We will consider three examples

a) f1 = 10f2

b) f1 = f2

c) $f1 = \frac{f2}{10}$

CASE a) is close to most of the available designs, and so we proceed to calculate response using a programmable personal calculator, which gives the transient response pictured in fig. 3 a), and lo frequency response shown in fig. 4 a). Clearly the response of fig. 3 a) is far from being perfect, giving rise to a negative hump before the gain drops to the final zero equilibrium value.

CASE b) represents our proposal of cancelling the unwanted zero in the second stage (at W2) with the first-stage pole W1, giving rise to a -6dB/oct first-order cuttoff featuring an impecable transient response, as pictured in fig. 3 b), and lo-frequency response shown in fig. 4 b).

CASE c) gives rise to no hump in transient response but has the drawback of both very high decay time (fig 3 c) and undesirable lo frequency slope variation (fig. 4 c) which may be objectionable in what concerns record rumble and excentricity effects and microphone-induced wind and shock noises.

2 CONCLUSION

A very simple method has been described that can be of some benefit to transient response of ac coupled feedback non-inverting amplifiers and amplifiers used for audio purposes, speeding up their recovery from transient conditions and supressing lo-frequency instabilities which may be harmfull not only from the standpoint of listening, because this instabilities can create audible modulation effects [2, 3, 4] but also because they demand for increased cone excursion in loudspeaker systems, shortening its useful life. In addition, it can cut down drastically turn-on thumps in audio equipment.

3 REFERENCES

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