

PHILIPS LASER OPTICS

MAINTENANCE INSTRUCTION

PREMIUM 10501



Preface

This document gives some maintenance information how to keep the CD unit in optimal condition. Operating the CD unit under normal conditions will keep the need for maintenance to a minimum. In case of operating the unit in more polluted environments, with e.g. dust and smoke, maintenance may improve the proper working of the unit.

©Philips Electronics N.V. 2000

All rights reserved. Reproduction in whole or in part is prohibited without the written consent of the copyright owner.

The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice. No liability will be accepted by the publisher for any consequence of its use. Publication thereof does not convey nor imply any license under patent- or other industrial or intellectual property rights.

PHILIPS LASER OPTICS

MAINTENANCE INSTRUCTION

PREMIUM 10501

Author(s)

Phil Wu/Hector Li

Philips Components
Optical Storage
PECS Shanghai

Keywords:
High-end Audio
Jukebox
DSA
CD10
VAU1254
Premium 10501

Note:

The publisher reserve the right to change the data mentioned in this document without prior notice.

Revision history

Version	Date	Remarks
Version 0.1	11-07-00	draft version

Table of Contents

1. Introduction	6
1.1 Handling of the unit	6
1.2 Laser current measurement instruction	7
1.3 Lens cleaning instruction	8
1.4 Cleaning and lubrication of the mechanical parts	9

1. Introduction

Information given in this document should be followed with care. The VAM1254 applied in this CD unit is a mechanism consisting of delicate optical, mechanical and electrical components. During handling of the unit excessive mechanical forces on any part should be avoided and proper ESD measures should be taken. Maintenance may be necessary on the optical lens and mechanical parts of the sledge, depending on the use and environment the unit is used. It is advised that in the application where the CD unit is used, measures are taken to avoid as much as possible that dust can come to the lens due to e.g. air flow in the cabinet.

1.1 Handling of the unit

If the CD unit is disconnected from the application, proper ESD measures should be taken to avoid damage of the electrical components. Use ESD bags for transportation, a grounded workbench and wrist strap (1Mohm) in case of separating the PCB from the mechanism. Especial the laser is ESD sensitive when not connected to the PCB.

Never touch the lens with your fingers, and avoid that grease from the mechanical parts is spoiled on the lens.

Do not move the sledge by pushing it by hand, but moving the sledge by spinning the sledge motor worm gear with your fingers.

1.2 Laser current measurement instruction

The laser current of the VAU1254 can be measured and gives an indication is the laser is damaged or end-of-life. The following instructions describe how the laser current can be measured.

Measuring conditions:

- Ambient temperature 25 degree Celsius
- Measure after 5 minutes of play

Remark:

Laser current will increase at higher ambient temperatures!

1. Put the CD unit in play mode with a clean not scratched disc, preferably a test disc like SBC444 or SBC444A, and play track 1.
2. Measure the DC voltage across the 4E7 safety resistor R3208 [1]
3. Put the CD unit in stop mode, (the laser is switched off now).
4. Measure the DC voltage across the 4E7 safety resistor R3208 in mode stop [2]
5. Calculate the laser current as follows

$$\text{Laser current} = (\text{voltage [1]} - \text{voltage [2]}) / 4.7 \text{ ohm}$$

The calculated value should be within 50 and 100 mA. (Nominal 75 mA)

This calculation assumes that the difference in current consumption of the pre-amplifier between play and stop mode can be neglected, and that resistor R3208 has a nominal value of 4.7 ohm.

Remark:

This measurement method should be used only to check if the laser is still operating well within the specified laser current. The location of resistor R3208 can be found in the component placement sheets and is located close to the micro controller between the micro controller and the power connector.

1.3 Lens cleaning instruction

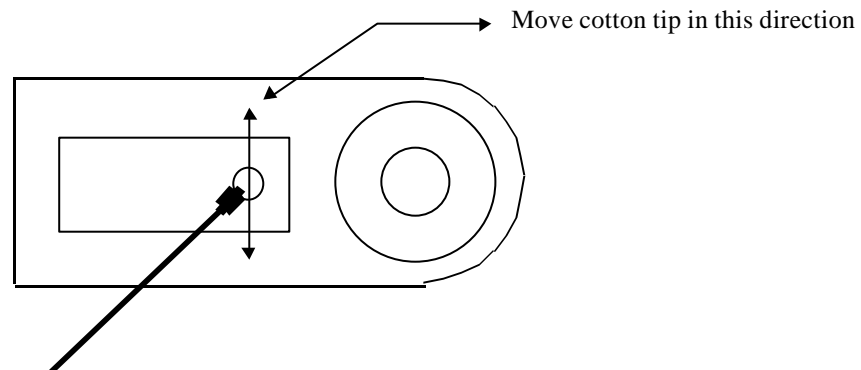
The actuator lens of the unit is an optical component that is exposed to the environment. The environmental conditions in Juke-Box applications is not comparable with normal home use. For example, the nicotine from cigarette smoke can soil the lens. This might influence the playability of the system enormous and cleaning of the lens can be necessary.

Before cleaning the lens, it is advised to make the surface of the lens clean by blowing clean air over it in order to avoid that little particles make scratches on the lens.

Because the lens is made of synthetic material coated with a special anti-reflectivity layer, the cleaning must be done with a non-aggressive cleaning fluid. We advice to use the following lens cleaner which is available in a normal photo shop.

Advised lens cleaner: **“KODAK LENS CLEANER CAT 176 71 36”**

The actuator is a very precise mechanical component, which has to follow the tracks on the CD-disc with a pitch of 1.6 um. This actuator may not be damaged in order to guarantee his full function. We advice to clean the lens gently (don't press too hard), with a soft and clean cotton tip moistened with the special lens cleaner. The direction of movement of the cotton tip should be 90 degree to the radial tracking movement of the actuator as indicated in the figure below.



1.4 LUBRICATING INSTRUCTIONS CD-PRO 2

Introduction

These instructions provide some maintenance information in order to keep the CD-Pro 2 in optimal condition. Although operating the CD-Pro-2 under normal conditions will keep the need for maintenance to a minimum.

In case of operating the unit in more polluted environments, with e.g. dust and smoke, maintenance may improve the proper working of the unit.

Prior to any maintenance activity the instructions should be followed with care.

Refer further to the general maintenance instructions (Chapter 7) and ESD measures (Chapter 2 of the product specification) in this starter kit

Instructions

- Excessive greasing must be avoided in order to prevent contamination of optical parts.
- Wipe all exposed lubrication points and remove all old grease and dirt by a cotton swab. To insure proper operation, check no cotton remains on gears and sledge guidance.
- Always move the sledge by spinning the sledge motor worm gear with finger. To avoid damaging the gear rack and gears never move the entire sledge by hand.

1.4.1 Removal top cover.



Figure 1

Removal of black plastic cover (4 screws)

Using a Torx screwdriver No 6.

The OPU spindle is now accessible from the topside

1.4.2. Removal of Pcb from the Mechanism.

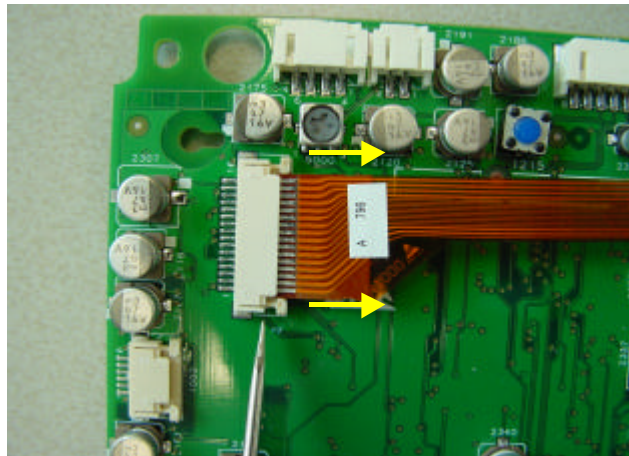


Figure 2

Remove the Pcb by releasing the flex foil from the connector after unscrewing the four pcb fixing screws.
Lift the small ears on each side of the flex connectors with e.g. a small screw driver and take out the flex foil.
Make sure during (re) mounting of the flex foil that the flex foil is inserted straight and the connector is properly closed.

1.4.3. E.S.D Measures

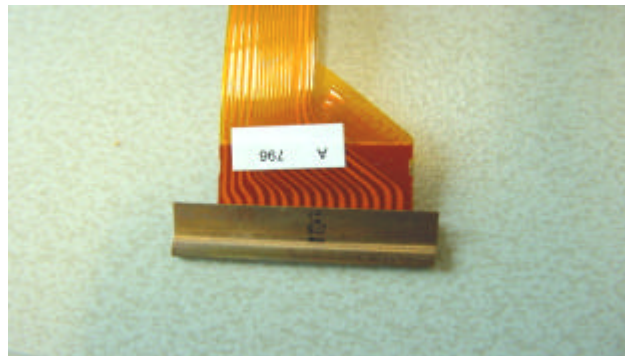


Figure 3

Take proper E.S.D. precautions when the Pcb is separated from the mechanism.
Provide a short circuit clip or a paperclip to the leads of the OPU flex foil in order to protect the laser and electrical circuitry against E.S.D.

1.4.4. LUBRICATION INSTRUCTIONS

1.4.4.1 LUBRICANT

- = Grease TRIBOL Molub-Alloy 9890-2

1.4.4.2 INSTRUCTIONS

- **Lubrication OPU spindle (Top side)**

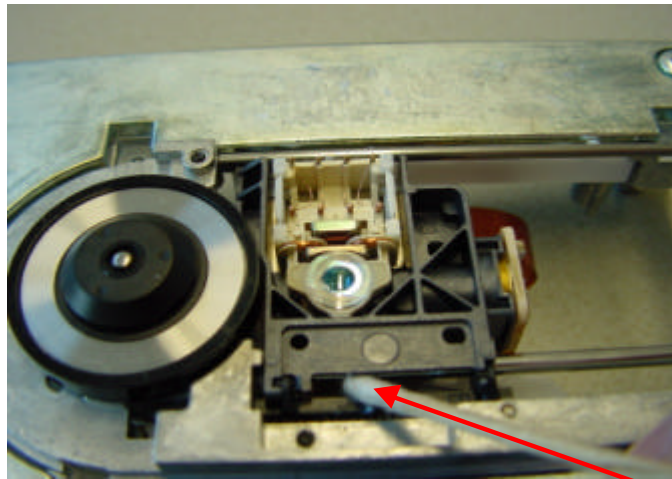


Figure 4

Grease

Add on the OPU spindle one dot of grease between the two bearings holes.
It is not necessary to remove the metal cover of the CD unit.

- **Lubrication of OPU spindle and D2 spindle (bottom side)**

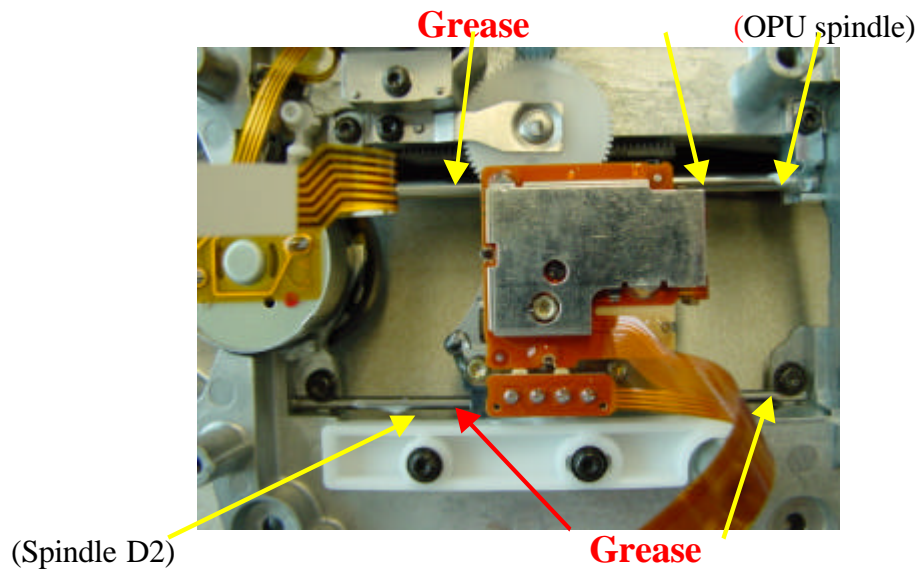


Figure 5

Add on the OPU spindle and D2 spindle one dot of grease on each side of the sledge.

- **Lubrication of Actuator Spring clip**

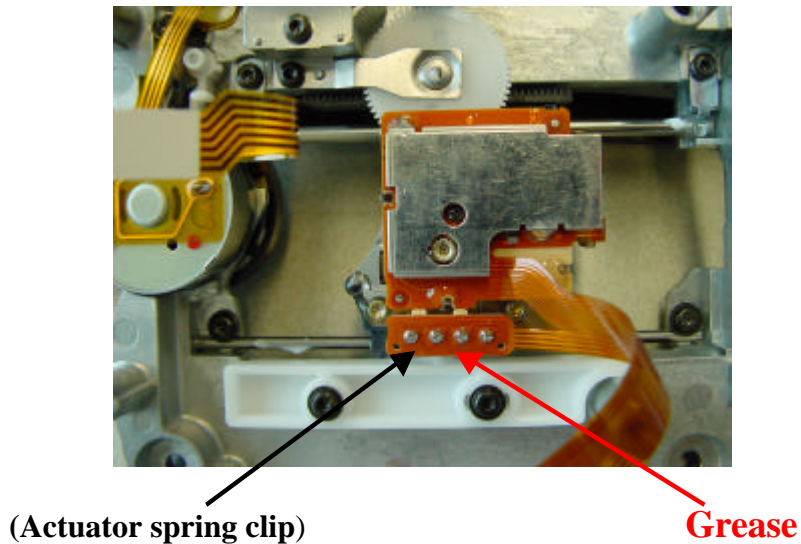


Figure 6

Press down the actuator sledge spring and add one drop of grease on the spring

- **Lubrication gearwheels**

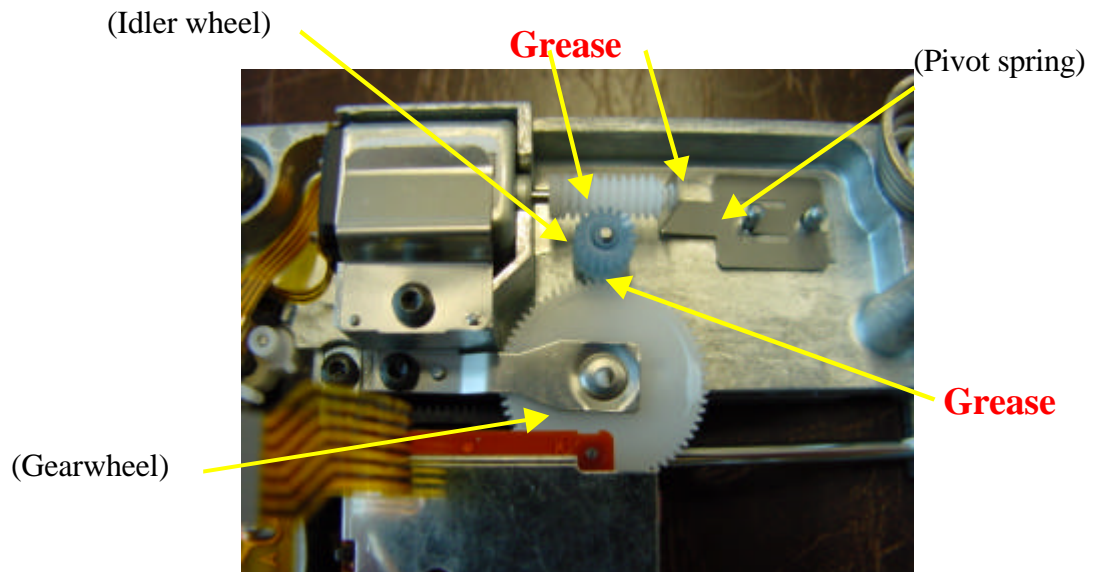


Figure 7

Add one dot of grease between pivot spring and worm
between worm and idler wheel - between idler wheel and
gearwheel

Excessive greasing must be avoided

- **Lubrication third bearing (Top side)**

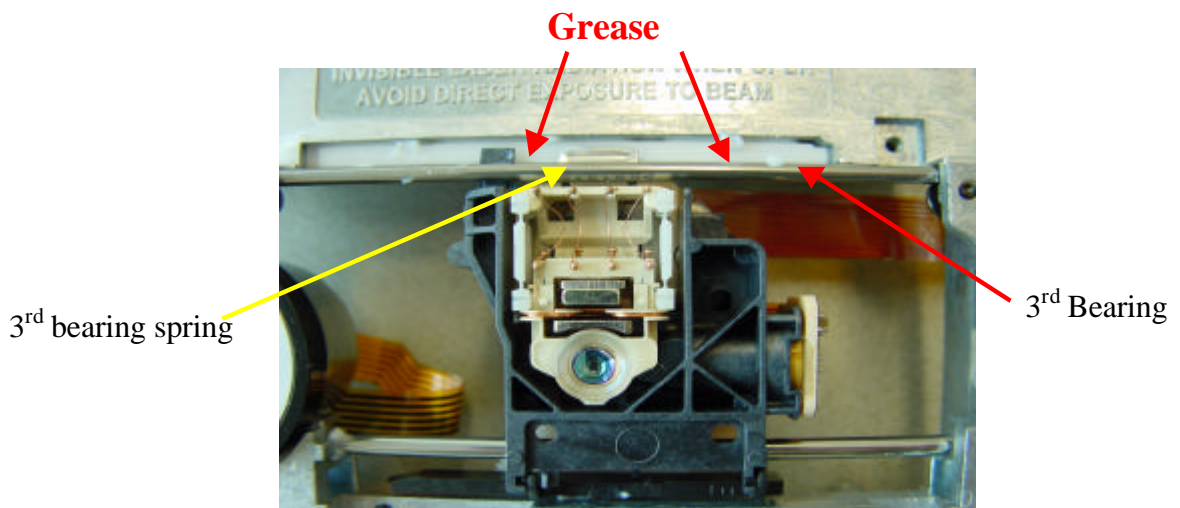


Figure 8

Add 2 dots of grease on the guidance pane at each side of
the 3rd bearing spring