

July 22, 1982

SUBSTATION 'C' & 'D'

Main Ammeter - Faulty
Reading under load.

CHILLER #2

L3 Ammeter - Faulty
Reading.

July 22, 1905

Substitution
of
the
law
of
the
state

of
the
state
of
Ohio

to
amend
the
constitution
of
the
state
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in
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to
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the
state

NAVAL REGIONAL MEDICAL CENTER
CAMP LEJEUNE, NORTH CAROLINA

FILE No. _____
Lockwood Greene Engineers, Inc.
RECEIVED
SEP 29 1981
REF. TO _____
ACK. _____

SECTION 16465

939-2

6.2

Test Reports as prepared by SETA
Corporation on all switchgear.

ATLANTIC DIVISION
NAVAL FACILITIES ENGINEERING COMMAND
NORFOLK VIRGINIA 23511

APPROVED
APPROVED AS NOTED _____
DISAPPROVED _____

SUBJECT TO THE REQUIREMENTS OF
CONTRACT NO. N62470-77-C-7526

APPROVAL OF A SUBMITTAL DOES NOT INCLUDE
APPROVAL OF ANY DESIGN FROM THE CON-
TRACT REQUIREMENTS UNLESS THE CONTRAC-
TOR CALLS ATTENTION TO AND SUPPORTS THE
DEVIATION... THE CONTRACTOR SHALL BE RE-
SPONSIBLE FOR PROVIDING PROPER PHYSICAL
DIMENSIONS & WEIGHTS, COORDINATION OF
TRADES, ETC., AS REQUIRED

REVIEWER E. Hennick DATE 11-2-81

FOR OFFICER IN CHARGE OF CONSTRUCTION

"It is hereby certified that the (~~material~~) (equipment) shown and marked
in this submittal is that approved/~~proposed~~ to be incorporated into Con-
tract Number N62470-77-C-7526, is in compliance with the contract draw-
ings and specifications, and can be installed in the allocated spaces, and is
(approved for use) (~~submitted for Government approval~~).

6125

BRYANT-DURHAM ELECTRIC CO., INC. & STARR ELECTRIC CO., INC.

A Joint Venture

Authorized Reviewer Steve K. Hinds Date OCT 27 1981
Signature CQC Rep WTH Date 10/27/81

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BRYANT-DURHAM ELECTRIC COMPANY, INC.



STARR ELECTRIC COMPANY, INC.

(A JOINT VENTURE)

POST OFFICE BOX 460
JACKSONVILLE, NORTH CAROLINA 28540
(919) 353-9300

October 26, 1981

Cardinal Contracting Company
Post Office Box 8408
Camp Lejeune, North Carolina 28542

Attention: Bill Haymaker

Ref.: Naval Regional Medical Center
Camp Lejeune, North Carolina
Contract Number N62470-77-C-7526

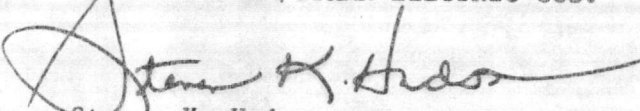
Gentlemen:

As required by specification section 16465.6.2 attached are 12 copies of test reports prepared by SETA Corporation on the high voltage switchgear, unit substations and breakers for generator synchronizing switchgear.

A copy of this report has been forwarded to Federal Pacific Electric, who will furnish a schedule of when and how they plan to correct deficiencies.

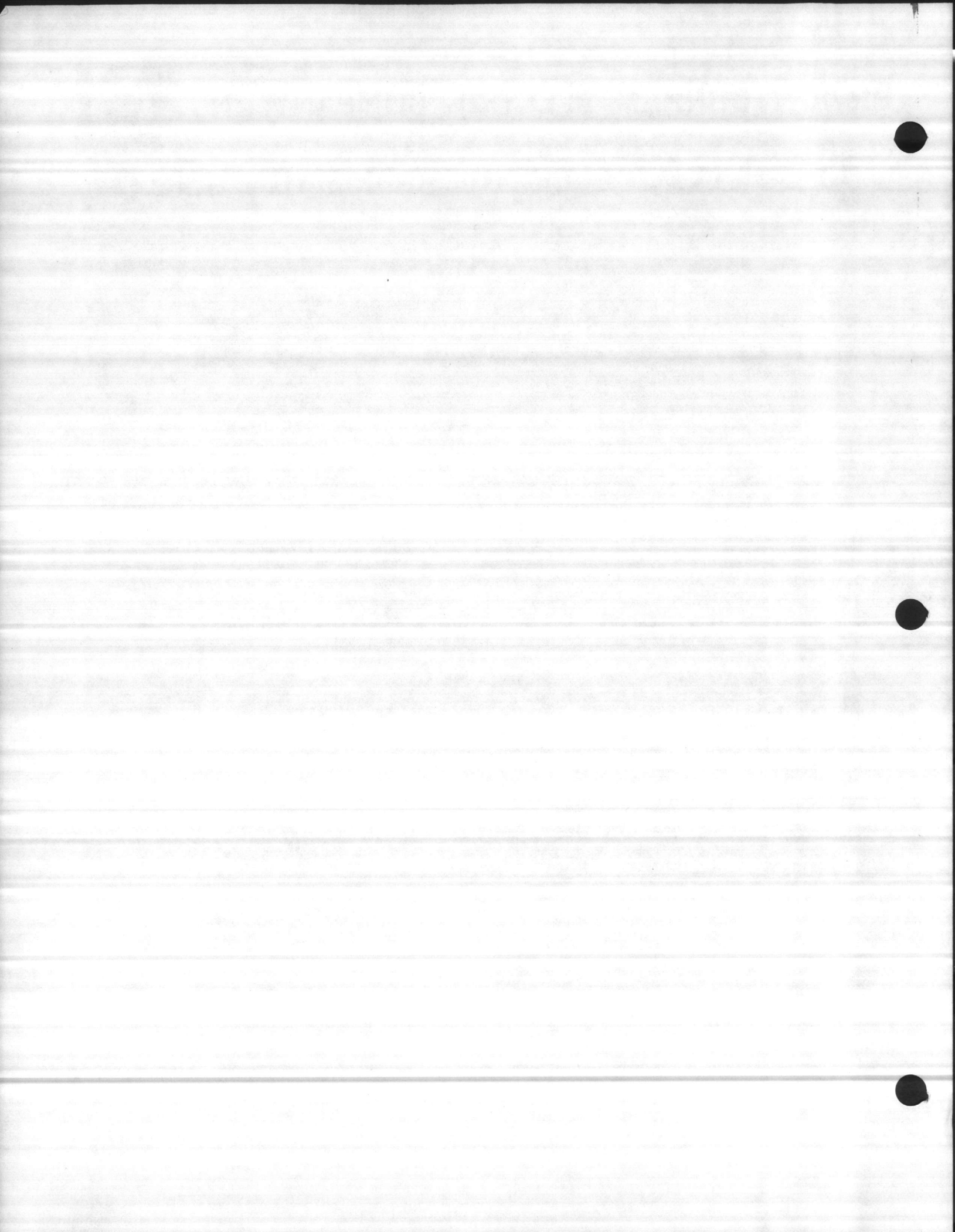
Yours very truly,

BRYANT-DURHAM/STARR ELECTRIC COS.


Steven K. Hudson
Project Manager

SKH/dsc

attachments (12)



BRYANT DURHAM/STARR ELECTRIC COMPANY
JACKSONVILLE, NORTH CAROLINA

INSPECTION AND TESTING

OF THE

NEW NAVAL REGIONAL HOSPITAL
CAMP LEJEUNE, NORTH CAROLINA

TESTED BY

SETA CORPORATION
CHARLOTTE, NORTH CAROLINA

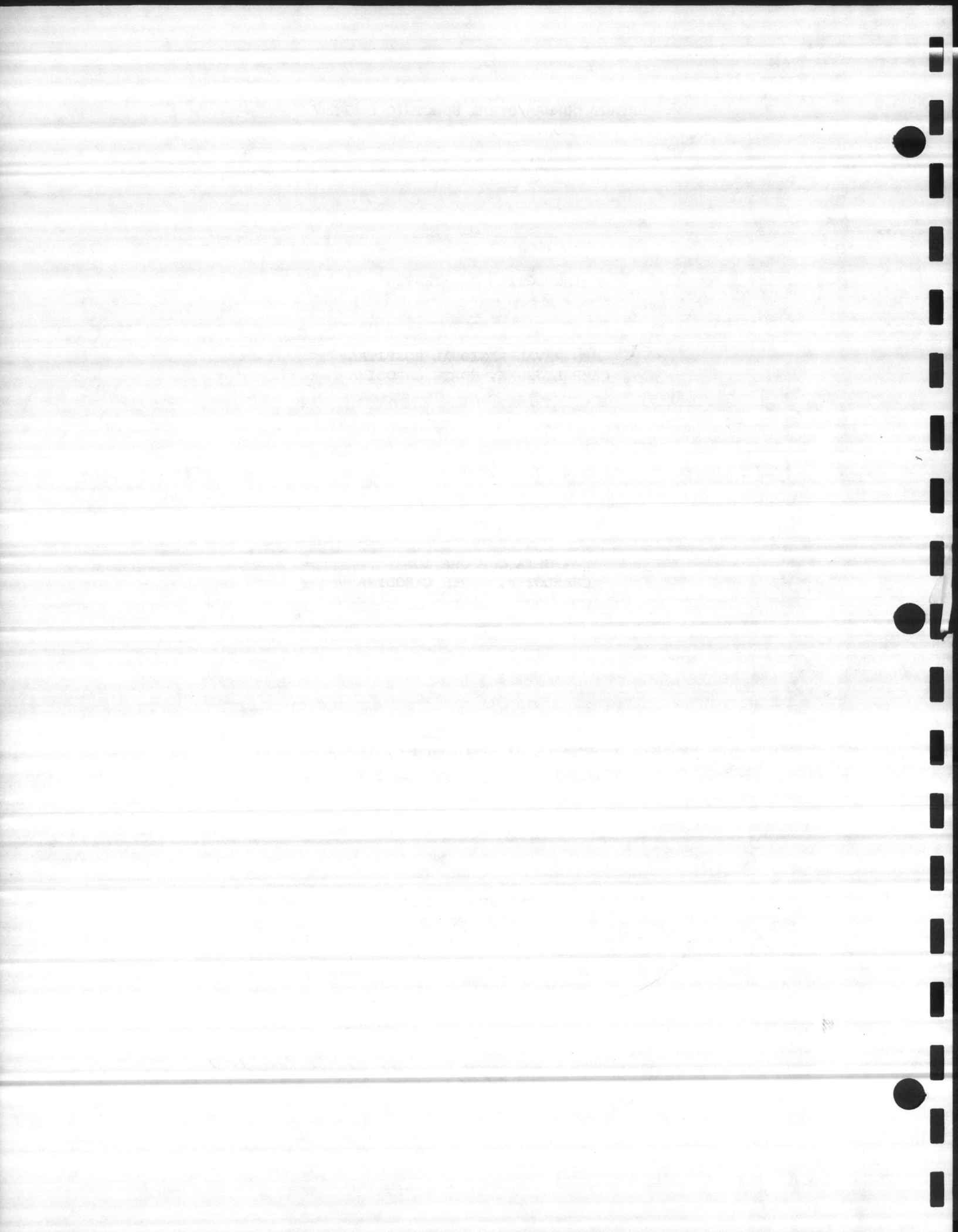
DATE TESTED

SEPTEMBER 21 - OCTOBER 6, 1981

SETA JOB NUMBER

1481-T

REPORT PREPARED BY: G. K. TREAT



SUMMARY

1.0 GENERAL

1.1 This inspection covered the following equipment:

- 1 - 15KV Main Switchboard
- 2 - Motor Operated S & C Switches
- 4 - Manually Operated S & C Switches

- 8 - FPE 15KV Load Break Switches
- 4 - Westinghouse 2500KVA Transformers

- 4 - FPE 600V Switchboards
- 34 - FPE Air Circuit Breakers

18 - FPE 600V Generator Air Circuit Breakers

1.2 All of the equipment covered by this inspection was conducted in accordance with the manufacturer's recommendations and the following NETA specifications:

- 7.1 A, B & C
- 7.2 A & B
- 7.7 A, B & C
- 7.10 A & B

1.3 We wish to express our appreciation for the assistance we received.

2.0 PROBLEMS AND RECOMMENDATIONS

2.1 S & C 15KV Switchboard

- 2.1.1 Incoming Source No. 2
A defective open Limit Switch was found. This was replaced.
- 2.1.2 Incoming Source Nos. 1 and 2 switches are controlled by Source Nos. 2 and 1, respectively. Recommend new nameplates be installed to correct this condition.

2.2 Unit Substation A

- 2.2.1 The transformer pressure guage is missing its glass cover.
- 2.2.2 The ground fault relay for the main breaker is inoperative. ✓
- 2.2.3 Breaker A-1 ^{CDP-1}
The right and left side red plastic shields are missing. ✓ *Corrected 4/23/02*

2.3 Unit Substation B

- 2.3.1 The transformer pressure guage is missing its glass cover.
- 2.3.2 The ammeter nameplates were out of sequence with the breaker cubicles. These were corrected. ✓

2.3.3 Ammeter BEMCC6
This ammeter is defective and reads 450 Amps at all times. ✓

2.3.4 Ammeter EDP6 will not read full scale.

2.3.5 The ground fault relay for the main breaker will not operate. ✓

2.3.6 Main Breaker
The red trip button will not operate. *ROTORARY SWITCHES - OPEN CONTACTS*
Phase C arc chute is cracked. *REPAIRS 4/21*

4/20/82 ✓ 2.3.7 Breaker B7 *BEMCC-6*
The manual close button sticks in the front cover when operated. *CONVERTED 4/20/82*

2.3.8 Breaker B8 *SPARE*
The trip unit operates at 100 Amps on all three phases with ground fault jumpered out.

2.4 Unit Substation C

2.4.1 The ground fault relay for the main breaker will not operate.
It started smoking when test button was operated. The potential was removed from this relay.

2.5 Unit Substation D

2.5.1 The ground fault relay for the main breaker will not operate.

2.5.2 Main Breaker
The red trip button is inoperative. *REPAIRS*

2.5.3 Breaker D5
The trip unit operates at 200 Amps on all phases with the ground fault jumpered out. *BH 16586-80*

2.6 Generator Breakers

2.6.1 Breaker - Generator No. 1
Red plastic top plate is broken. Frame is bent by 1/4 inch.

2.6.2 Breakers E3, E4, E5, E10 and E11
Arc shield top plate is broken.

2.6.3 Breaker E8
Back insulator between Phases B and C is broken.

2.7 Breakers C6 and E18

These breakers have been returned to the manufacturer for repair due to being damaged.

Faint, illegible text, possibly bleed-through from the reverse side of the page. The text is arranged in several paragraphs and is difficult to decipher due to low contrast and blurring.

CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16609-80

L.D. Setting - Time -

Interrupting Capacity 200KA

Instantaneous -

Substation: C

Ground Fault - Time -

Feeder Name C6

S.D. Setting - Time -

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	Note 2
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	Note 1	

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: 1. Breaker frame was bent and twisted in transit. Breaker cannot be put into service. 2. Arc shield hood was exchanged with breaker BH16593-80. Is now broken and in need of replacement. 3. Breaker returned to manufacturer by contractor.

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)					
L.D. @					
S.D. @					
INST. TRIP (Amps)					
GROUND FAULT					

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)					
L.D. @					
S.D. @					
INST. TRIP (Amps)					
GROUND FAULT					

MEGOHMS (@ 1000V) ϕ -GND: A-G..... B-G..... CG..... ϕ - ϕ : A-B..... B-C..... C-A.....

BREAKER OPEN—LINE TO LOAD: ϕ A..... ϕ B..... ϕ C.....

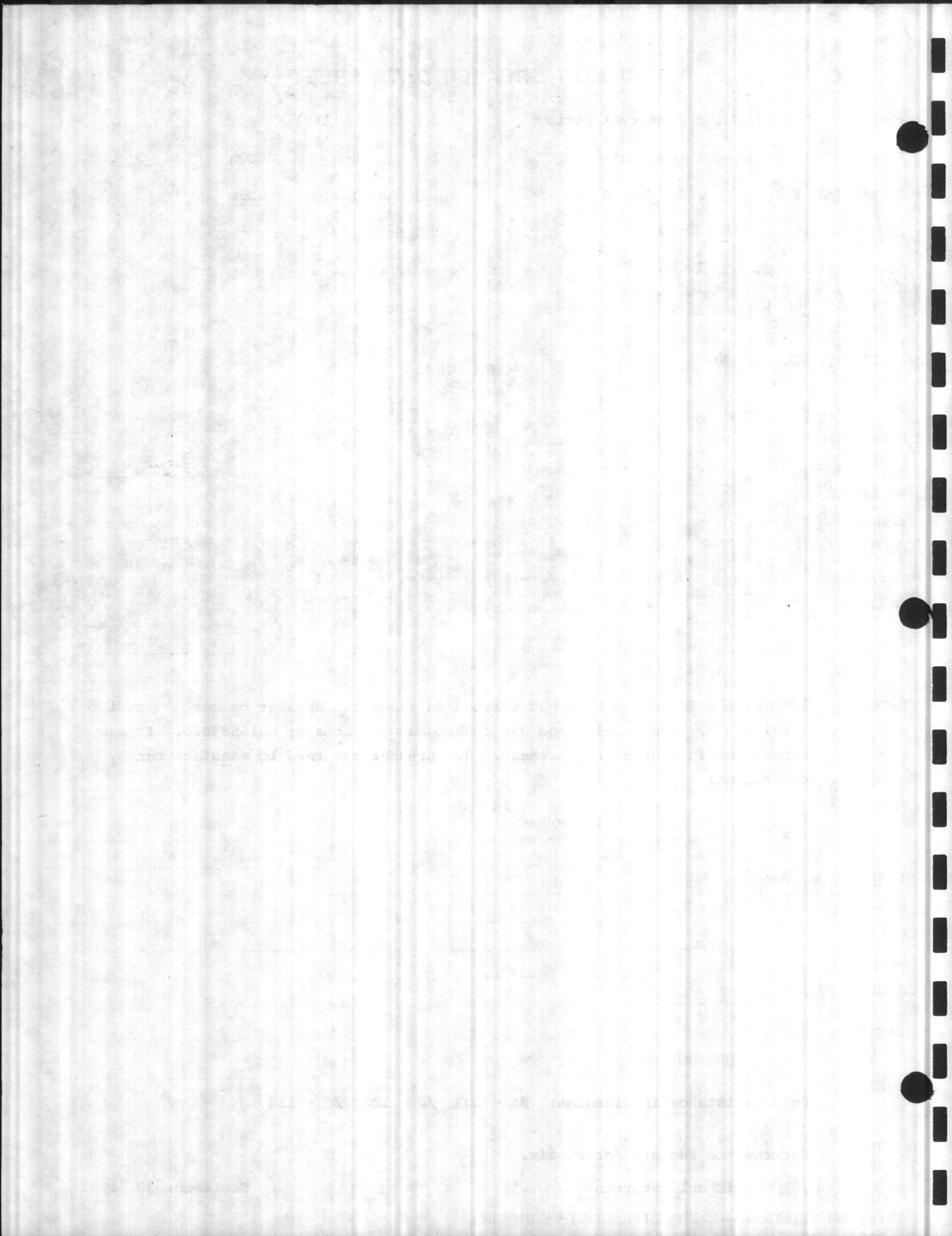
Notes:

Pole Resistance in Microhms: ϕ A - 102 ϕ B - 104 ϕ C - 113

Returned to factory for repair.

TEST ENGINEER Michael Petersen

DATE September 30, 1981



CIRCUIT BREAKER DATA SHEET



Customer: **Bryant Durham/Starr Electric**

Job No. **1481-T**

Location: **Camp Lejeune Hospital**

Trip Coil Rating **600A**

Breaker Mfg. & Type **FPE 25HL-2**

T.U. Type/Style **SD-6**

S.O./Serial No. **BH 15524-79**

L.D. Setting **-** Time **-**

Interrupting Capacity **200KA**

Instantaneous **-**

Substation: **Emergency Generator**

Ground Fault **-** Time **-**

Feeder Name **E18**

S.D. Setting **-** Time **-**

FUSE CAT. NO. LCL601

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	Note 5 & 6	
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	Note 2 & 4	
Back Plate	Note 3	
Ground Contact	N	N
Racking Gear	N	N
Other	Note 1	

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: **NOTES ON FOLLOWING PAGE**

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)					
L.D. @	%				
S.D. @	%				
INST. TRIP (Amps)					
GROUND FAULT					

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)					
L.D. @	%				
S.D. @	%				
INST. TRIP (Amps)					
GROUND FAULT					

MEGOHMS (@ 1000V) ϕ -GND: A-G..... B-G..... CG..... ϕ - ϕ : A-B..... B-C..... C-A.....

BREAKER OPEN—LINE TO LOAD: ϕ A..... ϕ B..... ϕ C.....

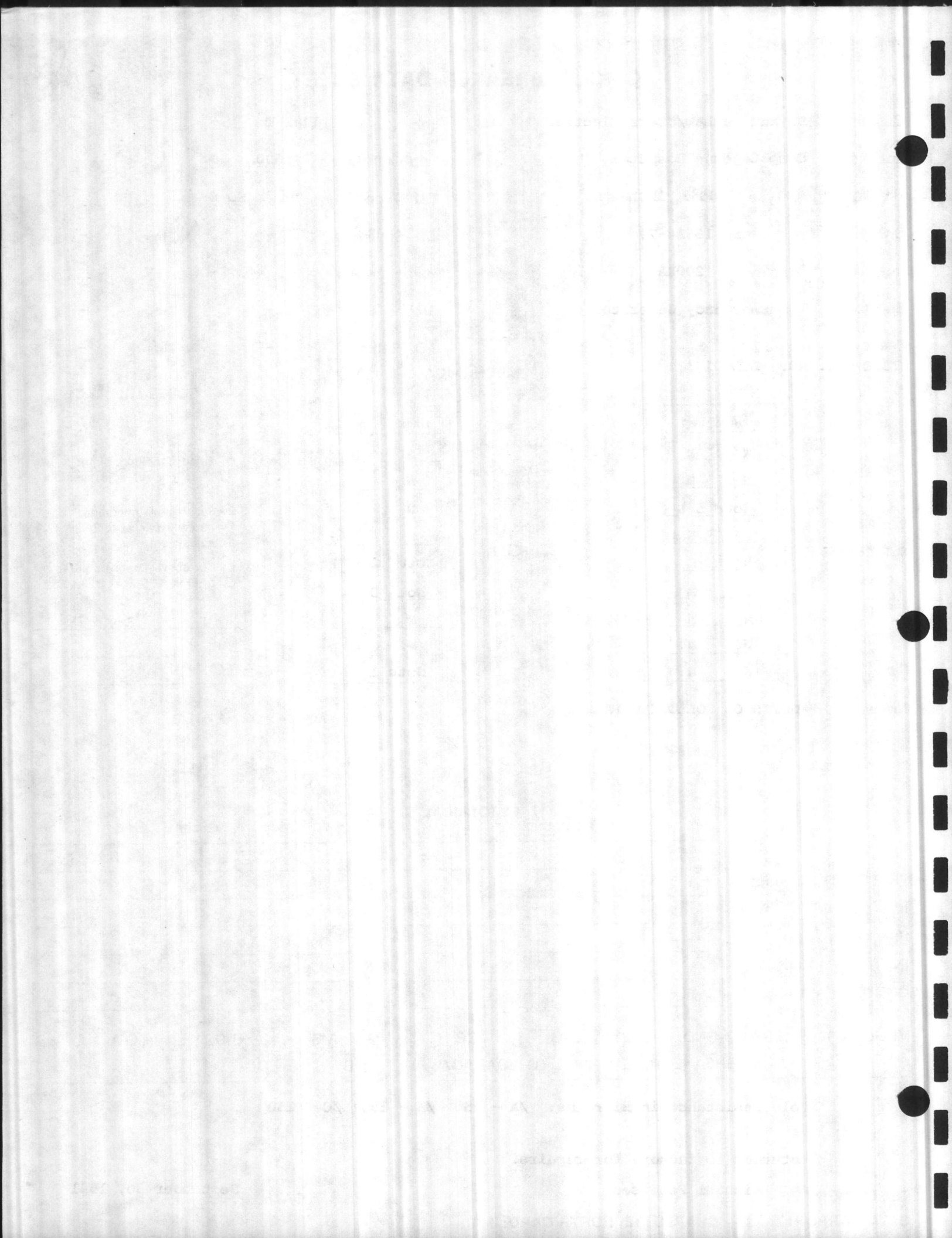
Notes:

Pole Resistance in Microhms: ϕ A - 150 ϕ B - 153 ϕ C - 150

Returned to factory for repairs.

TEST ENGINEER **Michael Petersen**

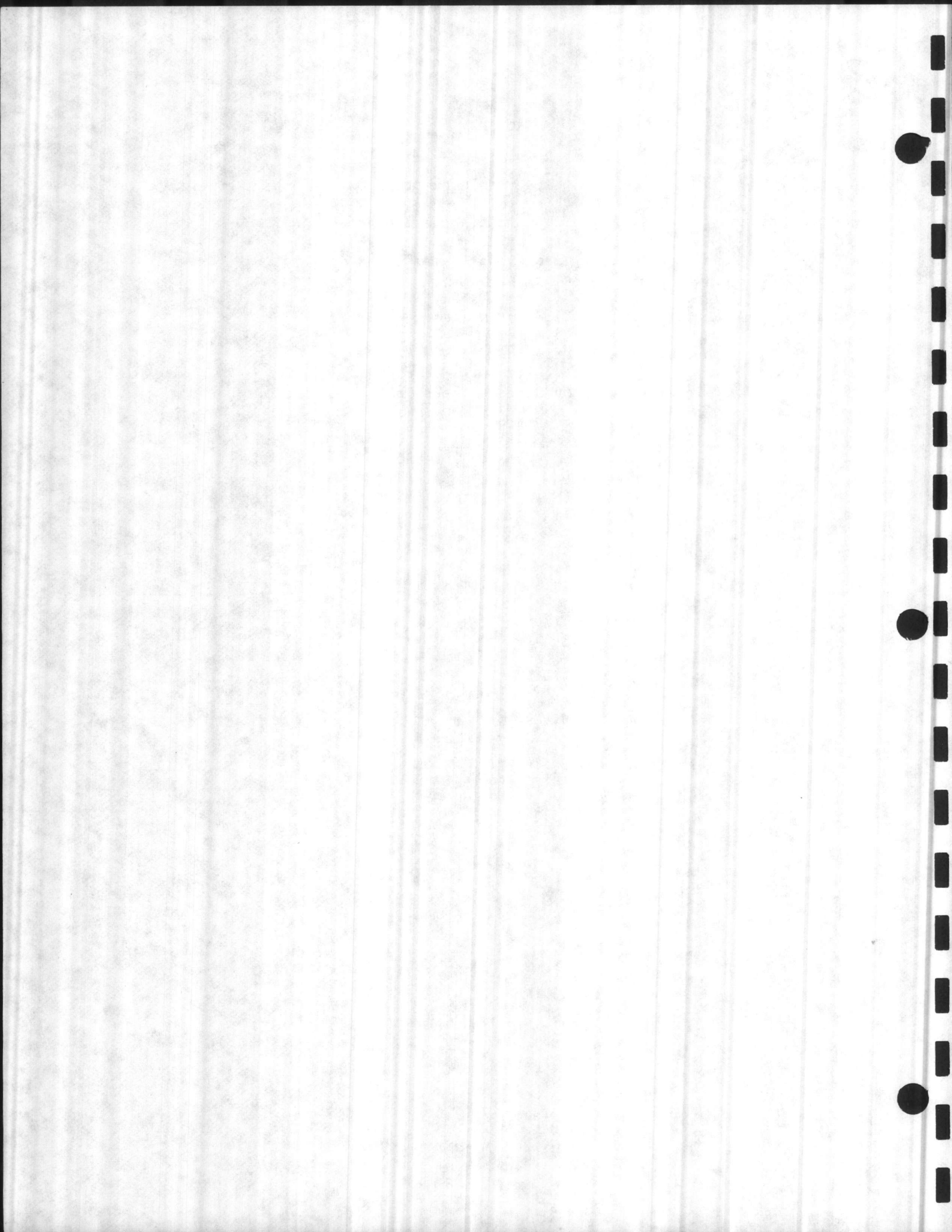
DATE **September 30, 1981**





NOTES

1. Hood broken in shipment. Requires replacement prior to installation.
2. Right corner broken off on arc chute top plate.
3. Pole unit mounting insulator broken on Phases B and C. Requires replacement.
4. Insulation barriers out of place. Replaced.
5. Phase A arc chute chipped. Recommend replacement.
6. Arc chute retaining knob removed from breaker and installed on Breaker BH15525-79.
7. Breaker returned to manufacturer by contractor.





SWITCHGEAR INSPECTION REPORT

CUSTOMER: Bryant Durham/Starr Electric JOB NO: 1481-T
 LOCATION: Camp Lejeune Hospital SUBSTATION: 15KV Load Interrupter Swgr.
 MFG/TYPE S & C Elec. Co./Cat. No. CD-337712 VOLTS 13.8KV AMPS 1200A

FEEDER NAME	Incoming Source 1	Incoming Source 2	Pri. Feeder 1	Pri. Feeder 2
S.O; OR SERIAL #	Bay No. 1	Bay No. 3	Bay No. 5	Bay No. 6
MEGGER - PHASE TO PHASE (KMegohms)	10/6/0.4	10/6/0.4	10/6/0.4	10/6/0.4
MEGGER - PHASE TO GRD. (KMegohms)	10/5/0.4	10/5/0.4	10/5/0.4	10/5/0.4
MEGGER - LINE TO LOAD (KMegohms)	100+/100+/100+	100+/100+/0.4	100+/100+/100+	100+/100+/100+
CONTACT RESISTANCE (Microhms)	39/43/39	40/40/38	76/67/71	71/63/69
CONNECTIONS	Note 4	Note 4	Note 4	Note 4
ENCLOSURE CONDITION	Satisfactory	Satisfactory	Satisfactory	Satisfactory
ARC CHUTES	Satisfactory	Satisfactory	Satisfactory	Satisfactory
CONTACT ALIGNMENT	Satisfactory	Satisfactory	Satisfactory	Satisfactory
MAIN CONTACTS	Satisfactory	Satisfactory	Satisfactory	Satisfactory
ARCING CONTACTS	Satisfactory	Satisfactory	Satisfactory	Satisfactory
PUFFERS	-	-	-	-
RELAYS FUNCTION CHECK	(Fused Switch)	(Fused Switch)	(Fused Switch)	(Fused Switch)
MECHANISM	Notes 2 & 6	Notes 1, 2, 5, 6	Satisfactory	Satisfactory
HEATERS	-	-	-	-
BUS INSULATION	Satisfactory	Satisfactory	Satisfactory	Satisfactory
DOORS	Satisfactory	Satisfactory	Note 8	Note 8
BUSHINGS	-	-	-	-
POT-HEADS	-	-	-	-
BATTERIES	-	-	-	-
BATTERY CHARGER	-	-	-	-
WIRING CONDITION	Satisfactory	Satisfactory	Satisfactory	Satisfactory
GROUNDING	Note 7	Note 7	Note 7	Note 7
NO. OF OPERATIONS (COUNTER)	57	47	-	-

COMMENTS: _____

TEST ENGINEER: Ernest M. Creech DATE: September 23, 1981

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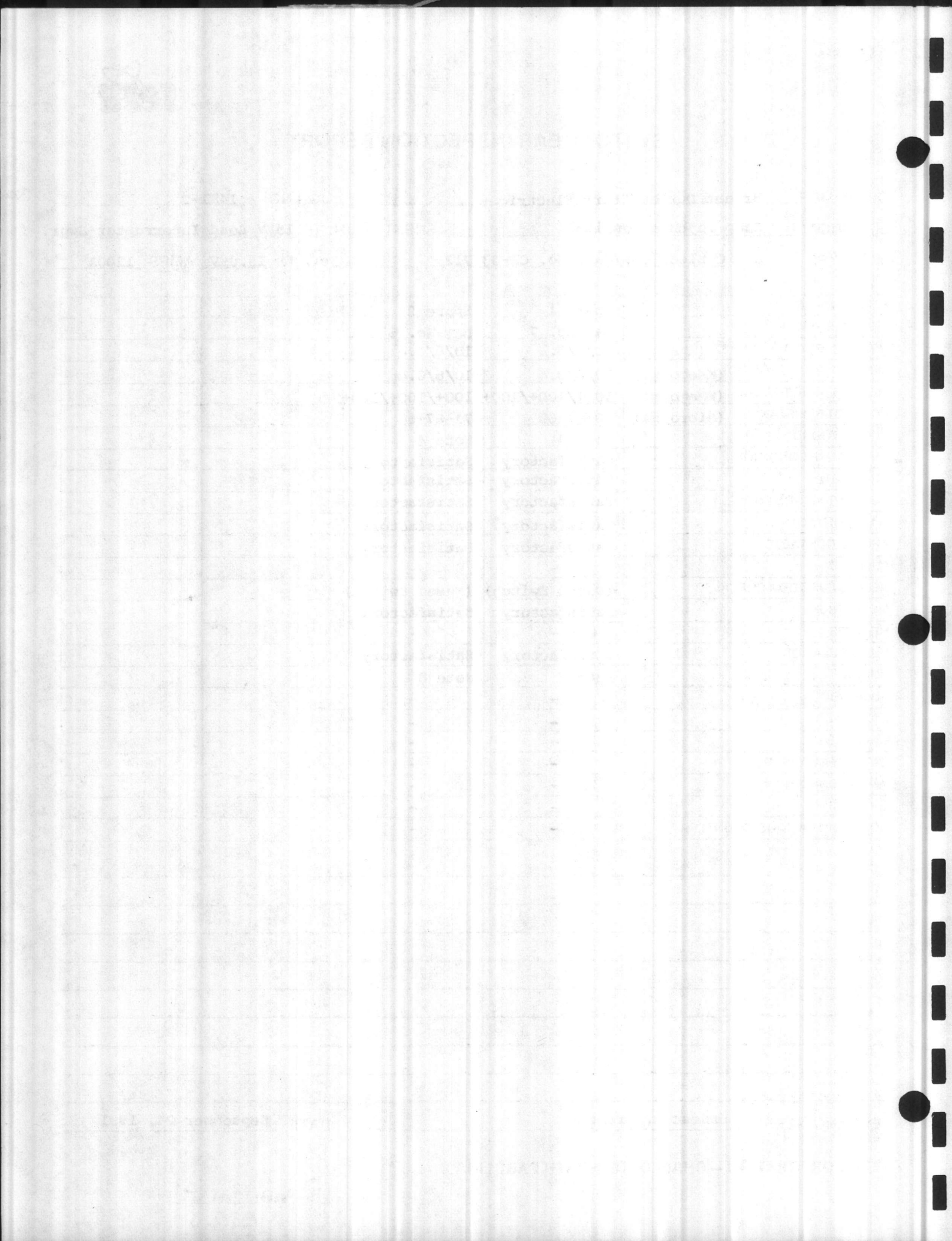
SWITCHGEAR INSPECTION REPORT

CUSTOMER: Bryant Durham/Starr Electric JOB NO: 1481-T
 LOCATION: Camp Lejeune Hospital SUBSTATION: 15KV Load Interrupter Swgr.
 MFG/TYPE S & C Elec. Co./Cat. No. CD-337712 VOLTS 13.8KV AMPS 1200A

FEEDER NAME	Spare 1	Spare 2		
S.O; OR SERIAL #	Bay No. 7	Bay No. 8		
MEGGER - PHASE TO PHASE (Kmegohms)	10/6/0.4	10/6/0.4		
MEGGER - PHASE TO GRD. (Kmegohms)	10/5/0.4	10/6/0.4		
MEGGER - LINE TO LOAD (Kmegohms)	100+/100+/100+	100+/100+/100+		
CONTACT RESISTANCE (Microhms)	80-67-68	71-67-68		
CONNECTIONS	Note 4	Note 4		
ENCLOSURE CONDITION	Satisfactory	Satisfactory		
ARC CHUTES	Satisfactory	Satisfactory		
CONTACT ALIGNMENT	Satisfactory	Satisfactory		
MAIN CONTACTS	Satisfactory	Satisfactory		
ARCING CONTACTS	Satisfactory	Satisfactory		
PUFFERS	-	-		
RELAYS FUNCTION CHECK	(Fused Switch)	(Fused Switch)		
MECHANISM	Satisfactory	Satisfactory		
HEATERS	-	-		
BUS INSULATION	Satisfactory	Satisfactory		
DOORS	Note 8	Note 8		
BUSHINGS	-	-		
POT-HEADS	-	-		
BATTERIES	-	-		
BATTERY CHARGER	-	-		
WIRING CONDITION	-	-		
GROUNDING	-	-		
NO. OF OPERATIONS (COUNTER)	-	-		

COMMENTS: _____

TEST ENGINEER: Ernest H. Creech DATE: September 24, 1981



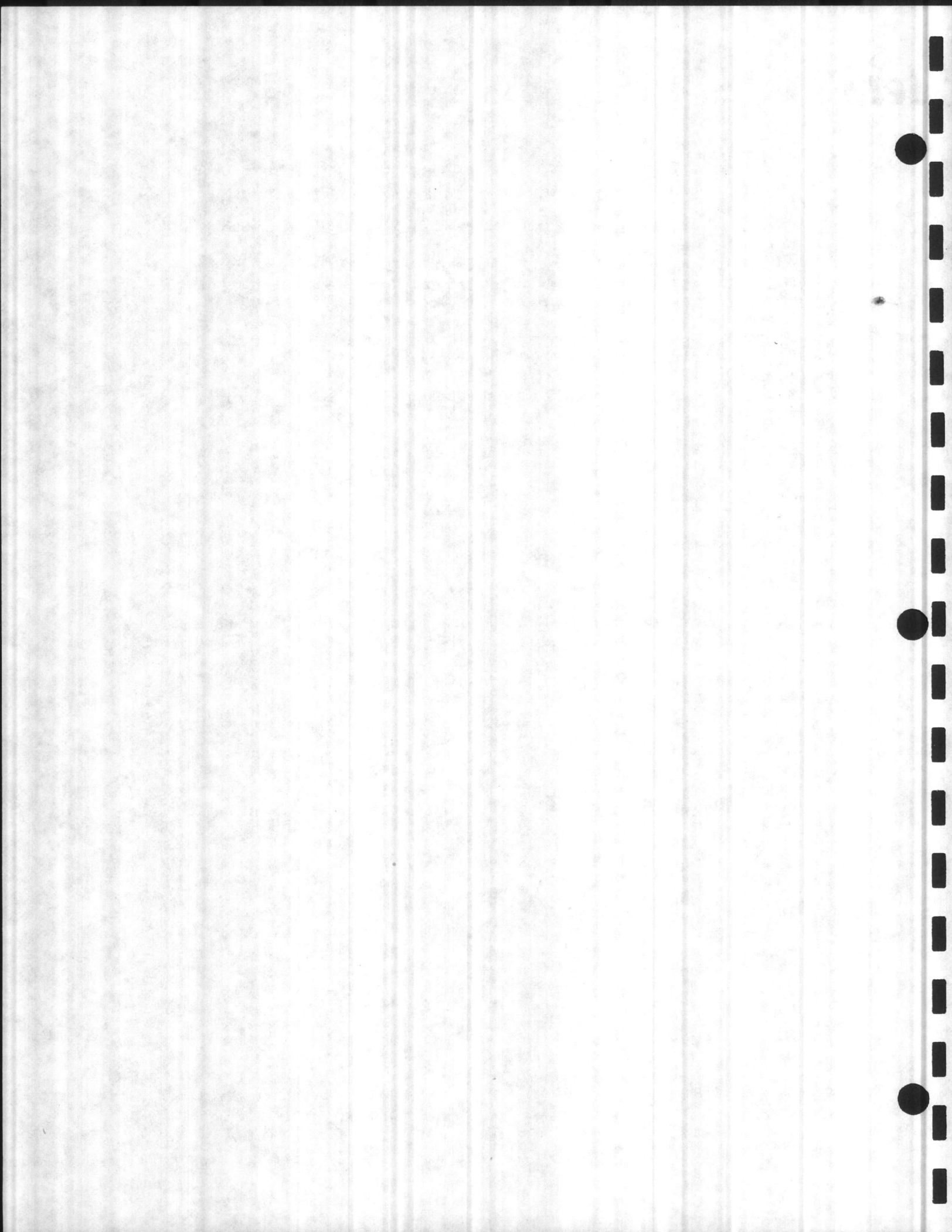


NOTES

1. Motor operator would not cut off after opening switch. Contractor replaced open limit switch to correct condition.
2. Motor operator continues to run for several seconds after switch opens and closes.
3. Resistance readings on all switches are for complete pole units excluding fuses. With pivots excluded, contacts alone on 600A switches (Bays Nos. 5, 6, 7 & 8) were between 28-39 Microhms. For Information Only, 400A fuses have resistance between 350-400 Microhms. 100A fuses on Spare 1 are 700-800 Microhms.
4. All Belleville washer connections torqued to 50 Ft.-Lbs. Majority of splice bolts were found extremely loose.
5. New microswitch (See also Note 1) arm bent double when struck by leading edge of open limit cam. Arm from original switch was installed on new switch and completely adjusted.
6. For Information Only, torque limiter makes loud ratcheting sound at ends of opening and closing cycles of these switches.
7. Ground lugs loose at bushings. Corrected by contractor.
8. Door interlock cable rubs mechanism link rods. Observe next inspection for wear of cable sheath.
9. Hi Pot Test @ 37.5KVDC: ØA - 500 Microamps ØB - 320 Microamps
(With Switches Closed) ØC - 450 Microamps

TEST ENGINEER: Ernest M. Creech

DATE: September 24, 1981





CURRENT AND POTENTIAL TRANSFORMER RATIO TESTS

CUSTOMER: Bryant Durham/Starr Electric

JOB NUMBER: 1481-T

LOCATION: Camp Lejeune Hospital

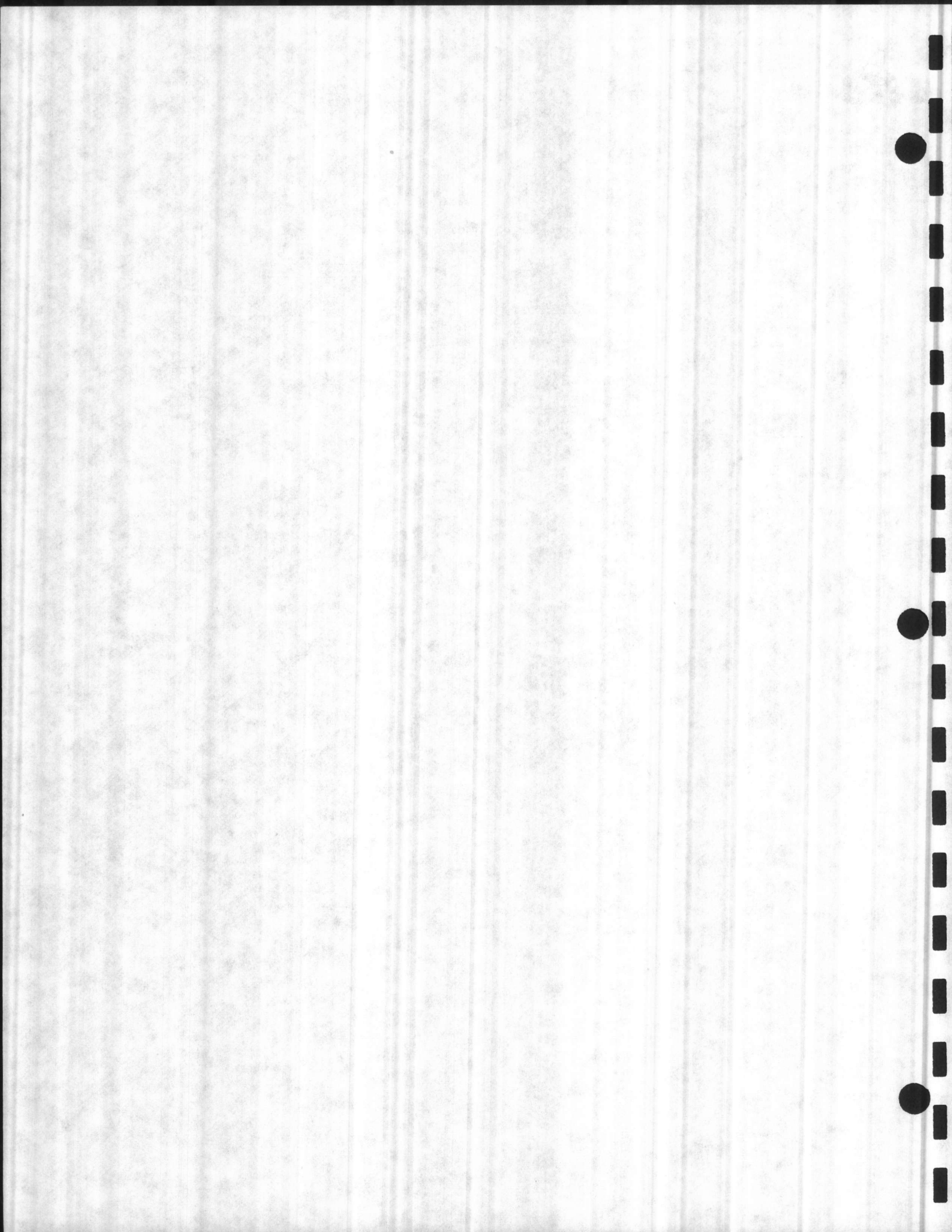
Switchgear - 15KV Interrupter Switchgear

<u>LOCATION</u>	<u>NAMEPLATE RATIO</u>	<u>PRI. VOLTAGE</u>	<u>TEST VALUES</u>		<u>ACTUAL RATIO</u>
			<u>SEC. VOLTAGE</u>		
Bay 1, Left	7200:120 (60:1)	120VAC	1.8VAC		67:1
Bay 1, Center	7200:120 (60:1)	120VAC	1.9VAC		63:1
Bay 1, Right	7200:120 (60:1)	120VAC	1.9VAC		63:1
Bay 3, Left	7200:120 (60:1)	120VAC	1.9VAC		63:1
Bay 3, Center	7200:120 (60:1)	120VAC	1.9VAC		63:1
Bay 3, Right	7200:120 (60:1)	120VAC	1.9VAC		63:1
Bay 4, Left	800:5	240Aac	1.5Aac		800:5
Bay 4, Center	800:5	240Aac	1.5Aac		800:5
Ba6 4, Right	800:5	240Aac	1.5Aac		800:5

NOTE: Test meter accuracy for secondary voltage is $\pm 5\%$. Accuracy for primary voltage is $\pm 1/2\%$.

TEST ENGINEER: Ernest M. Creech

DATE: September 24, 1981





METER TEST REPORT

15KV LOAD INTERRUPTER SWITCHGEAR

AMMETER

<u>FEEDER</u>	<u>FULL SCALE</u>	<u>SECONDARY</u>	<u>ACTUAL TEST CURRENT</u>	<u>ZERO SET</u>
Main Bus	800A	5A	4.95A	0

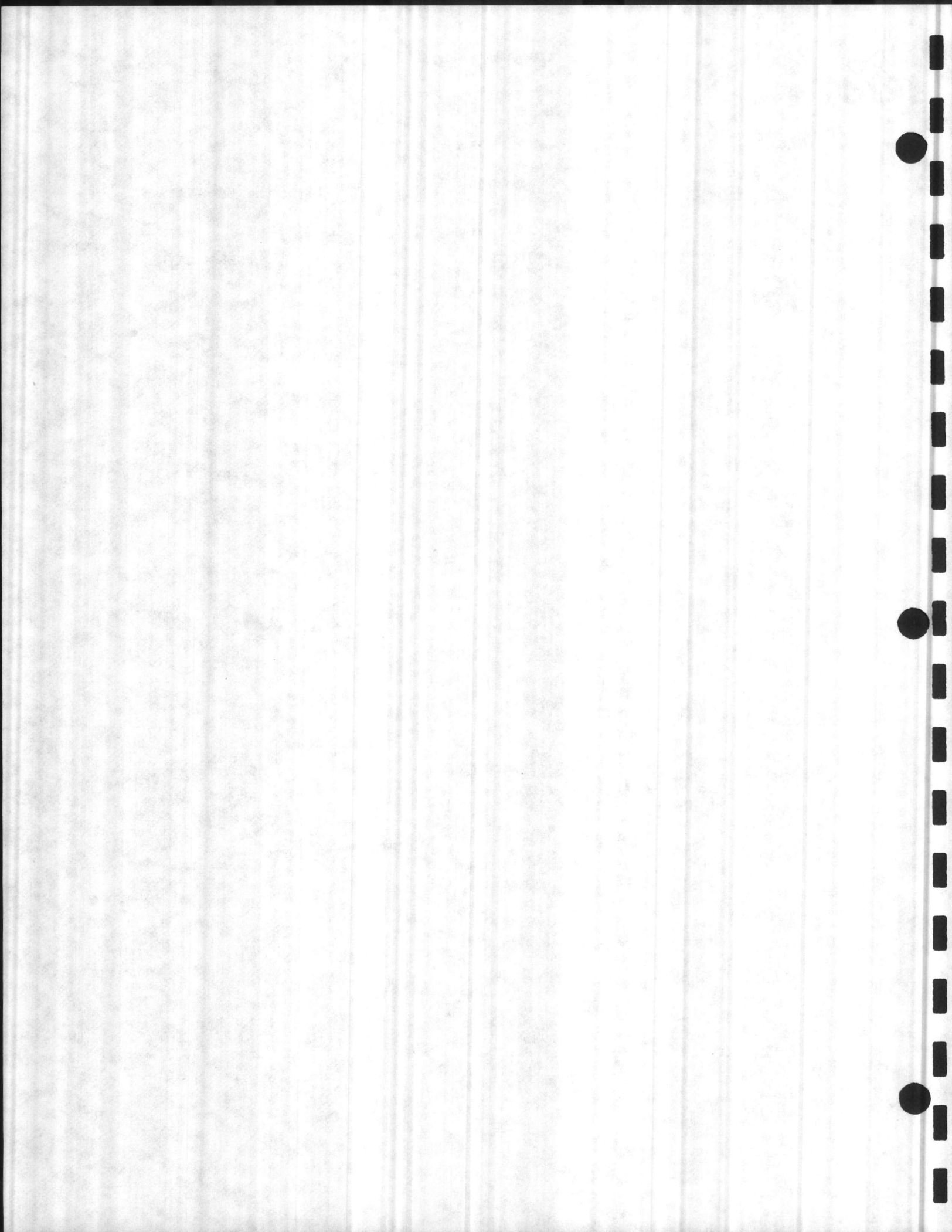
VOLTMETERS

<u>FEEDER</u>	<u>FULL SCALE</u>	<u>SECONDARY</u>	<u>ACTUAL TEST VOLTAGE</u>	<u>ZERO SET</u>
Line 1 (Note 2)	9KV	150V	150V	0
Line 2	9KV	150V	149V	-

- NOTE: 1. Wattmeter, A G.E. Type DSW-64/1, Cat. No. 704X3G558, was mechanically and visually inspected and wedge was removed from disk.
2. Nameplate reading, "Line 1" missing. Recommend replacement. This meter is located to the left (facing front of gear) of Line 2 Voltmeter.

TEST ENGINEER: Ernest M. Creech

DATE: September 30, 1981





SWITCHGEAR INSPECTION REPORT

CUSTOMER: Bryant Durham/Starr Electric JOB NO: 1481-T
 LOCATION: Camp Lejeune Hospital SUBSTATION: A
 MFG/TYPE Federal Pacific/L1 VOLTS 13.8K AMPS 600

FEEDER NAME	Pri. Feeder 1	Pri. Feeder 2		
S.O. OR SERIAL #	2658D2430	2658D2430		
MEGGER - PHASE TO PHASE (KMegohms)	12/12/11	12/10/12		
MEGGER - PHASE TO GRD. (KMegohms)	12/12/11	12/11/12		
MEGGER - LINE TO LOAD (KMegohms)	8.0/5.5/4.7	8.0/5.5/4.7		
CONTACT RESISTANCE Note 6	49/57/43	124/45/99		
CONNECTIONS	Satisfactory	Satisfactory		
ENCLOSURE CONDITION	Satisfactory	Satisfactory		
ARC CHUTES	-	-		
CONTACT ALIGNMENT	Satisfactory	Satisfactory		
MAIN CONTACTS	Satisfactory	Satisfactory		
ARCING CONTACTS	Satisfactory	Satisfactory		
PUFFERS	-	-		
RELAYS FUNCTION CHECK	-	-		
MECHANISM	-	-		
HEATERS	-	-		
BUS INSULATION	-	-		
DOORS	Satisfactory	Satisfactory		
BUSHINGS	Satisfactory	Satisfactory		
POT-HEADS	-	-		
BATTERIES	-	-		
BATTERY CHARGER	-	-		
WIRING CONDITION	-	-		
GROUNDING	Satisfactory	Satisfactory		
NO. OF OPERATIONS (COUNTER)	-	-		

COMMENTS: 1. All buss connections torqued to 37 Ft-Lbs. 2. Tie Buss between Feeder 1 and Feeder 2 - Insulation Resistance Test at 5000VDC - ϕ A - 5000 Megohms ϕ B-- 6000 Megohms ϕ C - 4000 Megohms. 3. Tie Buss High Potential Test 37.5 KVDC - Readings in Microamps - ϕ A - 480.0 ϕ B - 3000. ϕ C - 460.0

TEST ENGINEER: Mark Zagar DATE: September 24, 1981

SETA CORPORATION — CHARLOTTE, NORTH CAROLINA

1942

1943

1944

1945

1946

TRANSFORMER INSPECTION REPORT



Customer: Bryant Durham/Starr Electric Job No.: 1481-T
 Location: Camp Lejeune Hospital Voltage: 12470-480Y/277
 Substation: A Rated Current: -
 Mfg. & Type: Westinghouse/RSL KVA: 2500
 Air Temp.: 20°C Impedance: 5.77%
 Coolant Oil Askarel Dry Other Phase: 3 ϕ 1 ϕ

TEST DATA

		XFMR # 1	XFMR # 2	XFMR # 3
SERIAL NUMBER		PAT0228-0101		
INSULATION RESISTANCE @ 1000/2500 VOLTS TIME ON TEST: 10 Min.	HI - LO/GND	1800 Megohms		
	LO - HI/GND	36 Megohms		
DIELECTRIC TEST - TOP		-		
DIELECTRIC TEST - BOTTOM		40KV+		
ACIDITY TEST		<0.3mg of KOH		
COOLANT CAPACITY		665 Gallons		

INTERNAL/EXTERNAL INSPECTION

TANK - EXTERNAL	Satisfactory		
PAINT	Satisfactory		
LEAKS	None		
PUMPS & VALVES	Satisfactory		
BUSHINGS	Satisfactory		
PRESSURE RELIEF DEVICE	Satisfactory		
VENTS	-		
FANS & CONTROLS	Satisfactory		
GROUNDING	Satisfactory		
TEMP. GAUGE ACTUAL/MAXIMUM	20°/20°		
PRESSURE GAUGE - P.S.I.	+1.0 (Glass cover is missing)		
OIL LEVEL GAUGE	+25°		
INTERNAL CONDITION	-		
NLTC - TAP SETTING	3		
LTC	-		
OTHER	-		

Notes _____

TEST ENGINEER: Mark Zagar Date: September 23, 1981

TRANSFORMER TURNS RATIO TESTS



Customer: BRYANT DURHAM & STARR ELECTRIC Job No. 1481-T

Location: CAMP LEJEUNE HOSPITAL

TRANSFORMER: <u>SUB A</u>		VOLTAGE: <u>12470 - 480Y/277</u>		SERIAL NO: <u>PATO228-0101</u>		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H ₁ H ₂ / X ₀ X ₂	H ₂ H ₃ / X ₀ X ₃	H ₃ H ₁ / X ₀ X ₁	
1	13095	47.253	47.293	47.290	47.288	
2	12780	46.116	46.092	46.091	46.087	
3	12470	44.997	45.092	44.991	44.989	
4	12160	43.879	43.992	43.891	43.889	
5	11850	42.760	42.793	42.790	42.788	

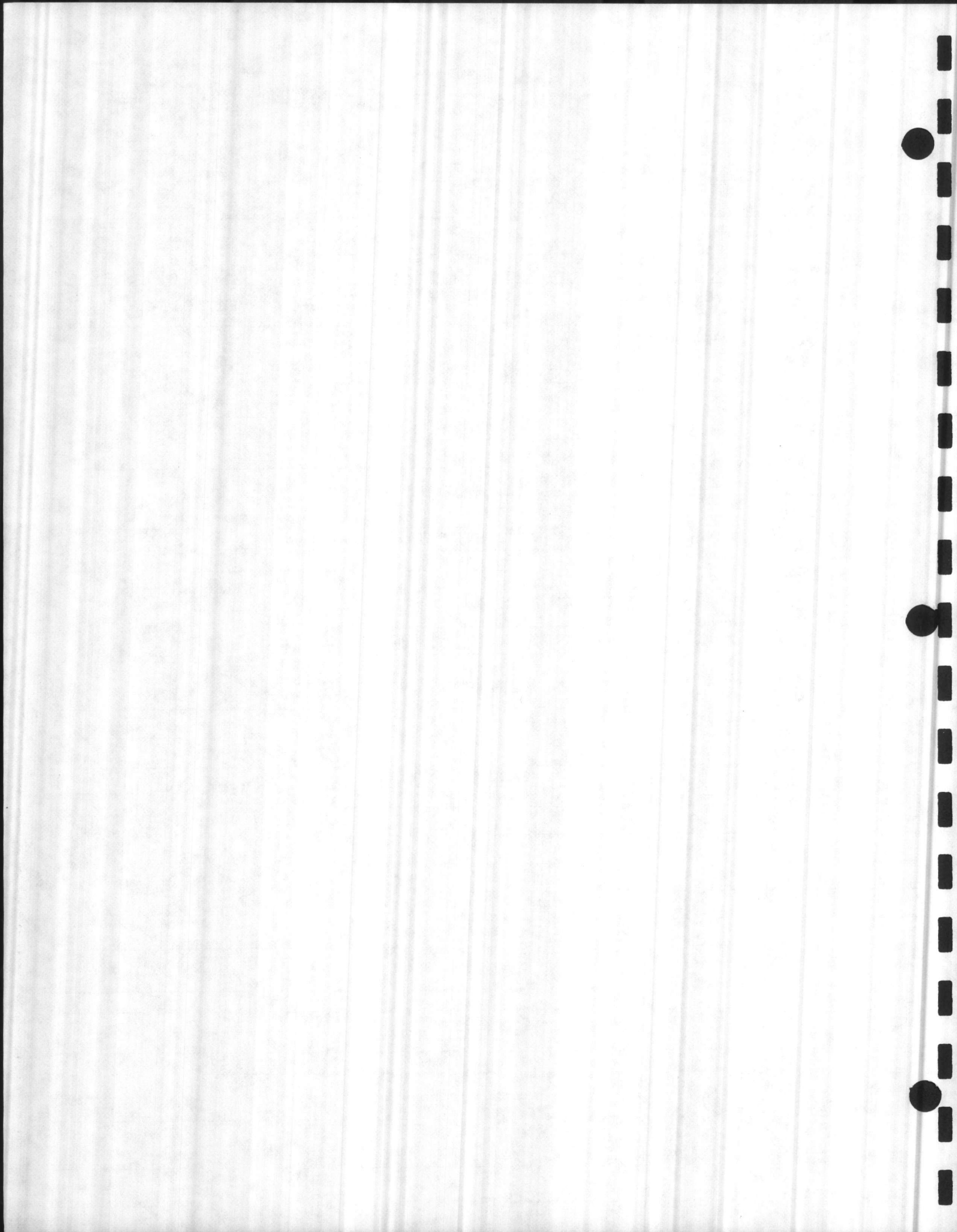
TRANSFORMER:		VOLTAGE:		SERIAL NO:		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H H / X X	H H / X X	H H / X X	
1						
2						
3						
4						
5						

TRANSFORMER:		VOLTAGE:		SERIAL NO:		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H H / X X	H H / X X	H H / X X	
1						
2						
3						
4						
5						

Notes: _____

WITNESSED BY: *Andrew Young*

TEST ENGINEER: *Ernst M. Beech* Date: 9-23-81





TRANSFORMER DIELECTRIC ABSORPTION TEST

SUBSTATION A

TRANSFORMER SERIAL NO. PAT0228-0101

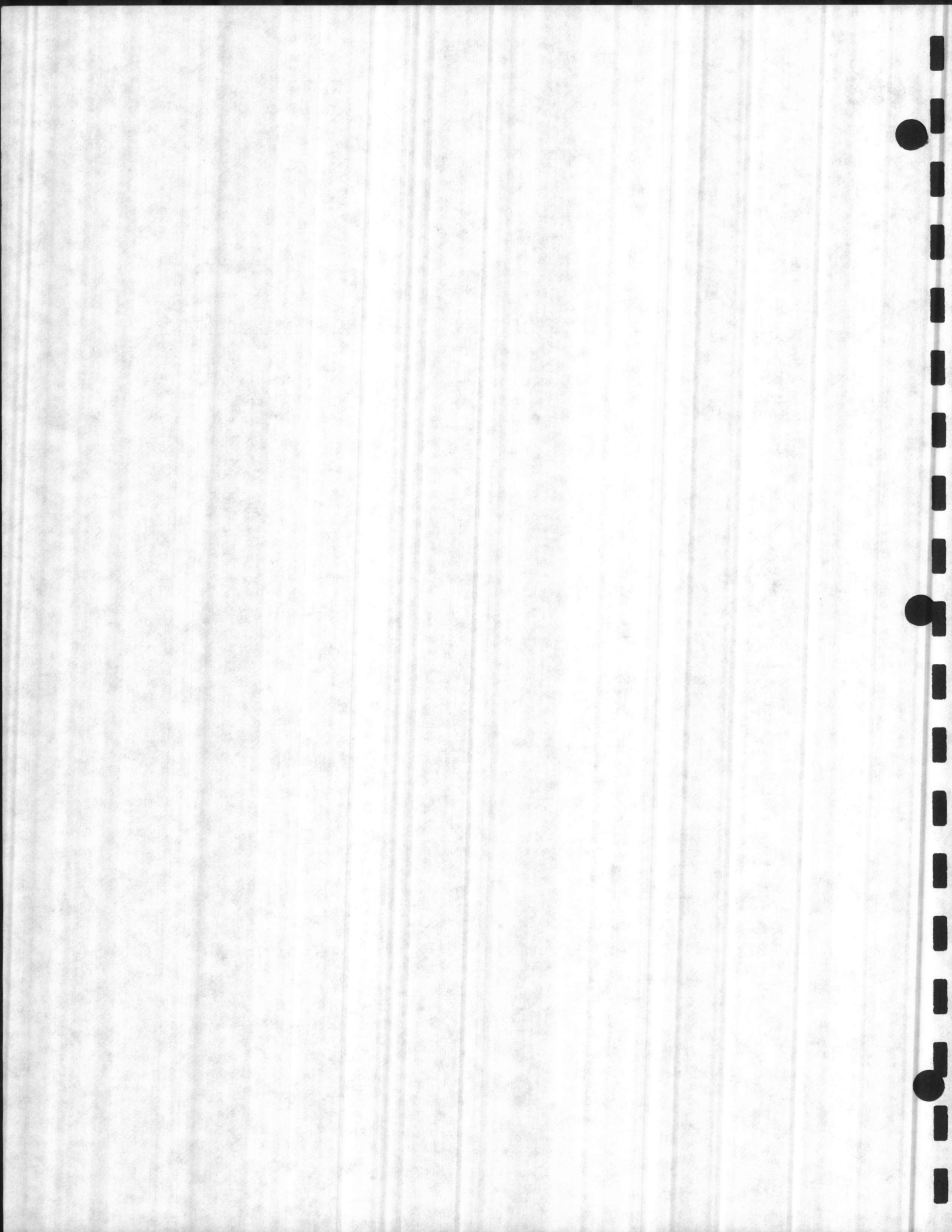
	<u>HI-LO/GROUND AT 5KVDC</u>	<u>LO-HI/GROUND AT 1KVDC</u>
1 Minute	1400 Megohms	36 Megohms
2 Minutes	1400 Megohms	36 Megohms
3 Minutes	1600 Megohms	36 Megohms
4 Minutes	1600 Megohms	36 Megohms
5 Minutes	1800 Megohms	36 Megohms
6 Minutes	1800 Megohms	36 Megohms
7 Minutes	1800 Megohms	36 Megohms
8 Minutes	1800 Megohms	36 Megohms
9 Minutes	1800 Megohms	36 Megohms
10 Minutes	1800 Megohms	36 Megohms

Test Conducted at 20°C (Temperature Cor. Factor 1.00)

Polarization Index - 1.3

TEST ENGINEER: Mark Zagar

DATE: September 23, 1981





INSULATION RESISTANCE TEST
1000VDC @ 20°C

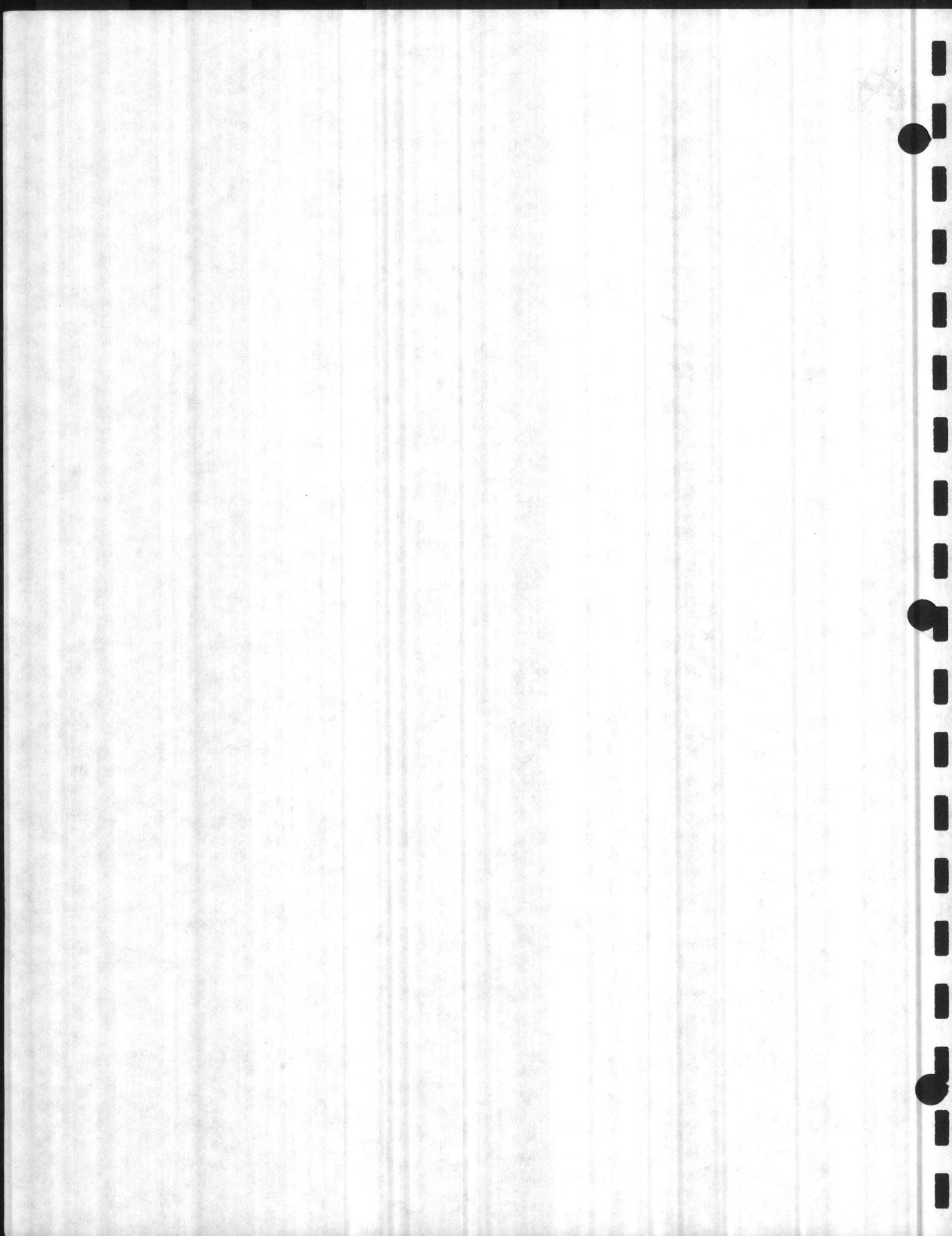
Substation A - Low Voltage Buss

ØA - B = 30 Megohms
ØB - C = 30 Megohms
ØC - A = 30 Megohms

ØA - G = 16 Megohms
ØB - G = 16 Megohms
ØC - G = 16 Megohms

TEST ENGINEER: Mark Zagar

DATE: September 23, 1981





METER TEST REPORT

SUBSTATION A

AMMETER

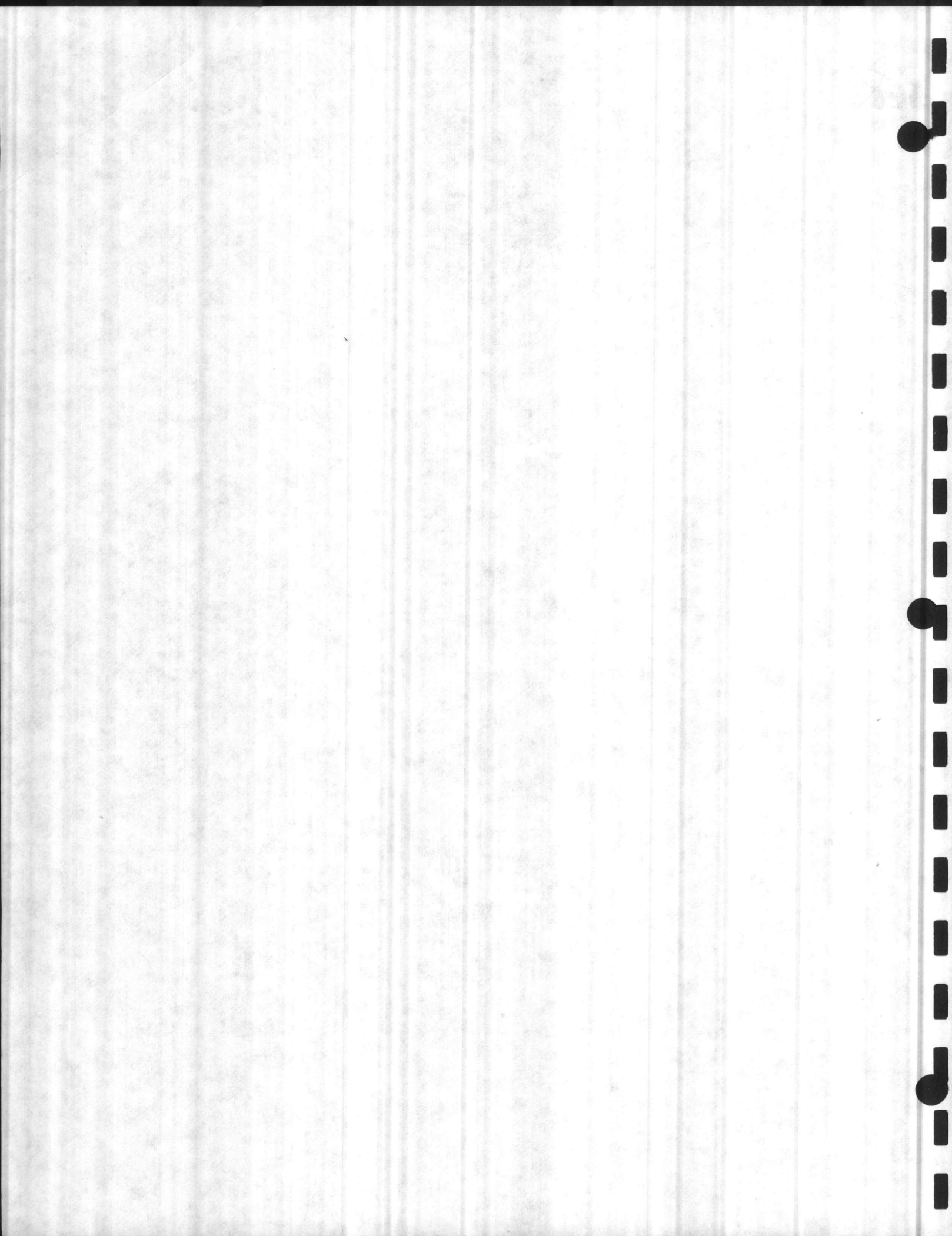
<u>FEEDER</u>	<u>FULL SCALE</u>	<u>SECONDARY</u>	<u>ACTUAL TEST CURRENT</u>	<u>ZERO SET</u>
CDP1	600A	5A	5.15A	0
Fire Pump	600A	5A	5.05A	0
BEMCC-7	600A	5A	5.05A	0
Spare	600A	5A	5.00A	0
BLSMCC1	600A	5A	5.10A	0
BLSMCC2	600A	5A	5.00A	0
BCMCC1	600A	5A	4.95A	0
CDP5	600A	5A	5.00A	0
Main	4000A	5A	4.95A	0

VOLTMETER

<u>FEEDER</u>	<u>FULL SCALE</u>	<u>SECONDARY</u>	<u>ACTURAL TEST VOLTAGE</u>	<u>ZERO SET</u>
Main	600V	150V	158A	0

TEST ENGINEER: Daniel Collins

DATE: September 23, 1981



CIRCUIT BREAKER DATA SHEET



Customer: **Bryant Durham/Starr Electric**
 Location: **Camp Lejeune Hospital**
 Breaker Mfg. & Type **FPE 100H-3**
 S.O./Serial No. **BH20662-80**
 Interrupting Capacity **100KA**
 Substation: **Main A**
 Feeder Name **Main**

Job No. **1481-T**
 Trip Coil Rating **4000A**
 T.U. Type/Style **SD-3**
 L.D. Setting #2 **(0.9 x, 3600A)** Time #2 **(6 Sec)**
 Instantaneous #3 **(8 x, 12,000A)**
 Ground Fault **-** Time **-**
 S.D. Setting #1 **(3 x, 12000A)** Time #2 **(0.33 Sec)**

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
**** SEE NOTES FOR DETAILS**

Notes: **Ground fault relay is inoperative.**

ELECTRICAL

AS FOUND

AS LEFT

Test Amps	Curve Secs.	A	B	C
		4000	4000	4000
L.D. @ 300 %	10,800	26	27	27
S.D. @ 150 %	18KA	0.35	0.36	0.31
INST. TRIP (Amps)	32KA	-	32KA	32KA
GROUND FAULT				

Test Amps	Curve Secs.	A	B	C
		4000	4000	4000
L.D. @ 300 %	10,800	26	27	27
S.D. @ 150 %	18KA	0.35	0.36	0.31
INST. TRIP (Amps)	32KA	-	32KA	32KA
GROUND FAULT				

MEGOHMS (@ 1000V) ϕ -GND: A-G **1000** B-G **1000** CG **1000** ϕ - ϕ : A-B **1500** B-C **1000** C-A **1000**

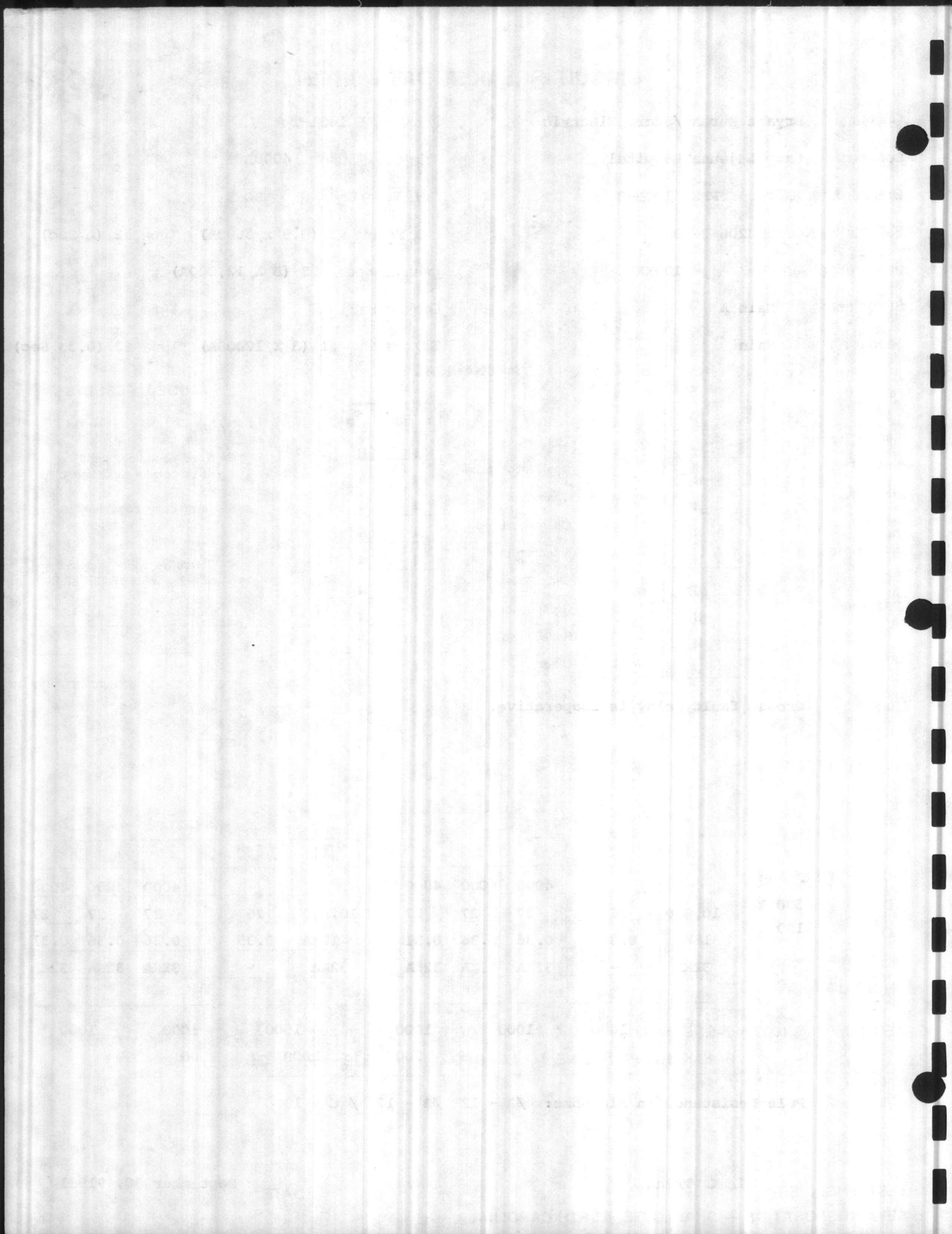
BREAKER OPEN—LINE TO LOAD: ϕ A **2000** ϕ B **2000** ϕ C **2000**

Notes:

Pole Resistance in Microhms: ϕ A - 12 ϕ B - 12 ϕ C - 10

TEST ENGINEER **G. K. Treat**

DATE **September 30, 1981**



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type FPE 30HL-2
 S.O./Serial No. BH16595-80
 Interrupting Capacity 200KA
 Substation: A
 Feeder Name BLSMCC-2 (A-2)
 FUSE CAT NO. LCL800

Job No. 1481-E
 Trip Coil Rating 600A set. at 400A
 T.U. Type/Style SD-6
 L.D. Setting #3(1.0 X 400A) Time #4 (10 Sec)
 Instantaneous #3(8 X 3200A)
 Ground Fault 0(0.2 X 80A) Time #2(0.20 Sec)
 S.D. Setting #3(6 X 2400A) Time #2(0.33 Sec)

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: _____

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)

L.D. @ 300 %

S.D. @ 150 %

INST. TRIP (Amps)

GROUND FAULT @ 150%

Test Amps	Curve Secs.	A	B	C
		400	400	400
1200	43	35	34	34
3600	0.35	0.28	0.30	0.33
3200	-	3200	3200	3200
120	0.73	0.76	0.76	0.77

Test Amps	Curve Secs.	A	B	C
		400	400	400
1200	43	35	34	34
3600	0.35	0.28	0.30	0.33
3200	-	3200	3200	3200
120	0.73	0.76	0.76	0.77

MEGOHMS (@ 1000V) ϕ -GND: A-G 2000 B-G 1000 CG 1000 ϕ - ϕ : A-B 2000 B-C 1500 C-A 2000

BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 2000 ϕ C 2000

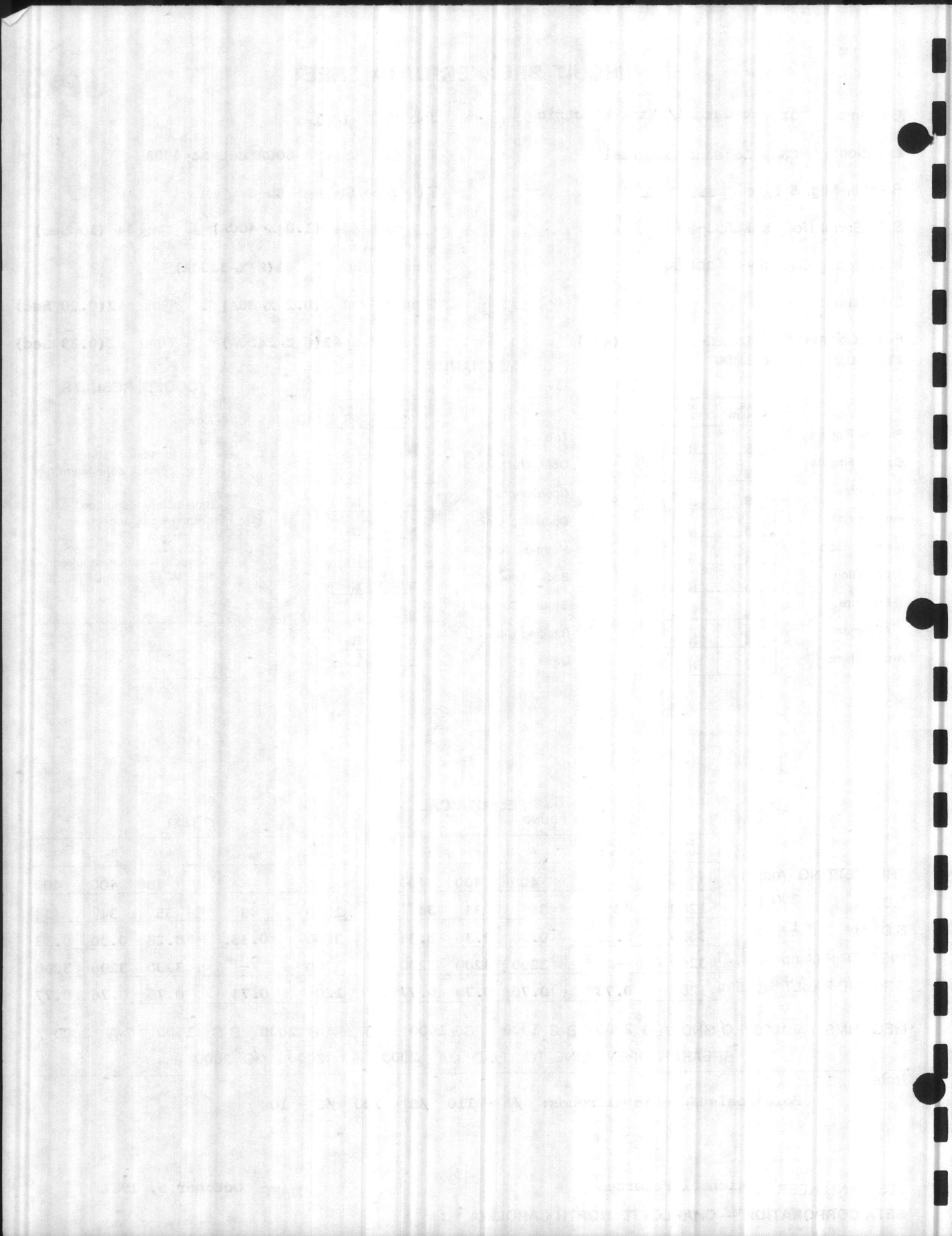
Notes:

Pole Resistance in Microhms: ϕ A - 110 ϕ B - 100 ϕ C - 108

TEST ENGINEER Michael Petersen

DATE October 5, 1981

SETA CORPORATION — CHARLOTTE, NORTH CAROLINA



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type: FPE 30HL-2
 S.O./Serial No.: BH16607-80
 Interrupting Capacity: 200KA
 Substation: A
 Feeder Name: CDP-1 (A-1)
 FUSE CAT. NO.: LCL800

Job No.: 1481-T
 Trip Coil Rating: 600A set at 600A
 T.U. Type/Style: SD-6
 L.D. Setting: #3 (1.0 x, 600A) Time: #4 (10 Sec)
 Instantaneous: #3 (8 x, 4800A)
 Ground Fault: 0 (0.2 x, 120A) Time: #2 (0.20 Sec)
 S.D. Setting: #3 (6x, 3600A) Time: #2 (0.33 Sec)

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: 1. Right side and left side plastic shields are missing.

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			600	600	600
L.D. @ 300%	1800	43	40	40	41
S.D. @ 150%	5400	0.35	0.31	0.36	0.38
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ 150%	180	0.73	0.77	0.73	0.78

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			600	600	600
L.D. @ 300%	1800	43	40	40	41
S.D. @ 150%	5400	0.35	0.31	0.36	0.38
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ 150%	180	0.73	0.77	0.73	0.78

MEGOHMS (@ 1000V) ϕ -GND: A-G 1000 B-G 1000 CG 1000 ϕ - ϕ : A-B 1000 B-C 1000 C-A 1000
 BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 2000 ϕ C 2000

Notes: Pole Resistance in Microhms: ϕ A - 120 ϕ B - 111 ϕ C - 127

TEST ENGINEER Daniel Collins DATE September 30, 1981
 SETA CORPORATION — CHARLOTTE, NORTH CAROLINA

1-1-1
1-1-2
1-1-3
1-1-4
1-1-5

1-1-6
1-1-7
1-1-8
1-1-9
1-1-10

1-1-11
1-1-12
1-1-13
1-1-14
1-1-15

1-1-16
1-1-17
1-1-18
1-1-19
1-1-20

1-1-21
1-1-22
1-1-23
1-1-24
1-1-25

1-1-26
1-1-27
1-1-28
1-1-29
1-1-30

CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16603-80

L.D. Setting #3 (1.0 X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3 (8 X, 4800A)

Substation: A

Ground Fault 0(0.2 X, 120A) Time #2 (0.20 Sec)

Feeder Name BCMCC-1 (A-3)

S.D. Setting #3 (6 X, 3600A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL300

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes:

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
L.D. @ <u>300%</u>	1800	43	42	41	42
S.D. @ <u>150%</u>	5400	0.35	0.33	0.35	0.30
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT	180	0.73	0.75	0.76	0.78

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
L.D. @ <u>300%</u>	1800	43	42	41	42
S.D. @ <u>150%</u>	5400	0.35	0.33	0.35	0.30
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT	180	0.73	0.75	0.76	0.78

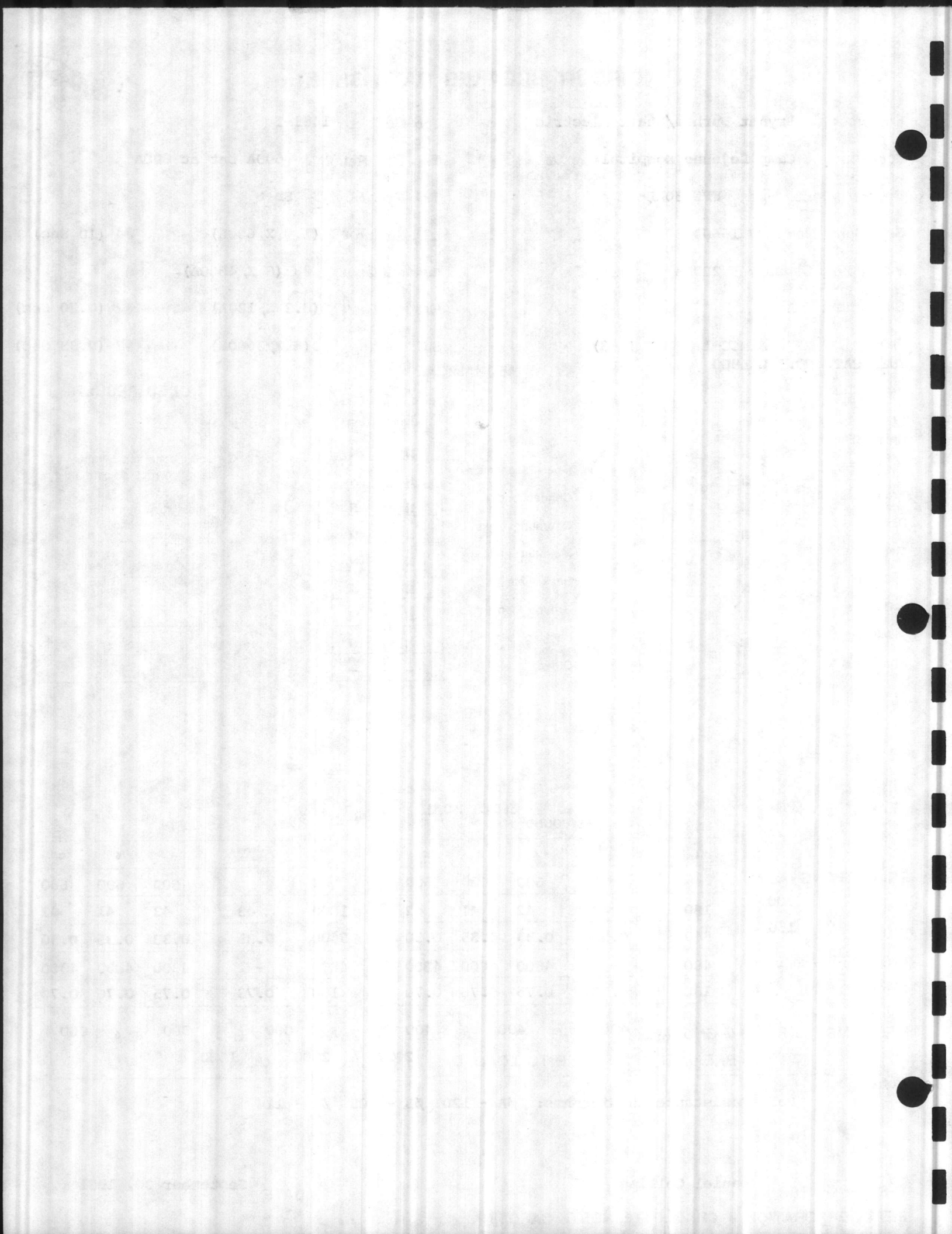
MEGOHMS (@ 1000V) ϕ -GND: A-G 400 B-G 400 CG 400 ϕ - ϕ : A-B 800 B-C 800 C-A 800

BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 2000 ϕ C 1600

Notes: Pole Resistance in Microhms: ϕ A - 120 ϕ B - 105 ϕ C - 114

TEST ENGINEER Daniel Collins

DATE September 30, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type FPE 30HL-2
 S.O./Serial No. BH16590-80
 Interrupting Capacity 200KA
 Substation: A
 Feeder Name CDP-5 (A-4)
 FUSE CAT. NO. LCL800

Job No. 1481-T
 Trip Coil Rating 600A set at 600A
 T.U. Type/Style SD-6
 L.D. Setting #3(1.0 X, 600A) Time #4 (10 Sec)
 Instantaneous #3(8 X, 4800A)
 Ground Fault 0(0.2 X, 120A) Time #2 (0.20 Sec)
 S.D. Setting #3(6X, 3600A) Time #2 (0.33 Sec)

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: _____

ELECTRICAL

AS FOUND

AS LEFT

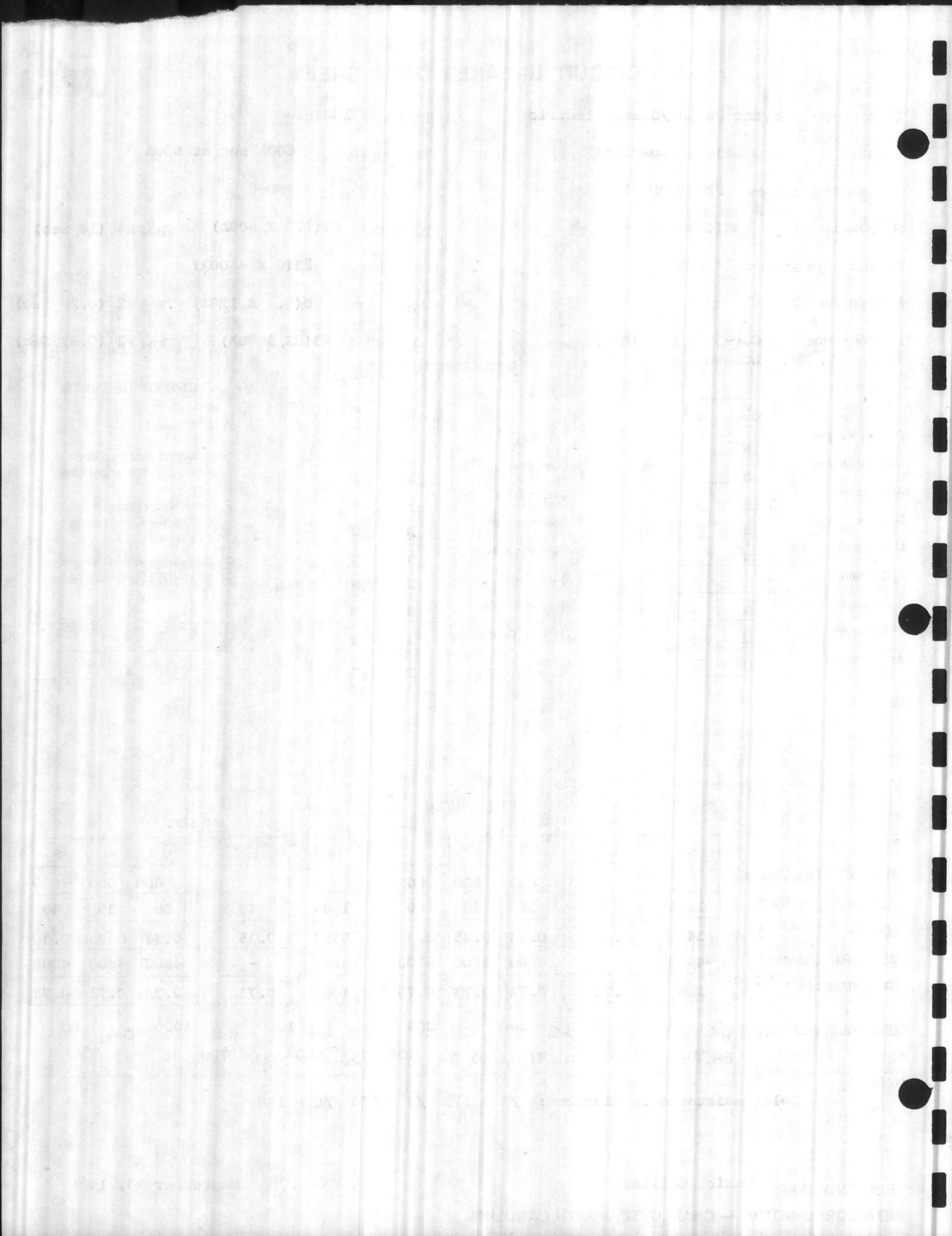
TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			600	600	600
L.D. @ 300%	1800	43	38	39	40
S.D. @ 150%	5400	0.35	0.33	0.35	0.30
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ 150%	180	0.73	0.73	0.73	0.78

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			600	600	600
L.D. @ 300%	1800	43	38	39	40
S.D. @ 150%	5400	0.35	0.33	0.35	0.30
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ 150%	180	0.73	0.73	0.73	0.78

MEGOHMS (@ 1000V) ϕ -GND: A-G 200 B-G 200 CG 200 ϕ - ϕ : A-B 1000 B-C 1000 C-A 600
 BREAKER OPEN—LINE TO LOAD: ϕ A 900 ϕ B 900 ϕ C 700

Notes: Pole Resistance in Microhms: ϕ A - 116 ϕ B - 103 ϕ C - 108

TEST ENGINEER Daniel Collins DATE September 30, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type FPE 30HL-2
 S.O./Serial No. BH16594-80
 Interrupting Capacity 200KA 1
 Substation: A
 Feeder Name BLSNCC-1 (A-5)
FUSE CAT. NO. LCL800

Job No. 1481-T
 Trip Coil Rating 600A set at 400A
 T.U. Type/Style SD-6
 L.D. Setting #3 (1.0 X, 400A) Time #4 (10 Sec)
 Instantaneous #3 (8X, 3200A)
 Ground Fault 0(0.2X, 80A) Time #2(0.20 Sec)
 S.D. Setting #3(6X, 2400A) Time #2(0.33 Sec)

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: _____

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)

L.D. @ 300 %

S.D. @ 150 %

INST. TRIP (Amps)

GROUND FAULT @ 150 %

Test Amps	Curve Secs.	A	B	C
		400	400	400
1200	43	34	33	33
3600	0.35	0.31	0.31	0.33
3200	-	3200	3300	3200
120	0.73	0.74	0.73	0.71

Test Amps	Curve Secs.	A	B	C
		400	400	400
1200	43	34	33	33
3600	0.35	0.31	0.31	0.33
3200	-	3200	3300	3200
120	0.73	0.74	0.73	0.71

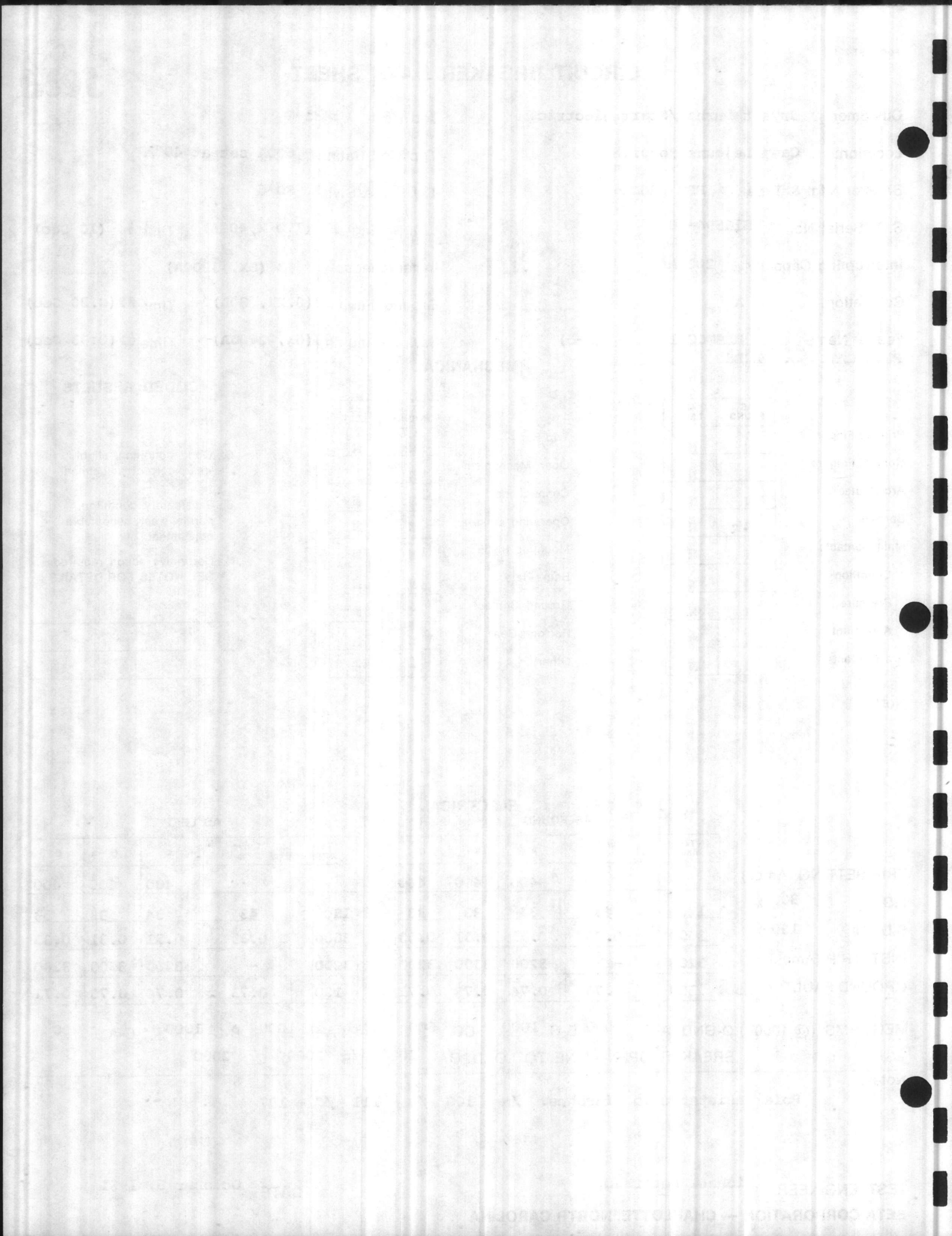
MEGOHMS (@ 1000V) ϕ -GND: A-G 1000 B-G 1000 CG 600 ϕ - ϕ : A-B 1000 B-C 1000 C-A 800

BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 2000 ϕ C 2000

Notes: Pole Resistance in Microhas: ϕ A - 108 ϕ B - 111 ϕ C - 107

TEST ENGINEER Michael Petersen

DATE October 5, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 400A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH 16588-80

L.D. Setting #3 (1.0X, 400A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3 (8X, 3200A)

Substation: A

Ground Fault 0 (0.2X, 80A) Time #2 (0.20 Sec)

Feeder Name Fira Pump (A-6)

S.D. Setting #3 (6X, 2400A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes:

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)

L.D. @ 300%

S.D. @ 150%

INST. TRIP (Amps)

GROUND FAULT @ 150%

Test Amps	Curve Secs.	A	B	C
		400	400	400
1200	43	37	37	39
3600	0.35	0.35	0.33	0.33
3200	-	4900	4800	4800
120	0.73	0.78	0.88	0.88

Test Amps	Curve Secs.	A	B	C
		400	400	400
1200	43	37	37	39
3600	0.35	0.35	0.33	0.33
3200	-	4900	4800	4800
120	0.73	0.78	0.88	0.88

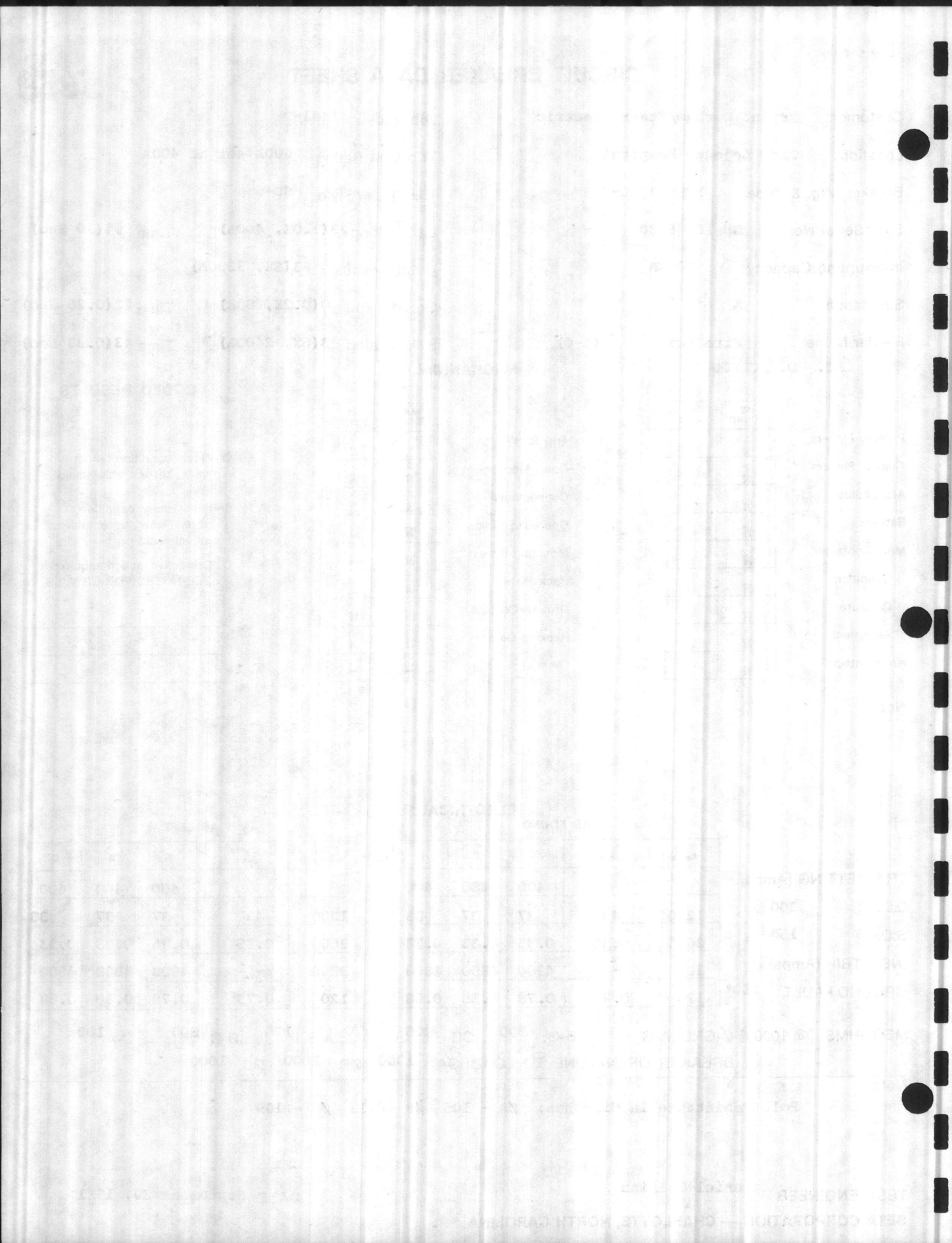
MEGOHMS (@ 1000V) ϕ -GND: A-G 800 B-G 800 CG 800 ϕ - ϕ : A-B 120 B-C 800 C-A 100

BREAKER OPEN—LINE TO LOAD: ϕ A 1000 ϕ B 1000 ϕ C 1000

Notes: Pole Resistance in Microhms: μ A - 105 μ B - 113 μ C - 109

TEST ENGINEER Daniel Collins

DATE September 30, 1981



CIRCUIT BREAKER DATA SHEET



Customer: **Bryant Durham/Starr Electric**
 Location: **Camp Lejeune Hospital**
 Breaker Mfg. & Type **FPE 30HL-2**
 S.O./Serial No. **BH 16591-80**
 Interrupting Capacity **200KA**
 Substation: **A**
 Feeder Name **BEMCC-7 (A-7)**
FUSE CAT. NO. LCL800

Job No. **1481-T**
 Trip Coil Rating **600A set at 600A**
 T.U. Type/Style **SD-6**
 L.D. Setting **#3(1.0X, 600A)** Time **#4 (10 Sec.)**
 Instantaneous **#3(8X, 4800A)**
 Ground Fault **0(0.2X, 120A)** Time **#2(0.20 Sec)**
 S.D. Setting **#3(6X, 3600A)** Time **#2(0.33 Sec)**

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes:

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)

L.D. @ **300%**

S.D. @ **150%**

INST. TRIP (Amps)

GROUND FAULT @ **150%**

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	39	39	40
5400	0.35	0.35	0.36	0.40
4800	-	4800	4800	4800
180	0.73	0.72	0.74	0.74

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	39	39	40
5400	0.35	0.35	0.36	0.40
4800	-	4800	4800	4800
180	0.73	0.72	0.74	0.74

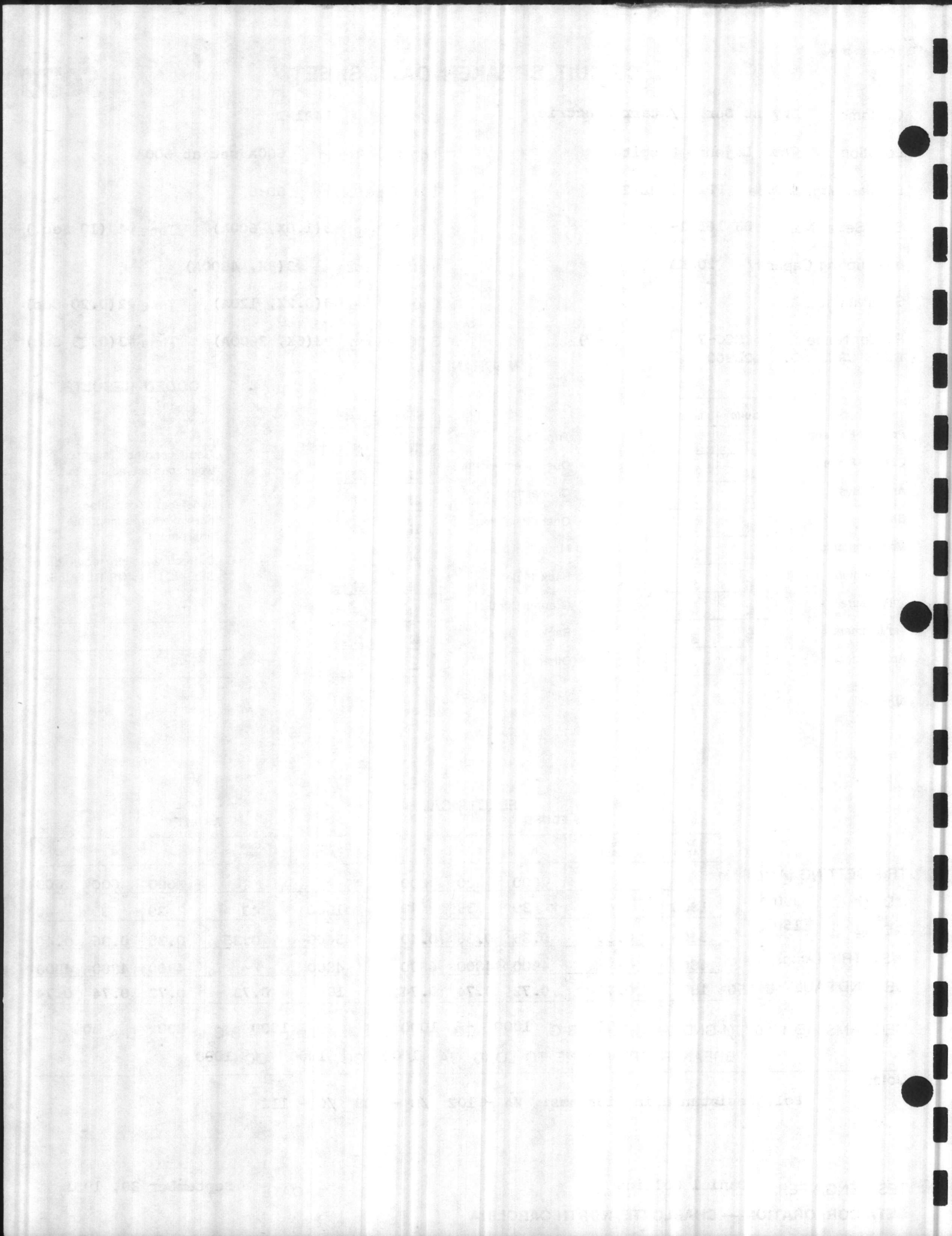
MEGOHMS (@ 1000V) ϕ -GND: A-G **1000** B-G **1000** CG **1000** ϕ - ϕ : A-B **800** B-C **800** C-A **800**

BREAKER OPEN—LINE TO LOAD: ϕ A **1000** ϕ B **1000** ϕ C **1000**

Notes: Pole Resistance in Microhms: ϕ A - **102** ϕ B - **108** ϕ C - **112**

TEST ENGINEER **Daniel Collins**

DATE **September 30, 1981**



CIRCUIT BREAKER DATA SHEET



Customer: **Bryant Durham/Starr Electric**
 Location: **Camp Lejeune Hospital**
 Breaker Mfg. & Type: **FPE 30HL-2**
 S.O./Serial No.: **BH16582-80**
 Interrupting Capacity: **200KA**
 Substation: **A**
 Feeder Name: **Spare (A-8)**
FUSE CAT. NO. LCL800

Job No. **1481-T**
 Trip Coil Rating **600A set at 600A**
 T.U. Type/Style **SD-6**
 L.D. Setting **#3(1.0X, 600A)** Time **#4 (10 Sec)**
 Instantaneous **#3(8X, 4800A)**
 Ground Fault **0(0.2X, 120)** Time **#2(0.20 Sec)**
 S.D. Setting **#3(6X, 3600A)** Time **#2(0.33 Sec)**

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: _____

ELECTRICAL

AS FOUND

AS LEFT

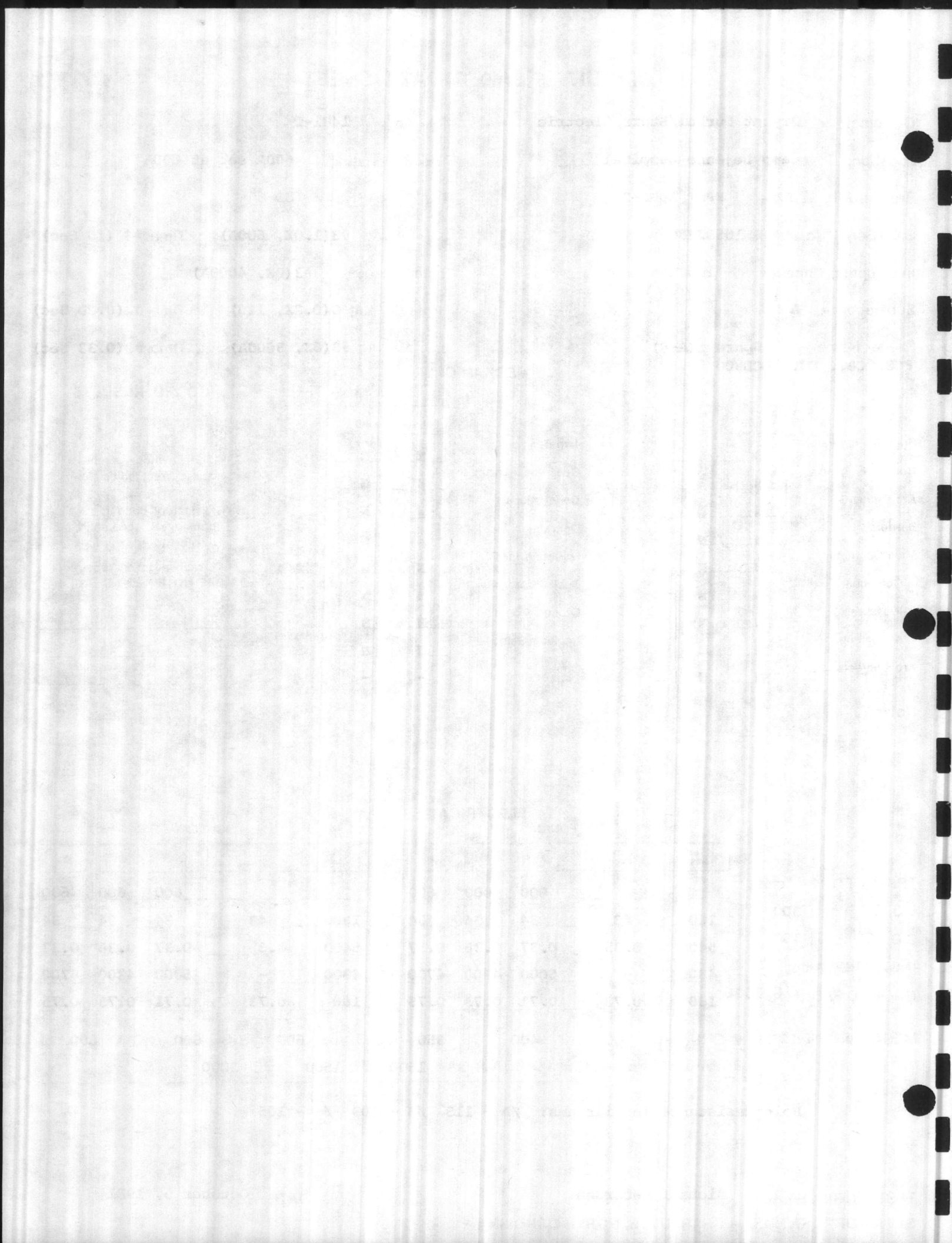
	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300%	1800	43	34	34	34
S.D. @ 150%	5400	0.35	0.37	0.36	0.37
INST. TRIP (Amps)	4800	-	5000	4800	4700
GROUND FAULT @ 150%	180	0.73	0.71	0.73	0.75

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300%	1800	43	34	34	34
S.D. @ 150%	5400	0.35	0.37	0.36	0.37
INST. TRIP (Amps)	4800	-	5000	4800	4700
GROUND FAULT @ 150%	180	0.73	0.71	0.73	0.75

MEGOHMS (@ 1000V) ϕ -GND: A-G **500** B-G **400** CG **350** ϕ - ϕ : A-B **600** B-C **600** C-A **600**
 BREAKER OPEN—LINE TO LOAD: ϕ A **1500** ϕ B **1500** ϕ C **2000**

Notes: **Pole Resistance in Microhms: ϕ A - 113 ϕ B - 109 ϕ C - 105**

TEST ENGINEER **Michael Petersen** DATE **October 5, 1981**
SETA CORPORATION — CHARLOTTE, NORTH CAROLINA





SWITCHGEAR INSPECTION REPORT

CUSTOMER: Bryant Durham/Starr Electric JOB NO: 1481-T
 LOCATION: Camp Lejeune Hospital SUBSTATION: B
 MFG/TYPE Federal Pacific/L1 VOLTS 13.8K AMPS 600

FEEDER NAME	Pri. Feeder 1	Pri. Feeder 2	
S.O; OR SERIAL #	2658D2430	2658D2430	
MEGGER - PHASE TO PHASE (KMegohms)	12/12/11	12/10/12	
MEGGER - PHASE TO GRD. (KMegohms)	12/12/11	12/11/12	
MEGGER - LINE TO LOAD (KMegohms)	4.0/3.5/4.1	4.0/3.5/4.1	(NOTE 4)
CONTACT RESISTANCE (Microhms)	49/47/101	88/54/52	
CONNECTIONS	Satisfactory	Satisfactory	
ENCLOSURE CONDITION	Satisfactory	Satisfactory	
ARC CHUTES	-	-	
CONTACT ALIGNMENT	Satisfactory	Satisfactory	
MAIN CONTACTS	Satisfactory	Satisfactory	
ARCING CONTACTS	Satisfactory	Satisfactory	
PUFFERS	-	-	
RELAYS FUNCTION CHECK	-	-	
MECHANISM	-	-	
HEATERS	-	-	
BUS INSULATION	-	-	
DOORS	Satisfactory	Satisfactory	
BUSHINGS	Satisfactory	Satisfactory	
POT-HEADS	-	-	
BATTERIES	-	-	
BATTERY CHARGER	-	-	
WIRING CONDITION	-	-	
GROUNDING	Satisfactory	Satisfactory	
NO. OF OPERATIONS (COUNTER)	-	-	

COMMENTS: 1. All buss connections torqued to 37 Ft-Lbs. 2. ITE buss between Feeder 1 and Feeder 2 - Insulation Resistance at 5000VDC: μ A - 9000 Megohms μ B - 8000 Megohms μ C - 4000 Megohms 3. Tie buss High Potential Test at 37.5KVDC: Readings in Microamps: μ A - 420.0 μ B - 220.0 μ C - 460.0

TEST ENGINEER: Mark Zagar DATE: September 24, 1981



The page contains extremely faint, illegible text that appears to be bleed-through from the reverse side of the paper. The text is mirrored and difficult to decipher, but some words like "laboratory" and "analysis" are faintly visible. The overall appearance is that of a document page with significant ghosting.

TRANSFORMER INSPECTION REPORT



Customer: Bryant Durham/Starr Electric Job No.: 1481-T
 Location: Camp Lejeune Hospital Voltage: 12470-480Y/277
 Substation: B Rated Current: -
 Mfg. & Type: Westinghouse/RSL KVA: 2500
 Air Temp.: 20°C Impedance: 5.69%
 Coolant Oil Askarel Dry Other Phase: 3 ϕ 1 ϕ

TEST DATA

	XFMR # 1	XFMR # 2	XFMR # 3
SERIAL NUMBER	PAT0228-0102		
INSULATION RESISTANCE @ 1000/ 2000 VOLTS TIME ON TEST: 10 Min.	HI - LO/GND	850 Megohms	
	LO - HI/GND	32 Megohms	
DIELECTRIC TEST - TOP	-		
DIELECTRIC TEST - BOTTOM	40KV+		
ACIDITY TEST	0.3mg of KOH		
COOLANT CAPACITY	665 Gallons		

INTERNAL/EXTERNAL INSPECTION

TANK - EXTERNAL	Satisfactory		
PAINT	Satisfactory		
LEAKS	None		
PUMPS & VALVES	Satisfactory		
BUSHINGS	Satisfactory		
PRESSURE RELIEF DEVICE	Satisfactory		
VENTS	-		
FANS & CONTROLS	Satisfactory		
GROUNDING	Satisfactory		
TEMP. GAUGE ACTUAL/MAXIMUM	20°/20°		
PRESSURE GAUGE - P.S.I.	+1.0 (Glass cover is missing)		
OIL LEVEL GAUGE	+25°		
INTERNAL CONDITION	-		
NLTC - TAP SETTING	3		
LTC	-		
OTHER	-		

Notes _____

TEST ENGINEER: Mark Zagar Date: September 23, 1981

1947

1948

1949

1950

1951

1952

1953

1954

TRANSFORMER TURNS RATIO TESTS



Customer: BRYANT DURHAM & STARR ELECTRIC Job No. 1481-T

Location: CAMP LEJEUNE HOSPITAL

TRANSFORMER: <u>SUB B</u>		VOLTAGE: <u>12470-480Y/277</u>		SERIAL NO: <u>PAT0228-0102</u>		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H ₁ H ₂ / X ₀ X ₂	H ₂ H ₃ / X ₀ X ₃	H ₃ H ₁ / X ₀ X ₁	
1	13095	47.253	47.292	47.289	47.287	
2	12780	46.116	46.093	46.089	46.087	
3	12470	44.997	44.993	44.989	44.987	
4	12160	43.874	43.892	43.889	43.888	
5	11850	42.760	42.793	42.789	42.787	

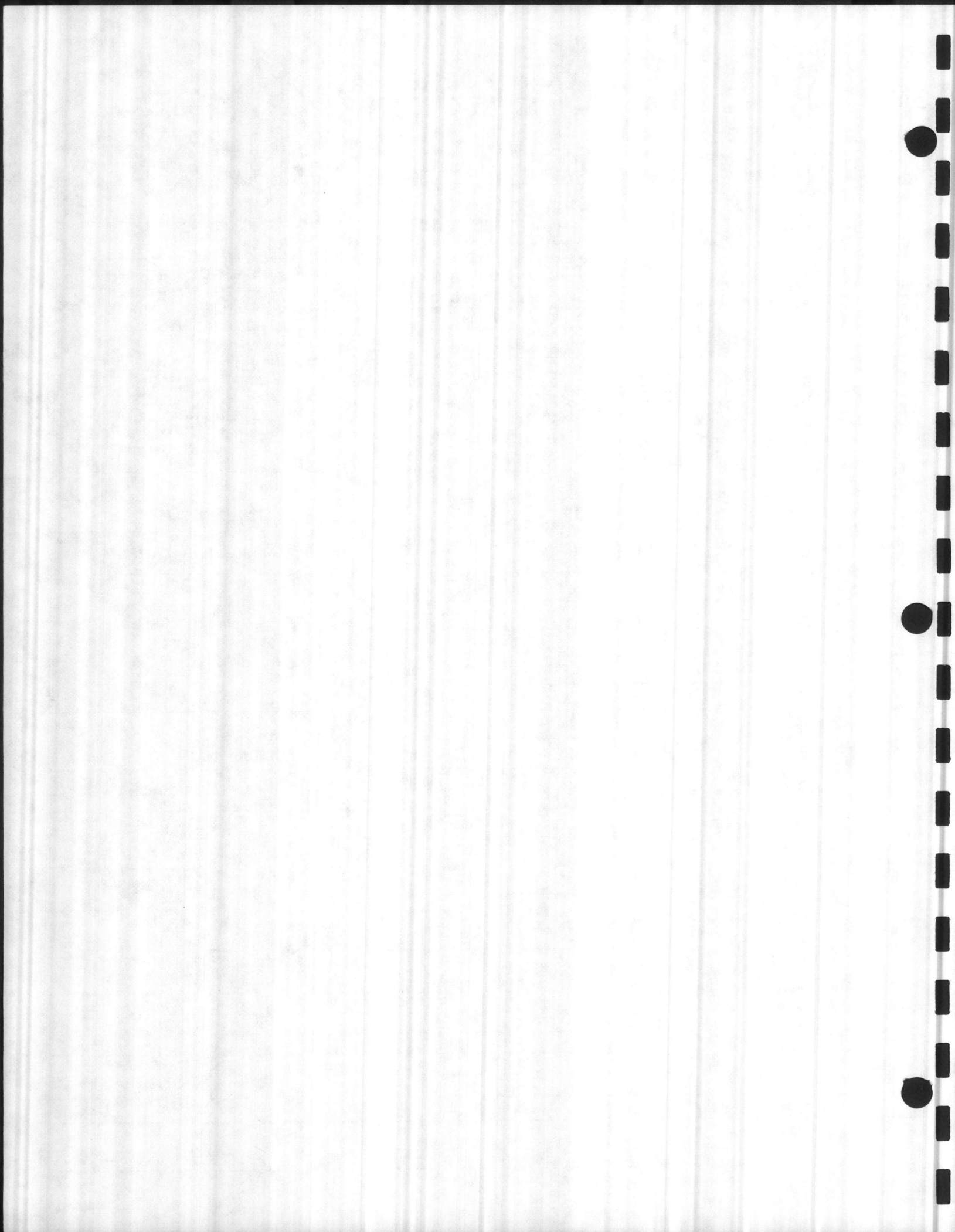
TRANSFORMER:		VOLTAGE:		SERIAL NO:		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H H / X X	H H / X X	H H / X X	
1						
2						
3						
4						
5						

TRANSFORMER:		VOLTAGE:		SERIAL NO:		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H H / X X	H H / X X	H H / X X	
1						
2						
3						
4						
5						

Notes: _____

WITNESSED BY *[Signature]*
Ernest M. Weech

TEST ENGINEER: _____ Date: 9-23-81





TRANSFORMER DIELECTRIC ABSORPTION TEST

SUBSTATION B

TRANSFORMER SERIAL NO. PAT0228-0102

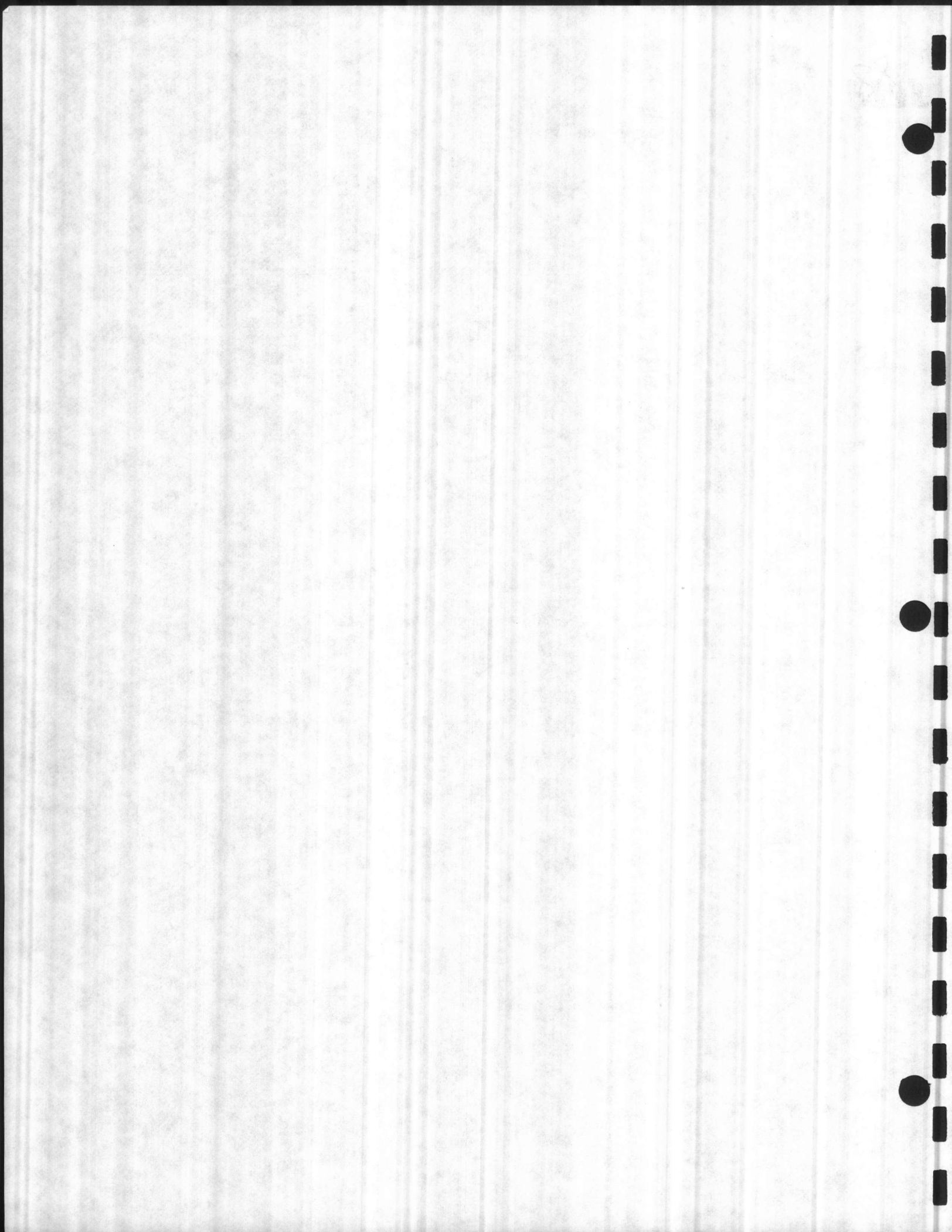
	<u>HI-LO/GROUND AT 5KVDC</u>	<u>LO-HI/GROUND AT 1KVDC</u>
1 Minute	700 Megohms	28 Megohms
2 Minutes	750 Megohms	28 Megohms
3 Minutes	750 Megohms	28 Megohms
4 Minutes	800 Megohms	28 Megohms
5 Minutes	800 Megohms	28 Megohms
6 Minutes	800 Megohms	28 Megohms
7 Minutes	850 Megohms	30 Megohms
8 Minutes	850 Megohms	30 Megohms
9 Minutes	850 Megohms	32 Megohms
10 Minutes	850 Megohms	32 Megohms

Test Conducted at 20°C (Temperature Cor. Factor 1.00)

Polarization Index - 1.2

TEST ENGINEER: Mark Zagar

DATE: September 23, 1981





SUBSTATION B

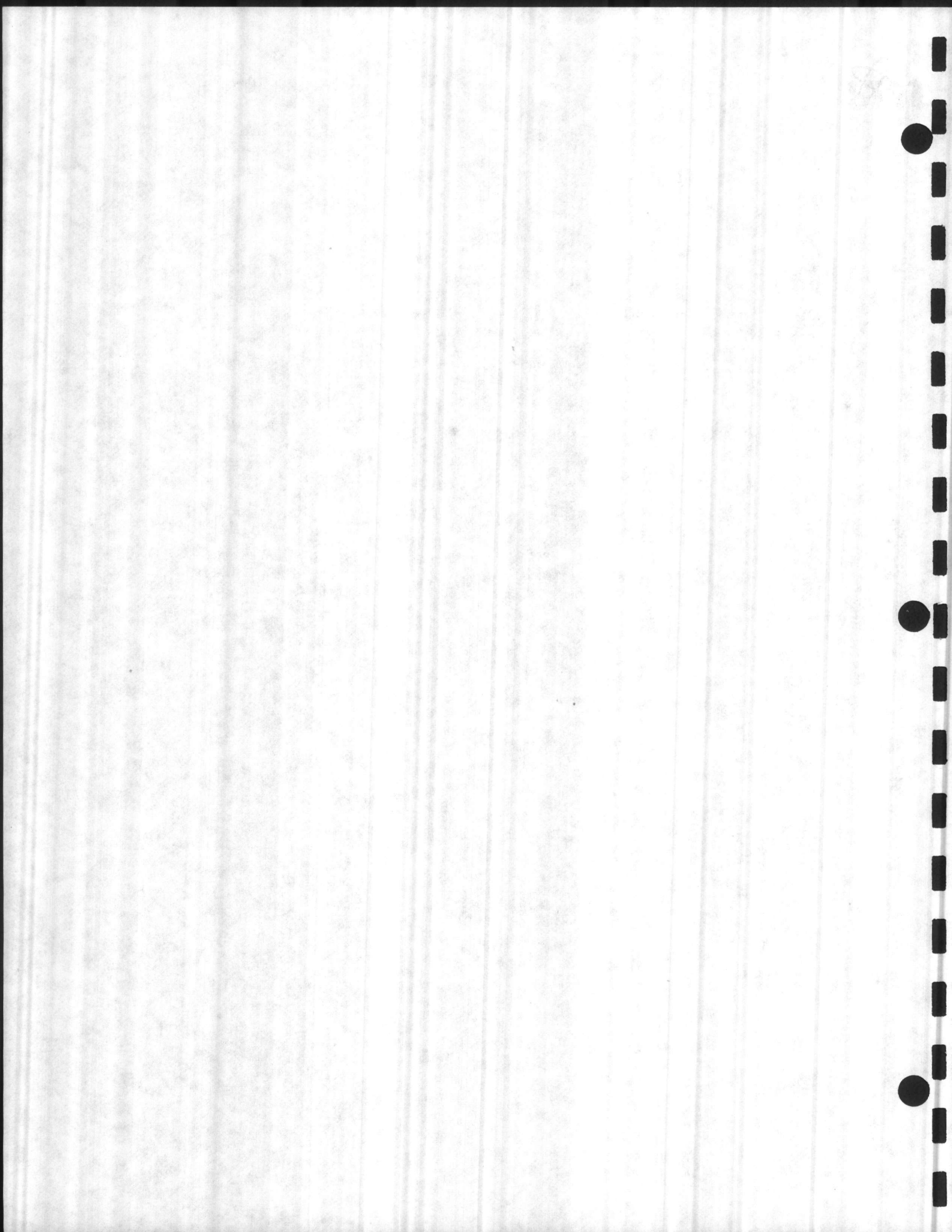
INSULATION RESISTANCE TEST
1000VDC TEMPERATURE 20°C

ØA - B = 40 Megohms
ØB - C = 40 Megohms
ØC - A = 40 Megohms

ØA - G = 20 Megohms
ØB - G = 20 Megohms
ØC - G = 20 Megohms

TEST ENGINEER: Mark Zagar

DATE: September 23, 1981





METER TEST REPORT

SUBSTATION B

AMMETER

<u>FEEDER</u>	<u>FULL SCALE</u>	<u>SECONDARY</u>	<u>ACTUAL TEST CURRENT</u>	<u>ZERO SET</u>
EDP 6	600A	5A	Note 2	0
BEMCC2	600A	5A	5.05A	0
Junction Box A	600A	5A	4.95A	0
BEMCC8	600A	5A	4.95A	0
Spare	600A	5A	4.95A	0
BEMCC6	600A	5A	Note 3	0
BEMCC5	600A	5A	5.00A	0
BEMCC4	600A	5A	4.90A	0
Main	4000A	5A	4.90A	0

VOLTMETER

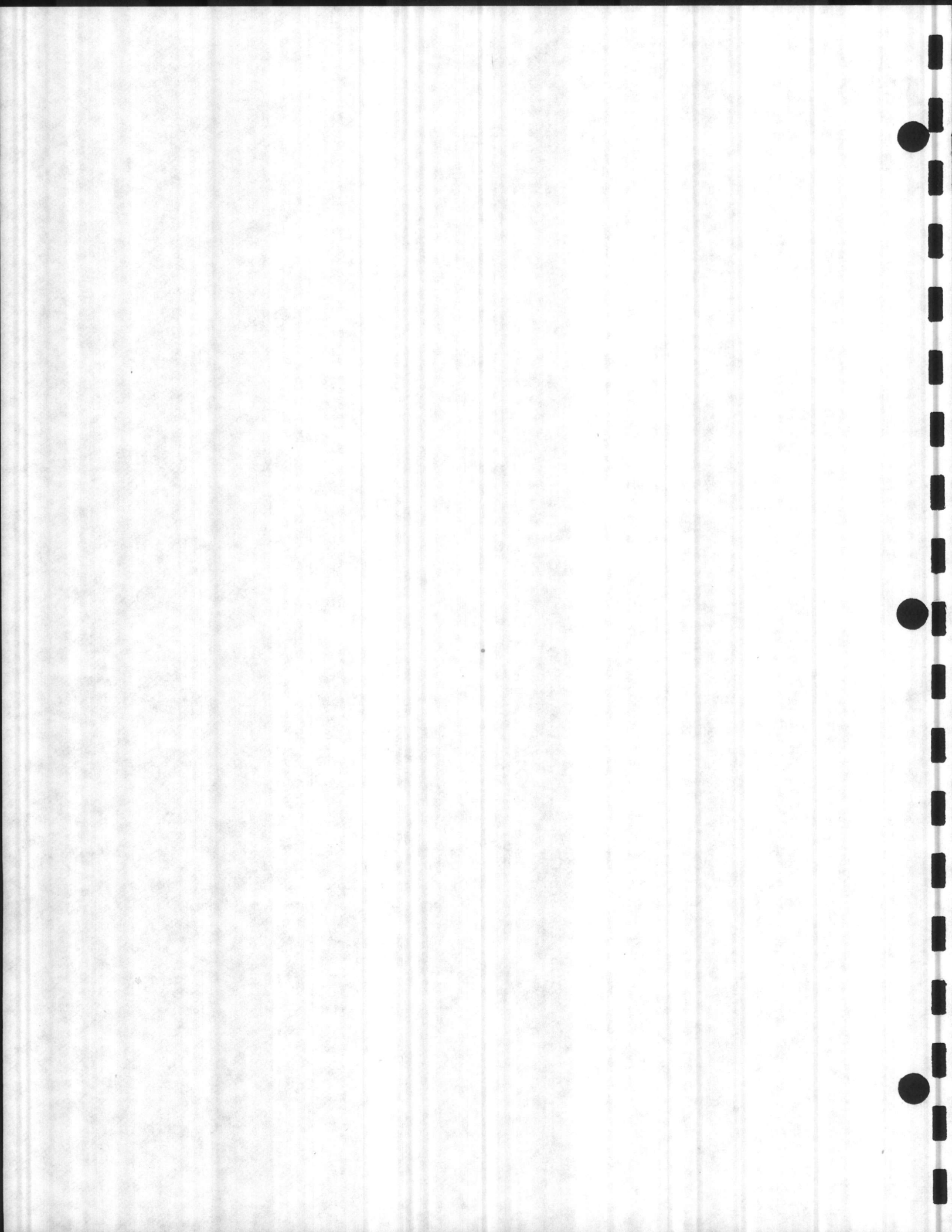
<u>FEEDER</u>	<u>FULL SCALE</u>	<u>SECONDARY</u>	<u>ACTUAL TEST VOLTAGE</u>	<u>ZERO SET</u>
Main	600V	150V	156A	0

NOTES: 1. All nameplates were found to be out of sequence with breaker cubicle. 2. Ammeter EDP6 would not reach full scale at 10+ Amps. Recommend replacement of this meter. 3. Ammeter BEMCC6 froze at 450 Amps. Recommend replacement of this meter.

(Type 077-08; Cat. No. AA LSSJ; Range 5A; Scale 0-600)

TEST ENGINEER: Daniel Collins

DATE: September 23, 1981



CIRCUIT BREAKER DATA SHEET



Customer: **Bryant Durham/Starr Electric**
 Location: **Camp Lejeune Hospital**
 Breaker Mfg. & Type **FPE 100H-3**
 S.O./Serial No. **BH20661-80**
 Interrupting Capacity **100KA**
 Substation: **Main B**
 Feeder Name **Main**

Job No. **1481-T**
 Trip Coil Rating **400A set at 4000A**
 T.U. Type/Style **SD-3**
 L.D. Setting **#2(0.9X, 36,000A) Time #2 (6 Sec)**
 Instantaneous **#3(8X, 12,000A)**
 Ground Fault **-** Time **-**
 S.D. Setting **#1(3X, 12,000A) Time #2(0.33 Sec)**

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	Note 1	
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: **1. Phase C right arc chute top is cracked.**
Ground fault relay (GRL-I) is inoperative.
Red trip button (electric) is inoperative/

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			4000	4000	4000
L.D. @ 300 %	10,800	26	27	26	27
S.D. @ 150 %	18KA	0.35	0.40	0.40	0.37
INST. TRIP (Amps)	32KA	-	32KA	32KA	32KA
GROUND FAULT					

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			4000	4000	4000
L.D. @ 300 %	10,800	26	27	26	27
S.D. @ 150 %	18KA	0.35	0.40	0.40	0.37
INST. TRIP (Amps)	32KA	-	32KA	32KA	32KA
GROUND FAULT					

MEGOHMS (@ 1000V) ϕ -GND: A-G **600** B-G **1500** CG **900** ϕ - ϕ : A-B **2000** B-C **1000** C-A **1000**
 BREAKER OPEN—LINE TO LOAD: ϕ A **1000** ϕ B **1000** ϕ C **1000**

Notes: **Pole resistance in Microhms: ϕ A - 12 ϕ B - 12 ϕ C - 11**

TEST ENGINEER **Michael Petersen** DATE **September 30, 1981**

1945

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2018

2019

2020

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2024

2025

CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type FPE 30HL-2
 S.O./Serial No. BH16584-80
 Interrupting Capacity 200KA
 Substation: B
 Feeder Name BEMCC 8 (B-1)

Job No. 1481-T
 Trip Coil Rating 600A set on 600A
 T.U. Type/Style SD-6
 L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)
 Instantaneous #3(8X, 4800A)
 Ground Fault 0(0.2X, 120A) Time #2(0.2 Sec)
 S.D. Setting #3(6X, 3600A) Time #2(0.33 Sec)

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: _____

ELECTRICAL

AS FOUND

AS LEFT

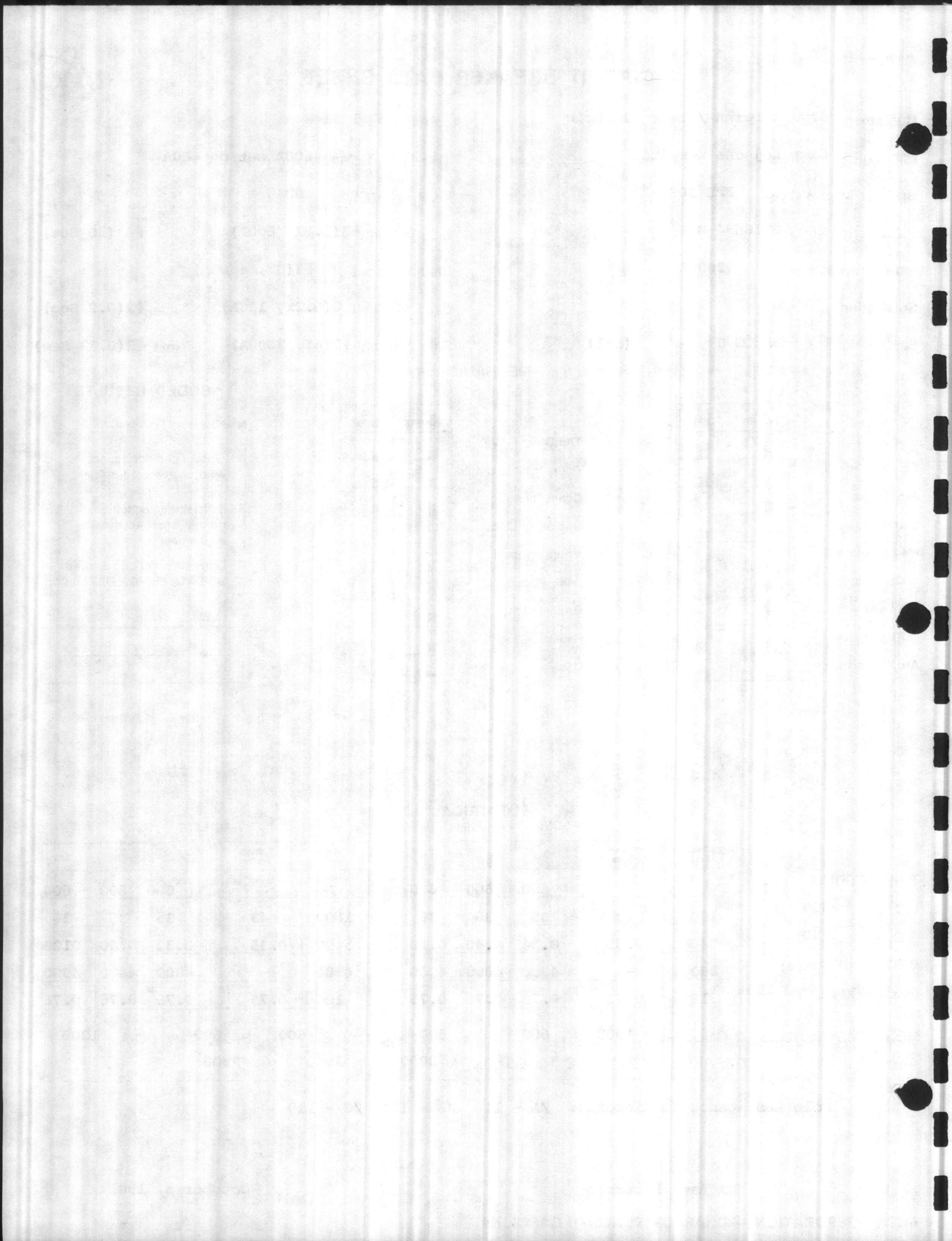
TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
L.D. @ 300%	1800	43	35	36	36
S.D. @ 150%	5400	0.35	0.34	0.40	0.28
INST. TRIP (Amps)	4800	-	4800	4800	4900
GROUND FAULT @ 150%	180	0.73	0.76	0.76	0.76

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
L.D. @ 300%	1800	43	35	36	36
S.D. @ 150%	5400	0.35	0.32	0.40	0.28
INST. TRIP (Amps)	4800	-	4800	4800	4900
GROUND FAULT @ 150%	180	0.73	0.76	0.76	0.76

MEGOHMS (@ 1000V) ϕ -GND: A-G 1000 B-G 600 CG 500 ϕ - ϕ : A-B 600 B-C 600 C-A 1000
 BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 2000 ϕ C 2000

Notes: Pole Resistance in Microhms: ϕ A - 116 ϕ B - 121 ϕ C - 119

TEST ENGINEER Michael Petersen DATE October 5, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16587-80

L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: B

Ground Fault 0(0.2X, 120A) Time #2(0.20 Sec)

Feeder Name J. Box A (B-2)

S.D. Setting #3(6X, 3600A) Time #2(0.33 Sec)

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: _____

ELECTRICAL

AS FOUND

AS LEFT

Test Amps	Curve Secs.	A	B	C
		600	600	600
L.D. @ 300%	1800	43	42	40
S.D. @ 150%	5400	0.35	0.33	0.32
INST. TRIP (Amps)	4800	-	4900	4900
GROUND FAULT @ 150%	180	0.73	0.62	0.62

Test Amps	Curve Secs.	A	B	C
		600	600	600
L.D. @ 300%	1800	43	42	40
S.D. @ 150%	5400	0.35	0.33	0.32
INST. TRIP (Amps)	4800	-	4900	4900
GROUND FAULT @ 150%	180	0.73	0.62	0.62

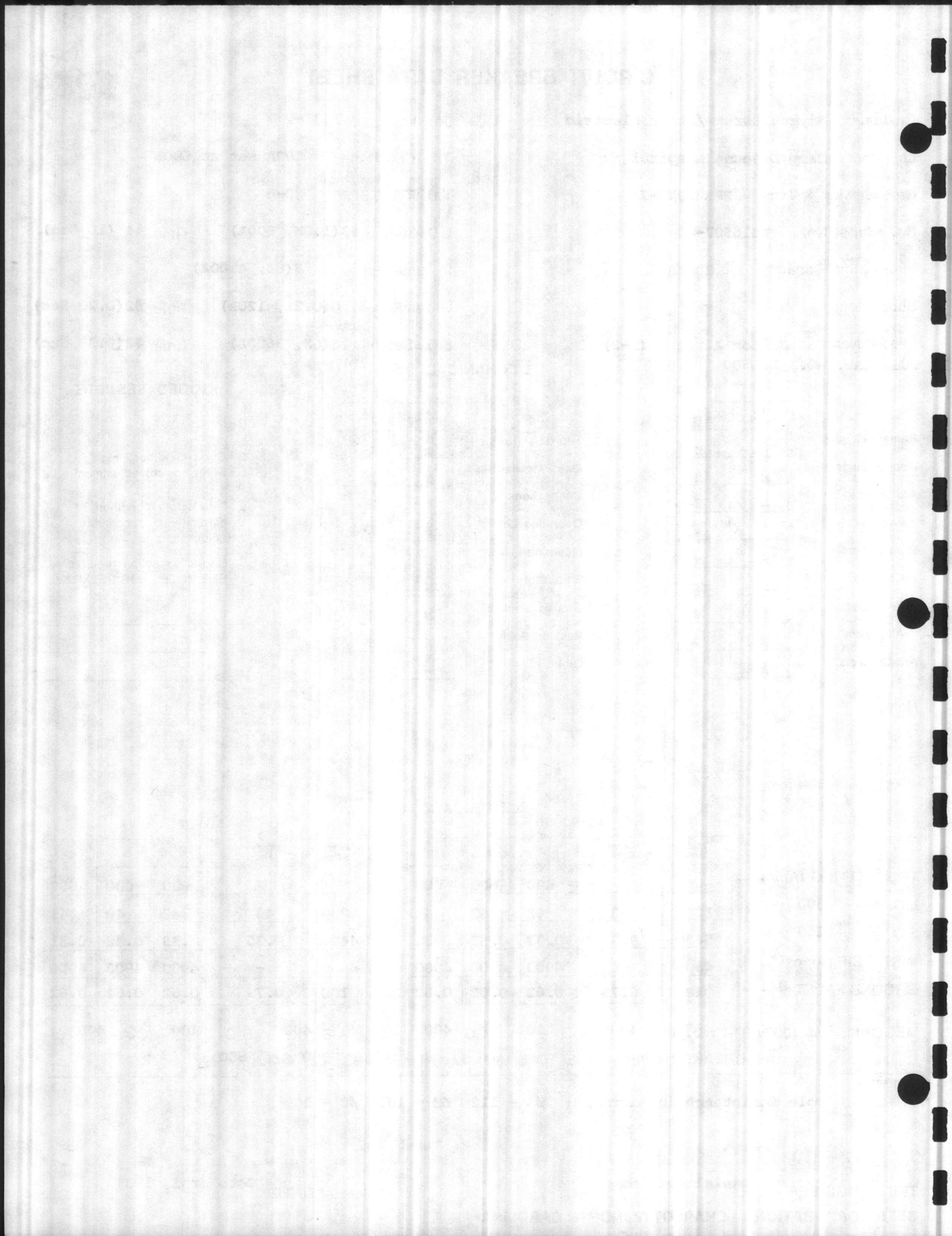
MEGOHMS (@ 1000V) ϕ -GND: A-G 400 B-G 200 CG 400 ϕ - ϕ : A-B 400 B-C 400 C-A 400

BREAKER OPEN—LINE TO LOAD: ϕ A 300 ϕ B 800 ϕ C 800

Notes: Pole Resistance in Microhms: ϕ A - 112 ϕ B - 101 ϕ C - 106

TEST ENGINEER Daniel Collins

DATE October 1, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1491-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL2

T.U. Type/Style SD-6

S.O./Serial No. BH16593-80

L.D. Setting #3(1.0X, 600A) Time #4 (1.0 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: B

Ground Fault 0(0.2X, 120A) Time #2(0.20 Sec)

Feeder Name BEMCC-2 (B-3)

S.D. Setting #3(6X, 3600A) Time #2(0.33 Sec)

FUSE CAT. NO. LCL300

MECHANICAL

CODED RESULTS

Primary Fingers

AS FOUND	AS LEFT
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N

Trip Bar

AS FOUND	AS LEFT
N	N
N	N
N	N
N	N
C	N
N	N
N	N
N	N
N	N
N	N
N	N

Oper. Mechanism

Connections

Operating Links

Mounting Insul.

Back Plate

Ground Contact

Racking Gear

Other

N - New

G - Good condition, slight wear, correct adjustment.

S - Satisfactory condition, normal wear, acceptable adjustment.

C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: 1. Arc shield hood was received broken. Replaced with hood from Breaker BH16609-80.

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	40	40	41
5400	0.35	0.30	0.28	0.31
4800	-	4800	4800	4750
1800	0.73	0.70	0.69	0.70

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	40	40	41
5400	0.35	0.30	0.28	0.31
4800	-	4800	4800	4750
1800	0.73	0.70	0.69	0.70

L.D. @ 300 %

S.D. @ 150 %

INST. TRIP (Amps)

GROUND FAULT @ 150%

MEGOHMS (@ 1000V) ϕ -GND: A-G 150 B-G 150 CG 150 ϕ - ϕ : A-B 150 B-C 200 C-A 200

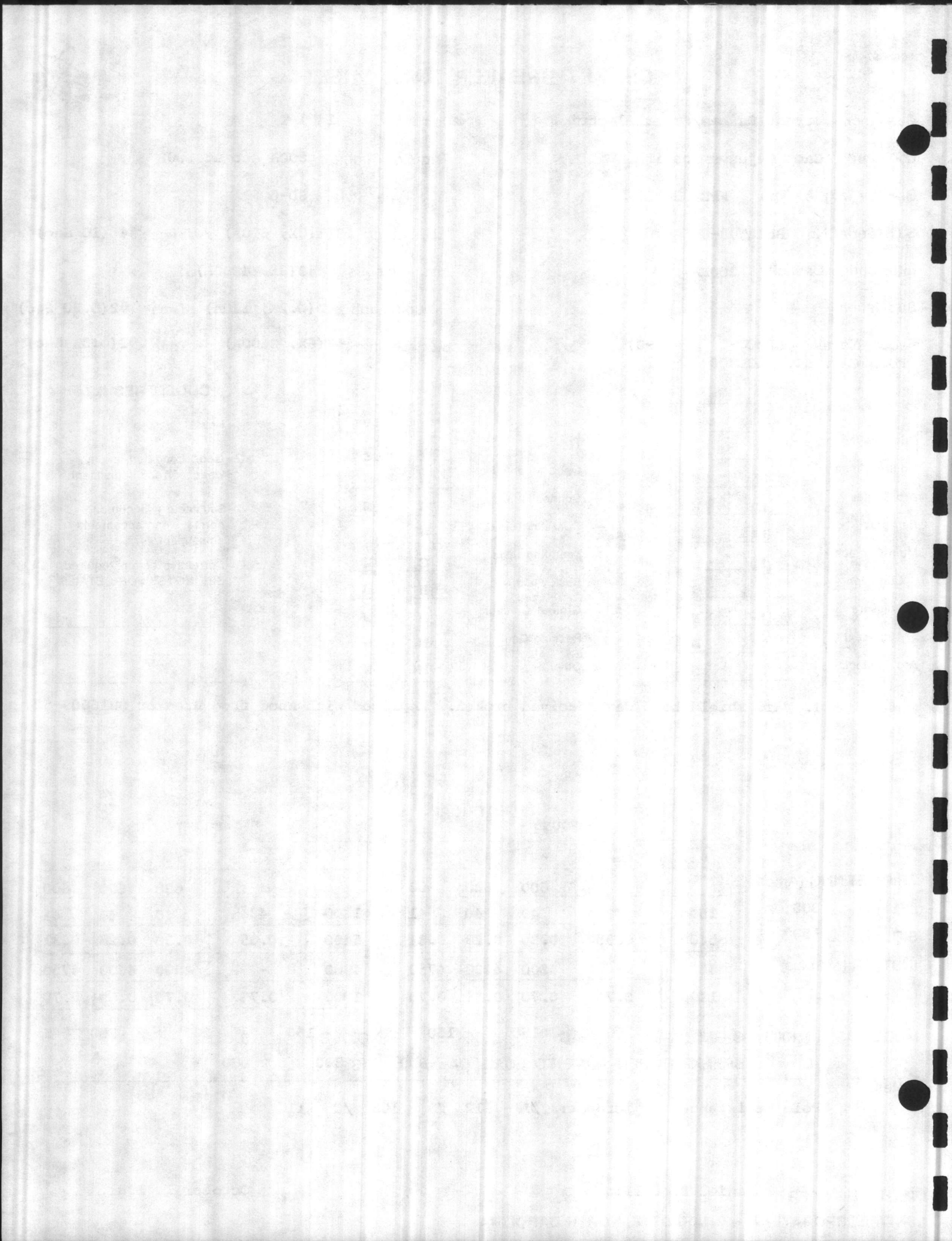
BREAKER OPEN—LINE TO LOAD: ϕ A 800 ϕ B 800 ϕ C 800

Notes:

Pole Resistance in Microhms: ϕ A - 112 ϕ B - 105 ϕ C - 110

TEST ENGINEER Daniel R. Collins

DATE October 1, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type: FPE 30HL-2
 S.O./Serial No.: BH16585-80
 Interrupting Capacity: 200KA
 Substation: B
 Feeder Name: EDP -6

Job No. 1481-T
 Trip Coil Rating: 600A set at 600A
 T.U. Type/Style: SD-6
 L.D. Setting: #3(1.0X, 600A) Time: #4 (10 Sec)
 Instantaneous: #3(8X, 4800A)
 Ground Fault: 0(0.2X, 120A) Time: #2(0.20 Sec)
 S.D. Setting: #3(6X, 3600A) Time: #2(0.33 Sec)

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes:

ELECTRICAL

AS FOUND

AS LEFT

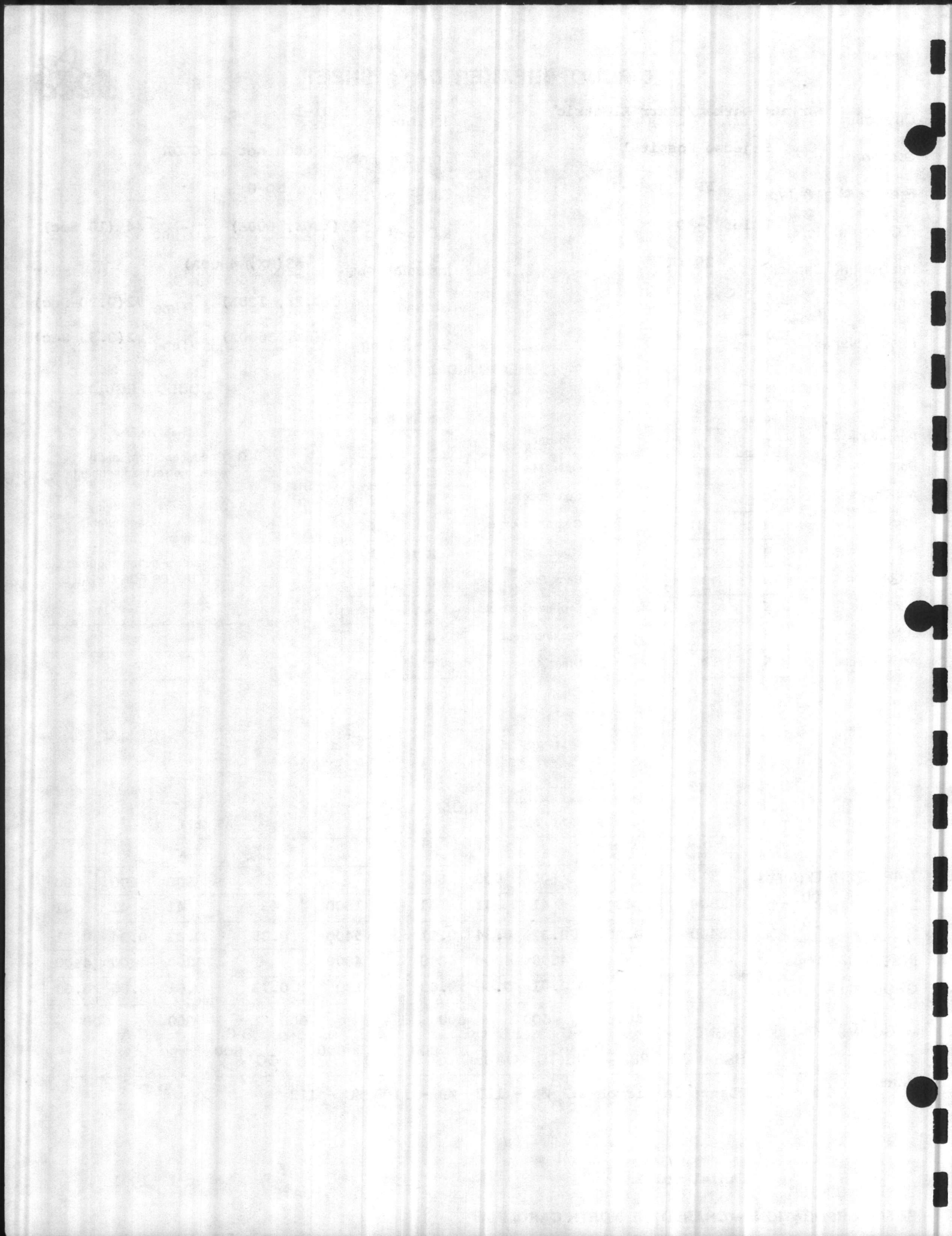
Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	41	41	41
5400	0.35	0.32	0.34	0.31
4800	-	4800	4800	4800
180	0.73	0.61	0.66	0.63

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	41	41	41
5400	0.35	0.32	0.34	0.31
4800	-	4800	4800	4800
180	0.73	0.61	0.66	0.63

TRIP SETTING (Amps)
 L.D. @ 300 %
 S.D. @ 150 %
 INST. TRIP (Amps)
 GROUND FAULT @ 150%
 MEGOHMS (@ 1000V) ϕ -GND: A-G B-G CG ϕ - ϕ : A-B B-C C-A
 BREAKER OPEN—LINE TO LOAD: ϕ A 800 ϕ B 800 ϕ C 800

Notes: Pole Resistance in Microhms: ϕ A - 117 ϕ B - 110 ϕ C - 112

TEST ENGINEER Daniel Collins DATE October 1, 1981



CIRCUIT BREAKER DATA SHEET



Customer: **Bryant Durham/Starr Electric**

Job No. **1481-T**

Location: **Camp Lejeune Hospital**

Trip Coil Rating **600A set at 600A**

Breaker Mfg. & Type **FPE 30HL-2**

T.U. Type/Style **SD-6**

S.O./Serial No. **BH16589-80**

L.D. Setting **#3(1.0X, 600A)** Time **#4 (10 Sec)**

Interrupting Capacity **200KA**

Instantaneous **#3(8X, 4800A)**

Substation: **B**

Ground Fault **0(0.2X, 120A)** Time **#2(0.20 Sec)**

Feeder Name **BEMCC-4 (B-5)**

S.D. Setting **#3(6X, 3600A)** Time **#2(0.33 Sec)**

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes:

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300%	1800	43	43	43	44
S.D. @ 150%	5400	0.35	0.30	0.33	0.29
INST. TRIP (Amps)	4800	-	4800	4900	4900
GROUND FAULT @ 150%	180	0.73	0.77	0.72	0.75

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300%	1800	43	43	43	44
S.D. @ 150%	5400	0.35	0.30	0.33	0.29
INST. TRIP (Amps)	4800	-	4800	4900	4900
GROUND FAULT @ 150%	180	0.73	0.77	0.72	0.75

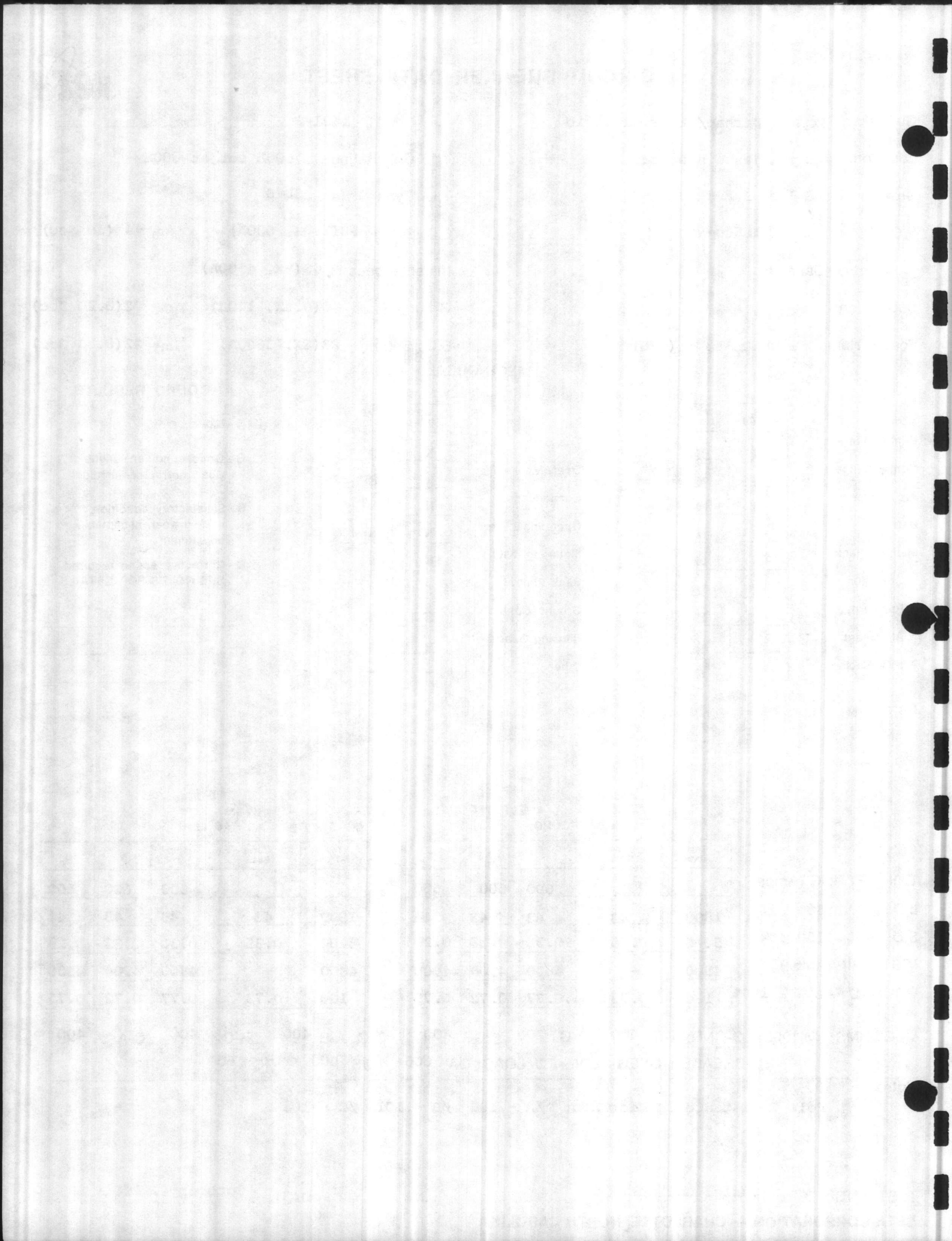
MEGOHMS (@ 1000V) ϕ -GND: A-G 400 B-G 200 CG 400 ϕ - ϕ : A-B 400 B-C 400 C-A 400

BREAKER OPEN—LINE TO LOAD: ϕ A 600 ϕ B 600 ϕ C 600

Notes: Pole Resistance in Microhms: ϕ A - 108 ϕ B - 101 ϕ C - 103

TEST ENGINEER **Daniel Collins**

DATE **October 1, 1981**



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16581-80

L.D. Setting #3(1.0X, 600A) Time #4(1.0 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: B

Ground Fault 0(0.2X, 120A) Time #2(0.20 Sec)

Feeder Name BEMCC-5 (B-6)

S.D. Setting #3(6X, 3600A) Time #2(0.33 Sec)

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes:

.....

.....

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ <u>300</u> %	1800	43	35	35	36
S.D. @ <u>150</u> %	5400	0.35	0.29	0.30	0.33
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ <u>150</u> %	180	0.73	0.71	0.73	0.71

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ <u>300</u> %	1800	43	35	35	36
S.D. @ <u>150</u> %	5400	0.35	0.29	0.30	0.33
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ <u>150</u> %	180	0.73	0.71	0.73	0.71

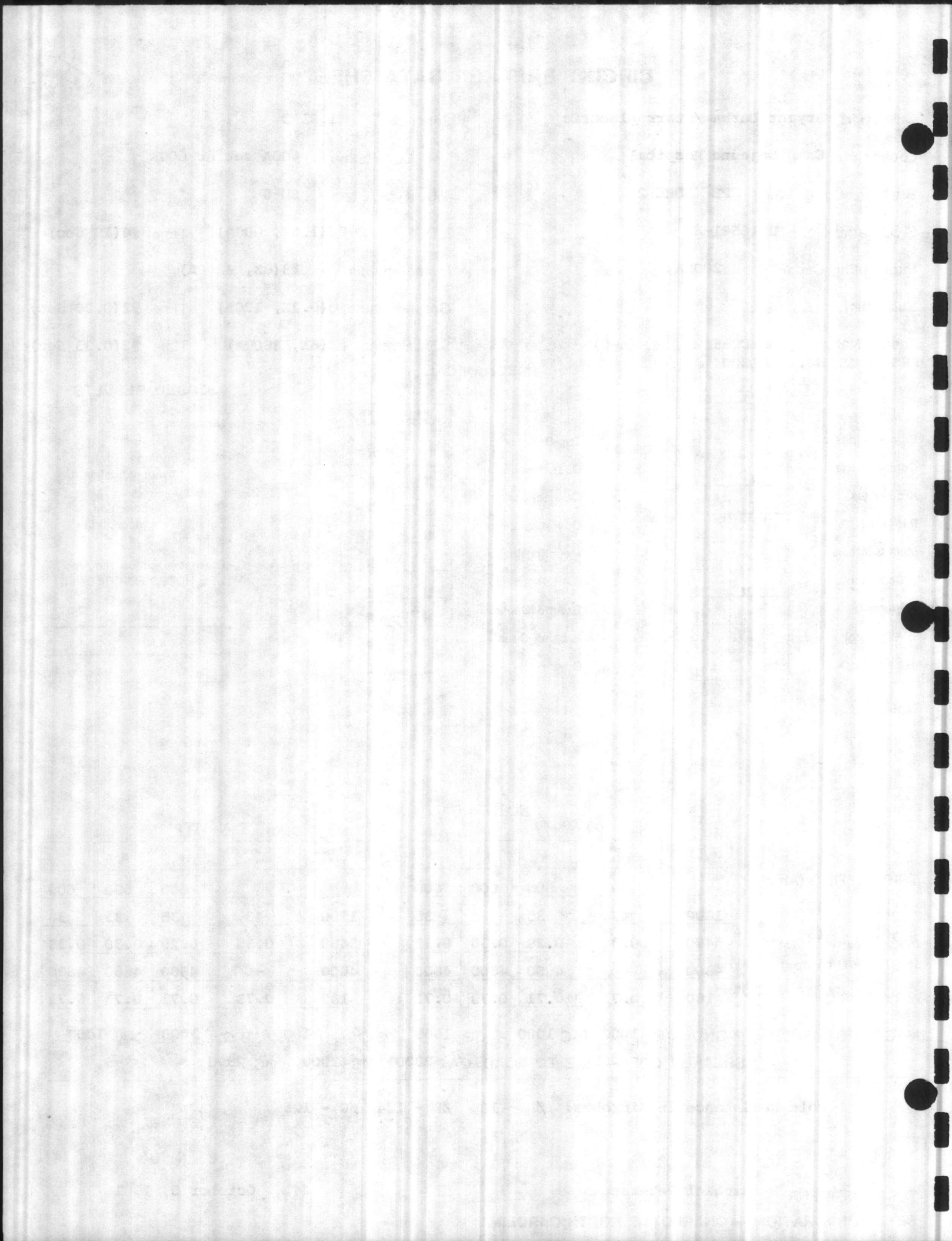
MEGOHMS (@ 1000V) ϕ -GND: A-G 1000 B-G 1000 CG 1000 ϕ - ϕ : A-B 1000 B-C 1000 C-A 1000

BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 2000 ϕ C 2000

Notes: Pole Resistance in Microhms: ϕ A - 138 ϕ B - 134 ϕ C - 125

TEST ENGINEER Michael Petersen

DATE October 5, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type: FPE 30HL-2
 S.O./Serial No.: BH16602-80
 Interrupting Capacity: 200KA
 Substation: B
 Feeder Name: BEMCC-6 (B-7)
 FUSE CAT. NO.: LCL800

Job No.: 1481-T
 Trip Coil Rating: 600A set at 600A
 T.U. Type/Style: SD-6
 L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)
 Instantaneous: #3(8X, 4800A)
 Ground Fault 0(0.2X, 120A) Time #2(0.20 Sec)
 S.D. Setting #3(6X, 3600A) Time #2(0.33 Sec)

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	C	C
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: 1. Close button hangs up while resetting. Recommend repair.

4/20/02 -
REPAIRED

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			600	600	600
L.D. @ 300%	1800	43	34	35	35
S.D. @ 150%	5400	0.35	0.37	0.33	0.37
INST. TRIP (Amps)	4800	-	4800	4800	4600
GROUND FAULT @ 150%	180	0.73	0.80	0.79	0.70

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			600	600	600
L.D. @ 300%	1800	43	34	35	35
S.D. @ 150%	5400	0.35	0.37	0.33	0.37
INST. TRIP (Amps)	4800	-	4800	4800	4600
GROUND FAULT @ 150%	180	0.73	0.80	0.79	0.70

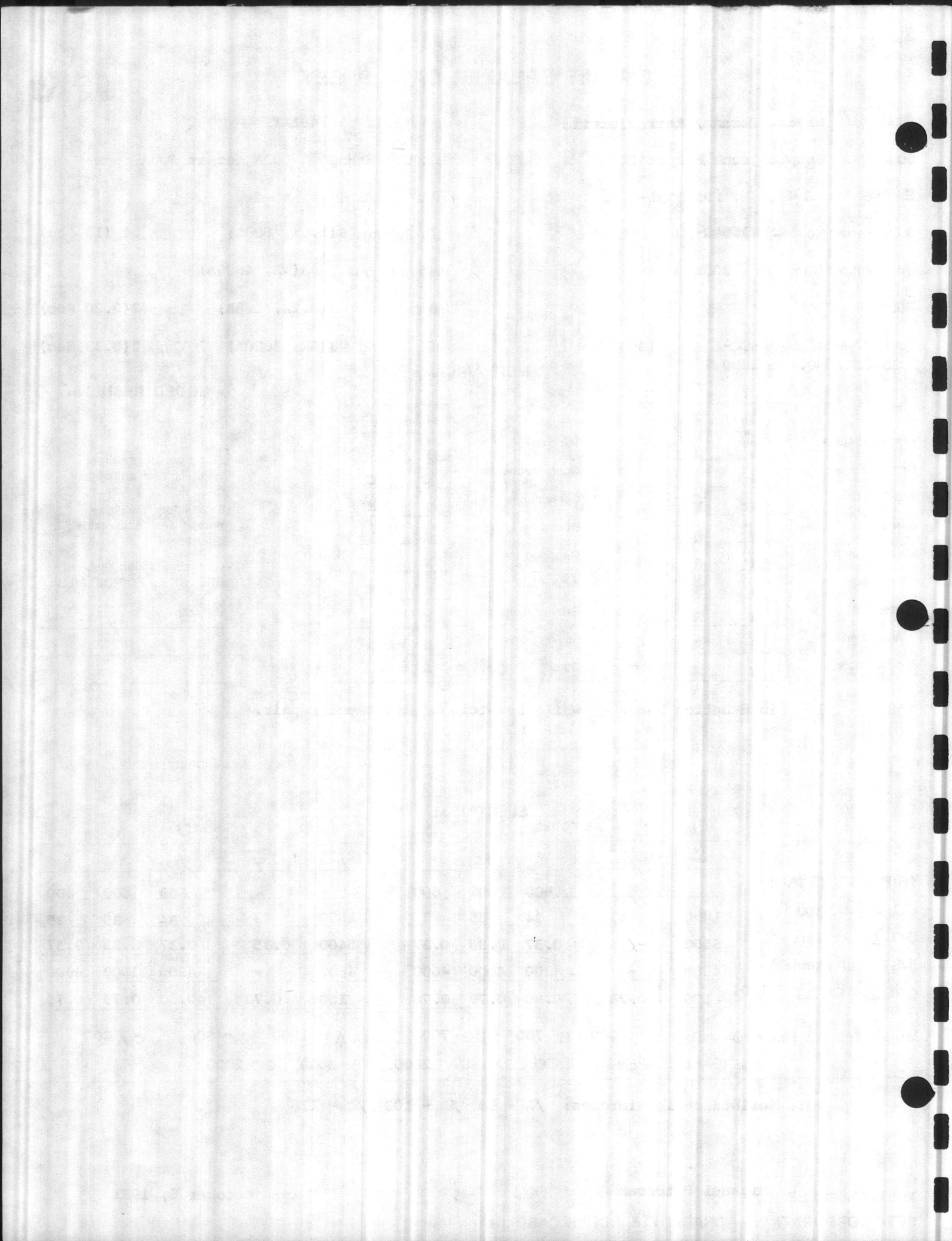
MEGOHMS (@ 1000V) ϕ -GND: A-G 1000 B-G 700 CG 700 ϕ - ϕ : A-B 1000 B-C 800 C-A 800

BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 2000 ϕ C 2000

Notes: Pole Resistance in Microhms: μ A - 98 μ B - 103 μ C - 116

TEST ENGINEER Michael Petersen

DATE October 5, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16592-80

L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: B

Ground Fault 0(0.2X, 120A) Time #2(0.20 Sec)

Feeder Name Spare (B-8)

S.D. Setting #3(6X, 3600A) Time #2(0.33 Sec)

FUSE CAP. NO. LCL800

MECHANICAL

CODED RESULTS

Primary Fingers

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

Oper. Mechanism

Connections

Operating Links

Mounting Insul.

Back Plate

Ground Contact

Racking Gear

Other

N - New

G - Good condition, slight wear, correct adjustment.

S - Satisfactory condition, normal wear, acceptable adjustment.

C - Corrective action required.
** SEE NOTES FOR DETAILS

REPLACED RELAY

4/20/82

Notes:

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)

Test Amps	Curve Secs.	A	B	C
		600	600	600
L.D. @ 300%	1800	43		
S.D. @ 150%	5400	0.35		
INST. TRIP (Amps)	4800	-		
GROUND FAULT @ 150%	180	0.73	0.36	0.36

Test Amps	Curve Secs.	A	B	C
		600	600	600
L.D. @ 300%	1800	43		
S.D. @ 150%	5400	0.35		
INST. TRIP (Amps)	4800	-		
GROUND FAULT @ 150%	180	0.73	0.36	0.36

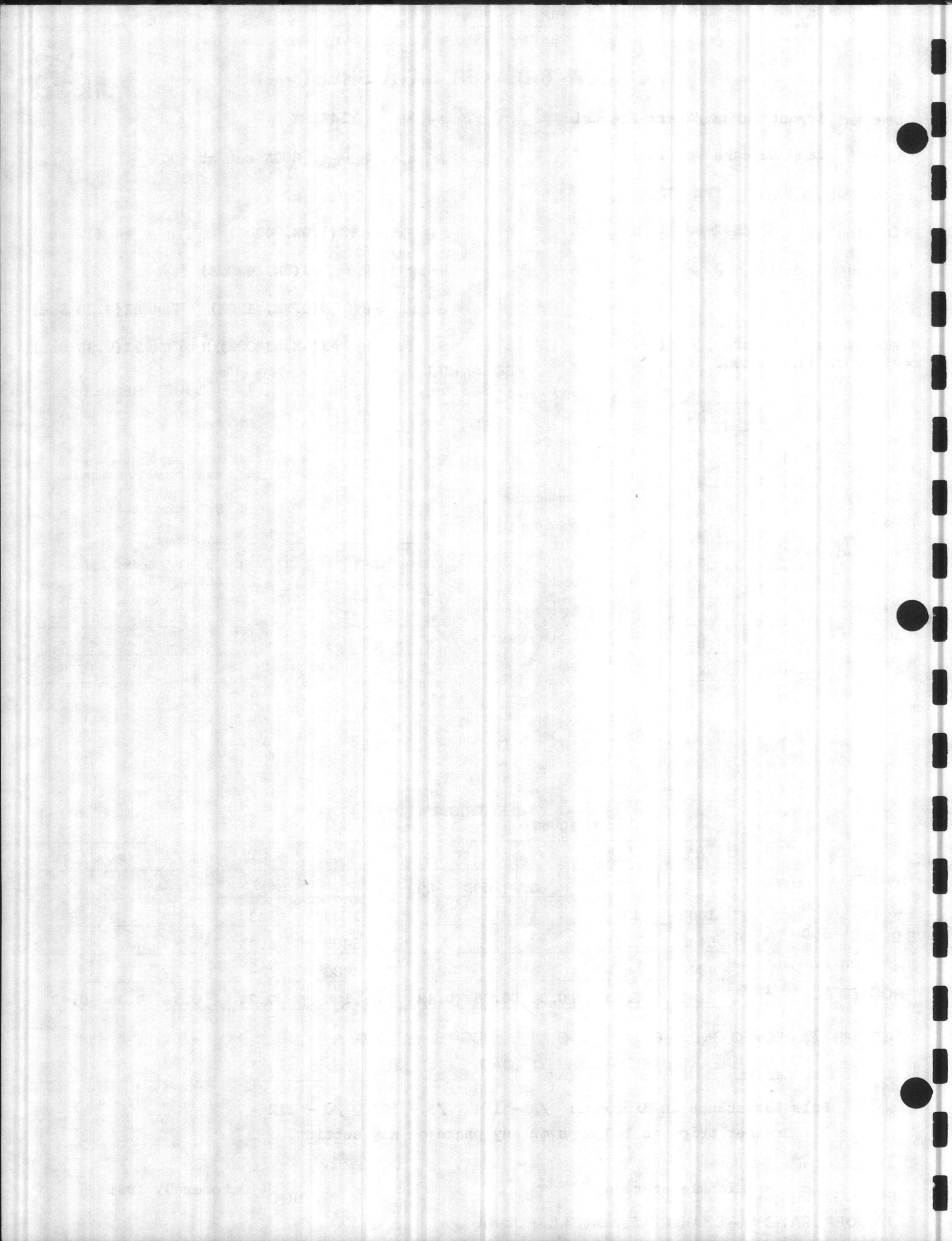
MEG OHMS (@ 1000V) ϕ -GND: A-G B-G CG ϕ - ϕ : A-B B-C C-A

BREAKER OPEN—LINE TO LOAD: ϕ A ϕ B ϕ C

Notes: Pole Resistance in Microhms: ϕ A - 114 ϕ B - 125 ϕ C - 112
1. Breaker trips at 100 Amps on any phase on any setting.

TEST ENGINEER Michael Petersen

DATE October 5, 1981





SWITCHGEAR INSPECTION REPORT

CUSTOMER: Bryant Durham/Starr Electric JOB NO: 1481-T
 LOCATION: Camp Lejeune Hospital SUBSTATION: c
 MFG/TYPE Federal Pacific/L1 VOLTS 13.8K AMPS 600

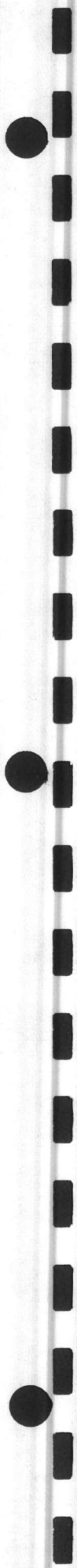
FEEDER NAME	Pri. Feeder 1	Pri. Feeder 2		
S.O; OR SERIAL #	2658D2430	2658D2430		
MEGGER - PHASE TO PHASE (Megohms)	12/12/11	12/10/12		
MEGGER - PHASE TO GRD. (Megohms)	12/12/11	12/11/12		
MEGGER - LINE TO LOAD (Megohms)	2.8/3.7/3.6	2.8/3.7/3.6		
CONTACT RESISTANCE (Microhms)	67/72/74	76/41/120		
CONNECTIONS	Satisfactory	Satisfactory		
ENCLOSURE CONDITION	Satisfactory	Satisfactory		
ARC CHUTES	-	-		
CONTACT ALIGNMENT	Satisfactory	Satisfactory		
MAIN CONTACTS	Satisfactory	Satisfactory		
ARCING CONTACTS	Satisfactory	Satisfactory		
PUFFERS	-	-		
RELAYS FUNCTION CHECK	-	-		
MECHANISM	Satisfactory	Satisfactory		
HEATERS	-	-		
BUS INSULATION	-	-		
DOORS	Satisfactory	Satisfactory		
BUSHINGS	Satisfactory	Satisfactory		
POT-HEADS	-	-		
BATTERIES	-	-		
BATTERY CHARGER	-	-		
WIRING CONDITION	Satisfactory	Satisfactory		
GROUNDING	Satisfactory	Satisfactory		
NO. OF OPERATIONS (COUNTER)	-	-		

COMMENTS: 1. All buss connections were torqued to 37 Ft.-Lbs. 2. Tie buss between Feeder 1 and Feeder 2 Insulation Resistance at 5000VDC: ϕ A - 4000 Megohms; ϕ B - 6000 Megohms; ϕ C - 4000 Megohms. 3. Tie buss High Potential Test at 37.5KVDC: ϕ A - 480.0 Microamps; ϕ B - 400.0 Microamps; ϕ C - 480.0 Microamps.

TEST ENGINEER: Mark Zagar DATE: September 24, 1981

SETA CORPORATION — CHARLOTTE, NORTH CAROLINA

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TRANSFORMER INSPECTION REPORT



Customer: Bryant Durham/Starr Electric Job No.: 1481-T
 Location: Camp Lejeune Hospital Voltage: 12470-480Y/277
 Substation: C Rated Current: -
 Mfg. & Type: Westinghouse/RSL KVA: 2500
 Air Temp.: 20°C Impedance: 5.76%
 Coolant Oil Askarel Dry Other Phase: 3 ϕ 1 ϕ

TEST DATA

	XFMR # 1	XFMR # 2	XFMR # 3
SERIAL NUMBER	PAT02280104		
INSULATION RESISTANCE @ 1000/ 2500 VOLTS TIME ON TEST: 10 Min.	HI - LO/GND	14 Megohms	
	LO - HI/GND	24 Megohms	
DIELECTRIC TEST - TOP	-		
DIELECTRIC TEST - BOTTOM	40KV+		
ACIDITY TEST	0.3mg of KOH		
COOLANT CAPACITY	665 Gallons		

INTERNAL/EXTERNAL INSPECTION

TANK - EXTERNAL	Satisfactory		
PAINT	Satisfactory		
LEAKS	None		
PUMPS & VALVES	Satisfactory		
BUSHINGS	Satisfactory		
PRESSURE RELIEF DEVICE	Satisfactory		
VENTS	-		
FANS & CONTROLS	Satisfactory		
GROUNDING	Satisfactory		
TEMP. GAUGE ACTUAL/MAXIMUM	20°/20°		
PRESSURE GAUGE - P.S.I.	+1.0		
OIL LEVEL GAUGE	+25°		
INTERNAL CONDITION	-		
NLTC - TAP SETTING	3		
LTC	-		
OTHER	-		

Notes _____

TEST ENGINEER: Mark Zagar Date: September 23, 1981

1953

SECRET

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TRANSFORMER TURNS RATIO TESTS



Customer: BRYANT DURHAM & STARR ELECTRIC Job No. 1481-T

Location: CAMP LEJEUNE HOSPITAL

TRANSFORMER: <u>SUB C</u>		VOLTAGE: <u>12470-480Y/277</u>		SERIAL NO: <u>PAT0228-0104</u>		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H ₁ H ₂ X ₀ X ₂	H ₂ H ₃ X ₀ X ₃	H ₃ H ₁ X ₀ X ₁	
1	13095	47.253	47.293	47.289	47.286	
2	12780	46.116	46.093	46.089	46.086	
3	12470	44.997	44.993	44.989	44.987	
4	12160	43.874	43.893	43.890	43.887	
5	11850	42.760	42.793	42.789	42.788	

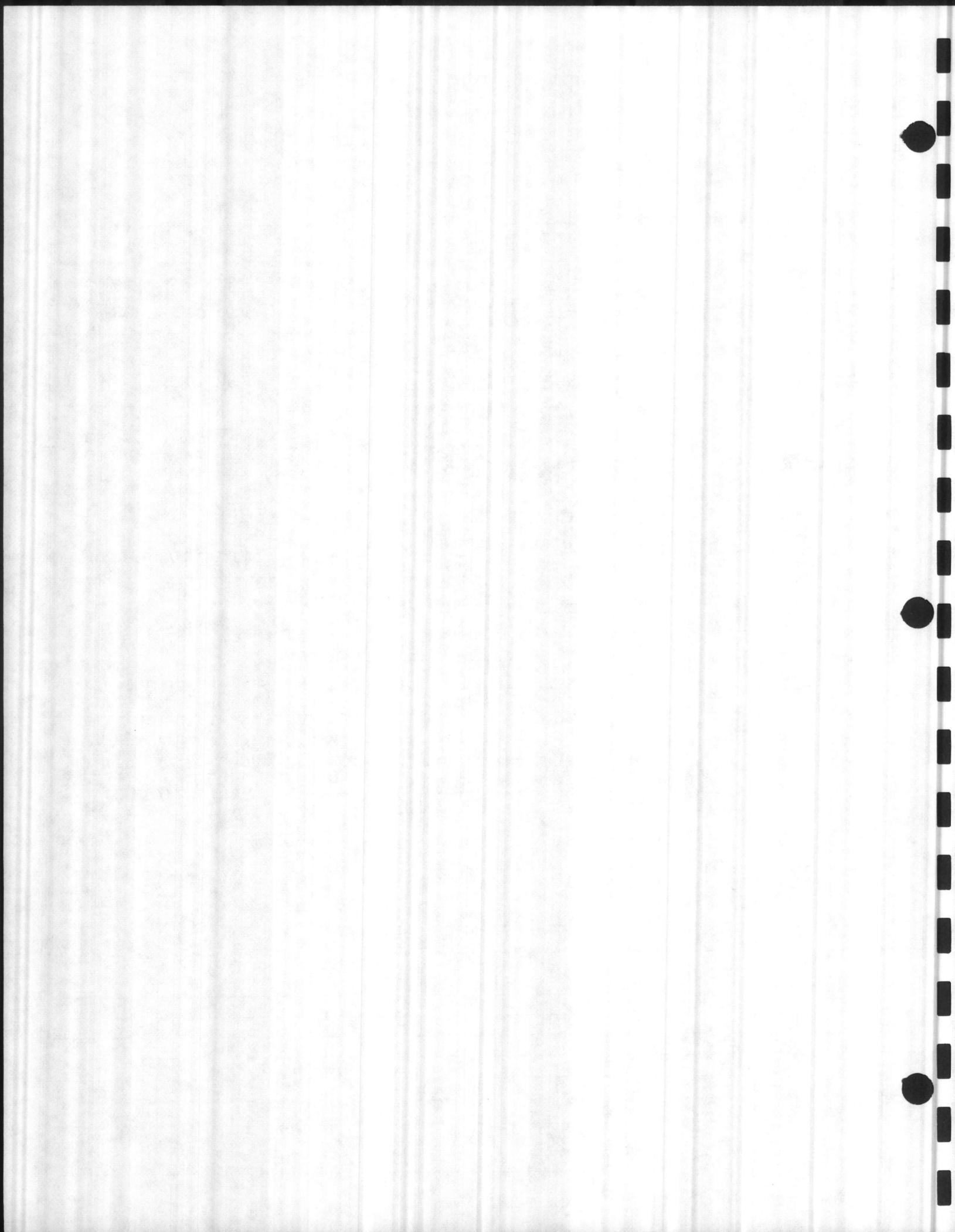
TRANSFORMER:		VOLTAGE:		SERIAL NO:		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H H X X	H H X X	H H X X	
1						
2						
3						
4						
5						

TRANSFORMER:		VOLTAGE:		SERIAL NO:		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H H X X	H H X X	H H X X	
1						
2						
3						
4						
5						

Notes: _____

WITNESSED BY Ernest M. Creech

TEST ENGINEER: _____ Date: 9-23-81





TRANSFORMER DIELECTRIC ABSORPTION TEST

SUBSTATION C

TRANSFORMER SERIAL NO. PAT0228-0104

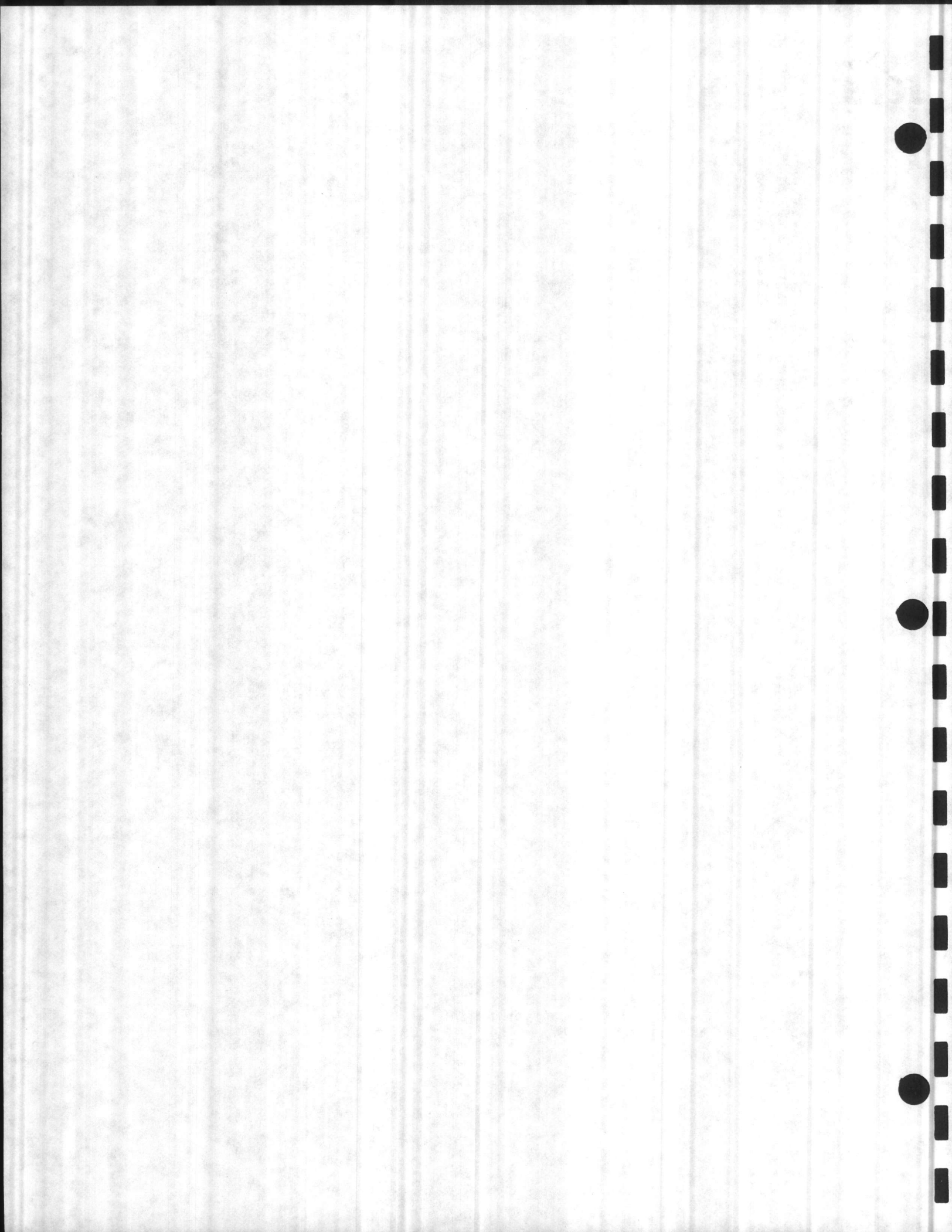
	<u>HI-LO/GROUND AT 5KVDC</u>	<u>LO-HI/GROUND AT 1KVDC</u>
1 Minute	1400 Megohms	24 Megohms
2 Minutes	1400 Megohms	24 Megohms
3 Minutes	1400 Megohms	24 Megohms
4 Minutes	1400 Megohms	24 Megohms
5 Minutes	1400 Megohms	24 Megohms
6 Minutes	1400 Megohms	24 Megohms
7 Minutes	1400 Megohms	24 Megohms
8 Minutes	1400 Megohms	24 Megohms
9 Minutes	1400 Megohms	24 Megohms

Test Conducted at 20°C (Temperature Cor. Factor 1.00)

Polarization Index - 1.0

TEST ENGINEER: Mark Zagar

DATE: September 23, 1981





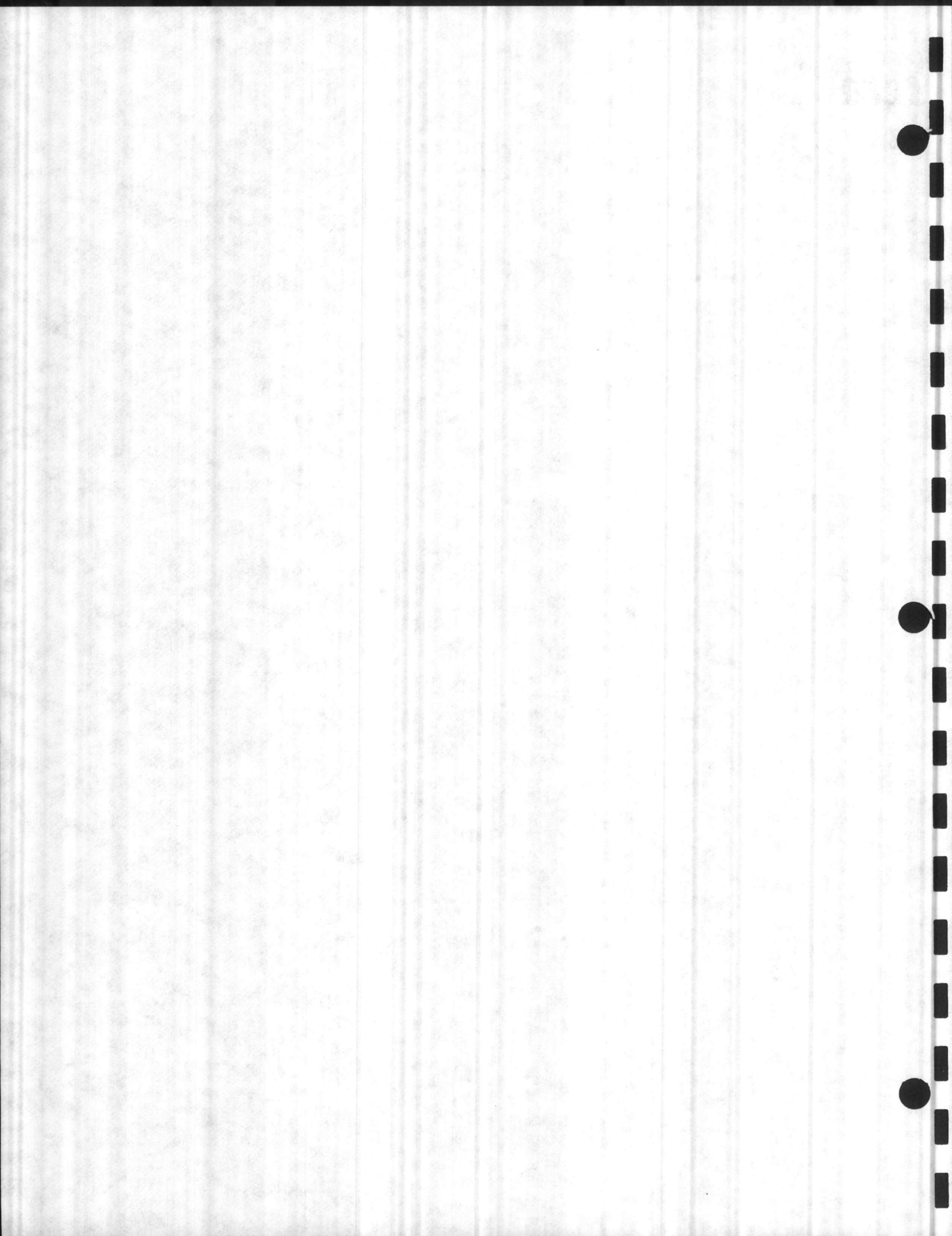
INSULATION RESISTANCE TEST
1000VDC TEMPERATURE 20 °C

ØA - B = 40 Megohms
ØB - C = 30 Megohms
ØC - A = 40 Megohms

ØA - G = 20 Megohms
ØB - G = 20 Megohms
ØC - G = 18 Megohms

TEST ENGINEER: Mark Zagar

DATE: September 24, 1981





METER TEST REPORT

SUBSTATION C

AMMETER

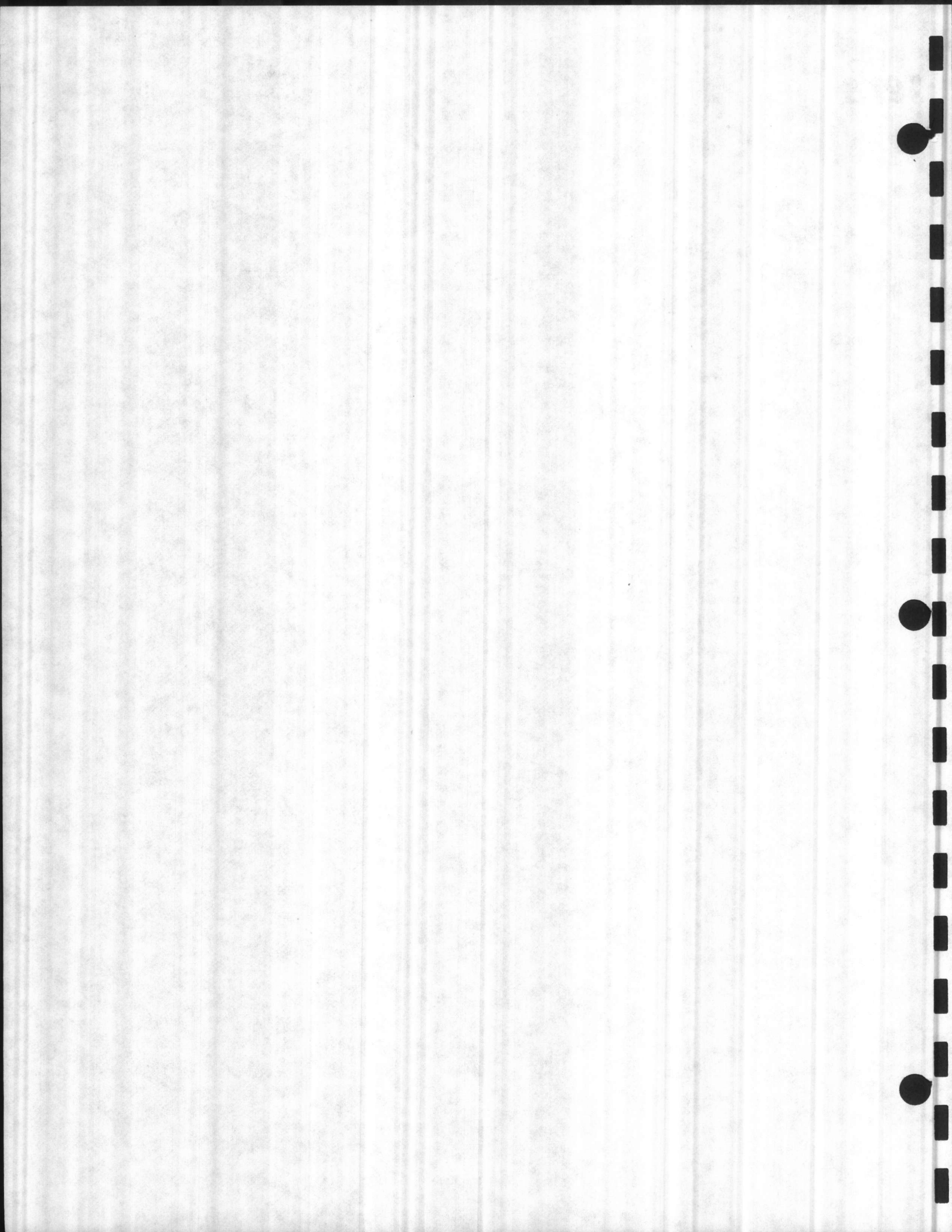
<u>FEEDER</u>	<u>FULL SCALE</u>	<u>SECONDARY</u>	<u>ACTUAL TEST CURRENT</u>	<u>ZERO SET</u>
DP1	600A	5A	4.95A	0
BMCC-3	600A	5A	5.05A	0
BMCC-4	600A	5A	5.00A	0
BMCC-1	600A	5A	4.95A	0
Public Works Building	600A	5A	5.00A	0
Spare	600A	5A	5.05A	0
Chiller RM-2	1000A	5A	5.15A	0
Main	4000A	5A	4.95A	0

VOLTMETER

<u>FEEDER</u>	<u>FULL SCALE</u>	<u>SECONDARY</u>	<u>ACTUAL TEST VOLTAGE</u>	<u>SET</u>
Main	600V	150V	156V	0

TEST ENGINEER: Daniel Collins

DATE: September 24, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type FPE 100H-3
 S.O./Serial No. BH20663-80
 Interrupting Capacity 100KA
 Substation: Main C
 Feeder Name Main

Job No. 1481-T
 Trip Coil Rating 4000A set at 4000A
 T.U. Type/Style SD-3
 L.D. Setting #2(0.9X, 36,000A) Time #2 (6 Sec)
 Instantaneous #3(8X, 12,000A)
 Ground Fault - Time -
 S.D. Setting #1(3X, 12,000A) Time #2(0.33 Sec)

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	NOTE 1	

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: 1. Key No. C1735T will operate disconnect switch lock, but key will not operate breaker lock. Original key was lost and duplicate key will not work. Corrected.

ELECTRICAL

AS FOUND

AS LEFT

Test Amps	Curve Secs.	A	B	C
		4000	4000	4000
10,800	26	26	26	26
18KA	0.35	0.33	0.37	0.38
32KA	-	32KA	32KA	32KA

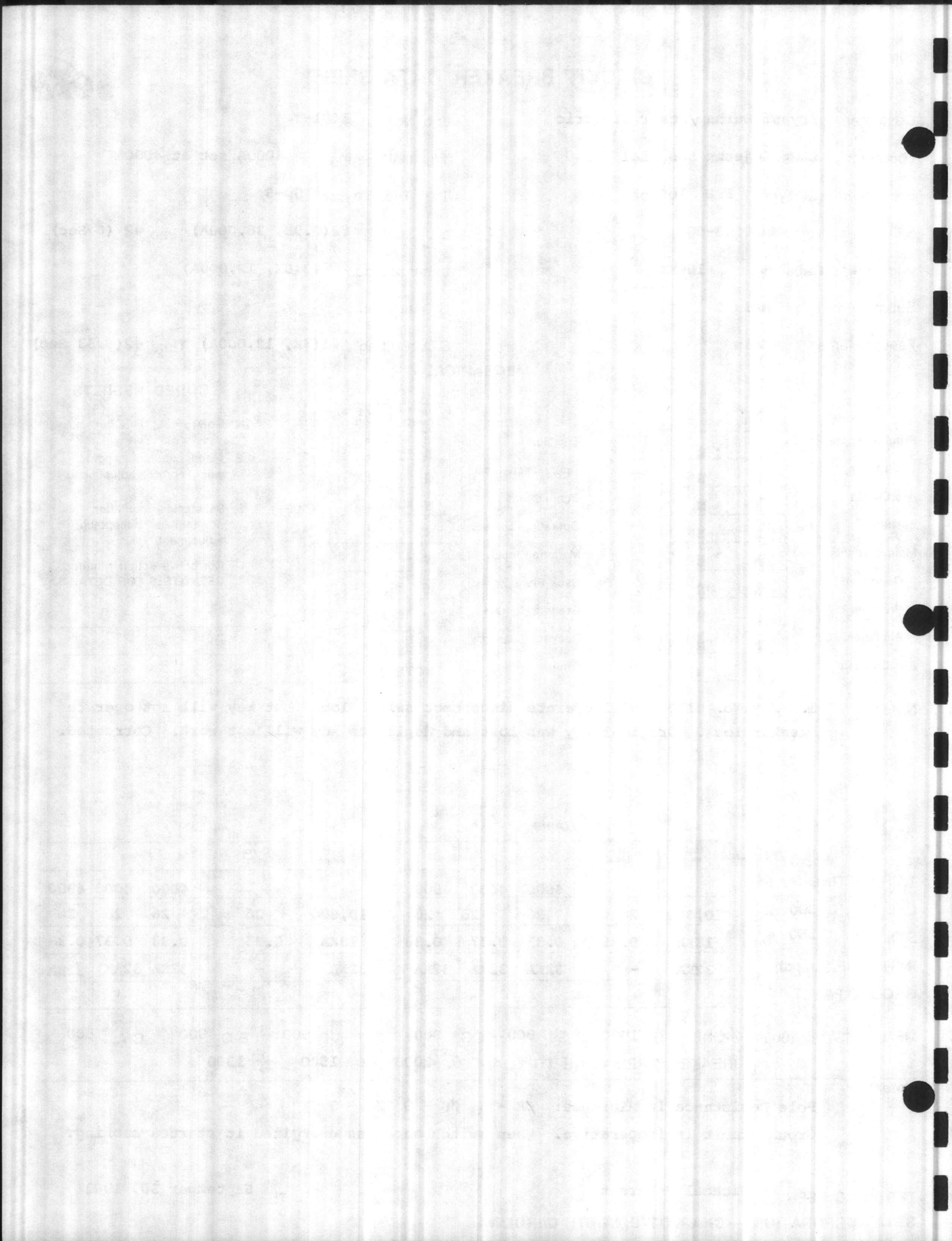
Test Amps	Curve Secs.	A	B	C
		4000	4000	4000
10,800	26	26	26	26
18KA	0.35	0.33	0.37	0.38
32KA	-	32KA	32KA	32KA

TRIP SETTING (Amps)
 L.D. @ 300 %
 S.D. @ 150 %
 INST. TRIP (Amps)
 GROUND FAULT

MEGOHMS (@ 1000V) ϕ -GND: A-G 1000 B-G 900 CG 800 ϕ - ϕ : A-B 900 B-C 900 C-A 500
 BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 1500 ϕ C 1300

Notes: Pole Resistance in Microhms: ϕ A - 8 ϕ B - 9 ϕ C - 8
Ground fault is inoperative. When switchboard was energized it started smoking.

TEST ENGINEER Michael Petersen DATE September 30, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16602-80

L.D. Setting #3(1.0X, 600A) Time #4(10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: C

Ground Fault 0(0.2X, 120A) Time #2(0.20 Sec)

Feeder Name DP1 (C-1)

S.D. Setting #3(6X, 3600A) Time #2(0.33 Sec)

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes:

.....

.....

ELECTRICAL

AS FOUND

AS LEFT

Test Amps	Curve Secs.	A	B	C
		600	600	600
TRIP SETTING (Amps)				
L.D. @ 300%	1800	43	39	39
S.D. @ 150%	5400	0.35	0.31	0.31
INST. TRIP (Amps)	4800	-	4800	4800
GROUND FAULT @ 150%	180	0.73	0.75	0.73

Test Amps	Curve Secs.	A	B	C
		600	600	600
TRIP SETTING (Amps)				
L.D. @ 300%	1800	43	39	39
S.D. @ 150%	5400	0.35	0.31	0.31
INST. TRIP (Amps)	4800	-	4800	4800
GROUND FAULT @ 150%	180	0.73	0.75	0.73

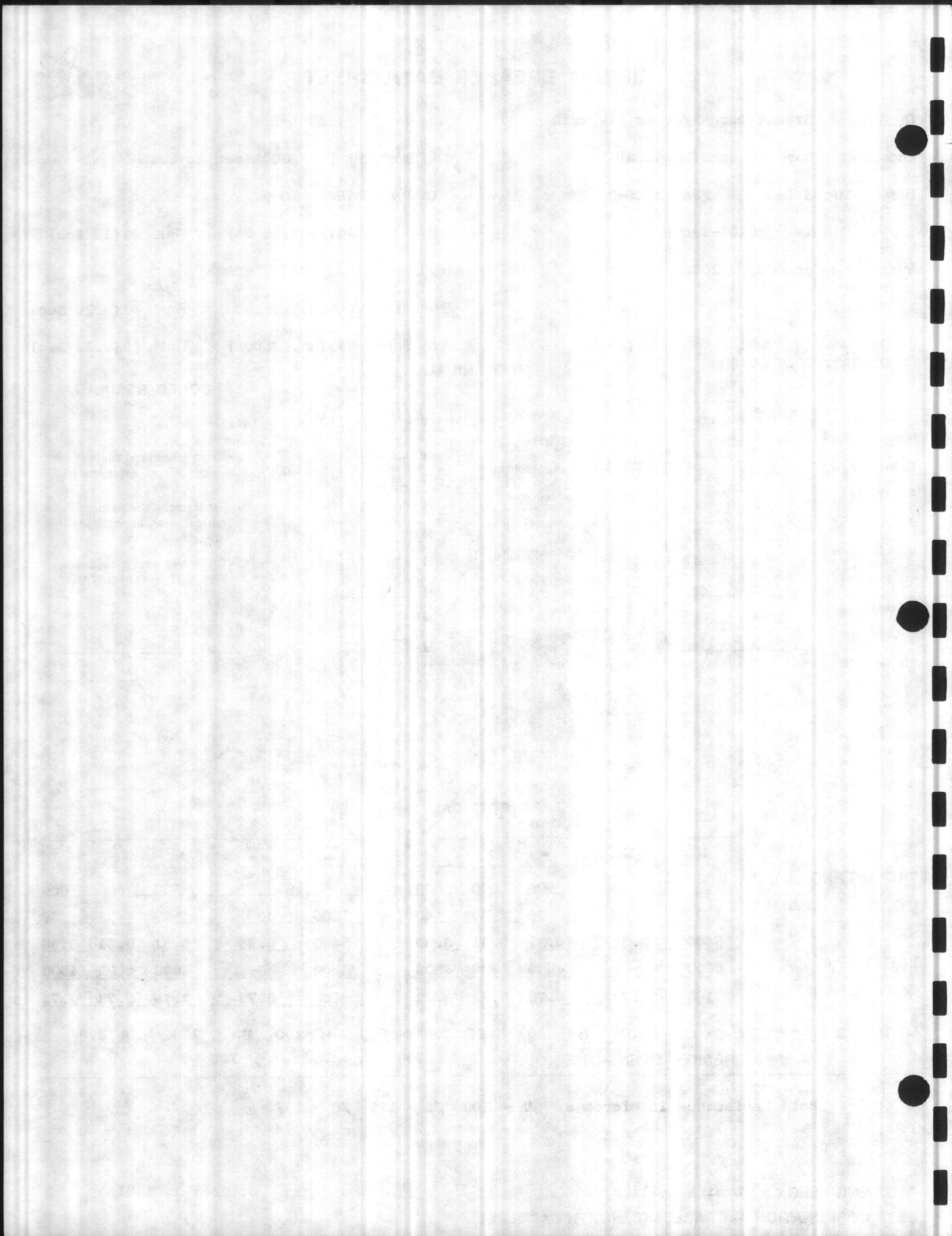
MEGOHMS (@ 1000V) ϕ -GND: A-G 200 B-G 200 CG 200 ϕ - ϕ : A-B 200 B-C 200 C-A 200

BREAKER OPEN—LINE TO LOAD: ϕ A 700 ϕ B 700 ϕ C 700

Notes: Pole Resistance in Microhms: ϕ A - 108 ϕ B - 125 ϕ C - 107

TEST ENGINEER Daniel Collins

DATE October 1, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16606-80

L.D. Setting #3(1.0X, 600A) Time #4(10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: C

Ground Fault 0(0.20X, 120A) Time #2(0.20 Sec)

Feeder Name BMCC-3 (C-2)

S.D. Setting #3(6X, 3600A) Time #2(0.33 Sec)

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes:

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300 %	1800	43	41	41	41
S.D. @ 150 %	5400	0.35	0.30	0.32	0.30
INST. TRIP (Amps)	4800	-	4900	4900	4900
GROUND FAULT @ 150%	180	0.73	0.67	0.72	0.72

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300 %	1800	43	41	41	41
S.D. @ 150 %	5400	0.35	0.30	0.32	0.30
INST. TRIP (Amps)	4800	-	4900	4900	4900
GROUND FAULT @ 150%	180	0.73	0.67	0.72	0.72

MEGOHMS (@ 1000V) ϕ -GND: A-G 400 B-G 400 CG 400 ϕ - ϕ : A-B 400 B-C 400 C-A 400

BREAKER OPEN—LINE TO LOAD: ϕ A 800 ϕ B 800 ϕ C 800

Notes: Pole Resistance in Microhms: ϕ A - 104 ϕ B - 103 ϕ C - 104

TEST ENGINEER Daniel Collins

DATE October 1, 1981

CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type FPE 30HL-2
 S.O./Serial No. BH16604-80
 Interrupting Capacity 200KA
 Substation: C
 Feeder Name BMCC4 (C-3)
 FUSE CAT. NO. LCL300

Job No. 1481-T
 Trip Coil Rating 600A set at 600A
 T.U. Type/Style SD-6
 L.D. Setting #3(1.0X, 600A) Time #4 (1.0 Sec)
 Instantaneous #3(8X, 4800A)
 Ground Fault 0(0.2X, 120A) Time #2 (0.20 Sec)
 S.D. Setting #3(6X, 3600A) Time #2 (0.33 Sec)

MECHANICAL

CODED RESULTS

Primary Fingers
 Control Fingers
 Arc Chutes
 Barriers
 Main Contacts
 Condition
 Pressure
 Alignment
 Arc Contacts

AS FOUND	AS LEFT
N	N
N	N
N	N
N	N
C	N
N	N
N	N
N	N
N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

AS FOUND	AS LEFT
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: 1. Moveable contact assembly pivot joint loose on Phase C. Corrected

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)

L.D. @ 300%

S.D. @ 150%

INST. TRIP (Amps)

GROUND FAULT @ 150%

Test Amps	Curve Secs.	A	B	C
		600	600	600
1900	43	39	38	40
5400	0.35	0.32	0.33	0.33
4800	-	4800	4800	4800
180	0.73	0.77	0.82	0.78

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	39	38	40
5400	0.35	0.32	0.33	0.33
4800	-	4800	4800	4800
180	0.73	0.77	0.82	0.78

MEGOHMS (@ 1000V) ϕ -GND: A-G 600 B-G 600 CG 600 ϕ - ϕ : A-B 500 B-C 500 C-A 500

BREAKER OPEN—LINE TO LOAD: ϕ A 800 ϕ B 800 ϕ C 800

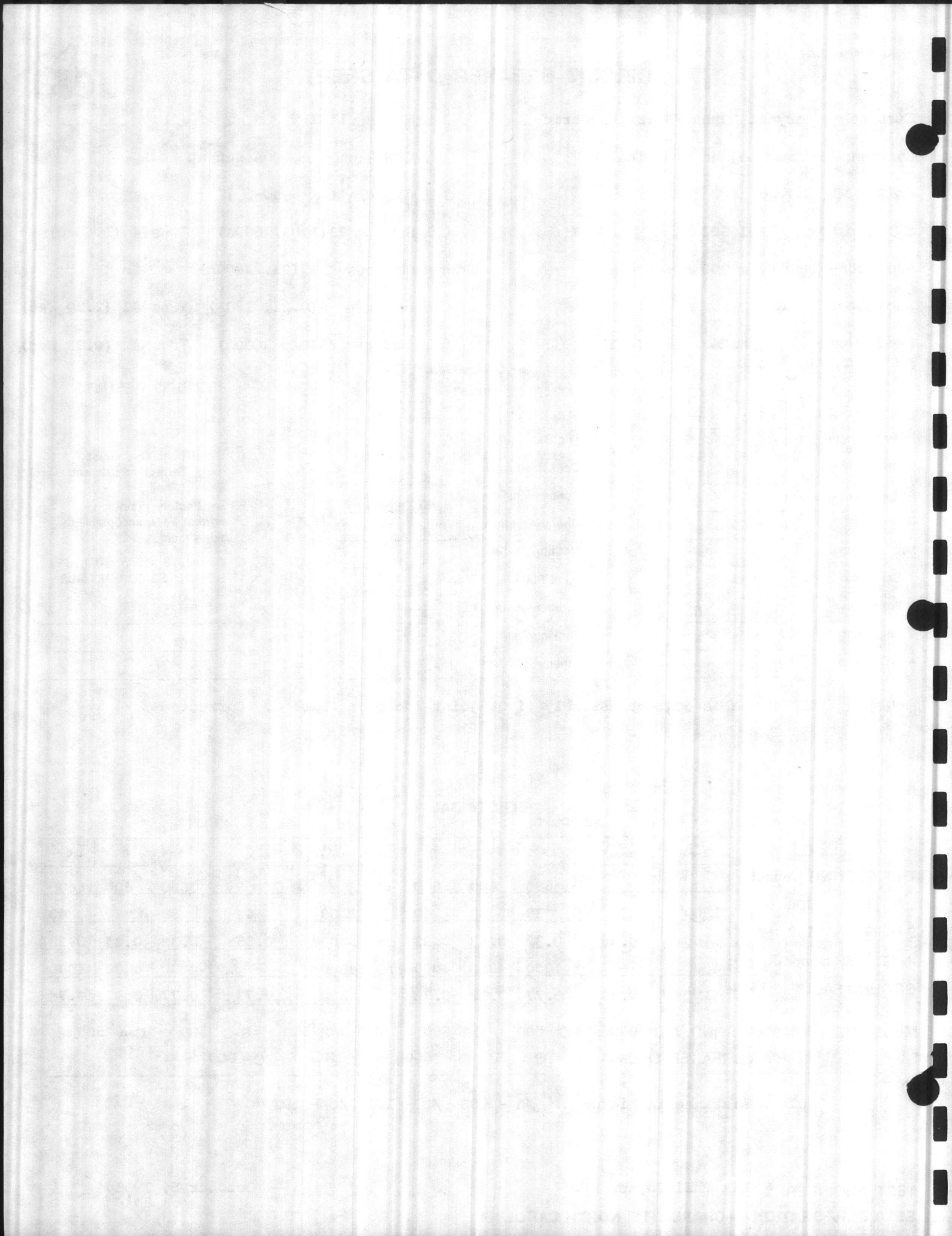
Notes:

Pole Resistance in Microhms: ϕ A - 103 ϕ B - 104 ϕ C - 102

TEST ENGINEER Phil Joyner

DATE October 5, 1981

SETA CORPORATION — CHARLOTTE, NORTH CAROLINA



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16605-80

L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: C

Ground Fault 0(0.2X, 120A) Time #2 (0.20 Sec)

Feeder Name BMCC-1 (C-4)

S.D. Setting #3(6X, 3600A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: _____

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			600	600	600
L.D. @ 300 %	1800	43	40	40	41
S.D. @ 150 %	5400	0.35	0.37	0.30	0.27
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ 150%	180	0.73	0.75	0.73	0.72

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			600	600	600
L.D. @ 300 %	1800	43	40	40	41
S.D. @ 150 %	5400	0.35	0.37	0.30	0.27
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ 150%	180	0.73	0.75	0.73	0.72

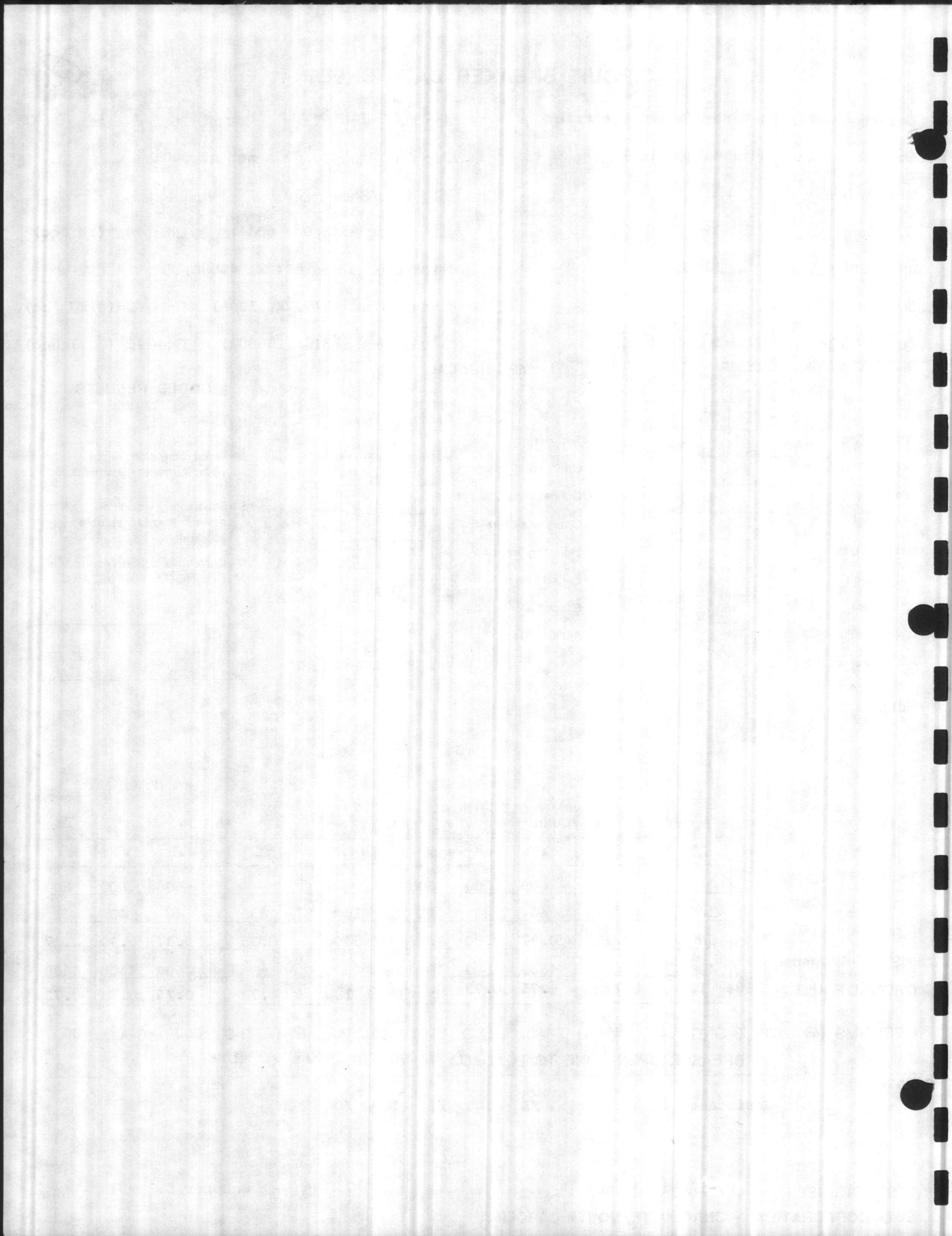
MEGOHMS (@ 1000V) ϕ -GND: A-G 800 B-G 800 CG 800 ϕ - ϕ : A-B 600 B-C 600 C-A 600

BREAKER OPEN—LINE TO LOAD: ϕ A 1000 ϕ B 1000 ϕ C 1000

Notes: Pole Resistance in Microhms: ϕ A - 109 ϕ B - 109 ϕ C - 106

TEST ENGINEER Phil Joyner

DATE October 5, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16600-80

L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8A, 4000A)

Substation: C

Ground Fault 0(0.2X, 120)A Time #2(0.20 Sec)

Feeder Name P.W. Building (C-5)

S.D. Setting #3(6X, 3600A) Time #2(0.33 Sec)

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

Primary Fingers
Control Fingers
Arc Chutes
Barriers
Main Contacts
Condition
Pressure
Alignment
Arc Contacts

AS FOUND	AS LEFT
N	N
N	N
N	N
N	N
C	N
N	N
N	N
N	N
N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

AS FOUND	AS LEFT
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: 1. Moveable contact assembly pivot joints are loose on Phases A and B. Corrected.

ELECTRICAL

AS FOUND

AS LEFT

Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)		600	600	600
L.D. @ <u>300</u> %	1800	43	40	39
S.D. @ <u>150</u> %	5400	0.35	0.28	0.35
INST. TRIP (Amps)	4800	-	4800	4800
GROUND FAULT @ 150%	180	0.73	0.69	0.67

Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)		600	600	600
L.D. @ <u>300</u> %	1800	43	40	39
S.D. @ <u>150</u> %	5400	0.35	0.28	0.35
INST. TRIP (Amps)	4800	-	4800	4800
GROUND FAULT @ 150%	180	0.73	0.69	0.67

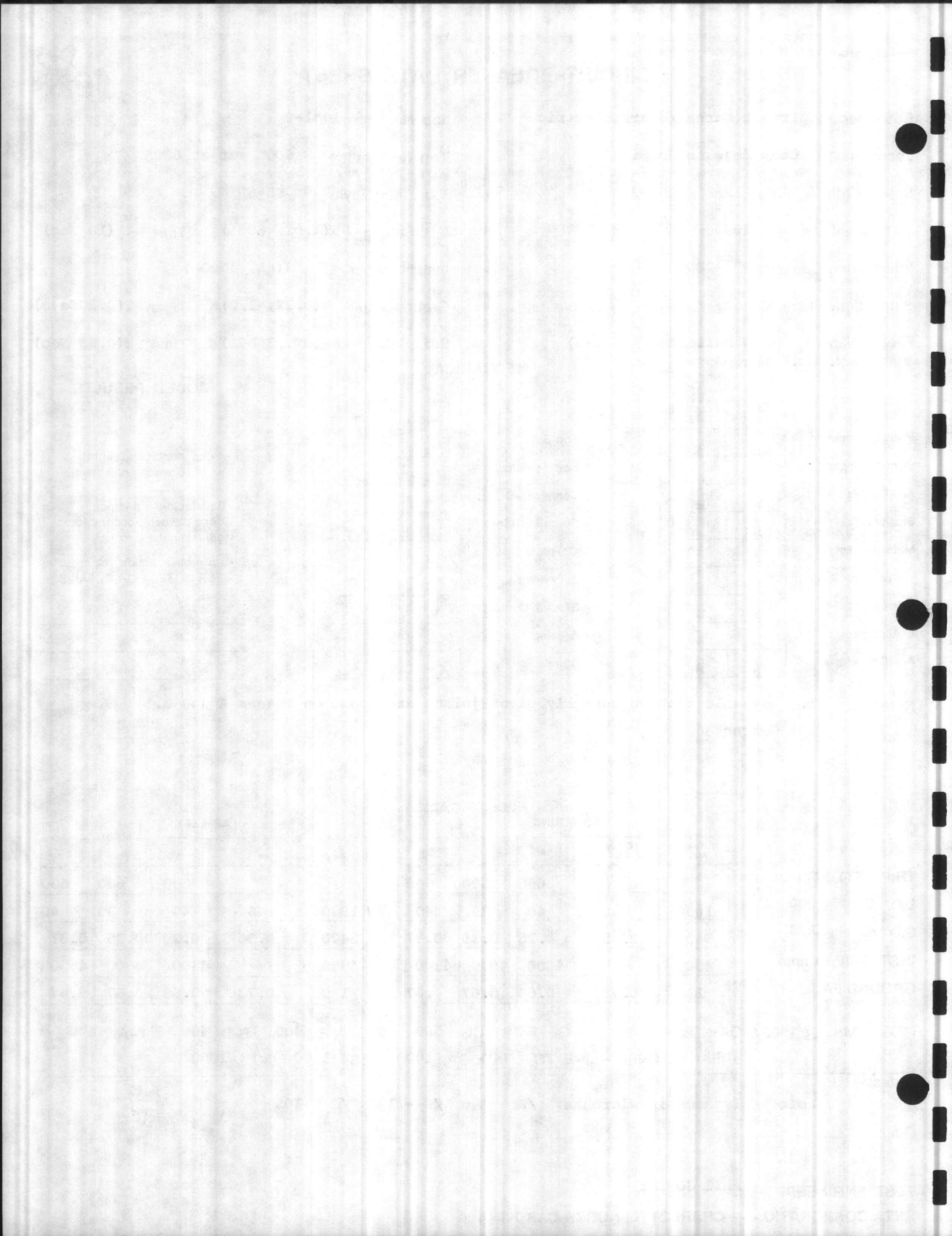
MEGOHMS (@ 1000V) ϕ -GND: A-G 900 B-G 800 CG 800 ϕ - ϕ : A-B 400 B-C 400 C-A 400

BREAKER OPEN—LINE TO LOAD: ϕ A 1000 ϕ B 1000 ϕ C 1000

Notes: Pole Resistance in Microhms: ϕ A - 106 ϕ B - 126 ϕ C - 105

TEST ENGINEER Phil Joyner

DATE October 5, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 1000A set at 1000A

Breaker Mfg. & Type FPE 50HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16597-80

L.D. Setting #3(1.0X, 1000A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 8000A)

Substation: C

Ground Fault 0(0.2X, 200A) Time #2 (0.20 Sec)

Feeder Name Chiller Room 2 (C-7)

S.D. Setting #3(6X, 6000A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL2000

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: _____

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			1000	1000	1000
L.D. @ 300 %	3000	43	36	35	35
S.D. @ 150 %	9000	0.35	0.37	0.32	0.30
INST. TRIP (Amps)	8000	-	8000	8000	8000
GROUND FAULT @ 150%	300	0.73	0.73	0.71	0.73

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			1000	1000	1000
L.D. @ 300 %	3000	43	36	35	35
S.D. @ 150 %	9000	0.35	0.37	0.32	0.30
INST. TRIP (Amps)	8000	-	8000	8000	8000
GROUND FAULT @ 150%	300	0.73	0.73	0.71	0.73

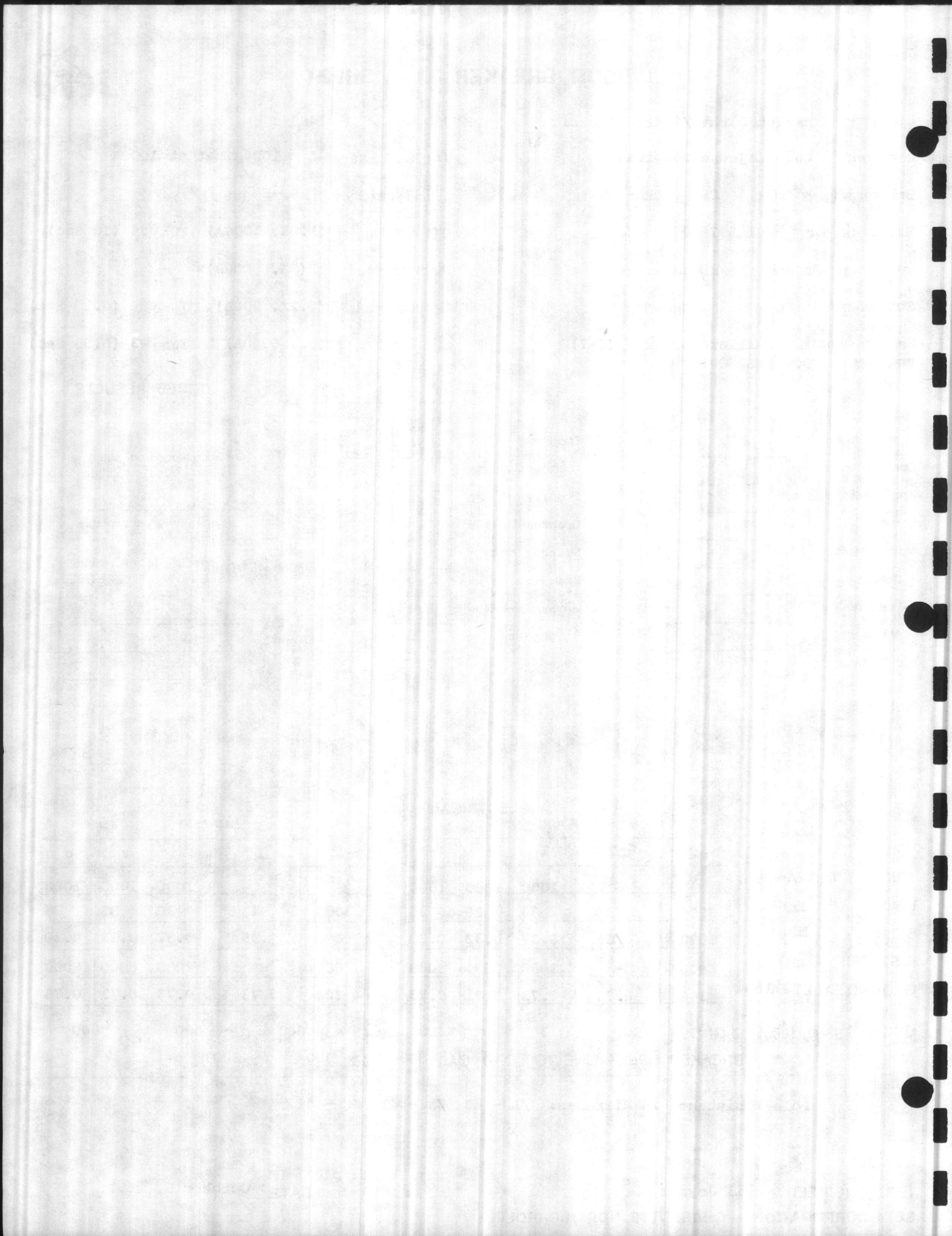
MEGOHMS (@ 1000V) ϕ -GND: A-G 300 B-G 300 CG 300 ϕ - ϕ : A-B 600 B-C 600 C-A 600

BREAKER OPEN—LINE TO LOAD: ϕ A 800 ϕ B 800 ϕ C 800

Notes: Pole Resistance in Microhms: ϕ A - 42 ϕ B - 41 ϕ C - 41

TEST ENGINEER Phil Joyner

DATE October 5, 1981





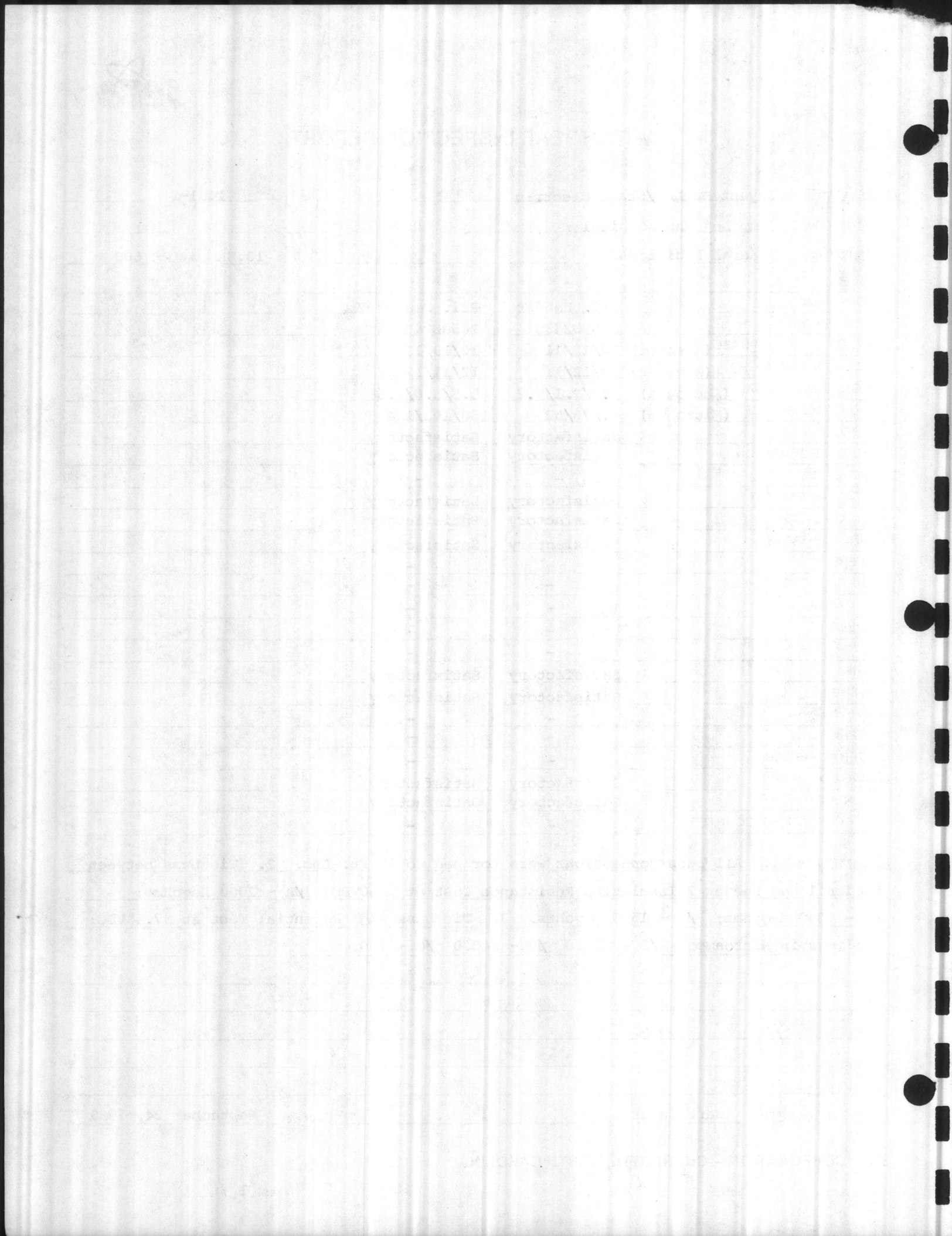
SWITCHGEAR INSPECTION REPORT

CUSTOMER: Bryant Durham/Starr Electric JOB NO: 1481-T
 LOCATION: Camp Lejeune Hospital SUBSTATION: D
 MFG/TYPE Federal Pacific/LI VOLTS 13.8K AMPS 600

FEEDER NAME	Pri. Feeder 1	Pri. Feeder 2		
S.O; OR SERIAL #	2658D2430	2658D2430		
MEGGER - PHASE TO PHASE (Megohms)	12/12/11	12/10/12		
MEGGER - PHASE TO GRD. (Megohms)	12/12/11	12/11/12		
MEGGER - LINE TO LOAD (Kmegohms)	4.3/2.1/3.2	5.5/5.0/3.6		
CONTACT RESISTANCE (Microhms)	87/76/52	58/102/124		
CONNECTIONS	Satisfactory	Satisfactory		
ENCLOSURE CONDITION	Satisfactory	Satisfactory		
ARC CHUTES	-	-		
CONTACT ALIGNMENT	Satisfactory	Satisfactory		
MAIN CONTACTS	Satisfactory	Satisfactory		
ARCING CONTACTS	Satisfactory	Satisfactory		
PUFFERS	-	-		
RELAYS FUNCTION CHECK	-	-		
MECHANISM	-	-		
HEATERS	-	-		
BUS INSULATION	-	-		
DOORS	Satisfactory	Satisfactory		
BUSHINGS	Satisfactory	Satisfactory		
POT-HEADS	-	-		
BATTERIES	-	-		
BATTERY CHARGER	-	-		
WIRING CONDITION	Satisfactory	Satisfactory		
GROUNDING	Satisfactory	Satisfactory		
NO. OF OPERATIONS (COUNTER)	-	-		

COMMENTS: 1. All buss connections were torqued to 37 Ft.-Lbs. 2. Tie buss between Feeder 1 and Feeder 2 Insulation Resistance Test at 5000VDC: ϕ A - 2000 Megohms; ϕ B - 4000 Megohms; ϕ C - 1500 Megohms. 3. Tie buss High Potential Test at 37.5KVDC: Readings in Microamps: ϕ A - 420.0 ϕ B - 140.0 ϕ C - 480.0

TEST ENGINEER: Mark Zagar DATE: September 24, 1981



TRANSFORMER INSPECTION REPORT



Customer: Bryant Durham/Starr Electric Job No.: 1481-T
 Location: Camp Lejeune Hospital Voltage: 12470-480Y/277
 Substation: D Rated Current: -
 Mfg. & Type: Westinghouse/RSL KVA: 2500
 Air Temp.: 20°C Impedance: 5.77%
 Coolant Oil Askarel Dry Other Phase: 3 ϕ 1 ϕ

TEST DATA

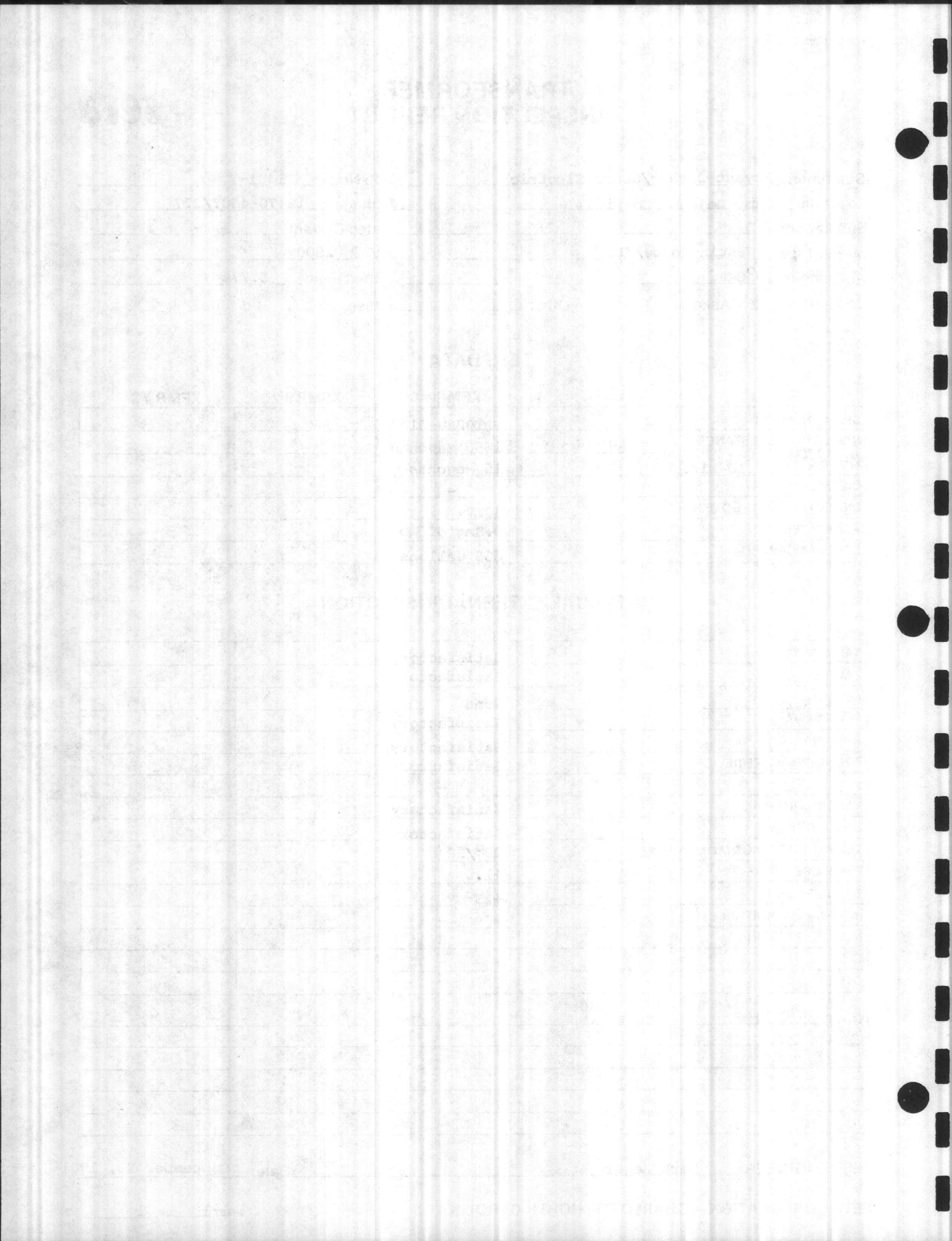
	XFMR #1	XFMR #2	XFMR #3
SERIAL NUMBER	PAT0228-0103		
INSULATION RESISTANCE @ 1000/ 2500 VOLTS TIME ON TEST: 10 Min.	HI - LO/GND	1650 Megohms	
	LO - HI/GND	15 Megohms	
DIELECTRIC TEST - TOP	-		
DIELECTRIC TEST - BOTTOM	40KV+		
ACIDITY TEST	0.3mg of KOH		
COOLANT CAPACITY	665 Gallons		

INTERNAL/EXTERNAL INSPECTION

TANK - EXTERNAL	Satisfactory		
PAINT	Satisfactory		
LEAKS	None		
PUMPS & VALVES	Satisfactory		
BUSHINGS	Satisfactory		
PRESSURE RELIEF DEVICE	Satisfactory		
VENTS	-		
FANS & CONTROLS	Satisfactory		
GROUNDING	Satisfactory		
TEMP. GAUGE ACTUAL/MAXIMUM	20°/20°		
PRESSURE GAUGE - P.S.I.	+1.0		
OIL LEVEL GAUGE	+25°		
INTERNAL CONDITION	-		
NLTC - TAP SETTING	3		
LTC	-		
OTHER	-		

Notes _____

TEST ENGINEER: Mark Zagar Date: September 23, 1981



TRANSFORMER TURNS RATIO TESTS



Customer: BRYANT DURHAM & STARR ELECTRIC Job No. 1481-T

Location: CAMP LEJEUNE HOSPITAL

TRANSFORMER: <u>SUB D</u>		VOLTAGE: <u>12470 - 480Y/277</u>		SERIAL NO: <u>PAT022B-0103</u>		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H ₁ H ₂ / X ₀ X ₂	H ₂ H ₃ / X ₀ X ₃	H ₃ H ₁ / X ₀ X ₁	
1	13095	47.253	47.293	47.290	47.288	
2	12780	46.116	46.193	46.090	46.089	
3	12470	44.997	45.093	44.991	44.989	
4	12160	43.874	43.893	43.890	43.888	
5	11850	42.760	42.793	42.790	42.788	

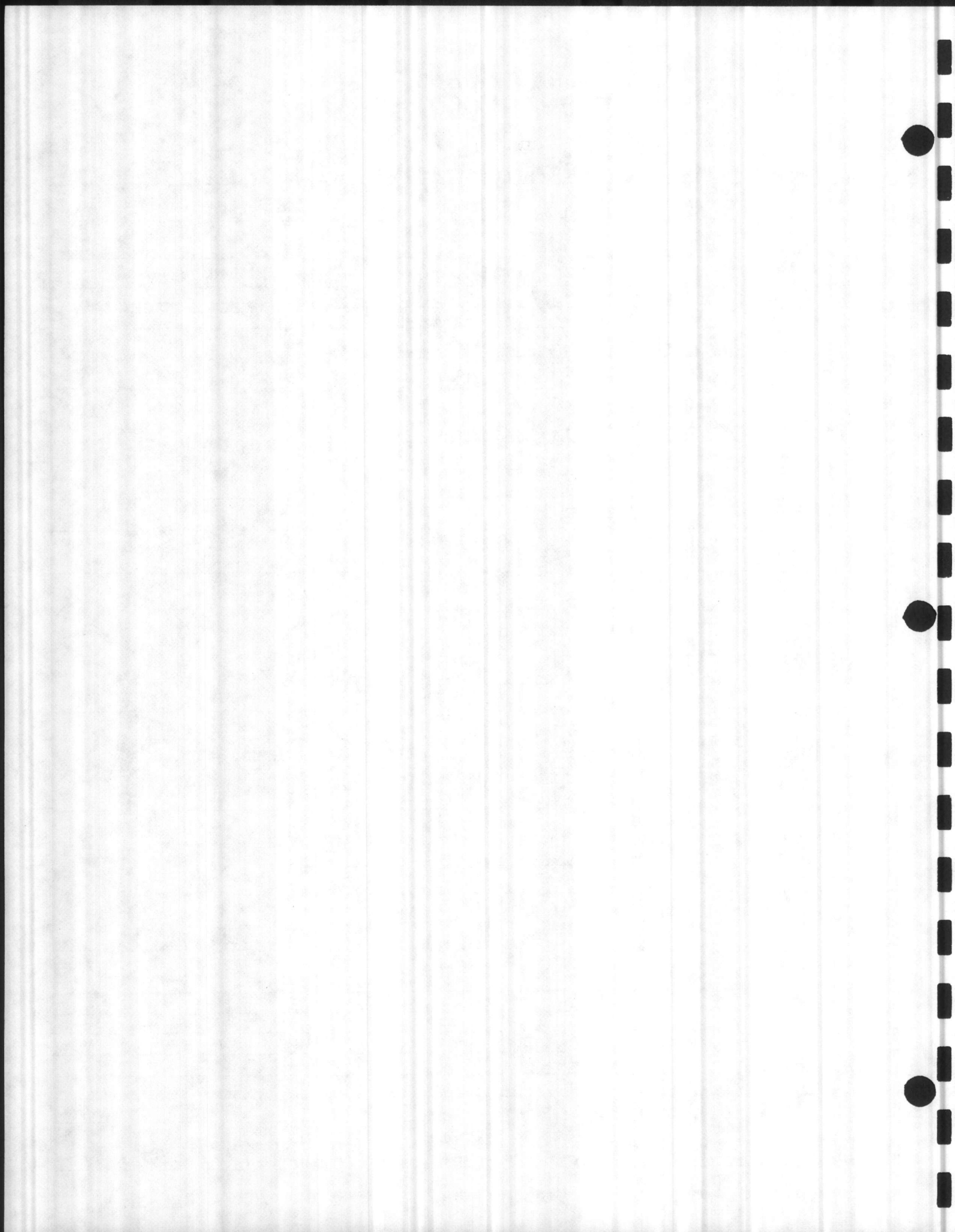
TRANSFORMER:		VOLTAGE:		SERIAL NO:		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H H / X X	H H / X X	H H / X X	
1						
2						
3						
4						
5						

TRANSFORMER:		VOLTAGE:		SERIAL NO:		
TAP	VOLTAGE	CALCULATED RATIO	MEASURED RATIO			VECTOR DIAGRAM
			H H / X X	H H / X X	H H / X X	
1						
2						
3						
4						
5						

Notes: _____

WITNESSED BY: Ernest M. Creech

TEST ENGINEER: Ernest M. Creech Date: 9-23-81





TRANSFORMER DIELECTRIC ABSORBTION TEST

SUBSTATION D

TRANSFORMER SERIAL NO. PAT0228-0103

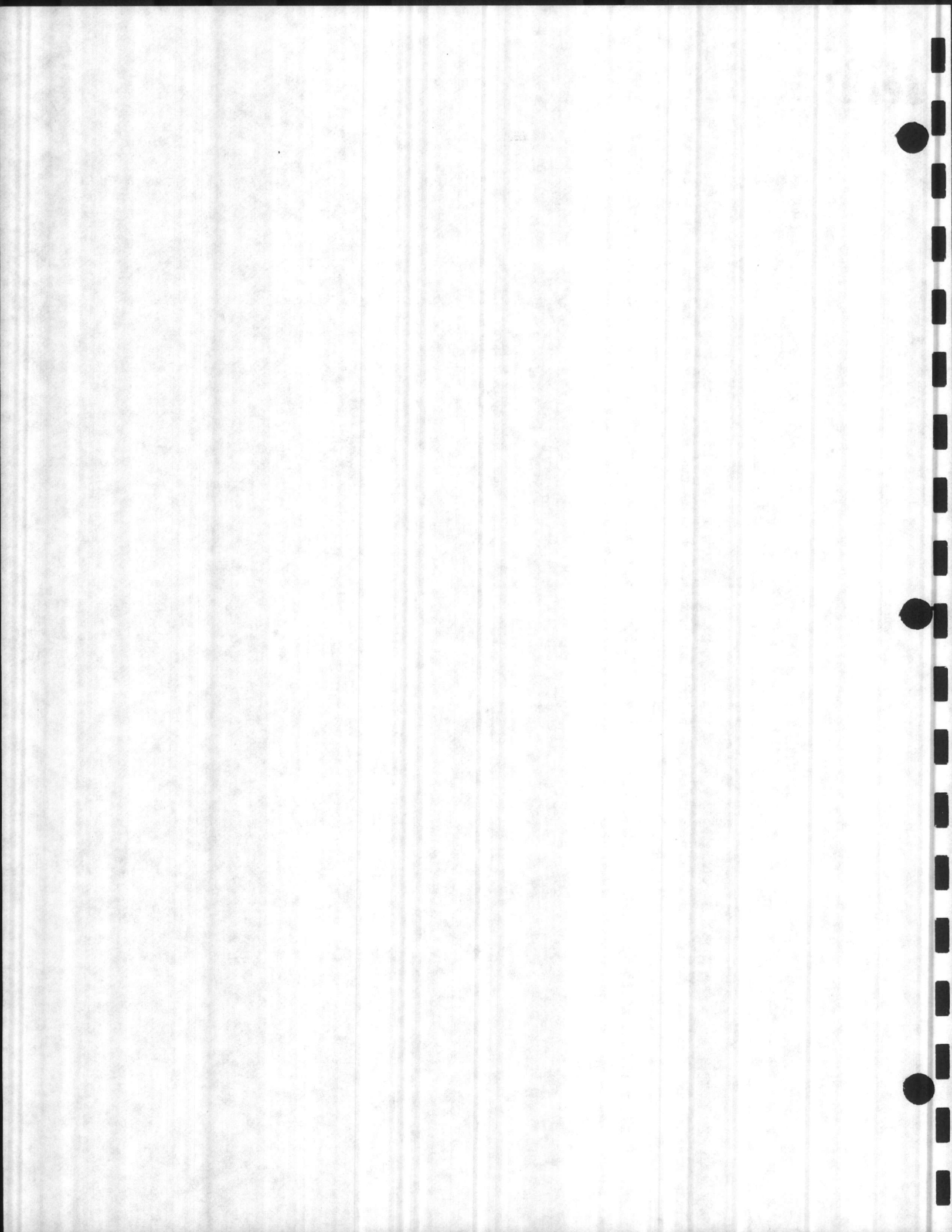
	<u>HI-LO/GROUND AT 5000KVDC</u>	<u>LO-HI/GROUND AT 1000</u>
1 Minute	1000 Megohms	15 Megohms
2 Minutes	1200 Megohms	15 Megohms
3 Minutes	1600 Megohms	15 Megohms
4 Minutes	1600 Megohms	15 Megohms
5 Minutes	1650 Megohms	15 Megohms
6 Minutes	1650 Megohms	15 Megohms
7 Minutes	1650 Megohms	15 Megohms
8 Minutes	1650 Megohms	15 Megohms
9 Minutes	1650 Megohms	15 Megohms
10 Minutes	1650 Megohms	15 Megohms

Test Conducted at 20^o C (Temperature Cor. Factor 1.00)

Polarization Index - 1.6

TEST ENGINEER: Mark Zagar

DATE: September 23, 1981





SUBSTATION D

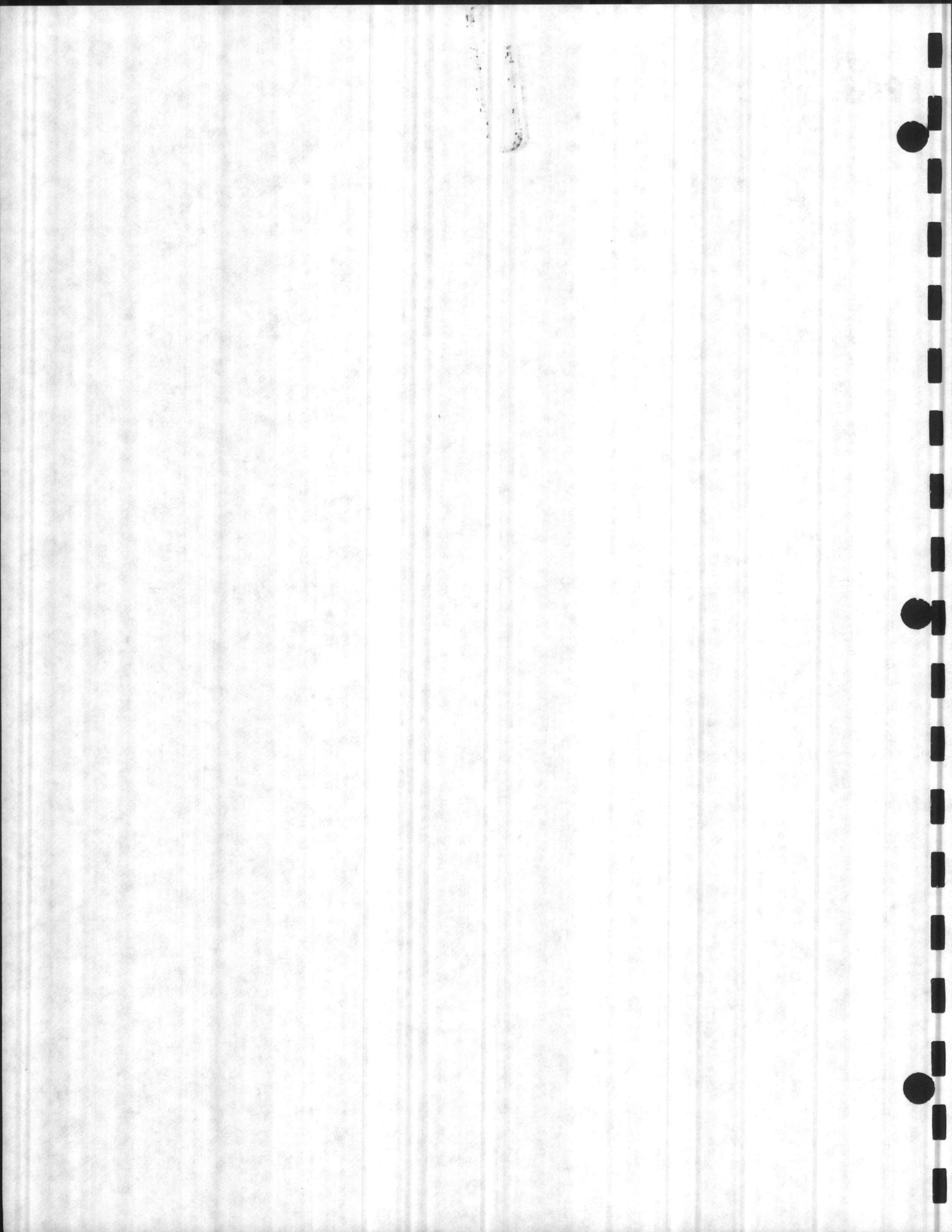
INSULATION RESISTANCE TEST
1000VDC TEMPERATURE 20°C

ϕ A - B = 20 Megohms
 ϕ B - C = 20 Megohms
 ϕ C - A = 30 Megohms

ϕ A - G = 16 Megohms
 ϕ B - G = 16 Megohms
 ϕ C - G = 18 Megohms

TEST ENGINEER: Mark Zagar

DATE: September 23, 1981





METER TEST REPORT

SUBSTATION D

AMMETER

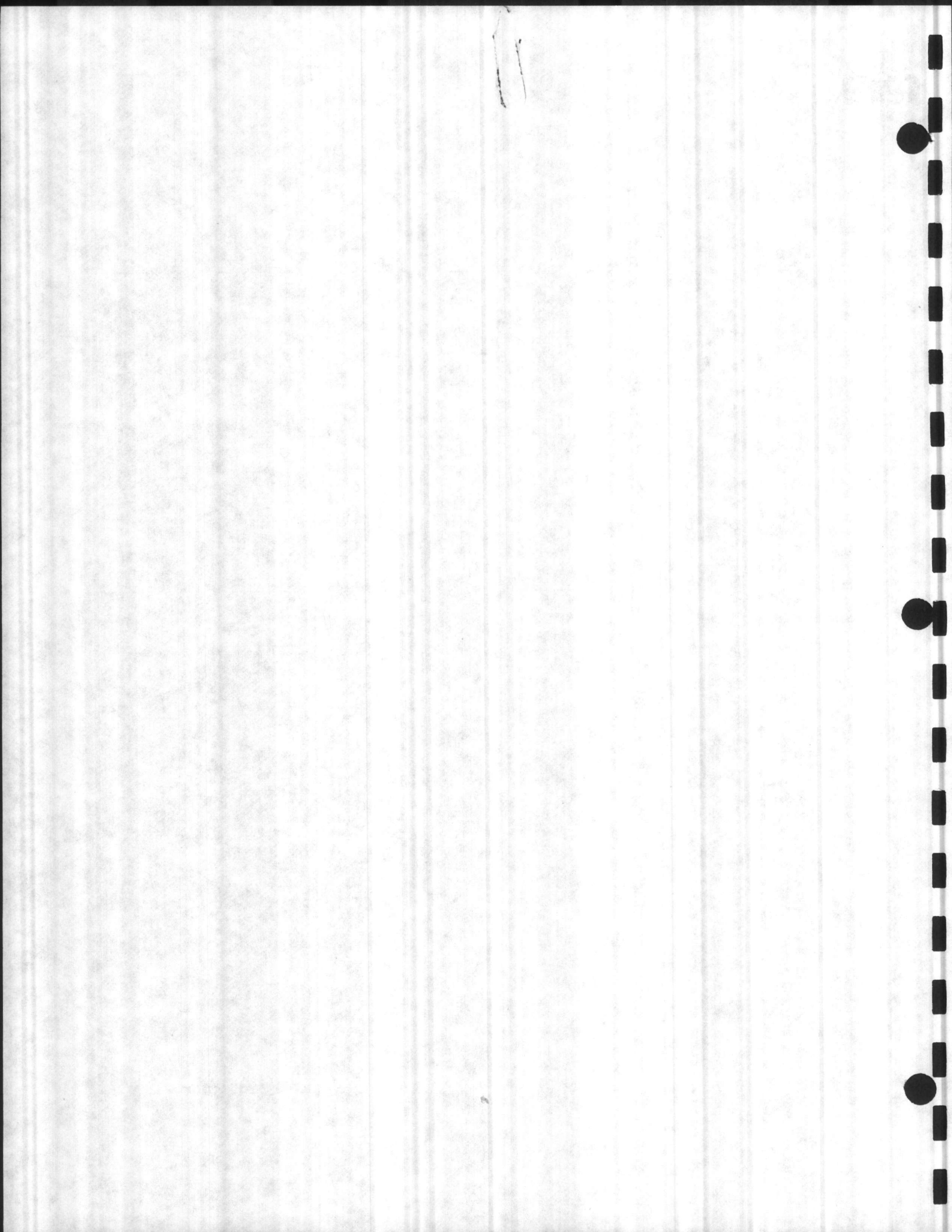
<u>FEEDER</u>	<u>FULL SCALE</u>	<u>SECONDARY</u>	<u>ACTUAL TEST CURRENT</u>	<u>ZERO SET</u>
DP2	600A	5A	5.15A	0
BMCC-5	600A	5A	4.95A	0
BMCC-6	600A	5A	5.00A	0
BMCC-2	600A	5A	5.05A	0
Spare	600A	5A	5.00A	0
Future	1000A	5A	4.95A	0
Chiller RM-1	1000A	5A	5.00A	0
Main	4000A	5A	4.90A	0

VOLTMETER

<u>FEEDER</u>	<u>FULL SCALE</u>	<u>SECONDARY</u>	<u>ACTUAL TEST VOLTAGE</u>	<u>ZERO SET</u>
Main	600V	150V	154V	0

TEST ENGINEER: Daniel Collins

DATE: September 23, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 4000A set at 4000A

Breaker Mfg. & Type FPE 100H-3

T.U. Type/Style SD-3

S.O./Serial No. BH20660-80

L.D. Setting #2(0.9X, 3600A) Time #2 (6 Sec)

Interrupting Capacity 100KA

Instantaneous #3(8X, 32,000A)

Substation: Main D

Ground Fault - Time -

Feeder Name Main

S.D. Setting #1(3X, 12,000A) Time #2(0.33 Sec)

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: Ground Fault Relay (GLR-1) is inoperative.
Red (electric) trip button is inoperative. WORKED 4/20/82

ELECTRICAL

AS FOUND

AS LEFT

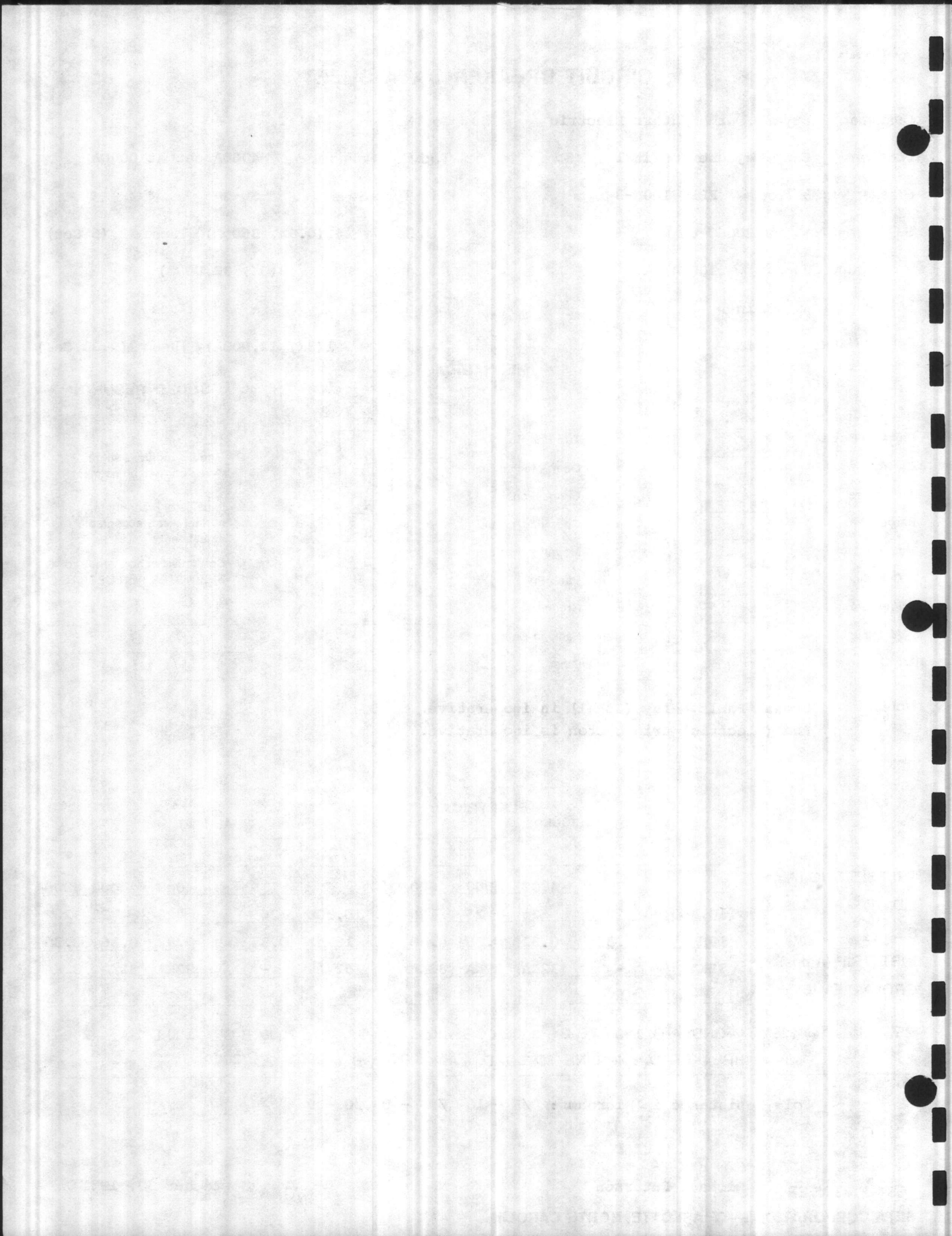
TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			4000	4000	4000
L.D. @ 300 %	10,800	26	25	25	25
S.D. @ 150 %	18KA	0.35	0.32	0.36	0.36
INST. TRIP (Amps)	32KA	-	32KA	32KA	32KA
GROUND FAULT					

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			4000	4000	4000
L.D. @ 300 %	10,800	26	25	25	25
S.D. @ 150 %	18KA	0.35	0.32	0.36	0.36
INST. TRIP (Amps)	32KA	-	32KA	32KA	32KA
GROUND FAULT					

MEGOHMS (@ 1000V) ϕ -GND: A-G 1000 B-G 2000 CG 2000 ϕ - ϕ : A-B 2000 B-C 1000 C-A 2000
 BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 2000 ϕ C 2000

Notes: Pole Resistance in Microhms: ϕ A - 10 ϕ B - 9 ϕ C - 9

TEST ENGINEER Michael Petersen DATE September 30, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16583-80

L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(BX, 4800A)

Substation: D

Ground Fault 0(0.2X, 120A) Time #2(0.20 Sec)

Feeder Name DP-2 (D-1)

S.D. Setting #3(6X, 3600A) Time #2(0.33 Sec)

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes:

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300%	1800	43	35	36	37
S.D. @ 150%	5400	0.35	0.36	0.37	0.28
INST. TRIP (Amps)	4800	-	4800	4700	4800
GROUND FAULT @ 150%	180	0.73	0.76	0.77	0.77

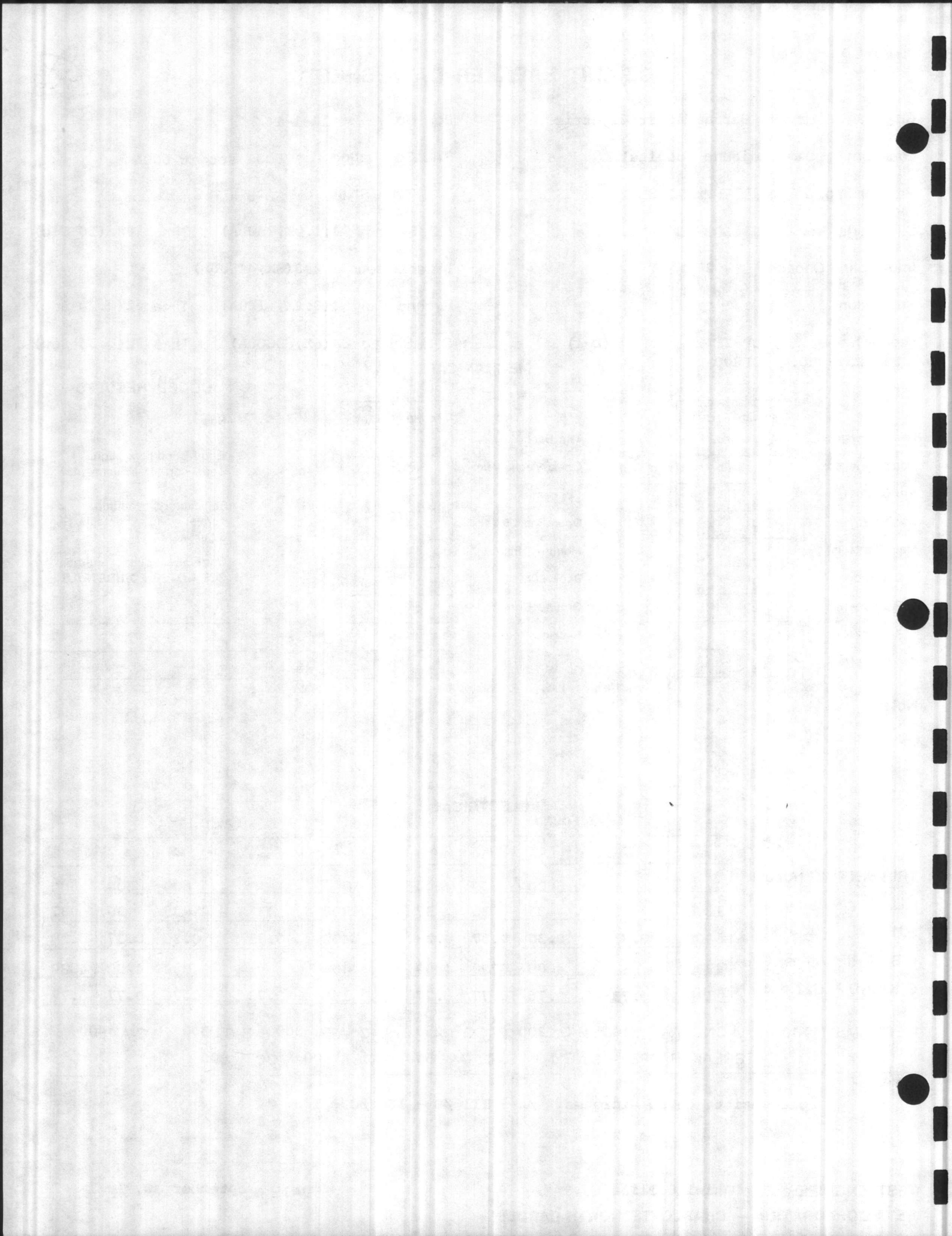
	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300%	1800	43	35	36	37
S.D. @ 150%	5400	0.35	0.36	0.37	0.28
INST. TRIP (Amps)	4800	-	4800	4700	4800
GROUND FAULT @ 150%	180	0.73	0.76	0.77	0.77

MEGOHMS (@ 1000V) ϕ -GND: A-G 300 B-G 300 CG 250 ϕ - ϕ : A-B 300 B-C 300 C-A 400

BREAKER OPEN—LINE TO LOAD: ϕ A 500 ϕ B 800 ϕ C 800

Notes: Pole Resistance in Microhms: ϕ A - 111 ϕ B - 128 ϕ C - 140

TEST ENGINEER Daniel Collins DATE September 30, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16596-80

L.D. Setting #3(1.0X, 400A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 3200A)

Substation: D

Ground Fault 0(0.2X, 80A) Time #2 (0.20 Sec)

Feeder Name BMCC5 (D-2)

S.D. Setting #3(6X, 2400A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: _____

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			400	400	400
L.D. @ 300%	1200	43	35	35	35
S.D. @ 150%	3600	0.35	0.33	0.34	0.36
INST. TRIP (Amps)	3200	-	3200	3200	3000
GROUND FAULT @ 150%	120	0.73	0.74	0.76	0.76

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			400	400	400
L.D. @ 300%	1200	43	35	35	35
S.D. @ 150%	3600	0.35	0.33	0.34	0.36
INST. TRIP (Amps)	3200	-	3200	3200	3000
GROUND FAULT @ 150%	120	0.73	0.74	0.76	0.76

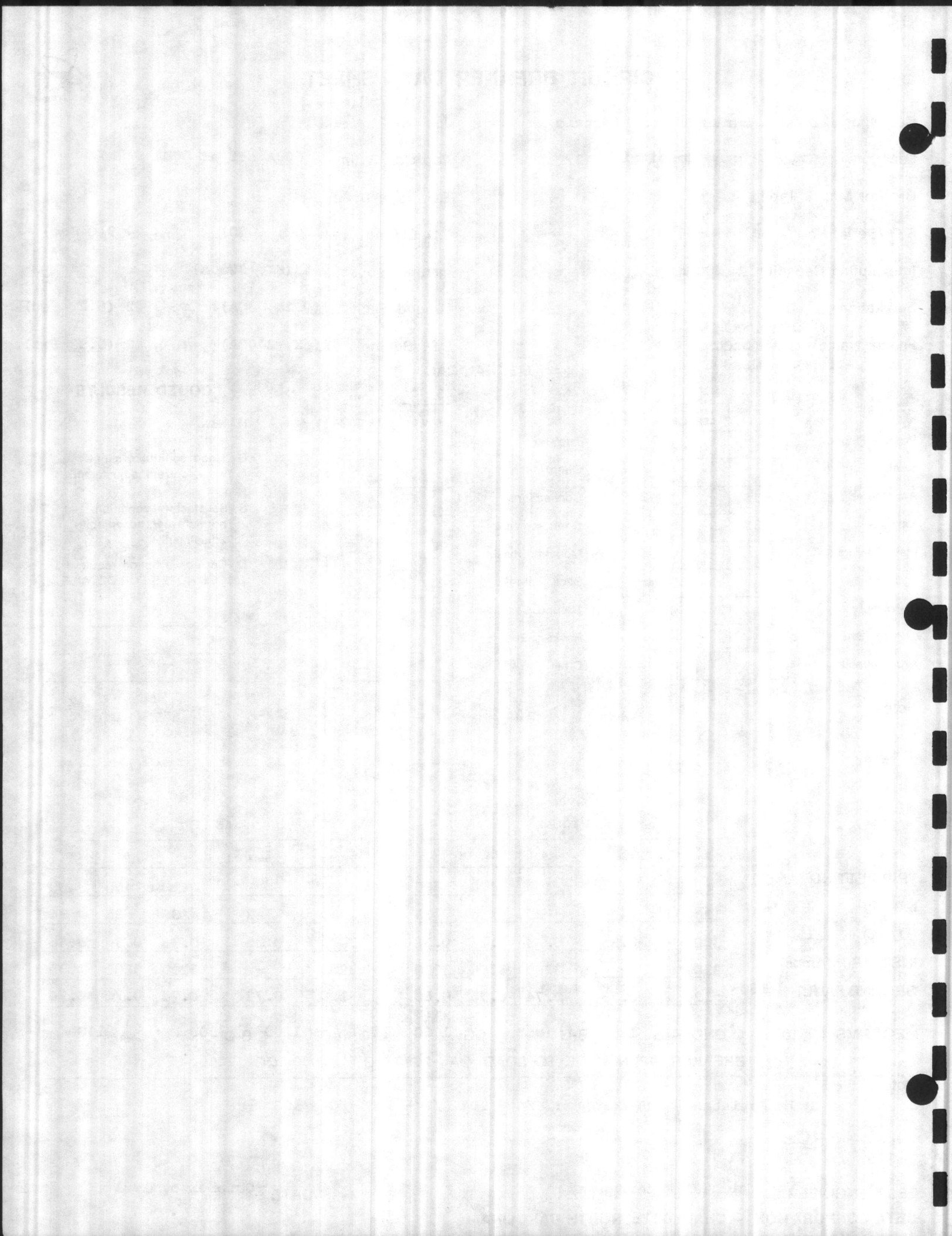
MEGOHMS (@ 1000V) ϕ -GND: A-G 1000 B-G 1000 CG 1000 ϕ - ϕ : A-B 1200 B-C 900 C-A 1100

BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 2000 ϕ C 2000

Notes: Pole Resistance in Microhms: ϕ A - 108 ϕ B - 103 ϕ C - 115

TEST ENGINEER Michael Petersen

DATE October 5, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 400A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16610-80

L.D. Setting #3(1.0X, 400A) Time#4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 3200A)

Substation: D

Ground Fault 0(0.2X, 80A) Time#2 (0.20 Sec)

Feeder Name BMCC-2 (D-4)

S.D. Setting #3(6X, 2400A) Time#2 (0.33 Sec)

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes:

.....

.....

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			400	400	400
L.D. @ 300 %	1200	43	40	41	42
S.D. @ 150 %	3600	0.35	0.32	0.32	0.32
INST. TRIP (Amps)	3200	-	3200	3200	3200
GROUND FAULT @ 150%	120	0.73	0.77	0.78	0.78

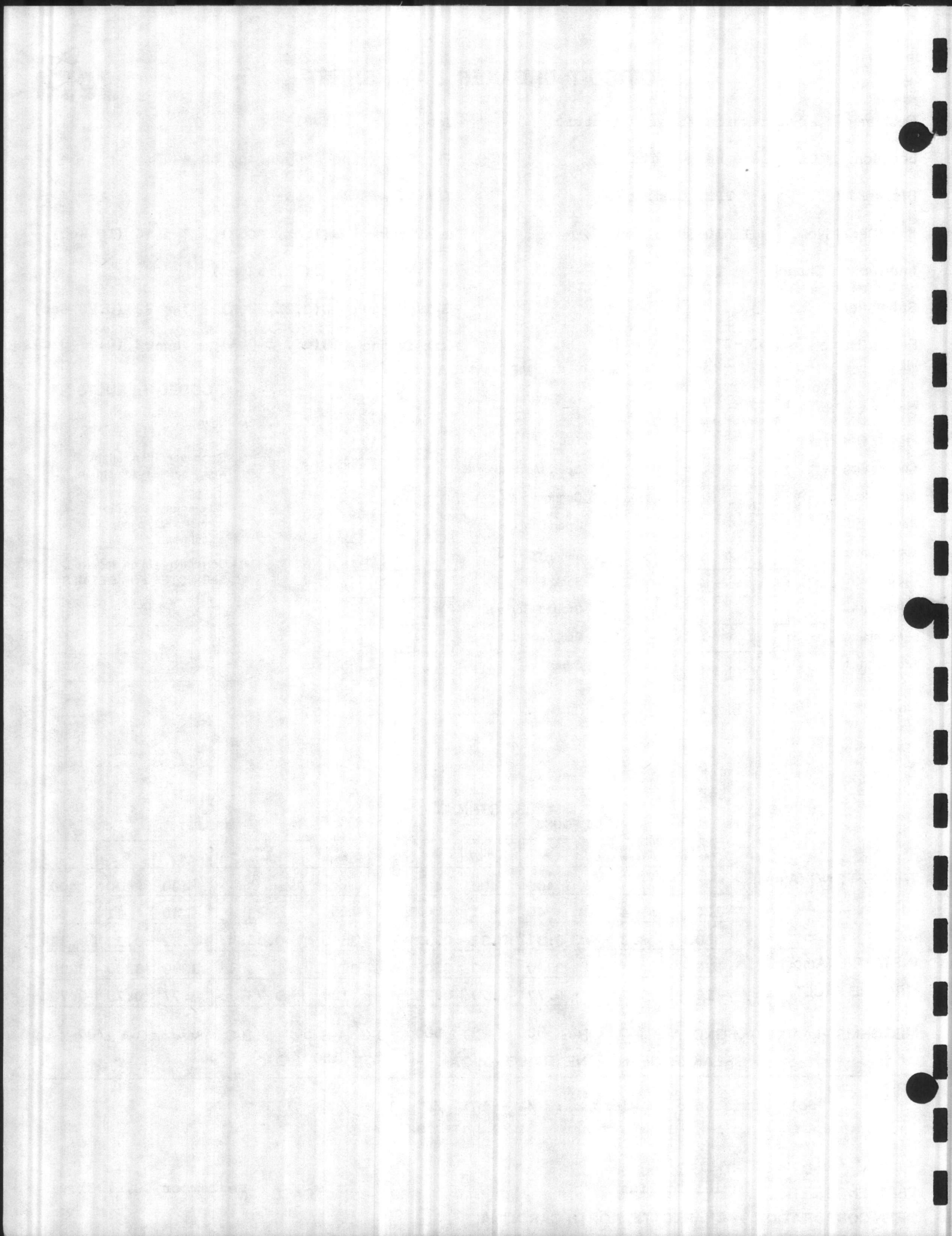
	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			400	400	400
L.D. @ 300 %	1200	43	40	41	42
S.D. @ 150 %	3600	0.35	0.32	0.32	0.32
INST. TRIP (Amps)	3200	-	3200	3200	3200
GROUND FAULT @ 150%	120	0.73	0.77	0.78	0.78

MEGOHMS (@ 1000V) ϕ -GND: A-G 400 B-G 500 CG 500 ϕ - ϕ : A-B 500 B-C 600 C-A 700

BREAKER OPEN—LINE TO LOAD: ϕ A 1500 ϕ B 1500 ϕ C 1500

Notes: Pole Resistance in Microhms: ϕ A - 107 ϕ B - 101 ϕ C - 115

TEST ENGINEER Daniel Collins DATE September 30, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 30HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16586-80

L.D. Setting #3 (1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3 (8X, 4800A)

Substation: D

Ground Fault 0 (0.2X, 120A) Time #2 (0.20 Sec)

Feeder Name Unidentified (D-5)

S.D. Setting #3 (6X, 3600A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL800

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: _____

ELECTRICAL

AS FOUND

AS LEFT

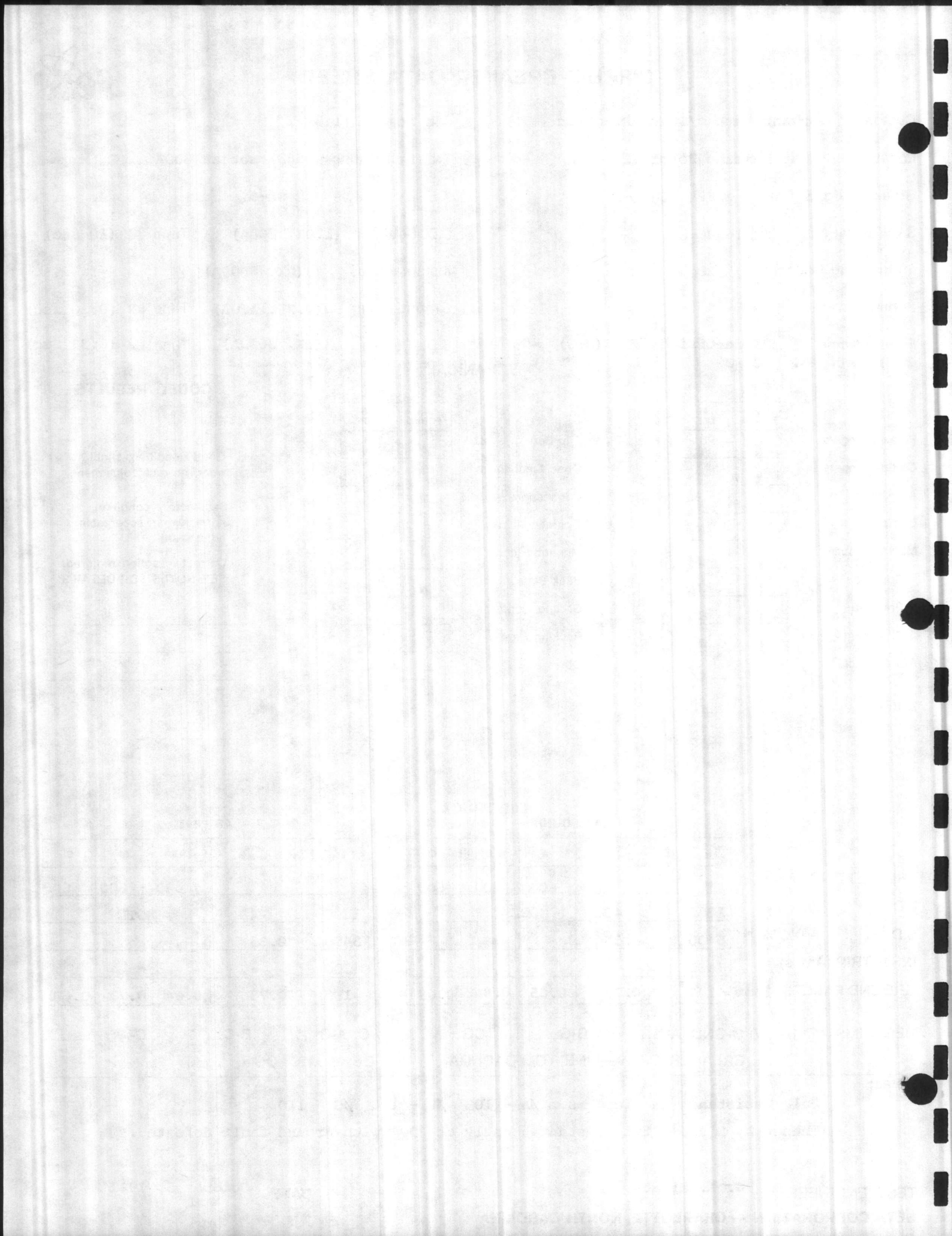
	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300%	1800	43	NOTE		
S.D. @ 150%	5400	0.35			
INST. TRIP (Amps)	4800	-			
GROUND FAULT @ 150%	180	0.73	0.64	0.78	0.68

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300%	1800	43	NOTE		
S.D. @ 150%	5400	0.35			
INST. TRIP (Amps)	4800	-			
GROUND FAULT @ 150%	180	0.73	0.64	0.78	0.68

MEGOHMS (@ 1000V) ϕ -GND: A-G B-G CG ϕ - ϕ : A-B B-C C-A
BREAKER OPEN—LINE TO LOAD: ϕ A ϕ B ϕ C

Notes: Pole Resistance in Microhms: ϕ A - 108 ϕ B - 110 ϕ C - 110
Phases A, B and C trip instantaneously at 200A with ground fault defeated.

TEST ENGINEER G. K. Treat DATE October 5, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type: FPE 50HL-2
 S.O./Serial No.: BH16599-80
 Interrupting Capacity: 200KA
 Substation: D
 Feeder Name: Chiller Rm 1
 FUSE CAT. NO.: LCL2000

Job No.: 1481-T
 Trip Coil Rating: 1000A set at 1000A
 T.U. Type/Style: SD-6
 L.D. Setting: #3(1.0X, 1600A) Time #4 (10 Sec)
 Instantaneous: #3(8X, 8000A)
 Ground Fault: 0(0.2X, 200A) Time #2 (0.20 Sec)
 S.D. Setting: #3(6X, 6000A) Time #2 (0.33 Sec)

MECHANICAL

CODED RESULTS

Primary Fingers
 Control Fingers
 Arc Chutes
 Barriers
 Main Contacts
 Condition
 Pressure
 Alignment
 Arc Contacts

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes:

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)
 L.D. @ 300 %
 S.D. @ 150 %
 INST. TRIP (Amps)
 GROUND FAULT @ 150 %

Test Amps	Curve Secs.	A	B	C
		1000	1000	1000
3000	43	41	40	40
9000	0.35	0.34	0.31	0.37
8000	-	8000	8000	8000
300	0.73	0.62	0.62	0.63

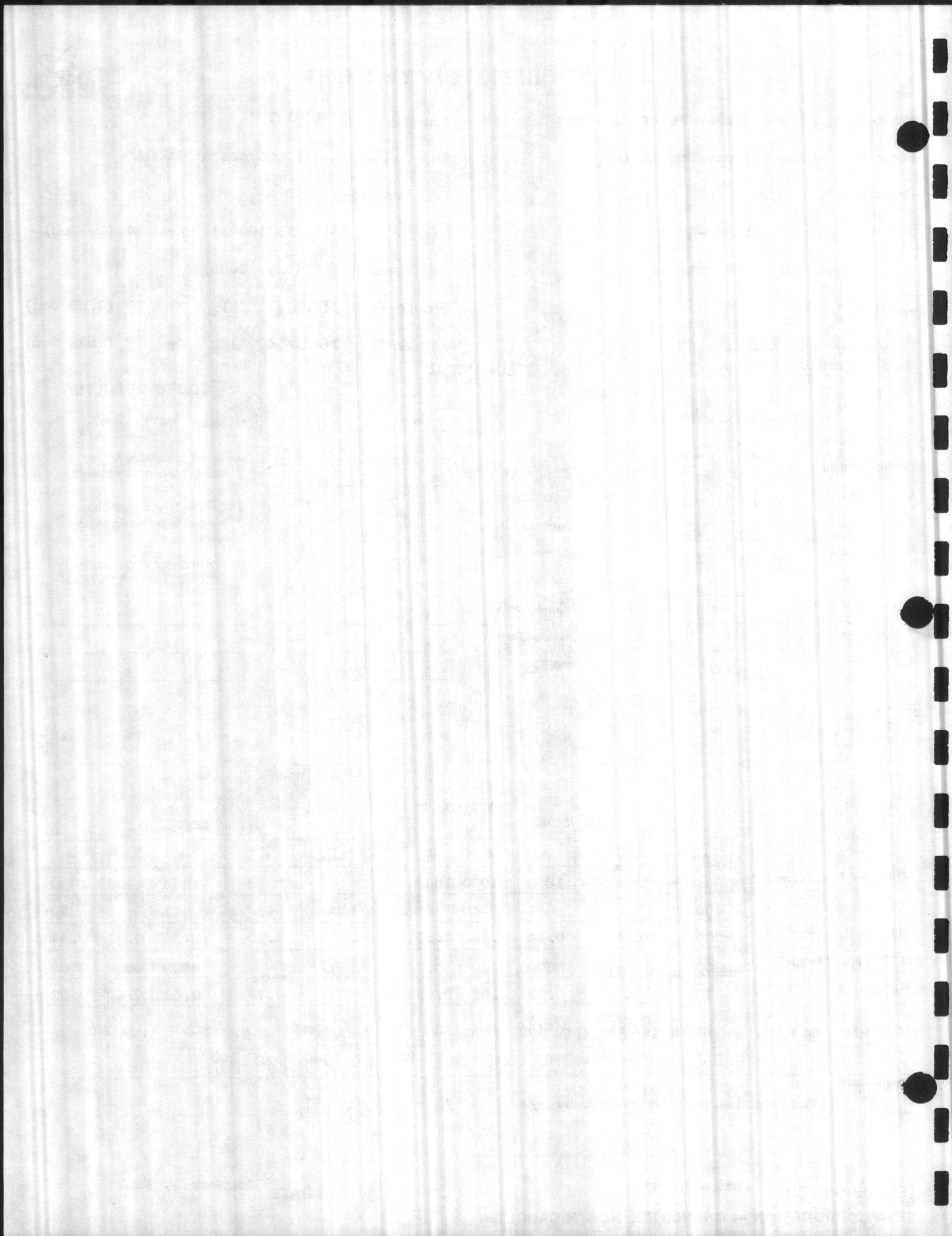
Test Amps	Curve Secs.	A	B	C
		1000	1000	1000
3000	43	41	40	40
9000	0.35	0.34	0.31	0.37
8000	-	8000	8000	8000
300	0.73	0.62	0.62	0.63

MEGOHMS (@ 1000V) ϕ -GND: A-G 400 B-G 400 CG 300 ϕ - ϕ : A-B 800 B-C 800 C-A 800
 BREAKER OPEN—LINE TO LOAD: ϕ A 1000 ϕ B 1000 ϕ C 1000

Notes: Pole Resistance in Microhms: ϕ A - 58 ϕ B - 40 ϕ C - 41

TEST ENGINEER Phil Joyner

DATE October 5, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 1000A set at 1000A

Breaker Mfg. & Type FPE 50HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH16598-80

L.D. Setting #3(1.0X, 1000A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 8000A)

Substation: D

Ground Fault 0(0.2X, 200A) Time #2 (0.20 Sec)

Feeder Name Future (D-7)

S.D. Setting #3(6X, 6000A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL2000

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: _____

ELECTRICAL

AS FOUND

AS LEFT

Test Amps	Curve Secs.	A	B	C
		1000	1000	1000
TRIP SETTING (Amps)				
L.D. @ 300 %	3000	43	40	41
S.D. @ 150 %	9000	0.35	0.27	0.29
INST. TRIP (Amps)	8000	-	8000	8000
GROUND FAULT @ 150%	300	0.73	0.65	0.62

Test Amps	Curve Secs.	A	B	C
		1000	1000	1000
TRIP SETTING (Amps)				
L.D. @ 300 %	3000	43	40	41
S.D. @ 150 %	9000	0.35	0.27	0.29
INST. TRIP (Amps)	8000	-	8000	8000
GROUND FAULT @ 150%	300	0.73	0.65	0.62

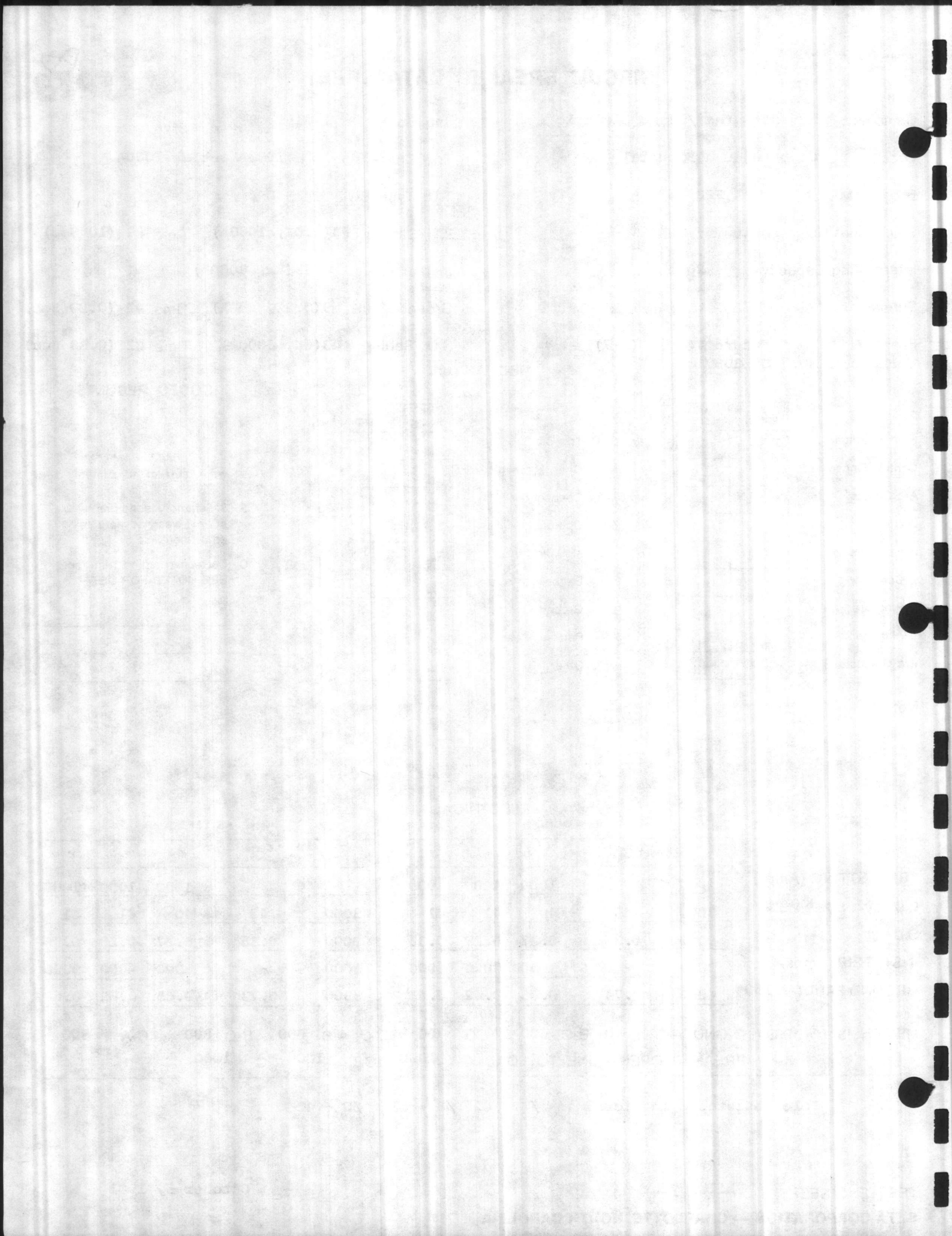
MEGOHMS (@ 1000V) ϕ -GND: A-G 600 B-G 600 CG 600 ϕ - ϕ : A-B 800 B-C 800 C-A 800

BREAKER OPEN—LINE TO LOAD: ϕ A 1000 ϕ B 1000 ϕ C 1000

Notes: Pole Resistance in Microhms: ϕ A - 42 ϕ B - 41 ϕ C - 42

TEST ENGINEER Phil Joyner

DATE October 5, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 2000A

Breaker Mfg. & Type FPE 65HL-2

T.U. Type/Style SD-3

S.O./Serial No. BH15509-79

L.D. Setting #3(1.0X, 2000A) Time #2 (6 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 16,000A)

Substation: Emergency Generator

Ground Fault - Time -

Feeder Name Generator No. 1

S.D. Setting #1(3X, 6000A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL2000

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	Note 1	C
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	Note 2	C
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

- Notes: 1. Loose connections on line side and load side fingers. Tightened same.
2. Corner broken off of red plastic top plate.
3. Breaker frame is 1/4" higher on left side.

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			2000	2000	2000
L.D. @ <u>300</u> %	6000	26	26	25	25
S.D. @ <u>150</u> %	9000	0.35	0.41	0.35	0.41
INST. TRIP (Amps)	16,000	-	16,000	16,000	16,000
GROUND FAULT					

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			2000	2000	2000
L.D. @ <u>300</u> %	6000	26	26	25	25
S.D. @ <u>150</u> %	9000	0.35	0.41	0.35	0.41
INST. TRIP (Amps)	16,000	-	16,000	16,000	16,000
GROUND FAULT					

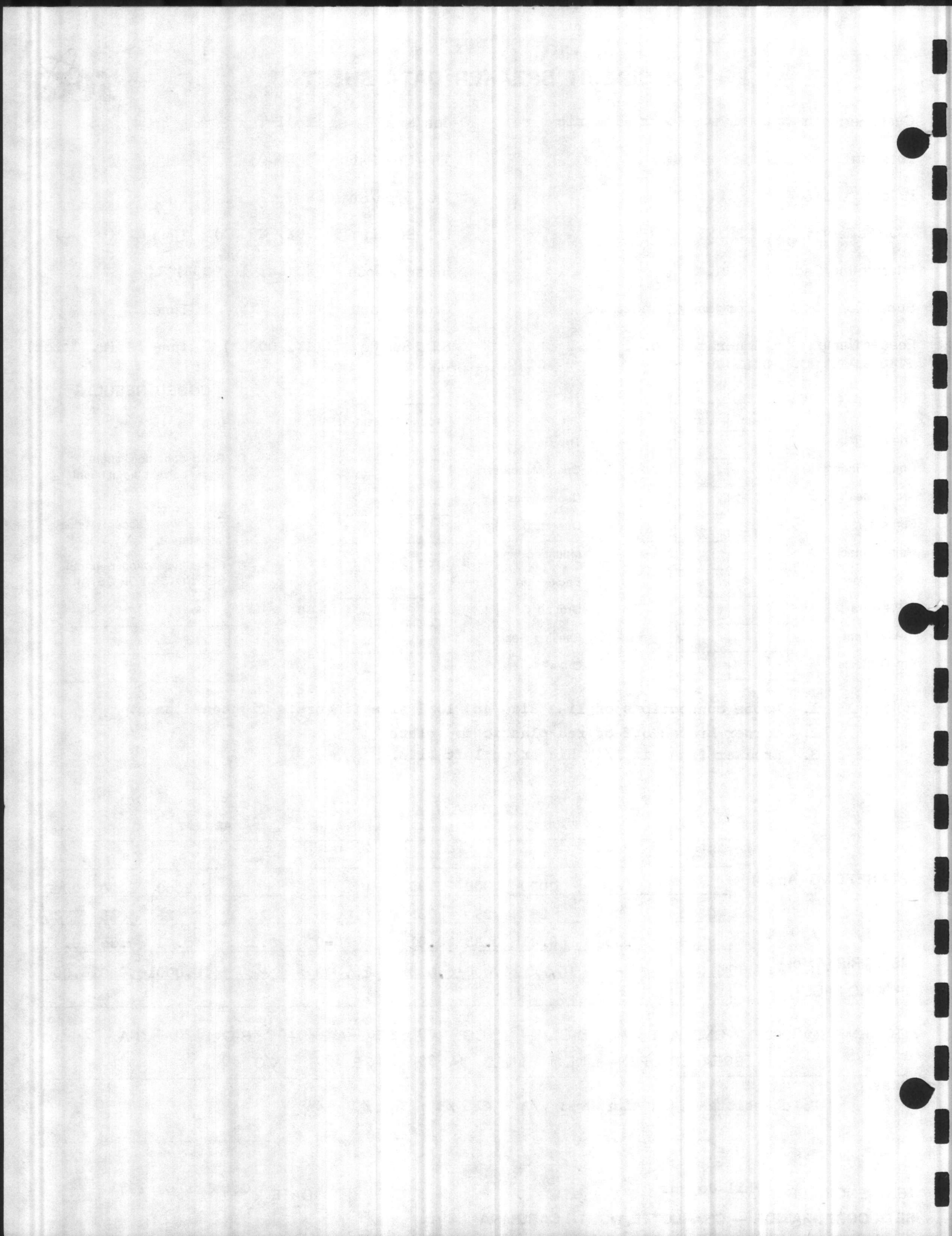
MEGOHMS (@ 1000V) ϕ -GND: A-G 80 B-G 80 CG 80 ϕ - ϕ : A-B 140 B-C 120 C-A 160

BREAKER OPEN—LINE TO LOAD: ϕ A 300 ϕ B 300 ϕ C 300

Notes: Pole Resistance in Microhms: ϕ A - 41 ϕ B - 38 ϕ C - 44

TEST ENGINEER Phil Joyner

DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 2000A

Breaker Mfg. & Type FPE 65HL-2

T.U. Type/Style SD-3

S.O./Serial No. BH15510-79

L.D. Setting #3(1.0X, 2000A) Time#2 (6 Sec)

Interrupting Capacity 200KA

Instantaneous #3(3X, 16000A)

Substation: Emergency Generator

Ground Fault - Time -

Feeder Name Generator No. 2

S.D. Setting #1(3X, 6000A) Time #2(0.33 Sec)

FUSE CAT. NO. LCL2000

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	NOTE 1	
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: 1. Two loose connections on Phase C load side fingers. Tightened connections.

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			2000	2000	2000
L.D. @ <u>300</u> %	6000	26	26	25	26
S.D. @ <u>150</u> %	9000	0.35	0.36	0.31	0.34
INST. TRIP (Amps)	16,000	-	16,000	16,000	16,000
GROUND FAULT					

	Test Amps	Curve Secs.	A	B	C
			2000	2000	2000
	6000	26	26	25	26
	9000	0.35	0.36	0.31	0.34
	16,000	-	16,000	16,000	16,000

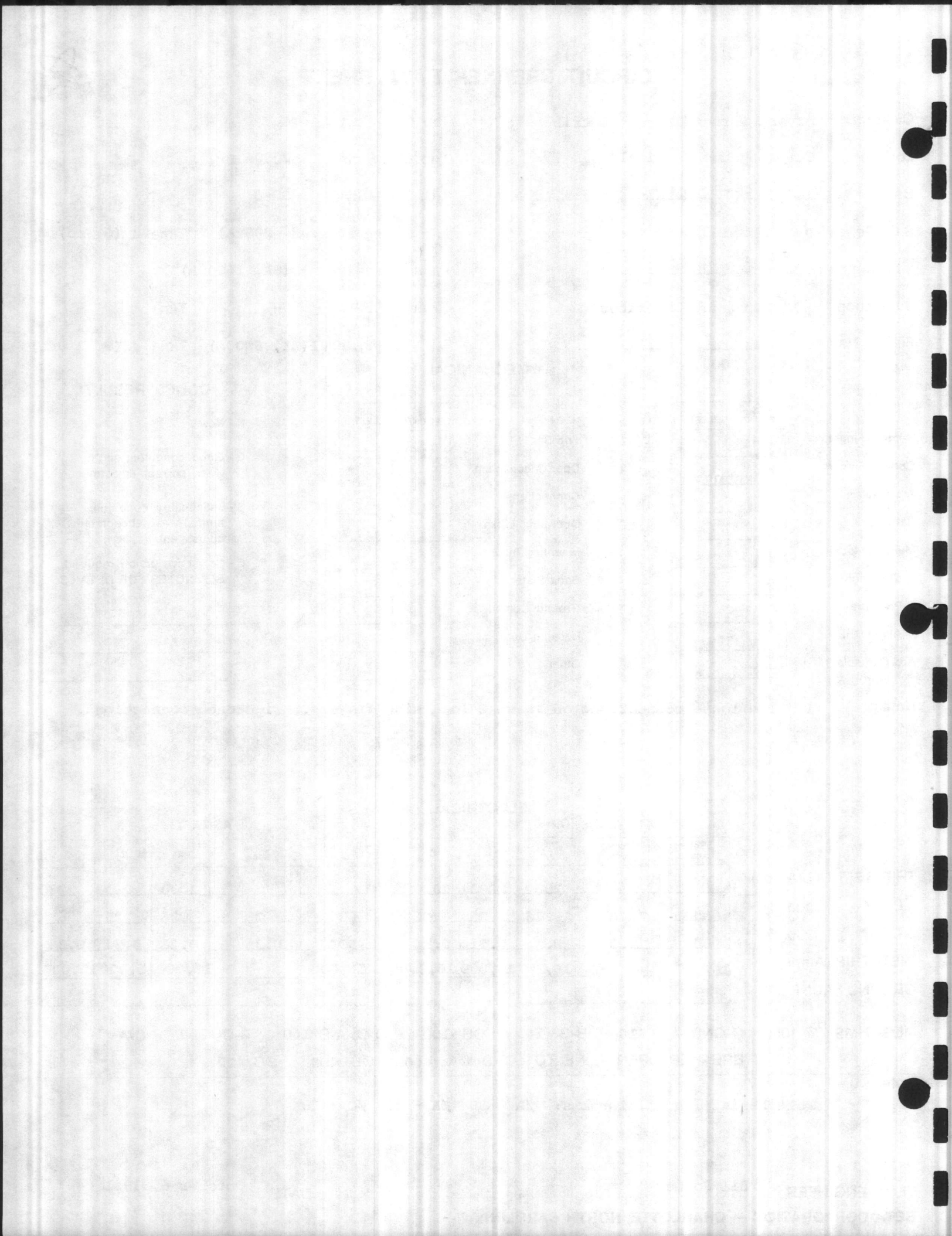
MEGOHMS (@ 1000V) ϕ -GND: A-G 100 B-G 100 CG 100 ϕ - ϕ : A-B 160 B-C 160 C-A 160

BREAKER OPEN—LINE TO LOAD: ϕ A 400 ϕ B 400 ϕ C 400

Notes: Pole Resistance in Microhms: ϕ A - 39 ϕ B - 37 ϕ C - 49

TEST ENGINEER Phil Joyner

DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 2000A

Breaker Mfg. & Type FPE 65HL-2

T.U. Type/Style SD-3

S.O./Serial No. BH15508-79

L.D. Setting #3(1.0X, 2000A) Time #2 (6 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 16,000A)

Substation: Emergency Generator

Ground Fault - Time -

Feeder Name Generator No. 3

S.D. Setting #1(3X, 6000A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL2000

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	<u>Note 2</u>	<u>C</u>
Control Fingers	<u>N</u>	<u>N</u>
Arc Chutes	<u>N</u>	<u>N</u>
Barriers	<u>N</u>	<u>N</u>
Main Contacts	<u>N</u>	<u>N</u>
Condition	<u>N</u>	<u>N</u>
Pressure	<u>N</u>	<u>N</u>
Alignment	<u>N</u>	<u>N</u>
Arc Contacts	<u>N</u>	<u>N</u>

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	<u>N</u>	<u>N</u>
Oper. Mechanism	<u>N</u>	<u>N</u>
Connections	<u>N</u>	<u>N</u>
Operating Links	<u>N</u>	<u>N</u>
Mounting Insul.	<u>Note 1</u>	<u>C</u>
Back Plate	<u>N</u>	<u>N</u>
Ground Contact	<u>N</u>	<u>N</u>
Racking Gear	<u>N</u>	<u>N</u>
Other	<u>-</u>	<u>-</u>

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: 1. Side insulators out of place. Placed in correct position.
2. Multiple loose connections on line and load side of breaker.

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			2000	2000	2000
L.D. @ 300%	6000	26	26	25	26
S.D. @ 150%	9000	0.35	0.39	0.38	0.40
INST. TRIP (Amps)	16,000	-	16,000	16,000	16,000
GROUND FAULT					

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			2000	2000	2000
L.D. @ 300%	6000	26	26	25	26
S.D. @ 150%	9000	0.35	0.39	0.38	0.40
INST. TRIP (Amps)	16,000	-	16,000	16,000	16,000
GROUND FAULT					

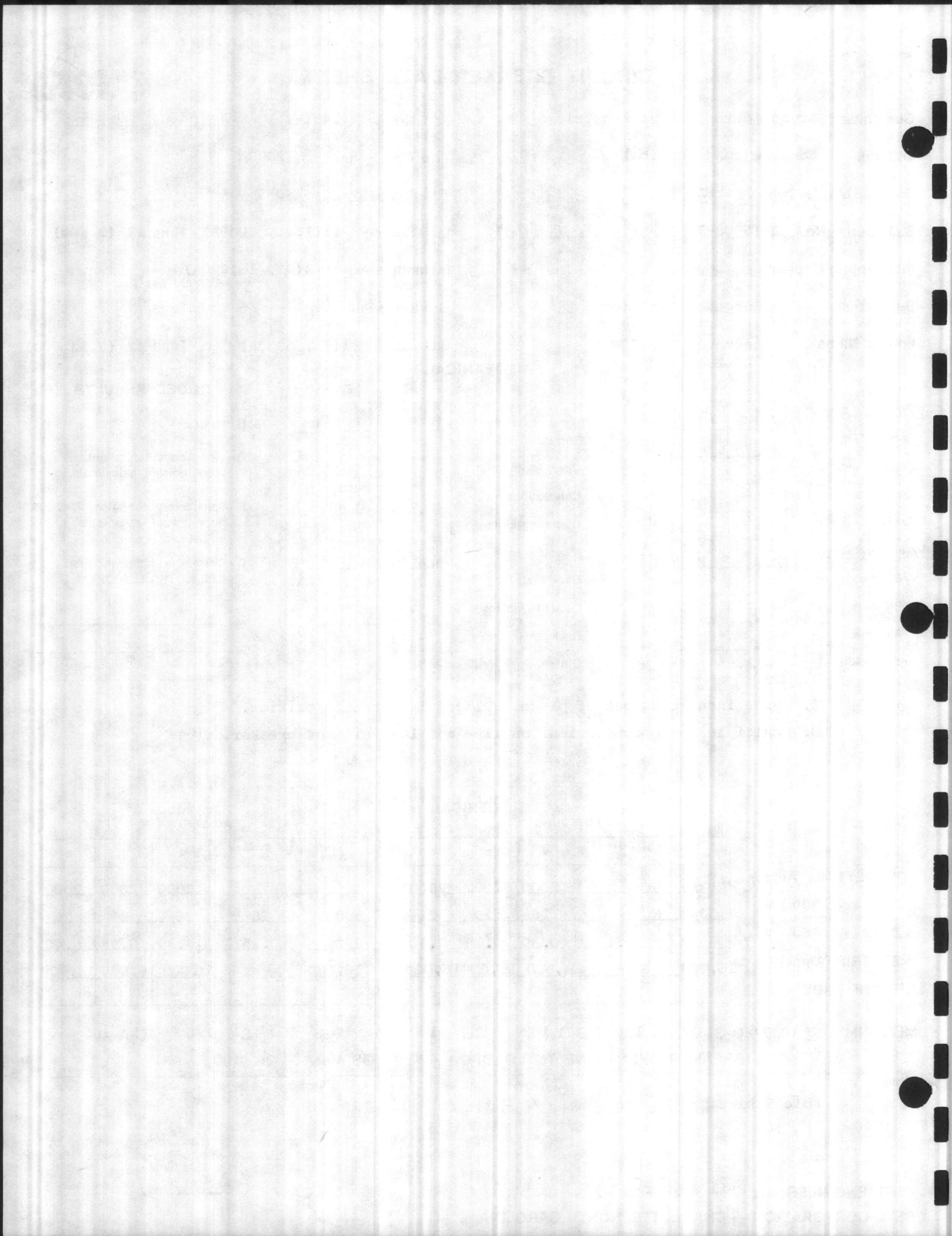
MEGOHMS (@ 1000V) ϕ -GND: A-G 100 B-G 100 CG 100 ϕ - ϕ : A-B 160 B-C 160 C-A 160

BREAKER OPEN—LINE TO LOAD: ϕ A 400 ϕ B 400 ϕ C 400

Notes: Pole Resistance in Microhms: ϕ A - 38 ϕ B - 38 ϕ C - 40

TEST ENGINEER Phil Joyner

DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1431-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 400A

Breaker Mfg. & Type FPE 25HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH15516-79

L.D. Setting #2 (0.9X, 360A) Time #4 (1.0 Sec)

Interrupting Capacity 200KA

Instantaneous #3 (8X, 3200A)

Substation: Emergency Generator

Ground Fault 0 (0.2X, 80A) Time #2 (0.2 Sec)

Feeder Name 10 (E-1)

S.D. Setting #3 (6X, 2400A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL601

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	NOTE 1	

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: 1. Charge indicator was stuck in "Charged" position. Adjusted same.

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			400	400	400
L.D. @ <u>300</u> %	1080	43	45	44	43
S.D. @ <u>150</u> %	3600	0.35	0.35	0.33	0.35
INST. TRIP (Amps)	3200		3100	3200	3000
GROUND FAULT @ 150%	120	0.73	0.74	0.74	0.76

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			400	400	400
L.D. @ <u>300</u> %	1080	43	45	44	43
S.D. @ <u>150</u> %	3600	0.35	0.35	0.33	0.35
INST. TRIP (Amps)	3200	-	3100	3200	3000
GROUND FAULT @ 150%	120	0.73	0.74	0.74	0.76

MEGOHMS (@ 1000V) ϕ -GND: A-G 200 B-G 200 CG 200 ϕ - ϕ : A-B 200 B-C 200 C-A 250

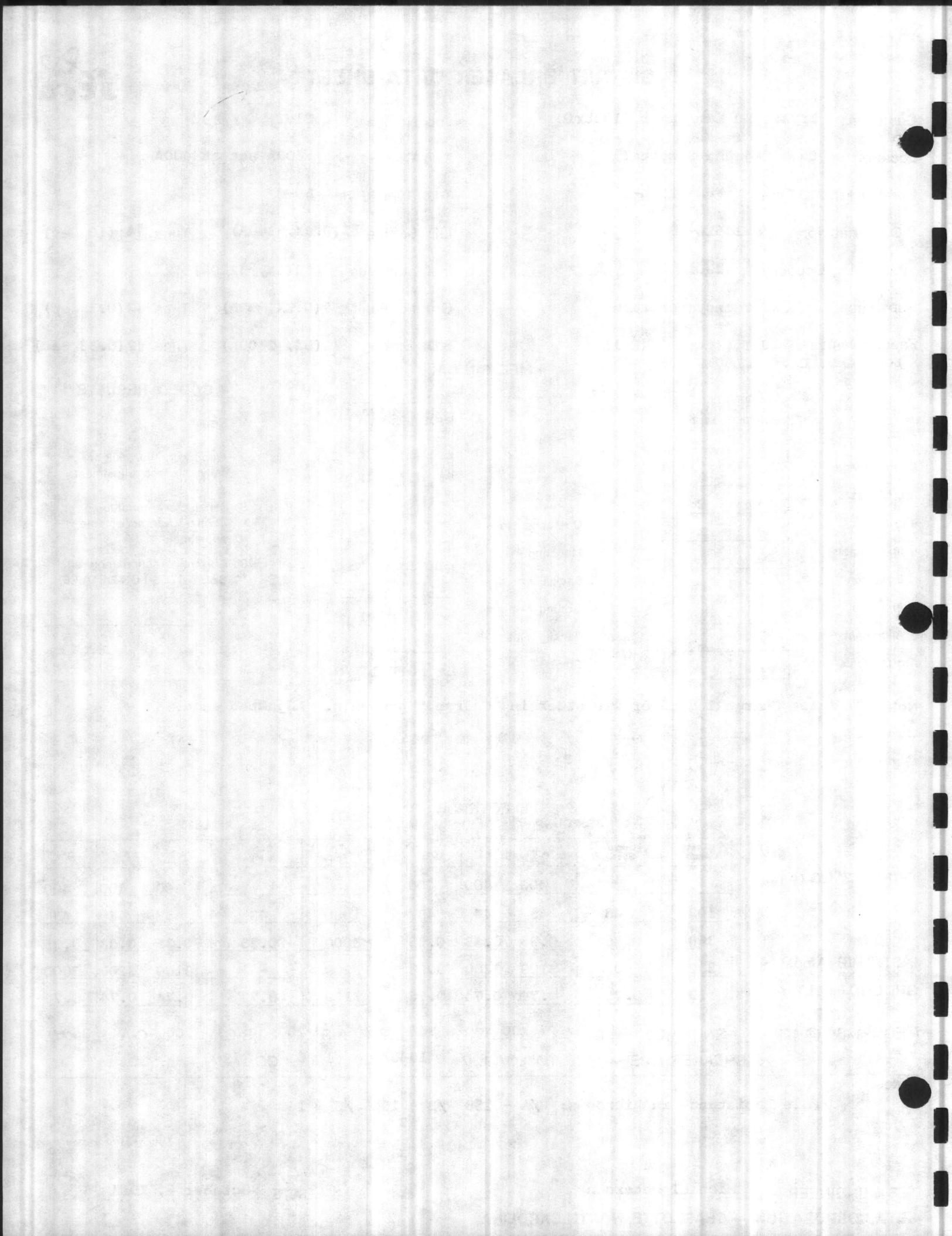
BREAKER OPEN—LINE TO LOAD: ϕ A 1000 ϕ B 1000 ϕ C 1200

Notes: Pole Resistance in Microhms: ϕ A - 158 ϕ B - 155 ϕ C - 168

TEST ENGINEER Michael Petersen

DATE October 6, 1981

SETA CORPORATION — CHARLOTTE, NORTH CAROLINA



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 400A

Breaker Mfg. & Type FPE 25HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH15515-79

L.D. Setting #2(0.9, 360A) Time #4(10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 3200A)

Substation: Emergency Generator

Ground Fault 0(0.2X, 80A) Time #2(0.2 Sec)

Feeder Name 11 (E-2)

S.D. Setting #3(6X, 2400A) Time #2(0.33 Sec)

FUSE CAT. NO. LCL601

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes:

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.....

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			400	400	400
L.D. @ <u>300</u> %	1080	43	NT	49	49
S.D. @ <u>150</u> %	3600	0.35	NT	0.35	0.31
INST. TRIP (Amps)	3200	-	3200	3200	3200
GROUND FAULT @ <u>150</u> %	120	0.73	0.73	0.58	0.58

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			400	400	400
L.D. @ <u>300</u> %	1080	43	NT	49	49
S.D. @ <u>150</u> %	3600	0.35	NT	0.35	0.31
INST. TRIP (Amps)	3200	-	3200	3200	3200
GROUND FAULT @ <u>150</u> %	120	0.73	0.73	0.58	0.58

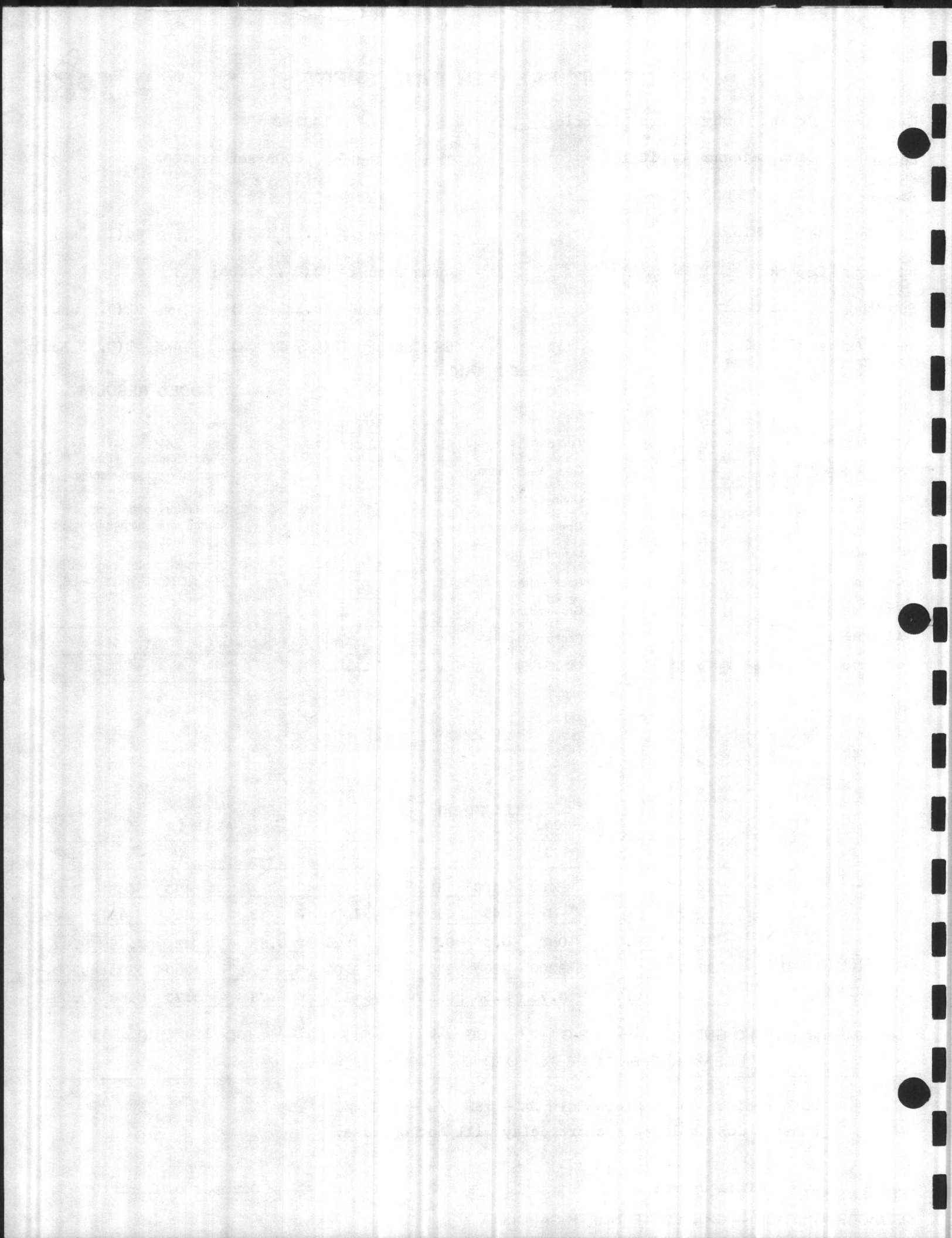
MEGOHMS (@ 1000V) ϕ -GND: A-G 160 B-G 160 CG 160 ϕ - ϕ : A-B 160 B-C 160 C-A 180

BREAKER OPEN—LINE TO LOAD: ϕ A 600 ϕ B 600 ϕ C 600

tes: Pole Resistance in Microhms: ϕ A - 158 ϕ B - 152 ϕ C - 158
Phase A long delay and short delay will not operate.

TEST ENGINEER Phil Joyner

DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 25HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH15525-79

L.D. Setting #3 (1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3 (8X, 4800A)

Substation: Emergency Generator

Ground Fault 0 (0.2X, 120A) Time #2 (0.2 Sec)

Feeder Name 12 (E-3)

S.D. Setting #3 (6X, 3600A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL601

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	C	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	Note 1	-
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

- N - New
- G - Good condition, slight wear, correct adjustment.
- S - Satisfactory condition, normal wear, acceptable adjustment.
- C - Corrective action required.
- ** SEE NOTES FOR DETAILS

Notes: 1. Left corner broken off on arc shield top plate.
2. One knob missing from arc chute holder. Replaced with one from Breaker BH15524-79.

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			600	600	600
L.D. @ 300%	1800	43	42	41	42
S.D. @ 150%	5400	0.35	0.32	0.37	0.35
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ 150%	180	0.73	0.66	0.68	0.65

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			600	600	600
L.D. @ 300%	1800	43	42	41	42
S.D. @ 150%	5400	0.35	0.32	0.37	0.35
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ 150%	180	0.73	0.66	0.68	0.65

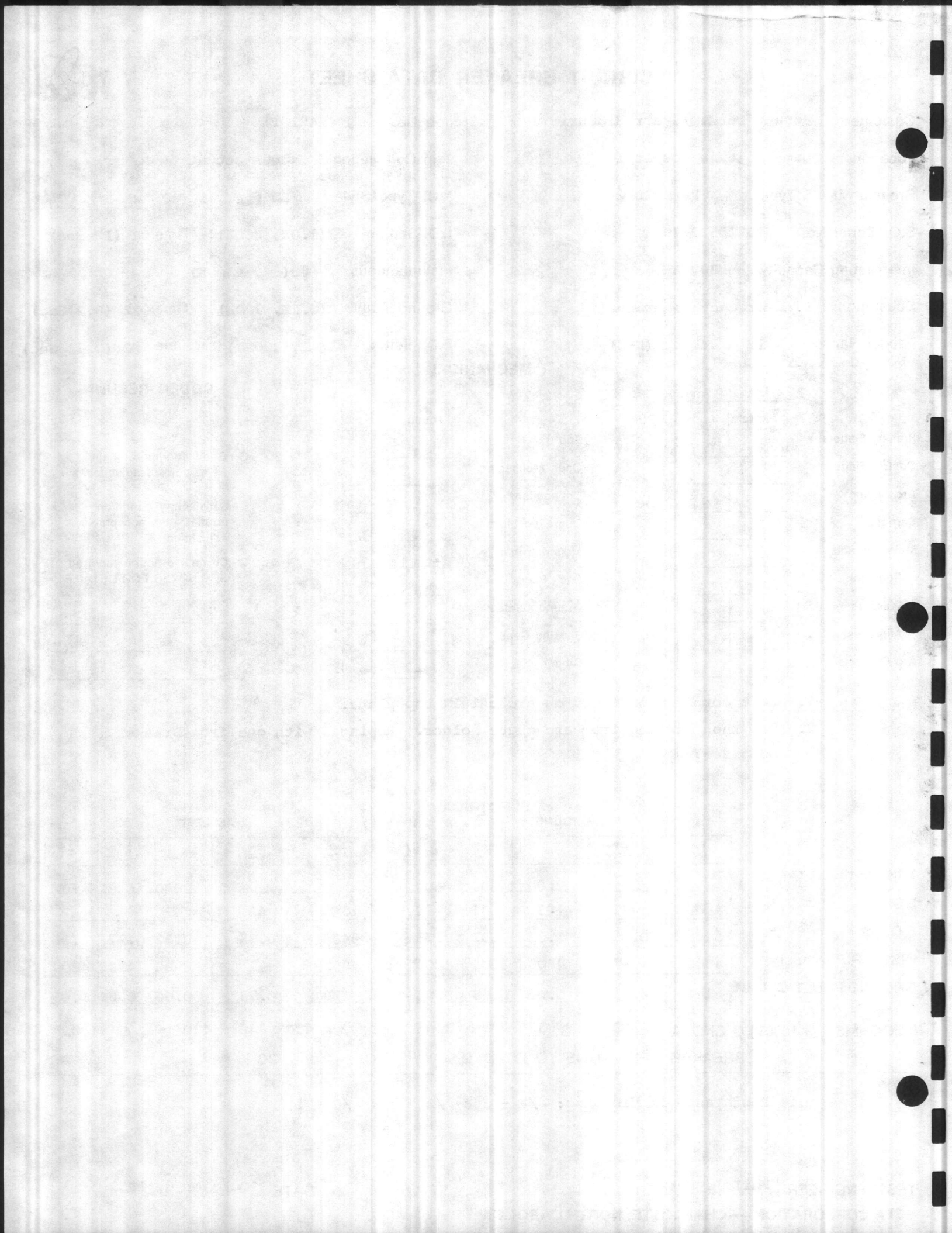
MEGOHMS (@ 1000V) ϕ -GND: A-G 300 B-G 300 CG 300 ϕ - ϕ : A-B 400 B-C 400 C-A 400

BREAKER OPEN—LINE TO LOAD: ϕ A 800 ϕ B 800 ϕ C 600

Notes: Pole Resistance in Microhms: ϕ A - 158 ϕ B - 154 ϕ C - 155

TEST ENGINEER Phil Joyner

DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type FPE 25HL-2
 S.O./Serial No. BH15520-79
 Interrupting Capacity 200KA
 Substation: Emergency Generator
 Feeder Name 13 (E-4)
 FUSE CAT. NO. LCL601

Job No. 1481-T
 Trip Coil Rating 600A set at 600A
 T.U. Type/Style SD-6
 L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)
 Instantaneous #3(8X, 4800A)
 Ground Fault 0(0.2X, 120A) Time #2(0.2 Sec)
 S.D. Setting #3(6X, 3600A) Time #2(0.33 Sec)

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	Note 1	-
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: 1. Right and left corners broken off on arc shield top plate.

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ <u>300</u> %	1800	43	40	40	40
S.D. @ <u>150</u> %	5400	0.35	0.28	0.32	0.36
INST. TRIP (Amps)	4800	-	5000	4900	4900
GROUND FAULT @ <u>150</u> %	180	0.73	0.66	0.67	0.70

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ <u>300</u> %	1800	43	40	40	40
S.D. @ <u>150</u> %	5400	0.35	0.28	0.32	0.36
INST. TRIP (Amps)	4800	-	5000	4900	4900
GROUND FAULT @ <u>150</u> %	180	0.73	0.66	0.67	0.70

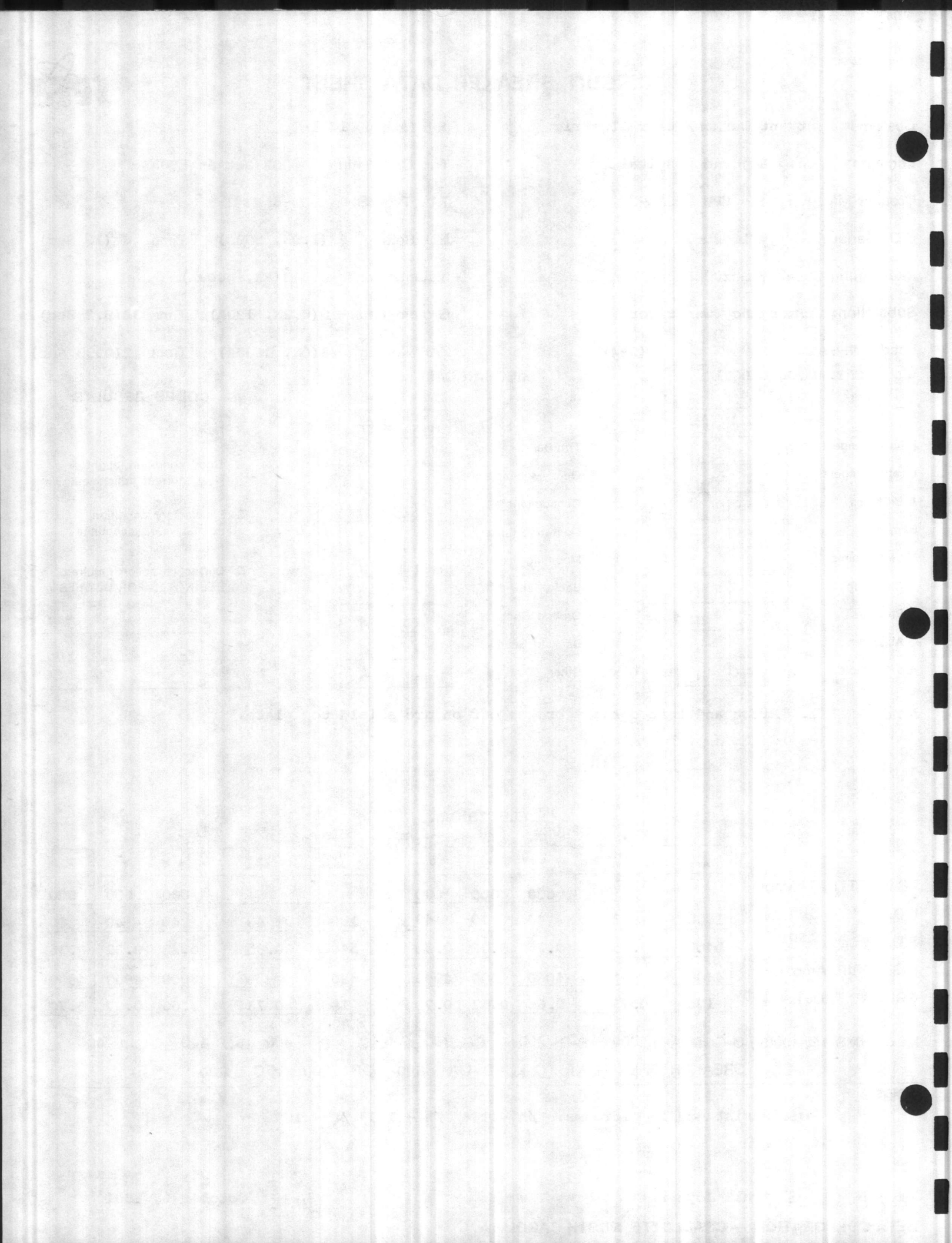
MEGOHMS (@ 1000V) ϕ -GND: A-G 300 B-G 300 CG 300 ϕ - ϕ : A-B 400 B-C 400 C-A 600

BREAKER OPEN—LINE TO LOAD: ϕ A 800 ϕ B 800 ϕ C 800

Notes: Pole Resistance in Microhms: ϕ A - 164 ϕ B - 153 ϕ C - 160

TEST ENGINEER Phil Joyner

DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 25HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH15517-79

L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: Emergency Generator

Ground Fault 0(0.2X, 120A) Time #2 (0.2 Sec)

Feeder Name 14 (E-5)

S.D. Setting #3(6X, 3600A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL601

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	<u>Note 1</u>	<u>C</u>
Control Fingers	<u>N</u>	<u>N</u>
Arc Chutes	<u>N</u>	<u>N</u>
Barriers	<u>N</u>	<u>N</u>
Main Contacts	<u>N</u>	<u>N</u>
Condition	<u>N</u>	<u>N</u>
Pressure	<u>N</u>	<u>N</u>
Alignment	<u>N</u>	<u>N</u>
Arc Contacts	<u>N</u>	<u>N</u>

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	<u>N</u>	<u>N</u>
Oper. Mechanism	<u>N</u>	<u>N</u>
Connections	<u>C</u>	<u>N</u>
Operating Links	<u>N</u>	<u>N</u>
Mounting Insul.	<u>N</u>	<u>N</u>
Back Plate	<u>N</u>	<u>N</u>
Ground Contact	<u>N</u>	<u>N</u>
Racking Gear	<u>N</u>	<u>N</u>
Other	<u>-</u>	<u>-</u>

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: 1. Right corner broken off on arc chute top plate.
2. Multiple loose connections on line and load side of breaker. Tightened same.

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			<u>600</u>	<u>600</u>	<u>600</u>
L.D. @ <u>300%</u>	<u>1800</u>	<u>43</u>	<u>35</u>	<u>35</u>	<u>35</u>
S.D. @ <u>150%</u>	<u>5400</u>	<u>0.35</u>	<u>0.36</u>	<u>0.33</u>	<u>0.39</u>
INST. TRIP (Amps)	<u>4800</u>	<u>-</u>	<u>4400</u>	<u>4500</u>	<u>5200</u>
GROUND FAULT @ <u>150%</u>	<u>180</u>	<u>0.73</u>	<u>0.78</u>	<u>0.71</u>	<u>0.69</u>

TRIP SETTING (Amps)	Test Amps	Curve Secs.	A	B	C
			<u>600</u>	<u>600</u>	<u>600</u>
L.D. @ <u>300%</u>	<u>1800</u>	<u>43</u>	<u>35</u>	<u>35</u>	<u>35</u>
S.D. @ <u>150%</u>	<u>5400</u>	<u>0.35</u>	<u>0.36</u>	<u>0.33</u>	<u>0.39</u>
INST. TRIP (Amps)	<u>4800</u>	<u>-</u>	<u>4400</u>	<u>4500</u>	<u>5200</u>
GROUND FAULT @ <u>150%</u>	<u>180</u>	<u>0.73</u>	<u>0.78</u>	<u>0.71</u>	<u>0.69</u>

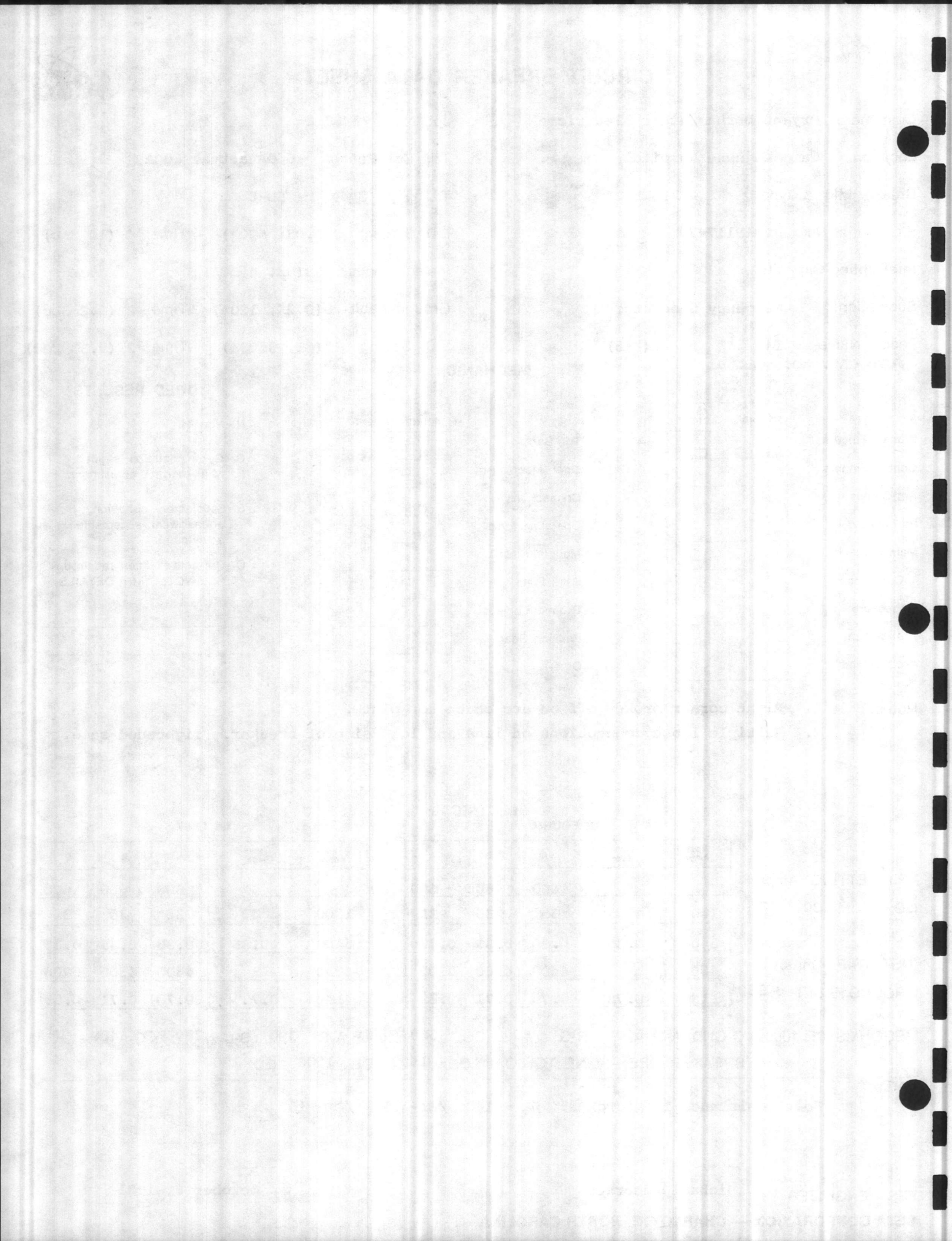
MEGOHMS (@ 1000V) ϕ -GND: A-G 500 B-G 500 CG 500 ϕ - ϕ : A-B 300 B-C 250 C-A 400

BREAKER OPEN—LINE TO LOAD: ϕ A 1500 ϕ B 1500 ϕ C 1500

Notes: Pole Resistance in Microhms: ϕ A - 160 ϕ B - 155 ϕ C - 159

TEST ENGINEER Michael Petersen

DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 400A

Breaker Mfg. & Type FPE 25HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH15511-79

L.D. Setting #3(1.0X, 400A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 3200A)

Substation: Emergency Generator

Ground Fault 0(0.2X, 80A) Time #2 (0.2 Sec)

Feeder Name 15 (E-6)

S.D. Setting #3(6X, 2400A) Time #2 (0.33 Sec)

FUSE CAP. NO. LCL601

MECHANICAL

CODED RESULTS

Primary Fingers

AS FOUND	AS LEFT
Note 1	C
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N

Trip Bar

AS FOUND	AS LEFT
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
-	-

Oper. Mechanism

Connections

Operating Links

Mounting Insul.

Back Plate

Ground Contact

Racking Gear

Other

N - New

G - Good condition, slight wear, correct adjustment.

S - Satisfactory condition, normal wear, acceptable adjustment.

C - Corrective action required.
** SEE NOTES FOR DETAILS

Control Fingers

Arc Chutes

Barriers

Main Contacts

Condition

Pressure

Alignment

Arc Contacts

Notes: 1. Multiple loose connections on line and load side of breaker. Tightened same.

ELECTRICAL

AS FOUND

AS LEFT

Test Amps	Curve Secs.	A	B	C
		400	400	400
1200	43	36	35	35
3600	0.35	0.29	0.33	0.39
3200	-	3000	3100	3100
120	0.73	0.70	0.71	0.78

Test Amps	Curve Secs.	A	B	C
		400	400	400
1200	43	36	35	35
3600	0.35	0.29	0.33	0.39
3200	-	3000	3100	3100
120	0.73	0.70	0.71	0.78

TRIP SETTING (Amps)

L.D. @ 300 %

S.D. @ 150 %

INST. TRIP (Amps)

GROUND FAULT @ 150%

MEGOHMS (@ 1000V) ϕ -GND: A-G 170 B-G 120 CG 100 ϕ - ϕ : A-B 140 B-C 140 C-A 180

BREAKER OPEN—LINE TO LOAD: ϕ A 600 ϕ B 600 ϕ C 600

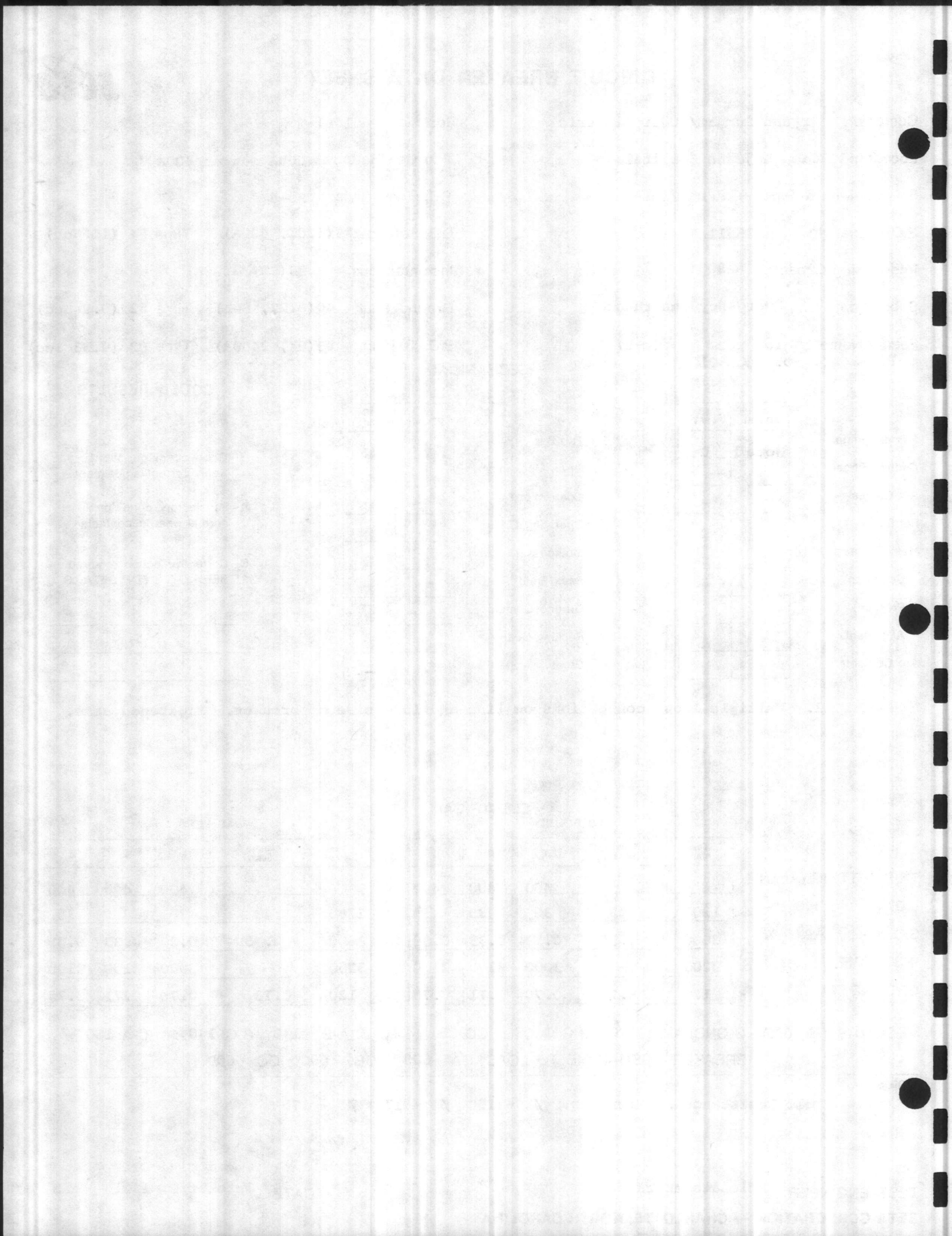
Notes:

Pole Resistance in Microhms: ϕ A - 150 ϕ B - 175 ϕ C - 176

TEST ENGINEER Michael Petersen

DATE October 6, 1981

SETA CORPORATION — CHARLOTTE, NORTH CAROLINA



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 25HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH15521-79

L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: Emergency Generator

Ground Fault 0(0.2X, 120A) Time #2 (0.2 Sec)

Feeder Name 16 (E-7)

S.D. Setting #3(6X, 3600A) Time #2 (0.33 Sec)

FUSE CAP. NO. LCL601

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers		
Control Fingers	Note 1	C
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: 1. Multiple loose connections on line and load side of breaker, Tightened same.

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300 %	1800	43	41	40	41
S.D. @ 150 %	5400	0.35	0.32	0.33	0.34
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ 150%	180	0.73	0.75	0.73	0.73

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300 %	1800	43	41	40	41
S.D. @ 150 %	5400	0.35	0.32	0.33	0.34
INST. TRIP (Amps)	4800	-	4800	4800	4800
GROUND FAULT @ 150%	180	0.73	0.75	0.73	0.73

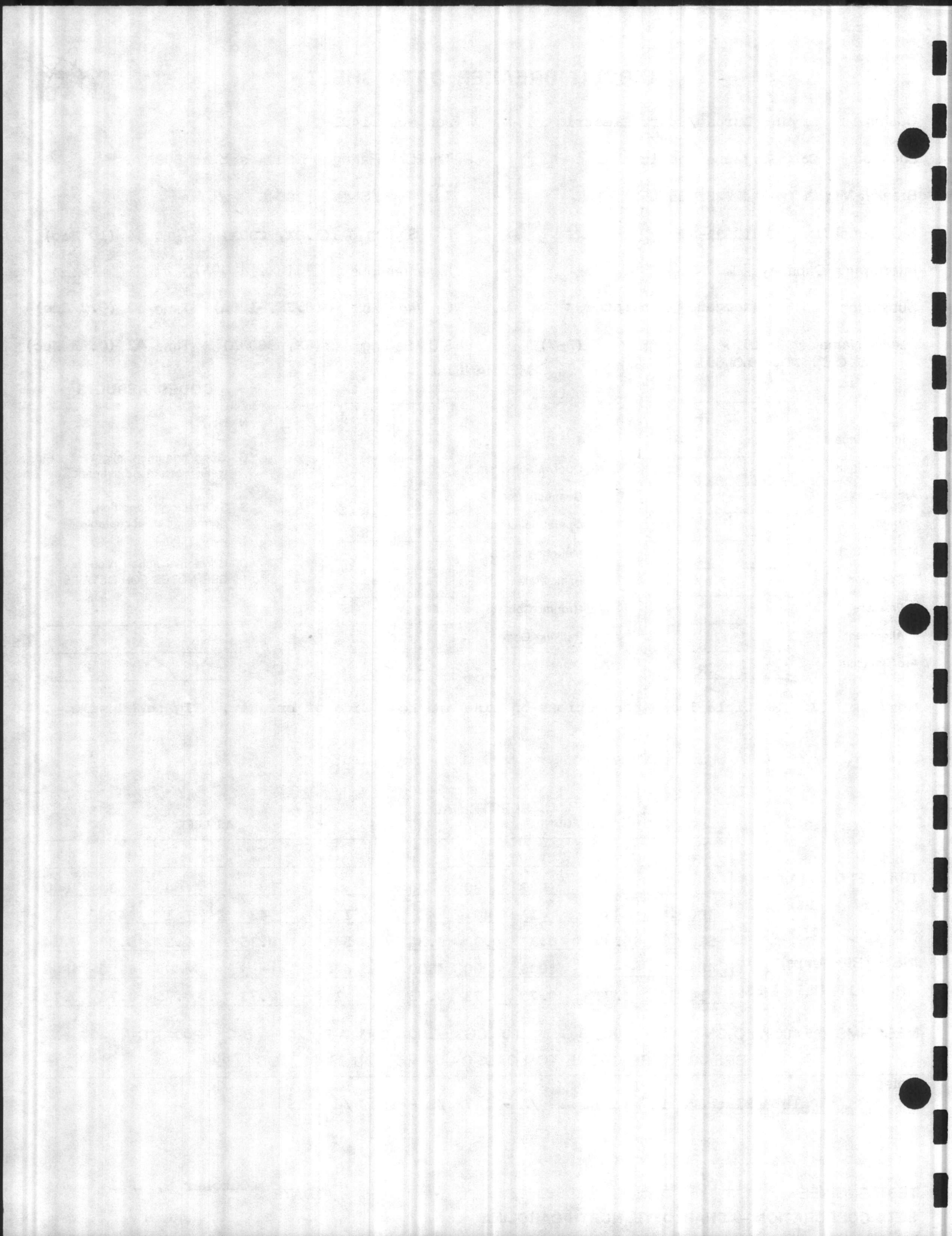
MEGOHMS (@ 1000V) ϕ -GND: A-G 200 B-G 100 CG 200 ϕ - ϕ : A-B 200 B-C 200 C-A 200

BREAKER OPEN—LINE TO LOAD: ϕ A 600 ϕ B 600 ϕ C 600

Notes: Pole Resistance in Microhms: ϕ A - 147 ϕ B - 152 ϕ C - 159

TEST ENGINEER Phil Joyner

DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 25HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH15513-79

L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: Emergency Generator

Ground Fault 0(0.2X, 120A) Time #2 (0.2 Sec)

Feeder Name 19 (E-8)

S.D. Setting #3(6X, 3600A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL601

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	Note 2	C
Operating Links	N	N
Mounting Insul.	Note 1	
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: 1. Insulators out of place. Back insulator between Phases B and C broken. Recommend replacement. 2. Multiple loose connections on line and load side of breaker. Tightened same.

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300 %	1800	43	37	35	35
S.D. @ 150 %	5400	0.35	0.36	0.34	0.38
INST. TRIP (Amps)	4800	-	4500	4700	4500
GROUND FAULT @ 150%	180	0.73	0.69	0.66	0.64

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300 %	1800	43	37	35	35
S.D. @ 150 %	5400	0.35	0.36	0.34	0.38
INST. TRIP (Amps)	4800	-	4500	4700	4500
GROUND FAULT @ 150%	180	0.73	0.69	0.66	0.64

MEGOHMS (@ 1000V) ϕ -GND: A-G 200 B-G 190 CG 190 ϕ - ϕ : A-B 160 B-C 160 C-A 180

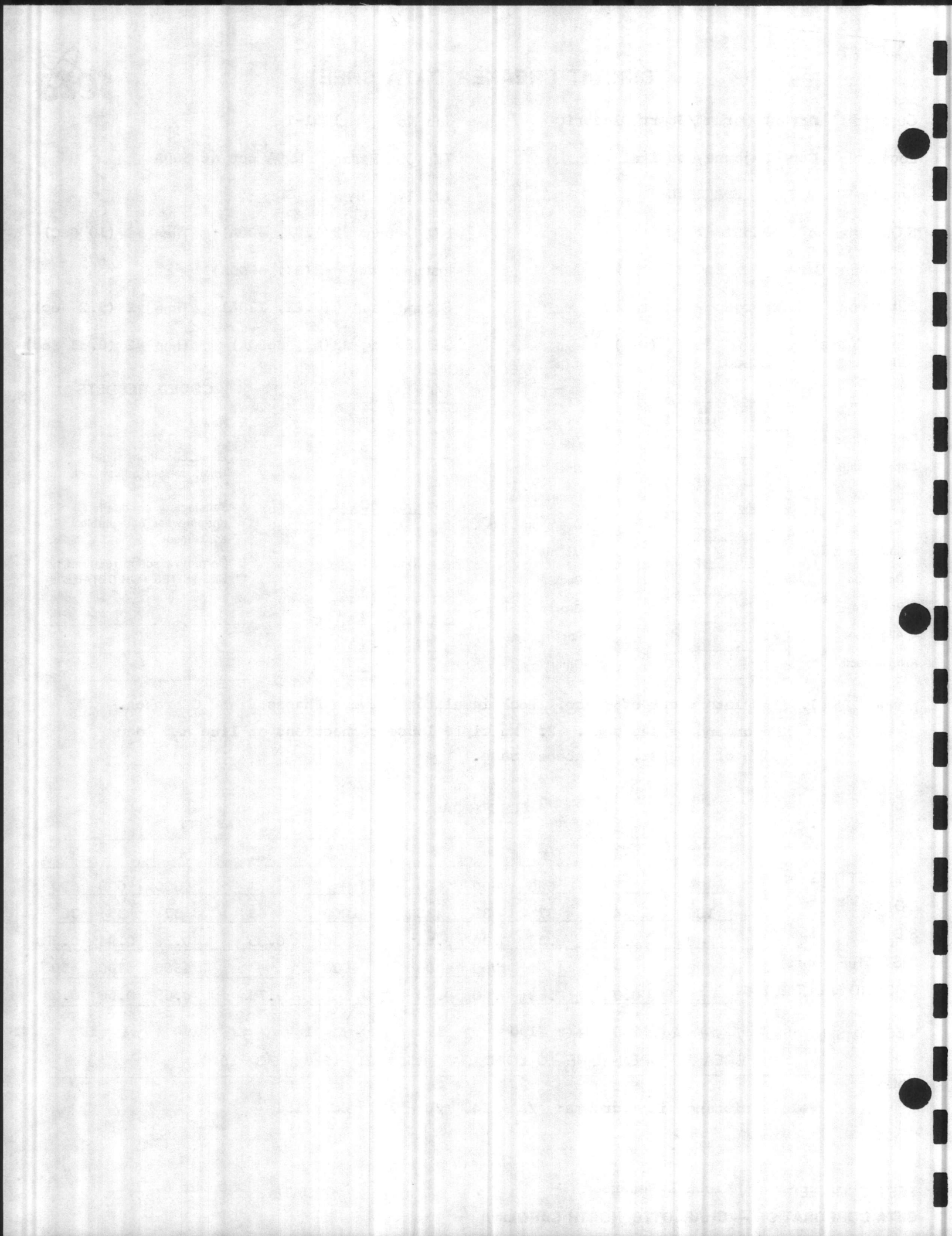
BREAKER OPEN—LINE TO LOAD: ϕ A 1500 ϕ B 1500 ϕ C 1000

Notes: Pole Resistance in Microhms: ϕ A - 149 ϕ B - 152 ϕ C - 154

TEST ENGINEER Michael Petersen

DATE October 6, 1981

SETA CORPORATION — CHARLOTTE, NORTH CAROLINA



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 25HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH15528-79

L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: Emergency Generator

Ground Fault 0(0.2X, 120A) Time #2 (0.2 Sec)

Feeder Name 20 (E-9)

S.D. Setting #3(6X, 3600A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL601

MECHANICAL

CODED RESULTS

Primary Fingers

AS FOUND	AS LEFT
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N

Trip Bar

AS FOUND	AS LEFT
N	N
N	N
N	N
N	N
Note 1	C
N	N
N	N
N	N
N	N
-	-

Oper. Mechanism

Connections

Operating Links

Mounting Insul.

Back Plate

Ground Contact

Racking Gear

Other

N - New

G - Good condition, slight wear, correct adjustment.

S - Satisfactory condition, normal wear, acceptable adjustment.

C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: 1. Side insulators out of place. Placed in correct position.

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	35	35	35
5400	0.35	0.37	0.34	0.36
4800	-	4100	4100	4100
180	0.73	0.73	0.65	0.79

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	35	35	35
5400	0.35	0.37	0.34	0.36
4800	-	4100	4100	4100
180	0.73	0.73	0.65	0.79

L.D. @ 300%

S.D. @ 150%

INST. TRIP (Amps)

GROUND FAULT @ 150%

MEGOHMS (@ 1000V) ϕ -GND: A-G 180 B-G 190 CG 180 ϕ - ϕ : A-B 250 B-C 250 C-A 300

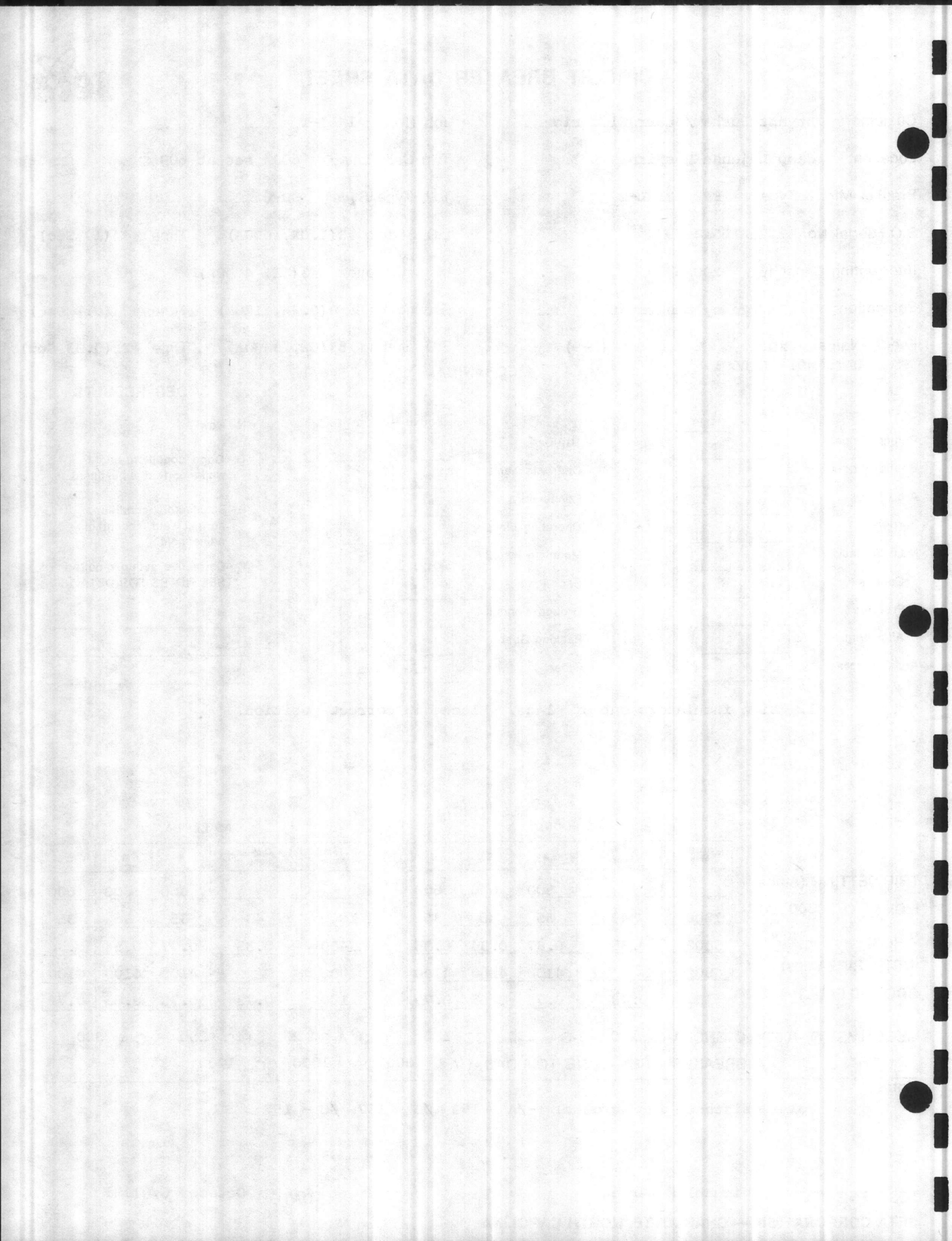
BREAKER OPEN—LINE TO LOAD: ϕ A 1000 ϕ B 1000 ϕ C 1000

Notes:

Pole Resistance in Microhms: ϕ A - 153 ϕ B - 157 ϕ C - 157

TEST ENGINEER Michael Petersen

DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 25HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH15512-79

L.D. Setting #3(1.0X, 600A) Time #4 (1.0 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: Emergency Generator

Ground Fault 0(0.2X, 120A) Time #2 (0.2 Sec)

Feeder Name 21 (E-10)

S.D. Setting #3(6X, 3600A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL601

MECHANICAL

CODED RESULTS

Primary Fingers
Control Fingers
Arc Chutes
Barriers
Main Contacts
Condition
Pressure
Alignment
Arc Contacts

AS FOUND	AS LEFT
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N
N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

AS FOUND	AS LEFT
N	N
N	N
N	N
N	N
Note 1	C
N	N
N	N
N	N
-	-

N - New

G - Good condition, slight wear, correct adjustment.

S - Satisfactory condition, normal wear, acceptable adjustment.

C - Corrective action required.
** SEE NOTES FOR DETAILS

Notes: 1. Side insulators out of place. Placed in correct position.
2. Top of hood cracked and broken. Requires replacement prior to installation.

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)

L.D. @ 300 %

S.D. @ 150 %

INST. TRIP (Amps)

GROUND FAULT @ 150%

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	35	35	34
5400	0.35	0.35	0.38	0.38
4800	-	4800	4500	4400
180	0.73	0.78	0.76	0.76

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	35	35	34
5400	0.35	0.35	0.38	0.38
4800	-	4800	4500	4400
180	0.73	0.78	0.76	0.76

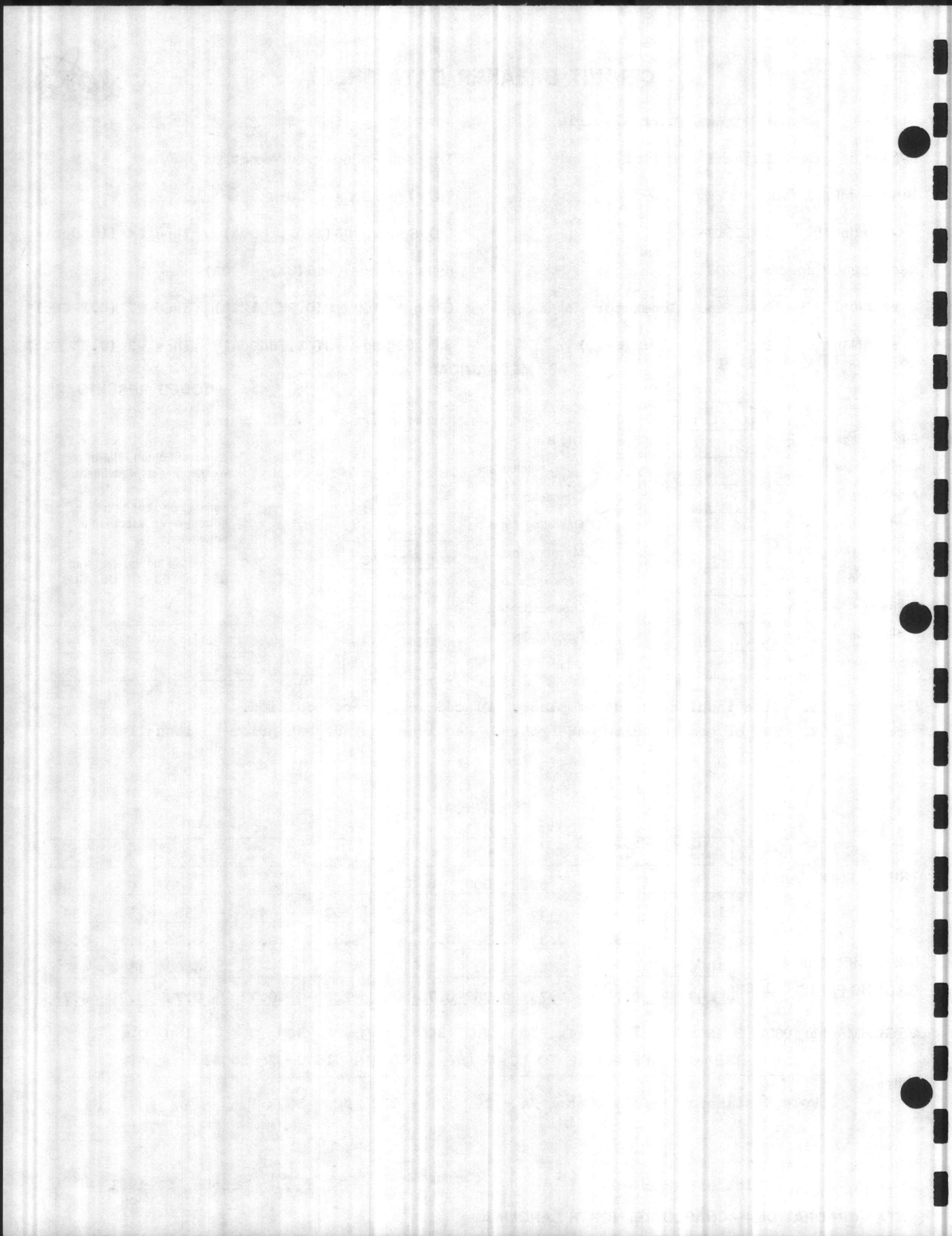
MEGOHMS (@ 1000V) ϕ -GND: A-G 700 B-G 50 CG 300 ϕ - ϕ : A-B 300 B-C 180 C-A 300

BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 1500 ϕ C 2000

Notes: Pole Resistance in Microhms: ϕ A - 169 ϕ B - 172 ϕ C - 160

TEST ENGINEER Michael Petersen

DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 25HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH15514-79

L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: Emergency Generator

Ground Fault 0(0.2X, 120A) Time #2 (0.2 Sec)

Feeder Name 23 (E-11)

S.D. Setting #3(6X, 3600A) Time #2 (0.33 Sec)

FUSE CAT. NO. LCL601

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	Note 3	C
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
Oper. Mechanism
Connections
Operating Links
Mounting Insul.
Back Plate
Ground Contact
Racking Gear
Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	Note 1	C
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
G - Good condition, slight wear, correct adjustment.
S - Satisfactory condition, normal wear, acceptable adjustment.
C - Corrective action required.
** SEE NOTES FOR DETAILS

- Notes: 1. Side insulators out of place. Placed in correct position.
2. Top of hood broken in shipment. Requires replacement prior to installation.
3. Multiple loose connections on line and load side of breaker. Tightened same.

ELECTRICAL

AS FOUND

AS LEFT

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300%	1800	43	37	36	36
S.D. @ 150%	5400	0.35	0.35	0.35	0.37
INST. TRIP (Amps)	4800	-	4400	4800	4400
GROUND FAULT @ 150%	180	0.73	0.75	0.75	0.73

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300%	1800	43	37	36	36
S.D. @ 150%	5400	0.35	0.35	0.35	0.37
INST. TRIP (Amps)	4800	-	4400	4800	4400
GROUND FAULT @ 150%	180	0.73	0.75	0.75	0.73

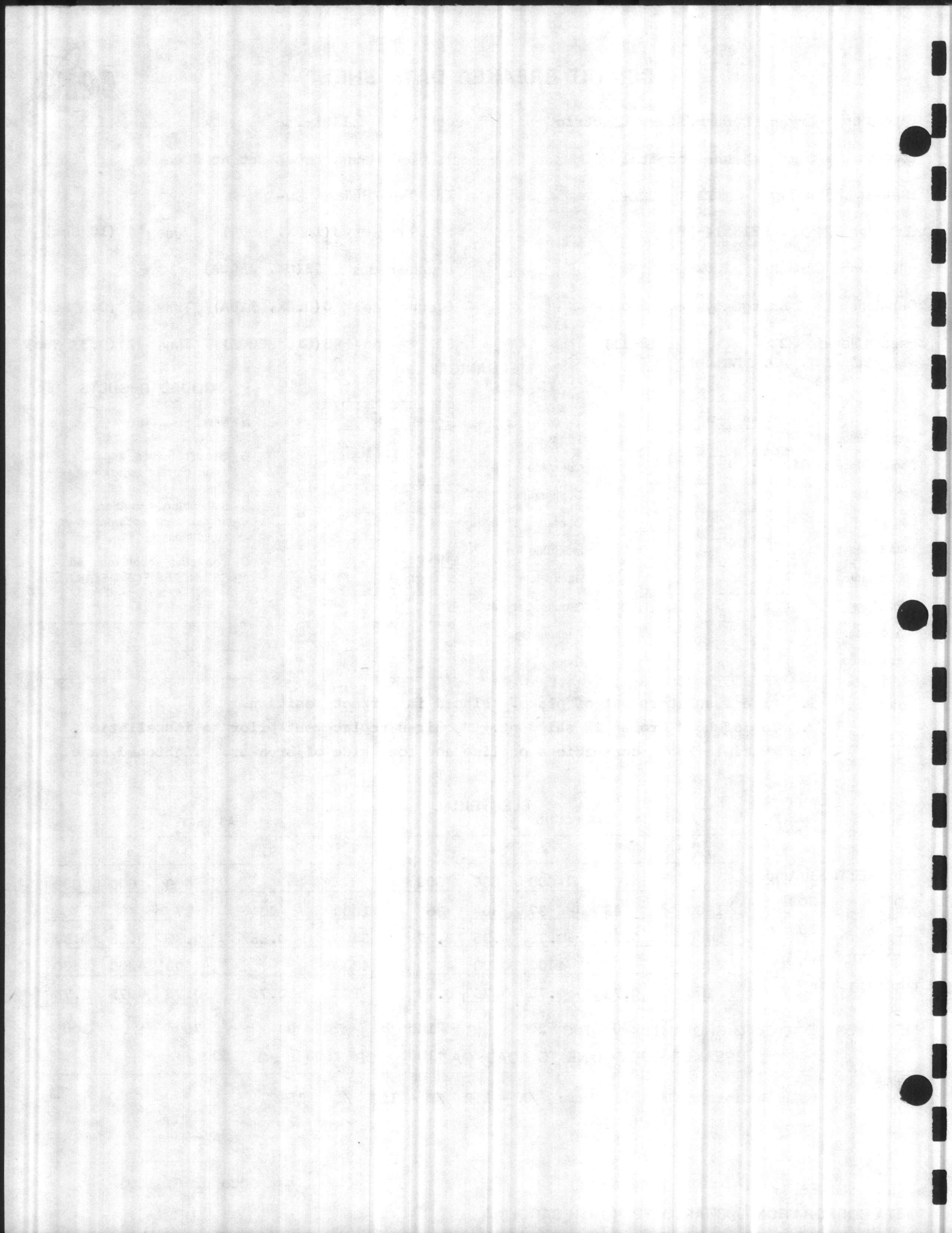
MEGOHMS (@ 1000V) ϕ -GND: A-G 200 B-G 200 CG 180 ϕ - ϕ : A-B 800 B-C 700 C-A 300

BREAKER OPEN—LINE TO LOAD: ϕ A 1000 ϕ B 1500 ϕ C 1500

Notes: Pole Resistance in Microhms: ϕ A - 152 ϕ B - 158 ϕ C - 158

TEST ENGINEER Michael Petersen

DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type: FPE 25HL-2
 S.O./Serial No.: BH15519-79
 Interrupting Capacity: 200KA
 Substation: Emergency Generator
 Feeder Name: 24 (E-12)
 FUSE CAT. NO.: LCL601

Job No.: 1481-T
 Trip Coil Rating: 600A set at 600A
 T.U. Type/Style: SD-6
 L.D. Setting: #3(1.0X, 600A) Time: #4 (10 Sec)
 Instantaneous: #3(8X, 4800A)
 Ground Fault: 0(0.2X, 120A) Time: #2 (0.2 Sec)
 S.D. Setting: #3(6X, 3600A) Time: #2 (0.33 Sec)

MECHANICAL

	AS FOUND	AS LEFT	
Primary Fingers	N	N	Trip Bar
Control Fingers	N	N	Oper. Mechanism
Arc Chutes	N	N	Connections
Barriers	N	N	Operating Links
Main Contacts	N	N	Mounting Insul.
Condition	N	N	Back Plate
Pressure	N	N	Ground Contact
Alignment	N	N	Racking Gear
Arc Contacts	N	N	Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	Note 1	C
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

CODED RESULTS

- N - New
- G - Good condition, slight wear, correct adjustment.
- S - Satisfactory condition, normal wear, acceptable adjustment.
- C - Corrective action required.
- ** SEE NOTES FOR DETAILS

Notes: 1. Side insulators out of place. Placed in correct position.

ELECTRICAL

AS FOUND

AS LEFT

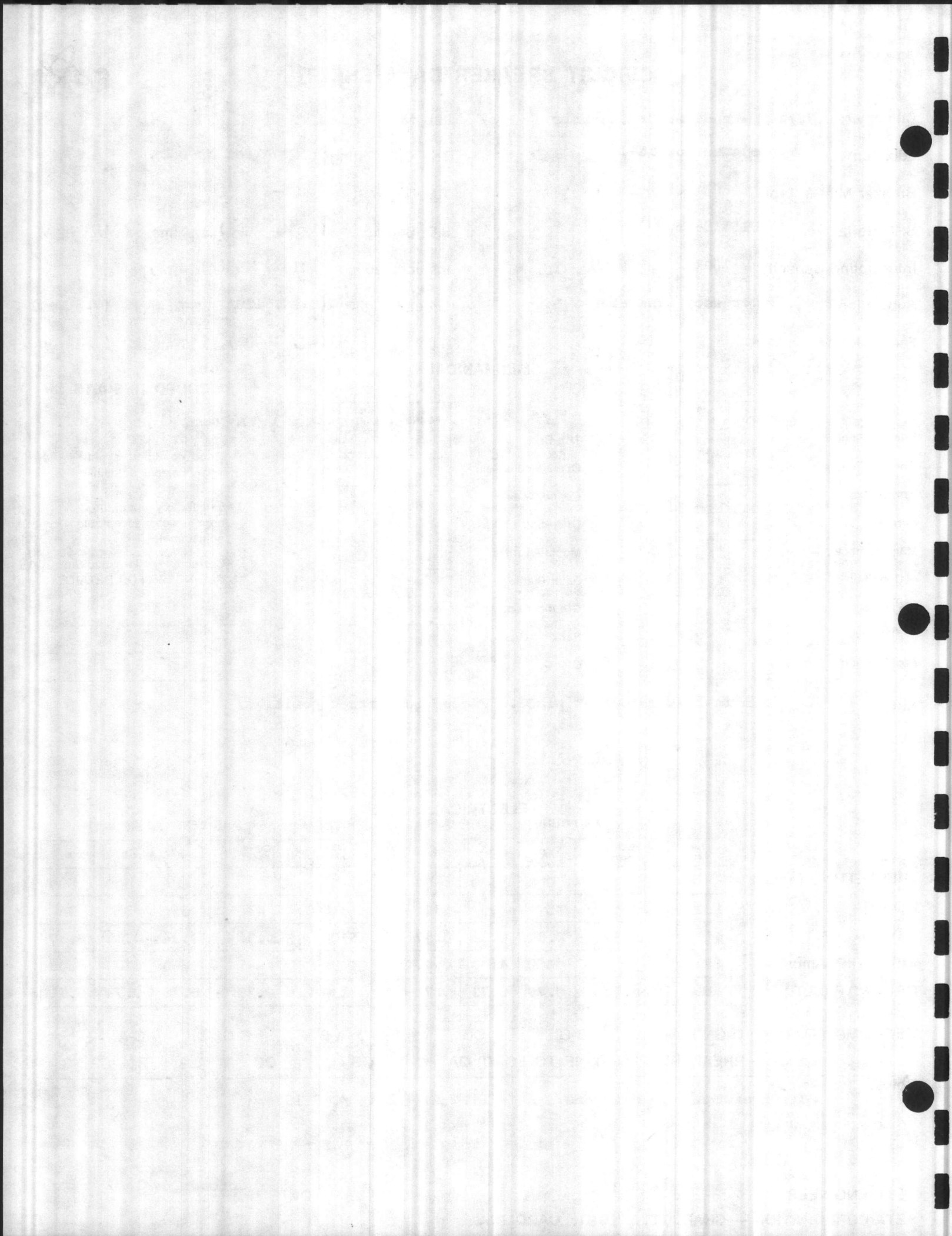
	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300 %	1800	43	35	35	34
S.D. @ 150 %	5400	0.35	0.34	0.35	0.37
INST. TRIP (Amps)	4800	-	4600	4100	4500
GROUND FAULT @ 150%	180	0.73	0.73	0.73	0.71

	Test Amps	Curve Secs.	A	B	C
TRIP SETTING (Amps)			600	600	600
L.D. @ 300 %	1800	43	35	35	34
S.D. @ 150 %	5400	0.35	0.34	0.35	0.37
INST. TRIP (Amps)	4800	-	4600	4100	4500
GROUND FAULT @ 150%	180	0.73	0.73	0.73	0.71

MEGOHMS (@ 1000V) ϕ -GND: A-G 250 B-G 300 CG 250 ϕ - ϕ : A-B 300 B-C 200 C-A 300
 BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 2000 ϕ C 1000

Notes: Pole Resistance in Microhms: ϕ A - 152 ϕ B - 154 ϕ C - 154

TEST ENGINEER Michael Petersen DATE October 6, 1981



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric

Job No. 1481-T

Location: Camp Lejeune Hospital

Trip Coil Rating 600A set at 600A

Breaker Mfg. & Type FPE 25HL-2

T.U. Type/Style SD-6

S.O./Serial No. BH15518-79

L.D. Setting #3(1.0X, 600A) Time #4 (1.0 Sec)

Interrupting Capacity 200KA

Instantaneous #3(8X, 4800A)

Substation: Emergency Generator

Ground Fault 0(0.2X, 120A) Time #2 (0.2 Sec)

Feeder Name 25 (E-13)
 FUSE CAT. NO. LCL601

S.D. Setting #3(6X, 3600A) Time #2 (0.33 Sec)

MECHANICAL

CODED RESULTS

Primary Fingers
 Control Fingers
 Arc Chutes
 Barriers
 Main Contacts
 Condition
 Pressure
 Alignment
 Arc Contacts

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	Note 1	C
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes: 1. Side insulators out of place. Placed in correct position.

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)

L.D. @ 300 %

S.D. @ 150 %

INST. TRIP (Amps)

GROUND FAULT @ 150 %

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	37	36	36
5400	0.35	0.35	0.33	0.28
4800	-	4500	4000	4400
180	0.73	0.75	0.73	0.73

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	37	36	36
5400	0.35	0.35	0.33	0.28
4800	-	4500	4000	4000
180	0.73	0.75	0.73	0.73

MEGOHMS (@ 1000V) ϕ -GND: A-G 300 B-G 250 CG 200 ϕ - ϕ : A-B 250 B-C 200 C-A 300

BREAKER OPEN—LINE TO LOAD: ϕ A 1500 ϕ B 1500 ϕ C 1500

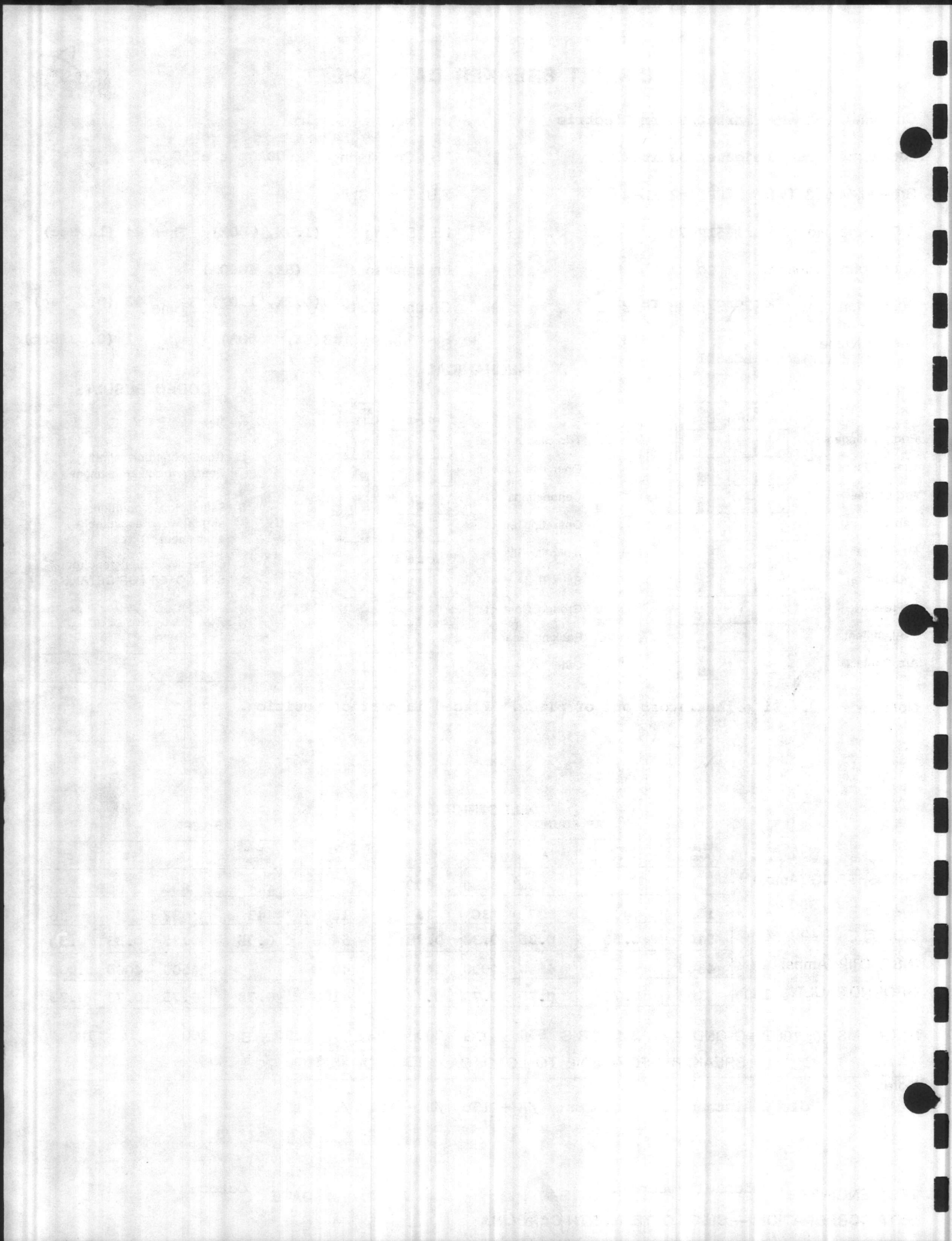
Notes:

Pole Resistance in Microhms: ϕ A - 150 ϕ B - 154 ϕ C - 150

TEST ENGINEER Michael Petersen

DATE October 6, 1981

SETA CORPORATION — CHARLOTTE, NORTH CAROLINA



CIRCUIT BREAKER DATA SHEET



Customer: Bryant Durham/Starr Electric
 Location: Camp Lejeune Hospital
 Breaker Mfg. & Type FPE 25HL-2
 S.O./Serial No. BH15522-79
 Interrupting Capacity 200KA
 Substation: Emergency Generator
 Feeder Name (E-14)
 USE CAT. NO. LCL601

Job No. 1481-T
 Trip Coil Rating 600A set at 600A
 T.U. Type/Style SD-6
 L.D. Setting #3(1.0X, 600A) Time #4 (10 Sec)
 Instantaneous #3(8X, 4800A)
 Ground Fault 0(0.2X, 120A) Time #2 (0.2 Sec)
 S.D. Setting #3(6X, 3600A) Time #2 (0.33 Sec)

MECHANICAL

CODED RESULTS

	AS FOUND	AS LEFT
Primary Fingers	N	N
Control Fingers	N	N
Arc Chutes	N	N
Barriers	N	N
Main Contacts	N	N
Condition	N	N
Pressure	N	N
Alignment	N	N
Arc Contacts	N	N

Trip Bar
 Oper. Mechanism
 Connections
 Operating Links
 Mounting Insul.
 Back Plate
 Ground Contact
 Racking Gear
 Other

	AS FOUND	AS LEFT
Trip Bar	N	N
Oper. Mechanism	N	N
Connections	N	N
Operating Links	N	N
Mounting Insul.	N	N
Back Plate	N	N
Ground Contact	N	N
Racking Gear	N	N
Other	-	-

N - New
 G - Good condition, slight wear, correct adjustment.
 S - Satisfactory condition, normal wear, acceptable adjustment.
 C - Corrective action required.
 ** SEE NOTES FOR DETAILS

Notes:

ELECTRICAL

AS FOUND

AS LEFT

TRIP SETTING (Amps)
 L.D. @ 300 %
 S.D. @ 150 %
 INST. TRIP (Amps)
 GROUND FAULT @ 150%

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	34	33	34
5400	0.35	0.32	0.38	0.37
4800	-	4000	4800	4900
180	0.73	0.65	0.65	0.65

Test Amps	Curve Secs.	A	B	C
		600	600	600
1800	43	34	33	34
5400	0.35	0.32	0.38	0.37
4800	-	4000	4800	4900
180	0.73	0.65	0.65	0.65

MEGOHMS (@ 1000V) ϕ -GND: A-G 700 B-G 800 CG 700 ϕ - ϕ : A-B 800 B-C 800 C-A 800
 BREAKER OPEN—LINE TO LOAD: ϕ A 2000 ϕ B 2000 ϕ C 2000

Notes: Pole Resistance in Microhms: μ A - 155 μ B - 154 μ C - 161

TEST ENGINEER Michael Petersen

DATE October 6, 1981

RECEIVED

OCT 26 1981

CARDINAL CONTRACTING CO.
CAMP. LEJEUNE, N.C.

FIELD OFFICE
CAMP LEJEUNE, NC 28542

IN REPLY REFER TO:
AEY:jj
N62470-77-C-7526

SEP 25 1981

Cardinal Contracting Co., Inc.
Post Office Box 8408
Camp Lejeune, North Carolina 28542

RE: Contract N62470-77-C-7526, 205 Bed
Hospital, Naval Regional Medical
Center, Camp Lejeune, North Carolina

SUBJ: Trip Settings for Low Voltage
Circuit Breakers

Gentlemen:

The trip settings for the static trip low voltage circuit breakers are as follows:

FPE Type	Trip (Amps)	Ground Pickup	Time Sec.	Instantaneous Pickup	Short Time Pickup	Time Delay	Long Time Pickup	Band
CSD-40	4000.	100	0.2	8				
CSD-20	2000.	100	0.2	8	3	0.33	0.9	2
CSD-16	1000	50	0.2	8	3	0.33	1.0	2
CSD-6	600	50	0.2	8	6	0.33	1.0	4
CSD-6	500	50	0.2	8	6	0.33	1.0	4
CSD-6	400	50	0.2	8	6	0.33	0.9	4
CSD-6	350	50	0.2	8	6	0.33	1.0	4
CSD-6	300	50	0.2	8	6	0.33	0.9	4
					6	0.33	0.8	4

If there are any questions, please contact us.

Sincerely,

R. D. COLEY
Assistant Resident Officer in Charge
of Construction

Copy to:
LANTDIV (Code 05)
A/E
Gen. Corr.
Reading
→ Andy

