SECTION 13

CAT. NO. 35 NRM TEST SET

DOLBY LABORATORIES INC

A-TYPE NOISE REDUCTION SYSTEM

OPERATING INSTRUCTIONS

NRM Test Set, Cat. No. 35

NRM Tester, Cat. No. 35A

Test Extender, Cat. No. 35B

The NRM Test Set comprises the Noise Reduction Module Tester (Cat. No. 35A) and the Test Extender (Cat. No. 35B). The Test Set is designed to test all major functions of the Noise Reduction Module (Cat. No. 22), to check the ripple level of the rough dc supply which powers the module, and to verify the accuracy of level setting meters used in the equipment in which the module is installed.

Testing of Noise Reduction Modules

1. Brief operating instructions are given on the front of the Test Extender. More detailed instructions and explanations are provided below.

2. Remove the Cat. No. 22 Noise Reduction Module to be tested. In 360 Series units, access to the Module is provided by removal of the front cover plate.

3. Plug the module into the connector on the NRM Tester.

4. Plug the Test Extender into the connector from which the module was removed.

5. Plug the cable connector from the Test Extender into connector JF1 on the NRM Tester. This provides power to the NRM Tester and the module under test. The cable also provides a return signal from the NRM Tester for meter calibration purposes.

6. For completely self-contained operation of the NRM Tester, set the oscillator switch on the rear of the tester to the internal position. In this mode the signal used in the various tests is provided by the internal Dolby Tone oscillator in the module.

7. To test the various circuit functions of the module, rotate the switch S1 progressively clockwise, beginning at 24 V NOISE. Stop at COMPRESSOR, and rotate switch S2 through all of its positions, beginning at GAIN, BAND 1. Following the compressor tests, proceed

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with switching S1 clockwise. The meter should read TEST in all positions except NOISE. The two noise positions should provide meter readings in the band marked NOISE.

Testing of Meters

1. To check the calibration of level setting meters, set switch S1 to OSC position. 360 Series meters or other meters associated with the module should read 18.5 mMx/mm (Dolby Level).

2. On 360 Series units the calibration of the DIN mark on the meter can be checked by pressing the DIN CHECK button (OSC position of S1) on the NRM Tester. The 360 Series meter should be read from directly in front; parallax should not be corrected for when making DIN readings.

Details of Tests

In the tests, the pin connections and ac and dc voltages brought out from the Cat. No. 22 module to the test point on the rear of the NRM Tester are given in parentheses.

1. In the 24 V position of S1, the ripple on the incoming rough dc supply is checked (pin 15, 600 mV ac maximum, 20 - 28 V dc).

2. In the 18 V position of S1, the ripple and noise on the output of the module voltage regulator are checked (pin 13, 400 µV ac maximum, 17.5 - 18.5 V dc).

3. In the OSC position of S1, the output of the module oscillator is checked (pin A, 290 - 310 mV ac, 0 V dc). In this position the signal from pin A is also amplified in the NRM Tester to 1.85 V ac, 0 V dc, at connector JF1 and is used to check the calibration of level setting meters (Dolby Level, 18.5 mMx/mm). When the DIN CHECK button is pressed, the signal from pin A is amplified to 3.2 V at JF1 (corresponding to 32 mMx/mm).

4. In the OUT 1 position of S1, the signal from the module oscillator (pin A) is fed into the module input (pin 10), and the main-path signal circuit is checked at Output 1 (pin 6, 290 - 310 mV ac, 0 V dc), which follows the playback noise reduction signal combination point.

5. In the METER AMP position of S1, the signal from the module oscillator (pin A) is fed into the module input (pin 10), and the output of the meter amplifier is checked (pin 2, 1.8 - 1.9 V ac, 0 V dc).

6. In the OUT 2 position of S1, the signal from the module oscillator (pin A) is fed into the module input (pin 10), and the main-path signal circuit is checked at Output 2 (pin 4, 480 - 520 mV ac, 0 V dc), which follows the record noise reduction signal combination point.

7 In the DOLBY TONE position of S1, the module oscillator is FM modulated to produce the Dolby Tone, the electronic switch Q808 is energized, and the signal at Output 2 is checked (pin 4, 480 - 520 mV ac, 0 V dc).

8. In the LINE AMP position of S1, the signal from the module oscillator (pin A) is fed into the line amplifier input (pin 11), and the output of the line amplifier is checked (pins 12, N; 1.9 - 2.1 V ac, 8 - 10 V dc).

9. For the compressor tests, switch S1 is set at COMPRESSORS. In this position, the signal from the module oscillator (pin A) is attenuated to 2 mV, 10 mV, and 50 mV for the GAIN, LAW 1, and LAW 2 tests, respectively (S2). The attenuated signal is fed into the input of the compressor selected by S2 (pins F, J, M, and S for bands 1 - 4, respectively). The outputs of the compressors are checked as follows (pins B, H, L, and R for bands 1 - 4, respectively):

   A. GAIN, 16 - 18 mV ac, 6 - 8 V dc.

   B. LAW 1, 55 - 63 mV ac, 6 - 8 V dc.

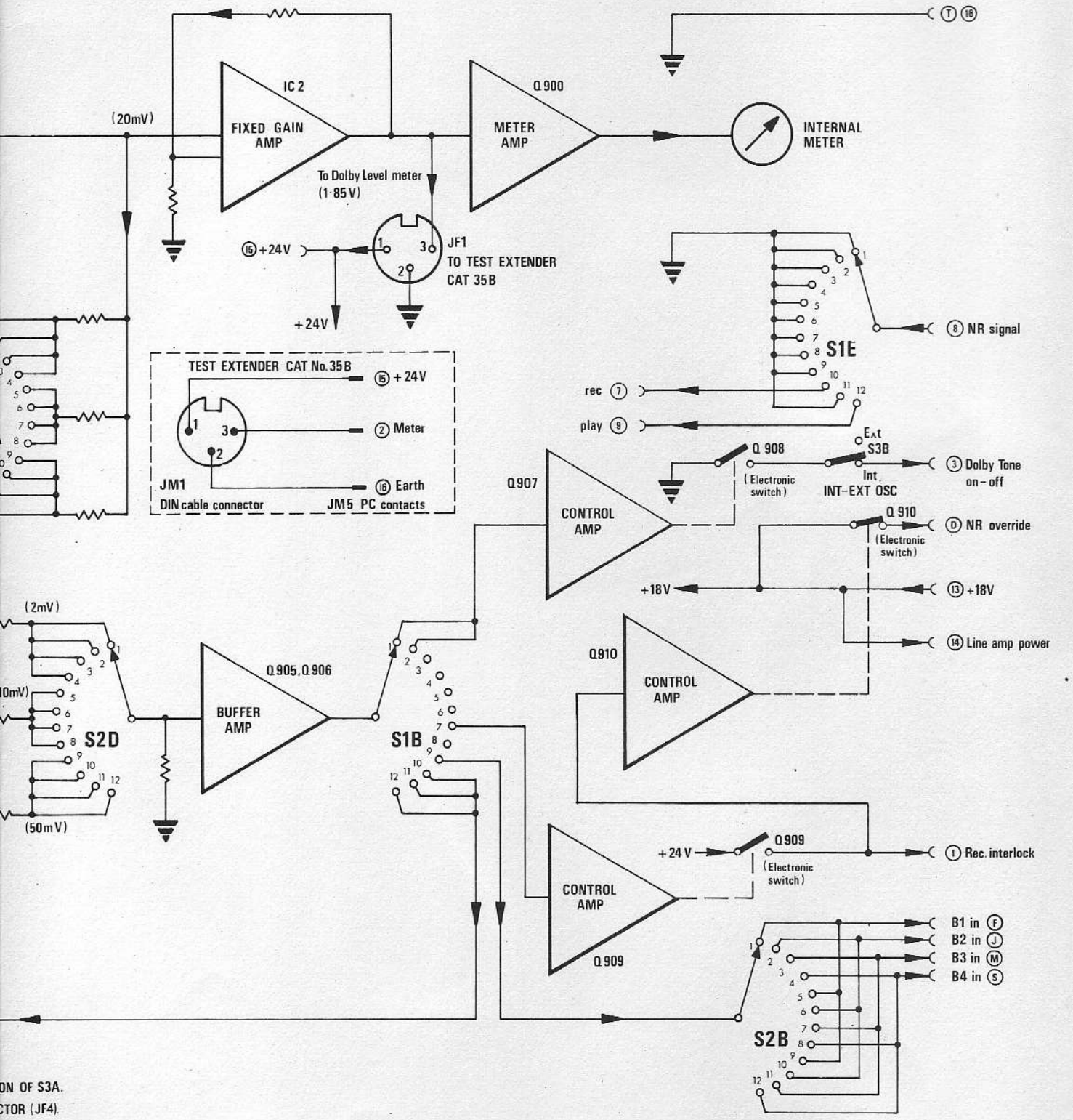
   C. LAW 2, 67 - 77 mV ac, 6 - 8 V dc.

10. In the RECORD position of S1, the module is connected in the record mode (pin 8 connected to pin 7), and a signal from the module oscillator (pin A) is attenuated to 3 mV and fed into the module input (pin 10). The output of the module is checked at Output 2 (pin 4, 15 - 17 mV ac, 0 V dc).

11. In the NR OUT position of S1, the noise reduction signal is disabled and a signal from the module oscillator (pin A) is attenuated to 3 mV and fed into the module input (pin 10). The output of the module is checked at Output 2 (pin 4, 4.8-5.2 mV ac, 0 V dc; i.e. 9.5 - 10.5 dB lower than in test 10 above).

12. In the PLAY position of S1, the module is connected in the playback mode (pin 8 connected to pin 9) and a signal from the module oscillator (pin A) is attenuated to 3 mV and fed into the module input (pin 10). The output of the module is checked at Output 2 (pin 4, 1.5 - 1.7 mV ac, 0 V dc; i.e. 9.5 - 10.5 dB lower than in test 11 above).

Complete schematics and details of the NRM Test Set are in preparation and will be provided as soon as possible for addition to the Professional Products manual.

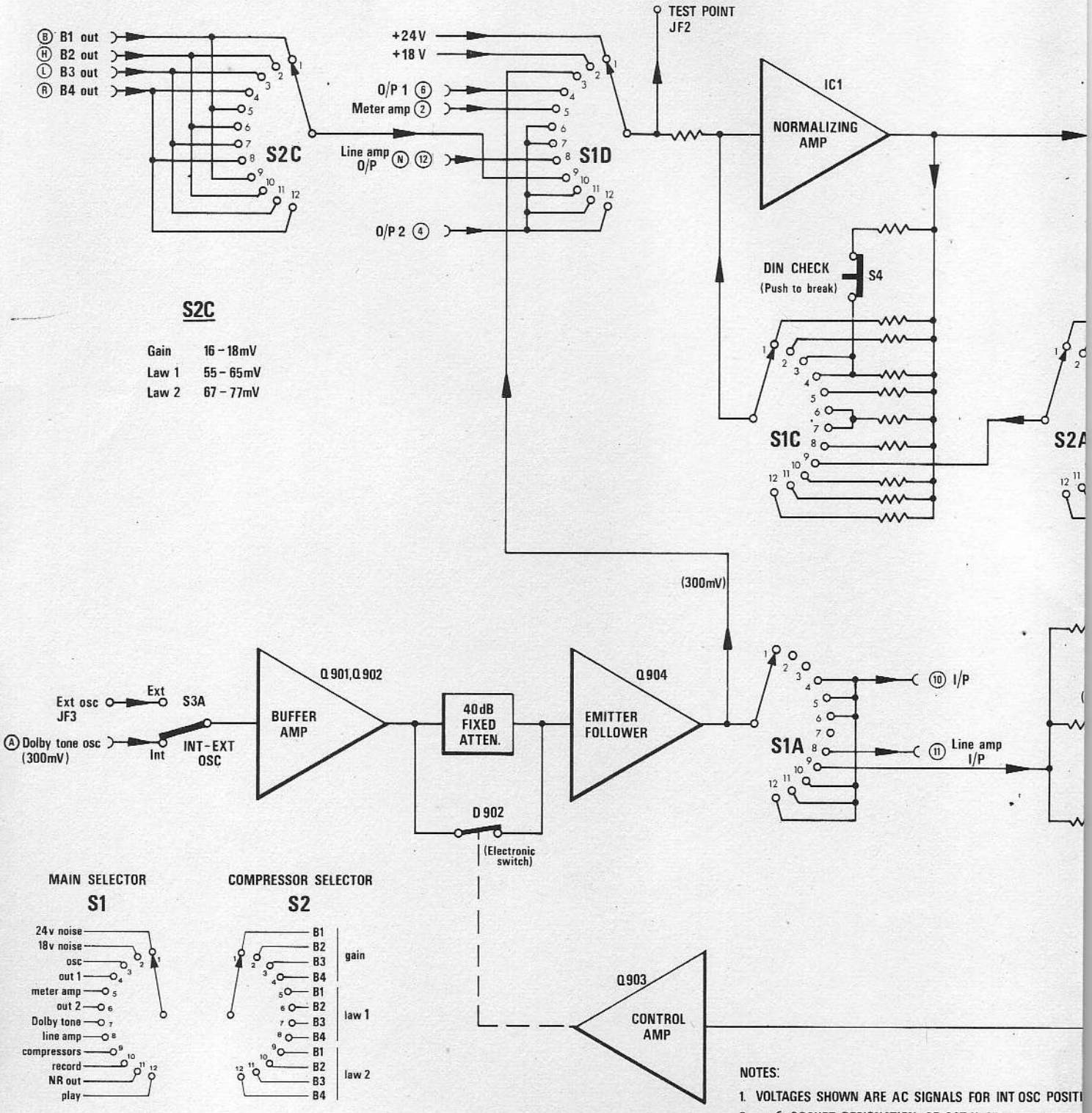


ON OF S3A.
CTOR (JF4).

CHASSIS

NRM TEST SET CAT No. 35 BLOCK DIAGRAM

 Drg. No. A1B 716



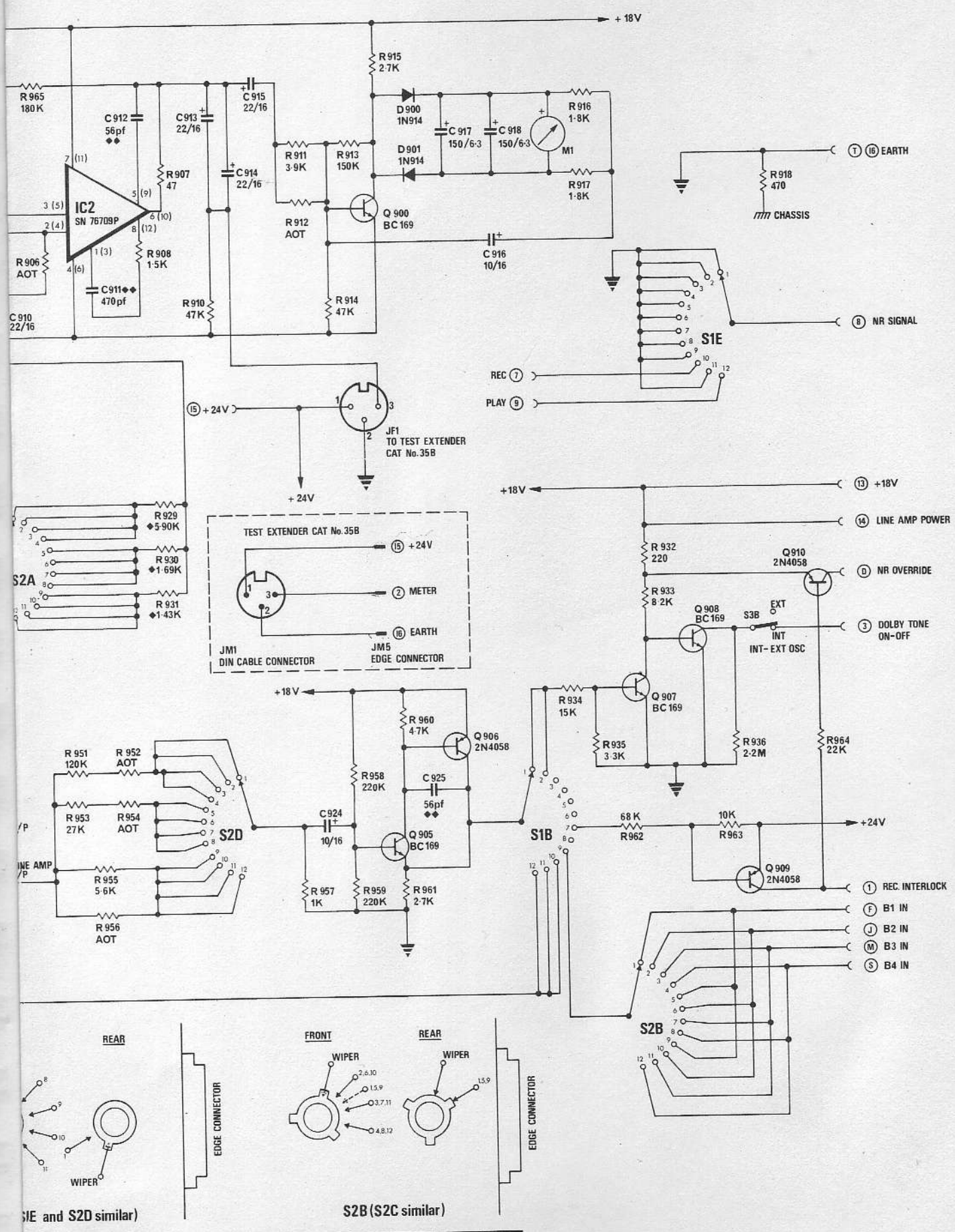
S2C

Gain	16 – 18mV
Law 1	55 – 65mV
Law 2	67 – 77mV

SWITCH DESIGNATIONS

NOTES:

1. VOLTAGES SHOWN ARE AC SIGNALS FOR INT OSC POSITI
2. —C SOCKET DESIGNATION OF CAT No.35A EDGE CONNE MATES WITH CAT No. 22 NOISE REDUCTION MODULE.
3. —PC CONTACTS ON CAT No. 35B (JM5). MATES WITH EDGE CONNECTOR IN CAT No.22 INSTALLATION.

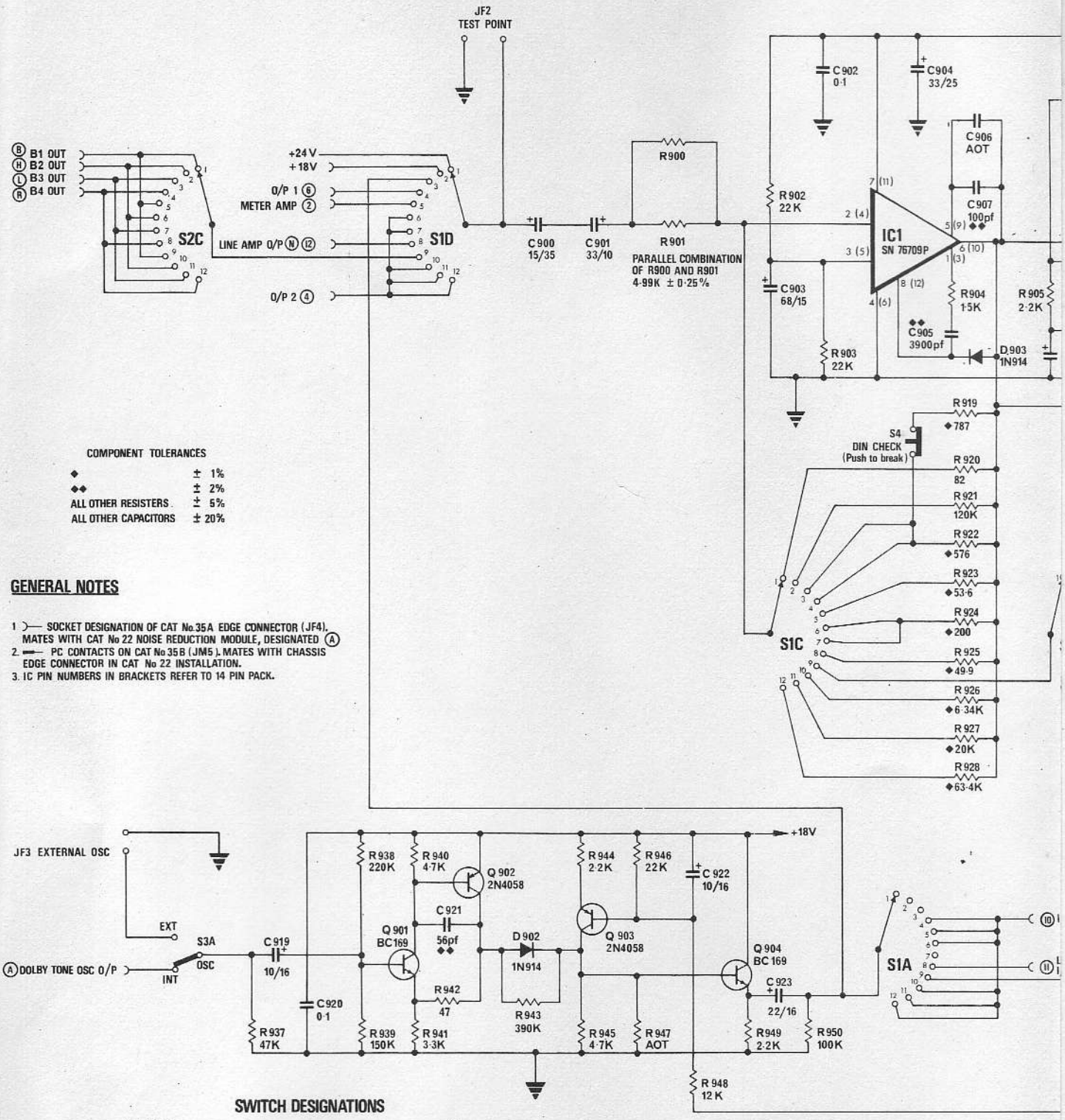


NOTES

FROM THE KNOB END.
LATIVE TO EDGE CONNECTORS.
ON-SHORTING BLADES. ALL OTHER
BLADES.
N ALPHABETICAL ORDER FROM THE

NRM TEST SET CAT No.35 CIRCUIT DIAGRAM

 Drg. No. AOC 613



SWITCH

1. ALL WAFERS ARE VIEWED
2. WAFERS ARE SHOWN RE
3. WAFERS S1B & D HAVE N
WAFERS HAVE SHORTING
4. WAFERS ARE LETTERED
KNOB END.