

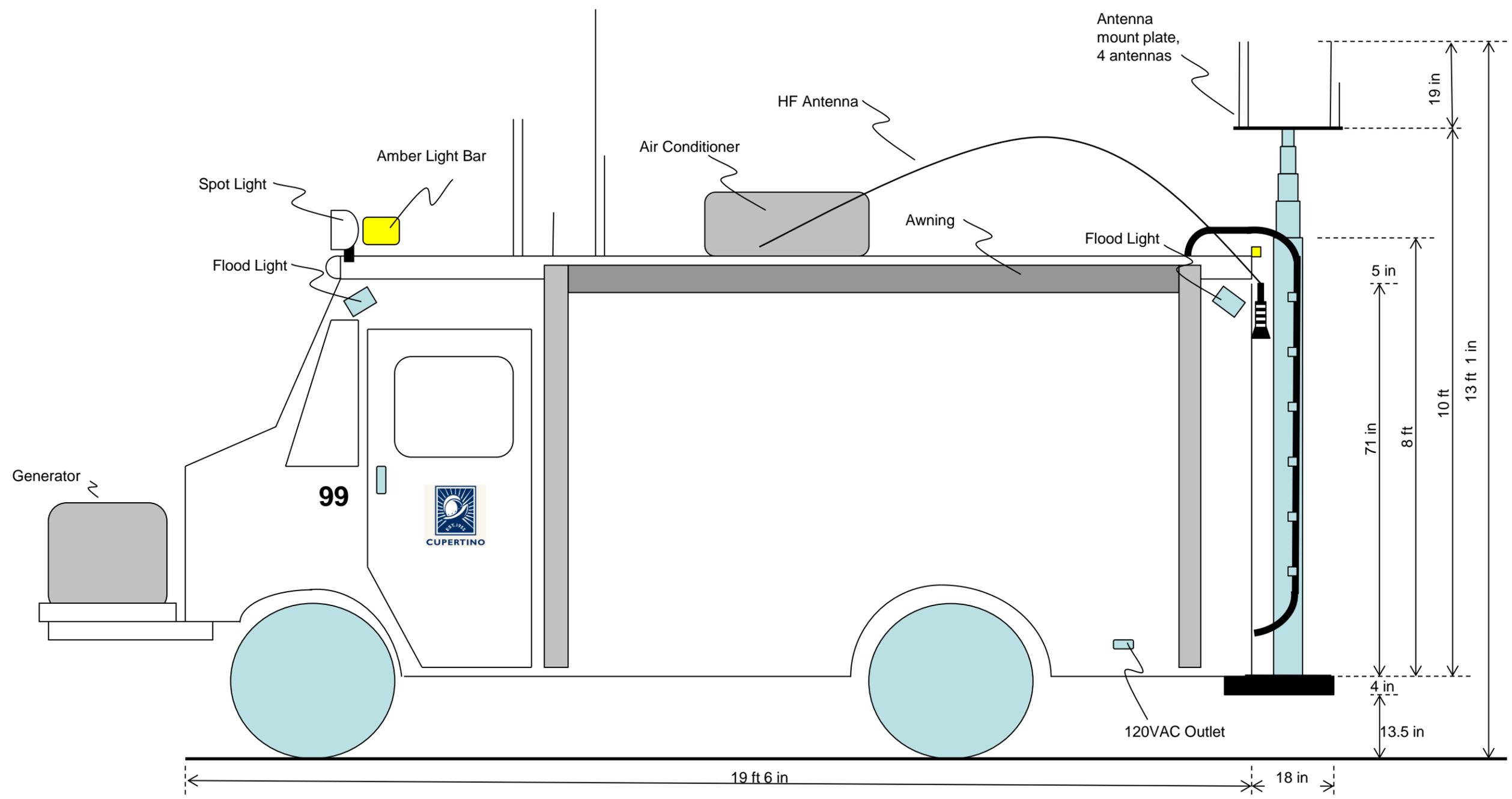
City of Cupertino Emergency Operations Center Communications Van As-Built Drawings

Open Questions, ToDos

1. Where does Generator auto-start power come from? Engine battery?
2. Document engine electrical loads – lighting, heater, others?
3. ..
4. ..
5. ..
6. ..

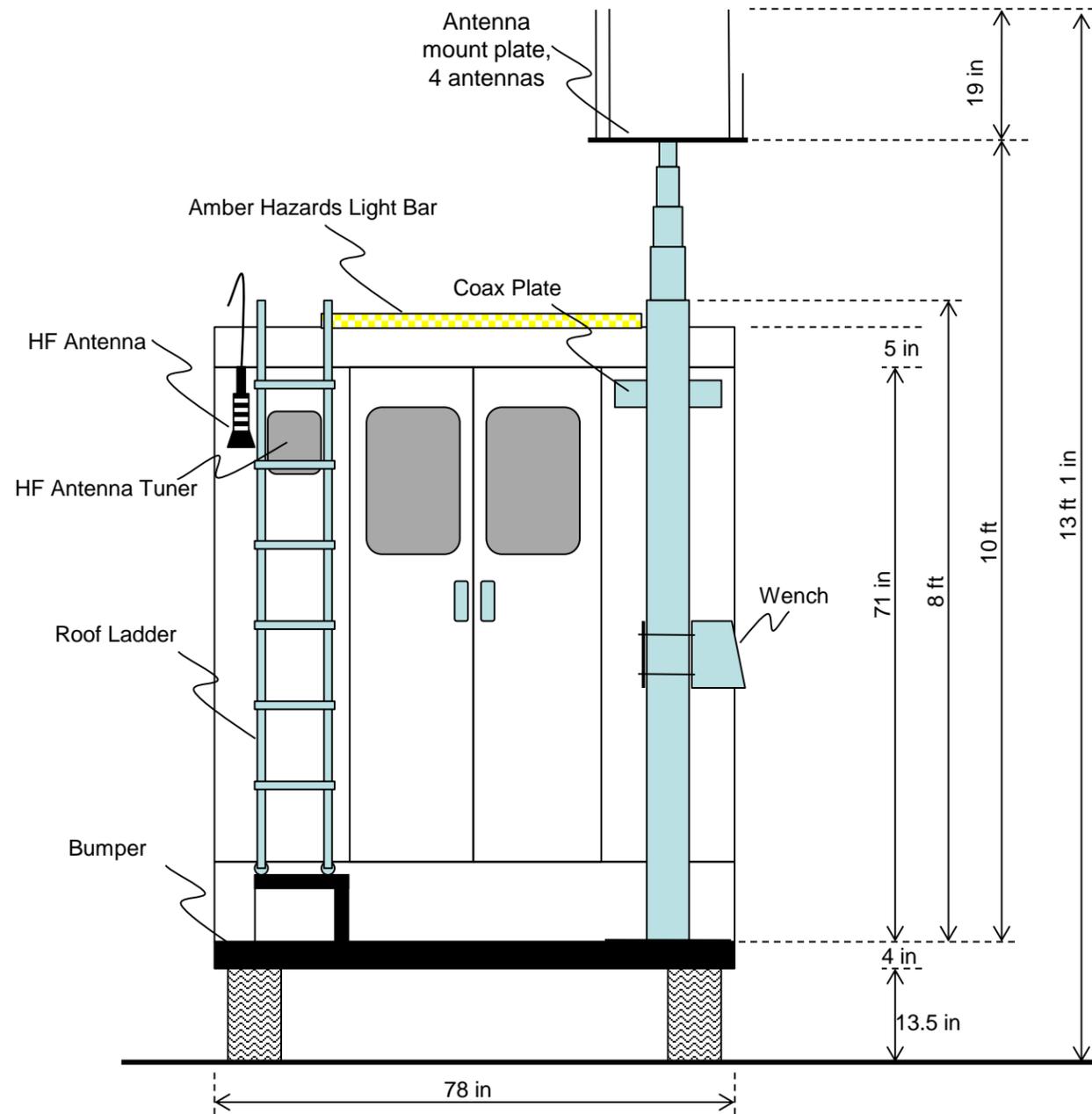
Comm Van, Documentation Notes					
REVISION	DATE	AUTHOR			

0 2 4 6 8 10 12 14 16 18 20 22 24 26 28



- 1. Flood Lights
 - 1. Two fixed flood lights, each side.
 - 2. Power: 12VDC,
Left Front Flood: Cab switch #5
Left Rear Flood: Cab switch #6
- 2. 120VAC Outlets
 - 1. External, each side
 - 2. Power: 120VA
120VAC Breaker Panel, CB# 1

Comm Van, Exterior, Drivers Side					
REVISION	DATE	AUTHOR			
1.0	4/4/2012	J. Oberhofer			

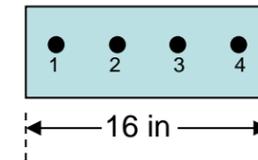


1. Antenna Mast

1. 10 ft from bumper to Antenna mounting plate.
2. 12.55 Ft from Ground to top of highest antenna.
3. 30.0 Ft from Ground to top when fully extended.
4. Power: 12VDC; winch is wired directly to the batteries.
5. Mast controller is stored in the van and attached at the time to raise and lower the mast.

2. Coax Plate

1. Connect plate for the 4 coax cables that feed to the mast.



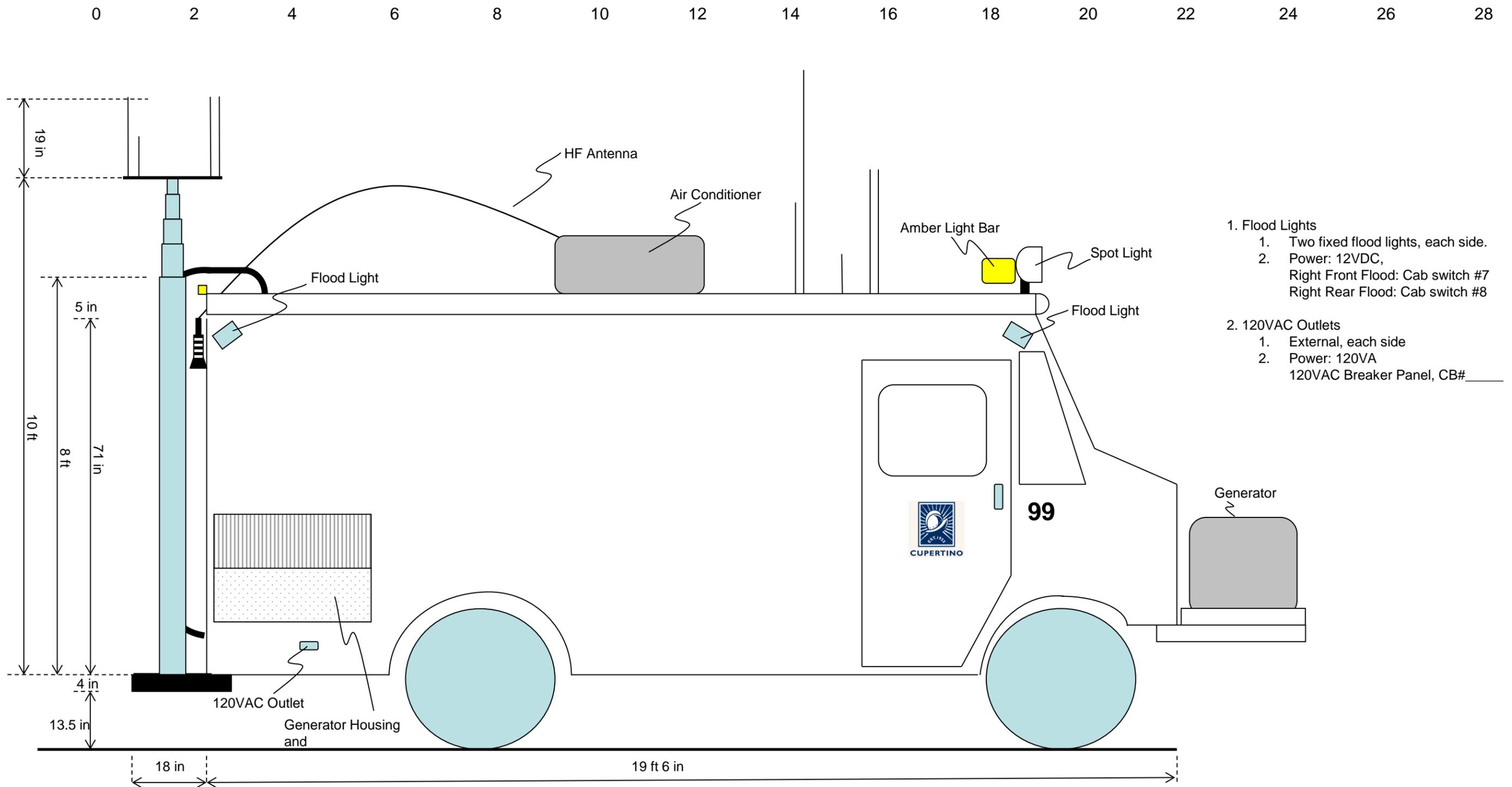
1. 2m/440, Supervisors Position
2. 2m/440, Position 1
3. 220 Packet
4. 2m/440, Position 3

2. Four N-connector coax cables are always connected, bundled together, and routed to the antennas on the mast (not shown).
3. When the mast is down, the coax bundle is rolled and secured by strap between the Mast and Van exterior wall.

3. Amber Hazard Light Bar

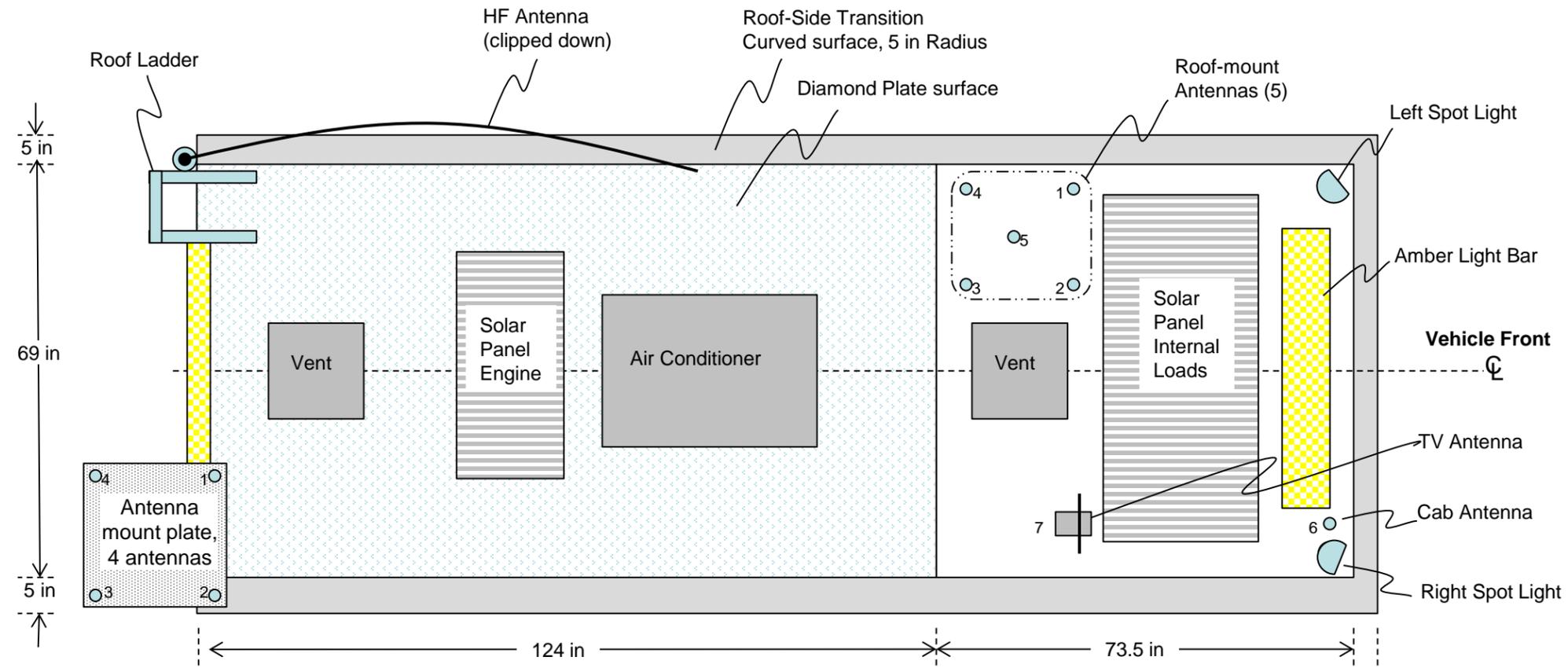
1. Power: 12VDC, Controlled by Whelen Control on the Cab Control Panel.
2. Supports different flash pattern.

Comm Van, Exterior, Rear View					
REVISION	DATE	AUTHOR			
1.0	4/4/2012	J. Oberhofer			
1.1	4/13/2016	J Oberhofer	Corrected Mast connector 3 and 4		



- 1. Flood Lights
 - 1. Two fixed flood lights, each side.
 - 2. Power: 12VDC, Right Front Flood: Cab switch #7 Right Rear Flood: Cab switch #8
- 2. 120VAC Outlets
 - 1. External, each side
 - 2. Power: 120VA 120VAC Breaker Panel, CB#_____

Comm Van, Exterior, Passenger Side View					
REVISION	DATE	AUTHOR			
1.0	4/4/2012	J. Oberhofer			



1. Roof-mount Antenna assignments

1. 2m/440, Position 2
2. 2m/440, HF/UHF Radio
3. Scanner
4. EOC Low Band
5. City Trunk Radio
6. 2m/440, Cab radio
7. DTV Antenna

2. Mast-mount antenna assignments

1. 2m/440, Supervisors
2. 2m/440, Position 3
3. 220 Packet
4. 2m/440, Position 1

3. HF Antenna

1. Spring-loaded WIP antenna, rear-mounted on upper left side of the van.
2. Antenna clip is located on the roof railing.
3. Antenna must be lowered and clipped when the vehicle is in motion or not in use.

4. Roof Vents

1. Two, located along the van's center line.
2. Power: direct to internal battery.
3. Use: keeps the interior of the vehicle cool when parked during the summer.
4. Bi-directional and speed controls.
5. Fans will turn off if the vent covers are closed.

5. Air conditioner

1. 120VAC unit, pulls close to 17 amps.
2. Power: 120VAC CB#_____
3. Use: for extreme weather use only.

6. Roof-mount Spot Lights

1. Two steerable spot lights
2. Power: 12VDC, Cab Switch #2 (Left) and #3 (Right)
3. Each control includes a local on/off switch.

7. Front Amber Rotating Hazard Light

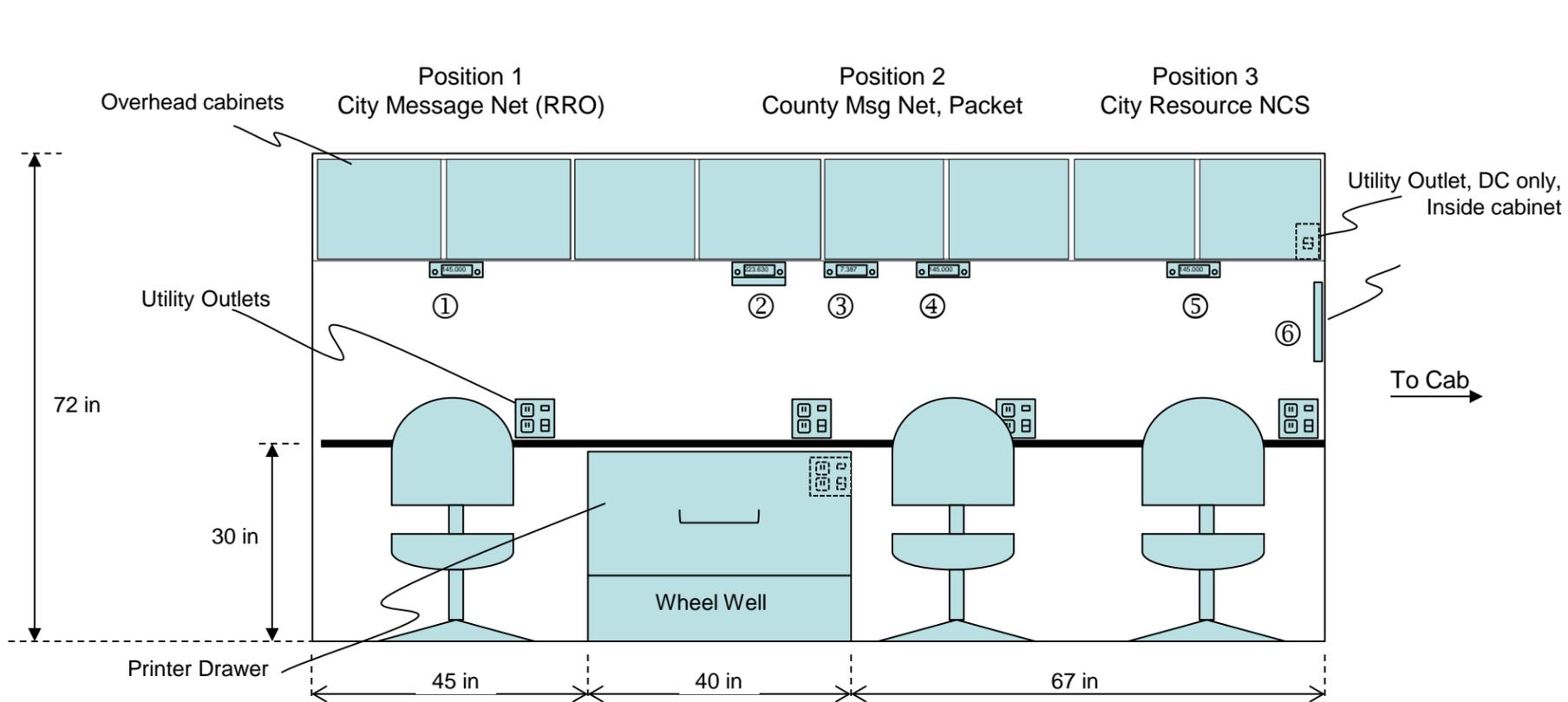
1. Power: 12VDC, Cab Switch #1

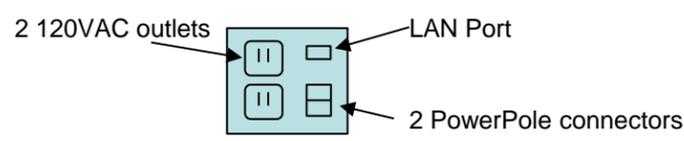
8. Rear Amber Hazard Light Bar

1. Power: 12VDC. Controlled by Whelen controller on the Cab Control Panel
2. Different Flash Patterns

Comm Van, Exterior, Roof View					
REVISION	DATE	AUTHOR			
1.0	4/4/2012	J. Oberhofer			
1.1	4/13/16	J Oberhofer	Corrected Mast connector 3 and 4		

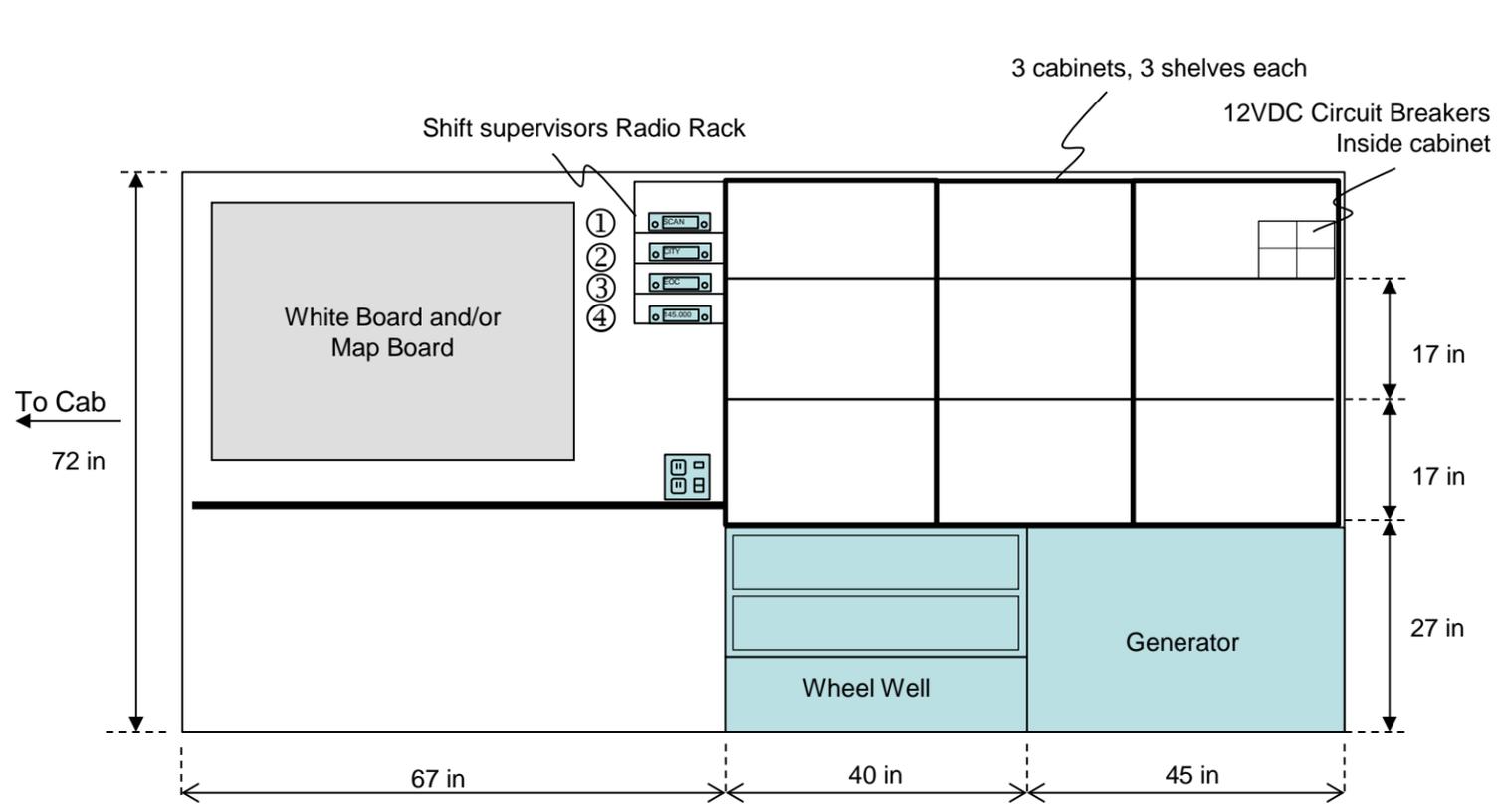
0 2 4 6 8 10 12 14 16 18 20 22 24 26 28



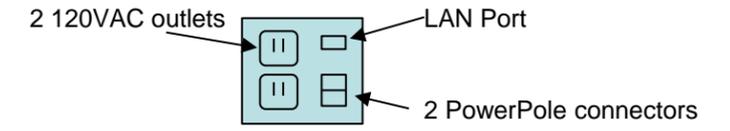
1. Utility outlets
 1. Four outlets on the operating surface, consists of 2 AC, 2 DC (PowerPoles), and 1 LAN connection.
- 
2. One additional outlet inside the Printer Drawer above the wheel well.
 3. One DC outlet above Operating Position 3 inside the cabinet.
 4. Four LED task lights over each operating position.
2. Printer Drawer, contents
 1. networked printer
 2. LAN router, DLINK D300N

Radio	Make, Model	Purpose	Circuit Breaker	Antenna Position	Antenna Location	Antenna Type	Notes
①	Kenwood TM-710	City Message Net	12vdc CB 10	2	Mast	2m/440 Dual band	Position 1
②	Alinco, DR-235T	Packet Radio	12vdc CB 9	3	Mast		Position 2, TNC is mounted below the radio
③	ICOM IC-7000	HF/VHF	12vdc CB 6	Rear 2	HF: Roof VHF: Roof	Wip 2m/440 Dual band	Position 2
④	Kenwood TM-710	County Message Net	12vdc CB 8	1	Roof	2m/440 Dual band	Position 2
⑤	Kenwood TM-710	City Resource NCS	12vdc CB 7	4	Mast	2m/440 Dual band	Position 3
⑥	Digital TV	Monitor local events, ATV monitor	120vac CB 5		Roof	Digital TV	Plugs into 120VAC outlet below it.

Comm Van, Interior, Drivers Side				
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1.0	4/4/2012	J. Oberhofer		
1.1	4/13/2016	J Oberhofer	Corrected Mast connector 3 and 4	



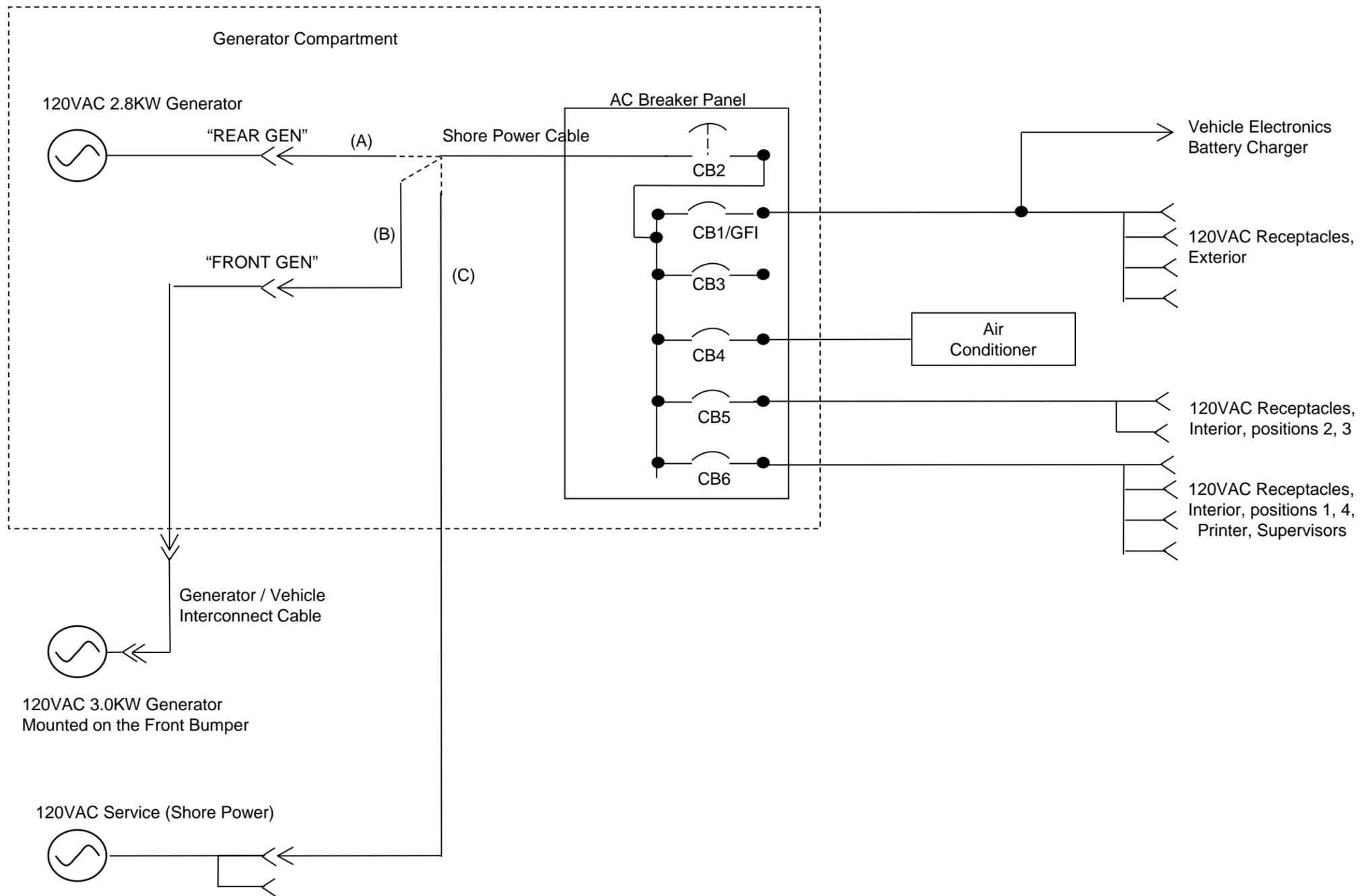
1. Utility outlets
1. One outlet at the Shift Supervisor's position, consists of 2 AC, 2 DC (PowerPoles), and 1 LAN connection.



2. Storage Cabinets
1. Doors are shown open.
3. 12VDC Circuit Breaker Panel
1. See 12VDC distribution page for details.

Radio	Make, Model	Purpose	Circuit Breaker	Antenna Location	Antenna Type	Notes
①	Uniden Scanner	General Purpose	12vdc CB 3	Roof, #3		
②	Kenwood TK-8180	City Trunk Radio	12vdc CB 3	Roof, #4	UHF	
③	Motorola CDM1250	EOC-to-EOC radio	12vdc CB 11	Roof, #5	Motorola Low Band Wip	
④	Kenwood TM-710	CARES Command	12vdc CB 12	Mast, #1	2m/440 Dual band	
⑤						
⑥						

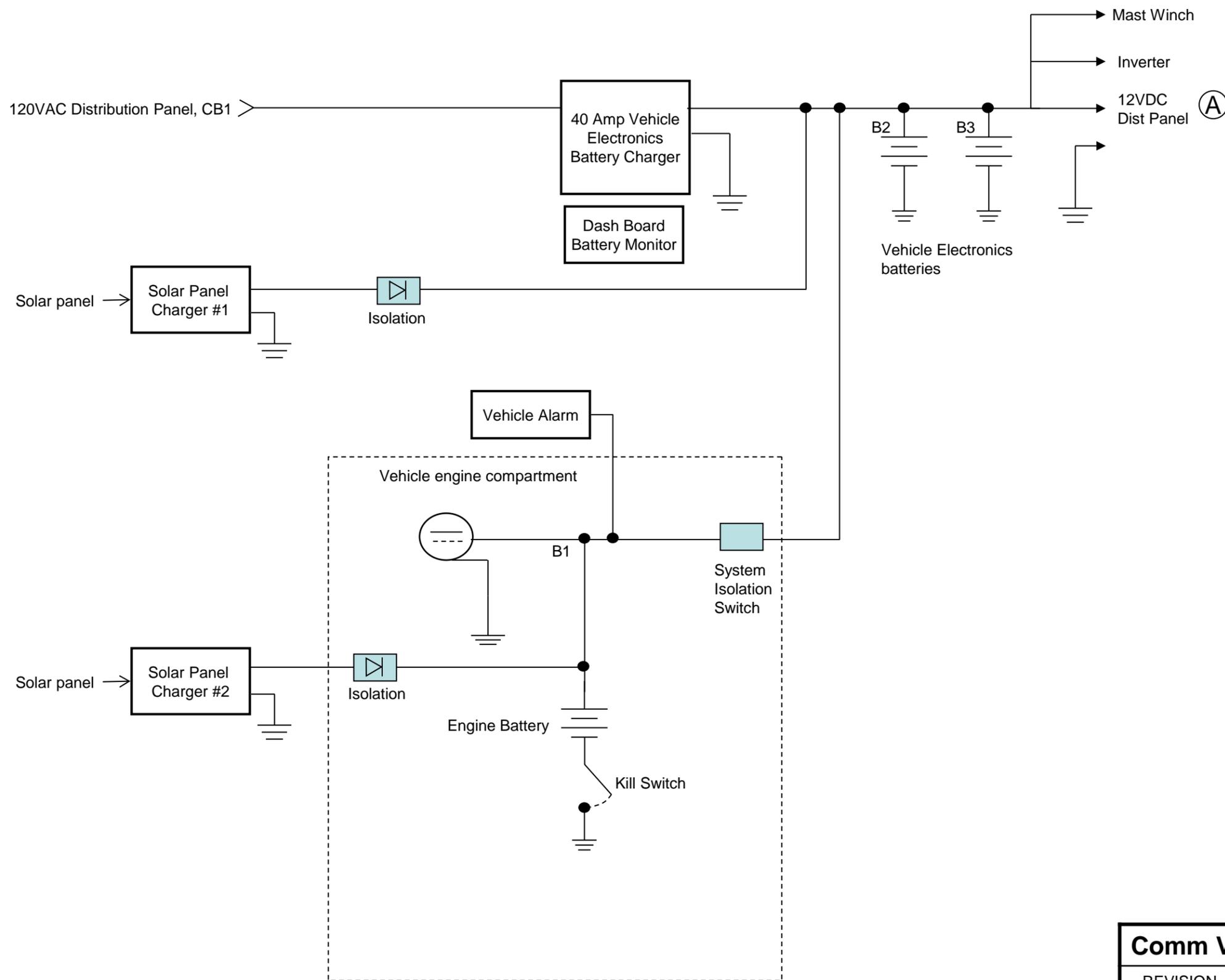
Comm Van, Interior, Passenger Side					
REVISION	DATE	AUTHOR			
1.0	4/4/2012	J. Oberhofer			



120VAC Supplies and Distribution

1. The Van is supplied 120VAC power from 1 of 3 sources:
 1. 120VAC 2800W generator, REAR (A). This generator supplies a block of 2-receptacles located in the generator compartment. When the van is to be supplied from this generator and it is running, plug the shore power cable into one of these outlets.
 2. 120VAC 3000W generator, FRONT (B). This generator is located in the front of the vehicle. It supplies a block of 2 receptacles located in the generator compartment. When the van is to be supplied from this generator and it is running, plug the shore power cable into one of these outlets.
 3. External Shore Power (C). An external 120VAC service is used when the van is parked for an extended duration or deployment. This could be either a house connection or another generator.
2. The Shore Power cable is plugged into one of the above 3 sources to supply the 120VAC breaker panel.
3. AC Circuit Breaker Panel
 1. This panel is located in the Generator compartment:
 1. 20A, GFI, Exterior Receptacles and battery charger.
 2. 40A, **Master breaker** for all other 120VAC loads
 3. 20A, Spare
 4. 20A, Air Conditioner
 5. 20A, Internal Receptacles, positions 2, 3
 6. 20A, Internal Receptacles, positions, 1, 4, Printer cabinet, Supervisors.

Comm Van, 120VAC Distribution					
REVISION	DATE	AUTHOR			
1.2	7/30/2012	J. Oberhofer			



Vehicle and Electronics Battery Charging

Vehicle Electronics are supplied by a pair of 98 Ah batteries located under Position 1 and Position 2 (behind and in front of the wheel well).

- There are 3 means for the electronics batteries to be charged.
1. Roof solar panel and charger. The Charger is dash-mounted and connects at a shared battery load point. The charging system will block any current from flowing back to the solar panels when they are not generating a charge.
 2. Vehicle electrical system. Whenever the engine is running, the Van batteries are under charge from the engine's electrical system. A control module disconnects the engine battery from the van battery to prevent discharging the engine battery across the van 12vdc loads.
 3. 40A Battery Charger. Powered from the 120VAC system whenever the shore power cable is in place and energized.

Additionally, a separate solar charger is used to maintain the vehicle engine battery.

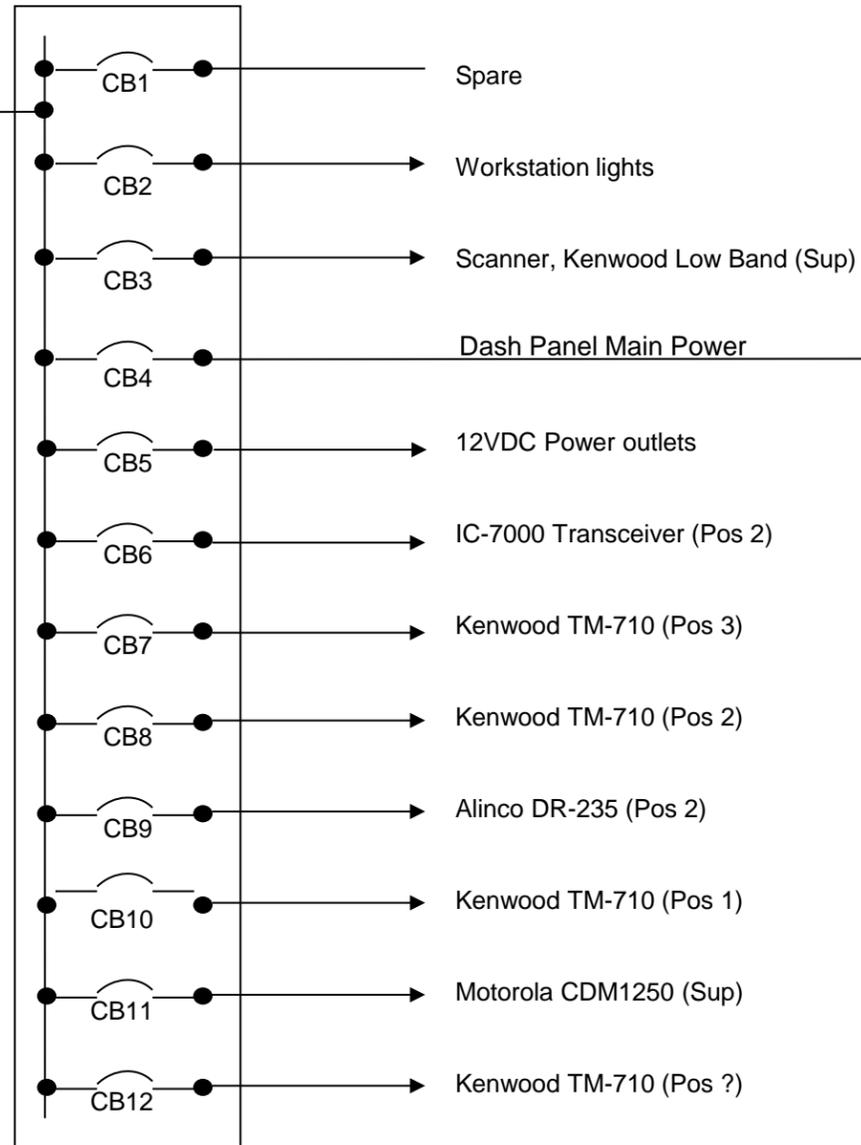
Comm Van, 12VDC Battery Charging

REVISION	DATE	AUTHOR			
1.2	7/30/2012	J. Oberhofer			

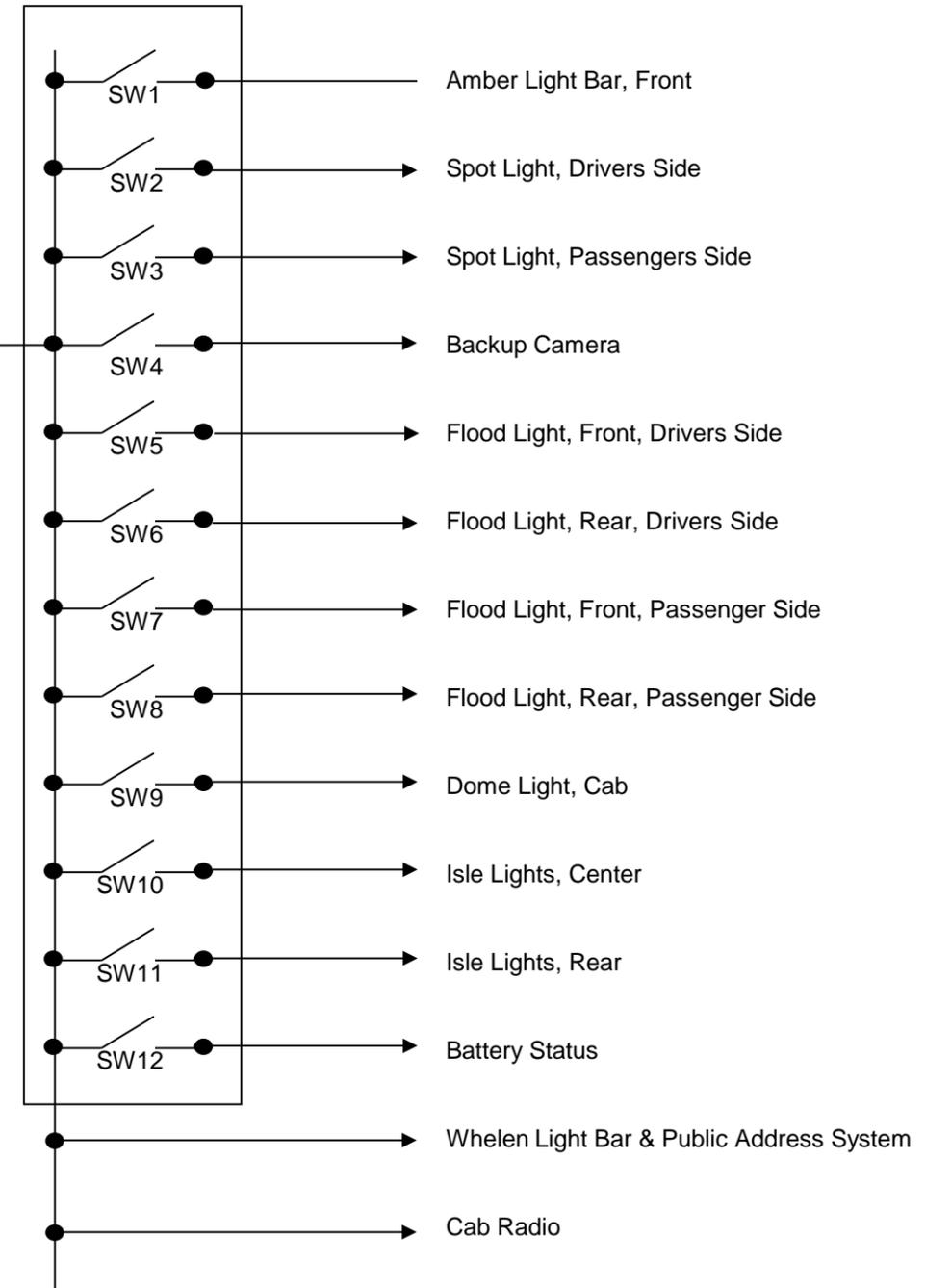
12VDC Vehicle Electronics Batteries



DC Breaker Panel



Dash Control Panel

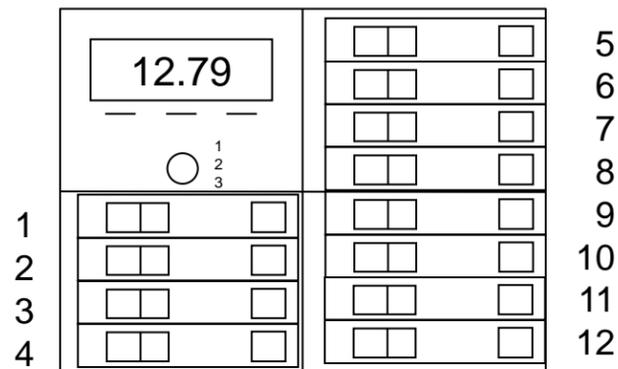


DC Breaker Panel Rating, Loads

CB	Rating (amps)	Load
1	15	Spare
2	15	Workstation lighting
3	15	Scanner, Kenwood Low band
4	40	Dash panel main power
5	30	12VDC outlets
6	30	Icom IC-7000
7	20	Kenwood TM-710
8	20	Kenwood TM-710
9	20	Alinco DR-235T
10	20	Kenwood TM-710
11	20	Motorola CDM 1250
12	20	Kenwood TM-710

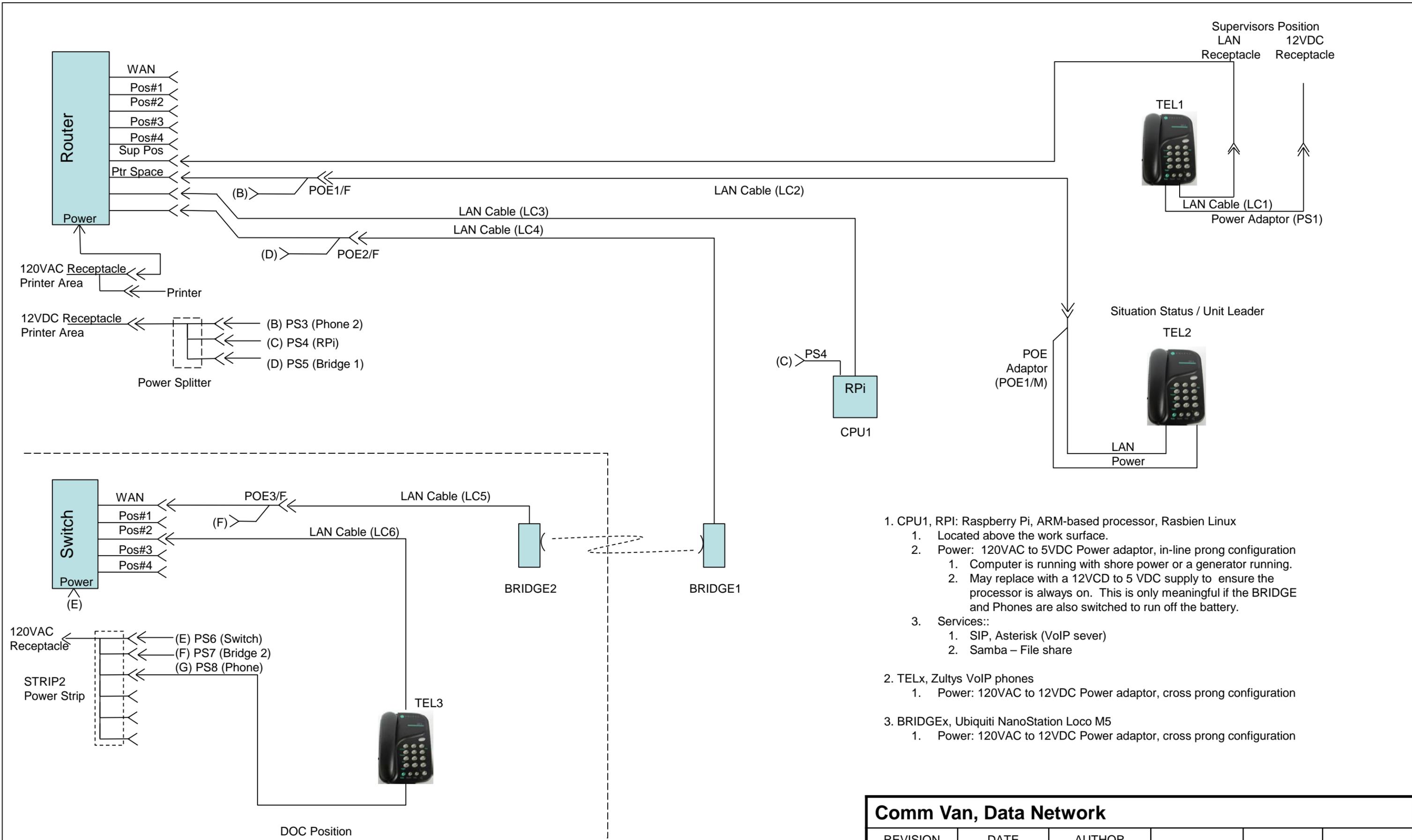
1. DC Breaker Panel

1. Located last cabinet, Top shelf
2. Displays Voltage for each battery bank
 1. Engine Battery
 2. Electronics Battery #1
 3. Electronics Battery #2
3. Toggle switch below the indicator can switch between Volts and Amps
4. Breakers are numbered as per the figure to the right



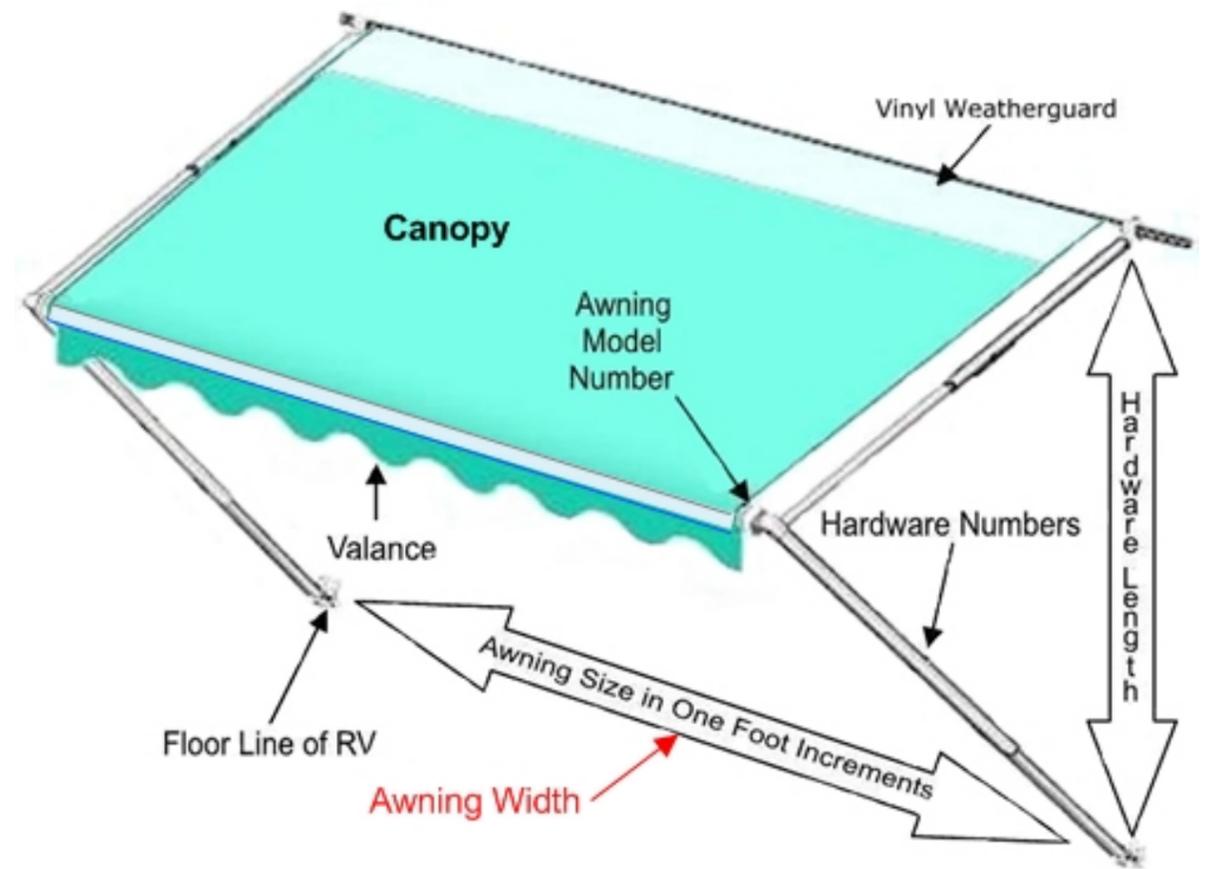
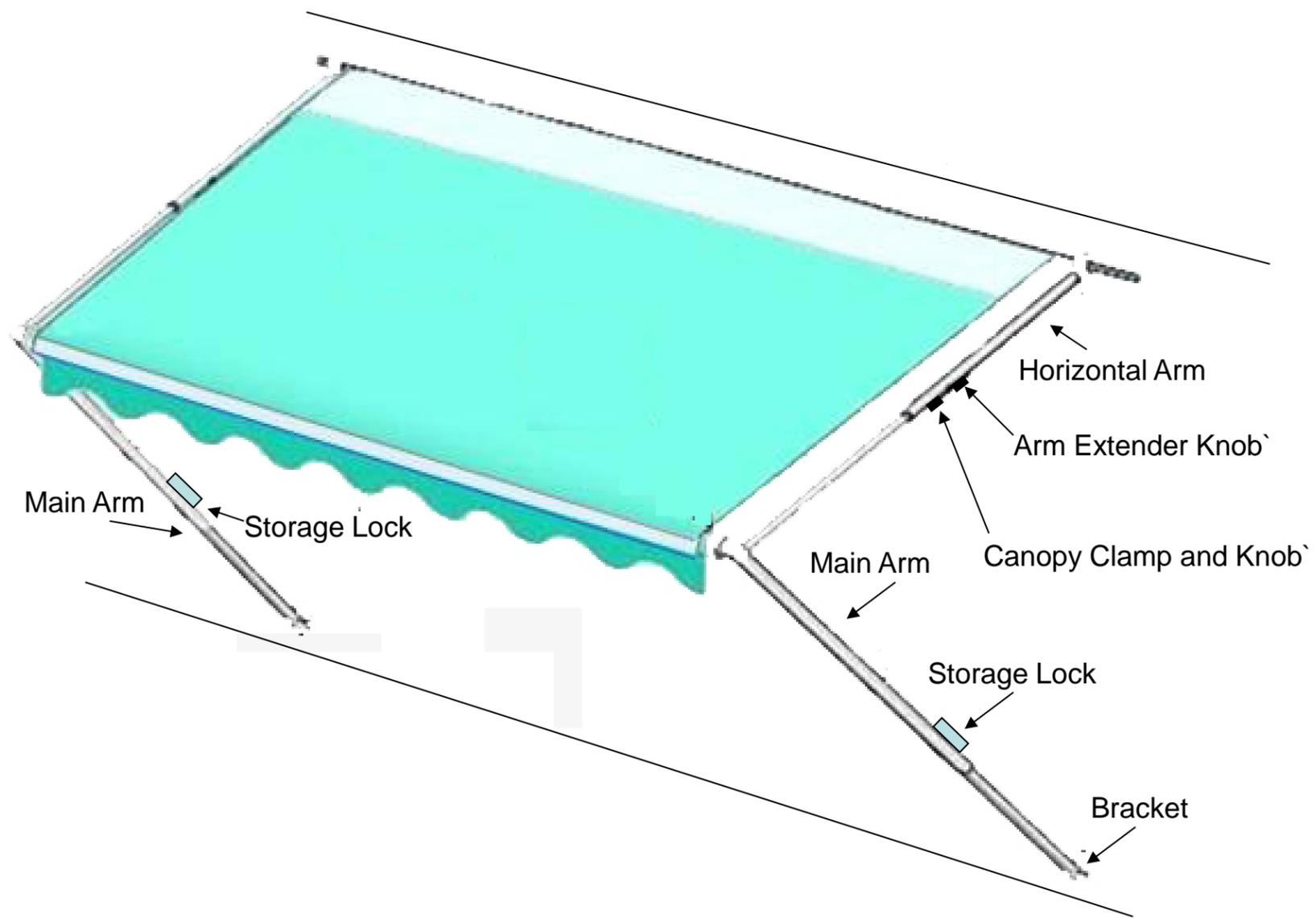
Comm Van, 12VDC Distribution

REVISION	DATE	AUTHOR			
1.2	7/30/2012	J. Oberhofer			



1. CPU1, RPi: Raspberry Pi, ARM-based processor, Rasbien Linux
 1. Located above the work surface.
 2. Power: 120VAC to 5VDC Power adaptor, in-line prong configuration
 1. Computer is running with shore power or a generator running.
 2. May replace with a 12VCD to 5 VDC supply to ensure the processor is always on. This is only meaningful if the BRIDGE and Phones are also switched to run off the battery.
 3. Services::
 1. SIP, Asterisk (VoIP sever)
 2. Samba – File share
2. TELx, Zultys VoIP phones
 1. Power: 120VAC to 12VDC Power adaptor, cross prong configuration
3. BRIDGEx, Ubiquiti NanoStation Loco M5
 1. Power: 120VAC to 12VDC Power adaptor, cross prong configuration

Comm Van, Data Network					
REVISION	DATE	AUTHOR			
1.0	05/05/2014	J. Oberhofer			



Comm Van, Awning Components					
REVISION	DATE	AUTHOR			
1.0	7/20/2012	J. Oberhofer			



Antennas & Towers

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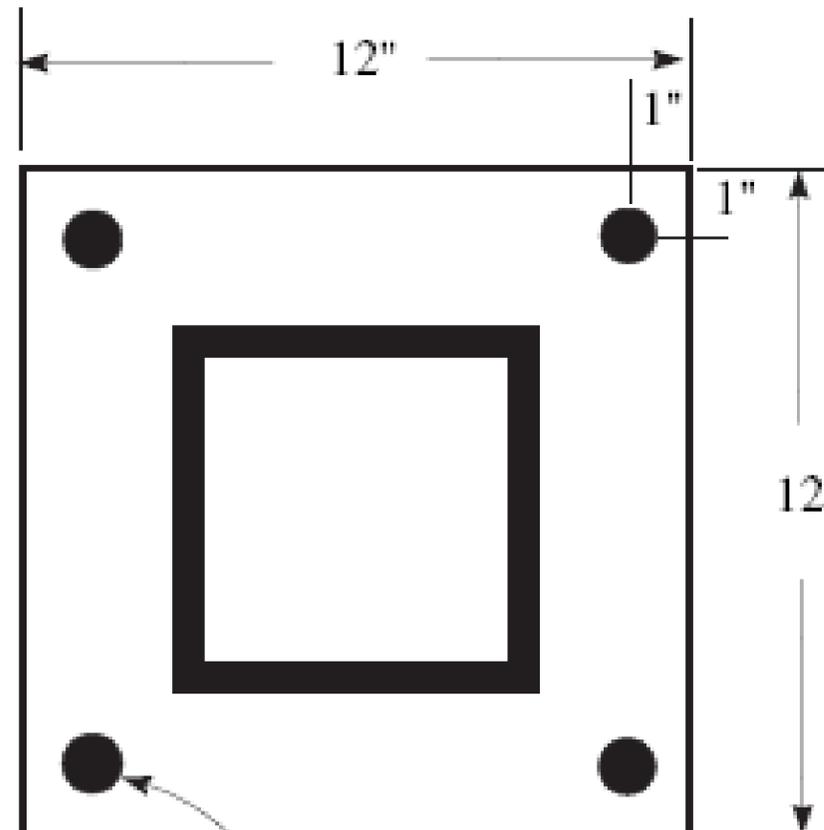
FAX 1.805.227.1684

www.force12inc.com

LPT, Low Profile Towers

Standard Base Plate

Standard Base Plate
12" x 12" x 1/2" thick



Holes for 5/8" Foundation Bolts (4)

TITLE: 7.3 Tower Base Plate

DATE: 8/19/2011

REV: 1.0

NOTES: PDF File reference: LPT-dw-std-base

