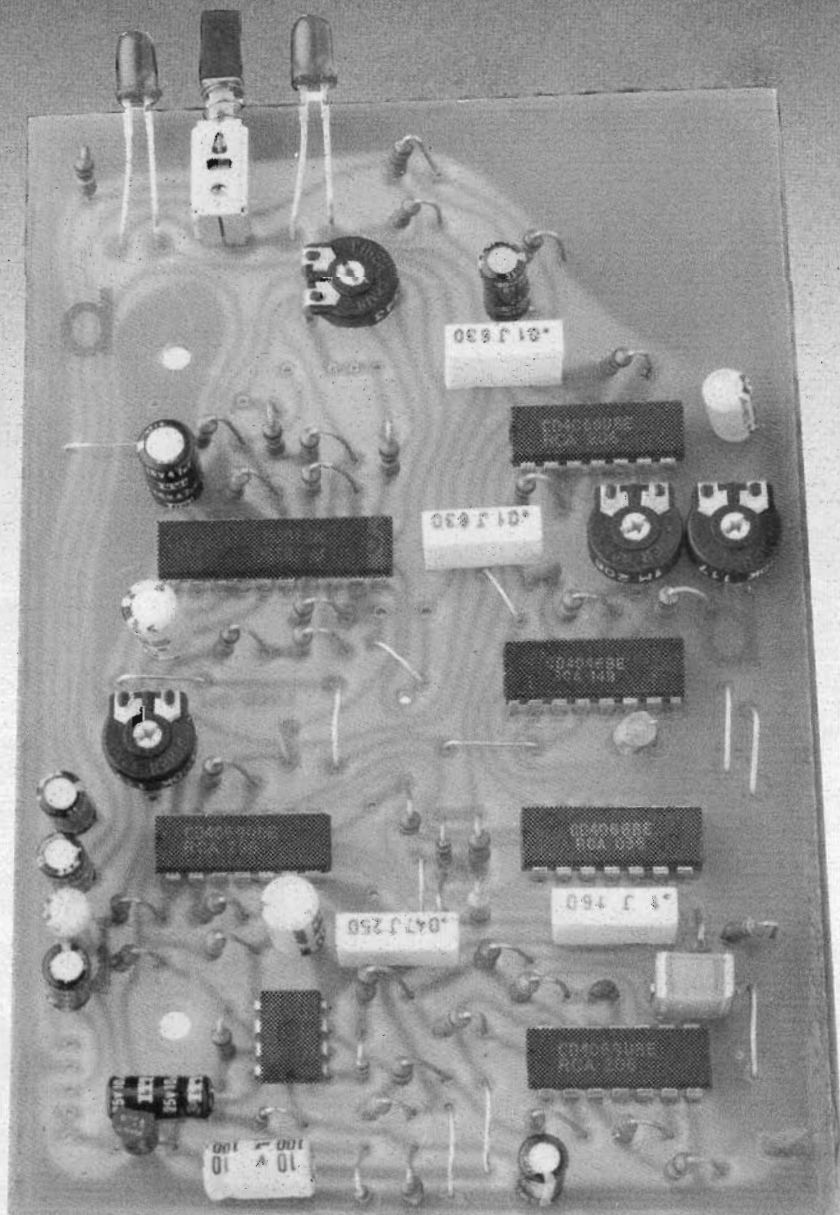


D **DATONG** ELECTRONICS LIMITED

AUTOMATIC NOTCH FILTER MODULE

A fully automatic audio notch filter for whistle removal
in short wave radio reception



MODEL FL2/A

A FULLY AUTOMATIC AUDIO NOTCH FILTER FOR WHISTLE REMOVAL IN SHORT WAVE RADIO RECEPTION

Model FL2/A is a completely automatic audio notch filter. It is supplied in the form of a printed circuit module which can be built into existing equipment such as communications receivers and the Datong Model FL2 Multi-mode Audio Filter. It will automatically and silently scan the audio frequency range from 200 to 4000 Hz in search of continuous interfering tones. Less than a second after such a tone appears the filter will lock on to it and remove it with a deep narrow notch filter.

It will successfully remove both strong or weak tones in the presence of much stronger speech signals.

Model FL2/A requires only input, output and DC power connections.

APPLICATIONS

SSB communications on the HF bands are often badly affected by continuous tones, whistles or heterodynes. These can arise from unmodulated transmissions of all kinds whether random or deliberate.

Model FL2/A provides an effective solution to such problems. It can be left permanently switched into circuit ready to neutralise heterodynes as and when they appear. It requires no attention from the operator who can therefore concentrate fully on copying the desired transmission.

The filter can also be used to process off-the-air tape recordings which include interference.

Simultaneous interference from more than one heterodyne is rare but cascaded FL2/A filters can be used to guard against even this possibility. Or in the case of a recording, the tape could be processed more than once through a single filter.

AUTOMATIC VERSUS MANUAL CONTROL

The speed and efficiency of Model FL2/A contrasts strongly with manual notch filters. The latter require careful adjustment yet this must be repeated every time the interference drifts or the receiver tuning is adjusted. The narrower the notch the more critical the adjustment, yet a narrow notch is desirable to minimise the effect on the desired signal.

These factors may account for the impression that even when receivers are fitted with manual notch filters they tend not to be used. All of these problems are solved by the FL2/A which allows a narrow bandwidth to be used routinely with no operator effort.

INSTALLATION

Model FL2/A has an overall gain of unity and is intended to connect in series with the audio signal path before or after the volume control in a receiver or before the audio power amplifier in the Datong Model FL2 audio filter.

Connections are made by soldering to four pads on the PCB and the unit is secured by two fixing screws. The PCB is fitted with a single push button switch which bypasses the filter when desired, and a single light emitting diode which indicates when the filter is locked on to an interfering tone.

The positions of the switch, LED and fixing holes are designed to match the mechanical layout of the Datong Model FL2 filter. The installation of Model FL2/A inside Model FL2 and replacement of its front panel converts Model FL2 into Model FL3.

The output impedance of the circuitry feeding Model FL2/A should be less than 10K and the load impedance seen by its output should be greater than 10K.

A DC power supply of 10 to 15 volts at 35 mA is required and can normally be taken from the host equipment.

TECHNICAL INFORMATION

Circuit:	8 integrated circuits on glass fibre PCB
Supply voltage:	10 to 15 volts DC
Supply current:	35 mA
Overall gain:	unity (where driven from a source impedance small compared to 10K)
Input requirements:	A low impedance signal source is recommended. Model FL2/A presents a load of 10K to the source
Minimum input:	For input signal levels below 20mV pk-pk the auto-lock circuit will be disabled
Maximum input:	Single-tone input signals greater than 600mV pk-pk will be clipped (with 12V supply)
Permitted load impedance:	2K or over
Operating frequency range:	The filter is normally set to sweep from 200 to 4000 Hz
Lock time:	depends on signal strength. Typically less than one second
Notch depth:	Typically 40 db
Filter Q:	10
Dimensions:	PCB size: width 86 mm, front-to-back 131 mm total vertical height required 18 mm
Weight:	50 gms

ACCESSORIES

Conversion kit for converting Model FL2 Multi-Mode Audio Filter to Model FL3. Includes Model FL2/A PCB module plus connecting cable strip, mounting screws and spacers, replacement punched and printed front panel.



Spence Mills, Mill Lane, Bramley,
Leeds LS13 3HE, England.
Telephone: (0532) 552461