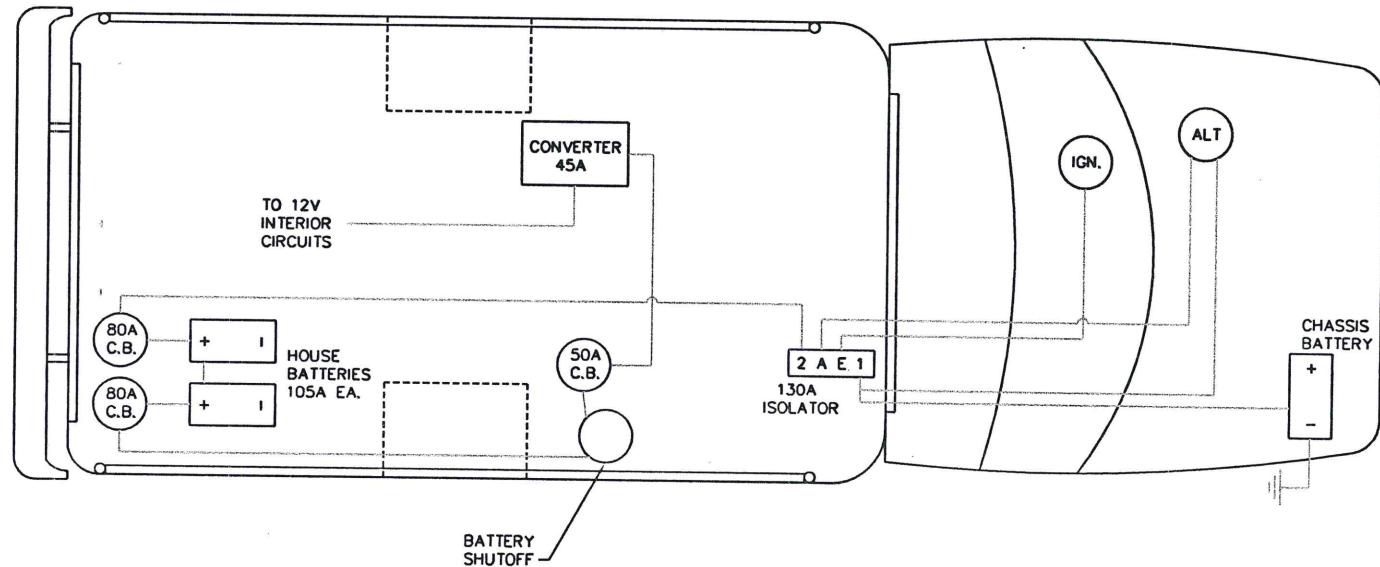
LABEL LOCATIONS

DATE: 12/17/02

CDK 12/17/02

IT IS HEREBY UNDERSTOOD THAT DODGEN INDUSTRIES OWNS ALL COPYRIGHTS AND RIGHTS OF REPRODUCTION TO THE DRAWINGS AND DESIGNS OF THE VEHICLE COMPONENT, AND THAT THE PURCHASER ACQUIRES NO RIGHTS OF DESIGN WHATSOEVER. NO RIGHTS OF REPRODUCTION ARE VESTED IN THE PURCHASER IN THE DESIGN OF THE VEHICLE.

# BORN FREE BED & BREAKFAST ELECTRICAL SCHEMATIC 12 V / DC FEED SYSTEM



21B&B-14

IT IS HEREBY UNDERSTOOD THAT DODGEN INDUSTRIES  
OWNS ALL COPYRIGHTS AND RIGHTS OF REPRODUCTION  
TO THE DRAWINGS AND DESIGNS OF THE VEHICLE  
COMPONENT, AND THAT THE PURCHASER ACQUIRES NO  
RIGHTS OF DESIGN WHATSOEVER, NO RIGHTS OF  
REPRODUCTION ARE VESTED IN THE PURCHASER IN THE  
DESIGN OF THE VEHICLE.

FIRM:	DODGEN INDUSTRIES
	BORN FREE MOTORCOACH
	ELECTRICAL SCHEMATIC
DATE:	12/12/02
	CDK 12/12/02

CGK 12/13/02

21B&B-1

CONVERTER CALCULATIONS FOR 21' BED & BREAKFAST

MAGNETEK MODEL 7345 45 AMP CONVERTER

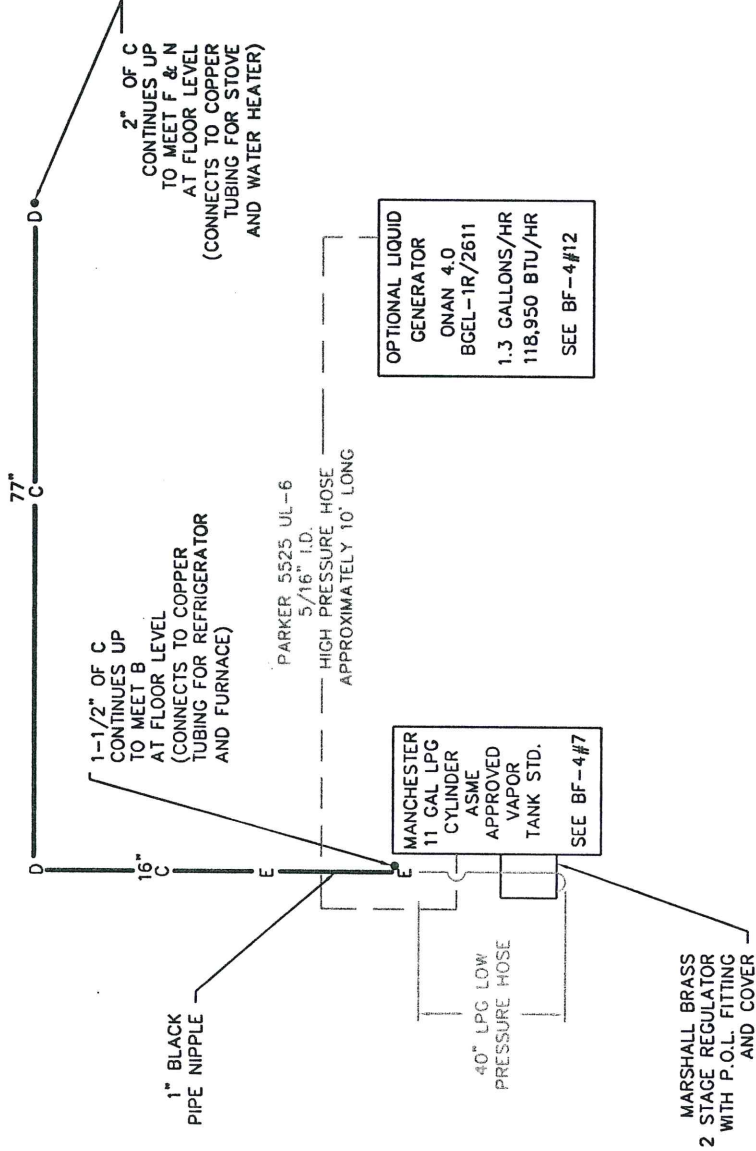
<u>12V ITEMS AVAILABLE ON CIRCUITS</u>	<u>RATINGS</u>	<u>AMPS</u>
ITC BRASS READING LIGHT	2 X .83A	1.66
THIN-LITE 30 WATT FLUORESCENT LIGHT	6 X 2.5A	15.00
PROGRESSIVE DYNAMICS SINGLE BULB LIGHT	1.44A	1.44
SHURFLO WHISPER KING WATER PUMP	5.5A	5.50
CONVERTER BATTERY CHARGE FUNCTION	3.0A	3.00
VENTLINE BATHROOM FAN	1.5A	1.50
ATWOOD G6A-8E WATER HEATER	1.0A	1.00
SUBURBAN NT-20SE FURNACE	2.8A	2.80
NORCOLD N300 REFRIGERATOR	1.5A	1.50
CCI LPG ALARM	0.1A	0.10
BRAUND 12V TV OUTLET W/BOOSTER	3.43A	3.43
ITC STEPWELL LIGHT	0.42A	0.42
BARGMAN EXTERIOR LIGHT	2 X 0.94A	1.88
TRUSTY "BORN FREE" LIGHTED ENTRY HANDLE	0.42A	0.42
FAN-TASTIC FAN 3 SPEED MODEL 6000RBTA	3.0A	3.00
12V DC OUTLET	3.33A	3.33
JENSEN STOVE HOOD & MONITOR PANEL	4.6A	4.60
ITC SHOWER LIGHT	2 X .833A	1.67
<b><u>TOTAL AMPS</u></b>		52.25

CONVERTER CALCULATION FORMULA

1ST 20A @ 100% = 20.00  
2ND 20A @ 50% = 10.00  
OVER 40A @ 25% = 3.06  
  
TOTAL = 33.06

# BELOW FLOOR LP GAS SYSTEM

21B&B-5



TOTAL LENGTH OF BLACK PIPE= 97 1/2"

ALL PIECES ARE LISTED MATERIALS APPROVED FOR  
USE IN RECREATIONAL VEHICLES UNDER ANSI A119.2

## LEGEND

- A- 3/8" MFL BRASS ELBOW
- B- 1/2" FPT X 1/2" MFL BRASS ELBOW
- C- 1/2" BLACK PIPE SCHEDULE 40
- D- 1/2" BLACK PIPE 90° ELBOW
- E- 1/2" BLACK PIPE TEE
- F- 1/2" BLACK PIPE COUPLING
- G- 1/2" MFL X 3/8" MFL X 3/8" MFL BRASS TEE
- H- 1/2" FLARE X 3/8" FLARE BRASS ELBOW
- J- 1/2" MPT X 1/2" MFL X 1/2" MFL BRASS TEE
- K- 1/2" MFL X 1/2" MFL X 3/8" MFL BRASS TEE
- L- 1/2" MFL X 3/8" MFL REDUCER
- M- 1/2" BLACK PIPE 90° STREET ELBOW
- N- 1/2" MPT X 3/8" MFL X 3/8" MFL BRASS TEE

MATERIAL	TECHNICAL	SCALE	DATE
DESCRIPTION	21' B&B	12/16/02	12/16/02
DATE	12/16/02	12/16/02	12/16/02
DESIGNER	DODGEN INDUSTRIES AND BORNFREE MOTORCOACHES	DODGEN INDUSTRIES AND BORNFREE MOTORCOACHES	DODGEN INDUSTRIES AND BORNFREE MOTORCOACHES
PROJECT	BELOW FLOOR LP GAS SYSTEM	BELOW FLOOR LP GAS SYSTEM	BELOW FLOOR LP GAS SYSTEM
PROJECT NO.	21B&B-5	21B&B-5	21B&B-5
PROJECT	5	5	5

# ABOVE FLOOR LP GAS SYSTEM FOR REFRIGERATOR & FURNACE

TOTAL BTU/HR INPUT FOR THIS DRAWING= 19,875  
TOTAL BTU/HR INPUT FOR THIS SYSTEM= 41,675

TOTAL LENGTH OF 1/4" COPPER= 90 3/4"  
TOTAL LENGTH OF 3/8" COPPER= 46 1/2"

ALL PIECES ARE LISTED MATERIALS APPROVED FOR  
USE IN RECREATIONAL VEHICLES UNDER ANSI A119.2

## LEGEND

1/4" ID COPPER TUBING

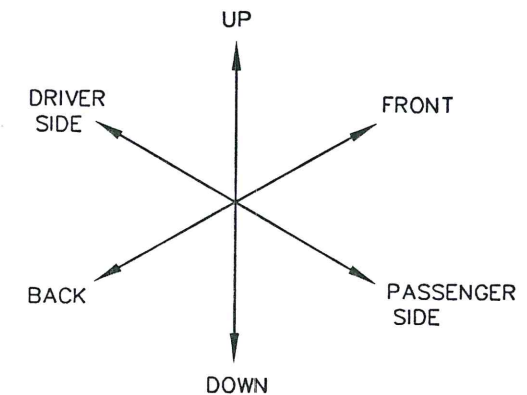
3/8" ID COPPER TUBING

- A- 3/8" MFL BRASS ELBOW
- B- 1/2" FPT X 1/2" MFL BRASS ELBOW
- C- 1/2" BLACK PIPE SCHEDULE 40
- D- 1/2" BLACK PIPE 90° ELBOW
- E- 1/2" BLACK PIPE TEE
- F- 1/2" BLACK PIPE COUPLING
- G- 1/2" MFL X 3/8" MFL X 3/8" MFL BRASS TEE
- H- 1/2" FLARE X 3/8" FLARE BRASS ELBOW
- J- 1/2" MPT X 1/2" MFL X 1/2" MFL BRASS TEE
- K- 1/2" MFL X 1/2" MFL X 3/8" MFL BRASS TEE
- L- 1/2" MFL X 3/8" MFL REDUCER
- M- 1/2" MPT X 3/8" MFL X 3/8" MFL BRASS TEE

FURNACE  
SUBURBAN  
MODEL NT-20SE  
19,000 BTU/HR INPUT

REFRIGERATOR  
NORCOLD N300  
875 BTU/HR INPUT

CONNECTS  
TO B  
(WHICH CONNECTS  
TO LP GAS  
SYSTEM BELOW  
THE FLOOR



21B&B-6

DATE: 12/16/02		SCALE: 1/1	
DESIGN: CCK		DRAWN: 21' B&B	
DODGEN INDUSTRIES AND BORNFREE MOTORCOACHES HWY 100N., P.O. BOX 39 HUMBOLDT, IA 50548		COPPER TUBING FOR REFRIGERATOR & FURNACE	
1/2 21B&B-6		REV	

# ABOVE FLOOR LP GAS SYSTEM FOR STOVE & WATER HEATER

TOTAL BTU/HR INPUT FOR THIS DRAWING= 21,800

TOTAL BTU/HR INPUT FOR THIS SYSTEM= 41,675

TOTAL LENGTH OF 1/4" COPPER= 163"

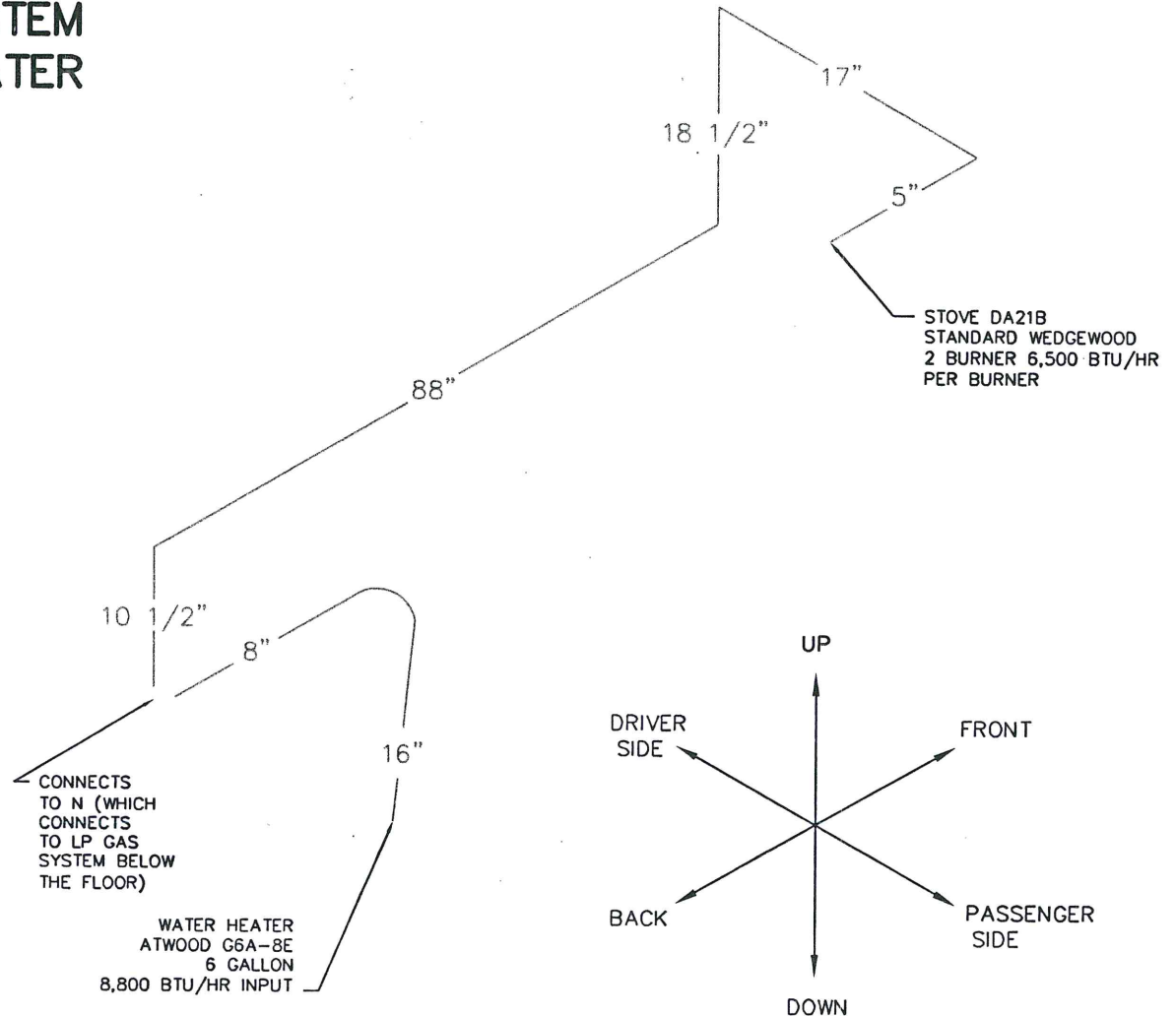
ALL PIECES ARE LISTED MATERIALS APPROVED FOR  
USE IN RECREATIONAL VEHICLES UNDER ANSI A119.2

## LEGEND

1/4" ID COPPER TUBING

3/8" ID COPPER TUBING

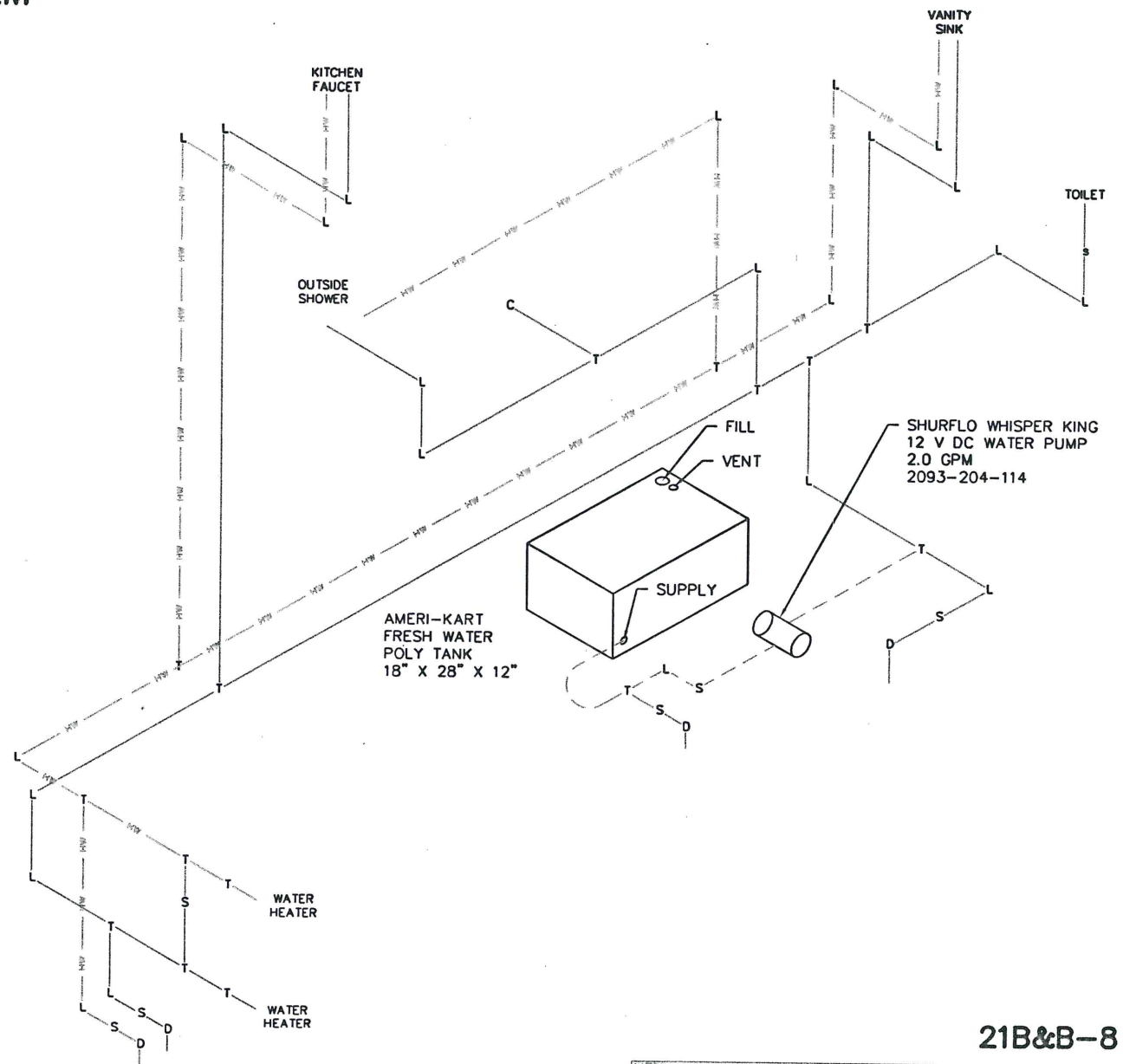
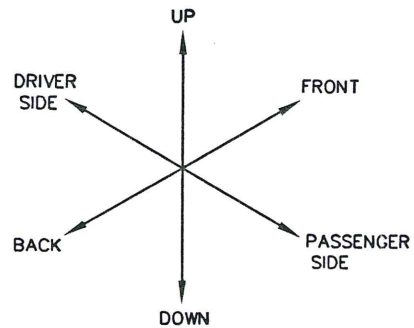
- A- 3/8" MFL BRASS ELBOW
- B- 1/2" FPT X 1/2" MFL BRASS ELBOW
- C- 1/2" BLACK PIPE SCHEDULE 40
- D- 1/2" BLACK PIPE 90° ELBOW
- E- 1/2" BLACK PIPE TEE
- F- 1/2" BLACK PIPE COUPLING
- G- 1/2" MFL X 3/8" MFL X 3/8" MFL BRASS TEE
- H- 1/2" FLARE X 3/8" FLARE BRASS ELBOW
- J- 1/2" MPT X 1/2" MFL X 1/2" MFL BRASS TEE
- K- 1/2" MFL X 1/2" MFL X 3/8" MFL BRASS TEE
- L- 1/2" MFL X 3/8" MFL REDUCER
- M- 1/2" BLACK PIPE 90° STREET ELBOW
- N- 1/2" MPT X 3/8" MFL X 3/8" MFL BRASS TEE



21B&B-7

MATERIAL		FORMER COLOR		SCALE	1/1	AMERICAN INSTITUTION
TUBING		DESIGN USER		SHEET	NO.	REVISED FROM
DATE		21' B&B		DESIGNED FROM		REVISED
CCK		12/16/02		DODGEN/BORNFREE		
DODGEN INDUSTRIES AND BORNFREE MOTORCOACHES HWY 169N., P.O. BOX 39 HUMBOLDT, IA 50548				COPPER TUBING FOR STOVE & WATER HEATER		
NUMBER		3		REV		

# FRESH WATER SYSTEM



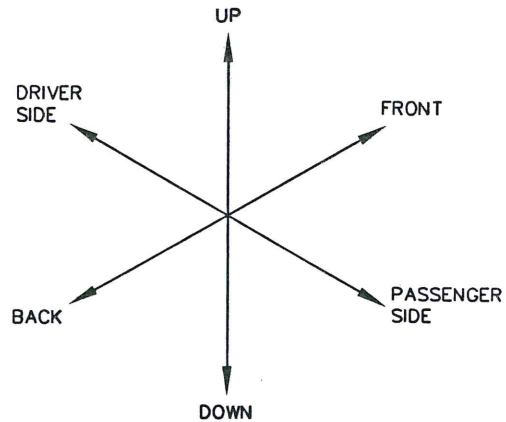
ALL PIECES ARE LISTED MATERIALS  
APPROVED FOR USE IN RECREATIONAL  
VEHICLES UNDER ANSI A119.2

LEGEND	APPROXIMATE LENGTH
1/2" COLD POLY LINE	301"
1/2" HOT POLY LINE	191"
1 3/8" FILL HOSE WITH FLAT SPOTS	16"
BRAIDED 1/2" SHURFLO HOSE	31"
1/2" CLEAR VINYL HOSE	18"
D- DRAIN VALVE	
S- SHUT OFF VALVE	
C- CITY WATER FILL	
G- GRAVITY WATER FILL	
L- COPPER 90° ELBOW	
T- COPPER TEE	

21B&B-8

DRAWN BY CGK		DATE 11/5/01	REVISIONS 21 B&B	SCALE AS SHOWN	APPROVED BY DODGEN/BORNFREE
DODGEN INDUSTRIES AND BORNFREE MOTORCOACHES HWY 169N., P.O. BOX 39 HUMBOLDT, IA 50546			FRESH WATER SYSTEM		REV 6 21B&B-8

# GRAY WATER SYSTEM



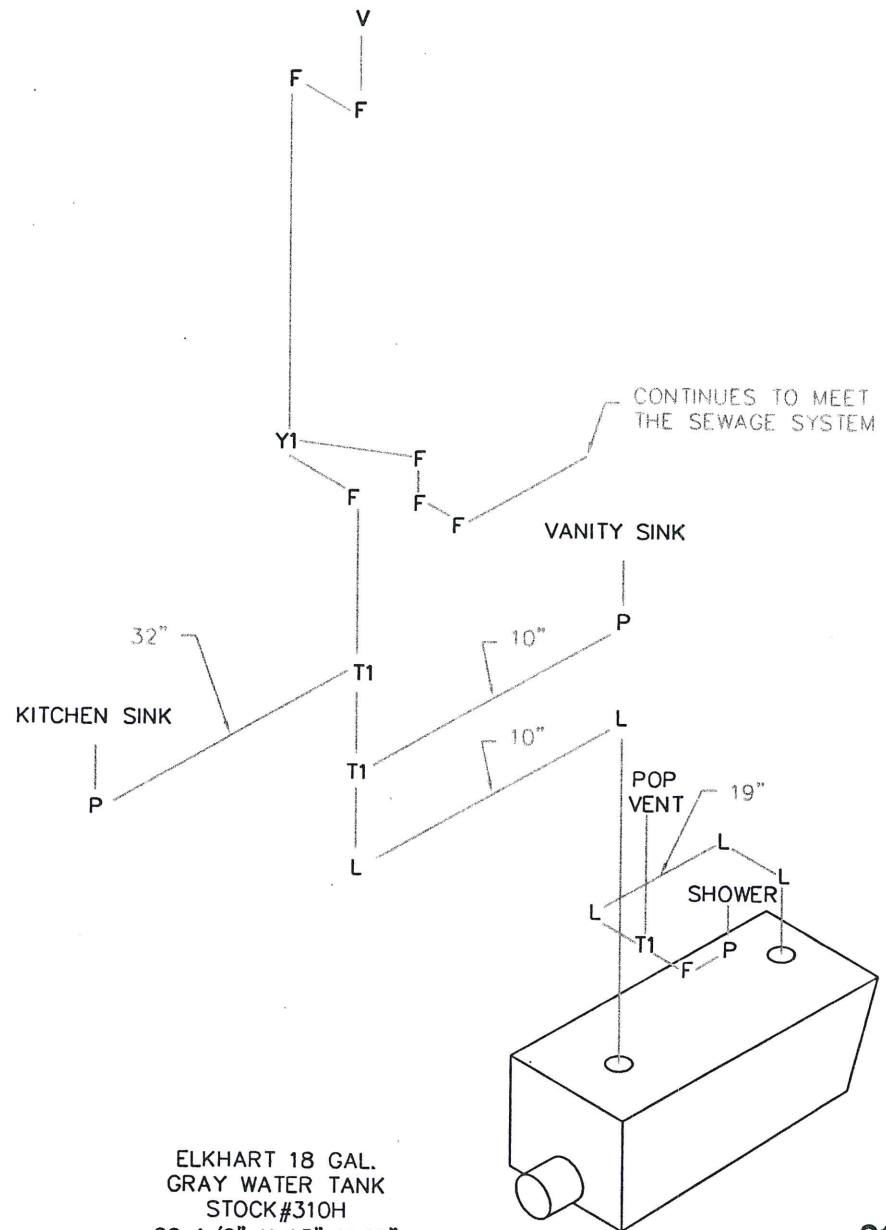
ALL PIECES ARE LISTED MATERIALS APPROVED FOR USE IN RECREATIONAL VEHICLES UNDER ANSI A119.2

## LEGEND

1 1/2" ABS PIPE

2" ABS PIPE

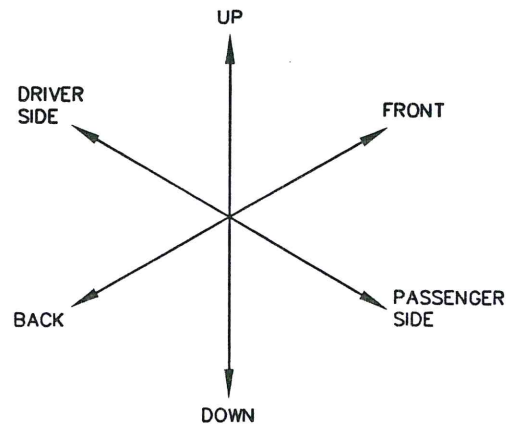
- C- ABS CONTINUOUS WASTE ASSEMBLY
- F- 1 1/2" 45° ABS ELBOW
- L- 1 1/2" 90° ABS LONG SWEEP ELBOW
- O- 1 1/2" ABS TEE-WYE W/CLEAN OUT PLUG
- P- 1 1/2" ABS P-TRAP
- R- 2" TO 1 1/2" ABS REDUCER
- T1- 1 1/2" X 1 1/2" X 1 1/2" ABS SANITARY TEE
- T2- 2" X 1 1/2" X 1 1/2" ABS SANITARY TEE
- T3- 2" X 2" X 1 1/2" ABS SANITARY TEE
- T4- 2" X 2" X 2" ABS SANITARY TEE
- V- 1 1/2" ROOF VENT CAP
- Y1- 1 1/2" ABS TEE-WYE
- Y2- 2" ABS TEE-WYE



21B&B-9

A REDESIGNED VENTING SYSTEM		CGK	DRW	3/25/03
REV/DESCRIPTION		DATE	REV'D	DATE
MATERIAL		FORMER COLOR	SCALE	1/1
PROJECT		DESIGN USER	NO. OF SHEETS	1
DATE		DATE	DATE	DATE
CGK	12/16/02	21' B&B	MODEL	DODGEN/BORNFREE
DODGEN INDUSTRIES AND BORNFREE MOTORCOACHES HWY 169N., P.O. BOX 39 HUMBOLDT, IA 50548		GRAY WATER SYSTEM		
NUMBER 4		21B&B-9		REV A

# SEWAGE SYSTEM



ALL PIECES ARE LISTED MATERIALS APPROVED FOR  
USE IN RECREATIONAL VEHICLES UNDER ANSI A119.2

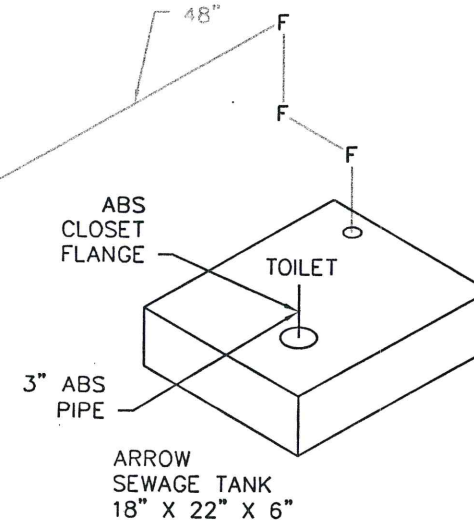
## LEGEND

1 1/2" ABS PIPE

2" ABS PIPE

- C- ABS CONTINUOUS WASTE ASSEMBLY
- F- 1 1/2" 45° ABS ELBOW
- L- 1 1/2" 90° ABS LONG SWEEP ELBOW
- O- 1 1/2" ABS TEE-WYE W/CLEAN OUT PLUG
- P- 1 1/2" ABS P-TRAP
- R- 2" TO 1 1/2" ABS REDUCER
- T1- 1 1/2" X 1 1/2" X 1 1/2" ABS SANITARY TEE
- T2- 2" X 1 1/2" X 1 1/2" ABS SANITARY TEE
- T3- 2" X 2" X 1 1/2" ABS SANITARY TEE
- T4- 2" X 2" X 2" ABS SANITARY TEE
- V- 1 1/2" ROOF VENT CAP
- Y1- 1 1/2" ABS TEE-WYE
- Y2- 2" ABS TEE-WYE

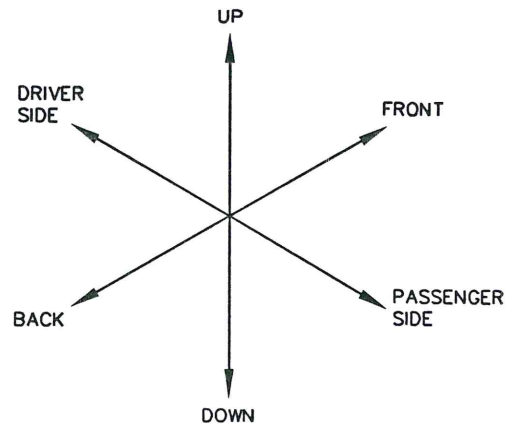
CONTINUES  
TO MEET  
THE GRAY  
WATER SYSTEM  
AND GRAY  
WATER VENT



**21B&B-10**

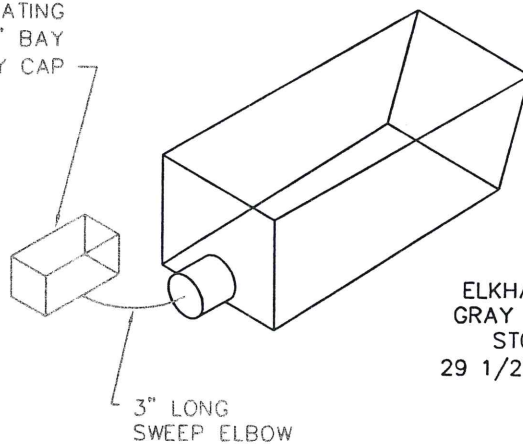
A REDESIGNED VENTING SYSTEM		CGK	3/25/03
REV	DESCRIPTION	DRW	RECD DATE
1	REDESIGNED	1	3/25/03
DESIGN: CGK		SCALE: 1/1	AMERICAN INCHES
DATE: 12/15/02		DESIGN: CGK	RECD: 3/25/03
DODGEN INDUSTRIES AND BORNFREE MOTORCOACHES		MODEL: DODGEN/BORNFREE	
HWY 169N., P.O. BOX 39		TITLE: SEWAGE SYSTEM	
HUMBOLDT, IA 50548		NUMBER: 4	REV: A

# HOLDING TANK DUMP ASSEMBLIES



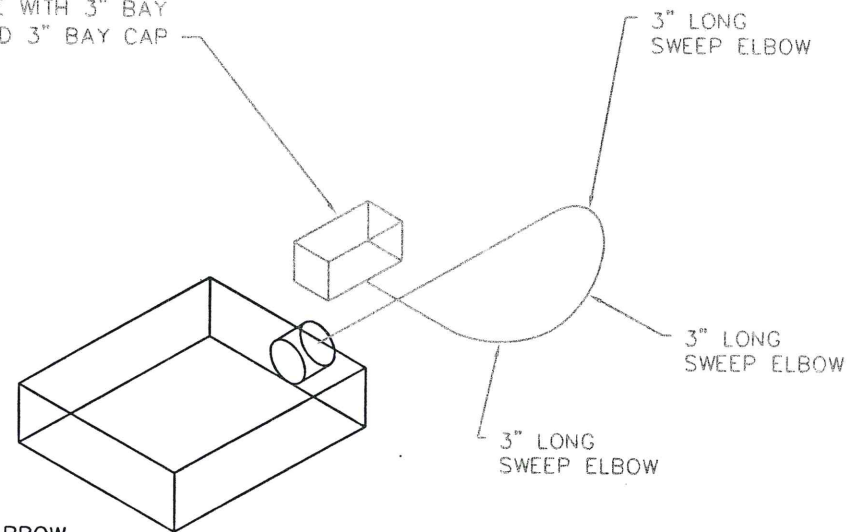
DUMP VALVE ASSEMBLY  
(VALTERRA PRODUCTS)  
ONE PIECE UNIT WITH  
3" VALVE TERMINATING  
IN 3" OUTLET SIZE WITH 3" BAY  
ADAPTER AND 3" BAY CAP

DUMP VALVE ASSEMBLY  
(VALTERRA PRODUCTS)  
ONE PIECE UNIT WITH  
3" VALVE TERMINATING  
IN 3" OUTLET SIZE WITH 3" BAY  
ADAPTER AND 3" BAY CAP



ELKHART 18 GAL.  
GRAY WATER TANK  
STOCK #310H  
29 1/2" X 13" X 11"

ARROW  
SEWAGE TANK  
18" X 22" X 6"



ALL PIECES ARE LISTED MATERIALS APPROVED FOR  
USE IN RECREATIONAL VEHICLES UNDER ANSI A119.2

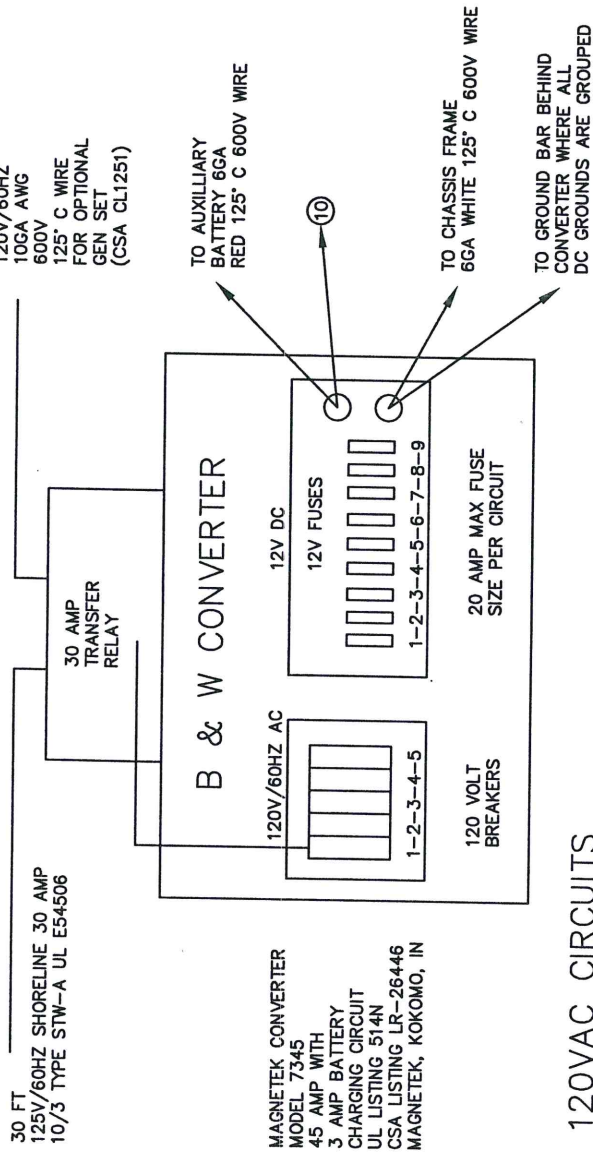
**21B&B-11**

MATERIAL		FORMER COLOR	SCALE	1/1	AMERICAN P.E. 100
RELEASED		DESIGN USER	21' B&B	DESIGNED FROM DRAWING	MODEL
CHK	CHK	DATE	12/16/02	DODGEN/BORNFREE	
DODGEN INDUSTRIES AND BORNFREE MOTORCOACHES HWY 168N., P.O. BOX 39 HUMBOLDT, IA 50548			TITLE HOLDING TANK DUMP ASSEMBLY		
NUMBER 4			REV 21B&B-11		

# ELECTRICAL CIRCUITS FOR BORN FREE BED & BREAKFAST MODEL

CGK 12/13/02

21B&B-13



## 120VAC CIRCUITS

1. 30A MAIN BREAKER
2. 20A MAIN BREAKER: 12VDC CONVERTER & REFRIGERATOR OUTLET
3. 20A GFI BREAKER: OUTSIDE OUTLET & INSIDE OUTLETS
4. 20A BREAKER: MICROWAVE OUTLET
5. 20A BREAKER: ROOF AIR CONDITIONER

ALL WIRE IS 12-2  
TYPE NM-B WITH  
GROUND 600 VOLT  
UL-E18679

## 12VDC CIRCUITS

- |  |                          |
|--|--------------------------|
| 1. 10A: WATER PUMP                         | RED 12GA WIRE            |
| 2. 15A: PASSENGER SIDE LIGHTS              | BROWN 12GA WIRE          |
| 3. 15A: DRIVER SIDE LIGHTS                 | BLUE 12GA WIRE           |
| 4. 15A: WATER HEATER, BATH LIGHT, BATH FAN | ORANGE 12GA WIRE         |
| 5. 5A: MONITOR PANEL                       | BLACK 12GA & 16GA WIRE   |
| 6. 5A: REFRIGERATOR                        | WHITE & BLACK 12GA WIRE  |
| 7. 10A: TV BOOSTER                         | YELLOW 12GA WIRE         |
| 8. 10A: FANTASTIC ROOF FAN                 | PURPLE 12GA WIRE         |
| 9. 15A: FURNACE                            | YELLOW & BLACK 12GA WIRE |
| 10. 5A: LPG ALARM (INLINE FUSE)            | ORANGE & BLACK 12GA WIRE |
| 15A: 12V OUTLET (INLINE FUSE)              | RED 12GA WIRE            |

ALL WIRE IS 600 VOLT 125° C TYPE 3173 CROSS LINKED POLYETHYLENE CSA CL1251