

The present invention relates to a radio receiver for a vehicle, with a device for switching over the playback volume automatically to a preset value in dependence on an identification signal emitted only in connection with a radio traffic announcement.

Certain VHF radio transmitters transmit radio traffic announcements at certain times or on a specific occasion in order to draw the attention of drivers of motor vehicles in particular to obstructions, difficulties, diversions or danger spots. In the case of the ARI system it is known to turn on a receiver which is switched off, to turn off a cassette playback which is in progress or to switch over, in particular to increase, the set volume to an optimum value for intelligibility, using a pilot signal emitted on the transmitter side, so that for example when music is being replayed relatively softly the driver does not fail to hear the radio traffic announcement and is alerted.

A receiver of the type specified at the beginning, in which the volume is compulsorily switched over in dependence on the identification signal, is known from DE-A-27 16 546.

It has proved to be the case in practice that directly after the switchover, the radio traffic announcement is found by the driver to be disagreeable, often barely intelligible acoustically and can even startle the driver by the sudden increase in volume.

A radio receiver is known from DE-A-30 45 722 in which reproduction parameters are switched over in dependence on a programme type signal. Maximum modulation should thereby be facilitated on the transmitter side, individual taste not needing to be neglected on the receiver side at the same time. Special measures with regard to improved intelligibility of traffic announcements are not provided for and not recognized either.

The object of the invention is to form a radio receiver for a vehicle such that the speech announcement is more agreeable subjectively and more intelligible once the switchover has taken place.

This object is achieved by the invention described in claim 1. This object is also achieved by the invention described in claim 2. Advantageous developments of the invention are described in

the sub-claims.

The invention is based on the following knowledge. Vehicles such as cars now increasingly have very high-quality hi-fi radio systems with stereo cassette recorders and a large number of loudspeakers. Agreeable hi-fi sound reproduction can thereby be achieved by suitable boosting of the bass and treble tones, which is found to be agreeable more often than not subjectively. In speech reproduction, however, it is precisely this adjustment which is generally disadvantageous, in particular on account of the sharply boosted bass tones. Speech then often sounds too muffled and becomes unintelligible. If on switching over to the radio traffic announcement the bass and treble tones are switched over to a subjectively optimum value for each driver by switching over the AF frequency response, this announcement becomes more agreeable and more intelligible to him. The driver does not then need to turn down the bass and treble tones manually when the traffic announcement commences. The radio traffic announcement therefore becomes more agreeable overall for the driver and traffic safety is increased by the measure according to the invention.

According to an embodiment of the invention, the bass and treble tones are switched over timewise shortly before the switchover, in particular increase, of the volume, e.g. in the order of 100 ms earlier. This thereby avoids the reproduction of the radio traffic announcement still being too disagreeable at the beginning and crackling occurring.

According to another embodiment of the invention, when the volume is switched over, the bass and treble tones of the reproduced radio traffic announcement are also switched over automatically to preset values in dependence on the identification signal to the effect that the AF frequency response of the reproduced radio traffic announcement has an essentially linear characteristic.

When the said switchover takes place, other switchovers can be effected if necessary in the vehicle which are advantageous for the driver's attentiveness, e.g. consumers such as blowers, for example, which create acoustic interference can be turned off. It can also be expedient to turn off the rear loudspeakers when the switchover takes place in a car, since then the information reproduced is intended essentially only for the driver and it is only intelligibility which matters, not hi-fi reproduction.

The invention is explained below on an example embodiment with reference to the drawing.

Fig. 1 shows a block diagram of the receiver according to the

invention,
Figs. 2,3 show curves to explain the mode of operation.

Fig. 1 shows a receiver for a motor vehicle. The VHF signal received using the aerial 1 passes to the tuner 2, which supplies the AF sound signal for the sound reproduction. The AF sound signal passes via the circuit 3 for boosting the bass and treble tones and the final amplifier 4 to the loudspeaker 5. The signal of the tuner 2 also passes to the traffic radio decoder 6. This decoder recognizes the pilot signal transmitted by the transmitter during a radio traffic announcement and supplies a manipulated variable Us_1 , which increases the volume reproduction in the amplifier 4 to a preset value and if necessary turns off other consumers such as cassette recorders, blowers which generate interference.

The decoder 6 also generates the switching voltage Us_2 . This switching voltage switches over the bass and treble tones in the circuit 3 to optimum values for clear speech intelligibility. These values are preferably adjustable, because according to experience the optimum AF frequency response for optimum speech intelligibility is highly individual.

Fig. 2 shows the time characteristic of the two switching voltages Us_1 and Us_2 . The beginning of a radio traffic announcement (VF) is denoted by to. The switchover from a radio transmission S proceeding normally to traffic radio VF takes place at this point, therefore. Shortly after this the switching voltage Us_2 appears and switches the bass and treble tones over to optimum values for speech intelligibility. Approximately 100 ms later, the switching voltage Us_1 appears and switches the volume over to a fixed value which is optimum for intelligibility. This value is essentially dependent on the size of the motor vehicle, the engine noise and the driving noise.

Fig. 3 shows the different frequency responses during a normal radio transmission S and a radio traffic announcement VF. During a radio transmission or also during playback of a cassette, the frequency response is generally boosted strongly for low frequencies and high frequencies, because this gives a more agreeable reproduction subjectively. However, during a radio traffic announcement VF, the reproduction volume is increased on the one hand and on the other hand the frequency response is switched over by the switching voltage Us_2 to an approximately linear characteristic with a constant AF^4 level and a constant circuit⁵ level across the entire audible frequency range.



Claims

1. Radio receiver for a vehicle, with a device for switching the playback volume over automatically to a preset value in dependence on an identification signal emitted only in connection with a radio traffic announcement, characterized in that shortly before the volume is switched over, the bass and treble tones of the reproduced radio traffic announcement are also switched over automatically in dependence on the identification signal to values which can be, or have been, preset.
2. Radio receiver for a vehicle, with a device for switching the playback volume over automatically to a preset value in dependence on an identification signal emitted only in connection with a radio traffic announcement, characterized in that when the volume is switched over, the bass and treble tones of the reproduced radio traffic announcement are also switched over automatically in dependence on the identification signal to preset values to the effect that the AF frequency response of the reproduced radio traffic announcement has an essentially linear characteristic.
3. Receiver according to claim 2, characterized in that the bass and treble tones are switched over timewise shortly before the volume is switched over.
4. Receiver according to claim 1 or 2, characterized in that in a car the rear loudspeakers are turned off when the switchover takes place.
5. Receiver according to claim 1 or 2, characterized in that other sources of interference such as blowers and entertainment equipment, for example, are turned off automatically when the switchover takes place.