

ANNEXURE - 1

AXLE GENERATOR TYPE AG903CX/M

Introduction:

The Axle Generator which is mounted on and directly driven by the locomotive axle supplies speed dependent electric signals for initiating the "Transitions". The output of the Axle Generator is also fed to an electrical speedometer to indicate locomotive speed.

Technical Data:

No. of Poles/Magnets	40
Maximum speed	700 RPM
Frequency	(RPM/3) cycles/sec
Stator coil resistance (at 25 °C)	80 ± 11 Ohms
Insulation Class	Class F
Temperature rise	Within 155 °C as per IEC 60349
Weight	6 ± 5% Kg

Constructional Features:

The Axle Generator is a permanent magnet single phase a.c. machine consisting of cast aluminium frame, stator, rotor, a permanently lubricated bearing assembly and a spade shaft to couple with the locomotive axle. The stator consists of bar magnets placed axially with alternate polarities, electrical sheet steel laminations and circular coil, all embedded in an epoxy moulding. The rotor is also epoxy moulded and consists of steel laminations, and a brass hub for mounting on shaft. The bearing assembly consists of a double row sealed bearings.

As the rotor turns, the laminations make and break magnetic circuits around the stator coil, by shorting alternate magnets of likewise polarity once in each cycle. Because of this alternate make and break of flux produced by each set of likewise polarity magnets, a voltage is induced in the stator coil which varies linearly with speed. This variable a.c. voltage is fed to a panel mounted saturable transformer, rectifier and filter. The outcome is a d.c. signals which is used for operating motor main contactors and field weakening contactors so as to set required traction motor combination and field strength.