Norlin
NORLIN MUSIC, INC.

Factory Service Bulletin

2500 WALDEN AVE. ● BUFFALO, NEW YORK 14225 ● UNITED STATES
51 NANTUCKET BLVD. ● SCARBOROUGH, ONT. MIP 2N6 ● CANADA
WAALHAVEN ● Z.Z. 48 ROTTERDAM ● THE NETHERLANDS

SUBJECT: Taurus Pedal Synthesizer Owners and Service Manual Addendum, Manual 993-040749-001

NUMBER: 1178   DATE: 10/79

This manual addendum requires that the information be revised on the pages noted prior to servicing the equipment. Also included are schematic updates and servicing guides. Please make these changes and add this addendum to the manual.

A. TEXT CHANGES

Page 32, under GENERAL, step d), delete:

+15V to -15VDC - Balance within 300mV of each other

Page 32, under 4.2 SCALE ADJUSTMENTS, change steps e), f), and g) as follows and delete step h):

e) Hold down high C foot pedal and zero beat with external oscillator.
f) Hold down low C foot pedal and zero beat with "Scale" trimpot R131.
g) Repeat steps e) and f) if necessary.

Page 33, under 4.3 FET BALANCE (OCTAVE TUNING), change steps d) through h) and delete step i) as follows:

d) Press OCTAVE button (LED OFF).
e) Hold down high C pedal.
f) Set OCTAVE slider to "HI" and zero beat with external oscillator.
g) Set OCTAVE slider to "LO" and zero beat with "FET BALANCE" trimpot R146.
h) Repeat steps f) and g) until no further adjustments are necessary.

Page 34, under 4.5 OSCILLATOR "B" TUNING, change steps h), i), and j) as follows:

h) Press TAURUS button (LED ON), hold down high C foot pedal, and adjust "Taurus Frequency" trimpot R703 (IC702) for zero beat (no change in pitch).
i) Press TUBA button (LED ON), hold down high C foot pedal, and adjust "Tuba Frequency" trimpot R704 for zero beat at +1 octave (oscillator "B" at twice the frequency of oscillator "A").
j) Press BASS button (LED ON), hold down high C foot pedal, and adjust "Bass Frequency" trimpot R706 (IC703) for zero beat.

Page 34, under 4.6 FILTER TUNING, change the complete paragraph as follows:

4.6 FILTER TUNING (Figures 4-2, 4-3 and 7-1 through 7-4)

a) Press VARIABLE button (LED ON), all others OFF.
b) Set OCTAVE slider to "LO", SUSTAIN LEVEL to "10", EMPHASIS to "8" and all others to minimum (down) with foot FILTER to maximum (up).

A. TEXT CHANGES (Continued)

   c) Short IC108 pin 7 to ground (pin 14).
   d) Hold down high C foot pedal.
   e) Adjust "Regeneration" trimpot R524 for threshold of oscillation.
   f) Set foot FILTER to minimum (down) and EMPHASIS slider to "10".
   g) Adjust "Filter Frequency" trimpot R509 for 40Hz ± 2Hz.
   h) Remove short from IC108.

Page 36, under INTEGRATED CIRCUITS, add additional descriptive information as follows:

INTEGRATED CIRCUITS

991-041087-001	Integrated Circuit, CD4016AE Quad Bilateral Switch	7
991-041088-001	Integrated Circuit, CD4011AE Quad 2 Input NAND Gate	1
991-042547-001	Integrated Circuit, CD4066BE Quad Bilateral Switch	1
991-041089-001	Integrated Circuit, CA3080 Operational Transconductance Amplifier	5
991-041094-001	Integrated Circuit, SN7410 Triple 3 Input NAND Gate	2
991-041096-001	Integrated Circuit, SN7426N Quad 2 Input NAND Gate	3
991-041099-001	Integrated Circuit, SN7474N Dual J - K Flip Flop	2
991-041102-001	Integrated Circuit, MC1458CP-1 Dual Compensated Op Amplifier	1
991-041104-001	Integrated Circuit, LM3046 Transistor Array	1
991-041111-001	Integrated Circuit, SG1468N, ± 15 VDC Tracking Regulator	1
991-041112-001	Integrated Circuit, 78M05UC, +5V Regulator	1
991-041113-001	Integrated Circuit, SN74L04N Hex Inverter NOR	1
991-041114-001	Integrated Circuit, SN7451N Dual 2 Wide 2 Input AND-OR Invert Gate . .	1
991-041119-001	Integrated Circuit, 741A Selected Low Input Offset Op Amplifier	3

B. TAURUS SCHEMATIC UPDATES

   1. Delete note "Replace with 4066 if leakage occurs" located to the left of IC106, and replace with "Use only 4016".
   2. Delete "+V" located to the right of pin 6 of Q101.
   3. Delete "3.8V decay on", "0" off and "V+ decay off, 0V decay on" located to the left and right of IC904/(G38) respectively.
   4. "Replace with 33K if output is distorted", located to the top right of IC801, refers to R808.
   5. Delete "Emphasis Full Foot Filter-Off Cutoff-Off", located below Q501.
   6. Change "A, B, C, D - ON ≈ 7.5V
                            OFF ≈   0V"

   Located below Q512 to read:

   $\bar{A}, \bar{B}, \bar{C}, \bar{D}$ ON ≈ 0V
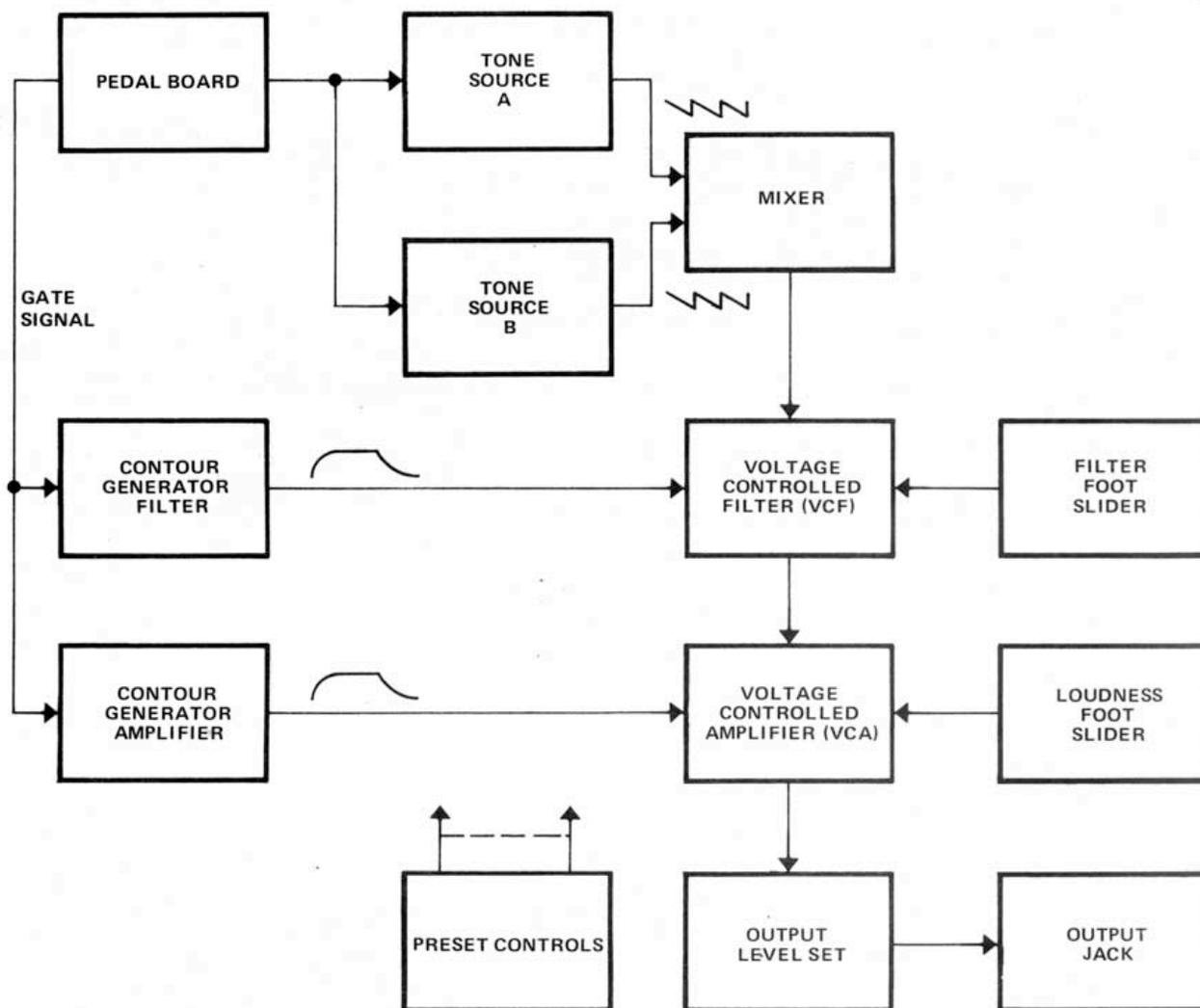   OFF ≈ −7.5V

   7. CAUTION: Serial numbers below approximately 1150 do not have plated through holes; therefore, replaced components must be soldered on both sides of the printed circuit board.
   8. When a component is replaced ALL FLUX MUST BE REMOVED to prevent board leakage.
   9. Replace R117 (100K) with a 47K resistor if the trigger circuit is operating intermittently and the keyboard contacts have been determined not to be at fault.
   10. "IC" refers to integrated circuits, resistor networks and integrated trimpots.
   11. IC502, change 3821 to CA3046.
   12. Resistor R312 below Q302, change V+ to V−.
   13. Component Basing, change SG3821 to CA3046.

C. SERVICING GUIDES FOR COMMON BOARD AND COMPONENT LEAKAGE

1. Symptom: "Pitch changes with glide on".

    a) Contamination on the printed circuit board in the area bounded by IC104, Q101, IC106, R917, R144, and Q902 on component side of board.
    b) Board contamination under Q101, IC106.
    c) Leaky Q101, leaky IC106 (must be 4016 only).

2. Symptom: "Pitch drifts with decay on". ALL Presets.

    a) Board contamination at or near R512, Q101, C112, IC106, or A103; check both sides of board.
    b) Leaky Q101, IC106 (4016 only), or C112.

3. Symptom: "Pitch drifts with decay on" in either or both "Taurus" and "Tuba" presets only, or "Taurus sustains indefinitely".

    a) Contamination of board edge side of R137 solder side of board. (Cut trace before solder pad and top solder R137 to trace if necessary).

4. Symptom: "Instantaneous pitch change with release of key; Decay on".

    a) Dirty contacts.
    b) IC106 is 4066 (should be 4016 only).
    c) Board contamination between IC104 and Q902.
    d) Board contamination under IC104 or 106.

5. Symptom: "Pitch drifts with decay on" in either or both "Variable" and "Bass" presets only, or "Variable Sustains Indefinitely".

    a) Contamination on the printed circuit board in the area bounded by R137, Q901, IC903, R241, C109 and edge of the component side of board.

D. SIMPLIFIED BLOCK DIAGRAM

Pages 2 and 27, add waveforms and gate signal as shown on Page 4 of this bulletin.

SIMPLIFIED BLOCK DIAGRAM