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In order to maintain continuous positional accurate quality control, the CMS automatically performs absolute multi-range position fixes at operator selective intervals of up to a maximum of 99 seconds to ensure that the inherent real-time accuracy of the primary radio navigation system(s) configuration is maintained.

The GEONAV integrated satellite navigation function periodically establishes its absolute geographical location from information transmitted by satellites of the U.S. Navy Navigation Satellite System (TRANSIT). The continuous path of travel of the vessel, between satellite fixes, is computed by a dead reckoning system consisting of a velocity measurement system (VMS). The VMS can derive its velocity information from either an integrated radio positioning system or from a four beam doppler sonar compensated for the pitch and roll of the vessel and for variations in the propagation velocity of sound in water. The VMS consists of a gyrocompass externally compensated for the location and dynamics of the vessel.

The CMS is capable of providing a continuous primary system position derived from any available combination of fix, velocity and azimuth systems as well as a secondary system derived from satellite fixes combined with the primary system dead reckoning inputs. The designated primary inputs serve as navigation inputs to the line control routines. The primary and secondary system positions are output to magnetic tape at each shotpoint, along with the raw navigation data from all initialised systems. All of the navigation calculations are performed using a geodetic co-ordinate system defined in terms of latitudes and longitudes.

The actual spheroid and datum employed by the line control program is under operator control. Co-ordinate trans-formations from a satellite datum position to the local datum is performed automatically.