TOPAZ®
Excellence in Computer Power
A Subsidiary of Square D Company

TOPAZ, INC.
9192 Topaz Way
San Diego, CA 92123-1165
Phone: (619) 279-0831
TWX: (910) 335-1556

PRODUCT CERTIFICATE

MODEL NUMBER: 97322-41

SERIAL NUMBER: 307150397

This product was manufactured and tested to approved and documented Topaz specifications and procedures. Test data can be obtained by contacting Topaz Quality Assurance.

Test Date 7/16/87

Certified by Kmelinda S. Hagan
Quality Assurance

TOPAZ®
SOLUTIONS TO POWER PROBLEMS

OPERATING MANUAL

ULTRA-ISOLATOR®

Line Noise Suppressor

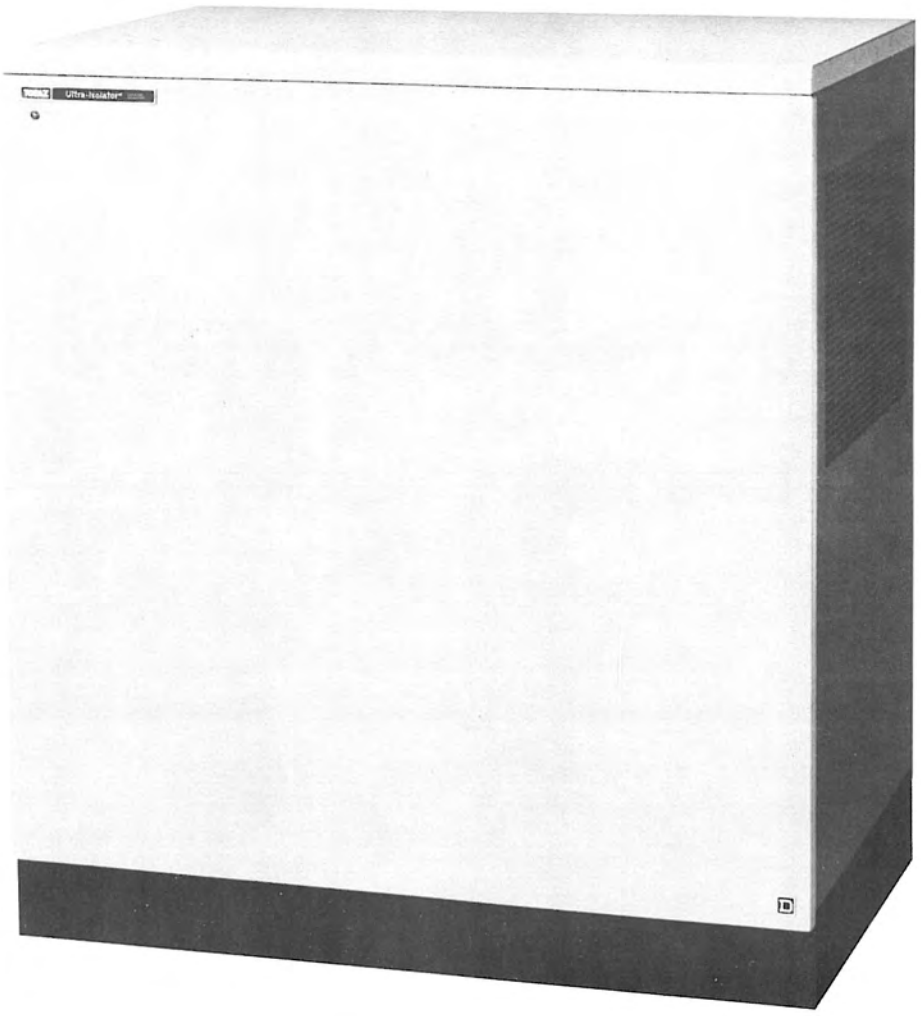
This manual covers the following model numbers:

97518-21	97675-21	97245-41
97524-21	97775-21	97322-41
97536-21	97610-21	97330-41
97622-21	97613-21	97345-41
97630-21	97118-41	97375-41
97645-21	97124-41	97275-41
97722-21	97136-41	97310-41
97730-21	97222-41	97313-41
97745-21	97230-41	

IF TOPAZ CAN ASSIST YOU IN ANY WAY WITH THE APPLICATION OR OPERATION OF THIS PRODUCT, PLEASE CALL

1-800-523-0142

TOPAZ 9192 TOPAZ WAY, SAN DIEGO, CALIFORNIA 92123-1165 PHONE: (619) 279-0831
A Subsidiary of Square D Company



ULTRA-ISOLATOR®
Line Noise Suppressor

NOTICE

INSTRUCTIONS IN CASE OF DAMAGE OR SHORTAGE

This shipment has been properly crated, packed and/or marked and acknowledged by originating transportation company to be in good condition and as described by the bill of lading. If, on delivery, there is damage or shortage, make notation on all copies of delivering carrier's delivery receipt before signing.

If damage or shortage is discovered after delivery, notify delivering carrier immediately and request an inspection.

Topaz will assist you wherever possible in establishing claims against the transportation company for loss or damage in transit. We do not, however, assume the responsibility for submitting or collecting claims or replacing lost or damaged material.

Returned goods will not be accepted by the factory unless permission has been granted by Topaz. Any returned goods must be properly packed in compliance with shipping regulations, with transportation charges paid by the shipper.

Please direct all inquiries regarding lost goods or the return of damaged goods to Topaz Customer Service.

TOPAZ
SQUARE D COMPANY
9192 TOPAZ WAY
SAN DIEGO, CA 92123-1165
PHONE: (619) 279-0831

LG 154/d
September 1984

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WARRANTY

Topaz warrants its products, when properly applied and operated under normal conditions, to be free from faulty workmanship or defective materials (except in those cases where the materials are supplied by Buyer) for a period of one year (five years for standard Ultra-Isolator noise suppressors, for Ultra-Isolator noise suppressors used as components in other standard products, and for Line I power conditioners) from the date of the original shipment from Topaz. Liability of Topaz under this warranty shall exist provided that:

(a) Topaz is promptly notified upon discovery of such defects by Buyer and is allowed to inspect for defects at Buyer's site; and

(b) The defective product is returned to Topaz, transportation charges prepaid by Buyer, or (at Topaz's discretion) said product is inspected and repaired by Topaz at Buyer's site; and

(c) Topaz's examination of such product discloses that there was a defect in Topaz material or Topaz workmanship; and that

(d) Topaz nameplates and markings have not been altered or removed and the equipment has not been repaired or modified other than by Topaz.

In the event the defect is determined to be within the terms of this warranty, then Topaz agrees to repair and/or replace the product or the defective portion at no charge to the Buyer and to pay for ground transportation costs of shipment back to Buyer, or (at Topaz's discretion) to refund purchase price. This warranty does not apply to equipment subjected to negligence, accident or damage, or to improper operation, maintenance or storage, or to other than normal use or service.

Any technical advice furnished before or after delivery in regard to the use or application of Topaz's product is furnished without charge and on the basis that it represents Topaz's best judgment under the circumstances, but it is used at recipient's sole risk.

Topaz shall in no event be liable for other direct, special, incidental, consequential, indirect, or penal damages.

THIS WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TOTAL LIFE EXPECTANCY, OR OTHER OBLIGATION OR LIABILITY ON THE PART OF TOPAZ. There are no warranties which extend beyond the description on the face hereof.

Topaz products repaired or replaced pursuant to this warranty shall be warranted for the unexpired portion of the warranty applying to the original products. Component parts repaired or replaced by Topaz will also be warranted for ninety days from date of repair or replacement. No separate warranty shall apply to repaired products as a whole, or to component parts not repaired or replaced by Topaz.

> ***NOTE:*** *Most instances of initial failure to operate properly can be remedied through a telephone conversation between the user and Topaz Field Service personnel. Users will be assessed recalibration, inspection and handling charges for returned products which are found to be operating properly.*

INTRODUCTION

1.1 SHIPPING DAMAGE

This equipment was thoroughly tested and inspected by Topaz. Although the equipment was packed for shipment in accordance with good commercial practice, the care exercised at Topaz does not preclude damage in transit.

The following actions should be taken upon receipt of the equipment:

a. Inspect the shipping container for damage. If damaged, request that the carrier inspect the shipment.

b. Unpack. If the equipment is damaged, unpack it in the presence of the carrier's inspector and take photos if appropriate. A full report of the damage should be obtained by the claim agent and forwarded to Topaz. If the equipment is undamaged, or only superficially damaged, test it to confirm proper operation.

c. Notify Topaz within ten days after delivery if the equipment was damaged when received. After an inspection and examination by a representative of the carrier and (if necessary) an inspection and examination by a representative of Topaz and the receipt of a full report of the damage, Topaz will advise the customer on the proper procedures to follow, including return to the factory (if necessary). ALL CLAIMS FOR SHIPPING DAMAGE MUST BE MADE WITH THE CARRIER.

1.2 DESCRIPTION

The ULTRA-ISOLATOR® Noise Suppressor protects electronic equipment against power line noise and electrically isolates the load from the power line. It uses a three-phase delta input voltage to provide three-phase wye output power. Solid state varistors and a lightning arrester in the Series 40 ULTRA-ISOLATOR Noise Suppressors protect the load against the effects of high voltage spikes.

1.3 SCOPE OF MANUAL

This manual explains how to install and operate the Topaz ULTRA-ISOLATOR® Line Noise Suppressor. It does not, however, supersede national, state, or local electrical codes. Check the applicable electrical codes to ensure compliance. The manual contains specifications, installation and operating instructions, and a list of recommended spare parts.

SECTION 2

SPECIFICATIONS

2.1 LISTING OF MODELS

MODEL NUMBER		POWER RATING (kVA)	FREQUENCY RANGE (Hz)	INPUT		OUTPUT		WEIGHT (Pounds)
SERIES 20	SERIES 40			NOMINAL VOLTAGE (VAC)	RECOMMENDED WIRE SIZE* (Copper)	NOMINAL VOLTAGE (VAC)	RECOMMENDED WIRE SIZE* (Copper)	
97518-21	97118-41	18	47-53	380Δ 400Δ 415Δ	12 AWG	380Y/220 400Y/230 415Y/240	10 AWG	429
97524-21	97124-41	24	47-53	380Δ 400Δ 415Δ	10 AWG	380Y/220 400Y/230 415Y/240	8 AWG	479
97536-21	97136-41	36	47-53	380Δ 400Δ 415Δ	6 AWG	380Y/220 400Y/230 415Y/240	6 AWG	548
97622-21	97222-41	22.5	57-63	208Δ	6 AWG	208Y/120	6 AWG	413
97630-21	97230-41	30	57-63	208Δ	4 AWG	208Y/120	4 AWG	458
97645-21	97245-41	45	57-63	208Δ	2 AWG	208Y/120	2 AWG	575
97775-21	97275-41	75	57-63	208Δ	2/0 AWG	208Y/120	2/0 AWG	905
97722-21	97322-41	22.5	57-63	480Δ	10 AWG	208Y/120	6 AWG	405
97730-21	97330-41	30	57-63	480Δ	8 AWG	208Y/120	4 AWG	458
97745-21	97345-41	45	57-63	480Δ	6 AWG	208Y/120	2 AWG	575
97675-21	97375-41	75	57-63	480Δ	3 AWG	208Y/120	2/0 AWG	905
97610-21	97310-41	100	57-63	480Δ	2 AWG	208Y/120	300 MCM	1045
97613-21	97313-41	130	57-63	480Δ	1/0 AWG	208Y/120	400 MCM	1115

*Recommended wire sizes are based on copper wire. In selecting the actual wire size the user must take into consideration the number of conductors in the raceway and the ambient temperature. User must also comply with applicable local electrical codes.

2.2 DIMENSIONS

Dimensions shown in the following table are in inches.

POWER RATING	DIMENSION CODES (See Figure 2-1)						
	A	B	C	D	E	F	G
18-45 kVA	30	29	20	18	2.5	15	3 (diameter)
75-130 kVA	38	42	26	24	3.0	19	4 (diameter)

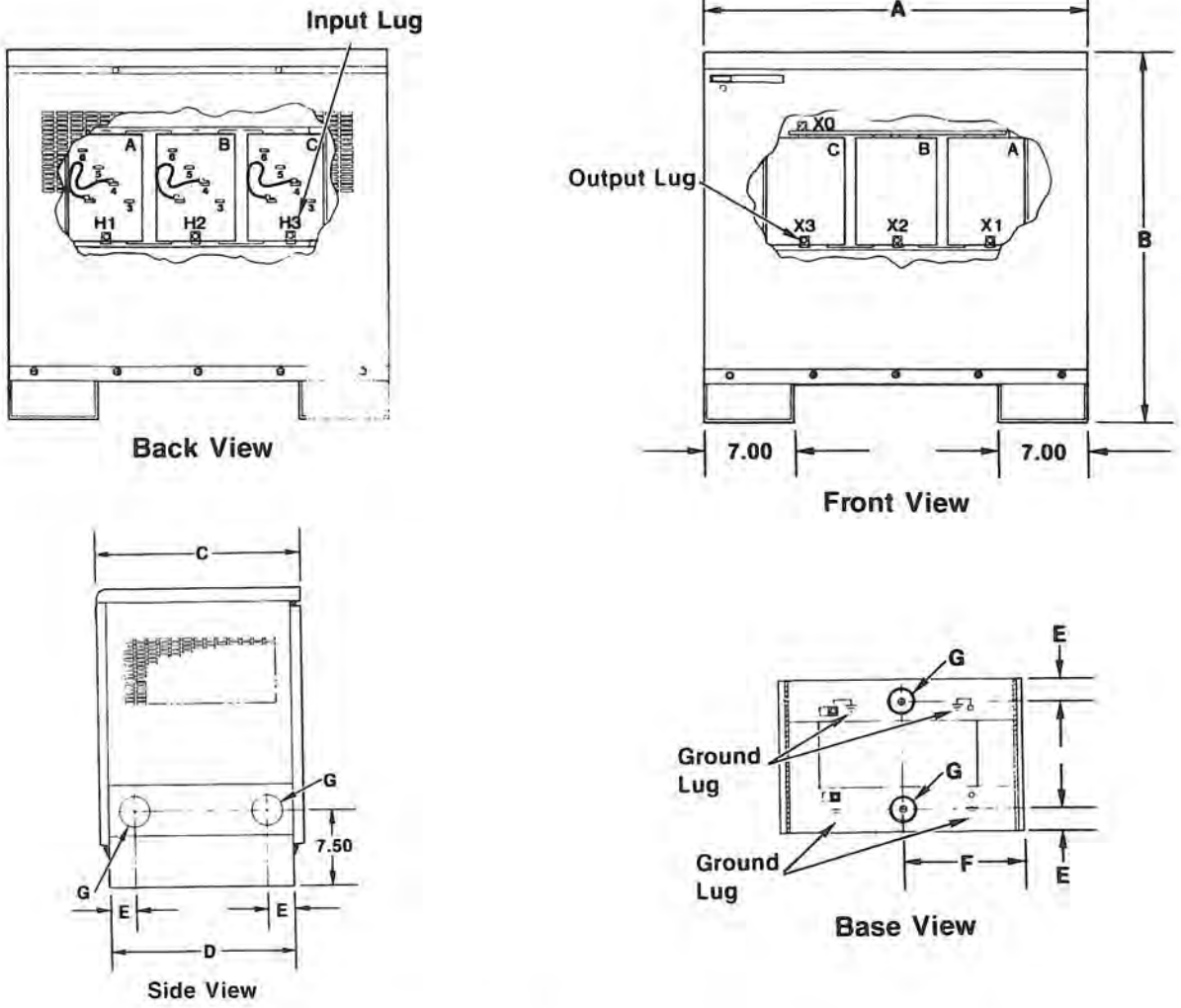

FIGURE 2-1. ULTRA-ISOLATOR® Noise Suppressor Installation Drawing

SECTION 3

INSTALLATION AND OPERATION

3.1 INSTALLATION

3.1.1 LOCATION

The ULTRA-ISOLATOR Noise Suppressor is designed for installation in a protected environment. Factors to consider in locating the Noise Suppressor are ventilation and environmental conditions.

- The ULTRA-ISOLATOR Noise Suppressor is cooled by radiation and natural convection. Allow at least six inches between the unit and nearby walls or equipment.
- The ULTRA-ISOLATOR Noise Suppressor should be installed in locations free from excessive dust and chemical fumes.
- The highest degree of noise suppression will be obtained by locating the ULTRA-ISOLATOR Noise Suppressor as near to the load as possible.

3.1.2 OUTPUT VOLTAGE ADJUSTMENT

The ULTRA-ISOLATOR Noise Suppressor can boost the line voltage by either 5% or 10%, or reduce it by 5%. A jumper connected to taps on each of the three input coils provides this voltage adjustment (see Figure 3-1). The three jumpers are connected at the factory from Tap 2 to Tap 4 on each phase. Tap 4 is intended for use with input voltages that are approximately the nominal value as shown in the Listing of Models table in Section 2.1.

Before deciding to make a tap change, it is advisable to measure the voltage at the input to the power conditioner several times during a day. This is because the voltage delivered by the electric utility company will vary up and down during the day as the total load on the utility system varies. If the average voltage at your location is less than, or greater than, the nominal value by more than 5%, it may be advisable to make a change in the tap connections.

To select a different output level, disconnect the jumper from Tap 4 on all three phases, and connect it to the desired tap in accordance with Table 3-1. **Do not disconnect the other end of the jumper from Tap 2.** Be sure to select the same tap for all three phases.

CAUTION

Disconnect all power to the ULTRA-ISOLATOR Noise Suppressor before making any change in tap connections.

TAP	EFFECT ON OUTPUT VOLTAGE
3	5% voltage reduction
4	No effect
5	5% voltage boost
6	10% voltage boost

TABLE 3-1. Jumper Connections

3.1.3 CABLE CONNECTIONS

1. Remove the two screws at the rear of the top cover. Slide the cover rearward about one inch, then remove it.
2. Loosen **(do not remove)** the five screws at the bottom of the rear panel.
3. Remove the four screws (two on each side) that attach the rear panel to the side panels, then lift the panel upward to remove it.
4. There are three entrance holes for input cables at the rear of the base, one at each side and one at the bottom. If either side entrance hole is to be used, remove the entrance hole cover by pulling on it. The cover is attached to the chassis with magnets.

   If the bottom hole is to be used, remove its cover with a screwdriver.
5. If conduit is used for the input cables, route the conduit to the entrance hole. If conduit is not used, install a cable strain relief bushing in the entrance hole.
6. See the Specifications for the recommended size of the input cables. Use cable rated for at least 90°C.
7. Connect the input cables to the input terminals as shown in Figure 3-1.

8. Connect the input ground wire to the input ground lug. The lug can be attached to either chassis stud.

9. Reconnect the voltage adjustment jumper if required. (See Paragraph 3.1.2.)

10. Reinstall the rear panel. The flange of the panel fits between the chassis and the cover plate, which is suspended by the 5 screws that were loosened only. Install the four screws that secure the rear panel to the side panels. Then tighten the five screws at the bottom of the rear panel.

11. Disconnect the lamp in the front panel by separating the two halves of its pull-apart wiring connector.

12. Loosen **(do not remove)** the five screws at the bottom of the front panel.

13. Remove the four screws (two on each side) that attach the front panel to the side panels, then lift the panel upward to remove it.

14. The three output entrance holes at the front of the base are accessed in the same way as the input entrance holes.

15. If conduit is used for the output cables, route the conduit to the entrance hole. If conduit is not used, install a cable strain relief bushing in the entrance hole.

16. See the Specifications for the recommended size of the output cables. Use cable rated for at least 90°C.

17. Connect the output cables to the output terminals as shown in Figure 3-2.

18. Connect the ground wire from the load equipment to the output ground lug. The lug can be attached to either chassis stud.

19. Reinstall the front panel. The flange of the panel fits between the chassis and cover plate which is suspended by the 5 screws that were loosened only. Install the four screws that secure the front panel to the side panels. Then tighten the five screws at the bottom of the front panel. Reconnect the pull-apart lamp connector.

20. Reinstall the top cover.

3.2 OPERATION

Switch on the AC input power. The ULTRA-ISOLATOR Noise Suppressor operates automatically; there are no controls or adjustments. The lamp in the front panel is ON when voltage is present at the output.

Specified output voltages are measured between each phase, or between each phase and neutral. Output voltages between each phase and ground are not specified.

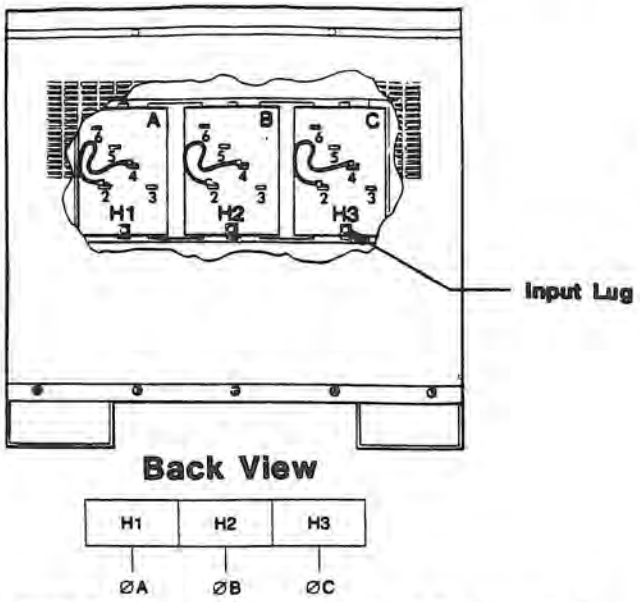

FIGURE 3-1. Input Terminal Connections

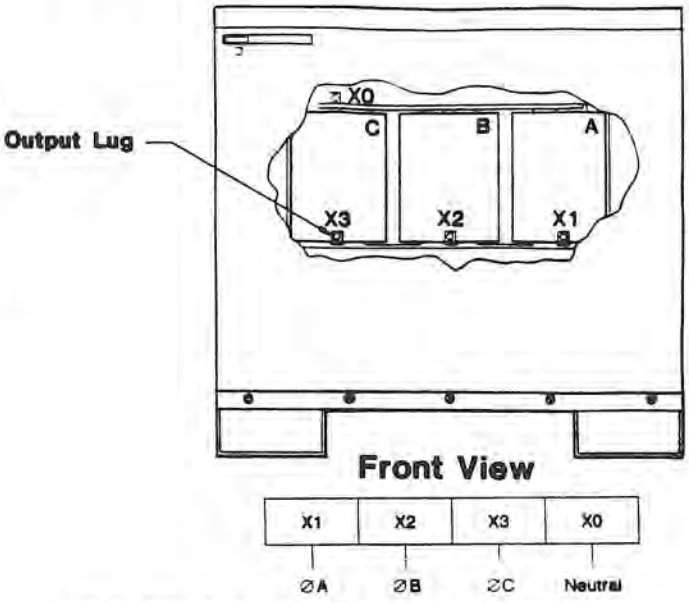

FIGURE 3-2. Output Terminal Connections

SECTION 4

MAINTENANCE AND FACTORY SERVICE

4.1 MAINTENANCE

The ULTRA-ISOLATOR Noise Suppressor, when installed in a location free from excessive dust or chemical fumes requires virtually no maintenance, and should give many years of trouble-free service.

4.2 FACTORY SERVICE

DIRECT QUESTIONS REGARDING THE OPERATION, REPAIR, OR SERVICING OF THE ULTRA-ISOLATOR NOISE SUPPRESSOR TO TOPAZ FIELD SERVICE, TELEPHONE NUMBER (619) 279-0831. Include the model number, and serial number of the unit in any correspondence.

Before returning the unit to the factory for warranty repair, contact Field Service for shipping authorization.

To prevent damage during transit, the unit should be packed for shipment to the factory in the original Topaz shipping container. If the original container is not available, the unit should be packed securely in a commercial shipping container.

SPARE PARTS

5.1 ORDERING PARTS

Table 5-1 lists spare parts that are recommended for support of Series 40 ULTRA-ISOLATOR Noise Suppressors. There are no spare parts recommended for the Series 20 ULTRA-ISOLATOR Noise Suppressors.

Whenever possible, standard electrical parts should be purchased locally. Parts to be purchased from Topaz should be identified by all the information in Table 7-1, and by the model number and serial number of the unit.

DESCRIPTION	TOPAZ PART NUMBER	MANUFACTURER		QUANTITY USED FOR MODEL NUMBER												
		NAME	PART NUMBER	97118-41	97124-41	97136-41	97222-41	97230-41	97245-41	97275-41	97322-41	97330-41	97345-41	97375-41	97310-41	97313-41
Varistor, 575V, 300A	05053-0100	General Electric	V575HE550	3	3	3					3	3	3	3	3	3
Varistor, 250V 300A	798-05055	General Electric	V250HE250				3	3	3	3						
Capacitor, 370V 60 uF	05052-0100	General Electric	97F3261-T	6	6	6	6	6	6	12	6	6	6	12	12	12
Lightning Arrestor	917-00450-01	Topaz		1	1	1	1	1	1	1	1	1	1	1	1	1

TABLE 5-1. Recommended Spare Parts