Assam Carbon Products Ltd.

ACPL
ASSAM CARBON PRODUCTS LTD

Commutator Film Chart Guide to Brush Performance

1

GOOD CONDITION

LIGHT FILM

Uniform coloring indicates satisfactory operation of machine and brushes.Film color is largely an effect of thickness, therefore provided the film is uniform it is perfectly acceptable

2

GOOD CONDITION

DARK FILM

A further example of a commutator in excellent condition. Film is much darker than illustration 1, however uniformity is the feature to consider rather than color

3

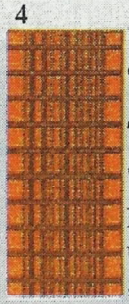
SATISFACTORY CONDITION

LIGHT AND DARK BAR

PATTERN

This is not a good condition but in our experience it is known that machines having this commutator pattern have operated with satisfactory results for long periods of time. Periodic bar marking is related to armature winding design.

4



UNSATISFACTORY CONDITION

STREAKY FILM WITH NO

COMMUTATOR WEAR

Frequently due to underload operation ,machine grossly overbrushed or brush grade incorrect for particular machine application. Atmosphere and environmental conditions can contribute.

5

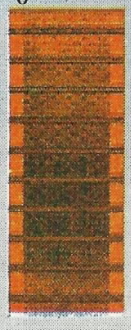
UNSATISFACTORY

CONDITION

UNEVEN FILM

Patchy colors of varying densities and shape. Due to unclean operating conditions or incorrect physical condition of commutator.

6



UNSATISFACTORY

CONDITION

FILM WITH DARK AREAS

These areas can be isolated or regular, Commutator out of round, Can be caused by vibration of mechanical deficiencies in equipment operation , bearings, couplings, etc

7

UNSATISFACTORY

CONDITION

EXAMPLE OF POOR

COMMUTATOR MACHINING

Bars are low on entry and leaving edges giving rise to the brushes riding on the middle of the bars.

8

UNSATISFACTORY

CONDITION

EXAMPLE OF POOR

COMMUTATOR MACHINING

Bars are low in middle giving rise to the brushes riding on entry and baredges. This and the previous illustration indicate the need for better maintenance.

9

UNSATISFACTORY

CONDITION

STREAKY FILM WITH

COMMUTATOR WEAR

This is a further development of example 4 , Brush grade , machine application and working environment all suspect. Earlier corrective action should have been taken.

10

UNSATISFACTORY

CONDITION

DOUBLE POLE PITCH

Darkening of commutator in sequences two pole pitches apart is due to armature fault defective coil ' riser bars , or equalizer connections .

11

UNSATISFACTORY

CONDITION

BRUSH CONTACT MARK

Storage of machines , for lengthy periods , with brushes in position . Can also result from operation of machine in prolonged stall conditions .

12

UNSATISFACTORY

CONDITION

BAR EDGE BURNING CAUSE

HIGH MICA

Illustration shows high mica in every slot , Same effect can

13

UNSATISFACTORY

CONDITION

SMALL BRIGHT SPOTS

Related to overload machines and low brush pressure , Due to sparking under brush which gives rise