Power Supply Model Chart

DESCRIPTION	KIT	TPN1185B	TPN1186B	TPN1198B	TPN1200B	TPN1217B	TPN1218B	TPN1260A	TPN1261A	TPN1263B	TPN1264A	TPN1265A	TPN1268A	TPN1269A	TPN1270B	TPN1271A	TPN1272A	TPN1273A	TPN1275A		
Support Bracket Hardware	TRN9752A	●	●			●	●	●	●	●	●	●	●	●	●	●	●	●			
Miscellaneous Hardware Kit	TRN7616A					●									●						
Battery Charger Hardware Kit	TRN7601A															●					
Hardware Protection UHF/800/900 MHz SMR	TRN7582A	●					●			●				●							
14VDC Battery Charger Hardware Kit	TRN7333A	●					●			●				●	●						
14/28VDC Battery Charger Hardware Kit	TRN7332A															●	●	●			
Label and Hardware	TRN7331A																●				
Label and Hardware	TRN7330A										●										
Label and Hardware	TRN7329A													●							
Label and Hardware	TRN7328A												●								
Label and Hardware	TRN7327A														●						
Label and Hardware	TRN7326A								●												
14/28 VDC-DC Hardware 24	TRN7282A																		●		
Hardware Protection Relay	TRN7281A														●	●	●	●			
14/28VDC Battery Charger Board 29	TRN7277B															●	●	●			
Battery Charger Hardware Kit	TRN7276A														●	●	●	●			
Battery Charger Hardware Kit	TRN7275A	●					●			●				●							
Hardware Kit 23	TRN7274A												●	●							
Distribution Board 28	TRN7248A							●			●	●									
14VDC Distribution Board 27	TRN7242A		●		●	●							●								
14VDC Battery Charger Board 29	TRN7241B	●					●			●				●	●						
Hardware Kit 22	TRN7237A											●						●			
Hardware Kit 21	TRN7229A										●						●				
Hardware Kit 20	TRN7213B	●	●																		
Distribution Board 26	TRN7150A			●															●		
Miscellaneous Hardware Kit	TRN7117A		●		●								●								
Power Supply Hardware Kit 19	TRN7116A								●						●						
Distribution Board 25	TRN7115A								●												
Hardware Kit 18	TRN7098A							●								●					
Miscellaneous Hardware Kit	TRN7097A							●			●	●									
Hardware Kit 17	TRN5968A					●	●														
International Hardware Kit 16	TRN5621A				●					●											
Hardware Kit 15	TRN5611A			●																	

POWER SUPPLY MODEL CHART

● = kit used in power supply

MODEL	DESCRIPTION
TPN1185B	500W 60Hz 120 VAC Battery Charger Power Supply
TPN1186B	500W 60Hz 120 VAC Power Supply
TPN1198B	500W 14 VDC-DC Power Supply
TPN1200B	500W 60Hz 110/220 VAC Power Supply
TPN1217B	250W 60Hz 110/220 VAC Power Supply
TPN1218B	250W 60Hz 110/220 VAC Battery Charger Power Supply
TPN1260A	675W 60Hz 110/220 VAC Power Supply
TPN1261A	250W 50Hz 110/220 VAC Power Supply
TPN1263B	500W 60Hz 110/220 VAC Battery Charger Power Supply
TPN1264A	575W 50Hz 110/220 VAC Power Supply
TPN1265A	675W 60Hz 110/220 VAC Power Supply
TPN1268A	500W 50Hz 110/220 VAC Power Supply
TPN1269A	500W 50Hz 110/220 VAC Battery Charger Power Supply
TPN1270B	250W 50Hz 110/220 VAC Battery Charger Power Supply
TPN1271A	675W 60Hz 110 VAC Battery Charger Power Supply
TPN1272A	575W 50Hz 110/220 VAC Battery Charger Power Supply
TPN1273A	675W 60Hz 110/220 VAC Charger Internal Power Supply
TPN1275A	675W 14/28 VDC-DC Filter Power Supply

Battery Charger Power Supply

The battery charger power supply receives either 110 Vac or 220 Vac power from an external source. The AC power is rectified and filtered by the power supply hardware. The rectified DC is routed to the PA, battery, and battery charger board. The battery charger board provides overcurrent protection for the DC that is routed to the RF tray. The battery charger board also provides overvoltage protection by switching a load to the output of the power supply hardware. In the event of an overvoltage condition an alarm signal is sent to the station control board.

The battery charger power supply uses the DC power from the battery when the AC power fails, and charges the battery during normal operation. When the battery voltage level drops below a usable level, the battery charger board disconnects the battery using the low battery relay. This protects the battery from harmful deep discharges.

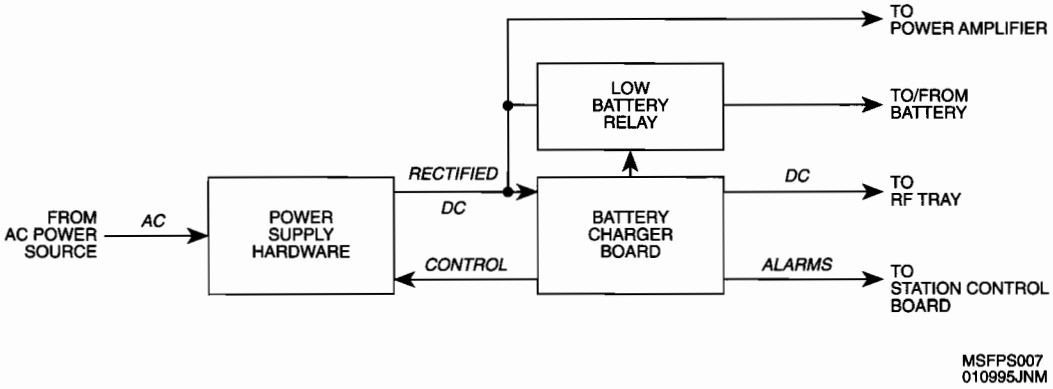


Figure 1-4 ***Battery Charger Power Supply Basic Block Diagram***

Power Supply Hardware

The power supply hardware (figure 1-6) receives either 110 Vac or 220 Vac and provides regulated DC outputs. The power supply hardware is described in the following paragraphs.

Thermal Breaker

The thermal breaker disconnects source power when the power supply reaches a preset over-temperature condition.

110 / 220 Switch

The 110/220 switch configures the primary of the ferro-resonant transformer to accept either 110 Vac or 220 Vac.

Ferro-Resonant Transformer

The ferro-resonant transformer receives the 110 Vac or 220 Vac input and provides the necessary DC voltage under control of the secondary resonant winding. Under normal conditions, the current in the resonant winding causes the transformer core to saturate, thus limiting the transformer output voltage.

Output Regulation

The output regulation circuitry controls the output of the ferro-resonant transformer. The ferro-resonant transformer output will maintain the proper level by saturating with the capacitor across the secondary winding. The battery charger board can also reduce or increase the output as necessary for battery charging.

Rectifier / Filter

The rectifier/filter converts the AC voltage from the ferro-resonant transformer secondary winding to 14 Vdc or 28 Vdc. The DC voltage is then filtered to produce a stable DC output.

Filter

The second filter filters the 14 Vdc output when the rectifier/filter is used for the 28 Vdc output.

Load

The distribution board or battery charger board switches the load to the output of the rectifier/filter during an overvoltage surge.

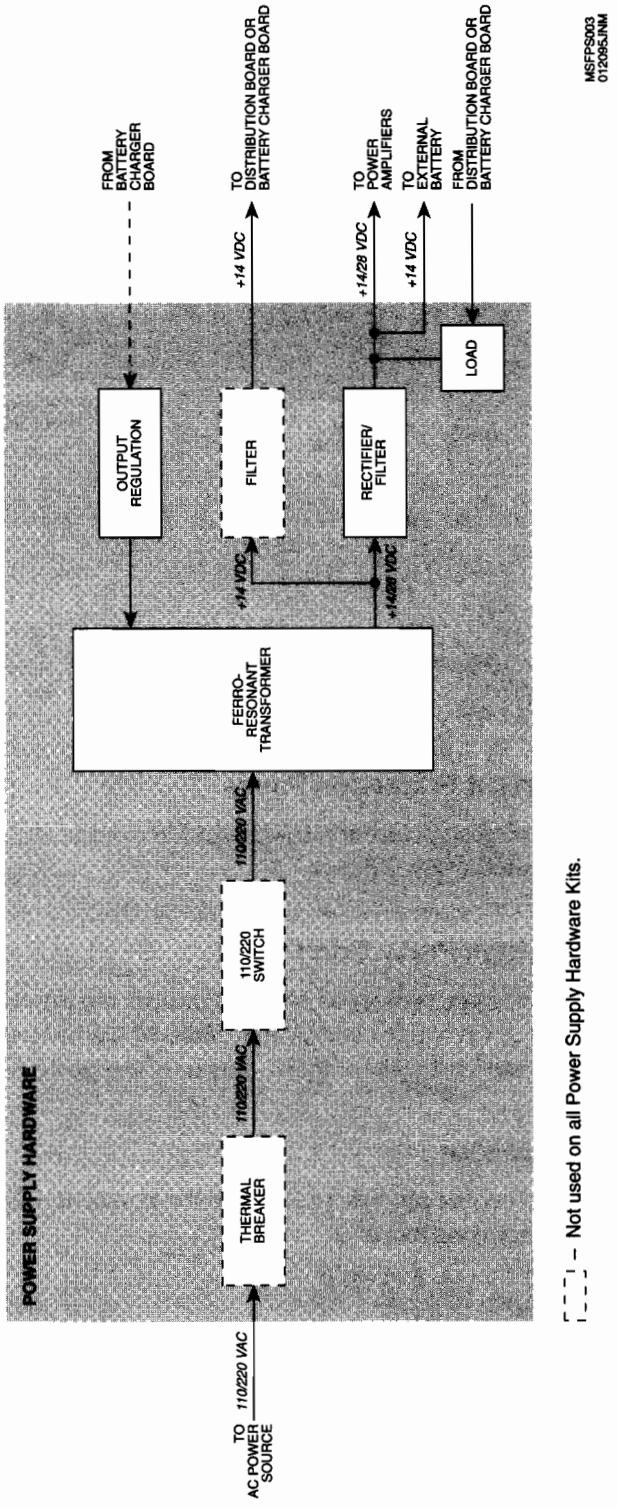


Figure 1-6 ***Power Supply Hardware Block Diagram***

Distribution Board

The following paragraphs describe the distribution board (figure 1-7) circuits.

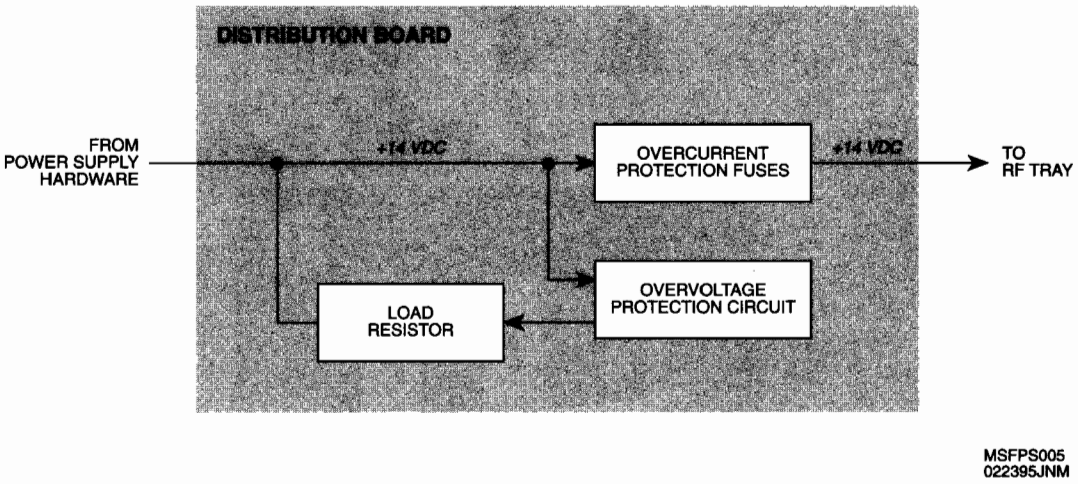


Figure 1-7 ***Distribution Board Block Diagram***

Overcurrent Protection Fuses

The overcurrent protection fuses provide overcurrent protection for the 14 Vdc that is routed to the RF tray.

Overvoltage Protection Circuit

The overvoltage protection circuit monitors the power supply hardware output. When an overvoltage condition is detected the overvoltage protection circuit switches the load resistor to the output of the power supply hardware.

Load Resistor

The load resistor provides a load for the power supply hardware during overvoltage conditions.

Battery Charger Board

The following paragraphs describe the Battery Charger Board (figure 1-8) circuits.

AC Filter

The AC filter provides a bandpass filter for the secondary AC signal from the power supply hardware.

X2 Clock

The X2 clock generator derives a clock signal every time the signal from the AC filter increases above a DC bias voltage. The clock signal drives the ramp generator.

Ramp Generator

The ramp generator produces a ramp voltage for the pulse width modulator.

Output Voltage Set Circuit

The output voltage set circuit permits adjustment of the output voltage from 13 Vdc to 15 Vdc.

Error Amplifier

The error amplifier compares a reference voltage with the output voltage and generates a control voltage with gain to the pulse width modulator.

Pulse Width Modulator

The pulse width modulator compares the control voltage with the ramp voltage. The pulse width modulator then generates a pulse width as determined by how early in the ramp cycle the control voltage equals the ramp voltage.

Power Switch

The power switch switches a control inductor in and out of the resonant winding on the power supply hardware ferro-resonant transformer.

15.5 Vdc Overvoltage Protection Circuit

The 15.5 Vdc overvoltage protection circuit monitors the power supply hardware output voltage. If the voltage rises to 15.5 Vdc, the overvoltage protection circuit triggers, which switches the inductor to the resonant winding of the power supply hardware.

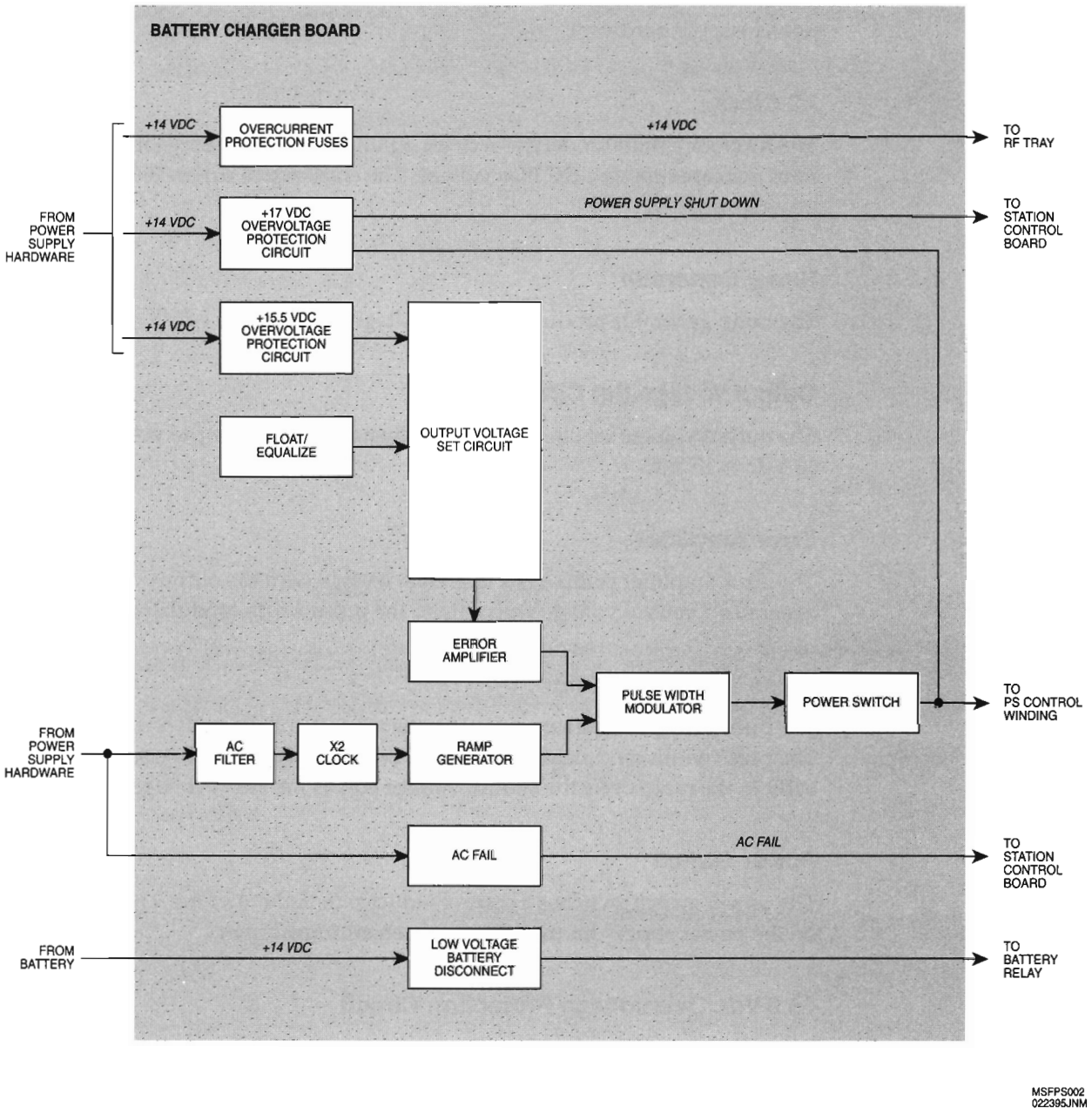


Figure 1-8 ***Battery Charger Board Block Diagram***

17 Vdc Overvoltage Protection Circuit

The 17 Vdc overvoltage protection circuit monitors the power supply hardware output voltage. If the voltage rises to 17 Vdc, the overvoltage protection circuit triggers, which shuts down the power supply.

Float / Equalize

The float/equalize circuit allows the battery charging voltage to be increased by one Volt (equalize position) for initial charging and recharging after battery usage. During normal operation, the float position is used causing the battery to maintain a constant charge.

Overcurrent Protection Fuses

The overcurrent protection fuses provide overcurrent protection for the 14 Vdc that is routed to the RF tray.

AC Fail

The AC fail circuit generates an AC FAIL signal when a loss of input power is detected.

Low Voltage Battery Disconnect

The low voltage battery disconnect circuit monitors the battery output voltage. If the output voltage drops below a usable level, the battery is disconnect to protect the it from harmful deep discharges.

Battery Installation

For optional battery revert power supplies, locate the battery in a secure place (but not in the equipment cabinet, due to corrosive gases given off from the battery), and as close to the power supply as possible. The cable length must be kept as short as practical, because of the voltage drop in the battery cable. A substantial voltage drop can be developed across this low resistance due to the high currents drawn from the battery.

Select a battery location that has an unobstructed air circulation, preferably a cool dry place with easy access to all cells for installing, taking readings, adding water, and cleaning. The battery must not be placed near radiators, boilers, or other heat producing devices.

Capacity of a battery should be carefully determined before its purchase. Factors that influence capacity are the busy hour load, the protection time desired, the final cell voltage limit, and the minimum operating temperature. For more information contact your Motorola Area Systems Engineer or the dealer where the power supply was purchased.

The battery terminal connections made during installation affect the service life of the battery. If connections are carefully made with clean, acid-free surfaces and kept tight by periodic checking, they will give trouble-free service over the life of the battery.

Do not attach batteries before setting the float voltage. Adjusting the float voltage with the battery connected may cause damage to the battery.

14 Vdc Only Battery Cable Installation For Single Voltage Power Supplies

Connect the battery cable from the junction box to the battery as follows:

1. Remove the battery cable in-line fuse to prevent accidental short circuiting during installation.

Observe proper polarity on battery connections. Failure to observe polarity may cause damage to the battery and/or the power supply.

2. Connect the battery cable plug to the junction box, and route the battery cable to the battery connection points.

3. Connect the red wire of the battery cable to the positive (+) terminal of the battery.

4. Connect the black wire of the battery cable to the negative (–) terminal of the battery.

5. Check to assure proper polarity of the cable leads, and then reinstall the in-line fuse removed in Step 1.

NOTE

If power is to be removed from the station for any reason after the initial installation, the most convenient method is to remove the in-line fuse from the battery cable.

14 Vdc and 28 Vdc Battery Cable Installation For Dual Voltage Power Supplies

1. Remove the battery cable fuses to prevent accidental short-circuiting during installation.

2. Connect the external battery plug to the connector on the junction box and route the cable to the battery connection points.

3. Connect the red wire of the battery cable to the positive (+) terminal of the 28 Vdc battery.

4. Connect the white wire of the battery cable to the positive (+) terminal of the 14 Vdc battery.

5. Connect the black wire of the battery cable to the negative (–) terminals of the batteries.

6. Check to ensure proper polarity of the cable leads and then re-install fuses removed in step 2.

NOTE

If power is to be removed from the power supply for any reason after the initial installation, the most convenient method is to remove both of the in-line fuses from the battery cable.

Maintenance

Chapter Overview

This chapter describes the maintenance of the power supplies. Topics covered in this chapter are listed in table 3-1.

Table 3-1 ***Chapter Contents***

Section	Page	Description
Introduction	3-2	Briefly describes maintenance of the power supplies and lists the test equipment necessary for maintenance.
Routine Maintenance	3-3	Describes the routine maintenance of the power supplies.
Adjustments	3-7	Describes the adjustments for the battery charger board.

Introduction

Maintenance and repairs of the power supply demand a thorough understanding of its operation. Refer to the power supply Theory of Operation for this information.

Test Equipment Required

The following test equipment is necessary for efficient, accurate servicing in the event that maintenance is required.

- ❒ 3-1/2 digit Digital Volt Meter (DVM)
- ❒ DC current meter (0-50 Amperes)
- ❒ Load resistor (variable from 0 ohm to 15 ohms, 50 Amperes)
- ❒ Variable voltage ac line transformer (0-130 Vac)
- ❒ Oscilloscope
- ❒ Variable power supply
- ❒ Bench service cord used to connect power to the power supply

Routine Maintenance

The battery or batteries used for emergency power require certain routine maintenance procedures to assure long trouble-free operation. Persons servicing the batteries should refer to the manufacturer's recommendations for routine maintenance. In addition, certain maintenance procedures are appropriate following each interval of emergency power operation.

Routine battery maintenance procedures for the three most common battery types are given (nickel-cadmium, lead-acid, and gel-cell). The importance of keeping good battery maintenance records cannot be over-emphasized. A chart or table is needed, listing all voltage readings, temperature and hydrometer readings (where applicable), versus the dates on which the readings were taken. The battery report charts should be kept at the battery location for ready reference.

Nickel-Cadmium Batteries

Perform the following routine maintenance procedure at six-month intervals.

1. Clean the battery and inspect for damage.
2. Measure cell voltages and enter the voltage readings on the maintenance report.

NOTE

Most maintenance schedules require voltage readings of every cell each time maintenance is performed. If a difference of 0.05 Volt or more exists between any two cells, apply an "equalizing charge" to the battery for 24 hours or until three consecutive cell measurements show no change (readings to be taken at 1/2-hour intervals).

[redacted]

Do not use any tool on a nickel-cadmium battery which may have been used with lead-acid batteries. This may destroy the nickel-cadmium battery due to chemical contamination by electrolyte or other foreign matter from the lead-acid battery existing on the tool in question.

Lead-Acid Batteries

Perform the following routine maintenance procedure monthly.

1. Clean the battery and inspect for damage.
2. Measure cell voltages and enter the voltage readings on the maintenance report.

NOTE

Most maintenance schedules require voltage readings of every cell each time maintenance is performed. If a difference of 0.05 Volt or more exists between any two cells, apply an "equalizing charge" to the battery for the number of hours recommended by the manufacturer.

3. Measure specific gravity using a hydrometer calibrated for the type of electrolyte used.
4. Observe the necessary precautions to verify the readings are accurate, chemical contamination of the cells does not occur, and prevent bodily injury from contact with the electrolyte.

[redacted]

After taking a reading, always return the electrolyte in the hydrometer syringe to the cell from which it came. (Failure to do so will decrease the specific gravity of the cell when water is added.)

5. For an accurate comparison with "standard" specific gravity readings, as published in manufacturer's specifications, a correction factor must be applied to all readings to normalize them with the standard values, when taken at temperatures other than 77° Fahrenheit. However, if the battery temperature tends to be the same each time specific gravity readings are taken, a trend toward a change in specific gravity will be apparent without having to apply the correction factor to the readings.

NOTE

The correction factor is easily applied, due to a linear relationship between changes in temperature and specific gravity above and below 77° F. For every three degrees above 77° F, add 0.001 (known as "1 point") to the "standard" value of specific gravity. Conversely, for every three degrees below 77° F, subtract 1 point.

6. Measure specific gravity of the "pilot cell" monthly. It is not necessary to continually check the specific gravity of all cells, because any gradual changes usually occur simultaneously in all cells. One cell is therefore chosen and designated the "pilot cell" and the monthly routine specific gravity readings are always taken from this cell. (Be sure to indicate on the maintenance chart which cell is the pilot cell.) Measure specific gravity for all the battery cells every three months and record them on the maintenance chart.

7. Add water as required to keep the electrolyte solution in each cell up to a minimum level. For some batteries, the electrolyte level should be between the high- and low-level marks on the inside of each cell. If the cells have no markers, check the manufacturer's literature. Use distilled water only.

Do not use any tool on a lead-acid battery which may have been used with nickel-cadmium batteries. This may destroy the lead-acid battery, due to chemical contamination by electrolyte or other foreign matter from the nickel-cadmium battery existing on the surface of the tool in question.

If frequent replacement of water is required, the charting rate may be too high. In this case, check the A+ voltage with the FLOAT-EQUALIZE switch set to the float position. The A+ voltage reading should agree with the manufacturer's recommended voltage setting for the type of emergency battery used. If the manufacturer's recommendations are not available, set the A+ voltage to 13.25 Vdc.

Under certain high ambient temperature conditions, the battery may require frequent water replacement even though the correct charging voltage is maintained. In this case, the specified 13.25 Vdc may be reduced until infrequent water replacement is achieved.

8. Equalize charging of a lead-acid battery should be performed under any one of the following conditions:
   - Following each known use (or discharge) of the battery.
   - If the specific gravity of the pilot cell or any other cell is more than ten-thousandths (10 points) below its full-charge value.
   - If the difference in voltage between any two cells is 0.05 Volt or more.
   - As part of each monthly routine maintenance procedure independent of any of the previous conditions stated.

   Equalize charging should continue for the number of hours specified by the battery manufacturer, which will vary according to temperature, charging voltage and the manufacturer's recommendations or until three successive readings of cell voltage and specific gravity show no change (readings to be taken at 1/2 hour intervals).

Gel-Cell Battery Maintenance

Gel-cell batteries are generally maintenance-free and do not require an equalizing voltage for recharging. Refer to the battery manufacturer's literature and specifications. If there is an indication of trouble with the battery, and the manufacturer's literature does not provide troubleshooting instructions, contact the battery manufacturer, or remove and replace the battery. If no float voltage is specified by the manufacturer of the battery, set the power supply output to 13.5 Vdc.

Adjustments

A+ Voltage Level Adjustment

The A+ output is factory-adjusted for nickel-cadmium batteries at 14.25 Vdc. If adjustment is necessary, set the output voltage control (VOLT ADJ) potentiometer on the battery charger board for the desired float voltage as follows:

NOTE

Level adjustment is allowed for the 14 Vdc input. If the power supply also uses 28 Vdc batteries, the 28 Vdc input will track the 14 Vdc input by 2 x 14 Vdc output ±5% with no 28 Vdc load. When batteries are connected, the 28 Vdc output will be 2 x 14 Vdc output ±2%.

1. Disconnect the batteries (if connected) and set the FLOAT-EQUALIZE switch to the float position.

2. Connect a dc voltmeter with 30% (min) accuracy between the plus (+) and minus (–) terminals on the power supply. Refer to the battery charger board schematic diagram in chapter 5 for the location of the terminals. Allow the power supply to warm up under PTT load for at least 10 minutes.

Refer to battery manufacturer's specifications for precise voltage setting required for charging the type of emergency battery to be used. If this information is unavailable, set the charging voltage for the type of battery as specified in Step 3.

3. Set the VOLT ADJ control potentiometer to provide a charging voltage as follows:
   - As specified by the battery manufacturer
   - To 14.25 Vdc if batteries are not to be connected at this time
   - To 14.25 Vdc for nickel-cadmium batteries at 77° F
   - To 13.25 Vdc for lead-acid batteries at 77° F
   - To 13.5 Vdc for gel-cell batteries at 77° F

Float Voltage Adjustment

Adjustment of the float voltage of the power supply is required at the time the battery is installed. The float voltage is the A+ output voltage of the power supply which will keep a battery fully charged when connected across the A+ output terminals. The float voltage adjustment varies with the type of battery installed and with the ambient temperature. Refer to the A+ Voltage Level Adjustment paragraph and the battery manufacturer's literature for adjustment of the float voltage.

Give the battery a freshening or boost charge when it is received in accordance with the manufacturer's instructions.

NOTE

Refer to the schematics in chapter 5 for component and signal locations.

DC Only Input Filter Troubleshooting

Symptom	Action
Low or no output voltage.	Check the primary line connection to the power supply.
	Check the input line fuse(s).
	Check the power rectifier(s).
	Check the filter capacitors and inductor(s).

Power Supply Hardware Troubleshooting

Symptom	Action
Low or no output voltage.	Check the primary line connection to the power supply.
	Check the transformer secondary voltage.
	Check the power rectifiers.
	Check the filter capacitors and inductor.
Output voltage slumps excessively on transmit.	Check the resonant capacitor.

Distribution Board Troubleshooting

Symptom	Action
No output voltage to RF tray.	Check the overcurrent protection fuses.
Output voltage to RF tray too high.	Check the overvoltage protection circuit.
	Check the load resistor.

Battery Charger Board Troubleshooting

Symptom	Action
A+ output voltage too high and cannot adjust.	Check for trigger pulses at the output of the error amplifier. If no trigger is present, check for proper signals from the RAMP GEN back to the X2 CLOCK. If the proper signals are present, check the voltages at the STABILIZER and CONTROL VOLTAGE GEN. If the correct trigger pulses are present, check the POWER SWITCH and PULSE POSITIONER circuitry.
A+ output voltage too low.	Check for trigger pulses at the output of the error amplifier. If no trigger is present, check for proper signals from the RAMP GEN back to the X2 CLOCK. If the proper signals are present, check the voltages at the STABILIZER and CONTROL VOLTAGE GEN. If the correct trigger pulses are present, check the POWER SWITCH and PULSE POSITIONER circuitry.
	Check the battery power diodes.
	Check the output of the 17 Vdc RAIL.

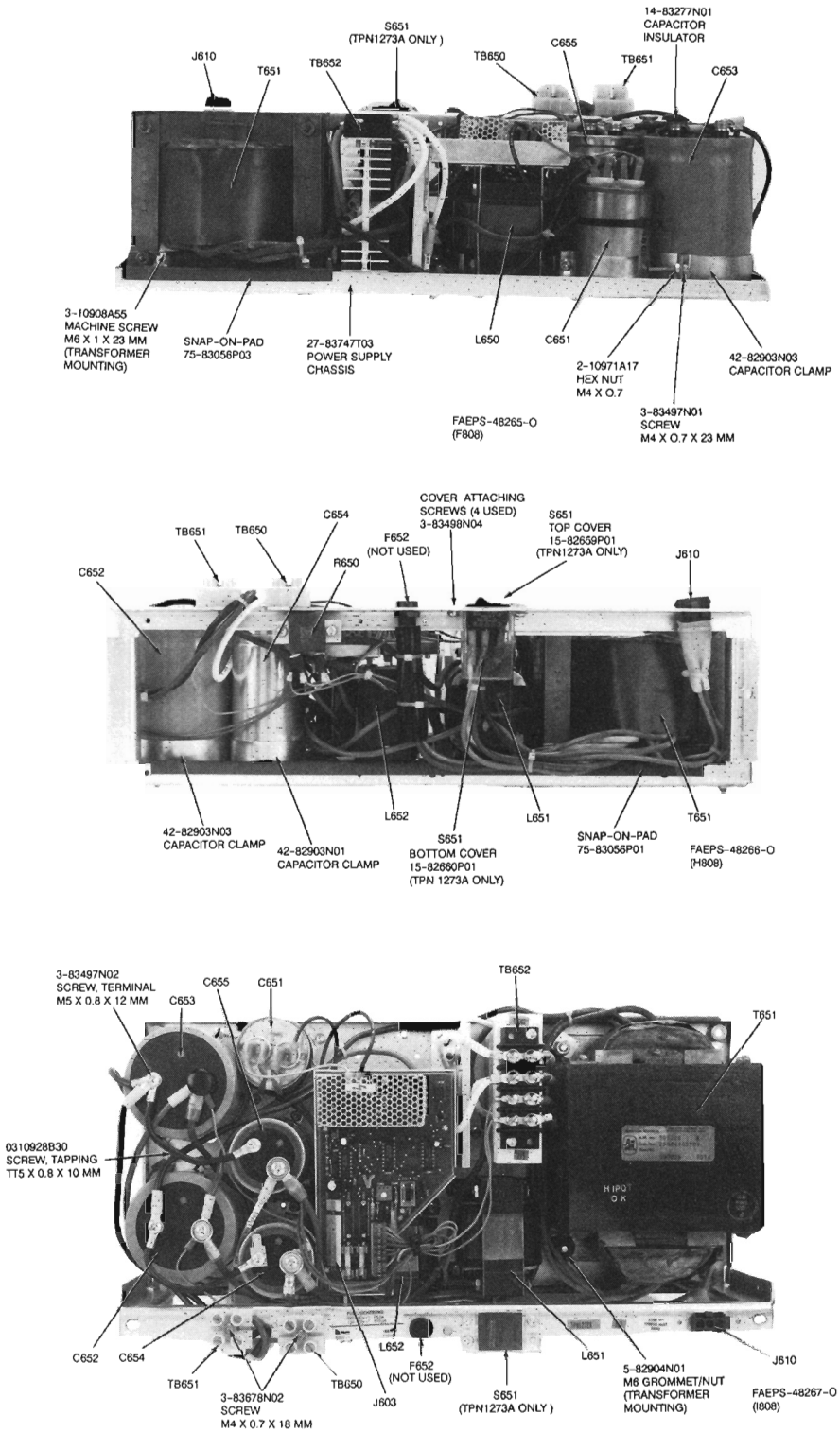
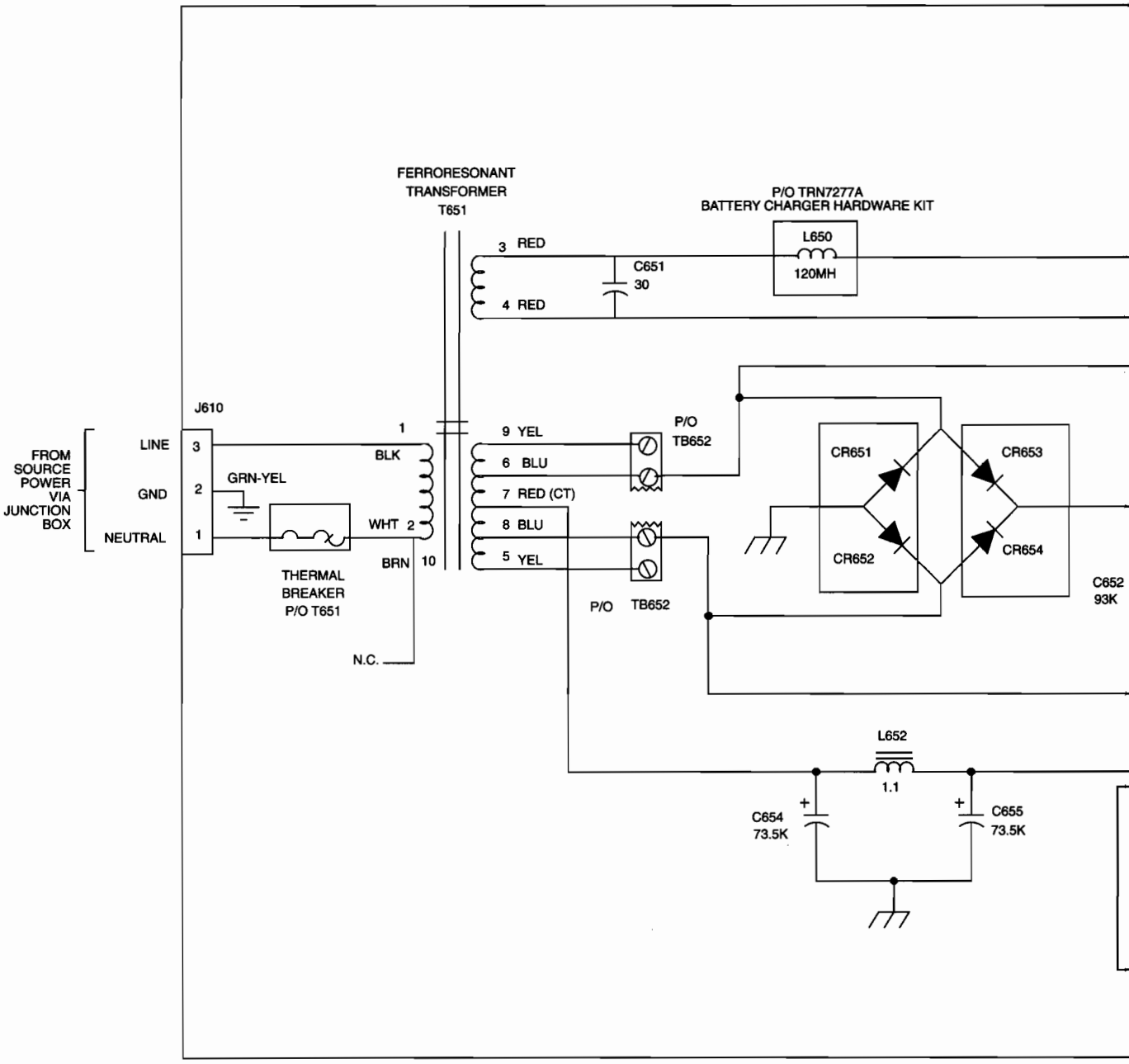


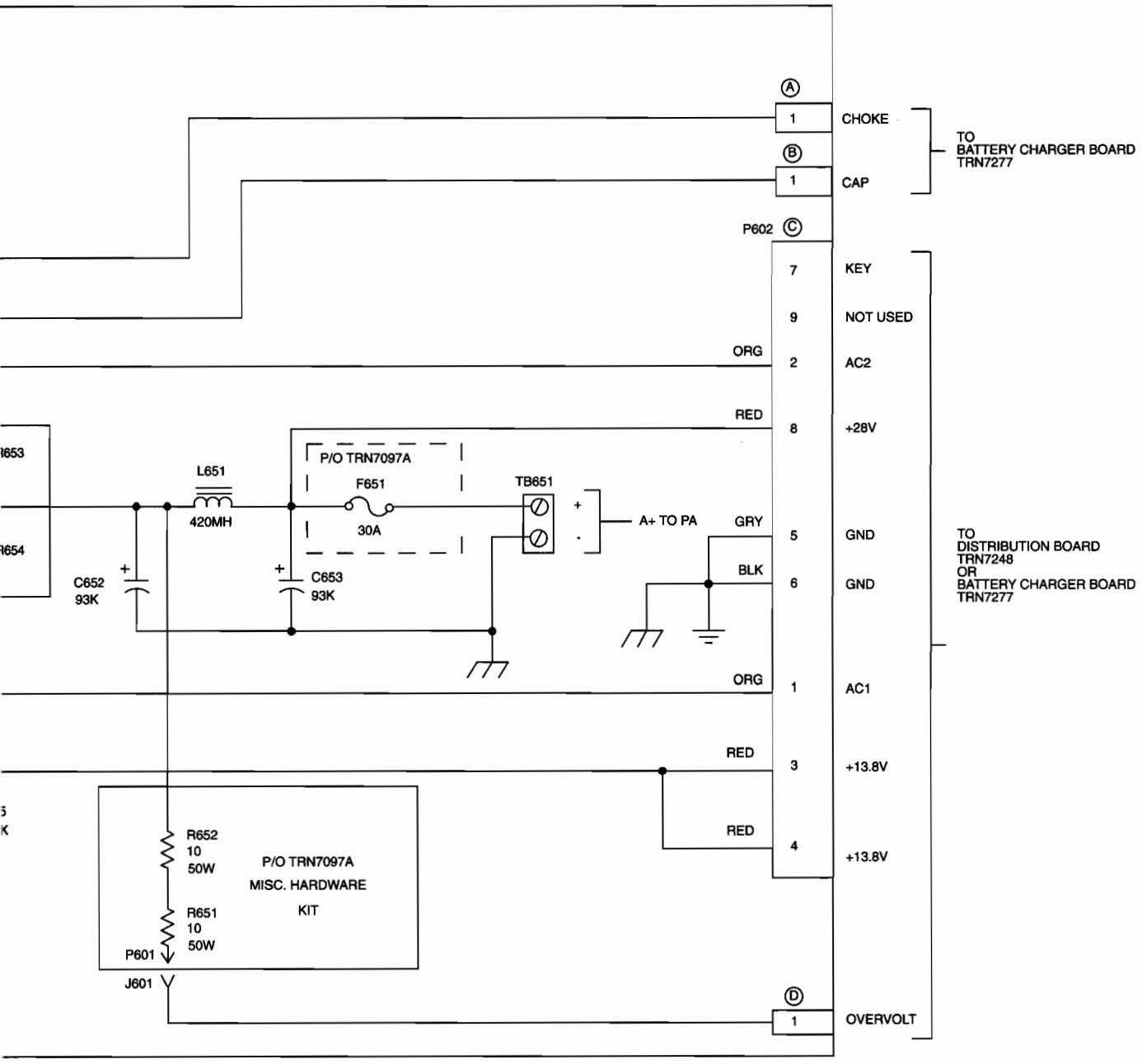
Figure 5-12 ***TPN1271/TPN1273 Mechanical Parts Location Diagram***

TRN7098



NOTES:

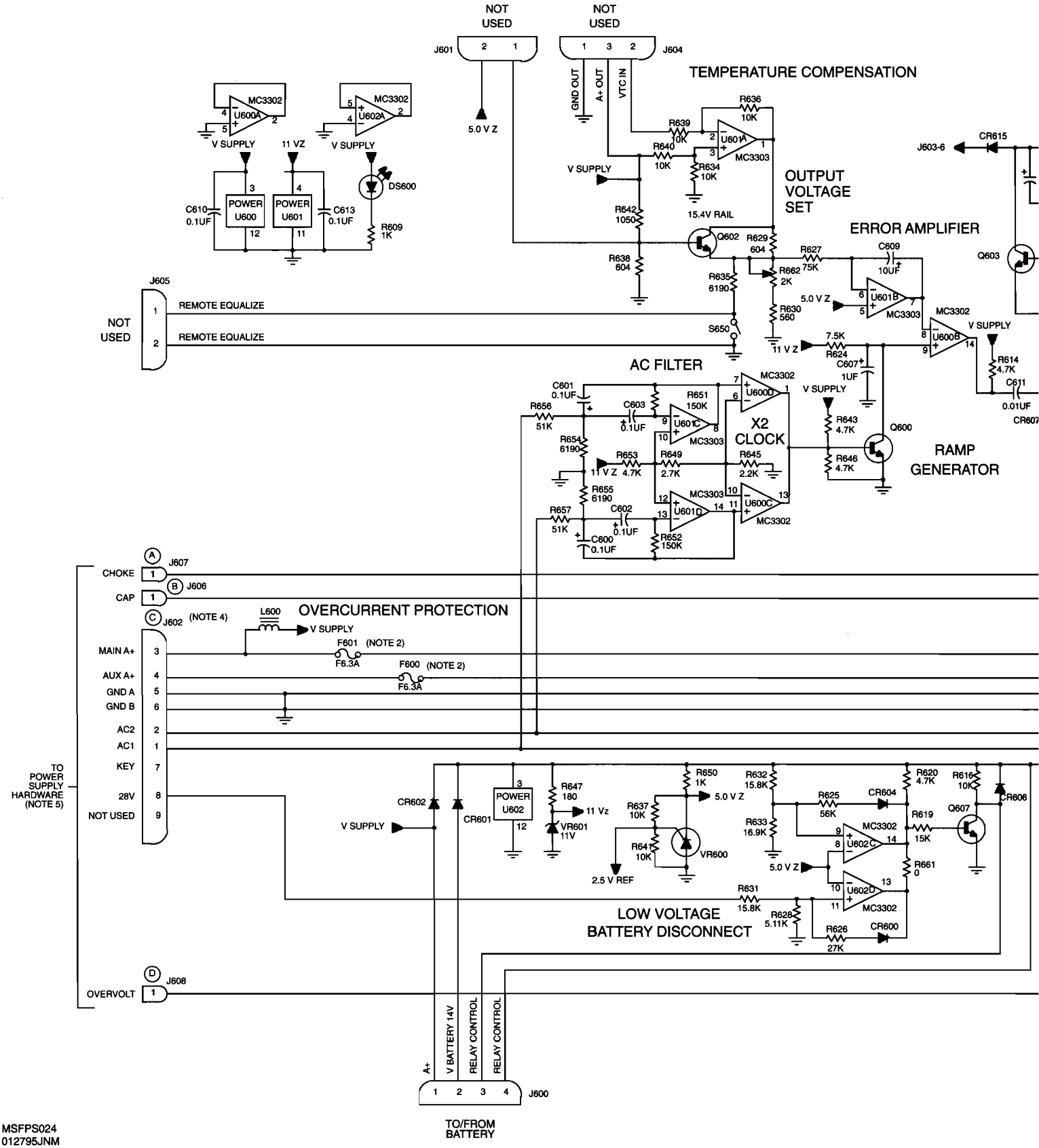
1. UNLESS OTHERWISE SPECIFIED RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MILLIHENRIES.
2. R651 AND R652 ARE MOUNTED ON THE POWER SUPPLY CHASSIS.



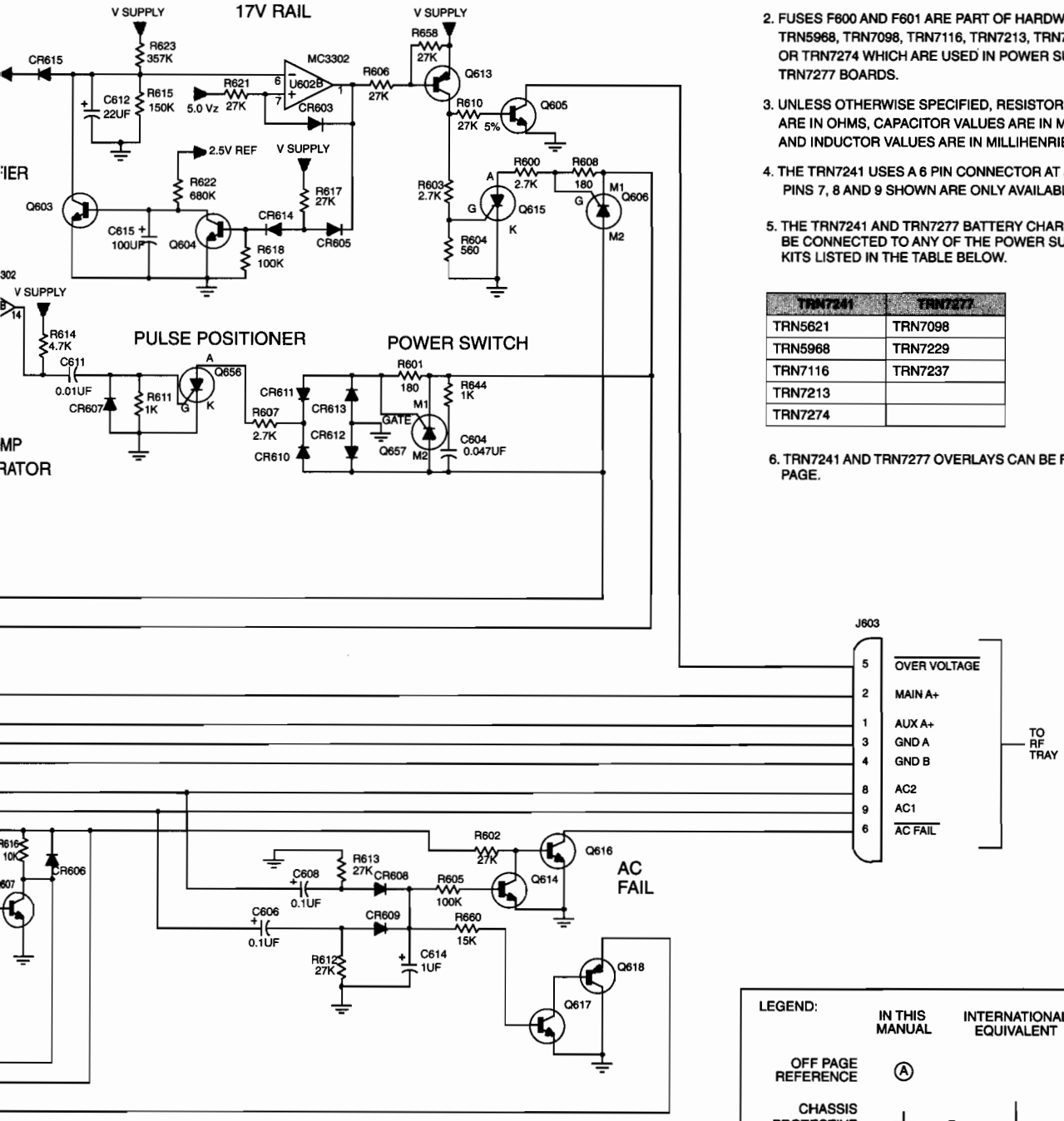
LEGEND:	IN THIS MANUAL		INTERNATIONAL EQUIVALENT
OFF PAGE REFERENCE	Ⓐ		
CHASSIS PROTECTIVE EARTH GND	⏚	=	⏚
CIRCUIT GND	⏚	=	⊥

MSFPS013
012695JNM

Battery Charger Board Schematic and Overlays



MSFPS024
012795JNM



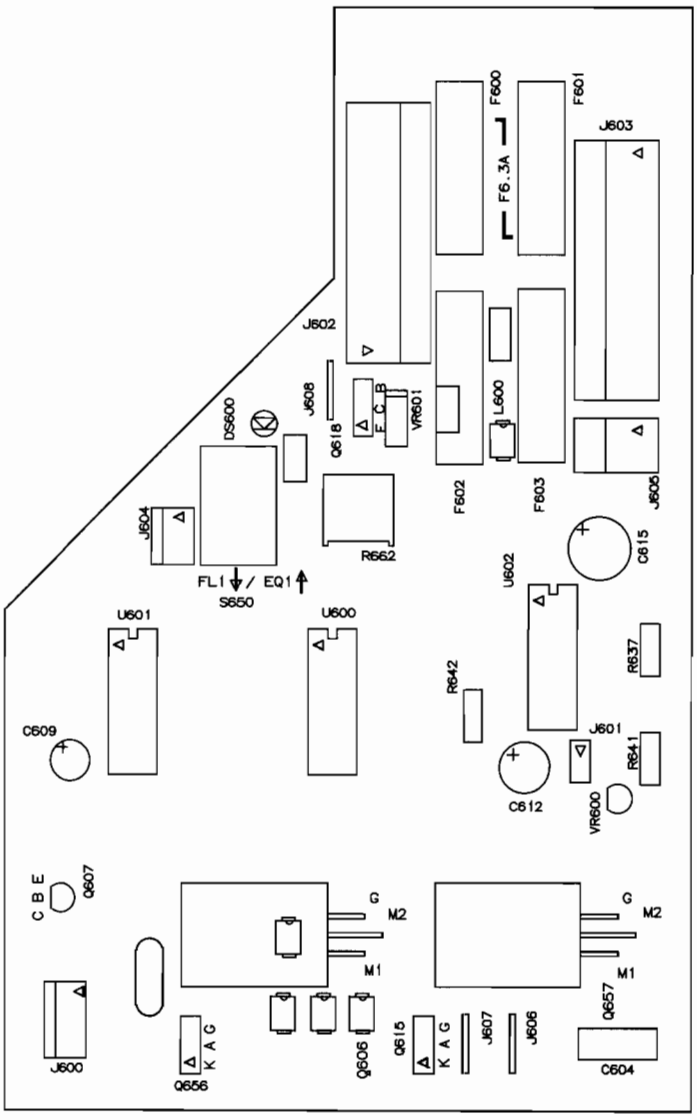
NOTES:

1. THE TRN7241 AND TRN7277 BATTERY CHARGER BOARDS ARE IDENTICAL EXCEPT FOR THE CONNECTOR USED AT J602. SEE NOTE 4.
2. FUSES F600 AND F601 ARE PART OF HARDWARE KITS TRN5620, TRN5621, TRN5968, TRN7098, TRN7116, TRN7213, TRN7229, TRN7237, TRN7332 OR TRN7274 WHICH ARE USED IN POWER SUPPLIES USING TRN7241 OR TRN7277 BOARDS.
3. UNLESS OTHERWISE SPECIFIED, RESISTOR VALUES ARE IN OHMS, CAPACITOR VALUES ARE IN MICROFARADS, AND INDUCTOR VALUES ARE IN MILLIHENRIES.
4. THE TRN7241 USES A 6 PIN CONNECTOR AT J602. PINS 7, 8 AND 9 SHOWN ARE ONLY AVAILABLE ON TRN7277.
5. THE TRN7241 AND TRN7277 BATTERY CHARGER BOARDS CAN BE CONNECTED TO ANY OF THE POWER SUPPLY HARDWARE KITS LISTED IN THE TABLE BELOW.

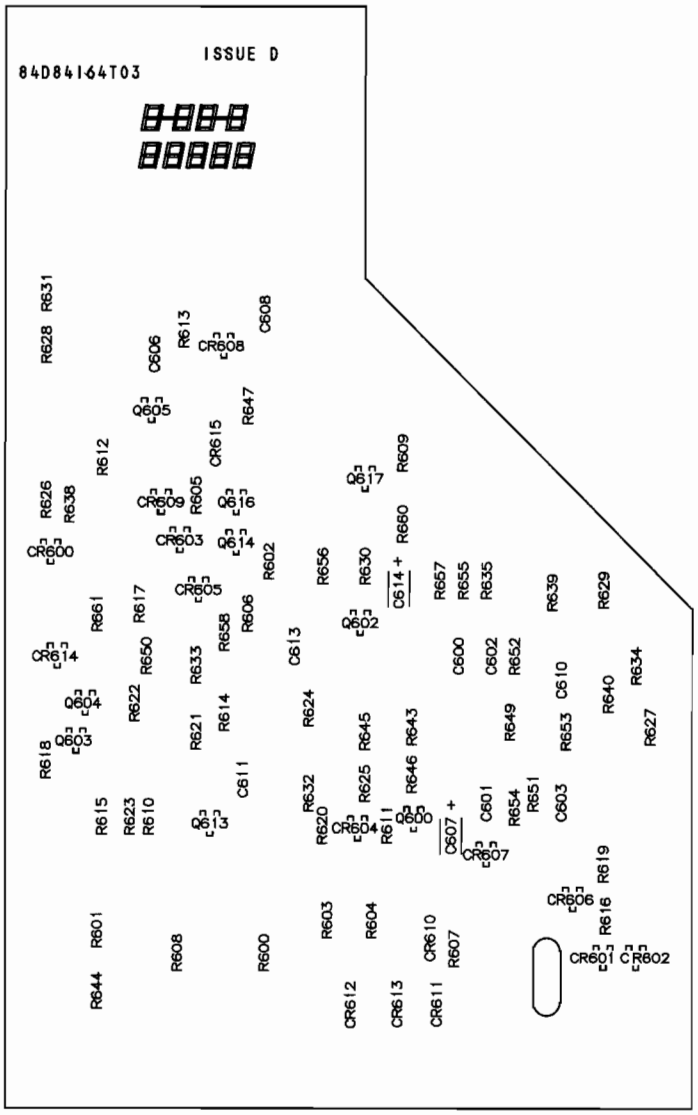
TRN7241	TRN7277
TRN5621	TRN7098
TRN5968	TRN7229
TRN7116	TRN7237
TRN7213	
TRN7274	

6. TRN7241 AND TRN7277 OVERLAYS CAN BE FOUND ON THE NEXT PAGE.

LEGEND:	IN THIS MANUAL		INTERNATIONAL EQUIVALENT
OFF PAGE REFERENCE	Ⓐ		
CHASSIS PROTECTIVE EARTH GND	⏚	=	⏚
CIRCUIT GND	⏚	=	⊥



COMPONENT SIDE



SOLDER SIDE

MSFPS025
022295JNM

MOTOROLA

instruction manual revision

GENERAL:

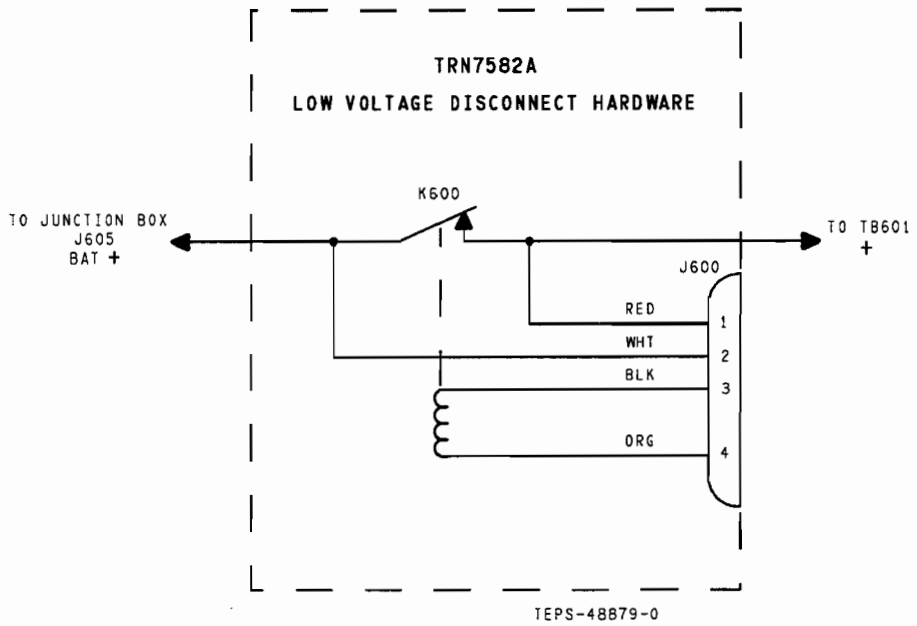
This revision outlines changes that have occurred since the printing of your instruction manual. Use this information to correct your manual.

INSTRUCTION MANUAL AFFECTED:

68P81094E30–O Power Supply Service Manual

REVISION DETAILS:

1. This revision is providing a schematic diagram and updated parts list for the TRN7582A Low Voltage Disconnect Hardware Kit. Add this information to your service manual after page 5–23 which is located behind the Mechcanical Diagrams and Schematics Tab.



PARTS LIST

TRN7582A HARDWARE PROTECTION UHF/800/900 PL–13138–O

REF. SYMBOL	PART NO.	DESCRIPTION
	non–referenced items:	
	0180731E69	RELAY HARDWARE ASSEMBLY Includes:
	1583142M08	HOUSING, connector: 4–contact
	2983376H05	TERMINAL, receptacle (brass) (2 used)
	3000813233	CABLE, battery (red) (26 used)
	3083920N02	CABLE, battery (white) (15 used)
	3982717M01	CONTACT, receptacle (4 used)
	8084197A02	RELAY, general purpose
	0300006947	SCREW, machine: 6–32x7/16"
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (2 used)
	0383498N14	SCREW, tapping: M4 x 0.7 x 18
	0400002645	WASHER, lock: external
	0785545U01	BRACKET, relay
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg
	3183576K02	TERMINAL STRIP: 3–contact

TRN5611A Hardware Kit

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C602, C603	2382681N01	64000 uF, +75%/-7%; 20V
C604	2382681N02	120000 uF, +75%/-10%; 20V
		diode: (see note 1)
CR666	4882732C13	silicon
		fuse:
F601, F602	6582847N27	6.3A, 250V (2 used)(see note 2)
		inductor:
L601	2582686N01	420 UH
		non-referenced items:
	0180701F32	TERMINAL BLOCK & WIRE
	0180704F20	TERM BLK 1 DIODE & WIRES
	0200115968	NUT, hex: 1/4-28 x 3/8 x 1/8"
	0210971A16	NUT, hex: 3 x0.5mm
	0210971A17	NUT, hex: M4 x 0.7 (3 used)
	0310928B30	SCREW, locking: TT5 x 0.8 x 10
	0383497N01	SCREW, machine: M4 x 0.7 x 23 (3 used)
	0383497N02	SCREW, machine: M5 x 0.8 x 12 (6 used)
	0383497N04	SCREW, machine: M3 x 0.5 x 8
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (13 used)
	0383498N14	SCREW, tapping: M4 x 0.7 x 18 (2 used)
	0400007658	WASHER, lock: No. 10 internal tooth (6 used)
	0400007670	WASHER, lock: 1/4", int. tooth
	0400007683	WASHER, lock: No. 4, internal tooth
	0483499N01	WASHER, lug, insulator (3 used)
	0983360N01	CONNECTOR, receptacle: 6-contact
	1483277N01	INSULATOR, lug (3 used)
	2783747T05	CHASSIS PWR SUPPLY
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg (8 used)
	2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (4 used)
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red) (2 used)
	2983501T02	LUG MALE TERMINAL (2 used)
	3000813233	CABLE, battery (red) (32.5 used)
	3000831572	CABLE, battery (black) (43.25 used)
	3010286A21	18STIVBK (10 used)
	3010310A26	16STHVRD (4.13 used)
	3183576K02	TERMINAL STRIP: 3-contact (2 used)
	3700134165	TBG HS POLYOL 3/8 CLR (1.5 used)
	4210217A02	STRAP, tie: .091 x 3.62" lg (9 used)
	4210217A33	STRAP, tie: .190x15" lg (2 used)
	4282903N02	CLAMP, capacitor, 2.5" (2 used)
	4282903N03	CLAMP, capacitor: 3"
	4300845034	SPACER: 0.265 ID x 3/4 OD x 3/16" thick
	4382980N03	STANDOFF, printed circuit board (4 used)

Notes: 1. For optimum performance, diodes must be ordered by Motorola part number.
2. Fuses used on distribution board TRN7150.

TRN5621A International Power Supply Hardware Kit

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C601	0882682N04	25 uF, +/-6%; 330V
C602, C603	2382681N01	64000 uF, +75%/-7%; 20V
C604	2382681N02	120000 uF, +75%/-10%; 20V
		diode: (see note 1)
CR601, CR602	4882732C09	silicon
		inductor:
L601	2582686N01	420 UH
		switch:
SW601	4084612B05	rocker, dpdt
		transformer:
T601	2582621P01	power
		non-referenced items:
	0180701F32	TERMINAL BLOCK & WIRE
	0180752D44	HEAT SINK
	0180757D40	CONNECTOR
	0210971A17	NUT, hex: M4 x 0.7 (4 used)
	0210971A19	NUT, hex: M6 x 1 (2 used)
	0310908A55	SCREW, machine: M6 x 1 x 25 (4 used)
	0310928B30	SCREW, locking: TT5 x 0.8 x 10 (2 used)
	0383497N01	SCREW, machine: M4 x 0.7 x 23 (4 used)
	0383497N02	SCREW, machine: M5 x 0.8 x 12 (6 used)
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (22 used)
	0383498N06	SCREW, tapping: M4 x 0.7 x 16 (3 used)
	0383498N14	SCREW, tapping: M4 x 0.7 x 18
	0400007651	WASHER, lock: No.8 internal tooth (9 used)
	0400007658	WASHER, lock: No. 10 internal tooth (6 used)
	0400119331	WASHER, lock: No. 1/4, medium split (2 used)
	0400135873	WASHER, flat: .281 x .750 x .060" (2 used)
	0483423R01	WASHER, flat, rectangular (2 used)
	0483499N01	WASHER, lug, insulator (3 used)
	0582904N01	GROMMET: M12.70 mtg hole (4 used)
	0983360N01	CONNECTOR, receptacle: 6-contact
	1483277N01	INSULATOR, lug (3 used)
	1484088N01	INSULATOR, capacitor terminal (2 used)
	1582659P01	COVER, switch (front)
	1582660P01	COVER, switch (rear)
	2382681N01	64000 uF, +75%/-7%; 20V
	2682902N01	HEAT SINK
	2783747T05	CHASSIS PWR SUPPLY
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg (5 used)
	2982607B06	LUG, ring tongue: No. 10 mtg hole, .625" lg (3 used)
	2982607B09	LUG, ring tongue: No. 8 mtg hole, .855" lg (2 used)
	2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (5 used)
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red) (2 used)
	2983137N01	TERMINAL, parallel splice (2 used)
	2983501T02	LUG MALE TERMINAL (2 used)
	2984709N01	TERMINAL, receptacle (blue)
	3000813233	CABLE, battery (red) (17.5 used)
	3000831572	CABLE, battery (black) (40.25 used)
	3010286A21	18STIVBK (9 used)
	3010286A26	WIRE, stranded: #18 GREY (9 used)
	3010286B77	WIRE, stranded: #18 ORANGE (21 used)
	3010286D01	16STIVGNYL (6 used)
	3083920N02	CABLE, battery (white) (12.5 used)

	3100811350	TERMINAL BLOCK: 4-contact
	3183576K02	TERMINAL STRIP: 3-contact
	3700132754	TBG HS POLYOL 1 CLR (1.5 used)
	3983146N01	CONTACT, receptacle
	4210217A02	STRAP, tie: .091 x 3.62" lg (17 used)
	4210217A33	STRAP, tie: .190x15" lg (4 used)
	4282828T01	CLAMP, cable, dual
	4282903N01	CLAMP, capacitor: 2"
	4282903N02	CLAMP, capacitor, 2.5" (2 used)
	4282903N03	CLAMP, capacitor: 3"
	5482885P02	LABEL, rocker switch
	5483971N01	LABEL, high voltge
	5484046N01	LABEL: "CAUTION-HEAVY"
	6582847N27	6.3A, 250V (2 used)(see note 2)
	7583056P01	PAD, snap-on (380MM lg)

Notes: 1. For optimum performance, diodes must be ordered by Motorola part number.
2. Fuses used on distribution board TRN7242 or battery charger board TRN7241.

TRN5968A Hardware Kit

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C601	0882682N03	15 uF, +/-6%; 330V
C602	2382681N03	97000 uF, +75%/-10%; 20V
C604	2382681N06	73500 uF, +75%; +/-10%; 20V
		diode: (see note 1)
CR601, CR602	4882732C09	silicon (2 used)
		inductor:
L601	2582620P01	1.1 MH
		switch:
SW601	4084612B05	rocker, dpdt
		transformer:
T601	2583161P01	power
		non-referenced items:
	0180701F33	TERMINAL BLOCK & WIRE
	0180777D38	RECTIFIER
	0180777D39	CHOKE, connector
	0210971A17	NUT, hex: M4 x 0.7 (3 used)
	0210971A18	NUT, hex: M5x0.8 (2 used)
	0210971A19	NUT, hex: M6 x 1 (2 used)
	0310908A55	SCREW, machine: M6 x 1 x 25 (4 used)
	0310943M29	SCREW, tapping: TT5 x 0.8 x 13 (2 used)
	0383497N01	SCREW, machine: M4 x 0.7 x 23 (3 used)
	0383497N02	SCREW, machine: M5 x 0.8 x 12 (4 used)
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (17 used)
	0383498N05	SCREW, tapping: M4 x 0.7 x 12 (2 used)
	0383498N06	SCREW, tapping: M4 x 0.7 x 16
	0383498N14	SCREW, tapping: M4 x 0.7 x 18
	0400007651	WASHER, lock: No.8 internal tooth
	0400007658	WASHER, lock: No. 10 internal tooth (6 used)
	0400119331	WASHER, lock: No. 1/4, medium split (2 used)
	0400135873	WASHER, flat: .281 x .750 x .060" (2 used)
	0483423R01	WASHER, flat, rectangular (2 used)
	0483499N01	WASHER, lug, insulator (2 used)
	0582904N01	GROMMET: M12.70 mtg hole (4 used)
	0983360N01	CONNECTOR, receptacle: 6-contact
	1483277N01	INSULATOR, lug (2 used)
	1484088N01	INSULATOR, capacitor terminal (2 used)
	1582659P01	COVER, switch (front)
	1582660P01	COVER, switch (rear)
	2683005P01	HEAT SINK
	2783468T01	CHASSIS, PS (5-3/4")
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg (3 used)
	2982607B06	LUG, ring tongue: No. 10 mtg hole, .625" lg (3 used)
	2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (4 used)
	2983113N03	TERMINAL, socket: right angle (2 used)
	2983137N01	TERMINAL, parallel splice (2 used)
	2983376H05	TERMINAL, receptacle (brass) (3 used)
	2984709N01	TERMINAL, receptacle (blue)
	3000813233	CABLE, battery (red) (23 used)
	3000831572	CABLE, battery (black) (29.25 used)
	3010286A21	18STIVBK (13 used)
	3010286A26	WIRE, stranded: #18 GREY (13 used)
	3010286B77	WIRE, stranded: #18 ORANGE (21 used)
	3010286D01	16STIVGNYL (8 used)
	3083920N02	CABLE, battery (white) (7 used)
	3183576K02	TERMINAL STRIP: 3-contact
	3700135566	TUBING,1/4 in, black (3 used)
	3983146N01	CONTACT, receptacle
	4210217A02	STRAP, tie: .091 x 3.62" lg (15 used)
	4210217A33	STRAP, tie: .190x15" lg (2 used)
	4282828T01	CLAMP, cable, dual
	4282903N01	CLAMP, capacitor: 2"
	4282903N03	CLAMP, capacitor: 3"
	4282903N04	CLAMP, capacitor,1-3/4"
	5482885P02	LABEL, rocker switch
	5483971N01	LABEL, high voltge
	5484046N01	LABEL: "CAUTION-HEAVY"
	6582847N27	6.3A, 250V (2 used)(see note 2)
	7583056P01	PAD, snap-on (380MM lg)

Notes: 1. For optimum performance, diodes must be ordered by Motorola part number.
2. Fuses used on distribution board TRN7242 or battery charger board TRN7241.

TRN7097A Misc. Hardware Kit

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	0180701F34	TERM BLOCK & WIRE
	0180726E09	RESISTOR CABLE
	0310943J17	SCREW, tapping: TT3.5 x 0.6x13
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (4 used)
	0783991T01	BRKT SUPPORT
	1782177B65	10 ohms, +/-10%; 50W (2 used)
	2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (3 used)
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red)
	2983113N01	CONNECTOR, receptacle: right-angle (blue) (5 used)
	3000813233	CABLE, battery (red) (13 used)
	3000831572	CABLE, battery (black) (12 used)
	3010286A11	16STIVWH (16.75 used)
	3183576K02	TERMINAL STRIP: 3-contact
	3184599D01	TERM FUSE
	4382980N03	STANDOFF, printed circuit board (4 used)
	6500041492	FUSE TUB 30AMP 32V

TRN7098A Hardware Kit

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C651	0882682N05	30 uF, +/-6%; 330V
C654, C655	2382681N06	73500 uF, +75%; +/-10%; 20V (2 used)
C652, C653	2382681N13	93000 uF, +75%; +/-10%; 40V (2 used)
		diode: (see note 1)
CR651, CR652	4882732C09	silicon
CR653, CR654	4882732C09	silicon
		inductor:
L651	2582686N01	420 UH
L652	2582620P01	1.1 MH
		transformer:
T651	2583354T01	675W; 60 HZ
		non-referenced items:
	0180726E07	CONNECTOR, choke
	0180726E08	HEAT SINK, hot
	0180752D44	HEAT SINK
	0210971A17	NUT, hex: M4 x 0.7 (6 used)
	0210971A19	NUT, hex: M6 x 1 (2 used)
	0310908A55	SCREW, machine: M6 x 1 x 25 (4 used)
	0310928B30	SCREW, locking: TT5 x 0.8 x 10 (2 used)
	0383497N01	SCREW, machine: M4 x 0.7 x 23 (5 used)
	0383497N02	SCREW, machine: M5 x 0.8 x 12 (8 used)
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (25 used)
	0383498N06	SCREW, tapping: M4 x 0.7 x 16 (6 used)
	0383498N14	SCREW, tapping: M4 x 0.7 x 18
	0400007651	WASHER, lock: No.8 internal tooth (10 used)
	0400007658	WASHER, lock: No. 10 internal tooth (10 used)
	0400119331	WASHER, lock: No. 1/4, medium split (2 used)
	0400135873	WASHER, flat: .281 x .750 x .060" (2 used)
	0483423R01	WASHER, flat, rectangular (2 used)
	0483499N01	WASHER, lug, insulator (4 used)
	0484071T01	WASHER, sholder (2 used)
	0582904N01	GROMMET: M12.70 mtg hole (4 used)
	0983360N02	receptacle: 9-contact
	1483277N01	INSULATOR, lug (4 used)
	1483988T01	INSULATOR
	1484088N01	INSULATOR, capacitor terminal (2 used)
	2682902N01	HEAT SINK
	2683876T01	HEAT SINK, PS
	2783747T05	CHASSIS PWR SUPPLY
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg (6 used)
	2982607B06	LUG, ring tongue: No. 10 mtg hole, .625" lg
	2982607B09	LUG, ring tongue: No. 8 mtg hole, .855" lg (4 used)
	2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (4 used)
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red) (5 used)
	2983137N01	TERMINAL, parallel splice (4 used)
	2983501T02	LUG MALE TERMINAL (2 used)
	3000813233	CABLE, battery (red) (11 used)
	3000831572	CABLE, battery (black) (30 used)
	3010286A21	18STIVBK (32 used)
	3010286A23	WIRE, stranded: #18 RED (12 used)
	3010286B77	WIRE, stranded: #18 ORANGE (22 used)
	3010563P89	WR 16STR PVC GRNYEL (6 used)
	3083920N02	CABLE, battery (white) (26.5 used)
	3100811350	TERMINAL BLOCK: 4-contact
	3983146N01	CONTACT, receptacle
	4210217A02	STRAP, tie: .091 x 3.62" lg (8 used)
	4210217A33	STRAP, tie: .190x15" lg (2 used)
	4282828T01	CLAMP, cable, dual (3 used)
	4282903N01	CLAMP, capacitor: 2" (3 used)
	4282903N03	CLAMP, capacitor: 3" (2 used)
	4882732C08	silicon (2 used)
	5483971N01	LABEL, high voltge
	5484046N01	LABEL: "CAUTION-HEAVY"
	6582847N27	6.3A, 250V (2 used)(see note 2)
	7583056P01	PAD, snap-on (380MM lg)

Notes: 1. For optimum performance, diodes must be ordered by Motorola part number.
2. Fuses used on distribution board TRN7248 or battery charger board TRN7277.

TRN7115A Distribution Board

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C601	2311049A15	4.7 uF, +/-10%; 35V
C602,603	2113740B32	20 pF, +/-5%; 50 V
		diode: (see note)
CR601 thru 603	4813833C10	0.1A, 70 V
		light emitting diode: (see note)
DS601	4884404E16	grn
		fuse:
F601,602	6582847N27	6.3A, 250V
		connector:
J602	2880004T06	plug: 6-contact
J603	2882984N14	plug: 9-contact
		connector:
P601	2910231A10	terminal, circuit board
		transistor: (see note)
Q601	4813824D21	TSTR LOW NOISE PNP 60V 2N5087
Q602	4813824D05	TSTR NPN 30V .6A MPS2222RLRP
Q603	4800869806	NPN
		resistor, fixed:
R601	0611040C51	3.83K, +/-0.5%; 1/4W
R602	0611040C41	3.01K, +/-0.5%; 1/4W
R603	0611040C15	1.62K, +/-0.5%; 1/4W
R604	0611086C55	680 ohms, +/-5%; 2W
R605	0611009A67	5.6K, +/-5%; 1/4W
R606	0611077A98	10K, +/-5%; 1/8 W
R607	0611086A61	1.2K, +/-5%; 1W
R608	0611077A90	4.7K, +/-5%; 1/8 W
R609	0611086A03	1 ohms, +/-5%; 1W
R610	0611077A60	270 ohms, +/-5%; 1/8 W
R611 thru 613	1782036G17	1.5 ohms, +/-5%; 2W
R614	0611077A98	10K, +/-5%; 1/8 W
R615	0611077B05	18K, +/-5%; 1/8 W
R616	0611086A63	1.5K, +/-5%; 1W
R617	0611086A61	1.2K, +/-5%; 1W
R618	1782036G17	1.5 ohms, +/-5%; 2W
		integrated circuit: (see note)
U601	5184621K74	Comparator
		voltage regulator: (see note)
VR601	4883461E40	Zener 5.1V

		non-referenced items:
	0910548A04	Fuse Block (used with F601)
	0910548A04	Fuse Block (used with F602)

Note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

TRN7116A Battery Charger Hardware Kit

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C651	0882682N03	15 uF, +/-6%; 330V
C652	2382681N03	97000 uF, +75%/-10%; 20V
C653	2382681N06	73500 uF, +75%; +/-10%; 20V
		diode: (see note 1)
CR651, CR652	4882732C09	silicon (2 used)
		fuse:
F651	6582847N25	3.15A, 250V
		inductor:
L651	2582620P01	1.1 MH
		switch:
SW601	4084612B05	rocker, dpdt
		transformer:
T651	2583071P03	power
		non-referenced items:
	0180701F33	TERMINAL BLOCK & WIRE
	0180777D38	RECTIFIER
	0180777D39	CHOKE, connector
	0210971A17	NUT, hex: M4 x 0.7 (3 used)
	0210971A19	NUT, hex: M6 x 1 (2 used)
	0310908A55	SCREW, machine: M6 x 1 x 25 (4 used)
	0310928B30	SCREW, locking: TT5 x 0.8 x 10 (2 used)
	0383497N01	SCREW, machine: M4 x 0.7 x 23 (3 used)
	0383497N02	SCREW, machine: M5 x 0.8 x 12 (4 used)
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (17 used)
	0383498N05	SCREW, tapping: M4 x 0.7 x 12 (2 used)
	0383498N06	SCREW, tapping: M4 x 0.7 x 16
	0383498N14	SCREW, tapping: M4 x 0.7 x 18
	0400007651	WASHER, lock: No.8 internal tooth
	0400007658	WASHER, lock: No. 10 internal tooth (6 used)
	0400119331	WASHER, lock: No. 1/4, medium split (2 used)
	0400135873	WASHER, flat: .281 x .750 x .060" (2 used)
	0483423R01	WASHER, flat, rectangular (2 used)
	0483499N01	WASHER, lug, insulator (2 used)
	0582904N01	GROMMET: M12.70 mtg hole (4 used)
	0983360N01	CONNECTOR, receptacle: 6-contact
	0983641T01	FUSEHOLDER
	0983641T02	CAP, fuseholder
	1483277N01	INSULATOR, lug (2 used)
	1484088N01	INSULATOR, capacitor terminal (2 used)
	1582659P01	COVER, switch (front)
	1582660P01	COVER, switch (rear)
	2683005P01	HEAT SINK
	2783468T01	CHASSIS, PS (5-3/4")
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg (3 used)
	2982607B06	LUG, ring tongue: No. 10 mtg hole, .625" lg (2 used)
	2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (4 used)
	2982907N06	TERMINAL, ring tongue: No. 10 mtg hole (blue)
	2983113N03	TERMINAL, socket: right angle (2 used)
	2983137N01	TERMINAL, parallel splice (2 used)
	2983376H05	TERMINAL, receptacle (brass) (3 used)
	2984709N01	TERMINAL, receptacle (blue)
	3000813233	CABLE, battery (red) (21 used)
	3000831572	CABLE, battery (black) (29 used)
	3010286A21	18STIVBK (13 used)
	3010286A26	WIRE, stranded: #18 GREY (13 used)
	3010286B77	WIRE, stranded: #18 ORANGE (21 used)
	3083611T01	WIRE SHLD AWG 16 600V GRN/YEL (9.5 used)
	3083920N02	CABLE, battery (white) (7 used)
	3183576K02	TERMINAL STRIP: 3-contact
	3700121C13	SLVNG FBGLS VYL 1/2" BLK (3 used)
	3700132754	TBG HS POLYOL 1 CLR (2 used)
	3700135566	TUBING,1/4 in, black (4 used)
	3983145N02	CONTACT, plug: 22.60MM lg
	4210217A02	STRAP, tie: .091 x 3.62" lg (15 used)
	4210217A33	STRAP, tie: .190x15" lg
	4282828T01	CLAMP, cable, dual
	4282903N01	CLAMP, capacitor: 2"
	4282903N03	CLAMP, capacitor: 3"
	4282903N04	CLAMP, capacitor,1-3/4"
	5483440T01	LABEL, 220V PS
	5483440T04	Label, switch
	5483440T05	LABEL, 220VAC
	5483971N01	LABEL, high voltge
	6582847N27	6.3A, 250V (2 used)(see note 2)
	7583056P01	PAD, snap-on (380MM lg)
	7583056P03	PAD, snap-on (140MM)

Notes: 1. For optimum performance, diodes must be ordered by Motorola part number.
2. Fuses used on distribution board TRN7115 or battery charger board TRN7241.

TRN7117A Misc. Hardware Kit

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	0383498N04	SCREW, tapping: M4 x 0.7 x 7
	1782177B65	10 ohms, +/-10%; 50W
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red)
	2983113N03	TERMINAL, socket: right angle (3 used)
	3010286A23	WIRE, stranded: #18 RED (15 used)
	4382980N03	STANDOFF, printed circuit board (4 used)

TRN7150A Distribution Board

Reference Symbol	Motorola Part No.	Description
		light emitting diode:
DS601	4884404E16	grn
		fuse:
F601,602	0910548A04	Fuse Block
		connector:
J602	2880004T06	plug: 6-contact
J603	2882984N14	plug: 9-contact
		resistor, fixed:
R616	0611086A63	1.5K, +/-5%; 1W

TRN7213B Hardware Kit

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C601	0882682N01	20 uF, +/-6%; 330 V
C602, C603	2382681N01	64000 uF, +75%/-7%; 20V (2 used)
C604	2382681N02	120000 uF, +75%/-10%; 20V
		diode: (see note 1)
CR601,602	4882732C09	silicon
		inductor:
L601	2582686N01	420 UH
		transformer:
T601	2582253N03	PWR
		non-referenced items:
	0180701F32	TERMINAL BLOCK & WIRE
	0180752D44	HEAT SINK
	0180757D40	CONNECTOR
	0210971A17	NUT, hex: M4 x 0.7 (4 used)
	0210971A19	NUT, hex: M6 x 1 (2 used)
	0310928B30	SCREW, locking: TT5 x 0.8 x 10 (2 used)
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (18 used)
	0383498N06	SCREW, tapping: M4 x 0.7 x 16 (3 used)
	0383498N14	SCREW, tapping: M4 x 0.7 x 18
	0400007651	WASHER, lock: No.8 internal tooth (9 used)
	0400007658	WASHER, lock: No. 10 internal tooth (13 used)
	0400119331	WASHER, lock: No. 1/4, medium split (2 used)
	0400135873	WASHER, flat: .281 x .750 x .060" (2 used)
	0483423R01	WASHER, flat, rectangular (2 used)
	0483499N01	WASHER, lug, insulator (3 used)
	0582904N01	GROMMET: M12.70 mtg hole (4 used)
	0983360N01	CONNECTOR, receptacle: 6-contact
	1483277N01	INSULATOR, lug (3 used)
	1484088N01	INSULATOR, capacitor terminal (2 used)
	2682902N01	HEAT SINK
	2783747T05	CHASSIS PWR SUPPLY
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg (5 used)
	2982607B06	LUG, ring tongue: No. 10 mtg hole, .625" lg (3 used)
	2982607B09	LUG, ring tongue: No. 8 mtg hole, .855" lg (2 used)
	2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (5 used)
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red) (2 used)
	2983137N01	TERMINAL, parallel splice (2 used)
	2983501T02	LUG MALE TERMINAL (2 used)
	3000813233	CABLE, battery (red) (17.5 used)
	3000831572	CABLE, battery (black) (40.25 used)
	3010286A21	18STIVBK (9 used)
	3010286A26	WIRE, stranded: #18 GREY (9 used)
	3010286B77	WIRE, stranded: #18 ORANGE (21 used)
	3010286D01	16STIVGNYL (6 used)
	3083920N02	CABLE, battery (white) (12.5 used)
	3100811350	TERMINAL BLOCK: 4-contact
	3183576K02	TERMINAL STRIP: 3-contact
	3983146N01	CONTACT, receptacle
	4210217A02	STRAP, tie: .091 x 3.62" lg (16 used)
	4210217A33	STRAP, tie: .190x15" lg (4 used)
	4282828T01	CLAMP, cable, dual
	4282903N01	CLAMP, capacitor: 2"
	4282903N02	CLAMP, capacitor, 2.5" (2 used)
	4282903N03	CLAMP, capacitor: 3"
	5483971N01	LABEL, high voltge
	5484046N01	LABEL: "CAUTION-HEAVY"
	5484497M87	LABEL, ID: 7/8 X 1/4" (3 used)
	6582847N27	6.3A, 250V (2 used)(see note 2)
	7583056P01	PAD, snap-on (380MM lg)

Notes: 1. For optimum performance, diodes must be ordered by Motorola part number.
2. Fuses used on distribution board TRN7242 or battery charger board TRN7241.

TRN7229A Hardware Kit

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C651	0882682N05	30 uF, +/-6%; 330V
C652, C653	2382681N13	93000 uF, +75%; +/-10%; 40V (2 used)
C654, C655	2382681N06	73500 uF, +75%; +/-10%; 20V (2 used)
		diode: (see note 1)
CR651,652	4882732C09	silicon
CR653,654	4882732C09	silicon
		fuse:
F652	6582847N26	FUSE, 5.0 A, 250V
		inductor:
L651	2582686N01	420 UH
L652	2582620P01	1.1 MH
		switch:
S601	4084612B05	rocker, dpdt
		transformer:
T651	2584165T01	TRANSFORMER, power; 575W; 50HZ; 110/220 VDE
		non-referenced items:
	0180726E07	CONNECTOR, choke

0180726E08	HEAT SINK, hot
0180752D44	HEAT SINK
0210971A17	NUT, hex: M4 x 0.7 (6 used)
0210971A19	NUT, hex: M6 x 1 (2 used)
0310908A55	SCREW, machine: M6 x 1 x 25 (4 used)
0310928B30	SCREW, locking: TT5 x 0.8 x 10 (2 used)
0383497N01	SCREW, machine: M4 x 0.7 x 23 (5 used)
0383497N02	SCREW, machine: M5 x 0.8 x 12 (8 used)
0383498N04	SCREW, tapping: M4 x 0.7 x 7 (29 used)
0383498N06	SCREW, tapping: M4 x 0.7 x 16 (6 used)
0383498N14	SCREW, tapping: M4 x 0.7 x 18
0400007651	WASHER, lock: No.8 internal tooth (10 used)
0400007658	WASHER, lock: No. 10 internal tooth (10 used)
0400119331	WASHER, lock: No. 1/4, medium split (2 used)
0400135873	WASHER, flat: .281 x .750 x .060" (2 used)
0483423R01	WASHER, flat, rectangular (2 used)
0483499N01	WASHER, lug, insulator (4 used)
0484071T01	WASHER, sholder (2 used)
0582904N01	GROMMET: M12.70 mtg hole (4 used)
0983360N02	receptacle: 9-contact
0983641T01	FUSEHOLDER
0983641T02	CAP, fuseholder
1483277N01	INSULATOR, lug (4 used)
1483988T01	INSULATOR
1484088N01	INSULATOR, capacitor terminal (2 used)
1582659P01	COVER, switch (front)
1582660P01	COVER, switch (rear)
2682902N01	HEAT SINK
2683876T01	HEAT SINK, PS
2783747T05	CHASSIS PWR SUPPLY
2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg (6 used)
2982607B06	LUG, ring tongue: No. 10 mtg hole, .625" lg
2982607B09	LUG, ring tongue: No. 8 mtg hole, .855" lg (4 used)
2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (4 used)
2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red) (5 used)
2983137N01	TERMINAL, parallel splice (4 used)
2983501T02	LUG MALE TERMINAL (2 used)
2984709N01	TERMINAL, receptacle (blue)
3000813233	CABLE, battery (red) (11 used)
3000831572	CABLE, battery (black) (30 used)
3010286A21	18STIVBK (32 used)
3010286A23	WIRE, stranded: #18 RED (12 used)
3010286B77	WIRE, stranded: #18 ORANGE (22 used)
3083611T01	WIRE SHLD AWG 16 600V GRN/YEL (6 used)
3083920N02	CABLE, battery (white) (26.5 used)
3100811350	TERMINAL BLOCK: 4-contact
3700121C13	SLVNG FBGLS VYL 1/2" BLK (3 used)
3700132754	TBG HS POLYOL 1 CLR (2 used)
3700135566	TUBING,1/4 in, black
3883667N01	CAP, outlet connector
3983145N02	CONTACT, plug: 22.60MM lg
4210217A02	STRAP, tie: .091 x 3.62" lg (14 used)
4210217A33	STRAP, tie: .190x15" lg (2 used)
4282828T01	CLAMP, cable, dual (3 used)
4282903N01	CLAMP, capacitor: 2" (3 used)
4282903N03	CLAMP, capacitor: 3" (2 used)
4882732C08	silicon (2 used)
5483440T05	LABEL, 220VAC
5483440T12	LABEL, power rating
5483440T14	Label, "FUSE SWITCH"
5483971N01	LABEL, high voltge
6582847N27	6.3A, 250V (2 used)(see note 2)
7583056P01	PAD, snap-on (380MM lg)
7583056P03	PAD, snap-on (140MM)

Notes: 1. For optimum performance, diodes must be ordered by Motorola part number.
2. Fuses used on distribution board TRN7248 or battery charger board TRN7277.

TRN7237 Hardware Kit

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C651	0882682N05	30 uF, +/-6%; 330V
C652, C653	2382681N13	93000 uF, +75%; +/-10%; 40V (2 used)
C654, C655	2382681N06	73500 uF, +75%; +/-10%; 20V (2 used)
		diode: (see note 1)
CR651,652	4882732C09	silicon
CR653,654	4882732C09	silicon
		inductor:
L651	2582686N01	420 MH
L652	2582620P01	1.1 MH
		switch:
S651	4084612B05	rocker, dpdt
		transformer:
T651	2584158T01	power, 675W; 60HZ; 110/220V
		non-referenced items:
	0180726E07	CONNECTOR, choke
	0180726E08	HEAT SINK, hot
	0180752D44	HEAT SINK
	0210971A17	NUT, hex: M4 x 0.7 (6 used)
	0210971A19	NUT, hex: M6 x 1 (2 used)
	0310908A55	SCREW, machine: M6 x 1 x 25 (4 used)
	0310928B30	SCREW, locking: TT5 x 0.8 x 10 (2 used)
	0383497N01	SCREW, machine: M4 x 0.7 x 23 (5 used)
	0383497N02	SCREW, machine: M5 x 0.8 x 12 (8 used)
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (29 used)
	0383498N06	SCREW, tapping: M4 x 0.7 x 16 (6 used)
	0383498N14	SCREW, tapping: M4 x 0.7 x 18
	0400007651	WASHER, lock: No.8 internal tooth (10 used)
	0400007658	WASHER, lock: No. 10 internal tooth (10 used)
	0400119331	WASHER, lock: No. 1/4, medium split (2 used)
	0400135873	WASHER, flat: .281 x .750 x .060" (2 used)
	0483423R01	WASHER, flat, rectangular (2 used)
	0483499N01	WASHER, lug, insulator (4 used)
	0484071T01	WASHER, sholder (2 used)
	0582904N01	GROMMET: M12.70 mtg hole (4 used)
	0983360N02	receptacle: 9-contact
	1483277N01	INSULATOR, lug (4 used)
	1483988T01	INSULATOR
	1484088N01	INSULATOR, capacitor terminal (2 used)
	1582659P01	COVER, switch (front)
	1582660P01	COVER, switch (rear)
	2682902N01	HEAT SINK
	2683876T01	HEAT SINK, PS
	2783747T05	CHASSIS PWR SUPPLY
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg (6 used)
	2982607B06	LUG, ring tongue: No. 10 mtg hole, .625" lg
	2982607B09	LUG, ring tongue: No. 8 mtg hole, .855" lg (4 used)
	2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (4 used)
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red) (5 used)
	2983137N01	TERMINAL, parallel splice (4 used)
	2983501T02	LUG MALE TERMINAL (2 used)
	2984709N01	TERMINAL, receptacle (blue)
	3000813233	CABLE, battery (red) (11 used)
	3000831572	CABLE, battery (black) (30 used)
	3010286A21	18STIVBK (32 used)
	3010286A23	WIRE, stranded: #18 RED (12 used)
	3010286B77	WIRE, stranded: #18 ORANGE (22 used)

	3083611T01	WIRE SHLD AWG 16 600V GRN/YEL (6 used)
	3083920N02	CABLE, battery (white) (26.5 used)
	3100811350	TERMINAL BLOCK: 4-contact
	3983146N01	CONTACT, receptacle
	4210217A02	STRAP, tie: .091 x 3.62" lg (14 used)
	4210217A33	STRAP, tie: .190x15" lg (2 used)
	4282828T01	CLAMP, cable, dual (3 used)
	4282903N01	CLAMP, capacitor: 2" (3 used)
	4282903N03	CLAMP, capacitor: 3" (2 used)
	4882732C08	silicon (2 used)
	5482885P02	LABEL, rocker switch
	5483971N01	LABEL, high voltge
	5484046N01	LABEL: "CAUTION-HEAVY"
	6582847N27	6.3A, 250V (2 used)(see note 2)
	7583056P01	PAD, snap-on (380MM lg)

Notes: 1. For optimum performance, diodes must be ordered by Motorola part number.
2. Fuses used on distribution board TRN7248 or battery charger board TRN7277.

TRN7241B 14V Battery Charger Board

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C600 thru 603	2113741B69	0.1 uF, +/-5%; 50 V
C604	0884637L31	0.047 uF, +/-10%; 250V
C606	2113741B69	0.1 uF, +/-5%; 50 V
C607	2311049A08	1 uF, +/-10%; 35 V
C608	2113741B69	0.1 uF, +/-5%; 50 V
C609	2313748G09	10 uF, +/-20%; 35 V
C610	2113741B69	0.1 uF, +/-5%; 50 V
C611	2113741B45	0.01 uF, +/-5%; 50 V
C612	2313748G14	22 uF, +/-20%; 35V
C613	2113741B69	0.1 uF, +/-5%; 50 V
C614	2311049A08	1 uF, +/-10%; 35 V
C615	2313748G21	100 uF, +/-20%; 16V
		diode: (see note)
CR600 thru 609	4813833C10	0.1A, 70 V
CR610 thru 613	4813833B06	1A; 600 V
CR614	4813833C10	0.1A, 70 V
CR615	4813833B06	1A; 600 V
		light emitting diode:
DS600	4884404E16	grn
		fuse:
F600,601	0910548A04	Fuse Block
		connector:
J600	2813922A04	plug: 4-contact
J601	2880006R02	plug: 2-contact
J602	2880004T06	plug: 6-contact
J603	2882984N14	plug: 9-contact
J604	2813922A03	HDR 3 POS STR .1 CTR GLD PLTD
J605	2880004T02	plug: 2-contact
J606 thru 608	2910231A10	terminal, circuit board
		inductor:
L600	7685120U01	CORE, Ferrite bead, leaded
		transistor: (see note)
Q600	4813824A10	NPN
Q602 thru 605	4813824A10	NPN
Q606	0180704F04	COMP PREP SUB ASSEMBLY
Q607	4813824D05	TSTR NPN 30V .6A MPS2222RLRP
Q613	4813824A17	PNP
Q614	4813824A10	NPN
Q615	4882604N01	silicon controlled rectifier
Q616,617	4813824A10	NPN
Q618	4800869829	PNP
Q656	4882604N01	silicon controlled rectifier
Q657	0180704F04	COMP PREP SUB ASSEMBLY
		resistor, fixed:
R600	0611072A59	2.7K +/-5%; 1/4 W
R601	0611077A56	180 ohms, +/-5%; 1/8W
R602	0611077B09	27K, +/-5%; 1/8 W
R603	0611072A59	2.7K +/-5%; 1/4 W
R604	0611077A68	560 ohms, +/-5%; 1/8 W
R605	0611077B23	100K, +/-5%; 1/8 W
R606	0611077B09	27K, +/-5%; 1/8 W
R607	0611072A59	2.7K +/-5%; 1/4 W
R608	0611077A56	180 ohms, +/-5%; 1/8W
R609	0683962T73	1K, +/-5%; 1W
R610	0611077B09	27K, +/-5%; 1/8 W
R611	0611077A74	1K, +/-5%; 1/8 W
R612,613	0611077B09	27K, +/-5%; 1/8 W
R614	0611077A90	4.7K, +/-5%; 1/8 W
R615	0611077H06	150K, +/-1%; 1/8W
R616	0611077A98	10K, +/-5%; 1/8 W
R617	0611077B09	27K, +/-5%; 1/8 W
R618	0611077B23	100K, +/-5%; 1/8 W
R619	0611077B03	15K, +/-5%; 1/8 W
R620	0611077A90	4.7K, +/-5%; 1/8 W
R621	0611077B09	27K, +/-5%; 1/8 W
R622	0611077B43	680K, +/-5%; 1/8 W
R623	0611077H42	357K, +/-1%; 1/8W
R624	0611077F79	7.5K, +/-1%; 1/8 W
R625	0611077B17	56K, +/-5%; 1/8 W
R626	0611077B09	27K, +/-5%; 1/8 W
R627	0611077B27	150K, +/-5%; 1/8W
R628	0611077F63	5.11K, +/-1%; 1/8 W
R629	0611077E73	604 ohms, +/-1%; 1/8 W
R630	0611077A68	560 ohms, +/-5%; 1/8 W
R631,632	0611077G11	15.8K, +/-1%; 1/8W
R633	0611077G14	16.9K, +/-1%; 1/8W
R634	0611077F91	10K, +/-1%; 1/8 W
R635	0611077F71	6.19K, +/-1%; 1/8W
R636	0611077F91	10K, +/-1%; 1/8 W
R637	0611040C91	10K, +/-0.5%; 1/4W
R638	0611077E73	604 ohms, +/-1%; 1/8 W
R639,640	0611077F91	10K, +/-1%; 1/8 W
R641	0611040C91	10K, +/-0.5%; 1/4W
R642	0611040B96	1.05K, +/-0.5%; 1/4W
R643	0611077A90	4.7K, +/-5%; 1/8 W
R644	0611072A49	1K, +/-5%, 1/4 W
R645	0611077A82	2.2K, +/-5%; 1/8 W
R646	0611077A90	4.7K, +/-5%; 1/8 W
R647	0683962T56	200 ohms, +/-5%; 1W
R649	0611077A84	2.7K, +/-5%; 1/8 W
R650	0611072A49	1K, +/-5%, 1/4 W
R651,652	0611077B27	150K, +/-5%; 1/8W
R653	0611077A90	4.7K, +/-5%; 1/8 W
R654,655	0611077F71	6.19K, +/-1%; 1/8W
R656,657	0611077B16	51K, +/-5%; 1/8W
R658	0611077B09	27K, +/-5%; 1/8 W
R660	0611077B03	15K, +/-5%; 1/8 W
R662	1883452F02	variable: 2K +/-10%; 1/2W
		switch:
S650	4083204B02	slide: dpdt
		integrated circuit: (see note)
U600	5184621K74	Comparator

U601	5113819D04	General Purpose Differential Operational Amplifier
U602	5184621K74	Comparator
		voltage regulator: (see note)
VR600	5183222M81	Adjustable Precision Shunt Regulator
VR601	4882479V11	DIODE ZENER 11V
		non-referenced items:
	2683472R01	HEAT SINK
	4882965F02	thyristor
	5482006W01	Label, PCB barcode
	5482006W02	RIBBON, thermal XFER
	5484960T01	Label, barcode: 6.3 x 12.7MM, white

Note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

TRN7242A 14V Distribution Board

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C601	2311049A15	4.7 uF, +/-10%; 35V
C602,603	2113740B32	20 pF, +/-5%; 50 V
C604	2113740B49	100 pF, +/-5%; 50 V
		diode: (see note)
CR601 thru 603	4813833C10	0.1A, 70 V
		light emitting diode:
DS601	4884404E16	grn
		fuse:
F601,602	0910548A04	Fuse Block
		connector:
J602	2880004T06	plug: 6-contact
J603	2882984N14	plug: 9-contact
		connector:
P601	2910231A10	terminal, circuit board
		transistor: (see note)
Q601	4813824D21	TSTR LOW NOISE PNP 60V 2N5087
Q602	4813824D05	TSTR NPN 30V .6A MPS2222RLRP
Q603	4800869806	NPN
		resistor, fixed:
R601	0611040C51	3.83K, +/-0.5%; 1/4W
R602	0611040C41	3.01K, +/-0.5%; 1/4W
R603	0611040C15	1.62K, +/-0.5%; 1/4W
R604	0611086C55	680 ohms, +/-5%; 2W
R605	0611009A67	5.6K, +/-5%; 1/4W
R606	0611077A98	10K, +/-5%; 1/8 W
R607	0611086A61	1.2K, +/-5%; 1W
R608	0611077A90	4.7K, +/-5%; 1/8 W
R609	0611086A03	1 ohms, +/-5%; 1W
R610	0611077A60	270 ohms, +/-5%; 1/8 W
R611 thru 613	1782036G03	2 ohms, +/-5%; 2W
R614	0611077A98	10K, +/-5%; 1/8 W
R615	0611077B05	18K, +/-5%; 1/8 W
R616	0611086A63	1.5K, +/-5%; 1W
R617	0611086A61	1.2K, +/-5%; 1W
R618	1782036G03	2 ohms, +/-5%; 2W
R619	0611077A01	0 ohm, +/-5%; 0 W
		integrated circuit: (see note)
U601	5184621K74	Comparator
		voltage regulator: (see note)
VR601	4883461E40	Zener 5.1V

Note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

TRN7248A Distribution Board

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C601	2311049A15	4.7 uF, +/-10%; 35V
C602,603	2113740B32	20 pF, +/-5%; 50 V
C604	2113740B49	100 pF, +/-5%; 50 V
		diode: (see note)
CR601 thru 603	4813833C10	0.1A, 70 V
		light emitting diode:
DS601	4884404E16	grn
		fuse:
F601,602	0910548A04	Fuse Block
		connector:
J602,603	2882984N14	plug: 9-contact
		connector:
P601	2910231A10	terminal, circuit board
		transistor: (see note)
Q601	4813824D21	TSTR LOW NOISE PNP 60V 2N5087
Q602	4813824D05	TSTR NPN 30V .6A MPS2222RLRP
Q603	4800869806	NPN
		resistor, fixed:
R601	0611040D25	22.1K, +/-0.5%; 1/4W
R602	0611040D09	15K, +/-0.5%; 1/4W
R603	0611040C41	3.01K, +/-0.5%; 1/4W
R604	0611086C55	680 ohms, +/-5%; 2W
R605	0611009A67	5.6K, +/-5%; 1/4W
R606	0611077A98	10K, +/-5%; 1/8 W
R607	0611086A61	1.2K, +/-5%; 1W
R608	0611077A90	4.7K, +/-5%; 1/8 W
R609	0611086A03	1 ohms, +/-5%; 1W
R610	0611077A60	270 ohms, +/-5%; 1/8 W
R611 thru 613	1782036G03	2 ohms, +/-5%; 2W
R614	0611077A98	10K, +/-5%; 1/8 W
R615	0611077B05	18K, +/-5%; 1/8 W
R616	0611086A63	1.5K, +/-5%; 1W
R617	0611086A61	1.2K, +/-5%; 1W
R618	1782036G03	2 ohms, +/-5%; 2W
		integrated circuit: (see note)
U601	5184621K74	Comparator

		voltage regulator: (see note)
VR601	4883461E40	Zener 5.1V

Note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

TRN7274A Hardware Kit

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C651	0882682N05	30 uF, +/-6%; 330V
C652, C653	2382681N03	97000 uF, +75%/-10%; 20V
C654	2382681N02	120000 uF, +75%/-10%; 20V
		diode: (see note 1)
CR651, CR652	4882732C09	silicon
		fuse:
F651	6582847N26	FUSE, 5.0 A, 250V
		inductor:
L651	2582686N02	CHOKE, filter; 700 UH
		switch:
SW601	4084612B05	rocker, dpdt
		transformer:
T651	2584329T01	power 500W, 50HZ
		non-referenced items:
	0180701F32	TERMINAL BLOCK & WIRE
	0180752D44	HEAT SINK
	0180777D41	CHOKE, connector
	0210971A17	NUT, hex: M4 x 0.7 (4 used)
	0210971A19	NUT, hex: M6 x 1 (2 used)
	0310908A55	SCREW, machine: M6 x 1 x 25 (4 used)
	0310928B30	SCREW, locking: TT5 x 0.8 x 10 (2 used)
	0383497N01	SCREW, machine: M4 x 0.7 x 23 (4 used)
	0383497N02	SCREW, machine: M5 x 0.8 x 12 (6 used)
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (22 used)
	0383498N06	SCREW, tapping: M4 x 0.7 x 16 (3 used)
	0383498N14	SCREW, tapping: M4 x 0.7 x 18
	0400007651	WASHER, lock: No.8 internal tooth (9 used)
	0400007658	WASHER, lock: No. 10 internal tooth (6 used)
	0400119331	WASHER, lock: No. 1/4, medium split (2 used)
	0400135873	WASHER, flat: .281 x .750 x .060" (2 used)
	0483423R01	WASHER, flat, rectangular (2 used)
	0483499N01	WASHER, lug, insulator (3 used)
	0582904N01	GROMMET: M12.70 mtg hole (4 used)
	0983360N01	CONNECTOR, receptacle: 6-contact
	0983641T01	FUSEHOLDER
	0983641T02	CAP, fuseholder
	1483277N01	INSULATOR, lug (3 used)
	1484088N01	INSULATOR, capacitor terminal (2 used)
	1582659P01	COVER, switch (front)
	1582660P01	COVER, switch (rear)
	2682902N01	HEAT SINK
	2783747T05	CHASSIS PWR SUPPLY
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg (5 used)
	2982607B06	LUG, ring tongue: No. 10 mtg hole, .625" lg (3 used)
	2982607B09	LUG, ring tongue: No. 8 mtg hole, .855" lg (2 used)
	2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (5 used)
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red) (2 used)
	2983137N01	TERMINAL, parallel splice (2 used)
	2983501T02	LUG MALE TERMINAL (2 used)
	2984709N01	TERMINAL, receptacle (blue)
	3000813233	CABLE, battery (red) (17.5 used)
	3000831572	CABLE, battery (black) (40.25 used)
	3010286A21	18STIVBK (9 used)
	3010286A26	WIRE, stranded: #18 GREY (9 used)
	3010286B77	WIRE, stranded: #18 ORANGE (21 used)
	3083611T01	WIRE SHLD AWG 16 600V GRN/YEL (6 used)
	3083920N02	CABLE, battery (white) (12.5 used)
	3100811350	TERMINAL BLOCK: 4-contact
	3183576K02	TERMINAL STRIP: 3-contact
	3700121C13	SLVNG FBGLS VYL 1/2" BLK (3 used)
	3700132754	TBG HS POLYOL 1 CLR (2 used)
	3700135566	TUBING,1/4 in, black
	3883667N01	CAP, outlet connector
	3983145N02	CONTACT, plug: 22.60MM lg
	4210217A02	STRAP, tie: .091 x 3.62" lg (17 used)
	4210217A33	STRAP, tie: .190x15" lg (4 used)
	4282828T01	CLAMP, cable, dual
	4282903N01	CLAMP, capacitor: 2"
	4282903N03	CLAMP, capacitor: 3" (3 used)
	5483440T05	LABEL, 220VAC
	5483440T12	LABEL, power rating
	5483440T14	Label, "FUSE SWITCH"
	5483971N01	LABEL, high voltge
	5484046N01	LABEL: "CAUTION-HEAVY"
	6582847N27	6.3A, 250V (2 used)(see note 2)
	7583056P01	PAD, snap-on (380MM lg)
	7583056P03	PAD, snap-on (140MM)

Notes: 1. For optimum performance, diodes must be ordered by Motorola part number.
2. Fuses used on distribution board TRN7242 or battery charger board TRN7241.

TRN7275A Battery Charger Hardware Kit

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	0210971A17	NUT, hex: M4 x 0.7
	0310928B30	SCREW, locking: TT5 x 0.8 x 10
	0383497N03	SCREW, machine: M5X0.8X25 (4 used)
	0383497N05	SCREW, machine: M4X0.7X10
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (4 used)
	0400007651	WASHER, lock: No.8 internal tooth (5 used)
	0582904N02	GROMMET: M9.58 shank dia. (4 used)
	0783006P02	BRACKET, battery charger board
	1483986N01	INSULATOR, circuit board
	1583901N01	COVER, battery charger board
	2582419N05	65 MH
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red) (2 used)
	2983113N03	TERMINAL, socket: right angle (2 used)
	3010286A21	18STIVBK (7 used)
	3010286A23	WIRE, stranded: #18 RED (11 used)
	3700002543	TBG VYL 11 CLR (10.38 used)
	4210217A02	STRAP, tie: .091 x 3.62" lg (8 used)
	4382980N01	STANDOFF, pc board (6 used)
	5483971N01	LABEL, high voltge

TRN7276A Battery Charger Hardware Kit

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	0210971A17	NUT, hex: M4 x 0.7
	0310928B30	SCREW, locking: TT5 x 0.8 x 10
	0383497N03	SCREW, machine: M5X0.8X25 (4 used)
	0383497N05	SCREW, machine: M4X0.7X10
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (4 used)
	0400007651	WASHER, lock: No.8 internal tooth (5 used)
	0582904N02	GROMMET: M9.58 shank dia. (4 used)
	0783006P02	BRACKET, battery charger board
	1483986N01	INSULATOR, circuit board
	1583901N01	COVER, battery charger board
	2582419N03	120 MH
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red) (2 used)
	2983113N03	TERMINAL, socket: right angle (2 used)
	3010286A21	18STIVBK (7 used)
	3010286A23	WIRE, stranded: #18 RED (11 used)
	3700002543	TBG VYL 11 CLR (10.38 used)
	4210217A02	STRAP, tie: .091 x 3.62" lg (8 used)
	4382980N01	STANDOFF, pc board (6 used)
	5483971N01	LABEL, high voltge

TRN7277A 14/28V Battery Charger Board

Reference Symbol	Motorola Part No.	Description
		capacitor, fixed:
C600 thru 603	2113741B69	0.1 uF, +/-5%; 50 V
C604	0884637L31	0.047 uF, +/-10%; 250V
C606	2113741B69	0.1 uF, +/-5%; 50 V
C607	2311049A08	1 uF, +/-10%; 35 V
C608	2113741B69	0.1 uF, +/-5%; 50 V
C609	2313748G09	10 uF, +/-20%; 35 V
C610	2113741B69	0.1 uF, +/-5%; 50 V
C611	2113741B45	0.01 uF, +/-5%; 50 V
C612	2313748G14	22 uF, +/-20%; 35V
C613	2113741B69	0.1 uF, +/-5%; 50 V
C614	2311049A08	1 uF, +/-10%; 35 V
C615	2313748G21	100 uF, +/-20%; 16V
		diode: (see note)
CR600 thru 609	4813833C10	0.1A, 70 V
CR610 thru 613	4813833B06	1A; 600 V
CR614	4813833C10	0.1A, 70 V
CR615	4813833B06	1A; 600 V
		light emitting diode:
DS600	4884404E16	grn
		fuse:
F600,601	0910548A04	Fuse Block
		connector:
J600	2813922A04	plug: 4-contact
J601	2880006R02	plug: 2-contact
J602, J603	2880004T06	plug: 9-contact
J604	2813922A03	HDR 3 POS STR .1 CTR GLD PLTD
J605	2880004T02	plug: 2-contact
J606 thru 608	2910231A10	terminal, circuit board
		inductor:
L600	7685120U01	CORE, Ferrite bead, leaded
		transistor: (see note)
Q600	4813824A10	NPN
Q602 thru 605	4813824A10	NPN
Q606	0180704F04	COMP PREP SUB ASSEMBLY
Q607	4813824D05	TSTR NPN 30V .6A MPS2222RLRP
Q613	4813824A17	PNP
Q614	4813824A10	NPN
Q615	4882604N01	silicon controlled rectifier
Q616,617	4813824A10	NPN
Q618	4800869829	PNP
Q656	4882604N01	silicon controlled rectifier
Q657	0180704F04	COMP PREP SUB ASSEMBLY
		resistor, fixed:
R600	0611072A59	2.7K +/-5%; 1/4 W
R601	0611077A56	180 ohms, +/-5%; 1/8W
R602	0611077B09	27K, +/-5%; 1/8 W
R603	0611072A59	2.7K +/-5%; 1/4 W
R604	0611077A68	560 ohms, +/-5%; 1/8 W
R605	0611077B23	100K, +/-5%; 1/8 W
R606	0611077B09	27K, +/-5%; 1/8 W
R607	0611072A59	2.7K +/-5%; 1/4 W
R608	0611077A56	180 ohms, +/-5%; 1/8W
R609	0683962T73	1K, +/-5%; 1W
R610	0611077B09	27K, +/-5%; 1/8 W
R611	0611077A74	1K, +/-5%; 1/8 W
R612,613	0611077B09	27K, +/-5%; 1/8 W
R614	0611077A90	4.7K, +/-5%; 1/8 W
R615	0611077H06	150K, +/-1%; 1/8W
R616	0611077A98	10K, +/-5%; 1/8 W
R617	0611077B09	27K, +/-5%; 1/8 W
R618	0611077B23	100K, +/-5%; 1/8 W
R619	0611077B03	15K, +/-5%; 1/8 W
R620	0611077A90	4.7K, +/-5%; 1/8 W
R621	0611077B09	27K, +/-5%; 1/8 W
R622	0611077B43	680K, +/-5%; 1/8 W
R623	0611077H42	357K, +/-1%; 1/8W
R624	0611077F79	7.5K, +/-1%; 1/8 W
R625	0611077B17	56K, +/-5%; 1/8 W
R626	0611077B09	27K, +/-5%; 1/8 W
R627	0611077B27	75K, +/-5%; 1/8W
R628	0611077F63	5.11K, +/-1%; 1/8 W
R629	0611077E73	604 ohms, +/-1%; 1/8 W
R630	0611077A68	560 ohms, +/-5%; 1/8 W
R631,632	0611077G11	15.8K, +/-1%; 1/8W
R633	0611077G14	16.9K, +/-1%; 1/8W
R634	0611077F91	10K, +/-1%; 1/8 W
R635	0611077F71	6.19K, +/-1%; 1/8W
R636	0611077F91	10K, +/-1%; 1/8 W
R637	0611040C91	10K, +/-0.5%; 1/4W
R638	0611077E73	604 ohms, +/-1%; 1/8 W
R639,640	0611077F91	10K, +/-1%; 1/8 W
R641	0611040C91	10K, +/-0.5%; 1/4W
R642	0611040B96	1.05K, +/-0.5%; 1/4W
R643	0611077A90	4.7K, +/-5%; 1/8 W
R644	0611072A49	1K, +/-5%, 1/4 W
R645	0611077A82	2.2K, +/-5%; 1/8 W
R646	0611077A90	4.7K, +/-5%; 1/8 W
R647	0683962T56	180 ohms, +/-5%; 1W
R649	0611077A84	2.7K, +/-5%; 1/8 W
R650	0611072A49	1K, +/-5%, 1/4 W
R651,652	0611077B27	150K, +/-5%; 1/8W
R653	0611077A90	4.7K, +/-5%; 1/8 W
R654,655	0611077F71	6.19K, +/-1%; 1/8W
R656,657	0611077B16	51K, +/-5%; 1/8W
R658	0611077B09	27K, +/-5%; 1/8 W
R660	0611077B03	15K, +/-5%; 1/8 W
R662	1883452F02	variable: 2K +/-10%; 1/2W

		switch:
S650	4083204B02	slide: dpdt
		integrated circuit: (see note)
U600	5184621K74	Comparator
U601	5113819D04	General Purpose Differential Operational Amplifier
U602	5184621K74	Comparator
		voltage regulator: (see note)
VR600	5183222M81	Adjustable Precision Shunt Regulator
VR601	4882479V11	DIODE ZENER 11V
		non-referenced items:
	2683472R01	HEAT SINK
	4882965F02	thyristor
	5482006W01	Label, PCB barcode
	5482006W02	RIBBON, thermal XFER
	5484960T01	Label, barcode: 6.3 x 12.7MM, white

Note: For optimum performance, diodes, transistors, and integrated circuits must be ordered by Motorola part number.

TRN7281A Hardware Protection Relay

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	0180731E69	RELAY HARDWARE ASSEMBLY
	0300006947	SCREW, machine: 6-32x7/16"
	0400002645	WSHRLCK 6 EXT SST PAS
	0785545U01	BKT RELAY
	1583142M08	HOUSING, connector: 4-contact
	2983376H05	TERMINAL, receptacle (brass) (2 used)
	3000813233	CABLE, battery (red) (15 used)
	3010286B88	WIRE BLK (9 used)
	3010286B89	RED (9 used)
	3010286C58	WIRE #22STR IRRAD PVC WHT (9 used)
	3010286H92	WIRE ORG (9 used)
	3083920N02	CABLE, battery (white) (15 used)
	3700132251	tubing polyol. 3/16" (blk) (1.26 used)
	3700135566	TUBING,1/4 in, black (3 used)
	3982717M01	CONTACT, receptacle (4 used)
	4210217A04	STRAP, tie: 0.184 x 7.31" lg
	8084197A01	REL 50AMP 13.6VDC

TRN7282A 14/28 VDC-DC Hardware Kit

Reference Symbol	Motorola Part No.	Description
		capacitor:
C654, C655	2382681N06	73500 uF, +75%; +/-10%; 20V (2 used)
C602, C603	2382681N13	93000 uF, +75%; +/-10%; 40V (2 used)
		diode:(see note 1)
CR655, CR656	4882732C13	silicon (2 used)
		inductor:
L652	2582620P01	1.1 MH
L651	2582686N01	420 UH
		non-referenced items:
	0180701F32	TERMINAL BLOCK & WIRE
	0180704F21	TERM BLK 2 DIODE & WIRES
	0200115968	NUT, hex: 1/4-28 x 3/8 x 1/8" (2 used)
	0210971A16	NUT, hex: 3 x0.5mm (2 used)
	0210971A17	NUT, hex: M4 x 0.7 (4 used)
	0310928B30	SCREW, locking: TT5 x 0.8 x 10
	0383497N01	SCREW, machine: M4 x 0.7 x 23 (4 used)
	0383497N02	SCREW, machine: M5 x 0.8 x 12 (8 used)
	0383497N04	SCREW, machine: M3 x 0.5 x 8 (2 used)
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (20 used)
	0383498N14	SCREW, tapping: M4 x 0.7 x 18 (2 used)
	0400007658	WASHER, lock: No. 10 internal tooth (8 used)
	0400007670	WASHER, lock: 1/4", int. tooth (2 used)
	0400007683	WASHER, lock: No. 4, internal tooth (2 used)
	0483499N01	WASHER, lug, insulator (4 used)
	0983360N01	CONNECTOR, receptacle: 6-contact
	1483277N01	INSULATOR, lug (4 used)
	2783747T05	CHASSIS PWR SUPPLY
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg (10 used)
	2982607B06	LUG, ring tongue: No. 10 mtg hole, .625" lg (2 used)
	2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (3 used)
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red) (2 used)
	2983501T02	LUG MALE TERMINAL (2 used)
	3000813233	CABLE, battery (red) (26.5 used)
	3000831572	CABLE, battery (black) (45.25 used)
	3010286A21	18STIVBK (16 used)
	3010310A26	16STHVRD (8 used)
	3083920N02	CABLE, battery (white) (12.5 used)
	3183576K02	TERMINAL STRIP: 3-contact
	3183576K03	TERMINAL STRIP: 4-contact
	3700134165	TBG HS POLYOL 3/8 CLR (3 used)
	4210217A02	STRAP, tie: .091 x 3.62" lg (4 used)
	4282903N01	CLAMP, capacitor: 2" (2 used)
	4282903N03	CLAMP, capacitor: 3" (2 used)
	4300845034	SPACER: 0.265 ID x 3/4 OD x 3/16" thick (2 used)
	4382980N03	STANDOFF, printed circuit board (4 used)
	6582847N27	6.3A, 250V (2 used)(see note 2)

Notes: 1. For optimum performance, diodes must be ordered by Motorola part number.
2. Fuses used on distribution board TRN7150.

TRN7326A Label and Hardware

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	5483440T19	LABEL VDE/REG/NR

TRN7327A Label and Hardware

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	5483440T17	LABEL: TPN1270B

TRN7328A Label and Hardware

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	5483440T15	LABEL,TPN1268A

TRN7329A Label and Hardware

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	5483440T16	LABEL,TPN1269A

TRN7330A Label and Hardware

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	5483440T13	LABEL TPN1264A

TRN7331A Label and Hardware

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	5483440T18	LABEL,TPN1272A

TRN7332A 14/28V Battery Charger Hardware Kit

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	0180701F32	TERMINAL BLOCK & WIRE
	0380036K01	SCREW, tapping; torque type (2 used)
	0383498N14	SCREW, tapping: M4 x 0.7 x 18
	0400007651	WASHER, lock: No.8 internal tooth (2 used)
	0500131560	EYE .183X.156 BRS CAD (2 used)
	1783389G02	30 ohms, +/-5%; 20W (2 used)
	2900859118	LUG, receptacle (4 used)
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg
	2982907N05	TERMINAL, ring tongue: No. 10 mtg hole, 26.5MM (2 used)
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red)
	2983113N03	TERMINAL, socket: right angle
	3000813233	CABLE, battery (red) (13 used)
	3000831572	CABLE, battery (black) (13 used)
	3010286A23	WIRE, stranded: #18 RED (14.5 used)
	3083920N02	CABLE, battery (white) (9.5 used)
	3183576K02	TERMINAL STRIP: 3-contact (2 used)
	3700135566	TUBING,1/4 in, black (4 used)

TRN7333A 14V Battery Charger Hardware Kit

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	0383498N06	SCREW, tapping: M4 x 0.7 x 16 (2 used)
	1783389G02	30 ohms, +/-5%; 20W
	2900859118	LUG, receptacle (2 used)
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red)
	2983113N03	TERMINAL, socket: right angle
	3010286A23	WIRE, stranded: #18 RED (16 used)
	3700135566	TUBING,1/4 in, black (2 used)

TRN7582A Hardware Protection for UHF/800/900

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	0300006947	SCREW, machine: 6-32x7/16"
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (2 used)
	0383498N14	SCREW, tapping: M4 x 0.7 x 18
	0400002645	WSHRLCK 6 EXT SST PAS
	0785545U01	BKT RELAY
	1583142M08	HOUSING, connector: 4-contact
	2982607B05	LUG, ring tongue: No. 10 mtg hole, .760" lg
	2983376H05	TERMINAL, receptacle (brass) (2 used)
	3000813233	CABLE, battery (red) (26 used)
	3010286B88	WIRE BLK (9 used)
	3010286B89	RED (9 used)
	3010286C58	WIRE #22STR IRRAD PVC WHT (9 used)
	3010286H92	WIRE ORG (9 used)
	3083920N02	CABLE, battery (white) (15 used)
	3183576K02	TERMINAL STRIP: 3-contact
	3700132251	tubing polyol. 3/16" (blk) (1.26 used)
	3700135566	TUBING,1/4 in, black (3 used)
	3982717M01	CONTACT, receptacle (4 used)
	4210217A04	STRAP, tie: 0.184 x 7.31" lg
	8084197A01	REL 50AMP 13.6VDC

TRN7601A Battery Charger Hardware Kit

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	0180733E49	RESISTOR/DIODE ASSEMBLY
	0200115968	NUT, hex: 1/4-28 x 3/8 x 1/8"
	0383498N04	SCREW, tapping: M4 x 0.7 x 7
	0383498N06	SCREW, tapping: M4 x 0.7 x 16 (2 used)
	0383498N14	SCREW, tapping: M4 x 0.7 x 18
	0400119331	WASHER, lock: No. 1/4, medium split
	0484071T02	WASHER, sholder (2 used)
	0784928T01	BRACKET, resistor
	0983358N01	CONNECTOR, wire splice (2 used)
	1483988T02	INSULATOR
	1782177B65	10 ohms, +/-10%; 50W (2 used)
	2982607B02	LUG, ring tongue: .326" hole size
	2982607B10	LUG, ring tongue: .265" hole size
	2983113N01	CONNECTOR, receptacle: right-angle (blue) (2 used)
	3000813233	CABLE, battery (red) (17 used)
	3010310D04	14STHVRD (16 used)
	3183576K02	TERMINAL STRIP: 3-contact
	4884946T01	type MDR6015

TRN7616A Misc. Hardware Kit

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	0383498N04	SCREW, tapping: M4 x 0.7 x 7
	1782177B65	10 ohms, +/-10%; 50W
	2982907N07	TERMINAL, ring tongue: No. 10 mtg hole (red)
	2983113N03	TERMINAL, socket: right angle (3 used)
	3010286A23	WIRE, stranded: #18 RED (15 used)
	4382980N03	STANDOFF, printed circuit board (4 used)

TRN9752A International Support Bracket Hardware

Reference Symbol	Motorola Part No.	Description
		non-referenced items:
	0383498N04	SCREW, tapping: M4 x 0.7 x 7 (4 used)
	0784794P01	BRACKET, support (2 used)