

# CEC Clone Servo Adjustment procedure Rev.3.2 (for board rev.14)

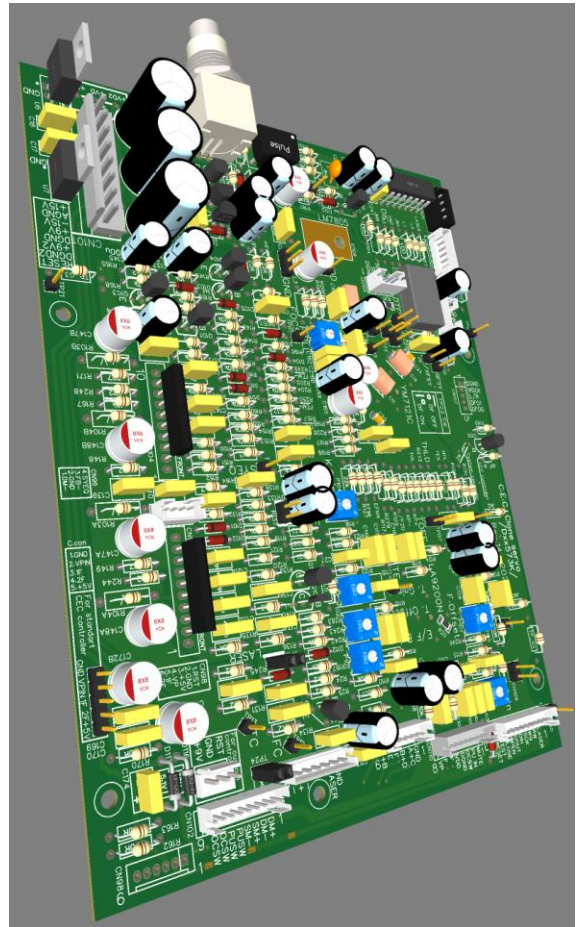
## MAIN FEATURES:

- Full compatible with 4B10018600 board.
- Partial compatible with 4B10012700 board.
- Very low noise servo.
- Precision lens control.
- Very low output jitter.
- Full analog tracking.
- Solid and dimensional, turntable-like sound.

## 1. POWER SUPPLY CONFIGURATION

### 1.1. Points for configure:

- CN101 con (main power),**
- C.con (VFD power),**
- CN99 (controller power)**
- JMP\_M (mute),**
- JMP\_M2 (mute),**
- D113 (mute),**
- JM2 (reset),**
- JM020 (+5V VDD),**
- +VDD PWR Switch (servo power separate),**
- \*GND2 JMP (Ground separate)**



### 1.2. Standart controller installed:

<b>CN101 pinout:</b> 1. +VA 2. GNDA 3. -VA 4. NC 5. NC 6. +VD 9V 7. GNDD 8. Reset	<b>C.CON pinout:</b> 1. GND_VP 2. -Vp (-36V) 3. 1F (3,5V AC) 4. 2F (3,5V AC) 5. NC	<b>CN99 pinout:</b> 1. NC 2. NC 3. NC	<b>Jumpers:</b> +VD PWR switch – SHORTED to +VD2 *GND2 – SHORTED JM020 – SHORTED JM2 – SHORTED D113 – INSTALLED JMP_M – SHORTED JMP_M2 – OPEN
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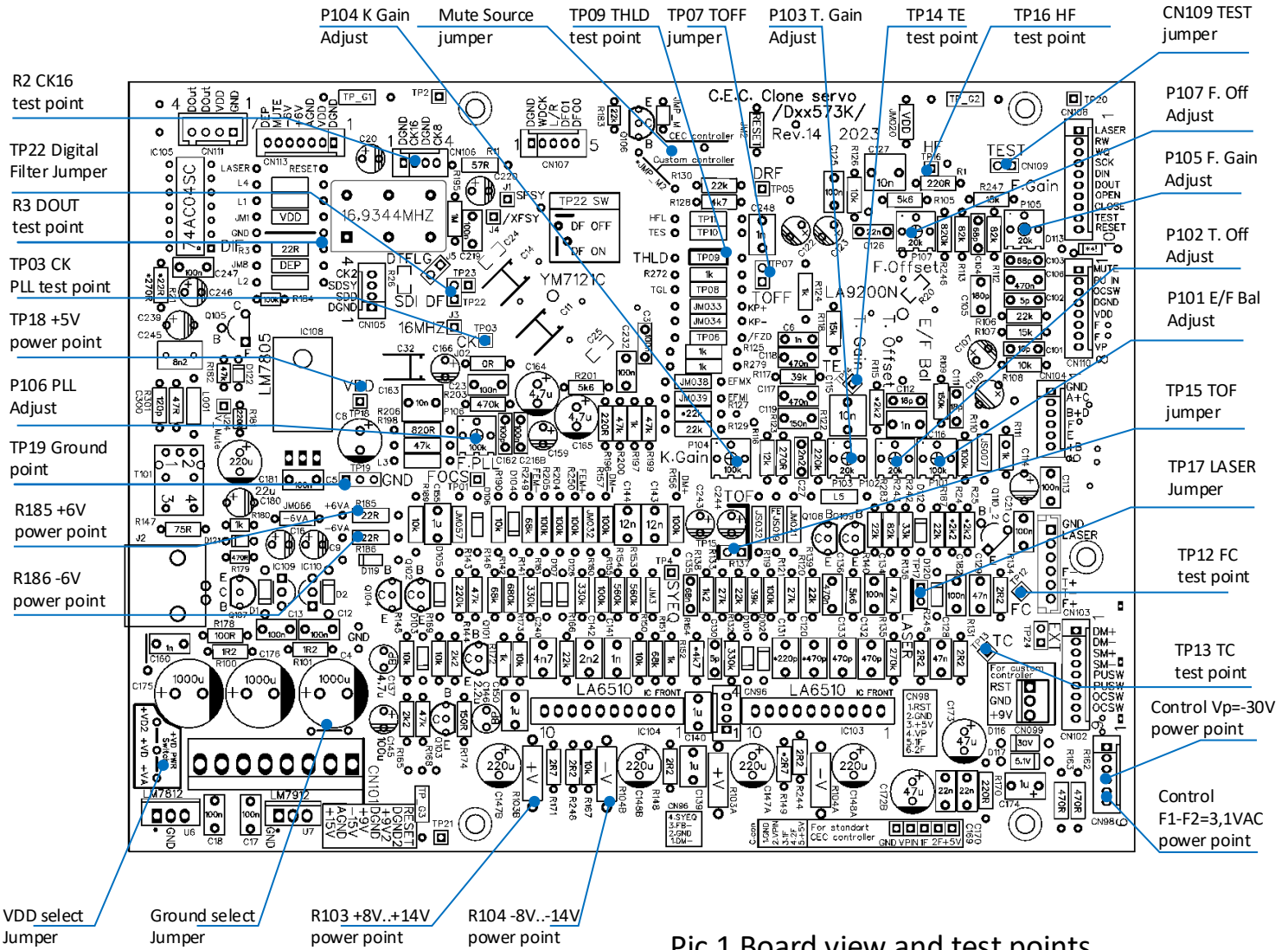
### 1.3. Custom controller installed:

<b>CN101 pinout:</b> 1. +VA 2. GNDA 3. -VA 4. +VD1 9V 5. GNDD1 6. +VD2 9V 7. GNDD2 8. Reset	<b>C.CON pinout:</b> 1. NC 2. NC 3. NC 4. NC 5. NC	<b>CN99 pinout:</b> 1. Reset 2. GNDD2 3. +VD2 9V	<b>Jumpers:</b> +VD PWR switch – OPEN *GND2 – OPEN JM020 – OPEN JM2 – OPEN D113 – NOT INSTALLED JMP_M – OPEN JMP_M2 – SHORTED
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### 1.4. Additional connectors:

- CN96 – for TL5100, TL2, TL1, CBD2000, CD/P2000 Compatibility
- CN105 – for CEC CD players
- CN107 – for Parasound CD players
- CN111 – for AES EBU Digital out

**BOARD TOP VIEW:**



**Pic.1 Board view and test points**

**2.INITIAL CHECK**

2.1. Check all power supply voltage:

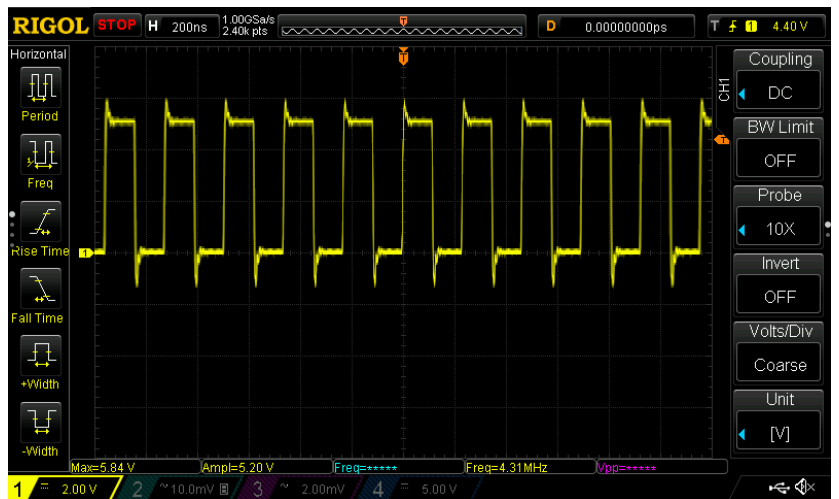
- VD2 for contoller (optional),
- TP18 +5V for Digital servo,
- R185, R186 +6V for Analog servo,
- R103, R104 +-10V for Drivers (its may be from +8V to +14V).
- CN98 pin 4 -30V for controller Vp Use TP19 point as ground.
- CN98 pin 5 to pin 6 for F 3,1V AC

2.2. Check R2 CK16 for system clock 16,9344 MHz

2.3. Check "all zero" R3 DOUT for signal present.

2.4. Check PLL voltage. Adjust P106 F.PLL to 4,32...4,33MHz on TP03 CK point. (pic.2)

/Dxx573k/, Ryazan 2023

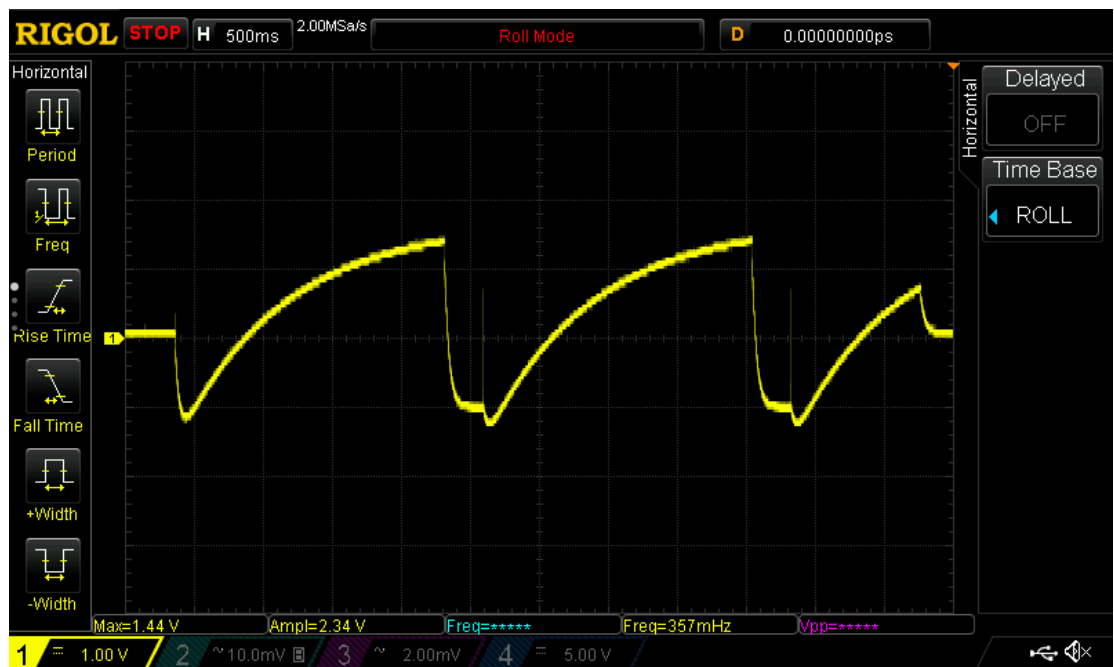


**Pic.2 TP03 CK 4,32MHz test points**

## 2.5. Check YM7121c initialization (only for custom controller):

- Turn off the power
- press and hold keys "STOP"+"PLAY", and turn on the power. You enter to service mode
- Check a non-zero status on the display - It will mean a successful servo initialization.

2.6. Close the contact of the disk door or close a tray, and look for laser head parking, and lens move up and down symmetrically. Connect a oscilloscope to **TP12** FC test point and control the curve to pic.3.



Pic.3 TP12 FC disk search

## 3. TRACKING OFFSET

- 3.1. Turn on the power, push the STOP button
- 3.2. Connect a DC voltmeter to **TP13** TC.
- 3.3. Short the jumpers **TP17** LASER and **TP07** TOFF.
- 3.4. Adjust **P102** T. OFF to 100mV $\pm$ -10mV

## 4. FOCUS OFFSET

- 4.1. Turn on the power, push the STOP button
- 4.2. Connect a DC voltmeter to **TP12** FC.
- 4.3. Short the jumpers **TP17** LASER.
- 4.4. Adjust **P107** F. OFF to -500mV $\pm$ -100mV

## 5. E/F BALANCE ADJUSTMENT

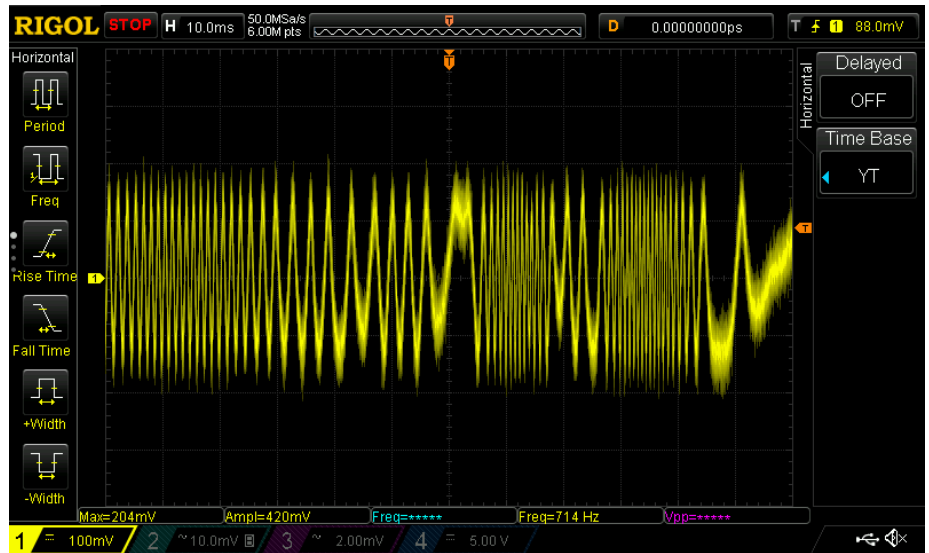
5.1. Press and hold keys "STOP"+"PLAY", and turn on the power. You enter to service mode (**only for custom controller**)

5.2. Connect a oscilloscope to **TP14 TE**

5.3. Place the disk and start play.

5.4. Short the **TEST** jumper (**only for standart controller**)

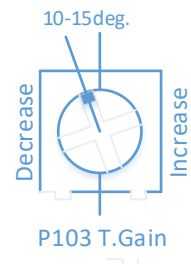
5.5. Short the **TP15 TOF** and adjust **P101** so that the waveform is symmetric about zero level  $\pm 20\text{mV}$ . (pic.4)  
 Yor have only few seconds to do this.



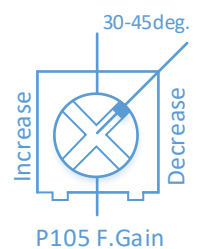
Pic.4 TP14 TE test point

## 6. FOCUS AND TRACKING GAIN ADJUSTMENT

6.1. Decrease **P103 T.Gain** to 10-15 degrees from mechanically center (turn to left)



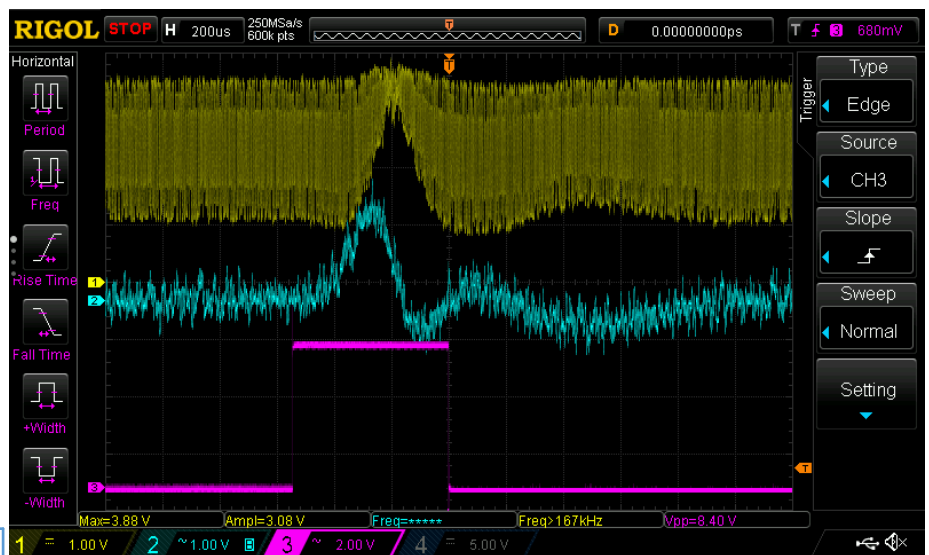
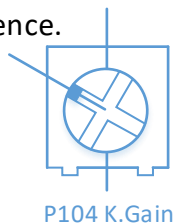
6.2. Decrease **P105 F.Gain** to 30-45 degrees from mechanically center (turn ro right)



## 7. KICK GAIN ADJUSTMENT

7.1. Connect oscilloscope channel 1 to **TP15 HF**, channel 2 to **TP14 TE**, and channel 3 (or external trigger) to **THLD**

7.2. Play the track 1 from disk, and press the "PAUSE". Adjust **P104 K.Gain** for a waveform is as showing at pic.5,  
 For rude adjusting, set the K.Gain near the border of "click" sound from laser head in silence.



Pic.5 K.Gain Adjustment