

CLEAN FEED UNIT UNI/72

Introduction

The UN1/72 is an auxiliary unit designed for use with modular sound control equipment. It provides for a clean feed output to be fed individually to up to six channels, each output comprising the inputs to the unit of the other five channels. There is, in addition, provision for three other inputs:

- (a) A main input which is fed to the output on all channels.
- (b) A cue programme input which is fed to each individual channel, overriding clean feed.
- (c) A talkback input switched either individually to each channel or collectively as master talkback to all six channels. This input overrides both clean feed and cue programme.

The equipment is mounted in a modified CH1/18E chassis having overall dimensions of 5 by 4¼ by 10½ inches. An associated panel PN3/23E accommodates the unit, together with level-raising amplifiers such as the AM7/4B.

General Description

The relays and isolating resistors are mounted on a printed circuit board the wiring to which is arranged so that the board may be hinged out from the chassis for inspection. Three input transformers LL/76MSC are mounted as a sub-assembly on the base of the chassis. Connections to the unit are made via two McMurdo 32-way connectors.

Circuit Description (Fig. 1)

The six channel inputs are unbalanced and each is terminated in 1000 ohms. Each output comprises the inputs of the other five channels connected in parallel via 20-kilohm isolating resistors, and in series with each are the break contacts of the cue relay (QA–QF) and talkback relay (TA–TF). An output from the main module is connected in parallel with all six inputs, via a 1:1 transformer and 180-kilohm isolating resistors.

Cue programme is fed through an input transformer and a 55.5-dB attenuator to the make contacts of all six cue relays so that operation of the relays by appropriate cue keys substitutes cue programme for clean feed. Similarly, talkback is fed through an input transformer and 55.5-dB attenuator to the make contacts of all talkback relays, which may be operated by a key on the talkback panel or elsewhere, thereby substituting talkback for either clean feed or cue programme. If a connection is provided from the master talkback key, relays MTA to MTF can be energised by the operation of that key, and the make contacts of these relays provide additional circuits to energise relays TA to TF simultaneously, so that talkback appears on all six outputs.

The unit may be used for less than six channels, and in this case the inputs of the unused channels should be shorted out, and the unused outputs terminated in 600 ohms on the connector of the associated nesting box PN3/23E.

Two units may be used to provide facilities for up to 10 channels by cross-connecting the inputs and

outputs of one channel on each unit, including the amplifiers in the cross-connection. In this case the gain of the amplifiers in the cross-connection should be 37 dB.

Operating Levels

The unit is designed to work with the following input levels:

Channel inputs	–20 dB
Main, cue-programme and talkback inputs	0 dB

The normal output level from the six channels is –57 dB and each channel should be followed by an amplifier with a gain of 60 dB and an input impedance of 600 ohms, to raise the level to +3 dB for sending to line.

Test Specification

Apparatus Required

- Tone Source TS/10
- Amplifier Detector ATM/1 (high impedance)
- 50-volt d.c. supply
- Six 240-ohm resistors
- Six 600-ohm resistors
- One 55-ohm resistor

Connections

Connect the 240-ohm resistors between tags A10, 26 : A11, 27 : A12, 28 : A13, 29 : A14, 30 : A15, 31.

Connect the 600-ohm resistors between tags A1, 17 : A2, 18 : A3, 19 : A4, 20 : A5, 21 : A6, 22.

Tests

1. Apply 1-kHz tone at –20 dB to tags A10, 26 (input 1). Measure the level across tags A2, 18 : A3, 19 : A4, 20 : A5, 21 : A6, 22. The measured level across each pair of tags should be -57 ± 1 dB. Repeat for inputs 2 to 6, measuring at all channel outputs except that of the channel to which the tone source is connected. Repeat the tests again, with tone at 10 kHz; the measured level should not differ by more than 1 dB from the corresponding figure at 1 kHz.
2. Connect the 55-ohm resistor to tags A16, 32. Apply 1-kHz tone at 0 dB to the same tags. Measure the level across tags A1, 17 : A2, 18, and so on. The measured level should be -57 ± 1 dB. Repeat with 10-kHz tone; the results should be as in Test 1.
3. Connect the 55-ohm resistor across tags B1, 17. Apply 1-kHz 0-dB tone to the same tags. Connect the 50-volt d.c. supply to tags B15 (negative) and B31 (positive), and temporarily link tags B28, 6; relay QA should operate. Measure the level on tags A1, 17; this should be -57 ± 1 dB. Repeat for channels 2 to 6, temporarily linking tag B28 to tags B22, 7, 23, 8 and 24 in turn, measuring

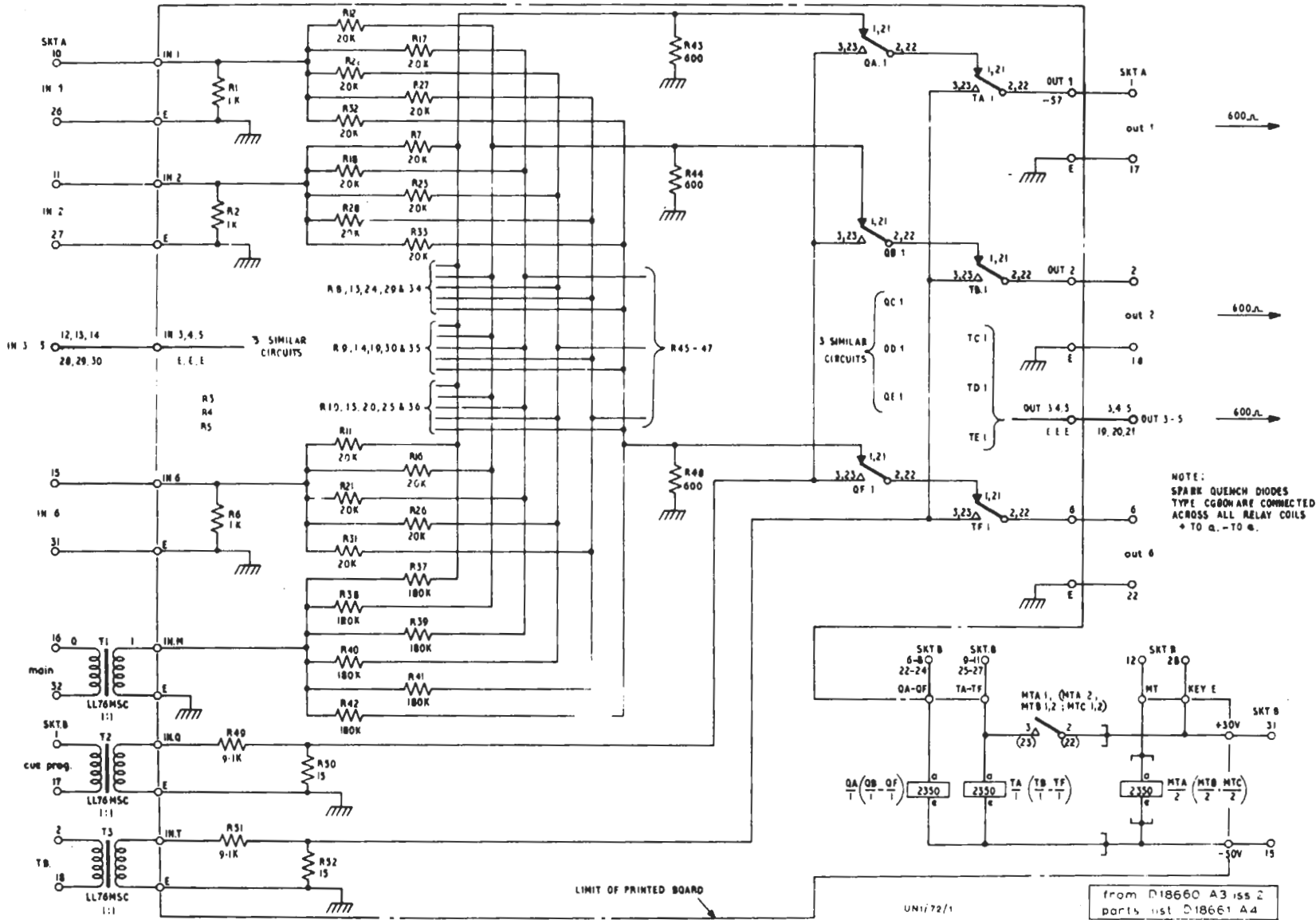


Fig. 1. Circuit of the UN1/72

- the levels at the corresponding channel outputs. When no relay is operated there should be no output from any channel.
4. Apply 1-kHz 0-dB tone to tags B2, 18. Link tag B28 to tags B9, 25, 10, 26, 11 and 27 in turn to operate relays TA to TF. Measure tone across tags A1, 17, to A6, 26 in turn; tone should be present at a level of -57 ± 1 dB. Link tags B28 and 12 to operate relays MTA, MTB, MTC; tone at -57 ± 1 dB should appear at all channel outputs.
 5. Apply 1-kHz tone to each channel input (A10, 26, and so on) at a level of +10 dB. Measure the level at the output of the same channel (A1, 17, and so on); this should be below -77 dB. Repeat the tests at 10 kHz; the measured level should not be more than 2 dB higher than that at 1 kHz. If necessary, an amplifier having an input impedance of 600 ohms should be added in front of the ATM/1, and the 600-ohm terminating resistor on the channel output removed.

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