



User/Technical Manual  
**GEI-24-SAPS-48**  
PRC-152 Stay Alive Power System  
PRC 152 and PRC 148 battery storage and full charge modes





## **GEI-24-SAPS Contents List:**

- **GEI-24-SAPS** **1 ea.**
- **15 Ft. AC input power card** **1 ea.**
- **Trouble Shoot Guide** **1 ea.**
- **Tech/User Manual** **1 ea.**
- **Repair/Replacement Manual** **1 ea.**
- **Tech manual CD** **1 ea.**
- **Battery Removal Tool** **1 ea.**



## **General Operation Information:**

The AN/PRC-152 radio has a non-rechargeable stay-alive coin cell battery internal to the radio housing. This coin cell provides constant power to maintain critical radio information when another power source is not available (i.e. principle radio battery). The replacement of the non-rechargeable coin cell is not a trivial procedure and premature failure of this coin cell can present mission readiness problems. In addition to the coin cell battery issues the AN/PRC-152 radio battery also must be maintained over long storage periods. The radios are stored both with and without their main batteries requiring a storage maintenance solution that works in both configurations. The GEI-24-SAPS is the solution to the PRC-152 stay alive battery problem.

## **Operational Features:**

- Provides storage and maintenance for up to 24 PRC-152 radios
- User selectable storage or mission ready charge of 152 and 148 batteries
- Universal AC input
- 24 VDC input via NATO style connector
- Internal and External LED status display
- 15' AC NEMA style input cable
- 15' DC Mini NATO style input cable (sold separately)
- Independent and simultaneous radio bay operation
- Integrated ruggedized storage and transit case
- Circuit protected AC and DC input
- Current limiting protection
- 4 External Tie down brackets

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### **General Specifications:**

Weight	42 lbs. (without Radios/Batteries)
Dimensions	31.5" x 21.55" x 13.5"
Input Voltage	Universal (90-264 VAC) 20-30 VDC
Input Frequency	47-63Hz
Inrush Current	30A/115 VAC 60A/230 VAC 32.5A Max
Input Current	2.4 A @ 115 VAC / 2.0A @ 230 VAC Max
Hold-Up Time	19ms typ @ 115 & 80ms @ 230 VAC / Full Load
Input Protection	External Fuse (15A vac) (7.5 A / 24 vdc)
Efficiency	86% typical
Operating Temperature	-30 to +70°C Full Load
Storage Temperature	-40°C to +80°C 10-95% RH
Minimum Load	n/a
Line Regulation	+/- 5% typical
Load Regulation	+/- 2% typical
Ripple & Noise	1% typ. pk-pk @ 20MHz
AC Overload Protection	110-150% of rated output power
Adjustment	Fixed



## Operating Instructions

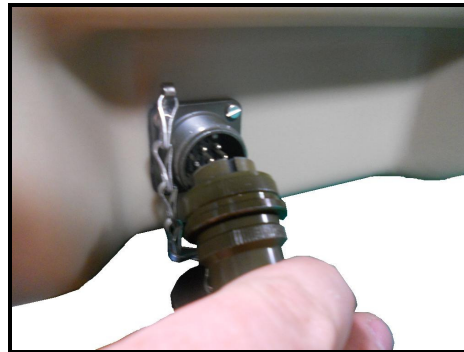
### Connecting AC or DC Power cords

#### Attention:

Prior to connecting input cable to the GEI-24-SAPS, be certain the input cord is not plugged into the AC or DC power source.



Locate circular connector on side of case



Align top key notch and press in firmly



Thread outer shell onto connector until hand tight

### Power ON/OFF



The GEI-24-SAPS power can be cut via two push/pull manual circuit breakers. Pulling either circuit breaker will cut power to all pockets

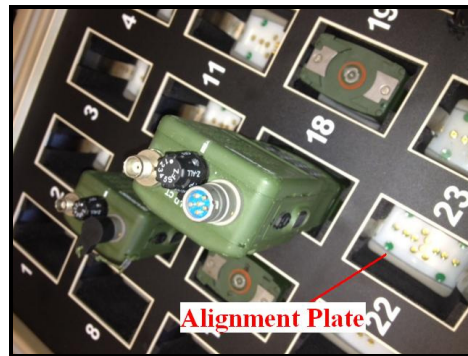


### Inserting Radio / Battery

The GEI-24-SAPS-48 accommodates 4 different configuration scenarios, these include: PRC-152 **without** a primary battery attached, The PRC-152 **with** the primary battery attached, and the PRC-152 primary battery alone, PRC-148 primary battery alone. In either radio scenario, the HUB (Stay Alive) battery will be bypassed during long term storage. When a primary battery alone is placed in the GEI-24-SAPS-48, it will be maintained at the proper charge range for long term storage.

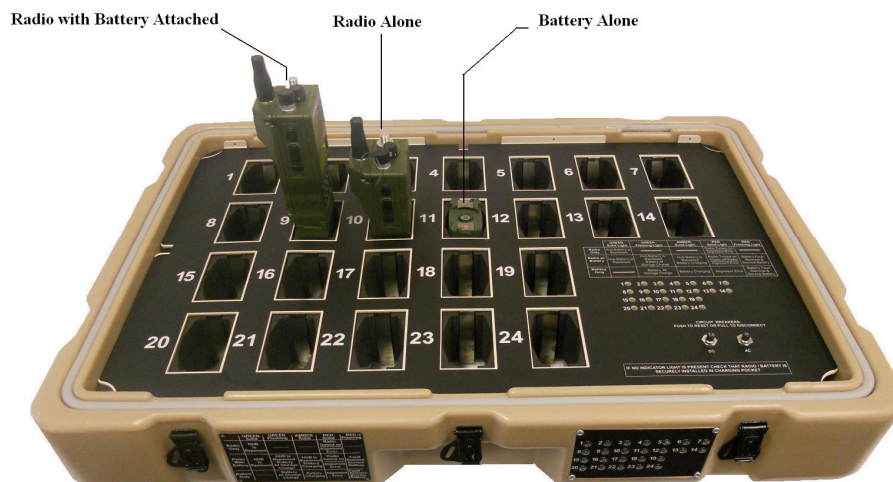
### NOTICE:

The GEI-24-SAPS-48 is designed to correct the HUB battery problem for the PRC-152 radio only. The GEI-24-SAPS-48 is designed to charge 152 and 148 batteries only, No other radio or batteries should ever be used in the GEI-24-SAPS-48.



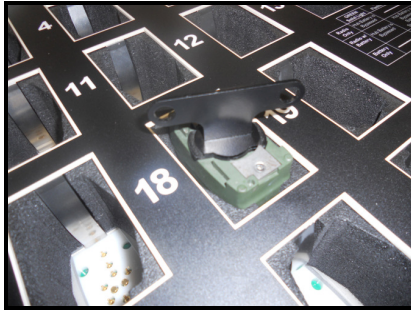
To assure proper connection, the battery / radio has to nest inside the alignment plate which is located at the base of the pocket. If the alignment is off you will see a red indicator light associated with that pocket. Simply lift the battery or radio and reinsert it.

### MOUNTING CONFIGURATIONS



**Storage at high temperatures permanently degrades battery capacity of all batteries  
Check the manufactures MSDS for proper storage and disposal  
information**

## BATTERY REMOVAL TOOL



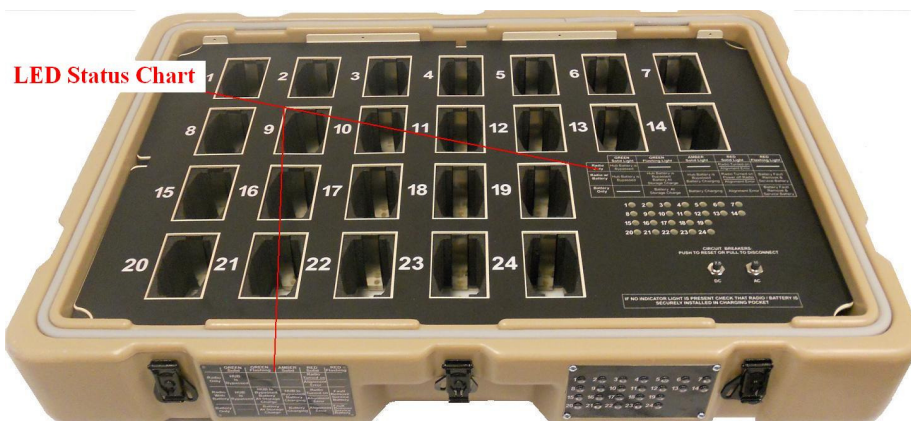
A removal tool has been proved for simple removal of the batteries

## LED STATUS CHART:

	GREEN Solid Light Hub Battery Is Bypassed	AMBER Solid Light	RED Solid Light
RADIO ONLY		—————	Radio Turned On (power off radio) Alignment Error
RADIO w/ BATTERY	Hub Battery Is Bypassed, Battery at storage Charge (50-60%) Full charge (90%)	Hub Battery is Bypassed, Battery Charging*	Radio Turned on (power off radio) Battery Fault (Service Battery ) Alignment Error
BATTERY ONLY	Battery at storage Charge (50-60%) Full charge (90%)	Battery Charging*	Battery Fault ( Service Battery) Alignment Error

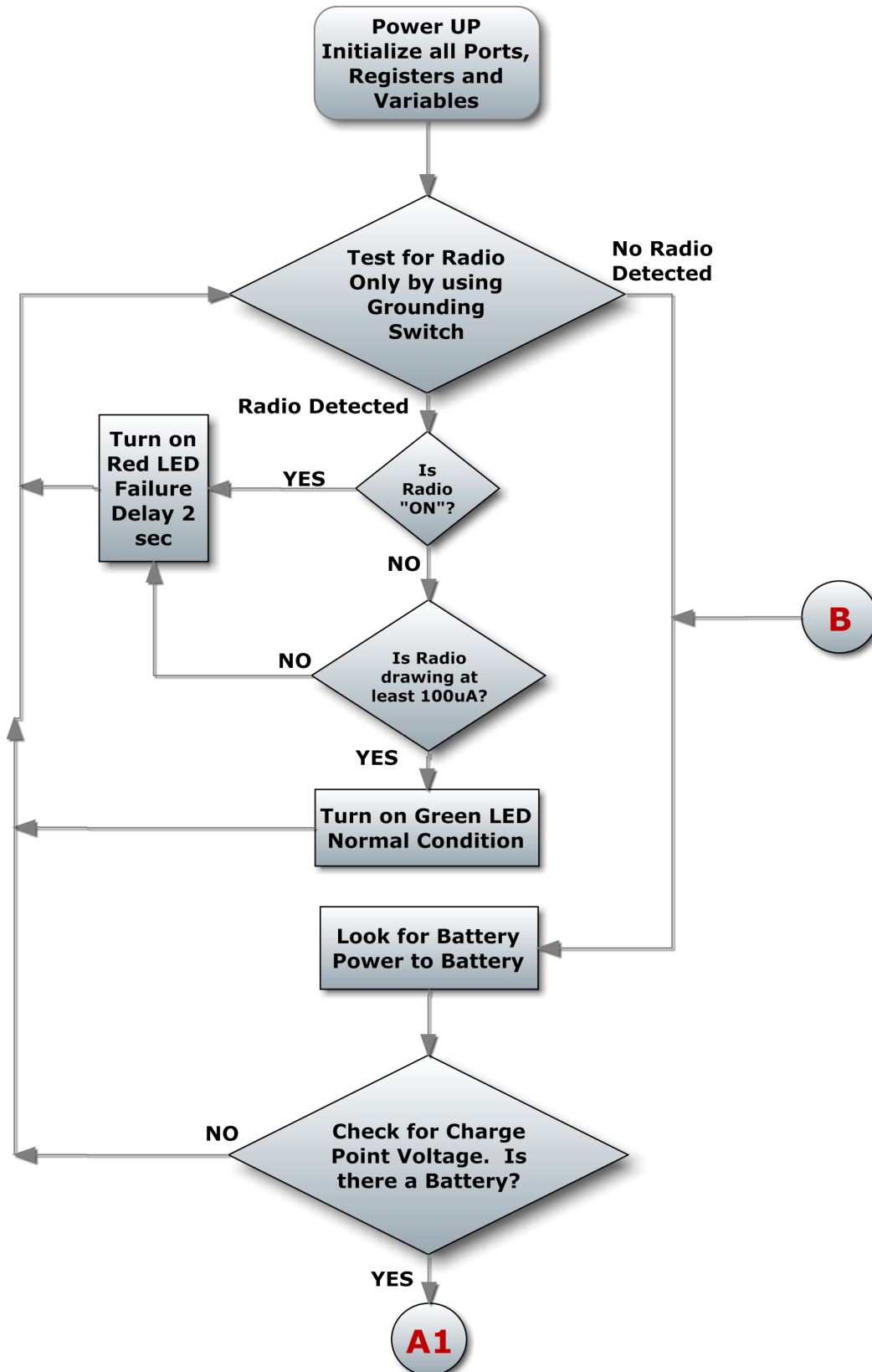
\* The SAPS-152-48 is a maintenance storage device and will charge the battery to optimum storage capacity of 50-60% state of charge. Mission Ready state of charge is 90%

Refer to the LED indicator charts located on the inside panel or the exterior case to determine the status of each pocket. **NOTE:** Due to different battery conditions, charge times may vary. Batteries in poor condition may show slight fluctuations from green to charge status



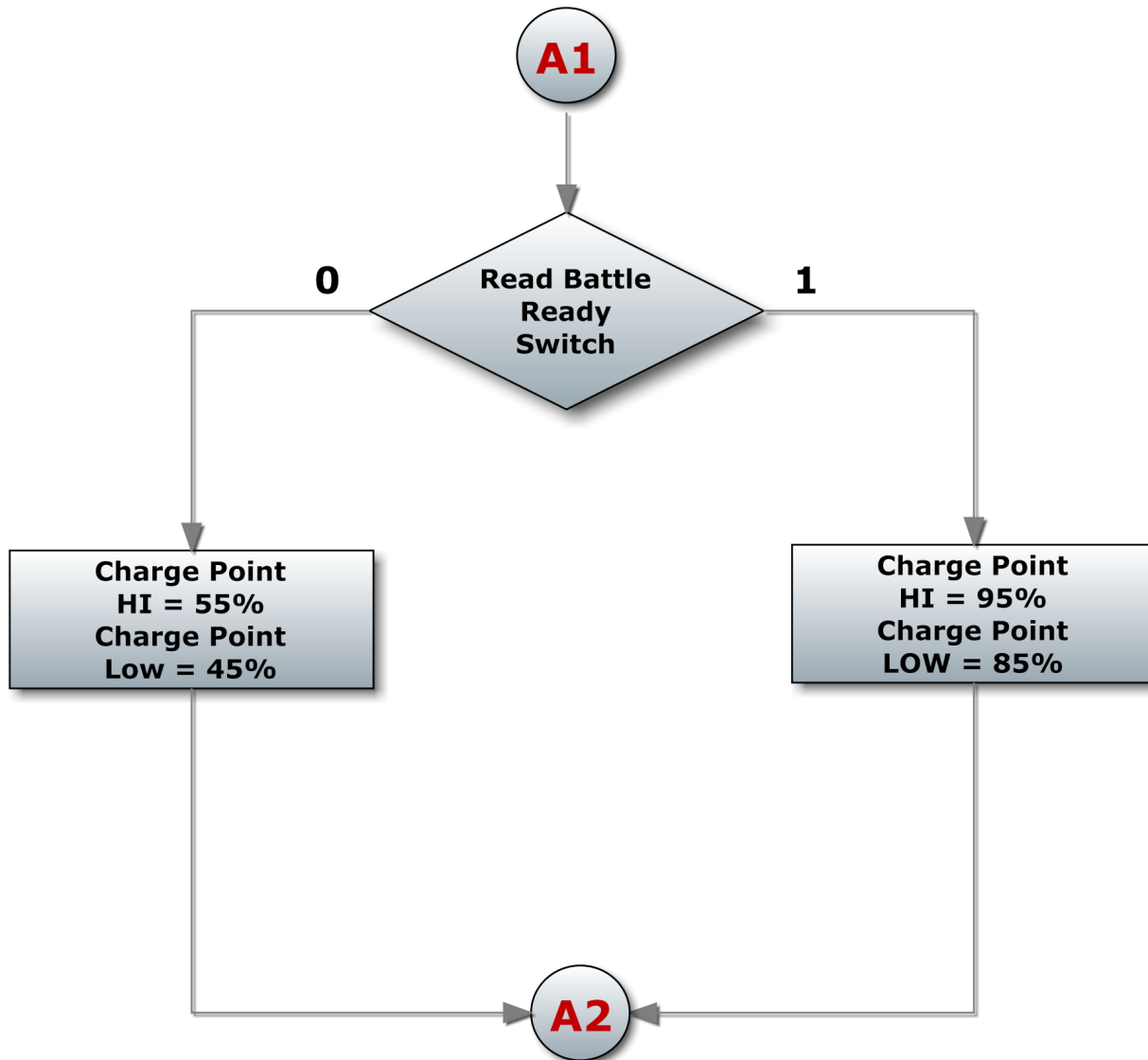


## GEI-24-SAPS-48 Operational Flow Chart

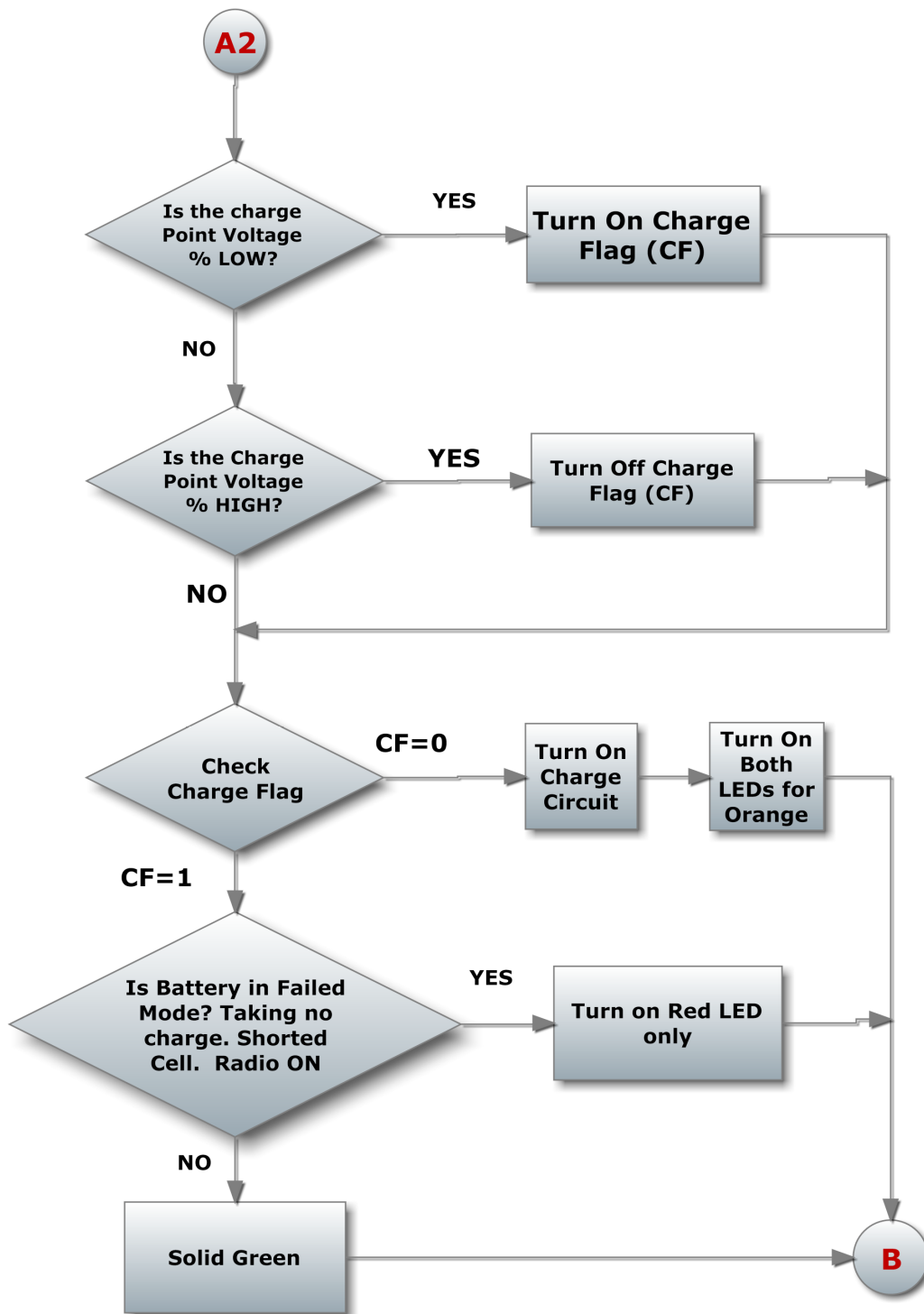




## GEI-24-SAPS-48 Operational Flow Chart (Cont.)



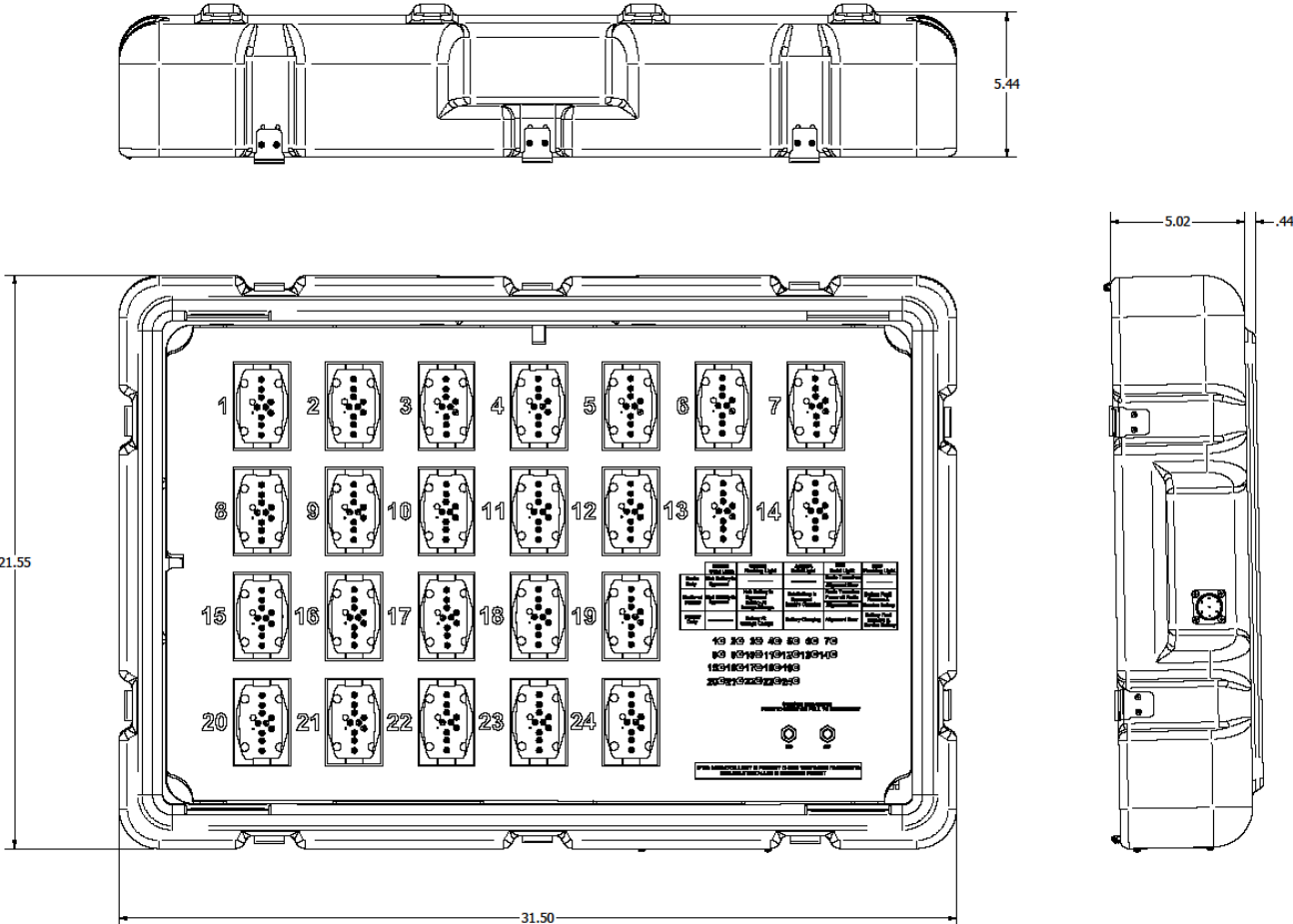
## GEI-24-SAPS-48 Operational Flow Chart (Cont.)



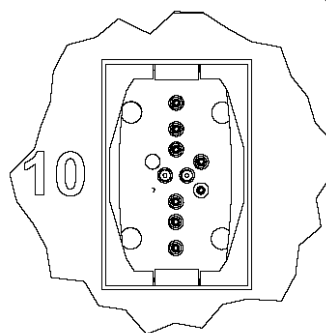
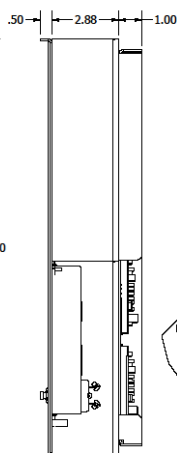
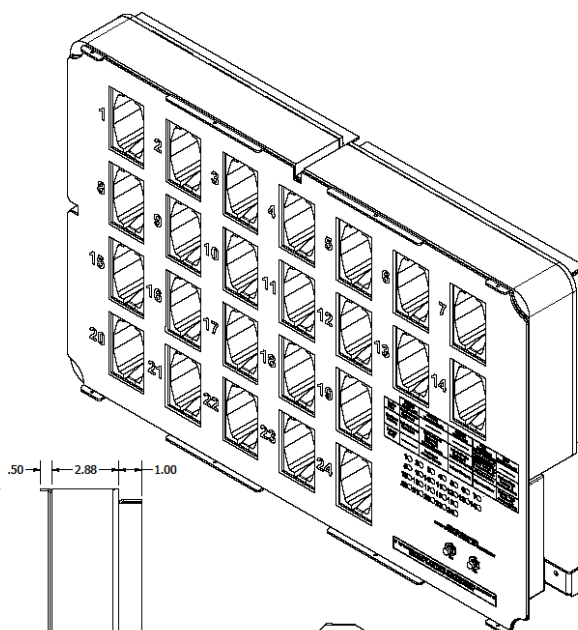
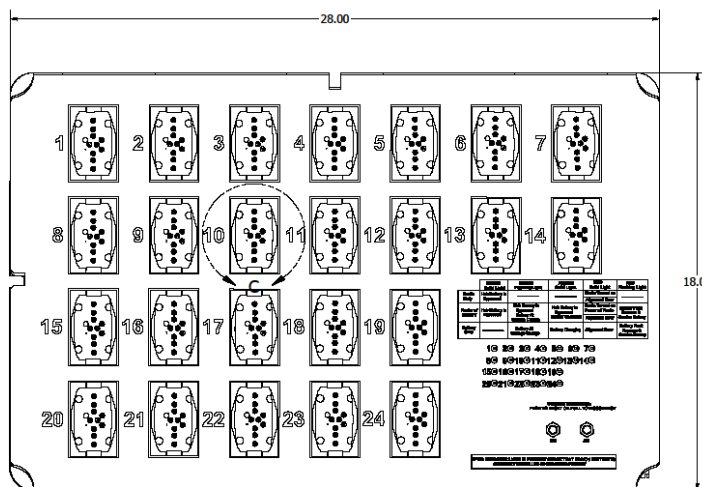
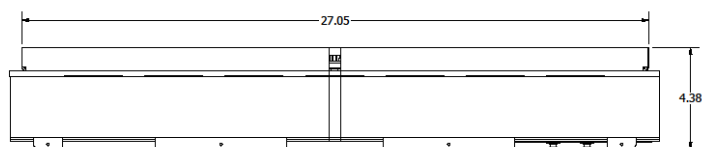


### Physical Specifications:

## GEI-24-SAPS-48 Base Dimensions

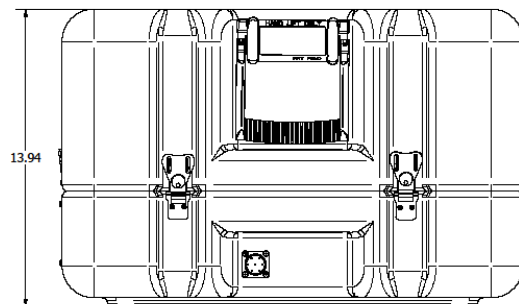
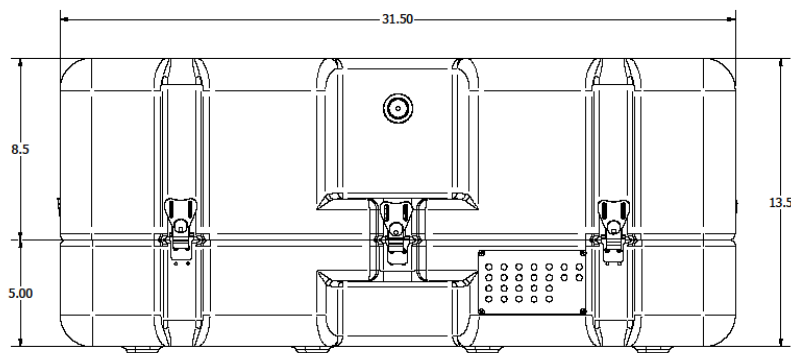
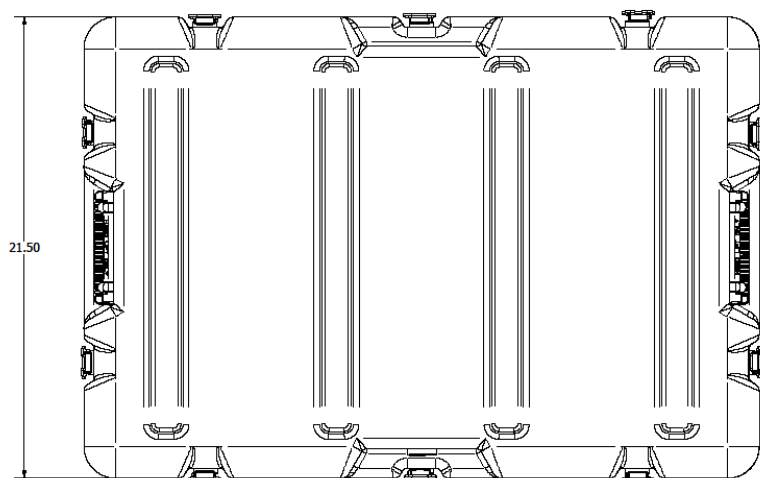


## INSERT SPECIFICATIONS

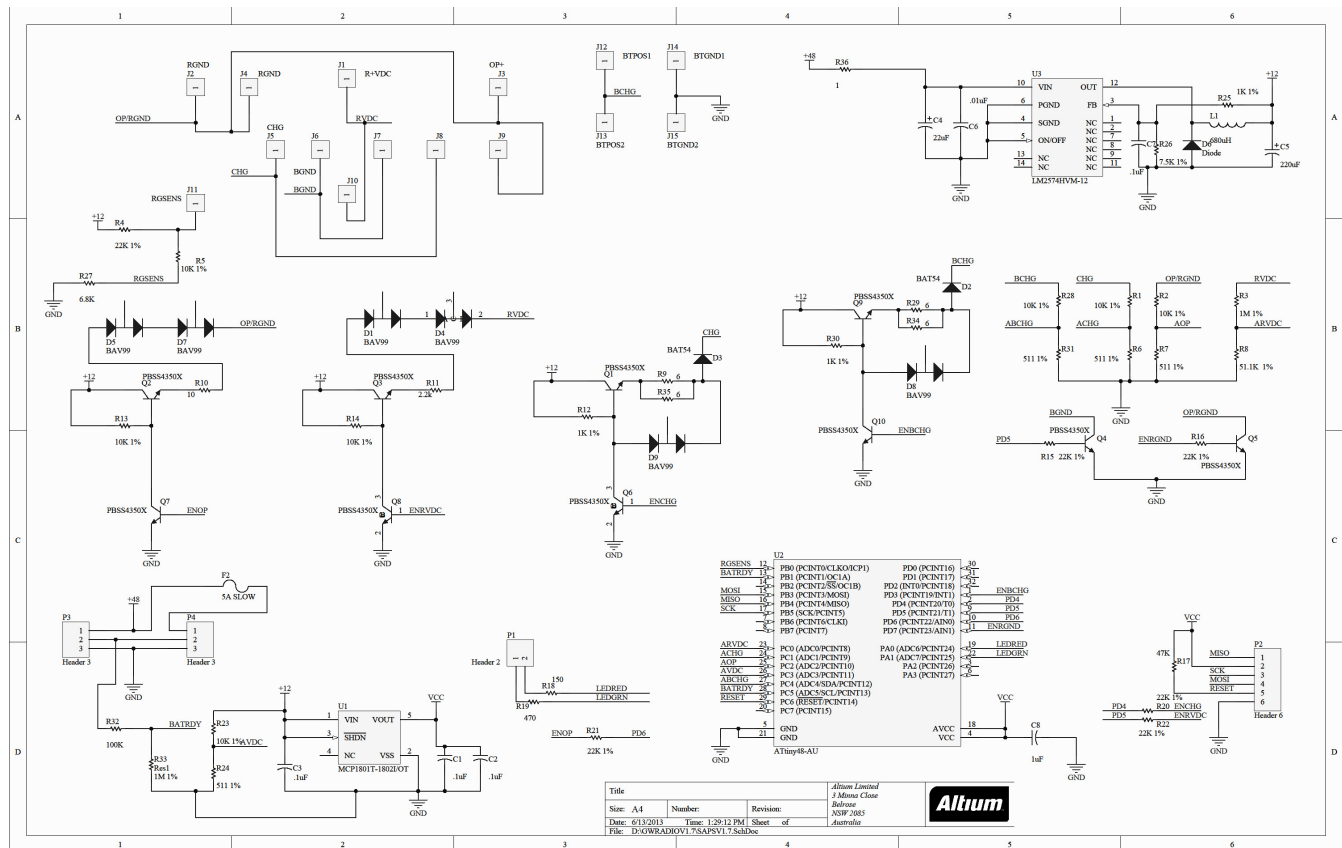


DETAIL C  
POCKET VIEW

**GEI-24-SAPS-48 EXTERIOR DIMENSIONS**

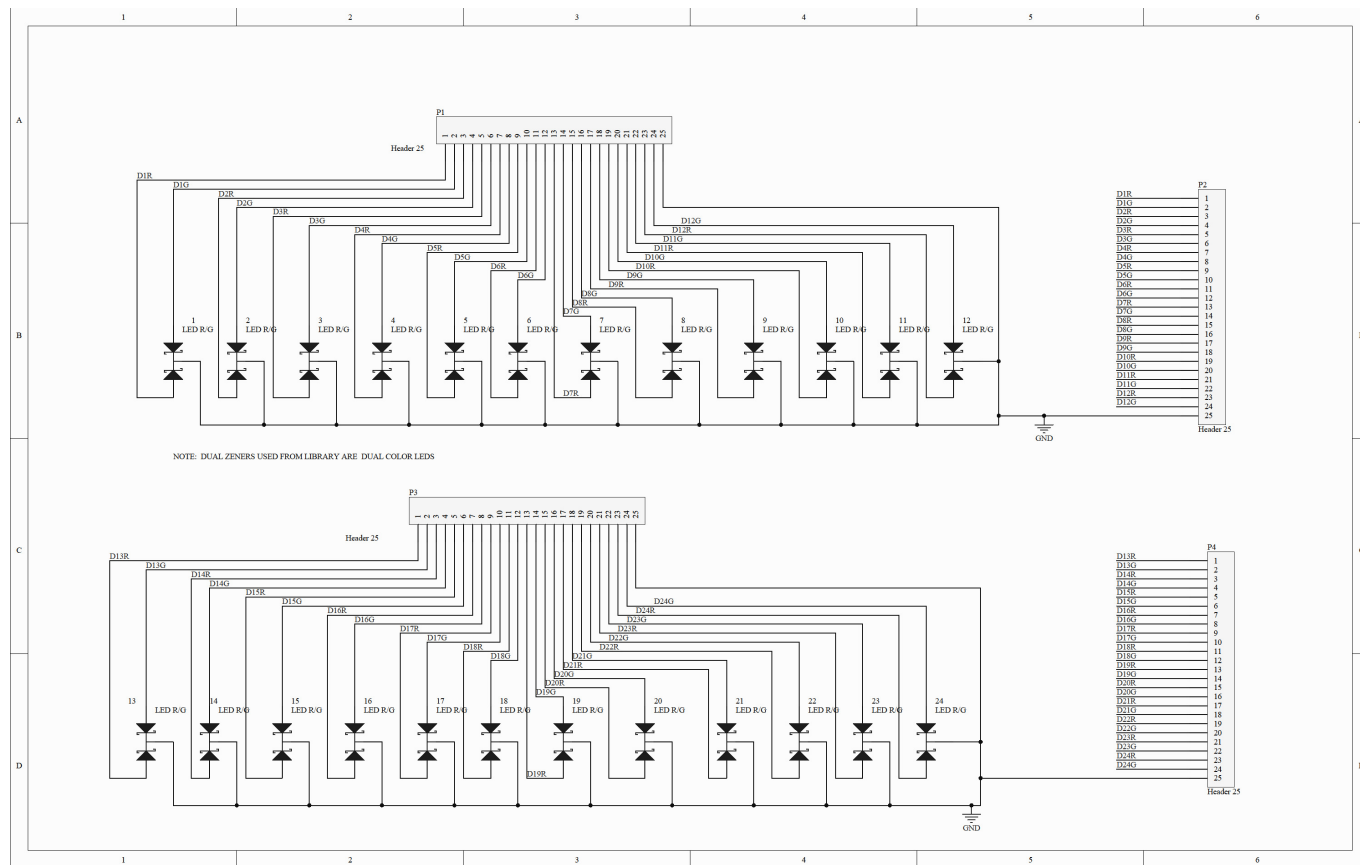


## Radio/Battery Interface Schematic





## Display Board Schematic

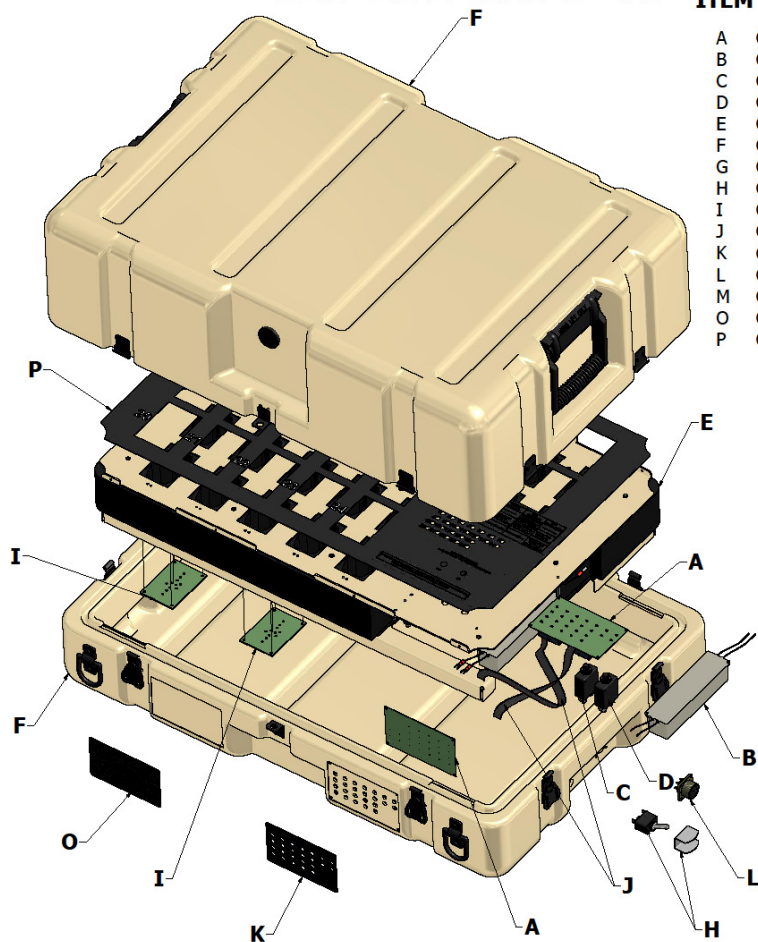




## Replacement Parts List:

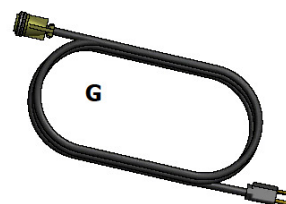
Refer to Repair/Replacement manual for detailed instruction

### GEI-152-SAPS-48



#### PART LISTING

ITEM	PART #	QTY.	DESCRIPTION
A	GEI-152-48-LEDPCB	2	LED PCB Board
B	GEI-152-48-PS	2	Power Supply
C	GEI-152-48-7.5 CB	1	7.5 AMP Push/Pull Breaker
D	GEI-152-48-15 CB	1	15 AMP Push/Pull Breaker
E	GEI-152-48-CSA	1	Charge Station Assembly
F	GEI-152-48-2818-0508	1	SAPS 152-48 Case
G	GEI-152-48-5-15PAC	1	15 Ft. AC Harness
H	GEI-152-48-SPSTSW	1	Single Pole Single Throw Switch
I	GEI-152-SAPS-48-PBPCB	24	PCB Board For PRC-152/148 Radio
J	GEI-152-48-RC	2	Ribbon Cable
K	GEI-152-48-FLEDPC	1	Front LED Plate
L	GEI-152-48-PMPC	1	Panel Mtg. AC/DC Power Connector
M	GEI-152-48-BT	1	Battery Removal Tool
O	GEI-152-48-FDP	1	Front Decal Plate
P	GEI-152-48-CSD	1	Charge Station Decal





## **SERVICE AGREEMENT**

**What Does This Service Agreement Cover?** This Service Agreement means that Graywacke Engineering, Inc. will provide the repair service described below to the GEI-24-SAPS-48 product end user on the GEI-24-SAPS-48 product at Graywacke Engineering at 120 Industrial Drive, Lexington OH 44904.

**How Long Does The Service Agreement Last?** This Service Agreement will remain in effect for five (5) years from the date of delivery of the GEI-24-SAPS-48 product.

**What Will Graywacke Do?** Graywacke will, at its option, replace or repair any electrical components in the GEI-24-SAPS-48 with new or rebuilt GEI-24-SAPS-48 electrical components at its then current hourly charge plus the cost of replacement parts. If repair of the GEI-24-SAPS-48 electrical components will require estimated charges (including the cost of replacement parts) in excess of \$1200.00, Graywacke will contact the GEI-24-SAPS-48 end user to discuss alternatives. The repaired GEI-24-SAPS and an invoice for such repair work will be shipped from Graywacke within three Business Days of the date of receipt of the returned f GEI-24-SAPS-48 from end user with a written description of the problem unless further information is needed from the end user. "Business Days" mean Monday, Tuesday, Wednesday, Thursday or Friday (each a "Weekday") unless such date falls on a holiday observed by Graywacke, in which case the next Weekday will apply. All replaced GEI-24-SAPS-48 or parts will remain the property of Graywacke. By accepting this Service Warranty, the end user agrees to pay such invoice within thirty (30) days of the date of such invoice. Graywacke shall not be obligated under this Service Agreement to any end user for additional repair work if any invoice for prior repair work performed by Graywacke remains unpaid after the due date.

**What This Service Agreement Does Not Cover?** This Service Agreement Does not cover non-electrical components of the SAPS product.

**IN NO EVENT SHALL GRAYWACKE BE LIABLE FOR ANY DIRECT, SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL, PUNITIVE OR EXEMPLARY DAMAGES, EXPENSES, LOST SAVINGS OR LOST PROFITS OR ANY OTHER DAMAGES OF ANY KIND.**

**How do I get Service?** Call the Engineering Dept. at Graywacke at 419-525-3888 prior to shipping. Send the GEI-24-SAPS-48 and a written description of the problem to Graywacke Engineering, 120 Industrial drive, Lexington OH 44904. Graywacke will return the repaired or replaced GEI-24-SAPS-48 at Graywacke's expense by the same delivery method used to send the GEI-24-SAPS-48 to Graywacke.

**THERE ARE NO WARRANTIES EXPRESS OR IMPLIED WITH RESPECT TO REPAIR WORK COMPLETED UNDER THIS SERVICE AGREEMENT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**



## **LIMITED WARRANTY**

**What does this Warranty Cover?** This warranty covers any defects in workmanship or materials of the GEI-24-SAPS-48 under normal use and service.

**How Long Does the Coverage Last?** This warranty runs for Two (2) years from the date of delivery.

**What Will Graywacke Do?** Graywacke will, at its option, replace or repair any GEI-24-SAPS-48 product found by Graywacke to be defective at no charge. The repaired or replaced GEI-24-SAPS-48 product will be shipped from Graywacke within 10 Business Days of receipt of the returned GEI-24-SAPS-48 product. A written description of the problem must be included with the returned product from the end user. "Business Days" mean Monday, Tuesday, Wednesday, Thursday or Friday (each a "Weekday") unless such date falls on a holiday observed by Graywacke, in which case the next Weekday will apply. All replaced GEI-24-SAPS-48 or parts will remain the property of Graywacke.

**What Does This Warranty Not Cover?** Graywacke will not be responsible under this warranty if Graywacke determines that (1) upon examination that the GEI-24-SAPS-48 failure was (A) caused by misuse, neglect, accident, abnormal condition of operation or handling (including the failure to use the GEI-24-SAPS-48 in accordance with Graywacke instructions and observe the warnings on the GEI-24-SAPS-48 and the instruction manual), alteration to the GEI-24-SAPS-48 (other than the movement of the carrying straps or an alteration which Graywacke determines does not affect electrical components or function), or other conditions beyond the control of Graywacke or (B) damaged in transit to Graywacke. IN NO EVENT SHALL GRAYWACKE BE LIABLE FOR ANY DIRECT, SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL PUNITIVE OR EXEMPLARY DAMAGES, EXPENSES, LOST SAVINGS OR LOST PROFITS OR ANY OTHER DAMAGES OF ANY KIND.

**How to Get Warranty Service?** Call the Engineering Dept. at Graywacke at 419-525-3888 prior to shipping. Send the GEI-24-SAPS-48 and a written description of the problem to Graywacke Engineering, 120 Industrial Drive, Lexington, OH 44904. Graywacke will return the repaired or replaced GEI-24-SAPS-48 at Graywacke's expense by the same delivery method used to send the GEI-24-SAPS-48 to Graywacke.

**THIS WARRANTY IS THE SOLE AND EXCLUSIVE REMEDY AND IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**