harman/kardon Service Bulletin

Service bulletin # H/K9904 October 1999

Warranty labor rate: MINOR repair

To: All harman/kardon Service Centers

Models: Signature 2.0

Subject: DTS Upgrade

The following instructions detail the steps needed to upgrade a Harman Kardon Signature Series 2.0 Processor/Tuner with a new DSP board and operating system EEPROM. These additions will provide significant improvements in performance, with the following major new advantages:

- Greatly improved audio decoding in all modes, using the highly regarded Crystal Semiconductor, CS4926, audio-decoding circuit.
- DTS processing, along with Dolby Digital, Dolby Pro Logic, and a wide variety of music and movie surround modes.
- Easier programming when used with computer-controlled RS-232 remote systems.
- Faster microprocessor operation for quicker response to remote commands
- Improved and updated on-screen menus with added features.

1) Order h/k DTS Upgrade kit, part number: SIG2.0 DTS UPGRADE.
2) A new Owner's manual (h/k part # HA160-0004-Arev1) should be ordered for the 2.0 that covers the operation of the DTS upgrade.
3) Following the detailed instructions on the following page.

Model	Serial number (120V)	Serial number (230V)	Status	Action
Signature 2.0	GT0003-01001 to GT0003-04000	GT0006-01001 to GT0006-02070	Unmodified	Replace IC305, DSP board Supplied with Upgrade kit
Signature 2.0	GT0003-04001 and above*	GT0006-02071 and above*	Changed by factory	NONE REQUIRED

* Additionally, factory modified units have a yellow label on the outer carton stating "Now with DTS".

Signature 2.0 Upgrade Procedure

WARNING: Please use caution during the removal of the DTS board and EEPROM IC305 from their protective packages, and during installation. ESD protection is required to assure the parts are not damaged.

PART I REPLACEMENT OF EEPROM IC305

1. Turn the unit off with the **Master Power Switch (on/off button on front panel)** and unplug it from the AC power source; remove any input and output cables.
2. Remove all (10) screws holding the cover on; there are two on the right and left sides, three at the rear, and three at the top near the front of the unit.
3. Remove the top cover by gently lifting it up slightly from the rear, and then pulling it back away from the unit.
4. Remove the two plated screws to the left and right of the S-Video jacks on the rear panel.
5. Remove the two black screws that are between the yellow video jacks.
6. Inside the unit, the video board is secured at the rear by a metal nut attached to a white plastic post on the corner of the board. Remove this nut.
7. Lift the video board up slightly, and pull it into the unit. Turn the board upside down and rest it carefully inside the unit. It is not necessary to unplug any additional connectors.
8. Locate the large EEPROM chip (IC305) on the CPU board that is now visible. The IC is in the center of the board and has a label with the word “Signature” and a revision number. Note there is a notch in the front edge.
9. Using an IC Chip Removal & Installation tool (Radio Shack model #276-2101 or equivalent), carefully remove the IC by gently rocking it from side to side and then pulling straight up.
10. Remove the new EEPROM from the upgrade kit and place it in the socket. *When inserting the chip, make certain that the notched end is facing forward, toward the front of the unit*). An outline of the chip with the notch in the proper position is screened on the board). The new EEPROM will be labeled “2.10a”.
    IMPORTANT NOTE: When inserting the new chip, take extra care to ensure all pins are seated in their respective holes, and they are not bent or damaged before the IC is seated. If needed, use a small flat-blade screwdriver to gently align the pins into the socket holes.
11. When all the pins are lined up, gently push down on the chip so that it seats firmly in the socket.
12. Replace the video board, pushing the RCA jacks back through the holes in the rear of the chassis and reseating the hole in the back corner of the board on the plastic support post; replace the nut.
13. Replace the two plated screws and the two black screws that secure the video board to the chassis.

PART II REPLACEMENT OF DSP AUDIO BOARD

14. Remove the plated screw to the right of the optical input jacks (near terminal #6) on the rear panel.
15. Remove the two black screws that are above the digital audio input jacks (#1- 4)
16. Pull the DSP board into the unit, free from the back panel. Remove the white plug at the rear of the board; then remove the ribbon connectors at either side of the DSP board by gently rocking the connector from side to side, while carefully pulling each connector upwards.
17. Remove the new DSP board from the upgrade kit. (New DSP boards are ≈ 5 ½” in length; original DSP board is much shorter). Replace the three connectors; slide the white connector into the header socket on the rear of the new board. Replace two ribbon connectors back in their sockets on either side of the board. The side of the ribbon cable with the red line should face towards the front of the unit. Position each connector over the socket and press into position.
18. Put the new DSP board back into position through the holes in the rear panel.
19. Replace the two black screws above the RCA jacks and the single plated screw.
20. Replace the unit’s cover and (10) screws.
21. Make certain the front panel **Master Power On/Off Switch** is in the “Off” position; it should extend out beyond the front panel.
22. To test: Before turning the unit On, it is important that the unit be reset. To reset, *first* hold in the two outer buttons on the front panel **Source?** and **Mute**, then press the **Master Power On/Off Switch** to the “On” position; then release the **Source?** and **Mute** buttons. The front-panel display should now read “Signature 2.0” and “Initialized.” The unit has been reset and is ready for operation.
23. Attach a colored label to the bottom of the unit, and on the outer carton (if available), stating “**DTS upgrade**”.