

BOSS BF-2/BF-2B

SERVICE NOTES

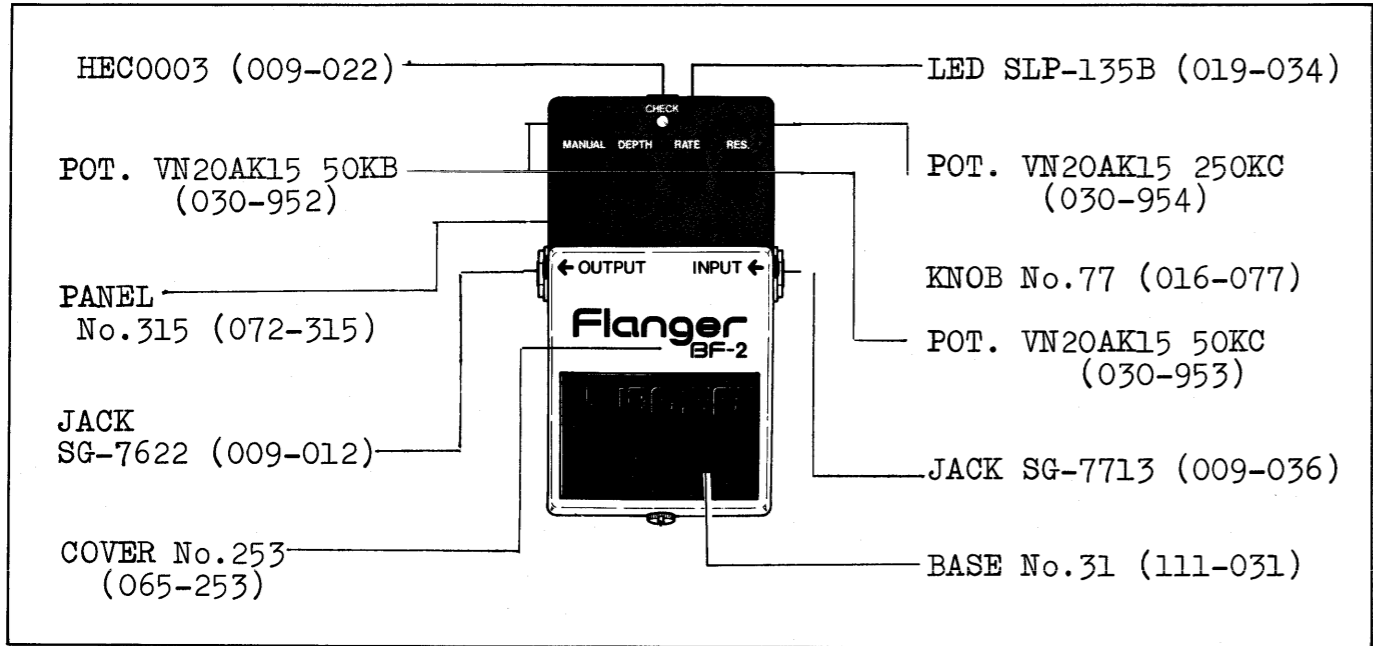
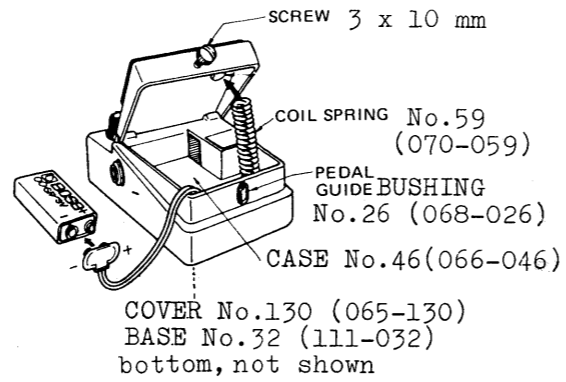
First Edition

BF-2

※This notes includes the contents of the BF-2 First Edition and makes it obsolete.
 ※BF-2のサービスノート第一版は廃版とし本サービスノートに併合します。

SPECIFICATIONS

- Power Battery 9V (1), AC Adaptor
- Current Draw 15mA DC at 9V
- Controls Manual, Depth, Rate, Resonance
- Others Normal/Effect Changeover Switch, Effect Indicator (Battery Check)
- Delay Time 1ms ~ 13ms
- LFO Speed 100ms ~ 16s
- Residual Noise -95dBm (IHF-A)
- Input Impedance 470kΩ
- Output Load Impedance Over 10kΩ
- Dimensions 70(W) x 55(H) x 125(D)mm (2.8" x 2.2" x 4.9")
- Weight 400g (0.88lbs.)



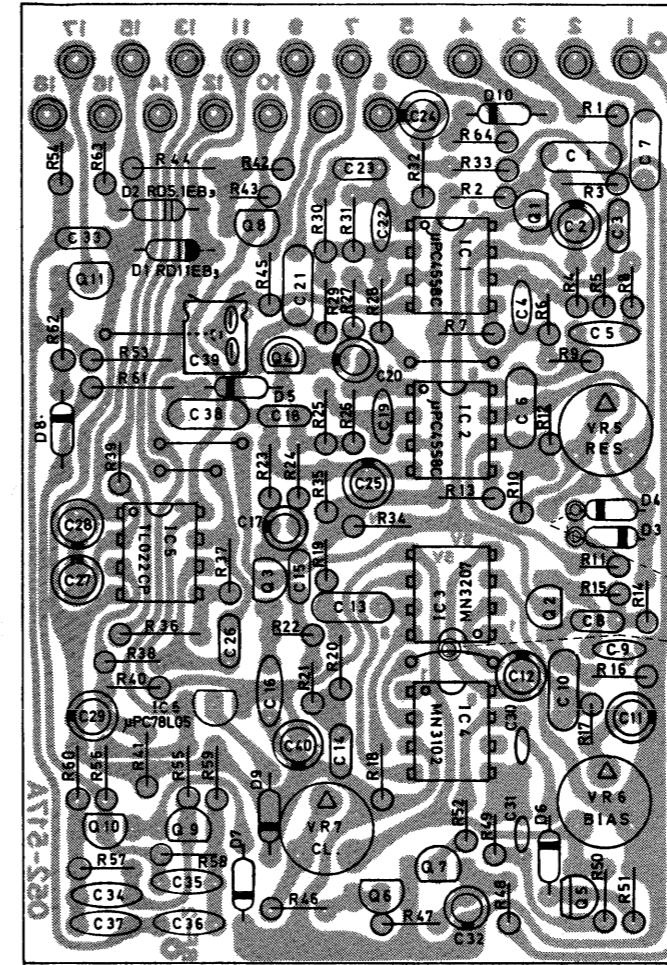
PARTS LIST

| | | | |
|------------------------------------|--------------------------|---------------|------------------------------|
| 066-046 | Case no.46 (purple) | 151-054 | PCB assy ET-54 (052-517A) |
| 065-253 | Cover no.253 (purple) | 030-952 | Pot. VN20AK15 50KB |
| 072-315 | Panel no.315 | 030-953 | Pot. VN20AK15 50KC |
| 065-130 | Cover no.130 bottom | 030-954 | Pot. VN20AK15 250KC |
| 111-031 | Base no.31 pedal matt | SEMICONDUCTOR | |
| 111-032 | Base no.32 bottom | 017-110 | 2SC945-P transistor |
| 068-026 | Guide bushing no.26 | 017-104 | 2SC732TM-GR transistor |
| 064-151 | Holder no.151 washer LED | 017-024 | 2SA733-P transistor |
| 107-053 | Cushion no.53 PCB | 017-014 | 2SK30A-Y FET |
| 065-153 | Cover no.153 PCB | 018-014 | 1S2473(or 1S1588/DS442)diode |
| 070-059 | Spring no.59 coil | 018-075 | RD5.1EB-3 zener |
| 016-077 | Knob no.77 | 018-039 | RD11EB-3 zener |
| 001-295 | Switch J-M0404 | 019-034 | SLP-135B LED |
| 009-022 | Jack HEC-0003 adaptor | 020-097 | μPC4558C IC |
| 009-012 | Jack SG7622 OUTPUT | 020-164 | TLO22CP IC |
| 009-036 | Jack SG7713 INPUT | 15199109N | μPC78L05 IC |
| PART NUMBER IN NEW NUMBERINGS----- | | 15219211 | MN3207 BBD |
| | | 15219210 | MN3102 BBD driver |

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

ET-54 (151-054) (pcb 052-517A)

ADJUSTMENT



CLOCK FREQUENCY

MANUAL DEPTH RATE RES

25μs = 40kHz

Connect oscilloscope to TP-1.

- Adjust VR7 for T = 25μs.
- Rotate MANUAL FCW. T should be 2μs±20%.

BED BIAS

MANUAL DEPTH RATE RES

Feed 200Hz, sine wave, 0dBm into INPUT jack. Connect oscilloscope to Q3 emitter.

- While turning MANUAL across its entire rotation range, set VR6 for clip-free waveform at the peaks.

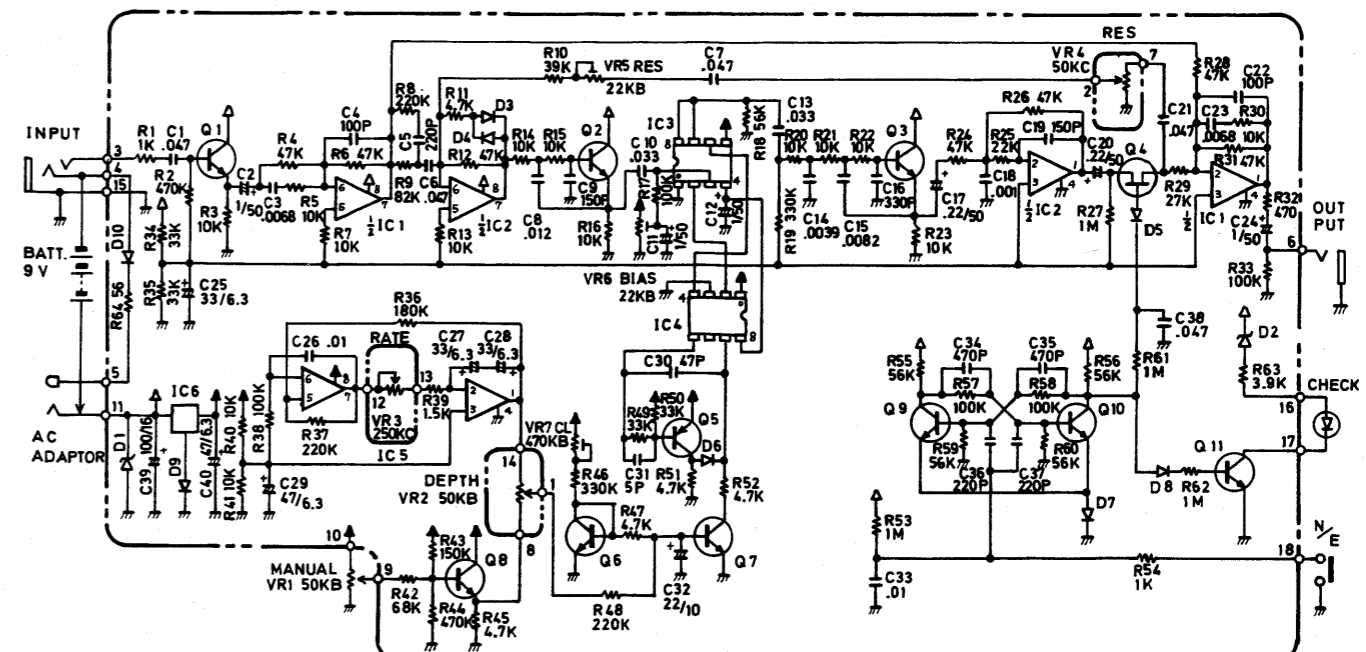
RESONANCE

MANUAL DEPTH RATE RES

Plug short circuit into INPUT jack. Connect OUTPUT jack to an amplifier and speaker.

- While touching screw driver to TP-2, set VR5 to the point where oscillation begins.

- IC1, 2 : μPC4558C
- IC3 : MN3207 (1024-stage)
- IC4 : MN3102 (BBD driver)
- IC5 : TLO22CP
- IC6 : μPC78L05 or equiv.
- Q1-3 : 2SC732TM-GR
- Q4 : 2SK30A-Y
- Q5 : 2SA733-P
- Q6-11 : 2SC945-P
- D1 : RD11EB-3
- D2 : RD5.1EB-3
- D3-10 : 1S2473 or 1S1588 or DS442



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BF-2B

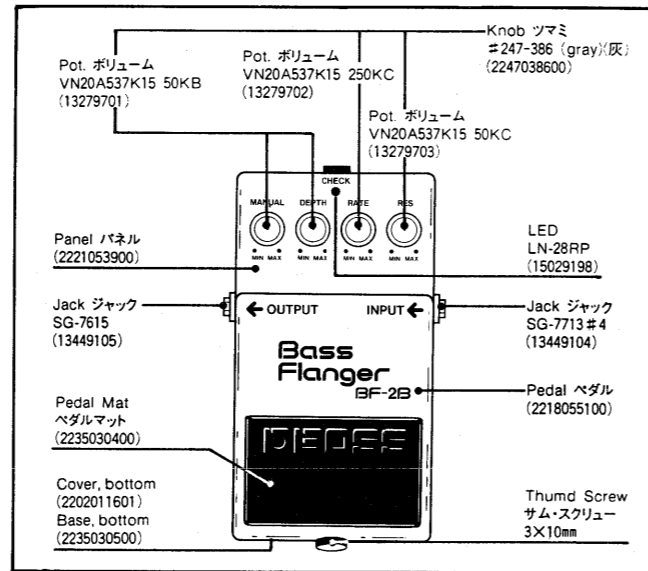
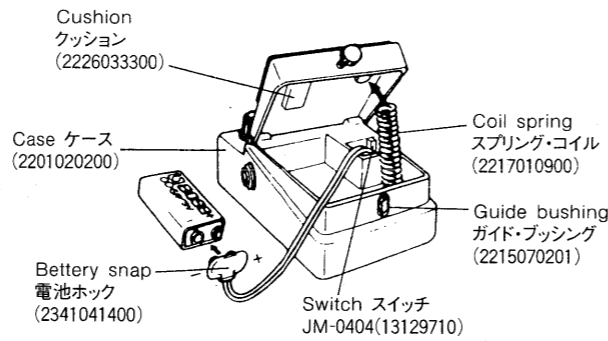
SPECIFICATIONS

| | |
|-----------------------|---|
| Power Source | 9V Battery or AC Adaptor (PSA-120, 220 or 240) |
| Current Draw | 14mA Max. at 9V |
| Delay Time | 0.5ms - 6.5ms |
| LFO Speed | 100ms - 16s |
| Residual Noise | -95dBm (IHF-A) |
| Input Impedance | 470kΩ |
| Output Load Impedance | Over 10kΩ |
| Dimensions | 70(W) x 55(H) x 125(D)mm [2-3/4"(W) x 2-1/4"(H) x 5"(D)] |
| Weight | 400g (14 oz.) |

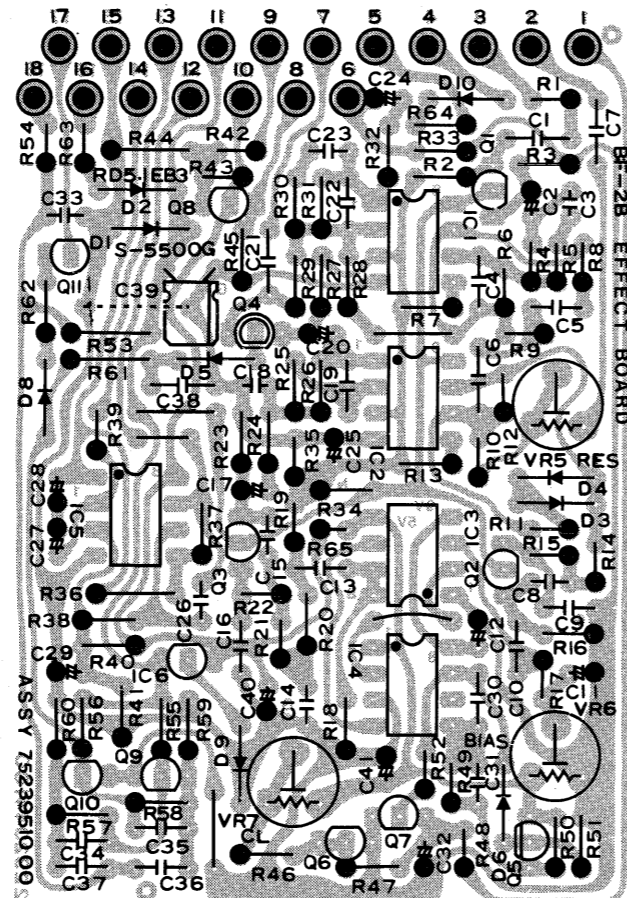
PARTS LIST

| CASING | | |
|------------|--------------|------------------|
| 2201020200 | Case | |
| 2221053900 | Panel | |
| 2202011601 | Cover | |
| 2235030500 | Base | |
| 2218055100 | Pedal | |
| 2235030400 | Pedal Mat | |
| KNOB | | |
| 2247038600 | | grey |
| PCB ASSY | | |
| 7523951000 | Effect Board | (pcb 2292044100) |
| ----- | LED Board | (pcb 2291049600) |
| IC | | |
| 15129120 | M5218P | Op amp |
| 15189115 | TL022CP | Op amp |
| 15219212 | MN3204 | BBD |
| 15219210 | MN3102 | BBD driver |
| 15199109N0 | μPC78L05 | |

| TRANSISTOR | | |
|---------------|-----------------|------------|
| 15129120 | 2SC2240-GR | |
| 15129108 | 2SC945-P | |
| 15119105 | 2SC733-P | |
| 15139101 | 2SK30A-Y | FET |
| DIODE | | |
| 15019103 | 1S-2473 | |
| 15019209T0 | S-5500G | |
| 15019523 | RD5.1EB-3 | Zener |
| 15029198 | LN-28RP | LED |
| JACK | | |
| 13669704 | HEC-0749-01-010 | AC adaptor |
| 13449105 | SG-7615 | |
| 13449104 | SG-7713#4 | |
| SWITCH | | |
| 13129710 | JM-0404 | |
| POTENTIOMETER | | |
| 13279797 | EVJ4JAP15B54 | 50KB |
| 13279798 | EVJ4JAP15C54 | 50KC |
| 13279799 | EVJ4JAP15CF5 | 250KC |
| 13299206 | EVN-D4AA00B24 | 20KB |
| 13299126 | SR-19R | 1MB |
| MISCELLANEOUS | | |
| 2215070201 | Guide Bushing | |
| 2226033300 | Cushion | |
| 2217010900 | Coil Spring | |
| 2341041400 | Battery Snap | |
| 2216052900 | Plastic Sheet | clear |

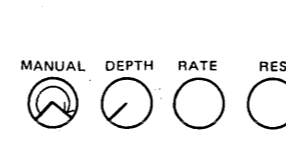


EFFECT BOARD 752395100(pcb 2292044100)



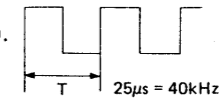
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

ADJUSTMENT



CLOCK FREQUENCY

1. Connect oscilloscope to TP-1.
2. Adjust VR7 for $T = 25\mu s$ (40kHz).
3. Rotate MANUAL FCW.



BBD BIAS

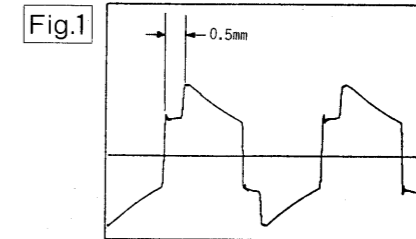
1. Feed 0dBm, 200Hz, sine wave, into INPUT jack.
2. Connect oscilloscope to Q3 emitter.
3. While turning MANUAL across its entire rotation range, set VR6 for clip-free waveform at the peaks.

RESONANCE

1. Plug short circuit into INPUT jack.
2. Connect OUTPUT jack to a monitor.
3. While touching screwdriver to TP-2, set VR5 to the point where oscillation begins.

DELAY TIME CHECKING

1. Connect OUTPUT jack to oscilloscope.
2. Set oscilloscope at EXT TRIG to which connect audio generator EXT TRIG output.
3. Feed 200mVp-p, 200Hz, rectangular wave into INPUT jack and verify that waveform on the screen looks like the figure below.



調整及び点検

クロック周波数調整

1. TP-1にオシロスコープを接続する。
2. $T=25\mu s$ (40kHz) になるように、VR7を調整する。
3. MANUALつまみをMAXにし、 $T=2\mu s \pm 20\%$ になる事を確認する。

BBDバイアス調整

1. INPUTに200Hz 0dBmの正弦波を加え、オシロスコープをQ3のエミッタへ接続する。
2. MANUALつまみをMINからMAXと動かしながら、VR6を調整して歪(クリップ)が生じないようにする。

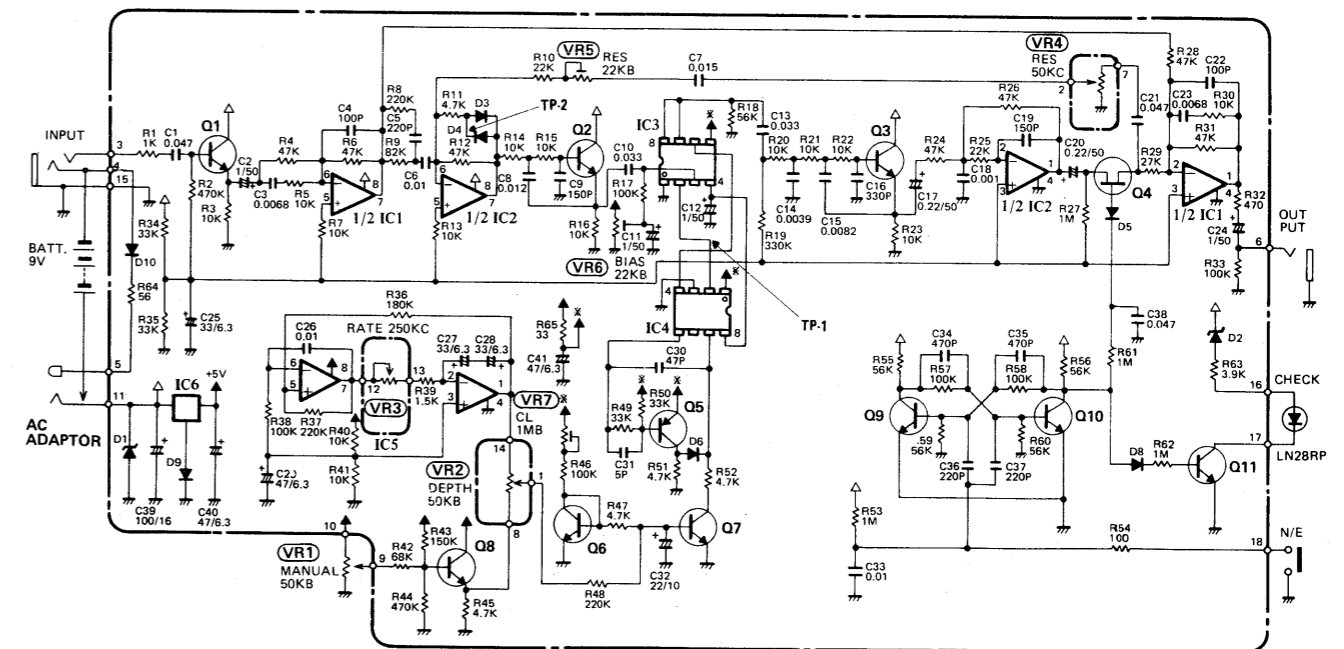
RESONANCE調整

1. INPUTにショートプラグを接続し、OUTPUTにモニターを接続する。
2. TP-2にドライバーの先を当てて音を出し、発振寸前になるように、VR5を調整する。

ディレイタイムチェック

1. OUTPUTにオシロスコープを接続する。
2. オシロスコープのトリガを外部同期にし、発振器の外部トリガ端子に接続する。
3. INPUTに200Hz 20mVp-pの方形波を入力し、OUTPUTの波形がFig.1になることを確認する。

CIRCUIT DIAGRAM



| | | |
|--------------------------|------------------|-----------------------------------|
| IC1, IC2: M5218P | Q1-Q3: 2SC2240GR | D1: S-5500G |
| IC3: MN3204 (512-stage) | Q4: 2SK30A-Y | D2: RD5.1EB-3 |
| IC4: MN3102 (BBD driver) | Q5: 2SA733-P | D3-D10: 1S2473 or 1S1588 or DS442 |
| IC5: TL022CP | Q6-Q11: 2SC945-P | |
| IC6: μPC78L05 | | |