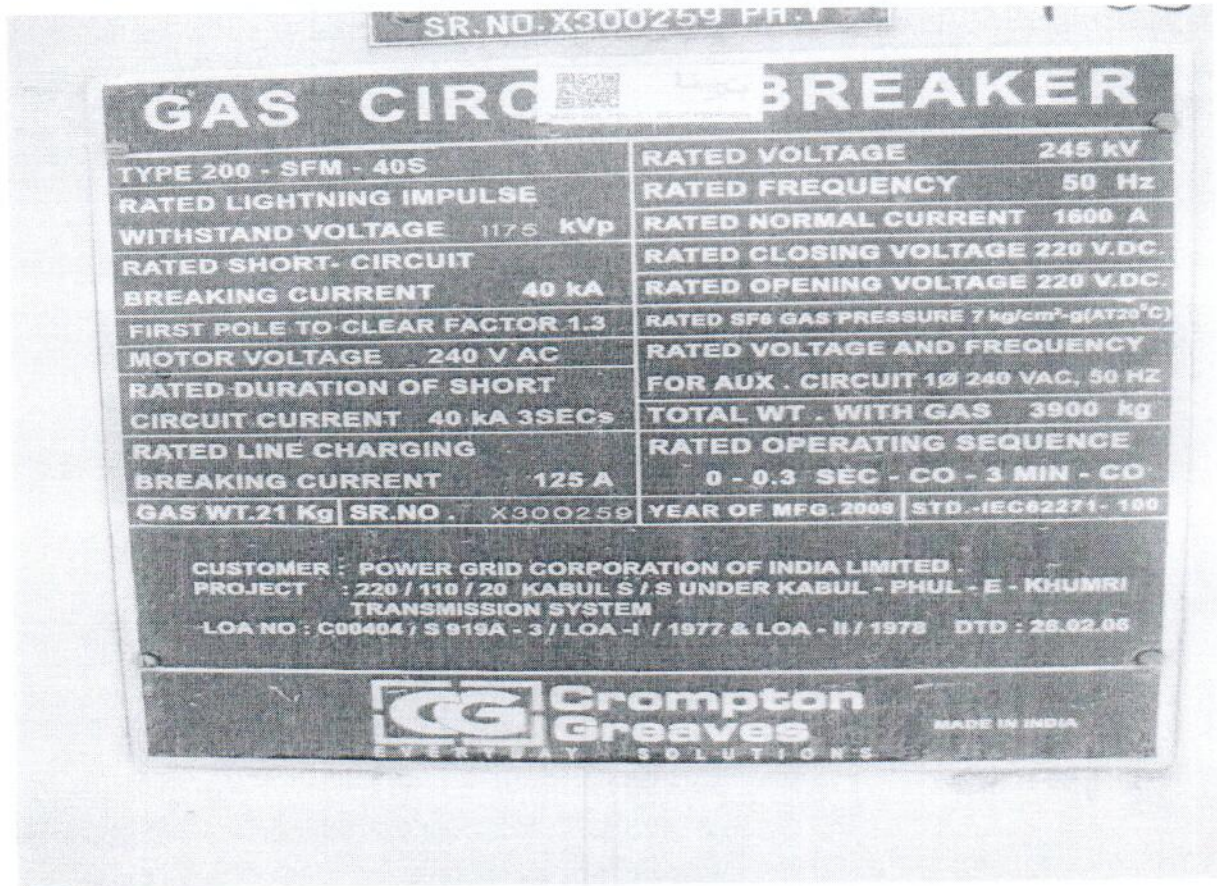
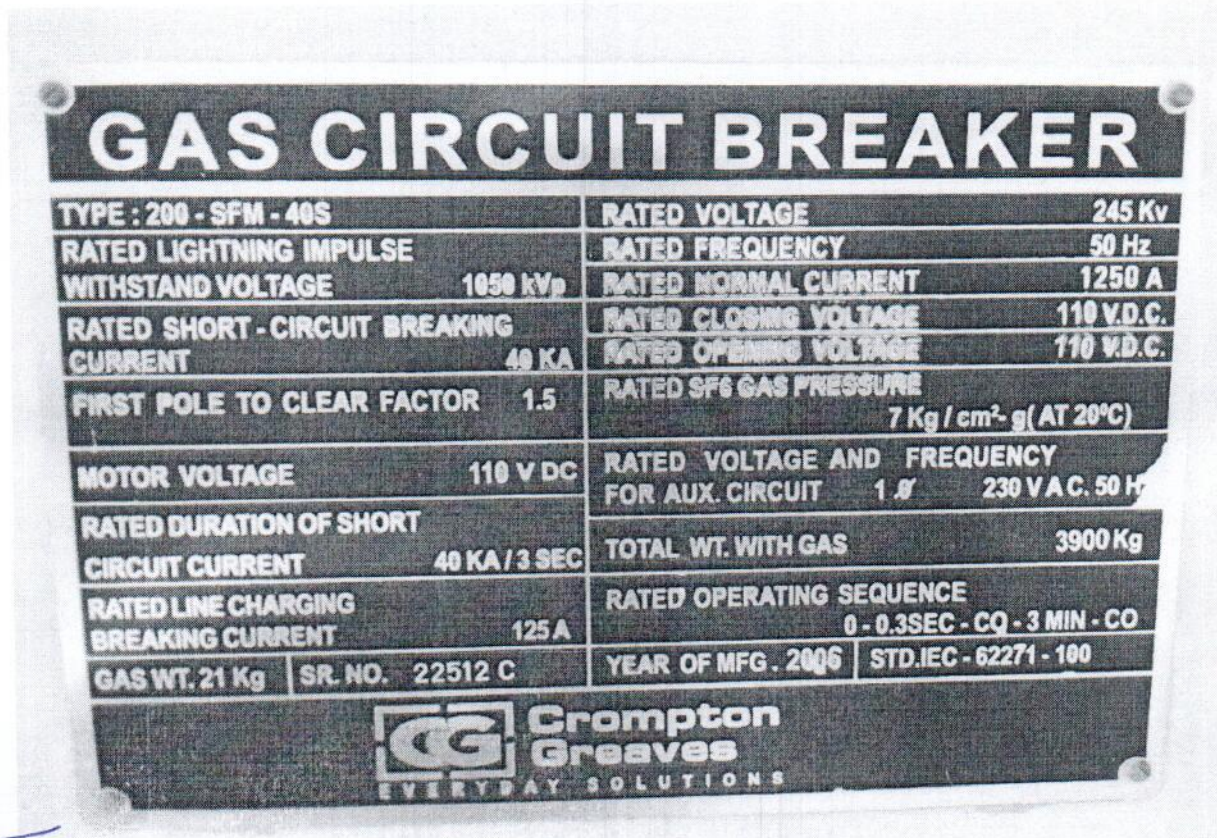


تصاویر تجهیزات مربوطه لات پنجم (پروژه تجهیزات ریزرفی سب ستیشن های مرکز و ولایات)

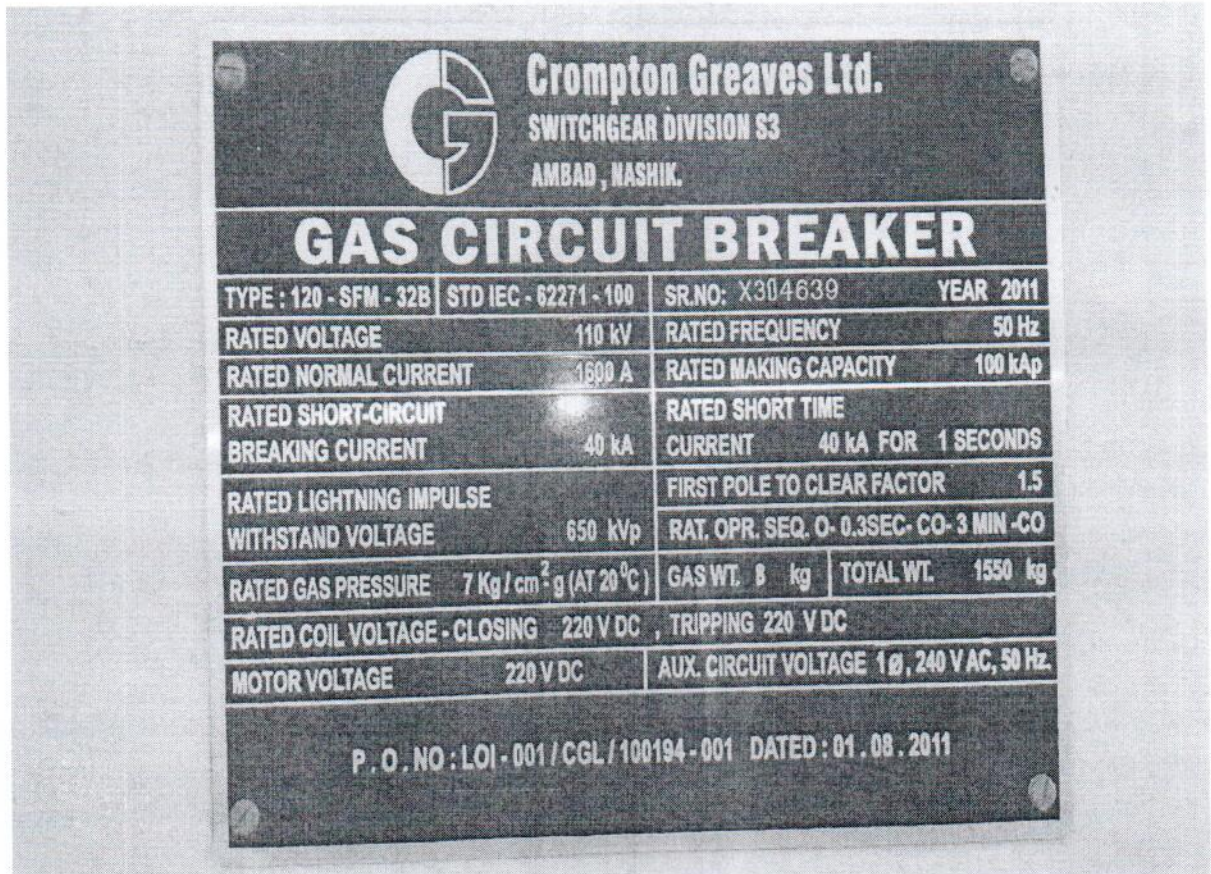
تصویر 1: قلم شماره 1 (سرکت بریکر گاز Sf6 245kV Complete Circuit breaker) - سب ستیشن چمتله و پشته سرخ



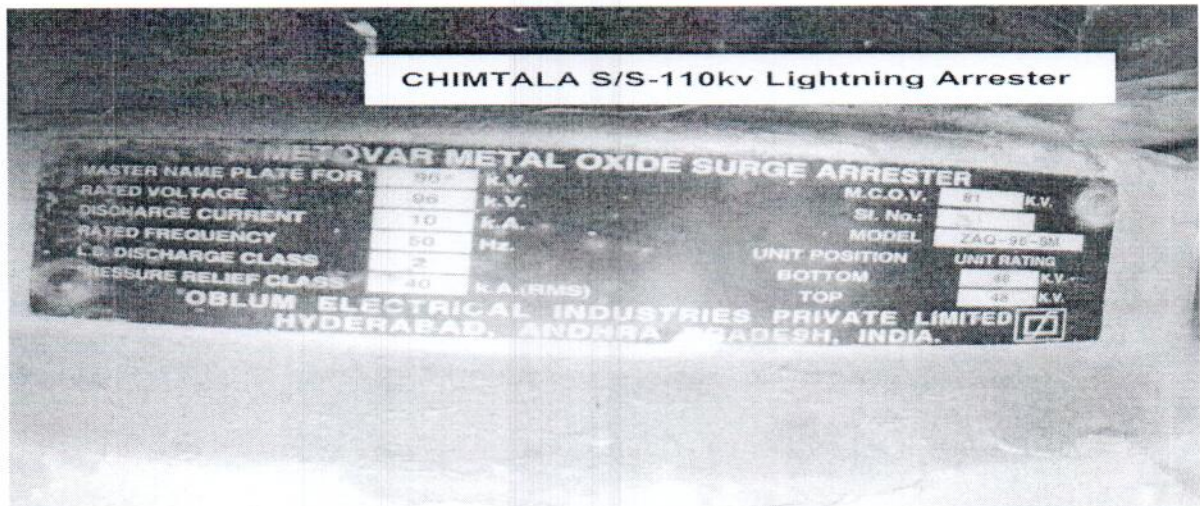
تصویر 2: قلم شماره 2 (سرکت بریکر گاز Sf6 245kV Complete Circuit breaker) - سوچ ستیشن نائب آباد



تصویر 3: قلم شماره 3 (سرکت بریکر گاز) (Sf6 245kV Complete Circuit breaker)

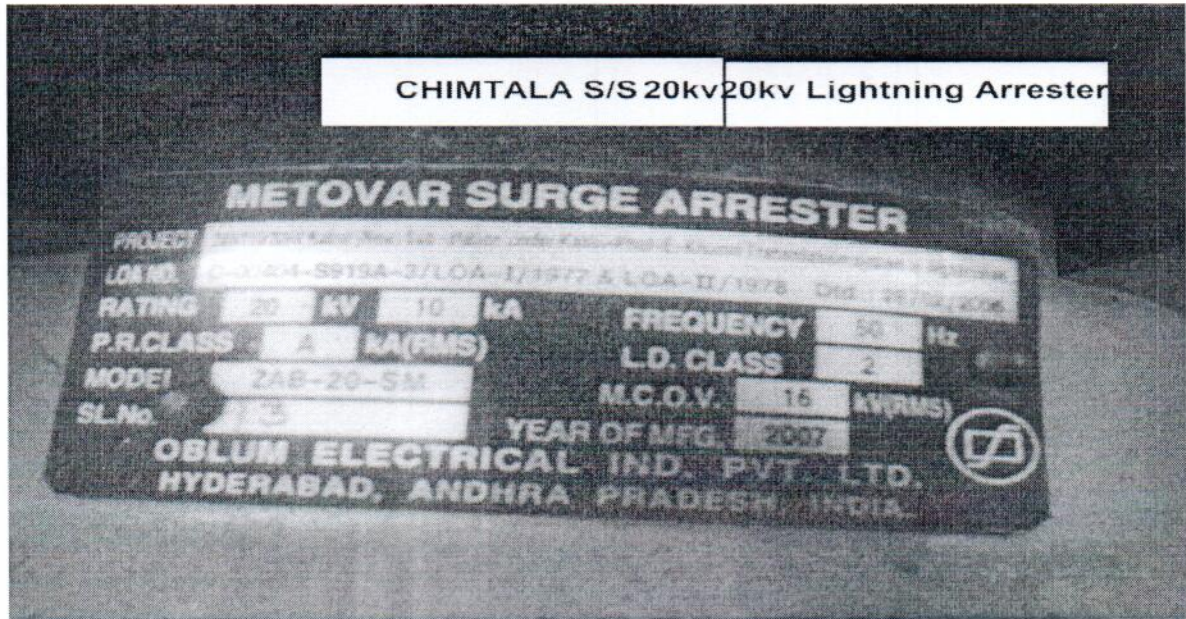


تصویر 4: قلم شماره 4 (لایتنگ ارستر 110 کیلوولت)

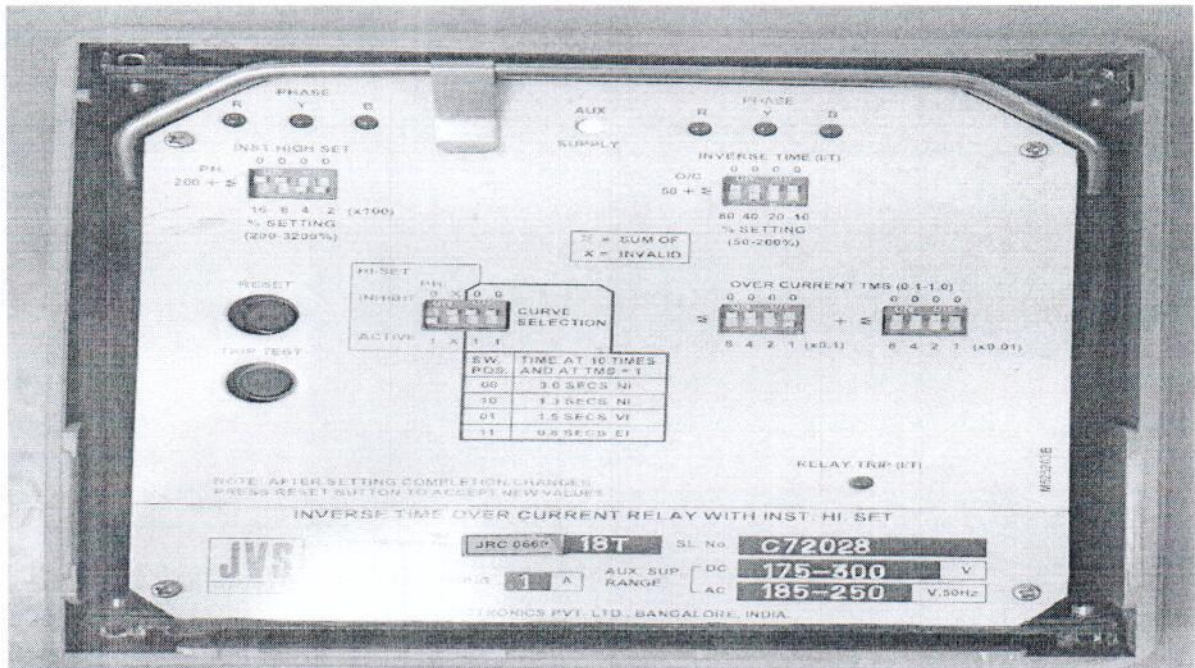


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تصویر 5: قلم شماره 5 (لایتنگ ارستر 20 کیلوولت)



تصویر 6: قلم شماره 6 (Digital Protection relay) برای فیدر های 20 کیلوولت



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भारत हेवी इलेक्ट्रिकल्स लिमिटेड
BHARAT HEAVY ELECTRICALS LIMITED

निर्वात परिपथ वियोजक
VACUUM CIRCUIT BREAKER

वोल्टेज VOLTAGE	24 kV
फ्रीक्वेंसी FREQUENCY	50 Hz
मेकिंग रेट MAKING RATE	1250 A
नॉर्मल करंट NORMAL CURRENT	12.5 kA
मिनिमम ब्रेकिंग करंट MINIMUM BREAKING CURRENT	12.5 kA
मिनिमम शॉर्ट सर्किट करंट MINIMUM SHORT CIRCUIT CURRENT	12.5 kA
ड्यूरेशन DURATION	2 s
मिनिमम मोमेंट MINIMUM MOMENT	31.25 kAp
मेकिंग क्षमता MAKING CAPACITY	31.25 kAp

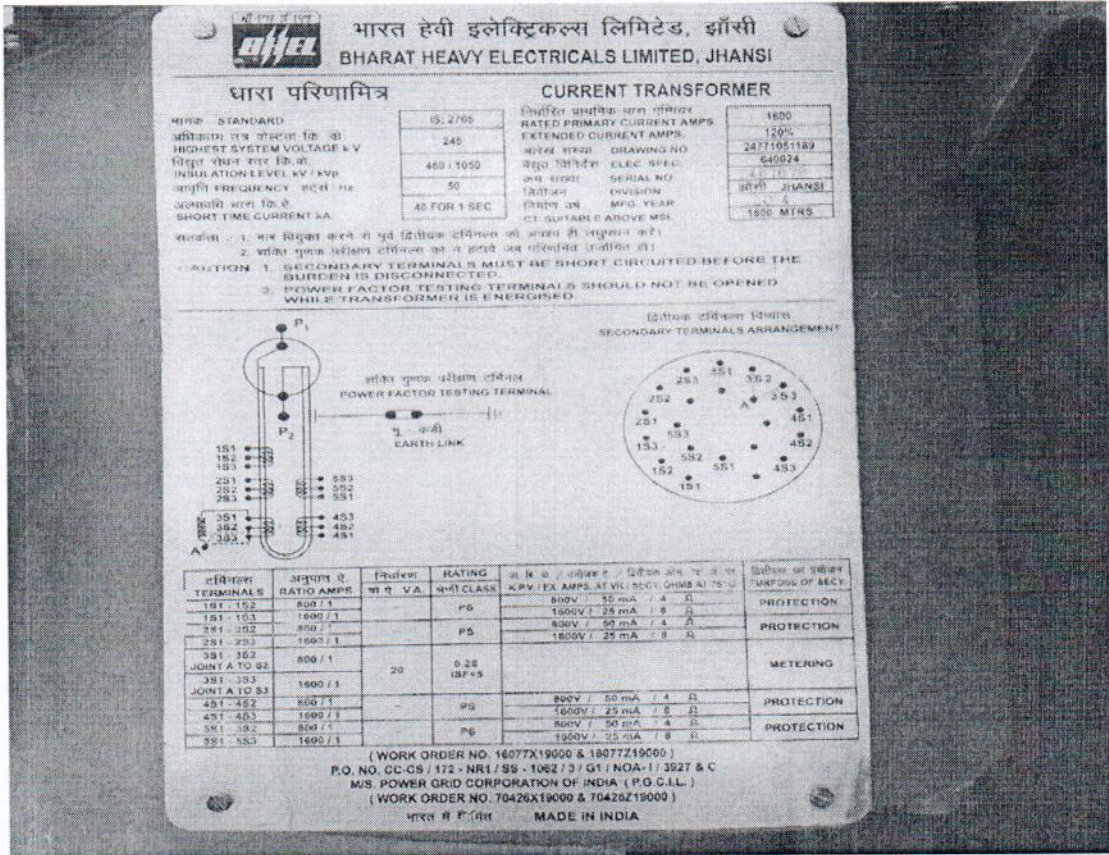
मैक्स. विनस्टैंड MAX. WITHSTAND	50 kV
मिनिमम विनस्टैंड MIN. WITHSTAND	125 kVp
मैक्स. वी.सी.बी. MAX. VCB	220 V
स्प्रिंग टेस्ट कोइल SPRING TEST COIL	220 V

टाइप TYPE	VM36
ब्रेकिंग टाइप BREAKING TYPE	IS 13118
मैक्स. वोल्टेज MAX. VOLTAGE	BP9099654
सीरियल नं. SERIAL NO.	BHOPAL
डिवीजन DIVISION	2013
वर्ष YEAR	2013

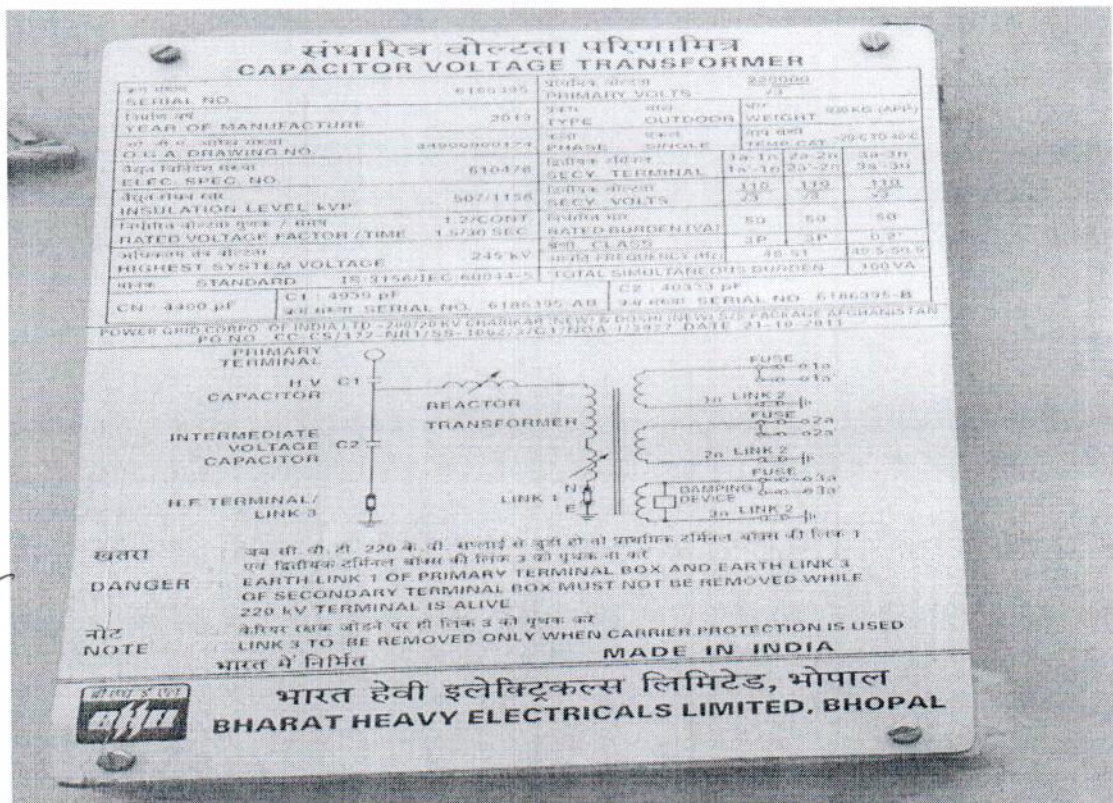
भारत में निर्मित
MADE IN INDIA

INCOMER FROM 16MVA, 220/20KV TRANSFORMER # 2

تصویر 8: قلم شماره 8 (Current Transformer 220kV)



تصویر 9: قلم شماره 9 (Capacitor Voltage Transformer 220kV)



تصویر 10: قلم شماره 14 (CVT for 110kV)

Crompton Greaves Ltd. S1 - DIVISION AMBAL, HARYANA		CAPACITOR VOLTAGE TRANSFORMER MADE IN INDIA		RATING AND SCHEMATIC PLATE																	
CUSTOMER: ISLAMIC REPUBLIC OF AFGHANISTAN & USAID																					
TYPE: C.V.T. 110 / 850 / 50	HSV: 110 kV	EDUC. CAPACITANCE: 6500 ± 10% μF	CAPACITOR OIL: 80 ± 10% kg																		
STD: IEC 60044-6 (2004)	FREQ: 50 Hz	VOLTAGE FACTOR: 1.2 CONT / 1.5-2.0 DEG	EMU OIL: 80 ± 10% kg																		
S.O: 8X3055-10-10	INSULATION LEVEL: 230 kV / 550 kVp			TOTAL WT: 305 ± 10% kg																	
YEAR: 2011																					
SR NO: KS0833																					
		<p> A = HV TERMINAL C1 = PRI. CAPACITANCE C2 = SEC. CAPACITANCE NHF = HF TERMINAL L = COMPENSATING CHOKE N = NEUTRAL Tr = INT. TRANSFORMER F1 - F2 = HRC FUSE (4 AMP) E = EARTH SCREEN = BETWEEN HV & LV Zd = DAMPING DEVICE V = VARISTOR S = SURGE ARRESTOR </p>																			
		<table border="1"> <thead> <tr> <th></th> <th>A - NHF</th> <th>1a - 1n</th> <th>2a - 2n</th> </tr> </thead> <tbody> <tr> <td>VOLTS</td> <td>110000/√3</td> <td>100/√3</td> <td>100/√3</td> </tr> <tr> <td>VA</td> <td>---</td> <td>10</td> <td>25</td> </tr> <tr> <td>CLASS</td> <td>---</td> <td>0.5/3P</td> <td>0.5/3P</td> </tr> </tbody> </table>					A - NHF	1a - 1n	2a - 2n	VOLTS	110000/√3	100/√3	100/√3	VA	---	10	25	CLASS	---	0.5/3P	0.5/3P
	A - NHF	1a - 1n	2a - 2n																		
VOLTS	110000/√3	100/√3	100/√3																		
VA	---	10	25																		
CLASS	---	0.5/3P	0.5/3P																		
		<p>CAUTION</p> <ol style="list-style-type: none"> 1) SHORT CIRCUIT THE CAPACITOR UNITS WHEN ERECTING OR DISMANTLING THE CVT AND REMOVE THE SHORT CIRCUIT BEFORE PRETEST OR COMMISSIONING. 2) UNDER NO CONDITIONS SHOULD THE LOAD/BURDEN VALUES MENTIONED ON THE RATING PLATE BE EXCEEDED. 3) WHEN TERMINAL NHF IS NOT USED FOR HF TRANSMISSION IT MUST BE CONNECTED TO EARTH. (AS SUPPLIED NHF IS CONNECTED TO EARTH.) 																			
<p>IMPORTANT</p> <ul style="list-style-type: none"> BEFORE COMMISSIONING IT IS ESSENTIAL TO CHECK THE LOW VOLTAGE RATIO OF CVT. (REFER INSTRUCTION MANUAL) DURING SERVICE, PLEASE CLOSE THE TERMINAL BOX COVER FIRMLY WITH WING-NUTS TO ENSURE PROPER SEALING OF BOX. PLUG UNUSED HOLES ON THE GLAND PLATE. 																					

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Technical Data Sheets For Battery Chargers			
UNIT	:220V/50A FLOAT CUM BOOST BATTERY CHARGER		
NO	DESCRIPTION	REQUIRED	
1	Charger dimension : (approx.)		
	a) Height (H) (mm)	2000	
	b) Depth (W) (mm)	600	
	c) Width (L) (mm)	800	
	d) Sheet thickness (mm)	2.0 MM (CRCA)	
2	Charger weight (Kg)	400 KG Approx.	
3	Nominal Voltage rating	220 V DC	
	Output Voltage	CP 244±1% CC 296 CP 50A CC 40A ± 2%	
4	Rating of Charger in Float cum Boost Mode	50A/40A	
5	Battery Data	Ni-Cd pocket plate with medium discharge	
	a) Nominal cell Voltage	1.2V/CELL	
	b) Float Voltage	1.4V/CELL	
	c) Boost Charging Voltage	1.7V/CELL	
	d) End Cell Voltage	1.14V/CELL	
	e) No of Cell	174 Nos	
	f) Battery Rating	400AH	
6	Charger Efficiency	≥ 80% at rated load & rated input supply	
7	Power Factor	0.8 Lag at rated load & Rated input.	
8	Fault Currents		
	a) Short Circuit AC Current	20KA	
	b) Short Circuit DC Current	10KA	
9	AC Input Power Supply	415V±10%, 50HZ±5% 3 PHASE,4 WIRE AC SUPPLY , SOLIDLY EARTHED	
10	Charger rated output current:		
	a) Float cahrging mode:	40A	
	b) Boost charging mode	50A	

NO	DESCRIPTION	REQUIRED	OFFERED
11	Load limiter current setting range (Trickle mode)	80%-100%	
12	Automatic voltage regulator(float mode)		
	a) Type	Static SCR control	
	b) % stabilization of the output DC voltage	$\pm 1\%$	
	c) Voltage setting range	220V - 250 V	
	d) Response time of automatic Voltage regulator	10-15 sec	
13	Manual voltage regulator (Float mode)		
	a) Type	Through Potentiometer	
	b) Voltage setting range	0-305V	
14	Float charging current setting range	80% TO 100%	
15	Boost charging limit setting range	50% TO 100%	
16	Rectifier assembly:		
	a) Type of semi-conductor material	Silicon	
	b) Rated direct current	50A	
	c) Rated direct voltage	220 V DC	
	d) Rated input Voltage	Input 415 V/10% 50Hz $\pm 5\%$ 3Ph 4 wire AC Supply . به دلیل اینکه به تعداد 174 عدد بطری 300V مقدار input voltage Boost Charge=1.7 V در بطری روم موجود بوده که برای هر بطری در نظر Voltage Drop =2.2v نیاز است و بر علاوه آن Cell در هر گرفته میشود که مجموعاً مساوی به 298 ولت الی 300 ولت نیاز است.	
	e) Type of connection of rectifier element	Full wave Full control	
	f) Standard applicable	IS : 3895	
	g) Ripple (peak to peak)	$\leq 1\%$	
17	Rectifier transformer		
	a) Type	Double Wound Air Natural	
	b) Rated KVA	21.5 KVA	
	c) % impedance	Impedence : < 5%	
	d) Input line winding Connection in vector Representation	Star	
	e) Cell winding connection in vector representation	Delta	
	f) 1 min. power frequency withstand voltage (KV)	2.5 KV	
	g) Standard applicable	IS - 2026	
	h) Class of Insulation	Class F	

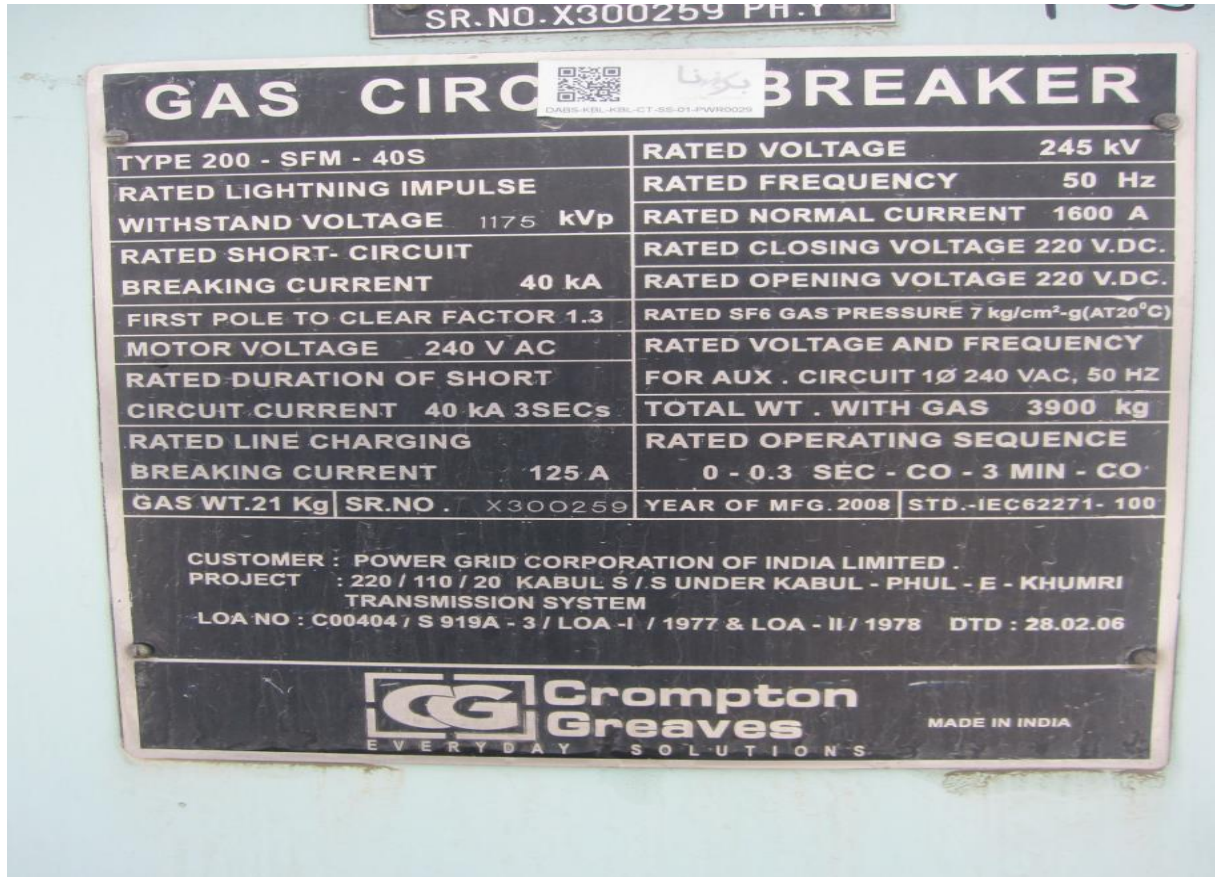


NO	DESCRIPTION	REQUIRED	OFFERED
18	Instrument		
	a) Type	Analog	
	b) AC voltmeter range	0-500V	
	c) AC Ammeter range	0-50A	
	d) DC voltmeter range	0-400V & 400V-0-400V	
	e) DC Ammeter range	0-75A	
	f) Dial size	96X96 Sq.mm	
	g) Accuracy class as per IS	CL - 1.0	
19	Contactor		
	a) Type	Air Break	
	b) Rated Voltage	415V AC	
	c) Rated current	32A	
	d) No. of power contact	3 Nos	
	e) No. Type and rating of Aux. contacts	1NO + 1 NC	
	f) operating coil voltage	240V AC	
	g) Drop - out voltage	140V AC	
20	Air- break switches DC/MCCB		
	a) Type	MCCB	
	b) Rated voltage	250V DC	
	c) Rated current	75A 3P	
	d) Type and material of Contacts	COPPER WITH SILVER PLATED	
	e) Standard applicable	IS - 13947	
21	AC MCCB		
	a) Type	4 POLE AC	
	b) Mechanical Interlock	YES	
	c) Rated Current	40A	
	d) Standard applicable	IS : 13947	
22	Temperature sensor	NOT applicable	
23	Efficiency of charger	≥80% at rated load & rated input supply	

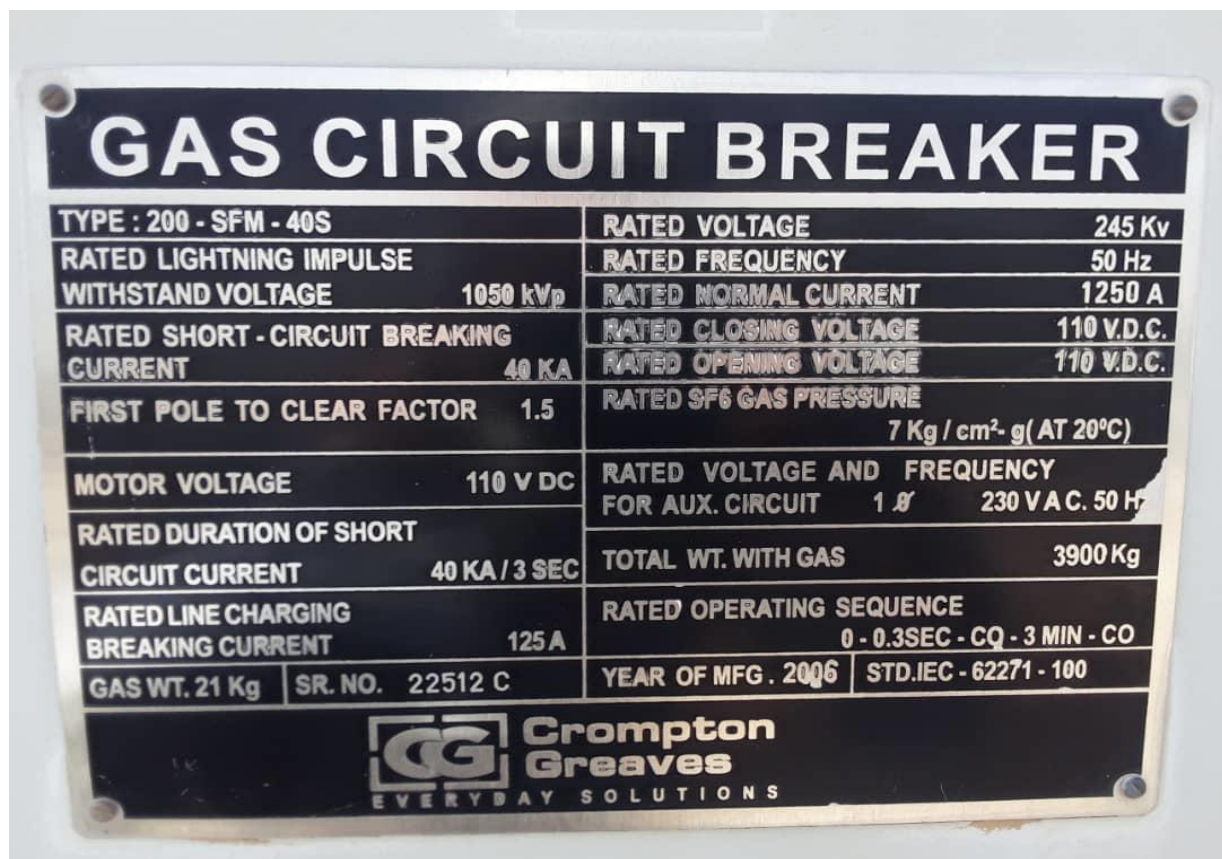


تصاویر تجهیزات مربوطه لات پنجم (پروژه تجهیزات ریزرفی سب ستیشن های مرکز و ولایات)

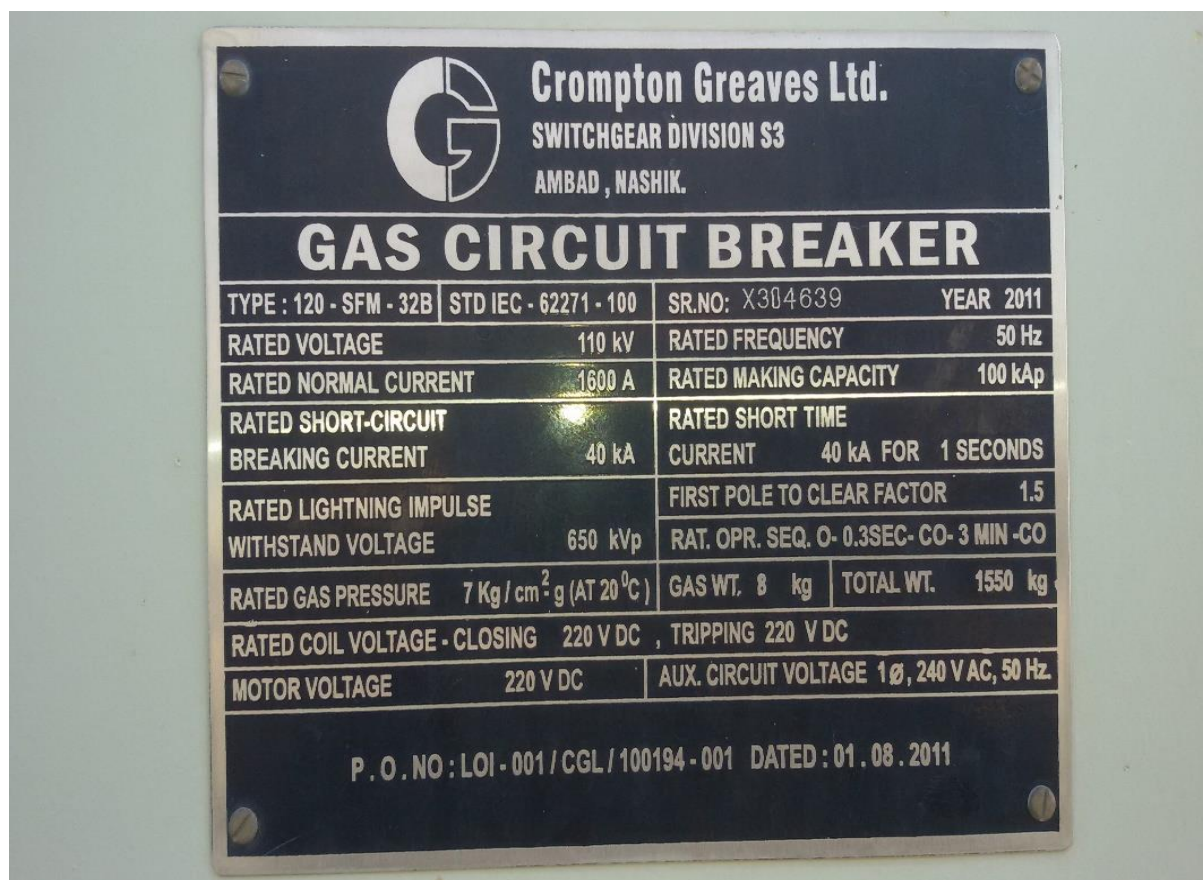
تصویر 1: قلم شماره 1 (سرکت بریکر گاز (Sf6 245kV Complete Circuit breaker - سب ستیشن چمتله و پشته سرخ



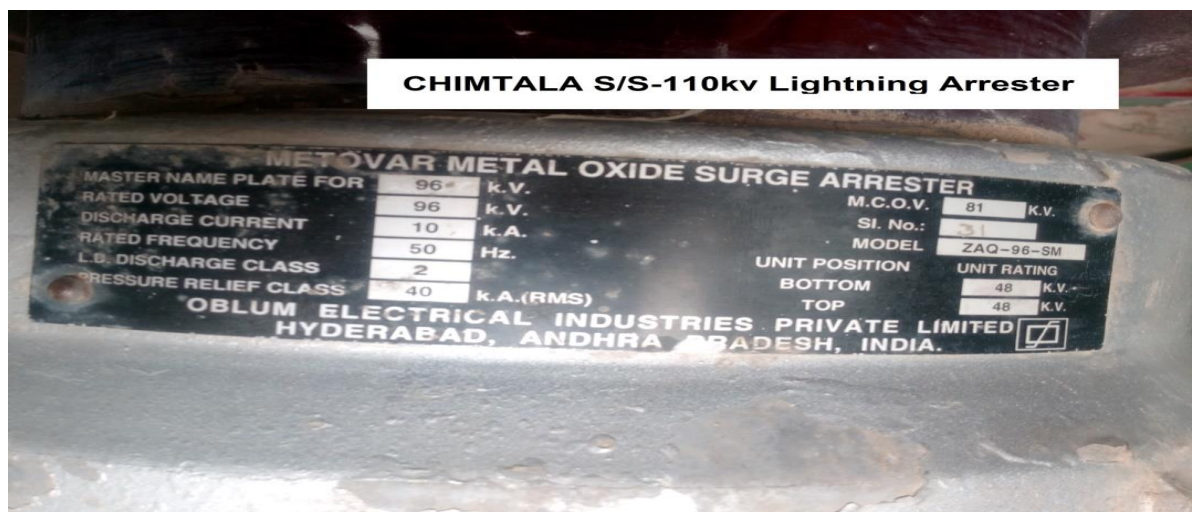
تصویر 2: قلم شماره 2 (سرکت بریکر گاز (Sf6 245kV Complete Circuit breaker - سوچ ستیشن نائب آباد



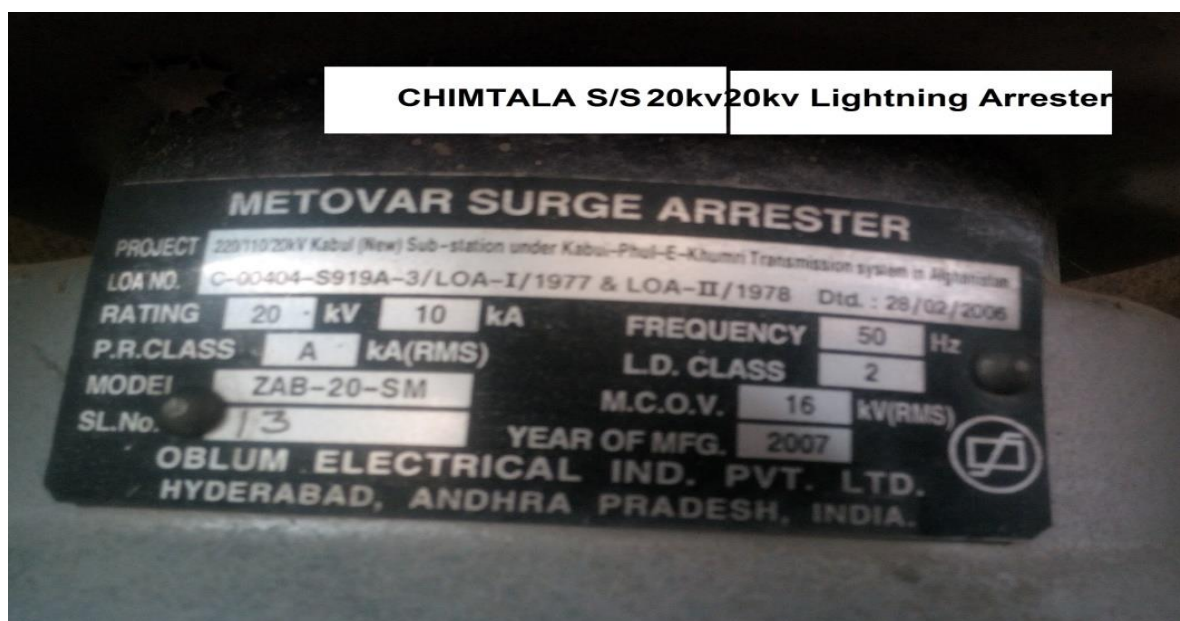
تصویر 3: قلم شماره 3 (سرکت بریکر گاز) (Sf6 245kV Complete Circuit breaker) -



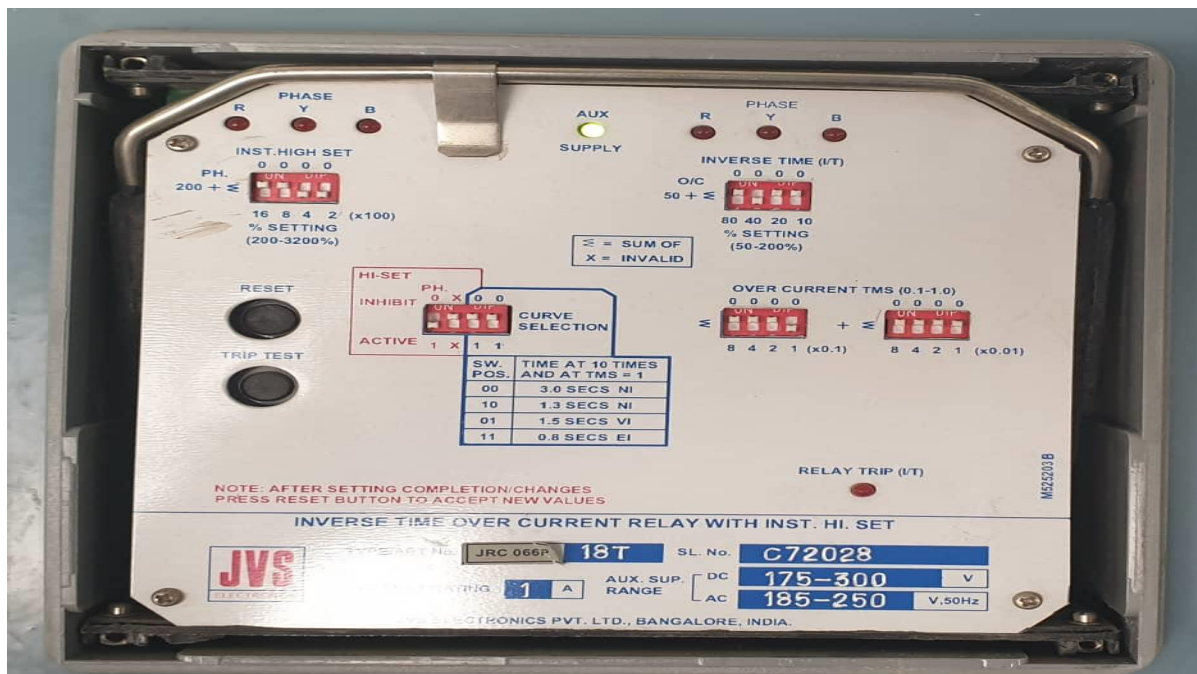
تصویر 4: قلم شماره 4 (لایتنگ ارستر 110 کیلوولت)



تصویر 5: قلم شماره 5 (لایتنگ ارستر 20 کیلوولت)



تصویر 6: قلم شماره 6 (Digital Protection relay) برای فیدرهای ۲۰ کیلوولت



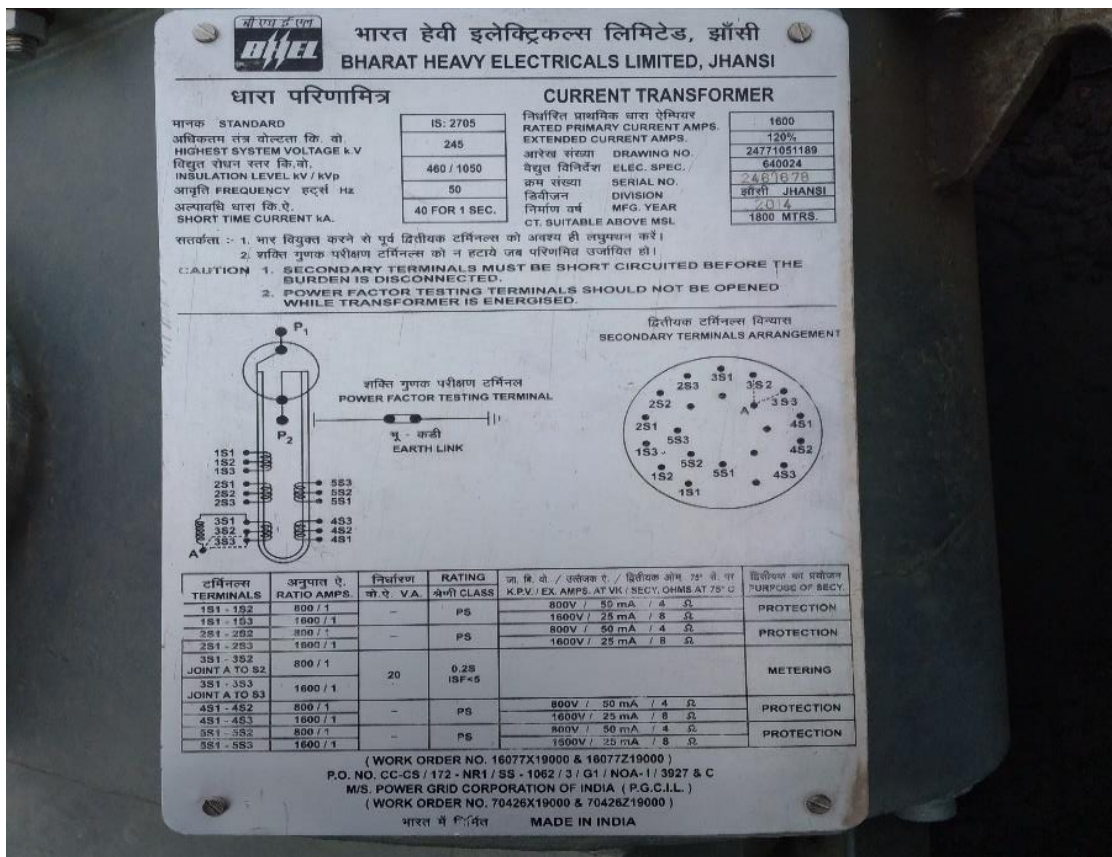
تصویر 7: قلم شماره 7 (Outgoing feeder circuit breaker) سب ستیشن پشته سرخ - پروان برشنا



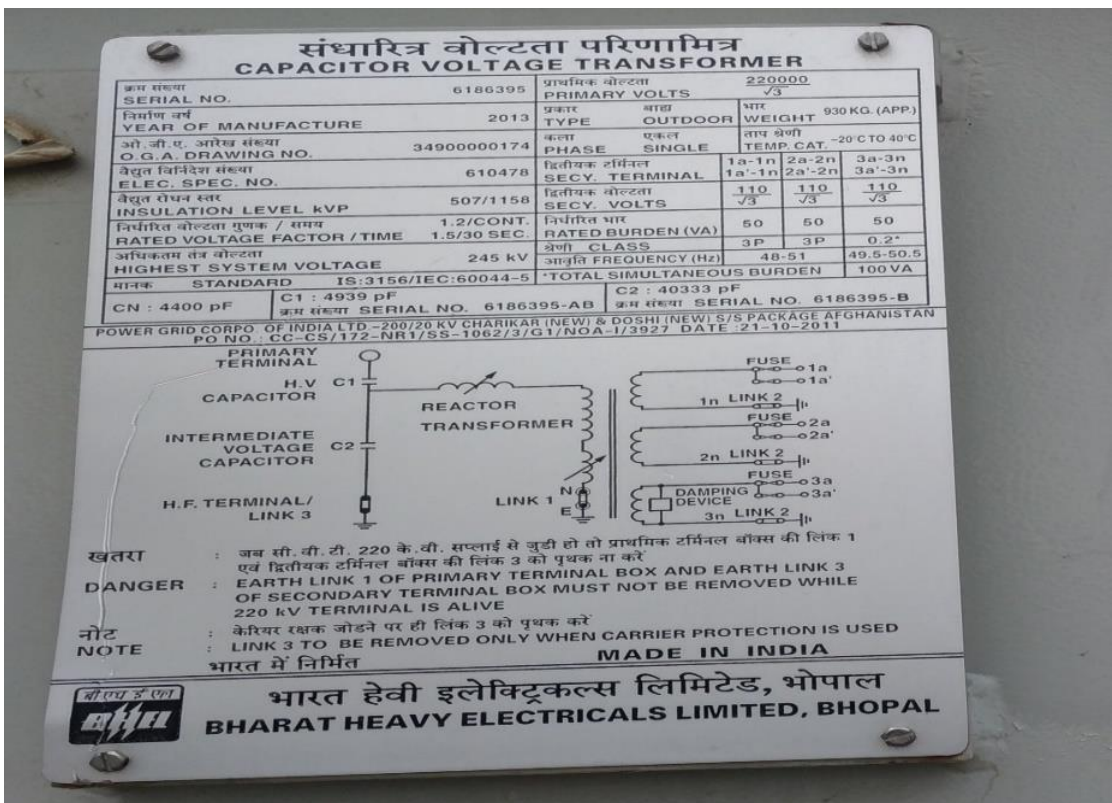
تصویر 8: قلم شماره 8 (Incoming Feeder circuit breaker) سب ستیشن پشتہ سرخ - پروان برشنا



تصویر 8: قلم شماره 8 (Current Transformer 220kV) سب ستیشن پشتہ سرخ - پروان برشنا



तस्वीर 9: कलम शमारे 9 (Capacitor Voltage Transformer 220kV)



तस्वीर 10: कलम शमारे 14 (CVT for 110kV)

Crompton Greaves Ltd. S1 - DIVISION AMBAD, NASHIK		CAPACITOR VOLTAGE TRANSFORMER MADE IN INDIA		RATING AND SCHEMATIC PLATE																	
CUSTOMER : ISLAMIC REPUBLIC OF AFGHANISTAN & USAID																					
TYPE	CVE:145 / 650 / 50	HSV	123 kV	EQUI. CAPACITANCE	6000+10%,-5%pF																
STD.	IEC 60044-5 (2004)	FREQ.	50 Hz	VOLTAGE FACTOR	1.2CONT./1.5-30SEC																
S.O.	SX3958-1B/10	INSULATION LEVEL	230 kV / 550 kVp	CAPACITOR OIL	30 ± 10% kg																
YEAR	2011			EMU. OIL	65 ± 10% kg																
SR.NO.	XS108681			TOTAL WT.	390 ± 10% kg																
		<p>A = HV TERMINAL C1 = PRI. CAPACITANCE C2 = SEC. CAPACITANCE NHF = HF TERMINAL L = COMPENSATING CHOKE N = NEUTRAL Tr. = INT. TRANSFORMER F1 - F2 = HRC FUSE (4 AMP) E = EARTH SCREEN Zd = DAMPING DEVICE V = VARISTOR S = SURGE ARRESTOR</p>		<table border="1"><thead><tr><th></th><th>A - NHF</th><th>1a - 1n</th><th>2a - 2n</th></tr></thead><tbody><tr><td>VOLTS</td><td>$110000/\sqrt{3}$</td><td>$100/\sqrt{3}$</td><td>$100/\sqrt{3}$</td></tr><tr><td>VA</td><td>---</td><td>10</td><td>25</td></tr><tr><td>CLASS</td><td>---</td><td>0.5/3P</td><td>0.5/3P</td></tr></tbody></table> <p>CAUTION</p> <ol style="list-style-type: none">1) SHORT CIRCUIT THE CAPACITOR UNITS WHEN ERECTING OR DISMANTLING THE CVT AND REMOVE THE SHORT CIRCUIT BEFORE PRETEST OR COMMISSIONING.2) UNDER NO CONDITIONS SHOULD THE LOAD/BURDEN VALUES MENTIONED ON THE RATING PLATE BE EXCEEDED.3) WHEN TERMINAL NHF IS NOT USED FOR HF TRANSMISSION IT MUST BE CONNECTED TO EARTH. (AS SUPPLIED NHF IS CONNECTED TO EARTH.)			A - NHF	1a - 1n	2a - 2n	VOLTS	$110000/\sqrt{3}$	$100/\sqrt{3}$	$100/\sqrt{3}$	VA	---	10	25	CLASS	---	0.5/3P	0.5/3P
	A - NHF	1a - 1n	2a - 2n																		
VOLTS	$110000/\sqrt{3}$	$100/\sqrt{3}$	$100/\sqrt{3}$																		
VA	---	10	25																		
CLASS	---	0.5/3P	0.5/3P																		
<p>IMPORTANT</p> <ul style="list-style-type: none">- BEFORE COMMISSIONING IT IS ESSENTIAL TO CHECK THE LOW VOLTAGE RATIO OF CVT. (REFER INSTRUCTION MANUAL)- DURING SERVICE, PLEASE CLOSE THE TERMINAL BOX COVER FIRMLY WITH WING-NUTS TO ENSURE PROPER SEALING OF BOX- PLUG UNUSED HOLES ON THE GLAND PLATE.																					