



VIDYUT CARBON PRODUCTS PVT. LTD.

Ancillary Unit of BHEL

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Chart of Common Difficulties of Rotating Electrical Machines

SYMPTOMS

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SYMPTOMS		SYMPTOMS																												
M	SERRATION AND GROOVING OF COMMUTATOR OR SLIP RING																											N		
L	EXCESSIVE COMMUTATOR WEAR-SURFACE BLACKENED																											O		
K	COPPER DRAGGING																											P		
J	EXCESSIVE COMMUTATOR OR SLIP RING WEAR-BRIGHT SURFACE																											Q		
I	UNEQUAL BRUSH WEAR																											R		
H	RAPID BRUSH WEAR-WHILE COMMUTATION GOOD																											S		
G	FLEXIBLE BURNT CUT OR DISCOLOURED																											T		
F	BRUSHES AND BRUSH HOLDERS TOO HOT																											U		
E	COMMUTATOR-SLIP RING-TOO HOT																											V		
D	SPARKING VICIOUS AND TRAILING AROUND COMMUTATOR																											W		
C	GREEN PIN SPARKS																											X		
B	SPARKING AT THE ENTERING EDGE																											Y		
A	SPARKING AT THE LEAVING EDGE																											Z		
PROBABLE CAUSE OF TROUBLE		A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	REMEDY		
1	INTERPOLE FIELD TOO STRONG																											1	WEAKEN INTERPOLE FIELDS BY DIVERTING OR BY INCREASING GAP	
2	INTERPOLE FIELD TOO WEAK																												2	STRENGTHEN INTERPOLE FIELDS BY REDUCING AIR GAP
3	INTERPOLE AIR GAP TOO SMALL																												3	ENLARGE AIRGAP TO DECREASE EFFECTIVE INTERPOLE FLUX
4	INTERPOLE AIR GAP TOO LARGE																												4	REDUCE AIRGAP TO INCREASE EFFECTIVE INTERPOLE FLUX
5	AIR GAPS UNEVEN (BEARINGS WORN)																											5	RENEW BEARING AND REALIGN MACHINE	
6	OVERLOAD OF MACHINE																											6	REDUCE AND LIMIT LOAD ON MACHINE	
7	VIBRATION FROM EXTERNAL CAUSES. I.e. PRIME MOVER NEARBY, FORGE HAMMER etc.																											7	LOCATE AND REMOVE CAUSE OF VIBRATION OR MOUNT MACHINE ON SHOCK ABSORBERS	
8	VIBRATION FROM INTERNAL CAUSES. I.e. OUT OF BALANCE, POOR ALIGNMENT etc.																											8	BALANCE ARMATURE AND CHECK FOR BEARING WEAR	
9	QUASI ELECTROLYTIC WEAR OF SLIP RING																											9	REVERSE THE POLARITY OF RINGS PERIODICALLY	
10	OIL AND DIRT ON COMMUTATOR OR SLIP RING																											10	CLEAN COMMUTATOR OR SLIP RING	
11	RESISTANCE BETWEEN BRUSHES AND BRUSH ARMS NOT UNIFORM																											11	CLEAN AND TIGHTEN THE CONNECTIONS	
12	GRAINS OF ABRASIVE IN THE BRUSH CONTACT FACE																											12	REBED AND CLEAN THE BRUSH FACE	
13	FAULTS IN ARMATURE WINDING OR EQUALISER CONNECTIONS																											13	LOCATE AND CURE FAULT OR CONSULT MANUFACTURER	
14	MICA PROUD																											14	RECESS MICA, OR USE MORE ABRASIVE BRUSH	
15	COMMUTATOR OR SLIP RING ECCENTRIC																											15	TURN OR REGRIND PREFERABLY AT NEAR RATED SPEED	
16	COMMUTATOR RISER CONNECTIONS OPEN CIRCUITED																											16	RE-SOLDER CONNECTIONS	
17	HIGH OR LOW COMMUTATOR SEGMENTS																											17	TIGHTEN COMMUTATOR, TURN, OR REGRIND	
18	COMMUTATOR LOOSE																											18	TIGHTEN COMMUTATOR, REMICA IF NECESSARY, TURN OR REGRIND	
19	FLATS ON COMMUTATOR OR SLIP RING																											19	LOCATE AND REMOVE CAUSE OF FLATTING, TURN, OR REGRIND	
20	SPRING PRESSURE TOO LOW																											20	ADJUST SPRING PRESSURE TO THAT RECOMMENDED FOR BRUSH GRADE	
21	SPRING PRESSURE TOO HIGH																											21	ADJUST SPRING PRESSURE TO THAT RECOMMENDED FOR BRUSH GRADE	
22	SPRING PRESSURE UNEQUAL																											22	ADJUST SPRING PRESSURE UNIFORMLY TO THAT RECOMMENDED FOR BRUSH GRADE	
23	BRUSH GRADE UNSUITABLE FOR MACHINE AND DUTY																											23	SELECT ONE OF OUR ALTERNATIVE GRADES OR ASK FOR OUR RECOMMENDATION	
24	BRUSH ARC OF CONTACT EXCESSIVE																											24	REDUCE THE EFFECTIVE THICKNESS OF BRUSH, PREFERABLY CONSULT MANUFACTURER	
25	BRUSH ARC OF CONTACT INSUFFICIENT																											25	APPLY SUITABLE CIRCUMFERENTIAL STAGGER, PREFERABLY CONSULT MANUFACTURER	
26	BRUSH FLEXIBLE CONNECTION FAULTY																											26	FIT A NEW BRUSH WITH A SOUND FLEXIBLE CONNECTION	
27	BRUSH FLEXIBLE TOO SHORT OR TOO STIFF																											27	USE BRUSHES WITH FLEXIBLE OF CORRECT LENGTH AND FLEXIBILITY	
28	IMPERFECT BRUSH BEDDING																											28	BED BRUSHES BY OUR RECOMMENDED METHOD	
29	RADIAL BRUSH HOLDERS MOUNTED AT SMALL REACTION ANGLE																											29	ADJUST HOLDERS TO A RADIAL POSITION AND CORRECT DISTANCE FROM COMMUTATORS SEE No. 34	
30	REACTION TYPE HOLDER MOUNTED TRAILING																											30	REVERSE HOLDERS OR DIRECTION OF ROTATION	
31	BRUSH STICKING OR SLUGGISH IN BRUSH HOLDER																											31	CHECK THAT BRUSH SIZE IS CORRECT, CLEAN BRUSHES AND HOLDERS, REMOVE ANY BURNS	
32	BRUSHED TOO LOOSE IN BRUSH HOLDER (HOLDERS WORN)																											32	IF HOLDERS WORN REPLACE WITH NEW ONES, ORDER BRUSHES OF CORRECT DIMENSIONS	
33	TERMINAL CONNECTIONS LOOSE OR DIRTY																											33	CLEAN TERMINALS AND TERMINAL BLOCK TIGHTEN SCREWS	
34	BRUSH HOLDER MOUNTED TOO FAR FROM COMMUTATOR OR SLIP RING																											34	ADJUST HOLDER TO BE 3/32 IN. OR 2 M.M. FROM COMMUTATOR	
35	INCORRECT BRUSH POSITION																											35	ADJUST HOLDER TO CORRECT POSITION	
36	UNEQUAL BRUSH HOLDER SPACING OR ALIGNMENT																											36	CORRECT SPACING AND ALIGNMENT OF HOLDERS	
37	HUMIDITY OF ATMOSPHERE LOW																											37	HUMIDIFY THE COOLING AIR OR DRAW AIR FROM NORMAL HUMIDITY SOURCE	
38	HUMIDITY OF ATMOSPHERE EXCESSIVE																											38	ENCLOSE MACHINE OR DRAW COOLING AIR FROM NORMAL HUMIDITY SOURCE	
39	DUSTY ATMOSPHERE																											39	REMOVE CAUSE IF POSSIBLE OR INSTALL FILTER	
40	GAS OR ACID FUMES IN ATMOSPHERE																											40	ARRANGE CLEAN AIR COOLING	
41	LONG PERIODS AT LOW OR STEADY LOADS																											41	CHANGE BRUSH GRADE ASK FOR OUR RECOMMENDATION	

Manufacturer of : Carbon Brushes & other Carbon Products • Suppliers of : Brush Holder, Spring Balance, Bedding Stone etc.
 S.S.I. No.-20/47/02123/PMT/SSI/08, N.S.I.C.No.-SIC/GP/RS/V-1/UP/77, D.G.S. & D.No.-REGN/DHL/S-444/95/V
 Approved Suppliers to : Road Transport Undertakings, Indian Railways, Power Houses, Cement Plants, Steel Plants, Paper Plants & N.T.P.C.
 O.E.M'S : B.H.E.L., HARDWAR & BHOPAL