

BOSS DD-3(T)

Digital Delay

SERVICE NOTES

Third Edition

Issued by RJA

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WARNING

There are three types of DD-3(T) with different circuitry called "DD-3", "DD-3A" and "DD-3B". The pedals of all three types are labeled "DD-3".

We call the new type of this model, DD-3B for identifying the old type and new type for convenience on service system.

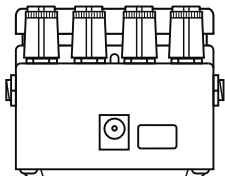
Check the model name as follows.

Of the three types, only the appearance of the "DD-3" is different. Identify the "DD-3" or the "DD-3A or DD-3B" by the shape of the adapter jack as shown in the following figure.

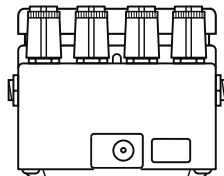
The appearance of the "DD-3A" and the "DD-3B" are the same. Due to a DRAM change, it has been changed to "DD-3B" from serial No. SO91200 of 1912LOT (produced in August 2001). It can be identified by the serial number. The "DD-3A" and "DD-3B" can also be identified by the silk-screen printing on the board.

When referring to the service notes or ordering parts, check the model name using the above process.

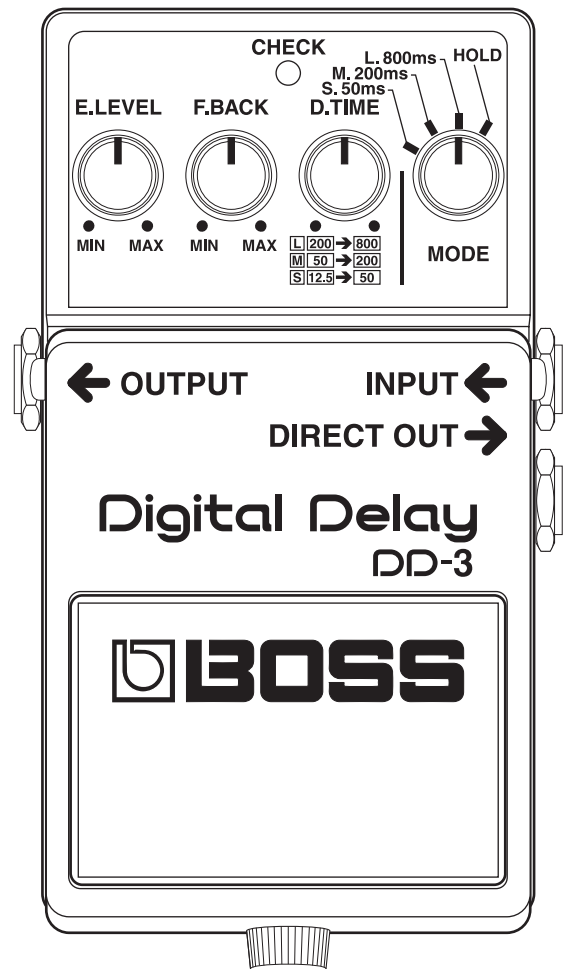
This service note is for the "DD-3B". Refer to "DD-3A SERVICE NOTES" (#17059557) when repairing the DD-3A. Variable resistor, switch and mechanical parts for the "DD-3A" and "DD-3B" are compatible. Refer to "DD-2/3 SERVICE NOTES" (#17059183) when repairing the DD-3.



DD-3A or DD-3B



DD-3



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SPECIFICATIONS

Options

AC Adaptor PSA-Series

* 0 dBu = 0.775 Vrms

Power Supply

DC 9 V; Dry battery (6AM6/9V)

AC Adaptor (PSA-series: Option)

Current Draw

45 mA to 65 mA (DC 9V)

Controls

Pedal Switch

EFFECT LEVEL

FEEDBACK

DELAY TIME

MODE SELECTOR Switch

Indicator

Check Indicator (serves also as battery check indicator)

Jacks

INPUT

DIRECT OUTPUT

MAIN OUTPUT

AC Adaptor

System

Analog logarithmic compression and 12 bit quantizing system

Delay Time

12.5 ms (MIN) to 800 ms (MAX)

S (Short) 50 ms (12.5 ms to 50 ms)

M (Middle) 200 ms (50 ms to 200 ms)

L (Long) 800 ms (200 ms to 800 ms)

Hold Time

200 ms (MIN) to 800 ms (MAX) in Hold mode

Frequency Response

Delay Sound: 40 Hz to 7 kHz; +1/-3 dB

Direct Sound: 10 Hz to 60 kHz; +1/-3 dB

Residual Noise

-95 dBu (IHF-A, Typ.)

Input Impedance

1 M ohm

Output Load Impedance

10 k ohm or greater

Dimensions

73 (W) x 129 (D) x 59 (H) mm

2-7/8 (W) x 5-1/8 (D) x 2-3/8 (H) inches

Weight

450 g / 1 lb (including battery)

Accessories

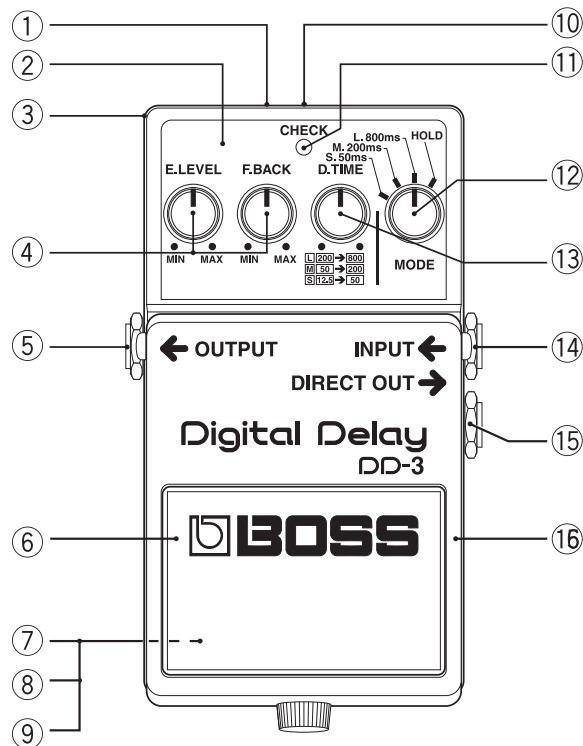
OWNER'S MANUAL ENGLISH(#2603768702)

JAPANESE(#2603768603)

Dry Battery(#*****); 6AM6/9V (Alkaline)

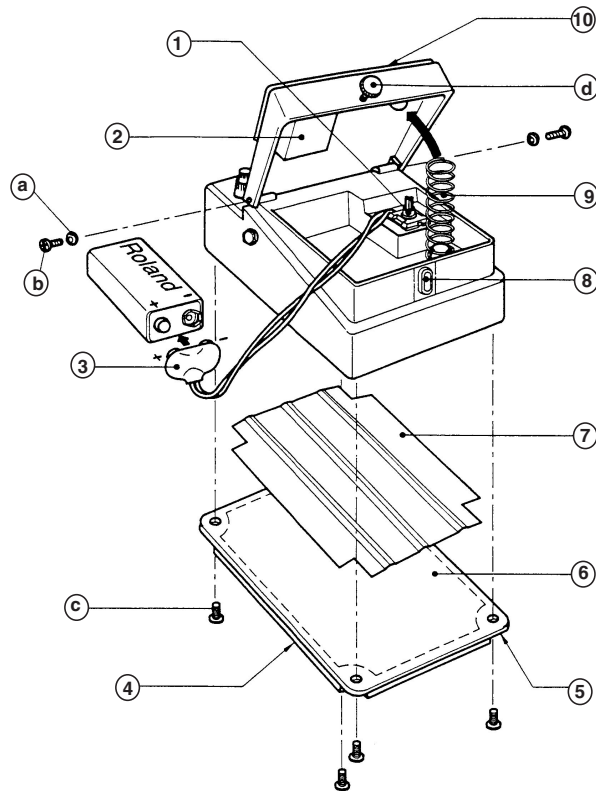
Leaflet ("USING THE UNIT SAFELY," "IMPORTANT NOTES," and "Information")

LOCATION OF CONTROLS,PARTS LIST



| No. | PART CODE | PART NAME | DESCRIPTION |
|-----|------------|-----------------------|-----------------------|
| 1 | 2253753801 | PSA CAUTION | 253-538 |
| 2 | 2221740401 | PANEL | |
| 3 | 22017993RT | CASE | |
| 4 | 2247726200 | KNOB (BLUE) | 247-262 |
| | 13279869 | POTENTIOMETER | RK0971110 50KB |
| 5 | 13449105MF | JACK | HTJ-064-14I |
| 6 | 2235730400 | FOOT BASE (PEDAL MAT) | 235-304 |
| 7 | 2202785100 | BOTTOM COVER | 202-851 |
| 8 | 2235730500 | BOTTOM BASE | 235-305 |
| 9 | G253751603 | BOTTOM CAUTION PSA | FCC/CE/C-TICK/EMC GRY |
| 10 | 13449711 | AC ADAPTOR JACK | HEC-0470-01-630 |
| 11 | 1502928100 | LED (RED) | L-34HDSL |
| 12 | 2247726200 | KNOB (BLUE) | 247-262 |
| | 13119308 | SWITCH (ROTARY) | SBM1024 (SRBM 14011A) |
| 13 | 2247726200 | KNOB (BLUE) | 247-262 |
| | 13289126 | POTENTIOMETER | RK0971110 10KA 15MM |
| 14 | F3449112 | JACK (STEREO) | HTJ-064-13D |
| 15 | 13449140MF | JACK (STEREO) | HTJ-064-14D |
| 16 | 22187547RT | PEDAL | |

EXPLODED VIEW, PARTS LIST



[PARTS]

| No. | PART CODE | PART NAME | DESCRIPTION | Q'TY |
|-----|------------|-----------------------|-----------------------|------|
| 1 | 13129710 | SWITCH (PUSH) | JM-0404 | 1 |
| 2 | 2226733300 | CUSHION | 267-333 | 1 |
| 3 | F3419102 | BATTERY CONNECTOR | | 1 |
| 4 | G253751603 | BOTTOM CAUTION PSA | FCC/CE/C-TICK/EMC GRY | 1 |
| 5 | 2235730500 | BOTTOM BASE | 235-305 | 1 |
| 6 | 2202785100 | BOTTOM COVER | 202-851 | 1 |
| 7 | G2167301 | INSULATION SPACER | | 1 |
| 8 | 2215770201 | PEDAL GUIDE BUSH | 215-702 | 1 |
| 9 | 2217710900 | COIL SPRING | 214-109 | 1 |
| 10 | 2235730400 | FOOT BASE (PEDAL MAT) | 235-304 | 1 |

[SCREW]

| No. | PART CODE | PART NAME | DESCRIPTION | Q'TY |
|-----|-----------|----------------------|----------------|------|
| a | 40125134 | NYLON WASHER 3X6X0.5 | | 2 |
| b | 40010267 | SCREW M3X10 | BINDING FE BZC | 2 |
| c | 40010901 | SCREW M3X6 | BINDING B1 BZC | 4 |
| d | H5029820 | SCREW M3X10 | THUMB SCREW | 1 |

PARTS LIST

SAFETY PRECAUTIONS:

The parts marked Δ have safety-related characteristics. Use only listed parts for replacement.

CONSIDERATION ON PARTS ORDRING

When ordering any parts listed in the parts list, please specify the following items in the order sheet.

| | QTY | PART NUMBER | DESCRIPTION | MODEL NUMBER |
|-----|-----|-------------|---------------|--------------|
| Ex. | 10 | 22575241 | Sharp Key | C-20/50 |
| | 15 | 2247017300 | Knob (orange) | DAC-15D |

Failure to completely fill the above items with correct number and description will result in delayed or even undelivered replacement.

NOTE: The parts marked # are new. (initial parts)

CASING

| | | | | | |
|---|------------|-----------------------|---------|--|---|
| | 2235730500 | BOTTOM BASE | 235-305 | | 1 |
| | 2235730400 | FOOT BASE (PEDAL MAT) | 235-304 | | 1 |
| | 2202785100 | BOTTOM COVER | 202-851 | | 1 |
| # | 22017993RT | CASE | | | 1 |
| # | 2221740401 | PANEL | | | 1 |
| # | 22187547RT | PEDAL | | | 1 |

KNOB,BUTTON

| | | | | | |
|--|------------|-------------|---------|--|---|
| | 2247726200 | KNOB (BLUE) | 247-262 | | 4 |
|--|------------|-------------|---------|--|---|

SWITCH

| | | | | | |
|--|----------|-----------------------|-----------------|-----|---|
| | 13119308 | SBM1024 (SRBM 14011A) | SWITCH (ROTARY) | SW1 | 1 |
| | 13129710 | JM-0404 | SWITCH (PUSH) | SW2 | 1 |

JACK,EXT TERMINAL

| | | | | | |
|--|------------|-----------------|-----------------|-----|---|
| | F3449112 | HTJ-064-13D | JACK (STEREO) | JK1 | 1 |
| | 13449140MF | HTJ-064-14D | JACK (STEREO) | JK2 | 1 |
| | 13449105MF | HTJ-064-14I | JACK | JK3 | 1 |
| | 13449711 | HEC-0470-01-630 | AC ADAPTOR JACK | JK4 | 1 |

PWB ASSY

| | | | | | |
|---|------------|---------------|-------|--|---|
| # | 75D563P000 | MT BOARD ASSY | DD-3B | | 1 |
|---|------------|---------------|-------|--|---|

IC

| | | | | | |
|---|------------|--------------------|-----------------|------|---|
| | 15289402 | TA78L05F(TE12L) | IC (REGULATOR) | IC9 | 1 |
| | 15289148 | M5218AFP | IC (OP AMP) | IC1 | 1 |
| | 15229875 | MN51010RBA BOS-008 | IC (GATE ARREY) | IC7 | 1 |
| | 02343090 | M11B416256A-35J(T) | IC (DRAM) | IC11 | 1 |
| | 15289118 | NJM311M | IC (COMPARATOR) | IC5 | 1 |
| # | F5289115 | NJM319M | IC (COMPARATOR) | IC10 | 1 |
| # | F5289113 | SA571D | IC (COMPANDOR) | IC2 | 1 |
| | 15159115T1 | TC4066BP | IC (C MOS) | IC3 | 1 |
| | 15249114T0 | TC74HC00AF SOP | IC | IC4 | 1 |
| | 15289155 | UPC4072G2 | IC | IC8 | 1 |

TRANSISTOR

| | | | | | |
|--|------------|------------------|----------------|----------------|---|
| | 15319108 | 2SC-3324GR-TE85R | TRANSISTOR | Q1,Q3-Q5,Q7-Q9 | 7 |
| | F5329530 | 2SK879Y | FET TRANSISTOR | Q2,Q10 | 2 |
| | 15329103T0 | 2SK880-GR(TE85R) | FET TRANSISTOR | Q6,Q11 | 2 |

DIODE

| | | | | | |
|--|------------|--------------|-----------------|-------|---|
| | 01019534 | 1SS355 TE-17 | SWITCHING DIODE | D1-D8 | 8 |
| | 1502928100 | L-34HDSL | LED (RED) | LED1 | 1 |
| | F5339201 | GS1G | DIODE | D9 | 1 |
| | F5339312 | RD5.6S B3 | DIODE | D10 | 1 |

RESISTOR

| | | | | | |
|--|----------|----------------|-------------------|--|----|
| | F5419705 | CRN34103J | RESISTOR ARRAY | RA2-RA4 | 3 |
| | 13919175 | RKM14L472/942F | RESISTOR ARRAY | RA1 | 1 |
| | 00567023 | RPC05T 101 J | MTL.FILM RESISTOR | R24 | 1 |
| | 00567156 | RPC05T 102 J | MTL.FILM RESISTOR | R2,R26,R43 | 3 |
| | 00567289 | RPC05T 103 J | MTL.FILM RESISTOR | R3,R5,R10,R18-R22,R27,R36-R40,R42,R44,R45,R4 | 26 |
| | 00567412 | RPC05T 104 J | MTL.FILM RESISTOR | R1,R7,R23,R25,R47 | 5 |
| | 00567556 | RPC05T 105 J | MTL.FILM RESISTOR | R6,R60,R61 | 3 |
| | 00567045 | RPC05T 151 J | MTL.FILM RESISTOR | R30 | 1 |

| RESISTOR | | | | | |
|----------------------|------------|-------------------------|--------------------------|---------------------------|---|
| | 00567178 | RPC05T 152 J | MTL.FILM RESISTOR | R34 | 1 |
| | 00566912 | RPC05T 220 J | MTL.FILM RESISTOR | R70 | 1 |
| | 00567067 | RPC05T 221 J | MTL.FILM RESISTOR | R31 | 1 |
| | 00567190 | RPC05T 222 J | MTL.FILM RESISTOR | R17,R32,R35,R69 | 4 |
| | 00567323 | RPC05T 223 J | MTL.FILM RESISTOR | R12,R46,R48,R53,R57 | 5 |
| | 00567456 | RPC05T 224 J | MTL.FILM RESISTOR | R58,R62 | 2 |
| | 00567212 | RPC05T 332 J | MTL.FILM RESISTOR | R41 | 1 |
| | 00567345 | RPC05T 333 J | MTL.FILM RESISTOR | R9,R13,R14,R67,R68,R71 | 6 |
| | 00567112 | RPC05T 471 J | MTL.FILM RESISTOR | R29 | 1 |
| | 00567245 | RPC05T 472 J | MTL.FILM RESISTOR | R16 | 1 |
| | 00567378 | RPC05T 473 J | MTL.FILM RESISTOR | R4,R8,R11,R15,R33,R50,R56 | 7 |
| | 00567123 | RPC05T 561 J | MTL.FILM RESISTOR | R66 | 1 |
| POTENTIOMETER | | | | | |
| # | F5429102 | RH03ADC13X 1KB | TRIMMER | RT1 | 1 |
| # | F5429103 | RH03ADCS4X 47KB | TRIMMER | RT2 | 1 |
| | 13289126 | RK0971110 10KA 15MM | POTENTIOMETER | VR3 | 1 |
| | 13279869 | RKO971110 50KB | POTENTIOMETER | VR1,VR2 | 2 |
| CAPACITOR | | | | | |
| # | F5359811 | GRM39B183K50PT | CHIP CAPACITOR(1608TYPE) | C39 | 1 |
| | 13639546M0 | ECEA1CKA100B 10UF/16V | CHEMICAL CAPACITOR | C3,C10,C36-C38 | 5 |
| | 13639550M0 | ECEA1CKA101B 100UF/16V | CHEMICAL CAPACITOR | C1 | 1 |
| | 13639549M0 | ECEA1CKA470B | CHEMICAL CAPACITOR | C11,C24,C27,C46,C56 | 5 |
| | 13639602M0 | ECEA1HKA010B UF 50V | CHEMICAL CAPACITOR | C43,C45,C49-C51 | 5 |
| | 13589330M0 | ECQ-P1H151JZ | CHEMICAL CAPACITOR | C23 | 1 |
| | 13589319 | ECQP2H471JZ | CHEMICAL CAPACITOR | C33 | 1 |
| | 01674701 | ECJ1VF1E104Z 0.1UF/16VK | CERAMIC CAPACITOR(CHIP) | C25,C26,C28,C29,C52-C55 | 8 |
| | 01674612 | ECJ1VB1H103K | CERAMIC CAPACITOR | C18 | 1 |
| | 01674478 | ECJ1VB1H122K | CERAMIC CAPACITOR | C15 | 1 |
| | 01674523 | ECJ1VB1H272K | CERAMIC CAPACITOR | C9,C16,C30,C40,C44 | 5 |
| | 01674556 | ECJ1VB1H472K | CERAMIC CAPACITOR | C2,C6,C31 | 3 |
| | 01674578 | ECJ1VB1H682K | CERAMIC CAPACITOR | C12,C32 | 2 |
| | 01674689 | ECJ1VF1H473Z | CERAMIC CAPACITOR | C5,C47,C48 | 3 |
| | 01674334 | ECUV1H101JCV | CERAMIC CAPACITOR | C7,C42 | 2 |
| | 01674356 | ECUV1H151JCV | CERAMIC CAPACITOR | C13 | 1 |
| | 01674212 | ECUV1H220JCV | CERAMIC CAPACITOR | C22 | 1 |
| | 01674389 | ECUV1H221JCV | CERAMIC CAPACITOR | C41 | 1 |
| | 01674234 | ECUV1H330JCV | CERAMIC CAPACITOR | C4,C8 | 2 |
| | 01674423 | ECUV1H471JCV | CERAMIC CAPACITOR | C35 | 1 |
| | 01674445 | ECUV1H681JCV | CERAMIC CAPACITOR | C20 | 1 |
| | 13619706N0 | DN1VR68KIS 0.68UF/35V | CAPACITOR (TANTALUM) | C14,C34 | 2 |
| | 13589312 | 330P | CAPACITOR | C17 | 1 |
| INDUCTOR,COIL,FILTER | | | | | |
| | 13529145 | DSS306-55FZ103N | EMI FILTER | EMI1 | 1 |
| WIRING,CABLE | | | | | |
| # | 23477336 | FLAT CABLE | 4P-80X10X10 P=2.5 | | 1 |
| # | 23477337 | FLAT CABLE | 3P-160X10X10 P=2.5 | | 1 |
| # | G3477157 | FLAT CABLE | 3P-130X10X10 P=2.5 | | 1 |
| SCREWS | | | | | |
| | H5029820 | SCREW M3X10 | THUMB SCREW | | 1 |
| | H5029325 | SCREW 3X6 | PAN HEAD TAPTITE-2 BZC | | 4 |
| | H5039205 | WASHER 12.5X9.5X0.5/0.9 | INTERNAL TOOTH FENI | | 3 |
| | H5039510 | NUT M9X12X2 | FENI | | 3 |
| | H5029317UC | SCREW 3X6MM | BINDING TAPPING B1 FECM | | 1 |
| | H501941301 | SCREW 3X10MM | BINDING MACHINE FEBC | | 2 |
| | 40125134 | NYLON WASHER 3X6X0.5 | | | 2 |
| | H5039112 | WASHER M9 | | | 3 |
| | 40010267 | SCREW M3X10 | BINDING FE BZC | | 2 |
| | 40010901 | SCREW M3X6 | BINDING BI BZC | | 4 |
| PACKING | | | | | |
| | G2627738 | INNER BOX | | | 1 |
| # | 2260714803 | PACKING CASE | | | 1 |
| MISCELLANEOUS | | | | | |
| | G253751603 | BOTTOM CAUTION PSA | FCC/CE/C-TICK/EMC GRY | | 1 |
| | H5319102 | INSULOK TIE | 80M/M T-18S | | 1 |
| | 2226733300 | CUSHION | 267-333 | | 1 |
| | 2253753801 | PSA CAUTION | 253-538 | | 1 |
| | 2215770201 | PEDAL GUIDE BUSH | 215-702 | | 1 |

| MISCELLANEOUS | | | | |
|-------------------------------|------------|--------------------|----------|---|
| | 2217710900 | COIL SPRING | 214-109 | 1 |
| | 23410414 | BATTERY CONNECTOR | (006P) | 1 |
| | 22257257 | EARTH TERMINAL | | 2 |
| | G2167301 | INSULATION SPACER | | 1 |
| | H2369402 | POLYCA PIPE M3X6X6 | | 1 |
| ACCESSORIES (Standard) | | | | |
| # | 2603768603 | OWNER'S MANUAL | JAPANESE | 1 |
| # | 2603768702 | OWNER'S MANUAL | ENGLISH | 1 |
| # | ***** | DRY BATTERY | | 1 |

ADJUSTMENTS

* Adjusting the clock frequency for delay time.

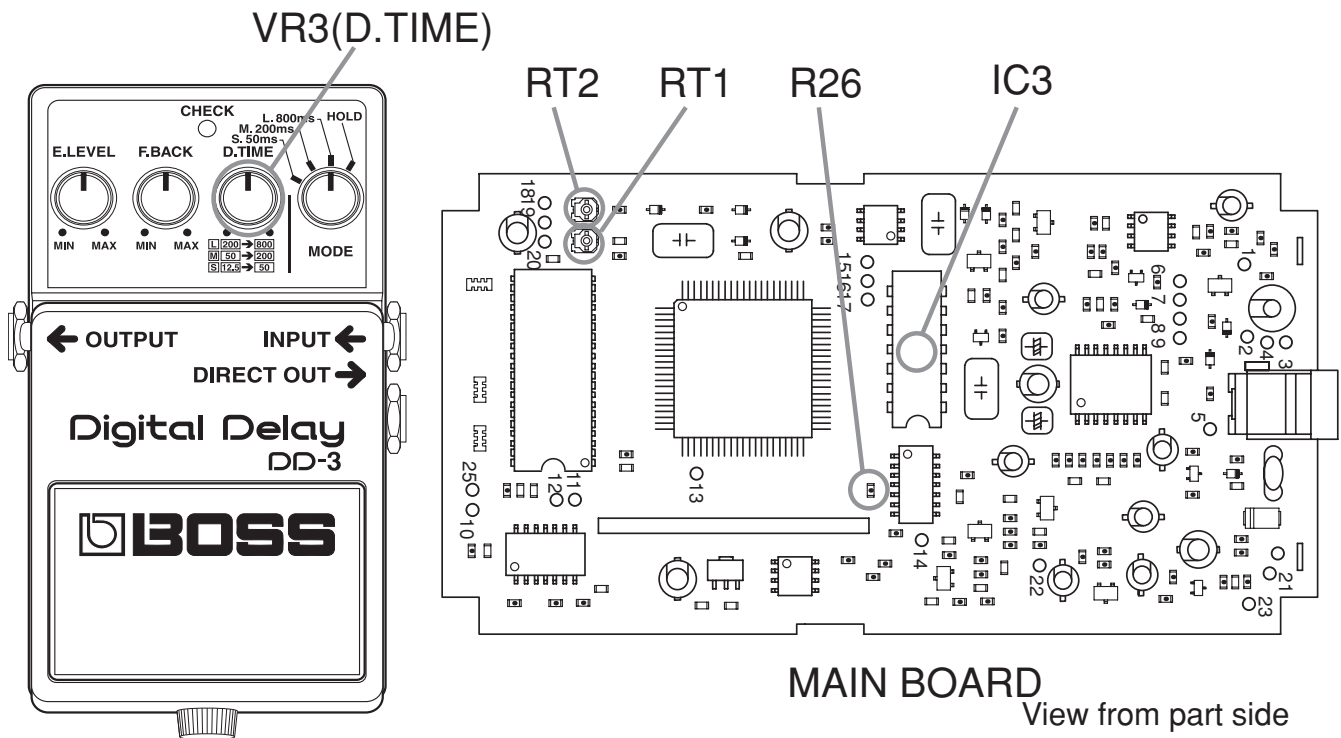
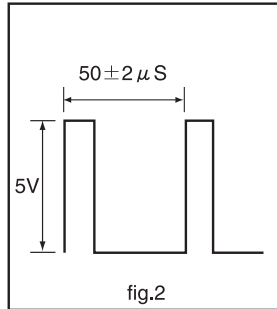
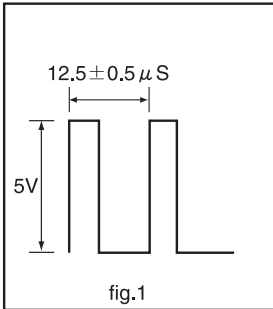
1. Adjusting the high end of clock frequency (Adjusting the minimum delay time)

- a. Set the VR3(D.TIME knob) to the min (fully-ccw).
- b. Connect the oscilloscope to R26(1k ohm resistor) or pin 5 (or pin 6) of IC3 (HD14066BP).
- c. Adjust RT1 (1k Ω potentiometer) on MT BOARD for $T=12.5\pm 0.5\mu\text{S}$ (Fig.1).

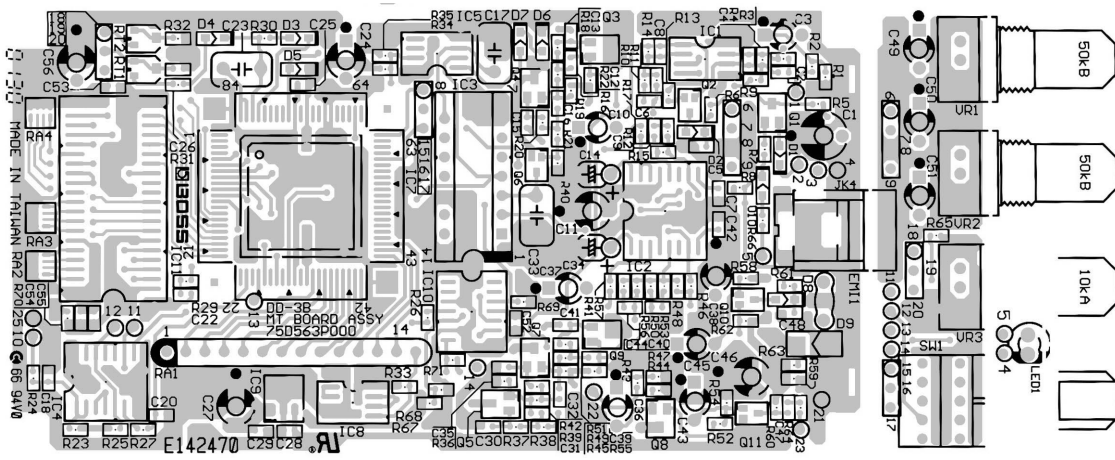
In some types of products, turning the RT1 continuously clockwise may once go outside the adjustable range and reenter there. Therefore, at the start, turn the RT1 fully counter-clockwise, then slowly turn it clockwise. When the adjustable range is reached, stop turning it, then begin adjustment.

2. Adjusting the high end of clock frequency (Adjusting the minimum delay time)

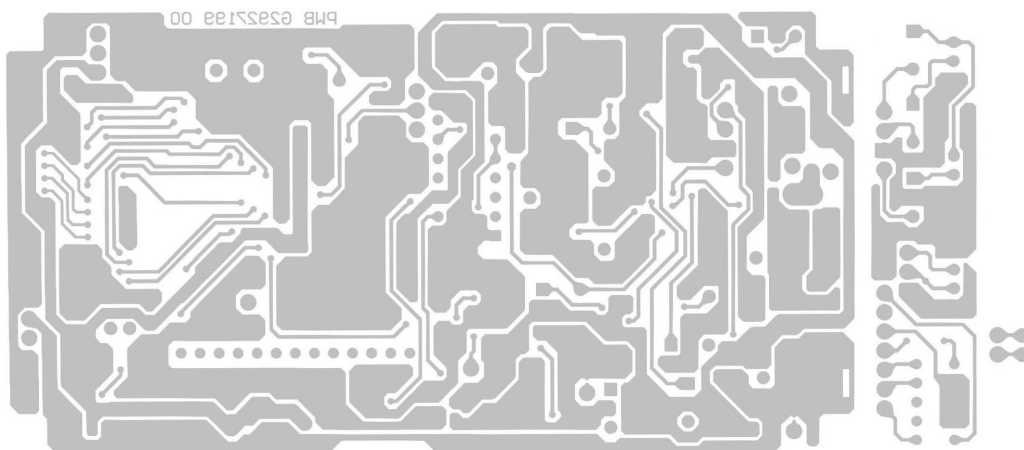
- a. Set the VR3(D.TIME knob) to the max(fully-ccw).
- b. Connect the oscilloscope to R26(1k ohm resistor) or pin 5 (or pin 6) of IC3 (HD14066BP).
- c. Adjust RT2 (47k Ω potentiometer) on MT BOARD for $T=50\pm 2\mu\text{S}$ (Fig.2).



CIRCUIT BOARD



View from component side



View from foil side

CIRCUIT DIAGRAM

