

FRONT/REAR CAR RADIO FADER

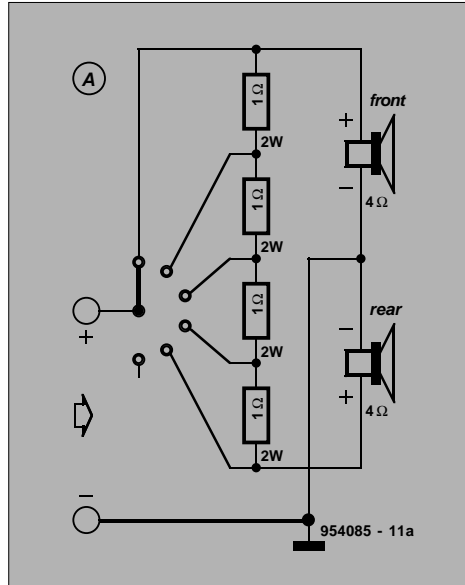
Although most car radio/cassette players produced in the past five years or so are fitted with a front/rear speaker volume control, there are still many about that have no such provision. A simple way of adding this facility is shown in diagram *A*, which is the principle on which many car radio faders operate. This arrangement gives a stepped front/rear speaker volume control with step ratios between 4:1 and 1:4. (Many modern car radios have a continuously variable control, however. Editor).

The arrangement has a few drawbacks in that power is dissipated (unnecessarily) in the resistors, which lowers the overall efficiency (down to 83% in positions 1 and 5, but as low as 67% in position 3), and the load impedance is lowered to 3 Ω in position 3 and to 2.67 Ω in positions 1 and 5.

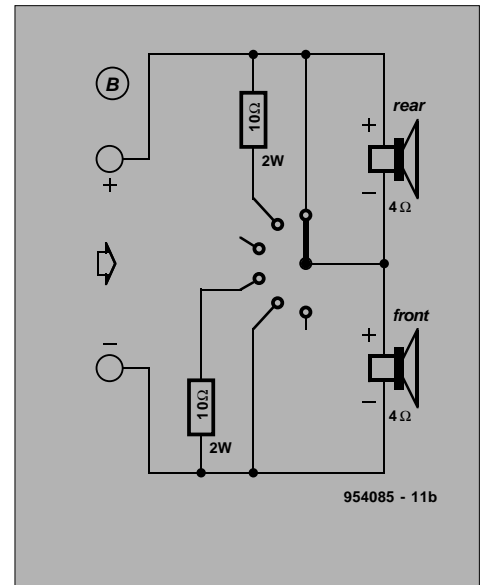
A better arrangement is shown in diagram *B*. Since this is a series circuit, the load impedance can not drop to the dangerously low values met in *A*: it varies from 4 Ω in positions 1 and 5 to 8 Ω in position 3. Since the dissipation in the resistors is smaller, the efficiency is higher than in *A*: only in positions 2 and 4 does this drop to 88% - in the other positions it is 100%.

The volume control proper is similar to that in *A*, but in the extreme positions one speaker is on full, while the other is short-circuited.

Make sure that the switch can handle the power of the car radio.



A: position	front/rear ratio
1	4:1
2	2:1
3	1:1
4	1:2
5	1:4



B: position	front/rear ratio
1	∞
2	2:1
3	1:1
4	1:2
5	∞

Design by J. Seyler
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