Please Print All pages and give to Service TECH. It will save time repair unit

List of info

(If you have problem to find parts number in service manual ! and parts Availability Go to service Web under service Ducumrnts on the unit . click open General information than click open Onkyo Parts Look-up method)

Thermal Sensor Problem Unit shut down in 3 sec,5 min, 10min..(check page 6, 13 and 14)

1.(2,3) Input work Digital lit on display, No audio output to speakers. (Tips can be use for all Unit)

2.(page 4,5) Switch intermittant. Standby light is ON but set will not power ON (DVD or Receive)

3.(page 6)GENERAL CHECK LIST FOR INTERMITTANT operation or NO AUDIO ,VIDEO

4. (Page 7 to Page 10) MONITOR OUT NOT WORKING (TXSR603X)

5. (Page 11 to page 12) Relay constantly clicks, won't power ON Only sound TiTa TiTa

6.(13,14)General troubleshooting for Protect problem. (Unit may turn off in 1 sec,3 sec 5 min,10 min,15 min...)

7. (Page 15 to Page 17) Basic DSP circuit

8. (page 18 to page 21) Subject: Troubleshooting tips for the Microprocessor and Audio Select IC

9. (page 22 to page 25) Sample : DIGITAL AUDIO WAVE FORM SECTION

10. (page 26) Subject: Unit Displays "Auto Speaker Setup" and locks up.

11.(page 27 to 34)Service on audio input and DSP board Sample (TXSR504, HTR 540) remove screws at back pannel side and sub power board. front break. Remove bottom chassis set unit as picture you can test and check replace parts.on amp board.



TIPS & TRICKS

18 Park Way, Upper Saddle River, NJ 07458

No. 20070724 Date: July 24, 2007

Model: DTR-4.6 (for ALL unit service info)

Subject: Input work Digital lit on display, No audio output to speakers.

Symptom: Use DVD RCA audio input, no audio signal at Pin 4,5,6,7 at P3101B. (Check with Scope should have 2.5 V DC with 0.2 V pp audio ** USE SCOPE TO CHECK ** Missing Output from pin 8 to pin 15 on P3101B digital out Should be ^o <u>v</u> ₩₩₩₩₩ <u>i</u> 0.4 v pp 0 V dc with 0.4 V pp) Solution: First check microprocessor Q701 control signal output. (5 V.) **R267. R268 VOLSTB and VOLCLK should have 5 V dc with** 5 V 5 V pulse down to 0 V when adjust volume control. (also at P3105B) **0** V **R659 VOLDAT** should have 0 V dc with 5 V pulse when adj volume. If low Remove pin 58,59,60 On Q3003 if pulse was low. To check control signal back Up to 5 V. If control signal still low Q701 may be def. If yes have 5 V pulse Q3003 was leaking Replace new IC. Next check +7 V and -7 V power supply on Q3003 and Q3009. Remove XM Radio NARF-9688 and VIDEO Board NAVD-8657. Check R3127 right side Reg Q3005 out pin 1 should be + 7 V. If low or +2.5 V Q3003 or Q3009 may be leaking. Remove pin 19 or VCC pin 39 on Q3009 and Check. Same as Q3006 out pin 3 ,Right side R3128 should be – 7 V. if low Replace def. Q3003 or Q3009. If control signal is good CD audio signal go in to Q 3003, +7 v And - 7 V all good but no ADRT-, ADRT+, ADLT- and ADLT+ audio out **Replace Q3003 input select IC.** Check next page ! Ω

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CONFIDENTIAL PLEASE Print ALL Page It will save Tech time Fix unit. Technical Tip

18 Park Way, Upper Saddle River, NJ 07458 Technical Tip

Date: September 12, 2005

__Switch Problem May find in any DVD ? Receiver too !!___

Model: DV-CP701/CP702 (Info May use on other DVD)

Subject: Standby is light is ON but set will not power ON (power on Tray move itself)

Symptom: The Standby light is ON but the set will not power ON when the Standby button is pressed. (some unit power on or play disc T ray will open close itself) (Check Voltage with Scope int leaking switch May not show on ohm test) Solution: Check and verify the power supply voltages at connector CN2. Check the Reset circuit to confirm that it is operating normally and crystal OSC (X801) to verify that it is on frequency and supplying 2.5V to 5V pk to pk. If these items are normal check the voltages on the DISPLAY board at KEY0, KEY1, KEY2 and KEY3. The voltage at KEY0 through KEY3 should read 4.9V ~ 5VDC. If any of the KEY voltages read low check the associated momentary KEY switch to see if it is stuck in a closed position. If the switches check good, check the DISPLAY board capacitors C827, C828, and C829, to see if any are shorted or leaky. Replace any defective parts and re-test. If Switch is leaking replace the Bad switch. (25035718) NPS-111-S6 81 go to nex t page.

Pin	# & Desc.	Standby	Unit with power ON	Remove CN2 cable
10	EV +12V	+12 V	$+12\overline{V}$	12 V
1	P-con			1.5 V
11	GND			
7	SW + 8V	0	+8V	3.3 V
8	SW + 8V	0	+8V	0 V
9	GND			0 V
4	SW+5V	0	+5V	4.4 V
2	EV+5V	+5V	+5V	5.22 V
6	SW+3.3V	0	+3.3V	3.42 V
3	GND			
5	GND			
12	EV-12	-12V	-12V	-12 V
13	EV+30V	-29V	-30V	-28 V
14	FLAC	-22V	-22V	-21 V
15	FLAC	-22V	-24.5V	-21 V

Voltage reading at CN2

CONFIDENTIALITY NOTICE:

When Power board was good Standby Lit Unit can not turn on power. Use scope check Display board U3 P804A When K0,K1 or K2 Voltage much lower than 5 V. Microprocessor lock up Unit will have no function.

If K0,K1 or K2 line Lower than 5 V. First check all switch not lock in.

Remove U8 and U9 PCB from U3 Display board . If K0,K1 and K3

Voltage low than 5V.(2V to 4V) Replace display board.U3 NADIS-7808.

When you have 5 V after U8,U9 removed check any K0,K1 or K3 line Voltage

lower than 5 V when you connect U9 orU8 (U7) board back to U3. Replace that board.

Or check out Def. Push switch and replace. 25035718 NPS-111-S681 If SW was leaking

P804B	Good Unit	_	Bad Unit no power on	TRAY in and out	
	Standby Lit	power on	Standby lit only	When playDisc	
USE Scope to	check	702 701			
Y ellow KEY () + 5 V	+ 5V + 5	V + 4 V	+ 5 V	
Blue	0 V	0 V 0 V	0 V	0 V	
Blue E of f Q9	06 0 V	4 .3 0.5 V	0V or 2.8V	+2. 8 V	
Blue	0 V	+ 5 V 0 V	0 V	0 V	
Blue KE Y 1	+ 5 V	+ 5 V + 5	V + 5V	Int. + 5 V to 4V back 5 V & 4	V

(Show on Scope Change Voltage)

P805B U9 Standby SW PC

 $KEY 2 + 5V + 5V + 4V \text{ or lower for a f$

remove one side solder on switch one by one and check that line scope show lower than 5 v.

when the voltage will back to 5 v DC. the switch was bad change this switch . test play and check again. ** When the Push SW intermitter leaking. Unit may turn power on itself, change function.

Any K0,K1,K2..voltage lower than 5 V Unit microprocessor will lock up. Waitting the Voltage back to 5 V !! pressor switch will not work!!

READ ALL INFO IT WILL Help Y ou Save Time

GENERAL CHECK LIST FOR INTERMITTANT operation or NO AUDIO, VIDEO

- 1. What is idling current on each channel? Adjust and test. (If Idling adj. not change ! replaces surrounding transistors and idling adj. resistor.
- 2. What was customer setup on speakers level? If too high reset unit and test. (It will over drive amp. When input signal go high unit will go protection)
- 3. What is each channel voltage from ID+ to chasses ? Good Unit about 0.04V If a channel ID+ voltage much higher than other. Replace the two input transistors (use same transistor) at driver circuit. It will drop this voltage down.
- 4. Use scope check do you have DC in any audio line ?(When adj. volume up or down. Press and change input bottom) If yes find def. parts IC mutting transistors.
- 5. What is voltage on IPRO (PROTECT) Use scope ? Check transistors it may leak.
- 6. What is voltage on THERMAL line ? Check transistors it may leak (delay act. Some unit 5 sec, some unit act in 5 min. some 10 min or more. To turn unit to Thermal protection) Unit use TXSR XXX LM61CIZ Thermal Sensor. THRM line about 0.95V if unit turn on and 1.5V. Unit will go Thrmal protiction in 15 min. replace this sensor !!
 - 7. Check power supply to all DSP IC . Use scope check voltage and noise!
 - a. If unit audio work intermittent .Warm up lost audio. Check +5V,+3.3V and +2.5V if Low down and noise! Check Rag IC . Some unit is in amp board. Not in DSP board. Add more thermal joint compound and test.
 - 8. When you have audio signal go in to a IC but no output.
 - a. check you have good power DC supply to this IC?
 - b. do you have good control data from microprocessor to the IC ?

c. If good on a. and b. than this IC is bad. (If problem a,b Repair a. or b. before replaces the ICs) 9. Video board problem?

Check power supply to IC in board and Control signal from microprocessor!

a. If power and control signals all good. Switch IC not working .replace this IC.

- b. If control signals bad! No video control signals from microprocessor ? Replace microprocessor. (If microprocessor not available than replace PCB. some unit in DSP board ,some in input pre amp. or Microprocessor board.)
- 10. When you need help ! please give us all info power Voltage and where you lost signal ?
- Digital all channel work but volume control not working. Analog volume work. In set up Speaker o db volume not work and some channel no sound. Use scope to check input sel IC at time adj volume V.CLK V DATA V.STB Good unit have 5V pluse. If V.DATA only have 3 V The input sel IC Damage. volume may work when unit cool. after IC heat up no control of volume.



TIPS FOR SERVICE

18 Park Way, Upper Saddle River, NJ 07458

No. Date:

Model: Subject: TX-SR 603X

Symptom: MONITOR OUT NOT WORKING

Cause: Procedure for service:INITIAL SETUPON COMPONENT VIDEODVDIN 1VIDEO 1IN 2VIDEO 2IN 3VIDEO 3VIDEOVIDEO 4VIDEO

CHECK VIDEO SECTION DIAGRAMS-8 COMPONENT VIDEO

SELECT	DVD	VIDEO 1	VIDEO 2	VIDEO 3	VIDEO 4
R- S1 PIN 29 Q2111	+ 5 V	0 V	+ 5 V	0 V	0 V
R-S2PIN28Q2111	+ 5 V	+ 5 V	0 V	0 V	0 V

NEXT PAGE ==== WITH OUT VIDEO INPUT SIGNAL, ==== WITH VIDEO INPUT SIGNAL. CONFIDENTIALITY NOTICE:

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SERVICE TIPS

18 Park Way, Upper Saddle River, NJ 07458

No. **Date:** 6/19/07



If missing red control pluse Q701 microprocess may be def. if audio switch ok . 5 v pluse should be good.

When missing +5 VVD check U02 NAAF-8523 Q5654, Q5650 and Q5653 +12 power supply.
use DVD RCA video input no monitor video out.
check Q2111 pin 1 -12 v pin 30 + 12 V, pin 14,16 and pin17 have 5 v pulse when press DVD, Video1 than DVD.
with viode signal connect input !! pin 29 should be 0V, pin27 R-S3 +5V, R-s4 -5v, R-S5 -5v, R-s6 +5 V
R-S7 +5 V, R-S8 - 5V, R-S1 5V and RS2 5V.
When Q2111 is good power supply is right.control pluse ok 5 v. missing R-S3 5 v replace Q2004

DVD viseo RCA signal in to Q2001 pin3 out from pin1 to Q2012 E. when R-S3 is 5 V. Video go out to Monitor

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Missing +12 V - 12 V Q2111 will not work. Missing Video +5v and - 5V Check Q5654,Q5651,Q5650. Q5655,Q5652,Q5653.

When Q2111 and STB,CLK,DATA are good missing 5v R-S3 check Q2004.





18 Park Way, Upper Saddle River, NJ 07458

Technical Tip

Date: May 25, 2006

Model: HT-R330 **Subject:** Relay constantly clicks, won't power ON Only sound TiTa TiTa

Symptom: The relays click but the set will not power ON.
Solution: Check Fuse resistor R9532 0.22 ohm 1/2 W for an open condition Lost + 12 V to Reg IC Q 5640 Unit will not turn on.
Also TXSR 503, HTR530
Unit go to Tip Ta Main Relay on and off ...on and off in 3 sec after power on. POWERD line and +10S line change up and down.
A. If audio output damage power circuit Fuse , fuse resistor open. B + B - Leaking to gound.
B . Power transformer def. or connection from main transformer to power supply circuit open.



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Unit go to Tip Ta Main Relay on and off ...on and off in 3 sec after power on. POWERD line and +10S line change up and down. A. If audio output damage power circuit Fuse , fuse resistor open. B+ B- Leaking to gound. B. Power transformer def. or connection from main transformer to power supply circuit open. Apply to most Unit !! Main microprocessor was good



18 Park Way, Upper Saddle River, NJ 07458

Technical Tip

Date: May 25, 2006

Model: Sample TX-SR503, HT-R530

Subject: Relay constantly clicks, won't power ON

Symptom: The relays click but the set will not power ON. Tip Ta Tod only

Solution: Check Fuse resistor R9593 for an open condition and replace if necessary. Resolder the terminal lugs on the Main transformers secondary.



Resolder

Check from bin 11 SSGND to bin 14 and 13 About 10V AC Same as SEC2-1 and SEC2-2 on JL9501A or JL9501B also P9502A and P9502 AC input to D9005 on U05 NAAF-8523 Board. When you lost any AC SEC2-1 or SEC2-2 lost +12V to Reg IC Q5640. Unit will have Tip Ta Tod relay sound . Power will not turn on.

Note: When Output transistor Def. shon out E,B,C, the F901A B+ B+ shold and F901A. will open. F8901 and F6902 may also open. Lost power supply This time press Standby / on Unit will only sound Ti Ta Ti Ta.

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Technical Tip

18 Park Way, Upper Saddle River, NJ 07458

Date: May 25, 2006



CONFIDENTIALITY NOTICE:



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Digital Audio Training:

BY PASS= often times associated with DIRECT mode



1. Normal audio using analog inputs. Do you have all Dolby surround sound ?

2 . All DSP voltages are normal ? Did all supply voltage go to all ICs ?+5vDSP, 2.5V,+3.3V... +7v,-7V..

- 3 .Input sel IC. Use CD analog input audio signal (ADRT+,ADRT- and ADLT+,ADLT-) out to DAC IC ? Surround analog signal out (DAC L,DAC R,DAC C,DAC SW,DAC LS, DAC RS ,DAC SB* back to Input sel.IC. Pin 1 to pin8 out to p5504. (Same as pre out) check Mutting transistors Q5600 to Q5617.
- 4. When use digital input signal did digital light up on display ? If missing 3.3v,2.5v 5vdsp (on Reg IC Q5640) to DSP ICs will disable DSP function. (U05 Amplifer PC board)

Please use TX-SR502 as sample Technical Tip Troubleshooting.

When you need Tech help Please use Tech Email and give us Voltage and signal info. What voltage on DSP ICs and whereyou lost audio signal ? What you have on input IC Data line Check with TX-SR502 Troubleshooting tips for the Microprocessor and Audio Select IC

Check from pin 11 S3GND to pin 14 and 13 About 10V AC Same as DSEC2-1 and SEC2-2 on JL9501A or JL9501B also P9502A and P9502DAC input to D9005 on U05 NAAF-8523 Board. When you lost any ACDSEC2-1 or SEC2-2 lost +12V to Reg IC Q5640. Unit will have Tip Ta Tod relay sound . Power will not turn on.

Note: When Output transistor Def. short out E,B,C. the F901A B+ B- short and F901A and F6901 and F6902 may also open. Lost power supply This time press Standby / on Unit will only sound Ti Ta Ti Ta.

Based On TX-DS494

The most critical parts of the DSP besides the Base frequency oscillators, are the Flash-Rom's. These ROM's are often configured in an 8-bit data bus mode, A failing or loose DSP Flash ROM's could trigger, data error in which DSP may sound to break up and stutter do to mute ON-OFF. It may also mute indefinitely. It is recommended to check these components very closely before assuming otherwise. Pins labeled A0~ and D0~ are often same DC level.



Page 1



18 Park Way, Upper Saddle River, NJ 07458

Technical Tip

Date: November 9, 2005

Model: TX-SR502/SR8250, HT-R520

Subject: Troubleshooting tips for the Microprocessor and Audio Select IC

Symptom: The set produces no sound in surround mode, you cannot change the LISTENING MODE from the buttons on the front panel or if the DVD mode is selected you can only change from DTS to Stereo.

Solution: First, check coil L7002 located on the Preamp board for an open condition as outlined in previous tips and tricks publications. If the coil checks out OK, check for data communication between Microprocessor Q7008 and the Input Select IC Q301. Use an oscilloscope to check the microprocessors SELCK, SELDA and SLMUT data lines. Check the Microprocessor side of R7043 for a +5V mute pulse (fig. 1) on the SELMUT line when the front panel Listening Mode button is depressed.



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Check SELCK at R7044 (fig. 2) and SELDA at R7045 (fig. 3) for +5V data pulses when pressing the Listening Mode buttons.



If any of the microprocessors SELCK, SELDA and SLMUT data line pulses are not generated when the Listening Mode buttons are depressed, check Q7008 for "must haves": X7001 oscillation (pins 69 and 70), Reset (pin 60), VDD (pins 7, 43, 68, 71, 74 and 75) and ground (pins 4, 33, 36 ~ 39, 63 and 67). Look for DC voltage on the SELCK, SELMUT and SELDA lines. Under normal operating conditions, all three data lines should have 0VDC present. If DC is found on any of the data lines you can locate which IC is producing the DC voltage by checking resistors R7043, 7044 and 7045. If positive DC voltage is found on either side of the resistor when no front panel buttons are pressed remove the resistor from the circuit and read the open traces to see which IC is producing the +DC voltage. The IC producing the +DC voltage is defective and should be replaced.

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Below are general test points to check when troubleshooting the Preamplifier PCB.

General Troubleshooting Test Points

Test Points 1 of 2



CONFIDENTIALITY NOTICE:



Parts:

Ref#	Description	Part Number	
Q7008	Micon, MPD784225GC-253-8BT	22242167R3	
Q301	Audio Select IC, BD3817KS	22242117R3	
X7001	Xtal, CSTCE12M5G52-R0	3010361R2	

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Ref:COAX-0724

TX-DS787 DSP- COAX input:





A unit having problem with one of COAX inputs but not the other, technician may assume a DSP problem. The above wave form comparison test can be used to verify if indeed the signal is reaching the intended primary target. In this case, the input at COAXIAL2 was loaded to the ground by a defective Q8001at pin13. Pin 3 input of IC was OK and its RC components at the input gates of IC8001 were fine. The measurement was taken with the unit at power OFF state. That is because the input is passive components did not require to obtain the above reading.









<u>TX-DS595, TX-DS696,</u> <u>TX-SR500, TX-SR600,</u> <u>TX-SR700</u>

Based on TX-SR600





Technical Tip

18 Park Way, Upper Saddle River, NJ 07458

Date: January 3, 2006

Model: TX-SR602/SR702	can	be	use	other	Receive
	•••••	••	•••••	00000	

Subject: Unit Displays "Auto Speaker Setup" and locks up.

Symptom: The unit displays "Auto Speaker Setup and locks up. There is no sound and you cannot exit the Menu Screen.

Solution: No +7V to Front panel, +7 volt regulator Q303 found to be overheating and +7V on pin 19 of the Selector IC Q302 was shorted. Replaced regulator IC Q303 and Selector IC Q302 and normal operation was restored. Tip submitted by R. Jackson of Goodman TV, Addison, TX.

Check all Voltage on Amp power board to DSP board.

Parts:		
Ref#	Description	Part Number
Q302	NJW1157B	22242193R3
Q303	78L07	222780073R2

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TXSR or HTR Receive. (Sample TXSR504 HTR540)

Remove screws at back panel side and sub power board. Screws at front bracket, Power transformer. Remove chassis and set unit as picture. Unit can be test and replace parts on amp board.



CONFIDENTIALITY NOTICE:



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HT-R540





HT-R540

D

0V

Analog audio wave form with aliasing noise

2

3

4

NOTE:



325 ns

Aliasing noise in no audio data

220mVp-p

A

WF10 AUDIO_FL

20.8us

2.8V

0V

Analog audio wave form with aliasing noise

WF10 AUDIO_FL









SV Adí Volume 50

Adj Volume contro up or Down

Andia