

- 30% route time reduction.
- Reduction of the effect of the centrifugal force experienced by passengers.
- Permits a faster travelling speed.



## DESCRIPTION

The Active Tilt System **SIBI**, provides rail vehicles with a **cant effect** in addition to that of the track, **reducing** the effect of the **centrifugal force** experienced by passengers and **permitting the train to travel faster** without a reduction in comfort. In this way, the route travelling times are reduced by 30%.

This system has 2 operating modes:

- **Active Mode:** normal operation.
- **Passive Mode:** default operation should a system fault occur.

The driver can activate or deactivate the system by means of a display. Operation is automatic, with the system in the active position. The driver does not commission this as when the train is set into operation, the status of the SIBI is checked automatically.

If no errors are detected, *Conventional Tilting* is activated until the SDP confirms the train situation.

The route is continually adjusted. If any incoherencies are detected in the information, *Conventional Tilting* is resumed. If a significant error or fault is detected, tilting is deactivated.

### Advantages of SIBI Tilting System:

- The carbody shall not tilt on a straight line in spite of disturbances due to the poor condition of the track.
- Tilting operation does not result in delays. Before reaching the curve, the system is aware of the current location, the curve radius and the curve cant.
- The curve entry and exit transitions have been studied. A parametrised law has been obtained, by means of theoretical simulations of the dynamic performance of the vehicle, achieving excellent passenger comfort levels.
- Knowledge of the route permits smooth tilting (reduced jerk levels). Even on the most troublesome sections with curves leading into curves or short transitions.
- The action is calculated to achieve an optimum comfort level. The actuator sets into operation before negotiating the curve and is deactivated before leaving the curve.



