

LTR	DESCRIPTION	DATE	APPROVED
-	REV'D ON C/N 51958	2-29-80	am
A	REV'D PER C/N 52009 SHTS 2,3,4,9,10,11,12,13. 172VDC WAS 120/125VDC.	3-20-80	K. RICH
B	REV'D PER C/N 52059 P5.2.4 47.25 WAS 47.5 P5.2.10 52.75 WAS 52.5	4-3-80	K RICH
C	REV'D PER C/N 52306. ADDED 'TYP INPUT CRT' TO FIG 6,7,8	4/25/80	Wc

BECHTEL COMPANY	JOB NO. 7745
SUPPLIER DOCUMENT REVIEW STATUS	
STATUS NO.	
1	<input checked="" type="checkbox"/> Approved - Mfg. may proceed
2	<input type="checkbox"/> Approved - Supplier may ship - Mfg. may proceed
3	<input type="checkbox"/> Approved - except as noted - Mfg. may ship and install - Mfg. may proceed as approved
4	<input type="checkbox"/> Not approved - Do not ship/install
5	<input type="checkbox"/> Review not required - Mfg. may proceed

Approval of this document does not release Supplier from its responsibility to provide the goods or services under this contract. Sections 1, 2 or 3 approval requires an E. signature of all involved.

*E. J. [Signature]* Date *20/10/77*

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1.0

SCOPE

This procedure details the objectives, test and documentation requirements to implement the isolation device testing program.

2.0

OBJECTIVE

The objective of these tests is to demonstrate the ability of the isolation devices used in the SFAS modules and system to withstand the application of fault voltages and currents to the Non-IE side of the isolator.

3.0

TEST EQUIPMENT

## Power Supply

Module Power  $\pm$  15 VDC @ 2.0 amp

+ 24 VDC @ 1.0 amp

Fault V & C 172 VDC @ 2.0 amp

24 VDC @ 36 amp

DVM - Data Tech Model 40 or equivalent

Oscilloscope - Techtronic 465 or equivalent

Chart Recorder - Gould/Brush 220 or equivalent

Ammeter - Weston 931 50 amp or equivalent

Current Probe - Techtronic P6042 or equivalent

SIZE A	FSCM NO. 02750	DWG NO. KAM7315
SCALE	REVISION A	SHEET 2

4.0 TEST PROGRAM OUTLINE

4.1 Digital Isolation Device Test

- 4.1.1 Clare Relay
  - 4.1.1.1 Fault Voltage
  - 4.1.1.2 Fault Current
  - 4.1.1.3 Test to Failure

- 4.1.2 6N81 Bistable
  - 4.1.2.1 K1 Relay Input

- 4.1.3 6N83 Output Module
  - 4.1.3.1 K3 Relay Input

4.2 Analog Isolation Device Test

- 4.2.1 Fischer Porter I/I
  - 4.2.1.1 Operational Test
  - 4.2.1.2 Fault Voltage
  - 4.2.1.3 Fault Current

5.0 TEST PROCEDURE

5.1 Clare Relay MBR2A12 CCC P/N KEL431B

1. Connect Relay Under Test as shown in Figure 1. Note: Connect 172 VDC P/S to separate isolated 115 VAC source from 115 VAC for scope or chart recorder.
2. Operate S1 in test circuit and observe and record scope and chart recordings on Data Form 6.1.
3. Connect relay under test as shown in Figure 2.
4. Operate S1 in test circuit and observe and record scope and chart recordings on Data Form 6.2.
5. Connect relay under test as shown in Figure 3.
6. Operate S1 in test circuit and increase current thru relay contacts until relay fails. Record scope and chart recordings on Data Form 6.3.
7. Perform dielectric test between coils and contacts @ 1250 VAC. Record on Form 6.3.

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SCALE	REVISION A	SHEET 3

5.2

# 6N81 Bistable Test

1. Connect Bistable as shown in Figure 4A.
2. Set Trip Set Pot to 50%.
3. Set input to cause module to trip.
4. Set input to 42.25% of input. Clear trip light.
5. Apply fault voltage 172 VDC @ 1.5A to test input. Maintain input for 20 seconds.
6. Set input to cause module to trip.
7. Observe and record scope and chart recordings on Form 6.4A.
8. Connect bistable as shown in Figure 4B.
9. Set input to cause module to trip.
10. Set input to 52.75% of input. Clear trip light.
11. Apply fault voltage 172 VDC @ 1.5A to test input. Maintain input for 20 seconds.
12. Set input to cause module to trip.
13. Observe and record scope and chart recordings on Form 6.4B.

5.3

# Output Module Test

1. Connect module as shown in Figure 5.
2. Open and Close S1 in test circuit. Verify output operation of module.
3. Apply fault voltage 172 VDC @ 1.5A to test input. Maintain input for 20 seconds.
4. Open and Close S1 in test circuit. Verify output operation of module.
5. Observe and record scope and chart recordings on Form 6.5.

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SCALE	REVISION	SHEET
	5	4

5.4

Fischer Porter 1/1 CCC P/N KD978

1. Connect Fischer Porter as shown in Figure 6.
2. Verify correct operation by completing Form 6.6A.
3. Connect I/I as shown in Figure 7.
4. Set input to values shown on Form 6.7. Apply fault voltage and current at each input value.
5. Observe and record scope and chart recording on Form 6.7.
6. Perform Dielectric Test between +,4 and -,B terminals @ 1064 VAC. Record on Form 6.7.
7. Connect I/I as shown in Figure 8.
8. Set input to values shown on Form 6.8. Apply fault voltage and current at each input value.
9. Observe and record scope and chart recordings on Form 6.8.
10. Perform Dielectric Test between +,4 and -,B terminals at 1064 VAC. Record on Form 6.8.
11. Connect I/I as shown in Figure 6.
12. Verify correct operation by completing Form 6.6B.

SIZE	FSCM NO.	DWG NO.
A	02750	.KAM7315
SCALE	REVISION —	SHEET 5

DATA FORM 6.1, 2, 3, 4A, 4B, 5 CIRCLE APPLICABLE NO.

Ref. Para. 5.1, 2, 3

Note - Attach chart recordings to Data Form.

Chart Recorder Ch. 1 Scale V/cm \_\_\_\_\_

Speed cm/sec \_\_\_\_\_

Observations

Chart Recorder Ch. 2 Scale V/cm \_\_\_\_\_

Speed cm/sec \_\_\_\_\_

Observations

Scope Ch. 1 Scale V/cm \_\_\_\_\_

Horiz cm/sec \_\_\_\_\_

Observations

Dielectric Test \_\_\_\_\_ VAC

Observations

SIZE A	FSCM NO. 02750	DWG NO. KAM7315
SCALE	REVISION -	SHEET 6



DATA FORM 6.6 A,B

Ref. Para. 5.4

DVM 1

1.00  $\pm$  .001 VDC

2.00  $\pm$  .001 VDC

3.00  $\pm$  .001 VDC

4.00  $\pm$  .001 VDC

5.00  $\pm$  .001 VDC

DVM 2

VDC

VDC

VDC

VDC

VDC

Dielectric Test VAC

Observations

SIZE

A

FSCM NO.

02750

DWG NO.

KAM7315

SCALE

REVISION -

SHEET

7

DATA FORM 6.7, 6.8

Ref. Para. 5.4

DVM 1      Chart Recorder      Chart Recorder      Scope  
                 Ch. 2                   Ch. 2                   Ch. 1

1.00  $\pm$  .001 VDC

3.00  $\pm$  .001 VDC

5.00  $\pm$  .001 VDC

Dielectric Test \_\_\_\_\_ VAC

Observations

SIZE <b>A</b>	FSCM NO. <b>02750</b>	DWG NO. KAM7315
SCALE	REVISION	SHEET 8



U1 - KAV1918E

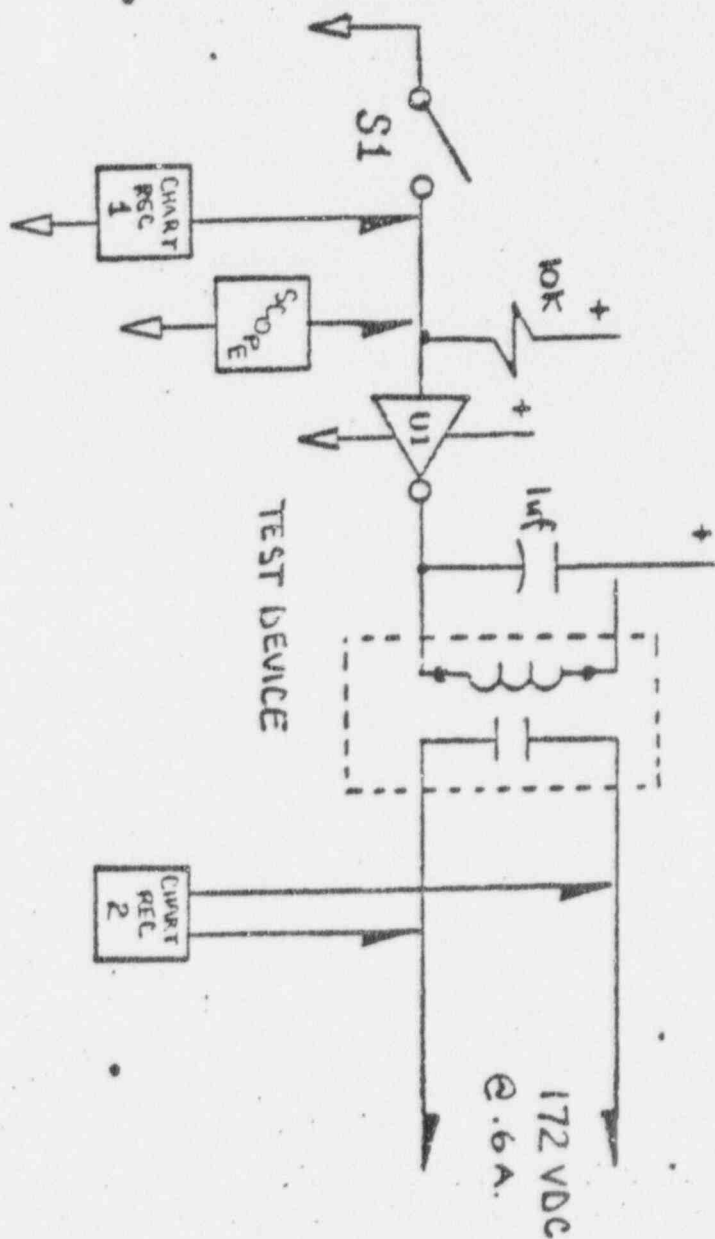
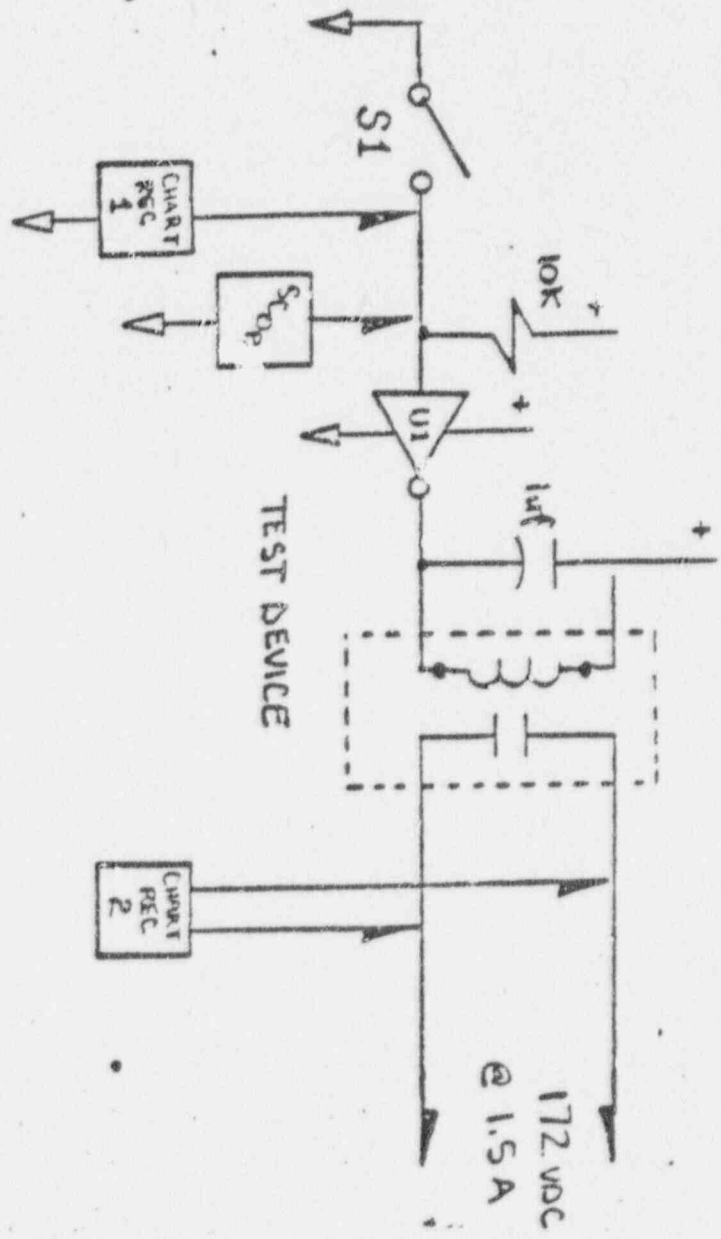


FIGURE 1

SIZE A	FSCM NO. 02750	DWG NO. KAM 7315
SCALE	REVISION A	SHEET 9

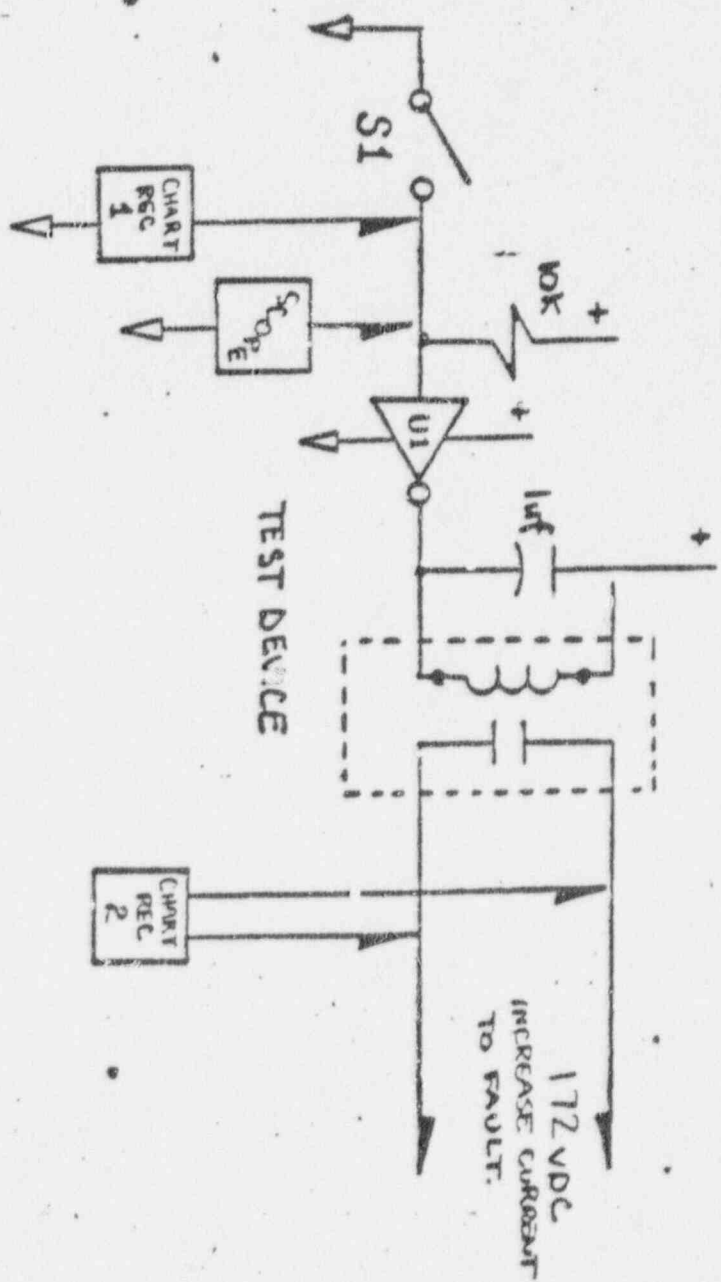
FIGURE 2



U1 - KAV1918E

SIZE A	FSCM NO. 02750	DWG NO. KAM 7315
SCALE	REVISION A	SHEET 10

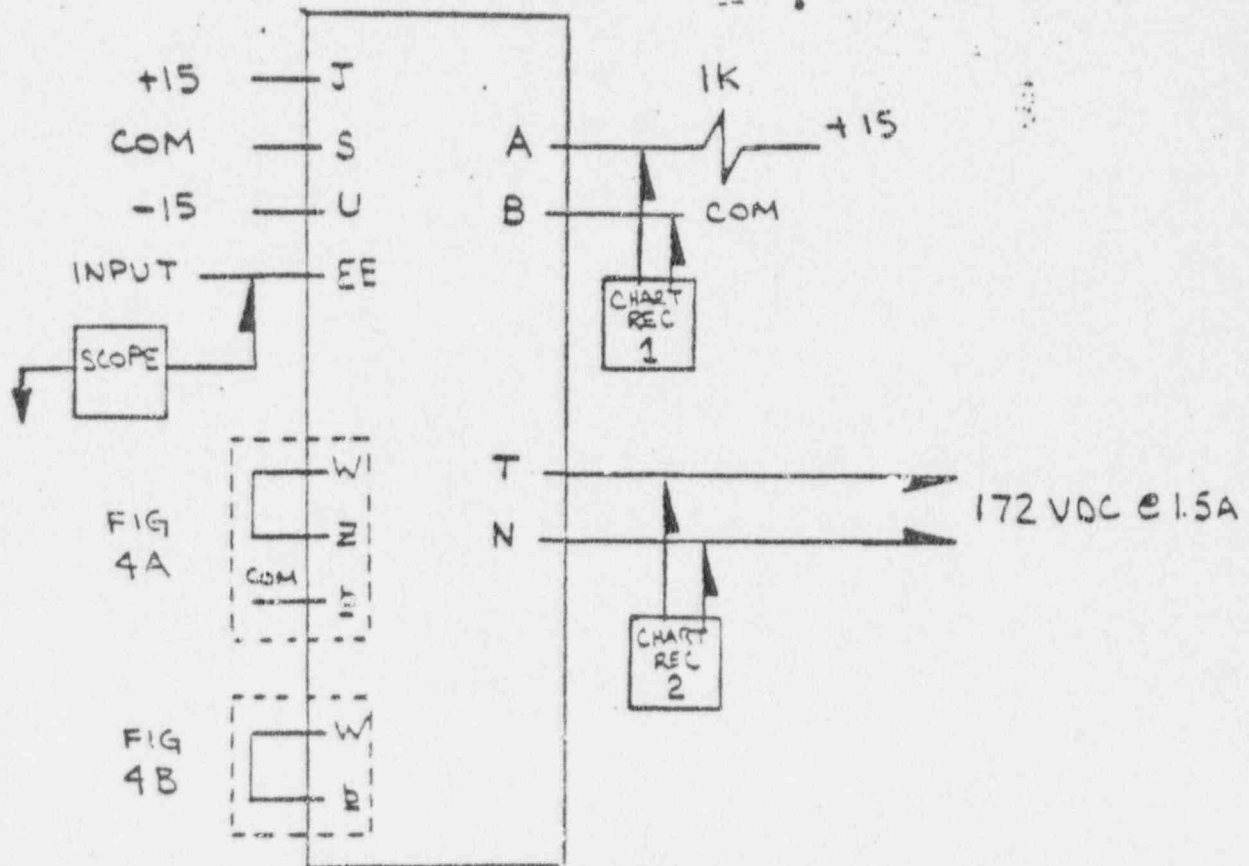
FIGURE 3



U1 - KAV1918E

SIZE A	FSCM NO. 02750	DWG NO. KAM 7315
SCALE	REVISION A	SHEET 11

FIGURE 4 A/B



6N81 BISTABLE

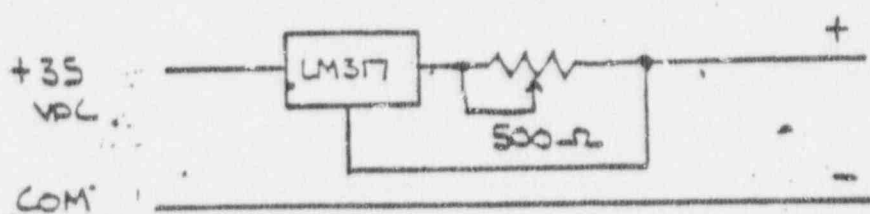
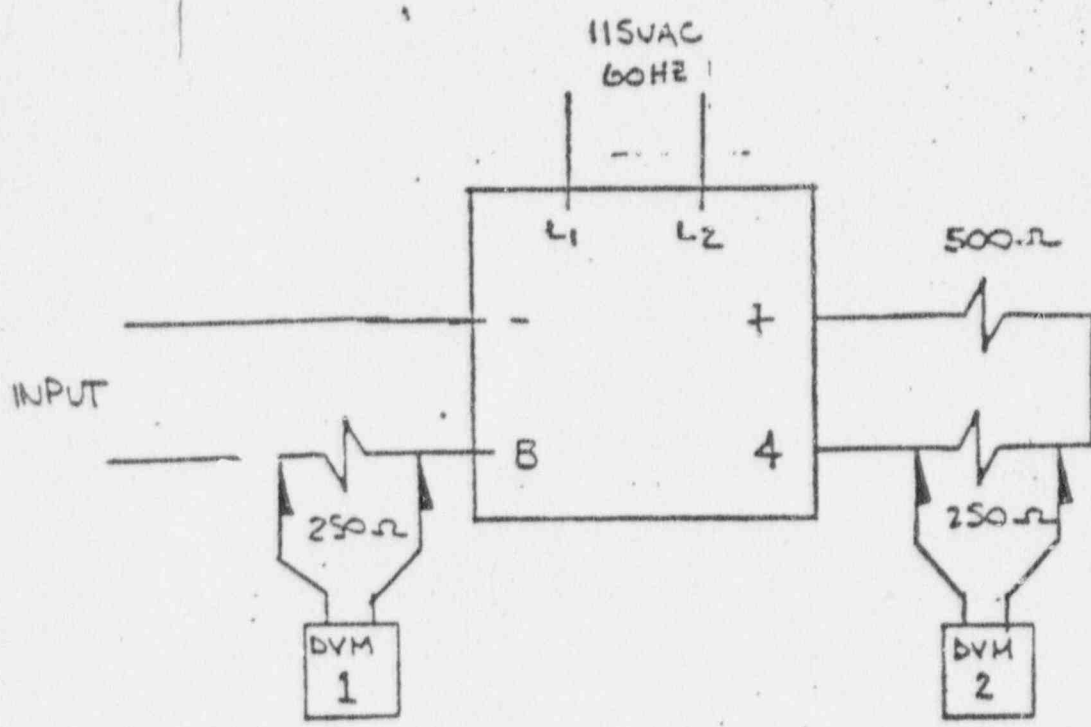
SIZE A	FSCM NO. 02750	DWG NO. KAM 7315
SCALE	REVISION A	SHEET 12

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65-15 17-00 TRAINING

FIGURE 6



TYR INPUT CIRCUIT.

SIZE A	FSCM NO. 02750	DWG NO. KAM 7315
SCALE	REVISION C	SHEET 14

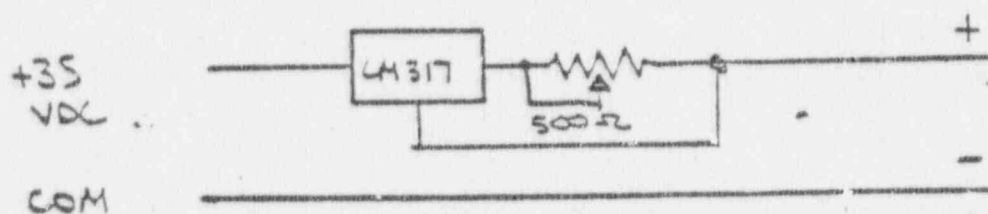
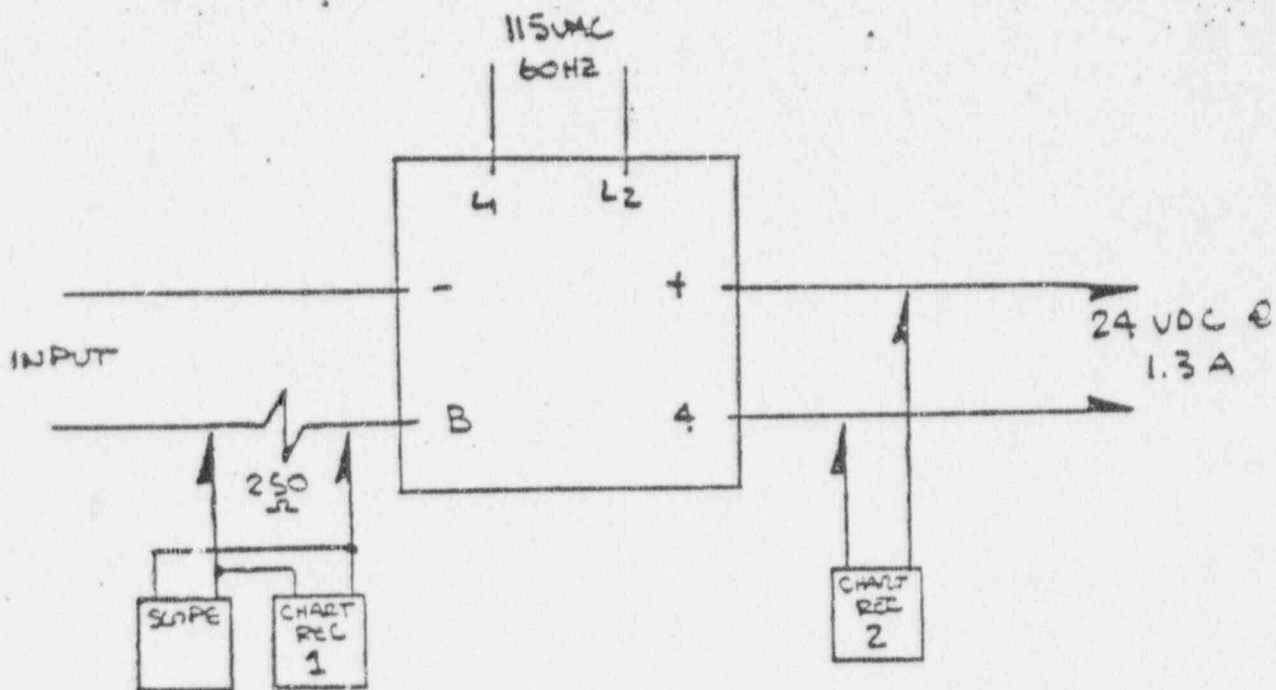
CIC/ LAM

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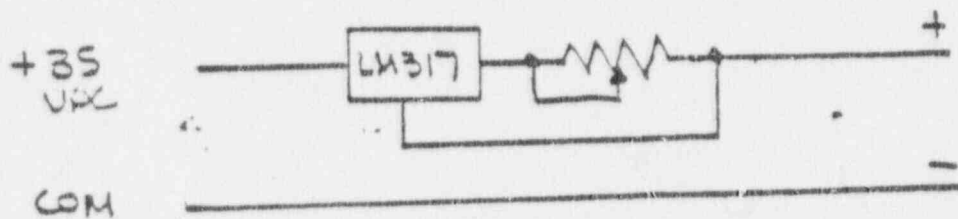
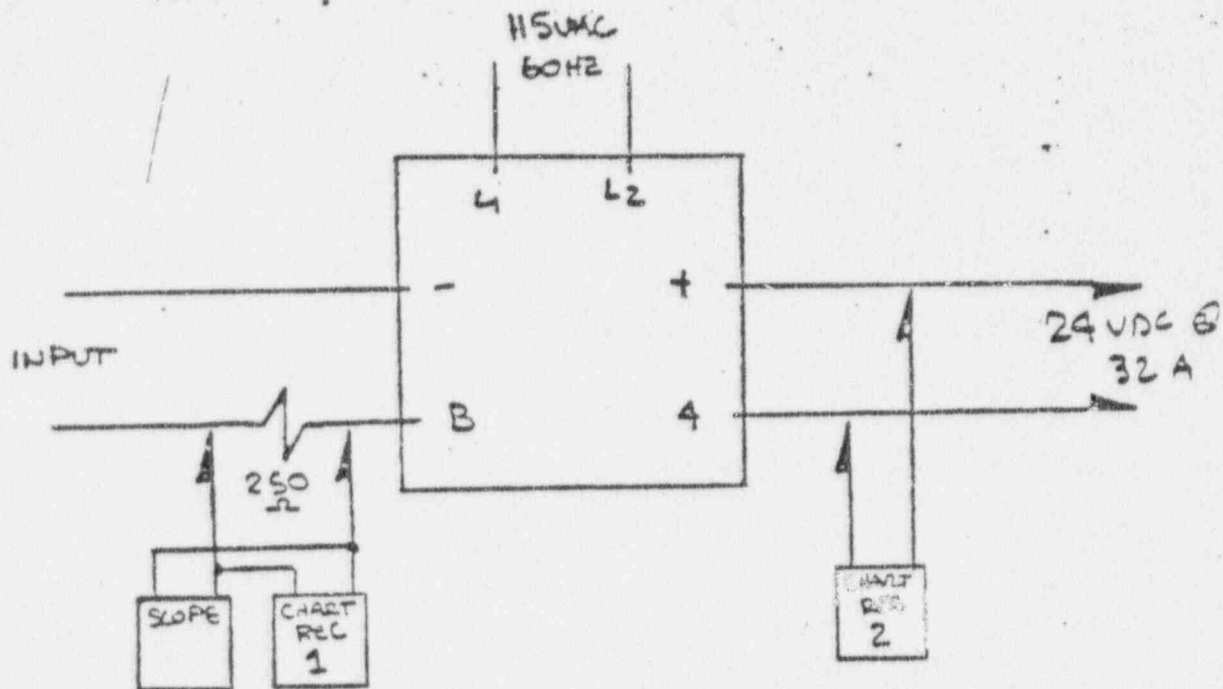
FIGURE 7



TYP INPUT CKT

SIZE	FSCM NO.	DWG NO.
A	02750	KAM 7315
SCALE	REVISION C	SHEET 15

# FIGURE 8



TYP INPUT CKT

SIZE A	FSCM NO. 02750	DWG NO. KAM 7315
SCALE	REVISION C	SHEET 16