

## BOM GC76

| GC76-MAIN + GC76-GR |                                  |   |
|---------------------|----------------------------------|---|
| Q.ty                | Resistors:                       | N° on PCB                                 |
| 2                   | 22k 1% 1/4w                      | R1, R2                                    |
| 4                   | 750R 1% 1/4w                     | R3, R4, R5, R6                            |
| 9                   | 10k 1% 1/4w                      | R7, R8, R24, R26, R41, R42, R43, R31, R50 |
| 1                   | 560k 1% 1/4w                     | R9  |
| 2                   | 1k 1% 1/4w                       | R10, R14                                  |
| 2                   | 2M2 1% 1/4w                      | R11, R12                                  |
| 1                   | 56R 1% 1/4w                      | R18                                       |
| 1                   | 6k8 1% 1/4w                      | R19                                       |
| 1                   | 200k 1% 1/4w                     | R20                                       |
| 1                   | 2k 1% 1/4w                       | R21                                       |
| 1                   | 11k 1% 1/4w                      | R23                                       |
| 1                   | 8k2 1% 1/4w                      | R27                                       |
| 1                   | 68k 1% 1/4w                      | R28                                       |
| 1                   | 2k2 1% 1/4w                      | R29                                       |
| 2                   | 100k 1% 1/4w                     | R39, R52                                  |
| 1                   | 1k3 1% 1/4w                      | R40                                       |
| 2                   | 33R 1% 1/4w                      | R44, R45                                  |
| 1                   | 3M9 1% 1/4w                      | R48                                       |
| 1                   | 150k 1% 1/4w                     | R49                                       |
| 1                   | 330k 1% 1/4w                     | R53                                       |
| 1                   | 1M8 1% 1/4w                      | R65                                       |
| 2                   | 47k 1% 1/4w                      | R66, R67                                  |
| 1                   | 3k6 1% 1/4w                      | R13                                       |
| 2                   | 12k 1% 1/4w                      | R15, R51                                  |
| 2                   | 180R 1% 1/4w                     | R16, R17                                  |
| 1                   | 4k3 1% 1/4w                      | R22                                       |
| 1                   | 56k 1% 1/4w                      | R25                                       |
| 1                   | 470R 1% 1/4w                     | R47                                       |
| 2                   | 56K 1% 1/8w                      | R68, R69                                  |
| 1                   | 39k 1% 1/8w                      | R70                                       |
| 2                   | 22k 1% 1/8w                      | R30, R55                                  |
| 2                   | 820R 1% 1/8w                     | R57, R71                                  |
| 1                   | 240R 1% 1/8w                     | R72                                       |
| 1                   | 5k6 1% 1/8w                      | R73                                       |
| 1                   | 470R 1% 1/8w                     | R74                                       |
| 1                   | 10M 1% 1/8w                      | R46                                       |
| 1                   | 100R 1% 1/8w                     | R54                                       |
| 1                   | 68k 1% 1/8w                      | R56                                       |
| 4                   | 560R 1% 1/8w                     | R58, R59, R60, R61                        |
| 3                   | 680R 1% 1/8w                     | R62, R63, R64                             |
|                     |                                  |   |
| Q.ty                | Trimmer:                         | N° on PCB                                 |
| 1                   | TRIMMER 1K Top Adjust DIST       | RA1                                       |
| 1                   | TRIMMER 5K Top Adjust Q.BIAS     | RA2                                       |
| 1                   | TRIMMER 100K Top Adjust GR.SCALE | RA3                                       |
| 1                   | TRIMMER 50K Top Adjust GR.NULL   | RA4                                       |
|                     |                                  |   |

| <b>Q.ty</b> | <b>Diodes:</b>                                   | <b>N° on PCB</b>                                   |
|-------------|--|--|
| 2           | FDH333   | D1, D2   |
| 4           | 1N4007   | D3, D4, D5, D6                                     |
| 4           | 1N914  | D7, D8, D9, D10                                    |
|             |  |  |
| <b>Q.ty</b> | <b>Chips:</b>                                    | <b>N° on PCB</b>                                   |
| 1           | NE5532   | U1   |
| 1           | NE5534   | U3   |
| 1           | THAT1646   | U4   |
| 2           | TL072  | U5, U6   |
| 2           | LM339  | U7, U8   |
|             |  |  |
| <b>Q.ty</b> | <b>Ceramic Capacitors:</b>                       | <b>N° on PCB</b>                                   |
| 4           | 100pF ceramic p=2;5mm                            | C5, C6, C32, C33                                   |
| 1           | 27pF ceramic p=2;5mm                             | C12  |
| 2           | 220pF ceramic p=2;5mm                            | C15, C16   |
| 3           | 22pF ceramic p=2;5mm                             | C19, C22, C26                                      |
| 1           | 47pF ceramic p=2;5mm                             | C38  |
|             |  |  |
| <b>Q.ty</b> | <b>Tantalum Capacitors:</b>                      | <b>N° on PCB</b>                                   |
| 2           | 6.8uF Tantale p=2.5mm                            | C41, C42   |
|             |  |  |
| <b>Q.ty</b> | <b>Electrolytic Capacitors:</b>                  | <b>N° on PCB</b>                                   |
| 2           | 47UF/50V BIPOLAR                                 | C1, C2   |
| 2           | 10UF/16V BIPOLAR                                 | C30, C31   |
| 5           | 100uF/50V d=8mm                                  | C3, C20, C25, C27, C37                             |
| 1           | 470uF/50V p=5mm                                  | C18  |
| 1           | 47uF/50V p=2.5mm                                 | C36  |
| 1           | 22uF/50V p=2.5mm                                 | C11  |
| 1           | 1000uF/50V p=5mm                                 | C13  |
|             |  |  |
| <b>Q.ty</b> | <b>Film Capacitors:</b>                          | <b>N° on PCB</b>                                   |
| 11          | 0.1uF WIMA p=5mm                                 | C7, C8, C9, C10, C14, C23, C24, C28, C29, C39, C40 |
| 3           | 1uF WIMA p=5mm                                   | C4, C21, C35                                       |
| 1           | 220nF WIMA p=5mm                                 | C17  |
| 1           | 33nF WIMA p=5mm                                  | C34  |
| 1           | 22nF WIMA p=5mm                                  | C43  |
|             |  |  |
| <b>Q.ty</b> | <b>Transistors:</b>                              | <b>N° on PCB</b>                                   |
| 2           | 2N5457   | Q1, Q2   |
| 1           | J109   | Q4   |
| 1           | 2N3906   | Q5   |
|             |  |  |
| <b>Q.ty</b> | <b>Various:</b>                                  | <b>N° on PCB</b>                                   |
| 8           | LED green 3mm + spacer                           | LED1, LED2, LED3, LED4, LED5, LED6, LED7, LED8     |
| 1           | Rotary Switch NKK MRA206 2x6pos                  | S2   |
| 1           | 4PDT Push Switch ALTRONICS WBL4UEEGBQR05CLR      | SW1  |
| 1           | POTENTIOMETER 10K LIN                            | P1   |
| 2           | POTENTIOMETER 25K LIN                            | P2, P3   |
| 1           | POTENTIOMETER 1M LIN                             | P4   |
| 2           | Connector Header 14pins (2x7) p=2.54 61201421621 | J1, J2   |
| 2           | Female IDC Connector 14pins (2x7) 61201023021    | for J1, J2   |
| 1           | Ribbon Flat cable 14pins 15cm p=1.27mm           | for J1, J2   |
| 6           | Connector Header 2pins p= 2.54 744-81-02TW0A     | TR-OUT, TR-IN, IN, LINK, SC-HP, OUT                |
| 6           | DIP8 SOCKET                                      | U8, U9, U10, U11, U12, U13                         |
| 2           | Support IC 2x7p                                  | S7, S8   |
| 1           | PSU Connector 3pins p=2.54 XY308-2.54-3P         | CN4  |
|             |  |  |

| GC76-PSU    |  |                     |
|-------------|--|---------------------|
| <b>Q.ty</b> | <b>Resistors:</b>                        | <b>N° on PCB</b>    |
| 2           | 270R 1/4w 1%                             | R1', R2'            |
| 1           | 15k 1/4w 1%                              | R3'                 |
|             |  |                     |
| <b>Q.ty</b> | <b>Trimmer:</b>                          | <b>N° on PCB</b>    |
| 2           | Trimmer 5K Top Adjust                    | RA1', RA2'          |
|             |  |                     |
| <b>Q.ty</b> | <b>Film Capacitors:</b>                  | <b>N° on PCB</b>    |
| 2           | 0.1uF Film Capa p=5.08mm                 | C3', C4'            |
|             |  |                     |
| <b>Q.ty</b> | <b>Electrolytic Capacitors:</b>          | <b>N° on PCB</b>    |
| 2           | 47uF / 50V d=6.5mm                       | C5', C6'            |
| 4           | 100uF / 50V d=6.5mm                      | C7', C8', C9', C10' |
| 2           | 2200uF / 50V d=16mm                      | C1', C2'            |
|             |  |                     |
| <b>Q.ty</b> | <b>Diodes:</b>                           | <b>N° on PCB</b>    |
| 1           | Diode Bridge KBP310G-BP                  | BR1                 |
| 4           | 1N4007                                   | D1', D2', D3', D4'  |
|             |  |                     |
| <b>Q.ty</b> | <b>Voltage Regulators:</b>               | <b>N° on PCB</b>    |
| 1           | LM317                                    | REG1                |
| 1           | LM337                                    | REG2                |
|             |  |                     |
| <b>Q.ty</b> | <b>Various:</b>                          | <b>N° on PCB</b>    |
| 2           | HEATSINK AAVID 592502B34 30W Resistor    | HS1, HS2            |
| 2           | PSU Connector 3pins p=2.54 XY308-2.54-3P | CN1, CN3            |
| 1           | LED power on                             | LED                 |
| 1           | TRANSFORMER Toroid 2x15V 30VA            |                     |
|             |  |                     |

#### CALIBRATION

Adjust your PSU's DC output voltages using the trimmers +VOLT and -VOLT as close as possible to +/- 17 Volts.

**QBIAS:** This is the most important step which sets the bias voltage of the FET and puts it into slight conduction. Make sure the unit is powered on for at least 30 minutes before proceeding.

Set input fully counterclockwise, output fully clockwise, attack and release in the middle, ratio switch fully CCW (OFF position), slam button no pressed. Turn the QBIAS trimmer fully CW (the right-most pad of resistor R49 should read about 9 Volts DC).

Feed a 1kHz sine signal to the input, set the generator plugin's internal output level to 0 dB and adjust the channel fader to, say -30.0 dBFS.

Slowly turn the input control on the compressor up and watch the return level in your DAW until it also reads -30.0 dBFS.

Slowly turn QBIAS counterclockwise until you see a slight level drop on your DAW meter. Carefully adjust until the return level reads -31.0 dBFS – wait a couple of seconds between each turn until the level settles.

**Gain reduction meter tracking:** If set right, the first and right-most LED shows 1~2 dB of gain reduction. When the last LED barely lights up, it's about 15 dB. Don't expect too much precision from this LED meter. In slam mode the meter goes haywire, just like on the original. As there is no output meter, the adjustment is a bit different than described in the manual – the principle is the same.

Set the input control fully CW, attack and release to 12 o'clock, ratio to 20:1 (fully CW), slam to off.

Feed a 1kHz sine signal to the input, set the generator plugin's internal output level to 0 dB and adjust the channel fader to, say -45.0 dBFS

Adjust the **output** control on the compressor until the return level also reads -45 dBFS. The level is kept low, so that no compression occurs at this point and the signal stays far below the unit's internal threshold.

Slowly increase the signal using the channel fader in your DAW and keep an eye on the return level. For the first few decibels, the channel's output and the compressor's return level should stay exactly equal.

As soon as you hit the threshold, the numbers start to diverge. Let's say, the channel fader is set to -25 dBFS and the return level reads -26 dBFS. At this point you have 1 dB of gain reduction. Take note of the channel fader's value (-25 dBFS in this case).

Adjust the GRNULL trimmer until the first (right-most) LED is on.

By turning the channel fader further up, try to find the point where you are getting 15 dB of compression. For example: with the channel fader at -8 and return level at -23 the difference is 15 = 15 dB of gain reduction. Take note of the fader's value (-8 dBFS)

Adjust the GRSCALE trimmer until the last (left-most) LED is barely lit.

Set the fader back to the first value, where you had 1 dB GR (-25). Adjust GRNULL until only the first LED is lit again. Each time you move the channel fader, give the compressor's release action some time to settle.

Set the fader to the second value (-8), adjust GRSCALE until the last LED is barely lit and repeat the last two steps until both conditions are met reliably. Don't touch any other control on the compressor other than the trimmers GRNULL and GRSCALE !

**Distortion adjustment:** FETs inherently tend to distort the signal asymmetrically (which results in large amounts of 2nd harmonic) when used as a voltage controlled resistor – unless a small portion of that signal is fed back to the gate of the transistor. The amount of that is adjusted using trimmer DIST. You don't really need a THD analyzer – you could use free software or just about any EQ plugin that has a decent spectrum analyzer built in.

Set input fully CW, output at 12 o'clock, ratio fully CCW (off position), slam to off.

Feed a 1kHz sine signal to the input, set the generator plugin's internal output level to 0 dB and adjust the channel fader to -30 dBFS or lower.

Make sure the analyzer plugin (or software) is fed with the compressor's output signal.

Adjust trimmer DIST until the 2nd harmonic (at 2kHz) is at its lowest. The 3rd won't change at all. DONE!