



**(RAILWAY BOARD)**

# TRACK MACHINE MANUAL

**Second Edition  
September, 2019**

circuit is cut-off as the preset squeezing time is completed. The tamping unit is then lifted in succession. Lifting and lining circuit is cut-off when tamping unit, while in lifting operation, is 100 mm before the Zero position. For maintenance packing, squeezing time of 0.8 second to 1.2 second should normally be adequate. Higher value of the above range of squeezing time is required for track with caked up ballast.

- (6) **Tamping tool surface area** - Surface area of tamping tools blade of different machines is given in **Annexure 2.1**. Tools with more than 20% wear of the original surface area should not be used. The worn out tools are to be reconditioned/replaced.

**207 Optional equipment** - The use of optional equipment like Laser Beam System, Geometry Value Assessment (GVA), and ALC etc. simplifies working and reduces error-proneness associated with manual system of data collection and feeding. These systems are briefly described below-

- (1) **Laser beam system** - A pair of photocells mounted on tamping machine receives a fanned-out laser beam from laser emitter. In case of unbalanced laser input received by photocells, a corresponding differential signal activates an electric motor, to move the whole receiver assembly along with front end of the chord to the centre of the laser beam. Thus, front tower end of chord is shifted laterally by the amount of error to enable design lining and levelling. Working of Laser Beam system is explained in **Annexure 2.7**.
- (2) **Geometry Value Assessment (GVA)** - It is a small computer, which eliminates the feeding of adjustment values from tables and marking on sleepers. The locations of main points of curve i.e. starting of transition, transition length, radius, super elevation data etc. are fed into the computer.

The use of GVA eliminates the necessity of attention by operator for feeding values and thus avoids possible mistakes in calculations and/or feeding, which result in better progress with improved quality.

- (3) **Automatic Guiding Computer (ALC) System** - It is advanced system, which automatically calculates the values of various track parameters, to be fed into machine on the basis of target track geometry. It has the capability to measure and record existing track parameters during a measuring run, in advance of working, and also allows flexibility to choose the desired track geometry. It also saves the operator from entering various parameters to be fed, as it does automatic feeding of parameters. The detailed working of this system is explained in **Annexure 2.8**. ALC's are being provided with fault finding diagnostic software also.
- (4) **Data Recording Processor (DRP) System** - It is a system for recording track parameters during working operation, at the working speed of the machine. It records the parameter of tamped track, like unevenness, alignment, cross-level, twist. The measuring sensors are so mounted that tamped track parameters are recorded in the working direction of the machine. It has a