



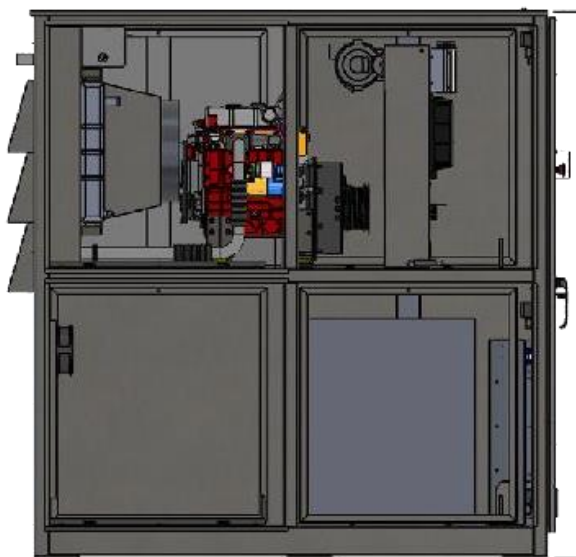
27 KW DIESEL DC GENERATOR – ATT Model Number: S027DYB500TEA

Genset includes:

- 16 V Supercapacitor starter
- 125gal. UL142 rated double walled tank
- Powder coated aluminum enclosure
- Electric Fan
- 8-Alarm Module
- Over Fill Prevention Valve
- IOT device

Options available:

- Coastal Coating
- Web-based Monitoring
- Oil refining kit



Founded in 1979 Polar Power specialized in solar photovoltaic systems, solar air conditioning and refrigeration. We developed and provided photovoltaic charging controls for telecommunications in the 1980s along with DC generators for the military. In 1994 we were first to provide DC generators with remote control and monitoring to the telecommunications industry.

Polar's success is based on engineering generators to meet the very specific needs of each application. Telecom site optimization is best met with the DC generator technology as the loads and batteries are DC. It makes no sense to install an AC generator and convert the output to DC. The AC generators are designed for a wide range of applications and they are not specifically produced for telecom applications so there are issues with reliability, space, and fuel efficiency.

Polar can save you considerable time and cost in permitting, installing, purchasing, and maintaining a backup generator. We reduce CAPEX and OPEX costs while improving backup reliability.

SMALL FOOTPRINT. Polar's vertical 500amp -48V DC generator is the lightest weight, most compact power source on the market for either prime or backup power applications. This 27kw model is sized to support growing telecom power needs associated with 5G or sites with multiple tenants. It fits where traditional generators won't.

GREATLY REDUCED INSTALLATION COST. This generator is light weight and compact enough to be moved up to the roof in the elevator then up the stairs to the roof, saving the cost of a crane rental and long delays in crane permitting and street closures. The light weight also reduces or eliminates the need for structure or roof reinforcements. The Polar generator requires no ATS, saving on purchase, installation and reliability costs.

LOW MAINTENANCE. Super Capacitor replaces standard starting battery and is maintenance-free.

LOW ACOUSTIC NOISE. <66 dBA @ 7 meters for diesel. Variable speed engine and low vibration so as not to disturb the local residents or building landlords.

FUEL EFFICIENT. Up to 85% fuel savings due to smaller engine displacement, high efficiency alternator, and variable speed operation.

ADVANCED MONITORING. Included IoT device that provides secure real time data monitoring and remote diagnostics via CANBUS, RS232, and Edge compute abilities.

RODENT RESISTANT. Small animals can quickly destroy a generator set by gnawing on wires, fuel lines, radiator hoses, etc. Cooling air inlets and outlets have perforated aluminum screens to keep small rodents and large insects out. Stainless steel wire braid is placed over fuel and radiator lines to prevent damage.

LONG LIFE. Controls and wire harnesses are designed to exceed a 20 year life. Higher grade, longer life electrical wire (UL 3173), weather tight connectors, gold plated connector pins on signal circuits. No transfer switches are required.

CORROSION RESISTANT. All-aluminum enclosure with stainless hardware for low maintenance, and long service life.

OVER-FILL PREVENTION. Modified diesel fuel tank added to retrofit an Over-Fill Prevention Valve. This uses a float within the tank which increases the safety factor by closing the fuel inlet as diesel level rises. Special fill nozzle required

SUPERCAPACITOR STARTER. Failure to start is the number one -problem plaguing generator reliability and typically this is caused by a bad starting battery. Polar's unique design has replaced the starting battery with a Super Capacitor. Capacitors are more reliable and last longer than batteries (10-15 year life).

SPECIFICATIONS

Engine

Engine Model	Yanmar 4TNV88C-DYEM
Cylinders	4 In-line
Displacement (L)	2.19
Bore (in./mm)	3.46/88
Stroke (in./mm)	3.54/90
Intake Air System	Naturally Aspirated
Engine HP	47.6 at 3000RPM
Emissions	U.S. EPA Tier 4 Final
Emissions Compliance	EPA and CARB Certified
Variable RPM	1800 to 2200

Engine lubrication system

Oil Filter Type	Full flow spin-on canister
Oil Capacity	7.4 L
Oil Pressure Switch	Yes
Oil Pressure Transducer	Optional

Fuel tank

UL Rated Capacity (gal/L)	125/ 473
Run Time (hrs)	
Tank Alarms	Yes
Visual Gauges	Yes
Catch Basin (gal/L)	5/19
Listings	UL 142 (double wall)

Fuel tank reserve time

Load (kW)	Reserve Time (hrs.)
4	347
6	245
9	162
10	144
15	123
20	68
27	45

Engine cooling system

Type	Pressurized Aluminum Radiator
Water Pump	Belt-driven, Pre-lubed, self-sealing
Fan Type	Electric
Airflow CFM	1300
Fan Mode	Pusher
Temperature Sensor	Yes

Environmental

Operating Temperature (°C/°F)	-23 to 50 / -10 to 122
Operating Humidity %	100
Cold Start Aids	Glow Plugs

Optional: manifold heater available for temperatures < -10 OF

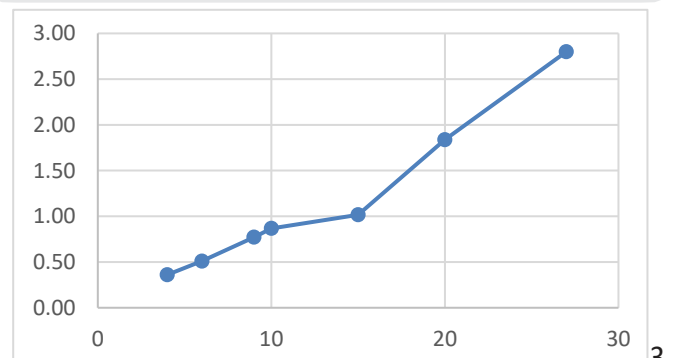
Power adjustment for conditions

Temperature Deration	1% derate for every 5.6 0C (10 0F) above 25 0C (77 0F)
Altitude Deration	3% derate for every 300 m (1000ft) above 91 m (300 ft)

Diesel fuel system

Type	Diesel
Fuel Pump Type	Electrical
Injector Type	Mechanical
Fuel Filtering	Paper element

Diesel fuel consumption in GPH



Engine cooling

System coolant capacity (gal/L)	2.2/8.3
Maximum operation air temperature on radiator (°C/°F)	50/122
Maximum ambient temperature (°C/°F)	50/122

Exhaust

Exhaust flow at rated output (cfm/cmm)	110/3.11
Exhaust temperature at rated output (°C/°F)	400/752

Alternator

Alternator Model	8340
Type	Permanent Magnets, NdFeB
Weight (lb/kg)	46.5/21
Regulation Type	Variable engine speed
Stator	3 phase/32 poles
Overcurrent Protection (A)	27 kW - 600
Disconnect Means	Over Current Contactor
Voltage Range (VDC)	44 to 62
Alternator Exhaust Flow (cfm/cmm)	130 to 180 / 3.68 to 5.1
MTBF (hr)	100,000+

Starter supercapacitor

Model	20-16-0001
Storage Rating (Farads)	500
Voltage (VDC)	13-14.4
Weight (lb/kg)	12.1/5.5
Operating Temperature (°C/°F)	-40 to 65 / -40 to 149
Service Life (year)	10 to 15

Charger

Model	00-10-0015
Input Voltage (VDC)	28 to 60
Output Voltage (VDC)	14 to 14.4
Recharge time from 0 VDC (min)	10
Recharge time from 8 VDC (min)	2
Weight (lb/kg)	2.2/1

Enclosure

Model	88-25-0800
Type	Weather Protective
Materials	Powder coated aluminum
Door Hardware	Three Point with Padlock Hasp, and Removable Side Panels
Mounting	Secure Mounting Tabs
Dims.	L 34" x W 69" x H 72"
Open Door Dims.	L 34" x W 101" x H 72" (Swing: 34")

Optional: L2 option

Weight

Dry Weight (lb/kg) (Calculated)	1722/781
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Controller features

Controller Type	Supra Model 250
4-Line Plain Text OLED Display	Simple user interface for ease of operation
Engine Run Hours Indication	Standard
Programmable Start Delay	Adjustable, Set at 30 sec
Run/Alarm/Maintenance Logs	Standard
Engine Start Sequence	Cyclic cranking: 5 sec on, 30 sec rest (6 attempts maximum)
Starter Supercapacitor Charger	Standard
Automatic Voltage Regulation with Over and Under Voltage Protection	Standard
Automatic Low Oil Pressure/High Oil Temperature Shutdown	Standard
Overcrank/Overspeed	Standard
Automatic High Engine Temperature Shutdown	Standard
Field Upgradeable Firmware	Standard
Glow Plug Delay	Automatic With Temperature
Engine Start Delay	Adjustable, Set at 30 sec
Return to Utility Delay	Adjustable, Set at 60 sec
Engine Cool-down	Adjustable, Set at 10 sec
Exerciser	Programmable

Monitoring

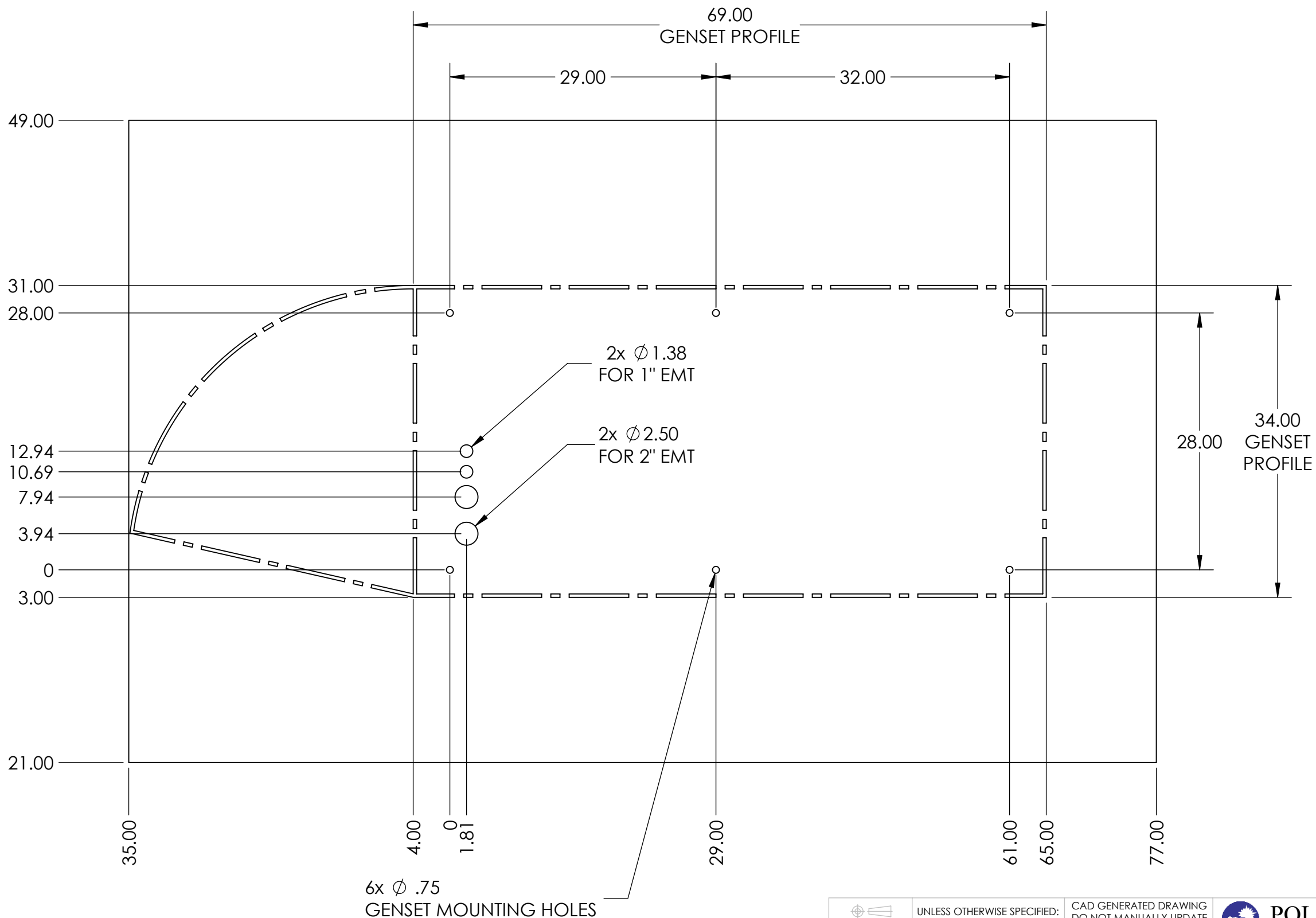
Alarm monitoring and remote control through Ethernet.

Contact closure alarm board (optional)

Shutdown Alarm	Optional
Warning Alarm	Optional
Engine Run	Optional
Low Diesel Fuel Level	Optional
Diesel Fuel Leak	Optional
E-Stop Depressed	Optional
Fuel Level Over 90%	Optional

TOP VIEW LOOKING DOWN

FRONT



REV	DESCRIPTION	ECO#	BY	DATE
A	INITIAL RELEASE	--	RR	06/30/18

COMMENTS:

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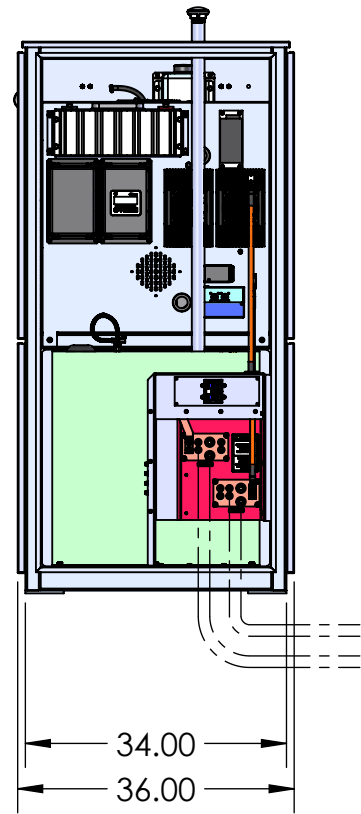
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		DRAWN RICHARD RODRIGUEZ	06/30/18
MATERIAL	ENG APPR.		
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249 EAST GARDENA BLVD, GARDENA, CA 90248

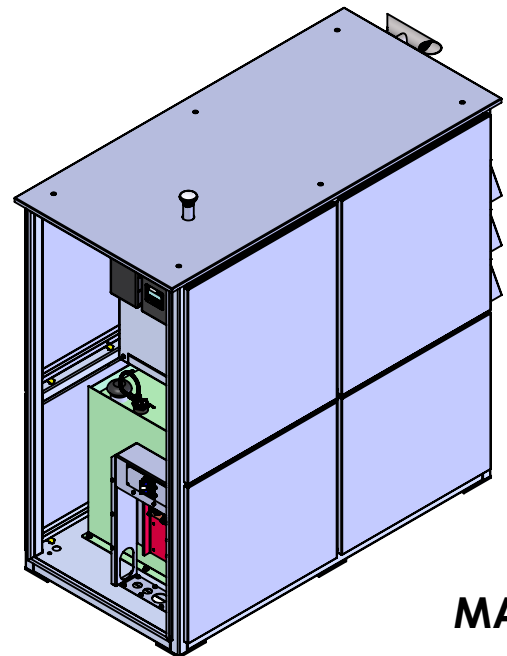
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SIZE B	DWG. NO. --	REV A
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SHEET 1 OF 2		

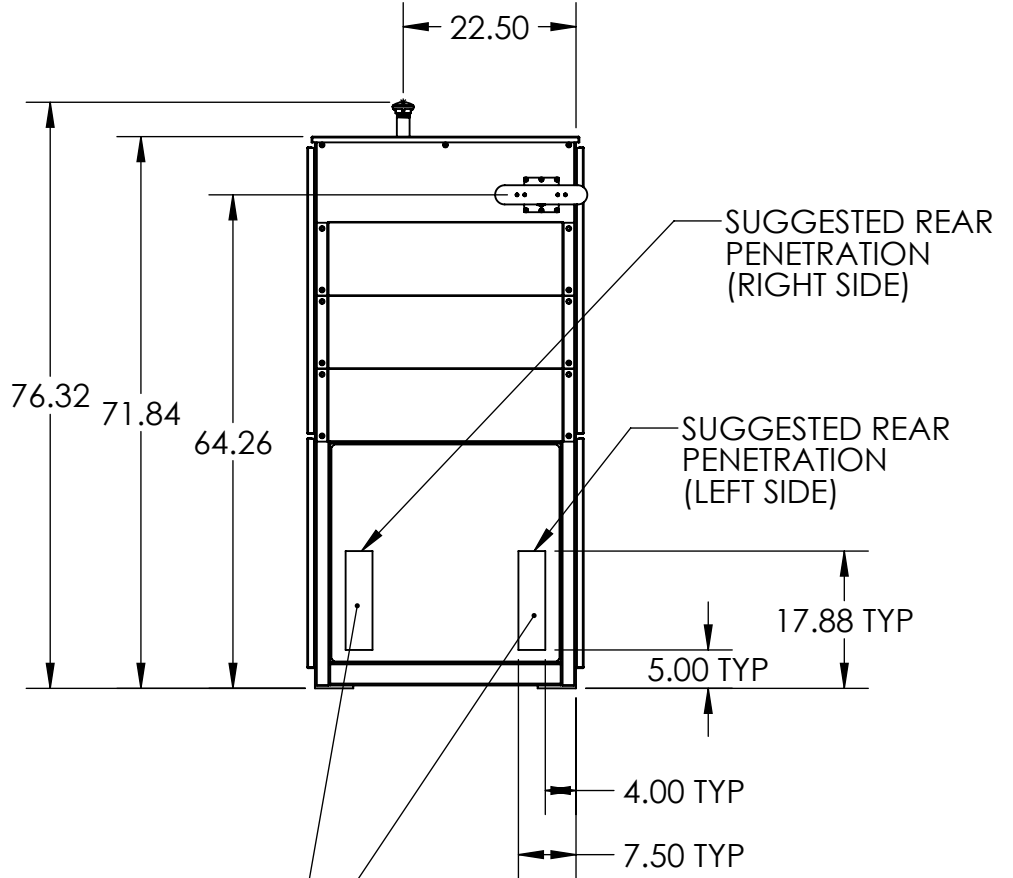
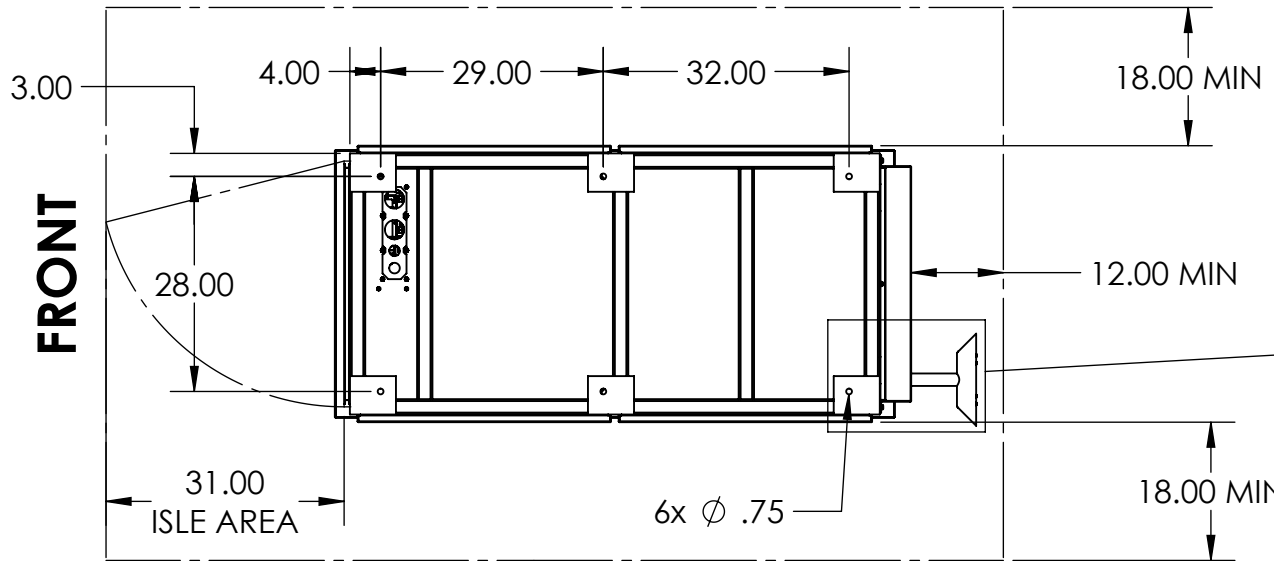
INSTALLATION FOOTPRINT, BOTTOM VIEW



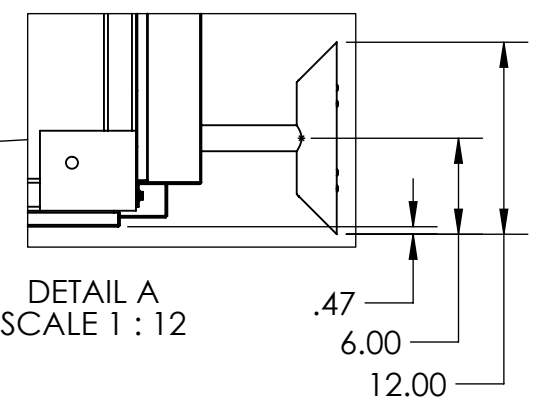
TYP ELECTRICAL PENETRATION



MAINTENANCE WORK SPACE



NOTE: HOLES NOT PREPUNCHED



DETAIL A
SCALE 1 : 12

REV	DESCRIPTION	ECO#	BY	DATE
A	INITIAL RELEASE	--		07/03/18

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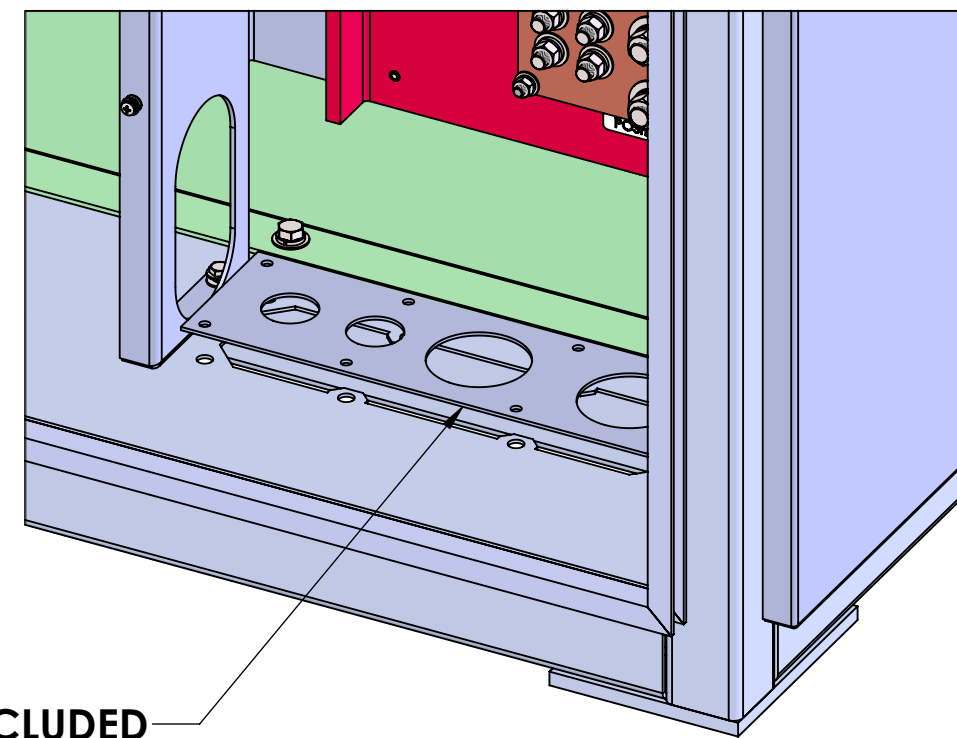
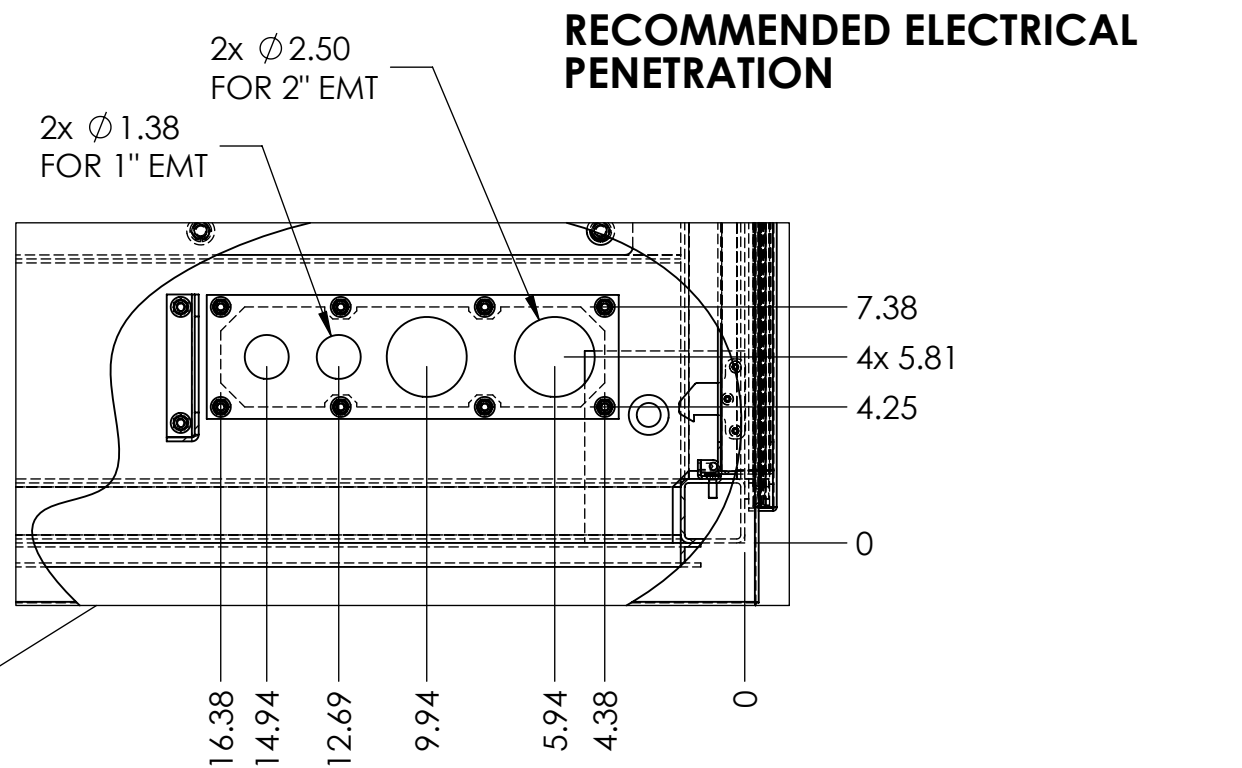
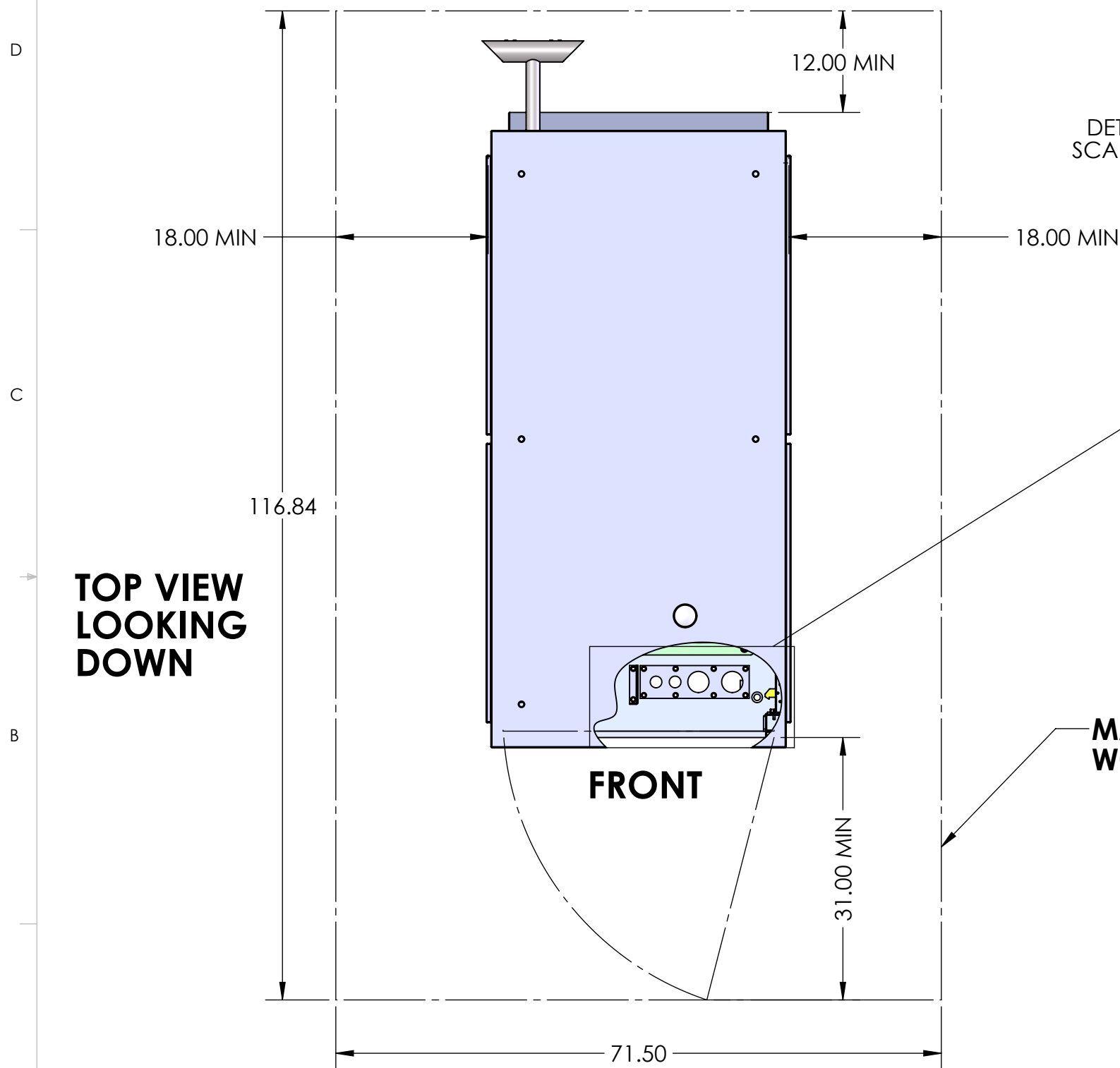
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MATERIAL	ENG APPR.	
FINISH	MFG APPR.	
APPLICATION	DO NOT SCALE DRAWING	Q.A.

POLAR POWER INC.
249 EAST GARDENA BLVD, GARDENA, CA 90248

TITLE: **SUMMIT ENCLOSURE**

SIZE B	DWG. NO. 88-25-0801	REV A
SCALE: 1:16	WEIGHT:	SHEET 1 OF 2

INSTALLATION FOOTPRINT, PLAN VIEW



REV	DESCRIPTION	ECO#	BY	DATE
A	INITIAL RELEASE	--		07/03/18

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MATERIAL	FINISH	ENG APPR.	MFG APPR.
NEXT ASSY	USED ON	Q.A.	
APPLICATION	DO NOT SCALE DRAWING		

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249 EAST GARDENA BLVD, GARDENA, CA 90248

TITLE: **SUMMIT ENCLOSURE**

DATE: 07/03/18

SIZE B	DWG. NO. 88-25-0801	REV A
SCALE: 1:4	WEIGHT:	SHEET 2 OF 2



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