

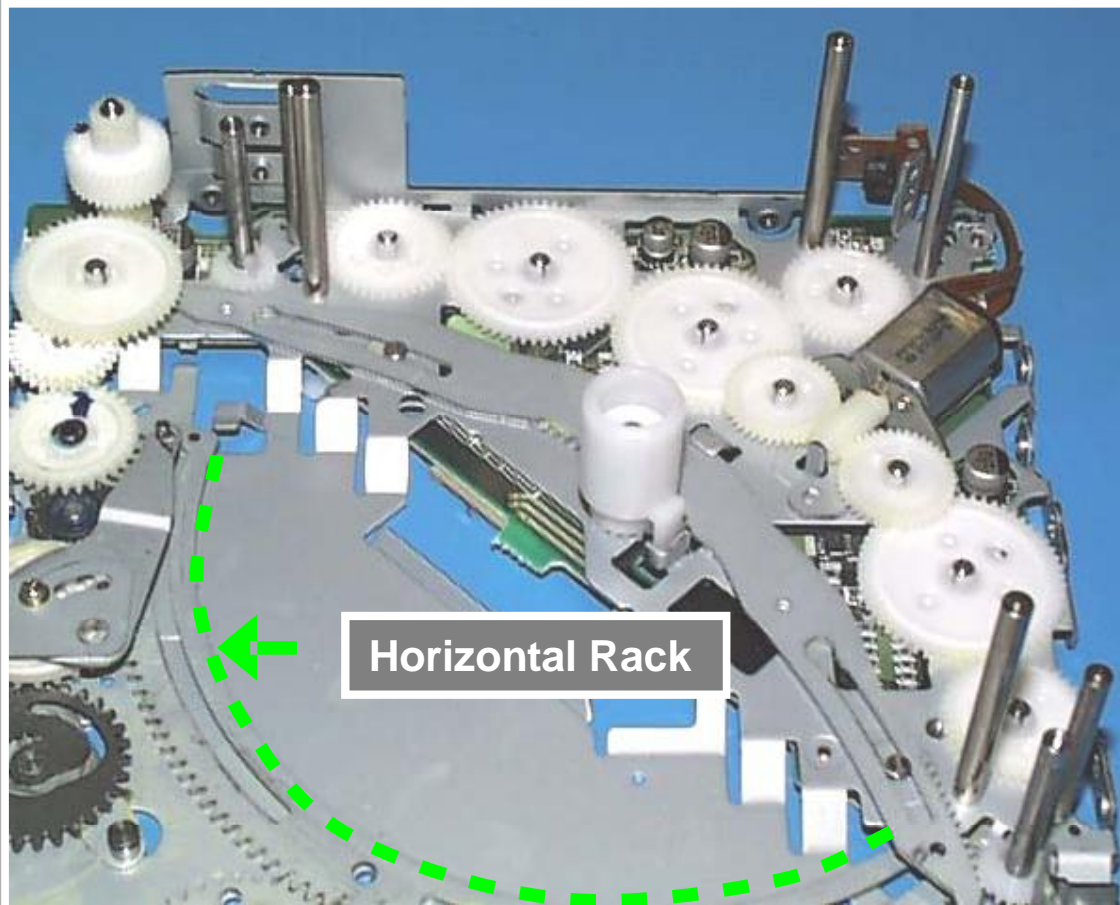
# IN DASH CHANGER UNIT - Module I

Identify the Five Main sections of the IDC Unit.

## Complete in Dash Changer Unit



## Main Chassis



The main section that all other sub-sections are attached to. Also contains the Horizontal Rack that controls the function timing of sub-sections.

## Upper chassis unit

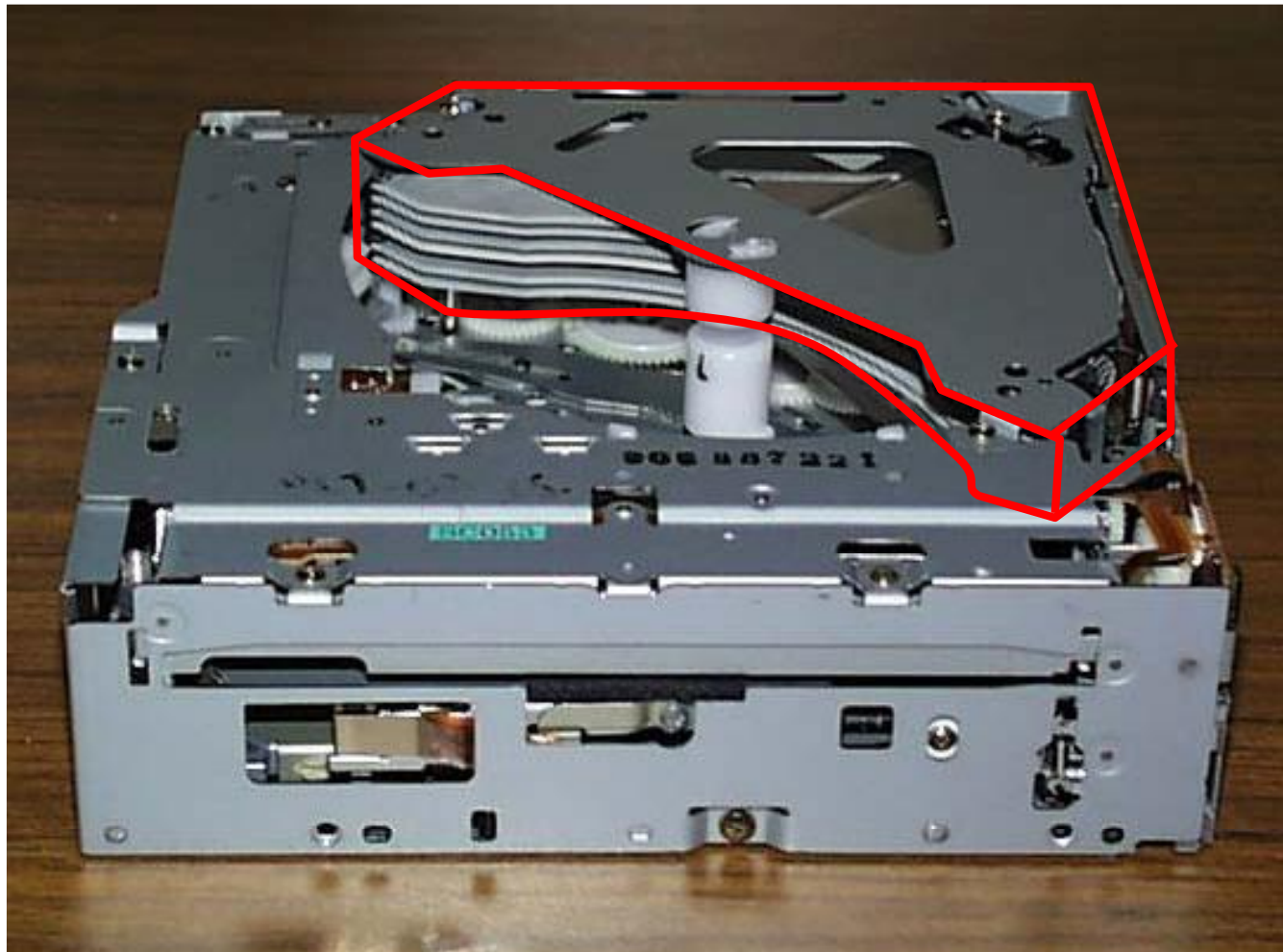


Accepts and transfers the disc into the unit for further processing.

Also houses the **Optical Deck Assembly**.

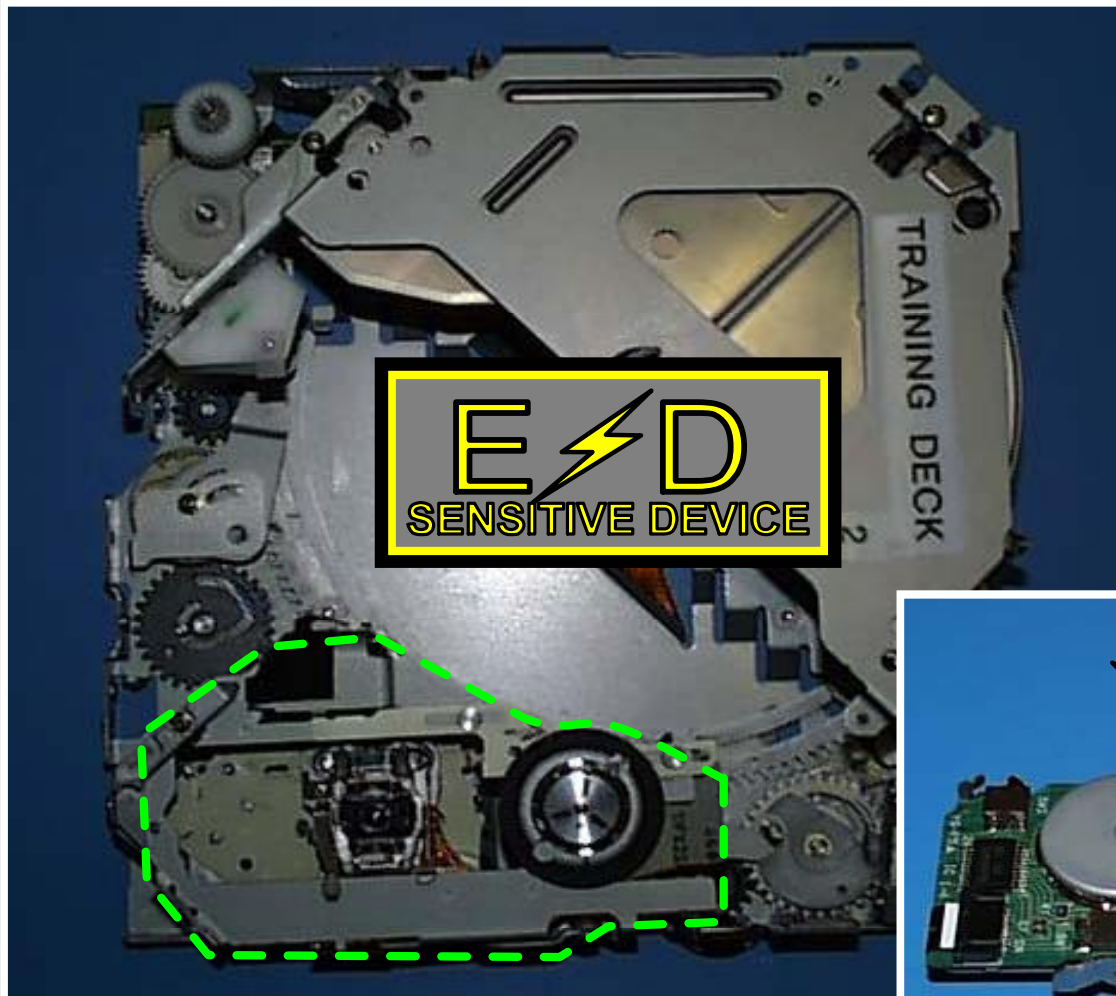


## Stocker block



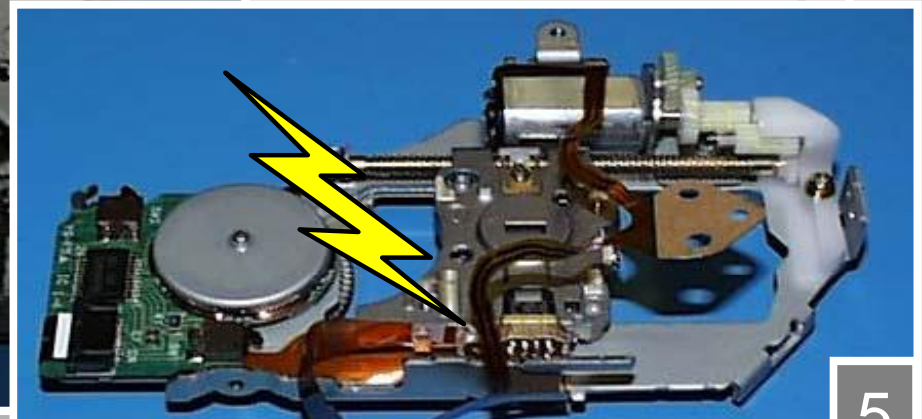
Stores the disc inside the chassis before retrieval into the play or ejection mode.

## Optical pickup Unit

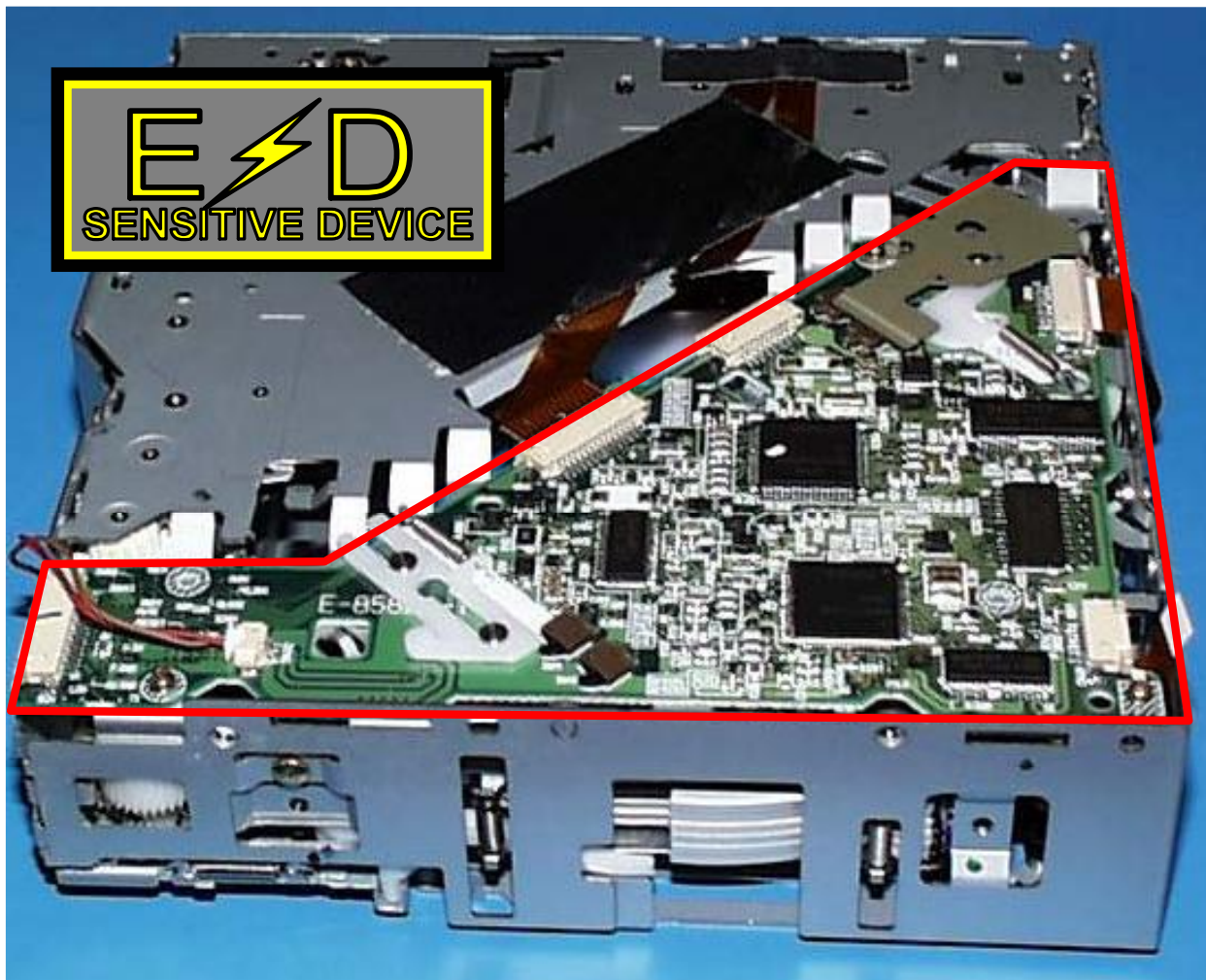


The Optical pickup Unit contains the Optical Pickup, a Laser Diode which is highly sensitive to ESD.

Be sure to observe ESD precautions.

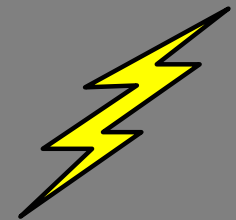


## Printed Circuit Board



The PCB contains the microprocessor chip that controls the logic functions.

The PCB is also highly sensitive to ESD.





## Five Major Deck Assemblies

Stocker block

Upper  
chassis unit

PCB

Optical  
pickup unit



Main Chassis



# IN DASH CHANGER UNIT - Module I

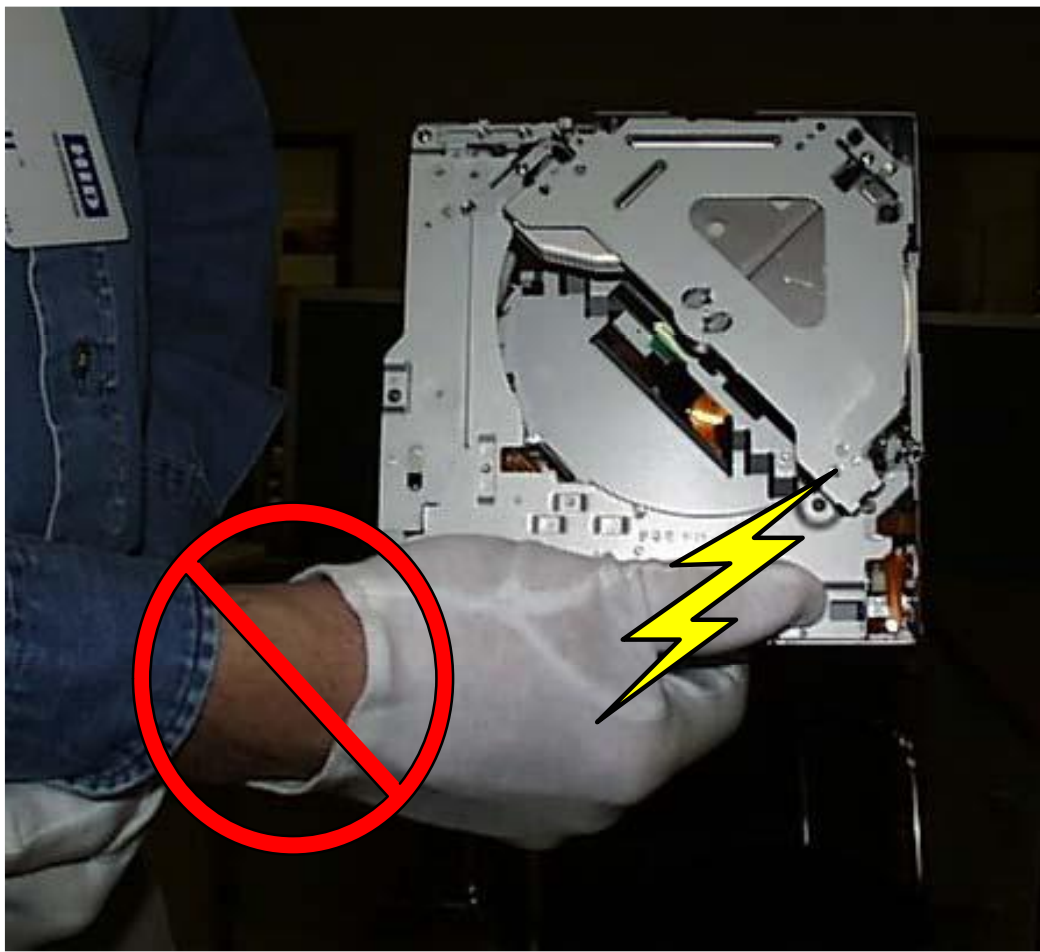
Identify the Five Main sections of the IDC Unit.

End Module I

# IN DASH CHANGER UNIT - Module 2

Proper Handling of the IDC Unit.

## ESD Requirements



Be sure to wear a wrist strap to avoid damaging the unit with ESD.

Example of a correct way to handle the unit.



Gripping the unit by the top and bottom of the chassis in the front is the safest way to handle the unit.



## Example of an incorrect way to handle the unit



Do not grip the unit with your fingers inside of the stocker area .

The storage trays can be bent, misaligned and dislocated.

Example of a correct way to handle the unit.



The PCB contains the microprocessor and several other ESD sensitive integrated circuits. Contact with the PCB should be avoided while handling the unit.

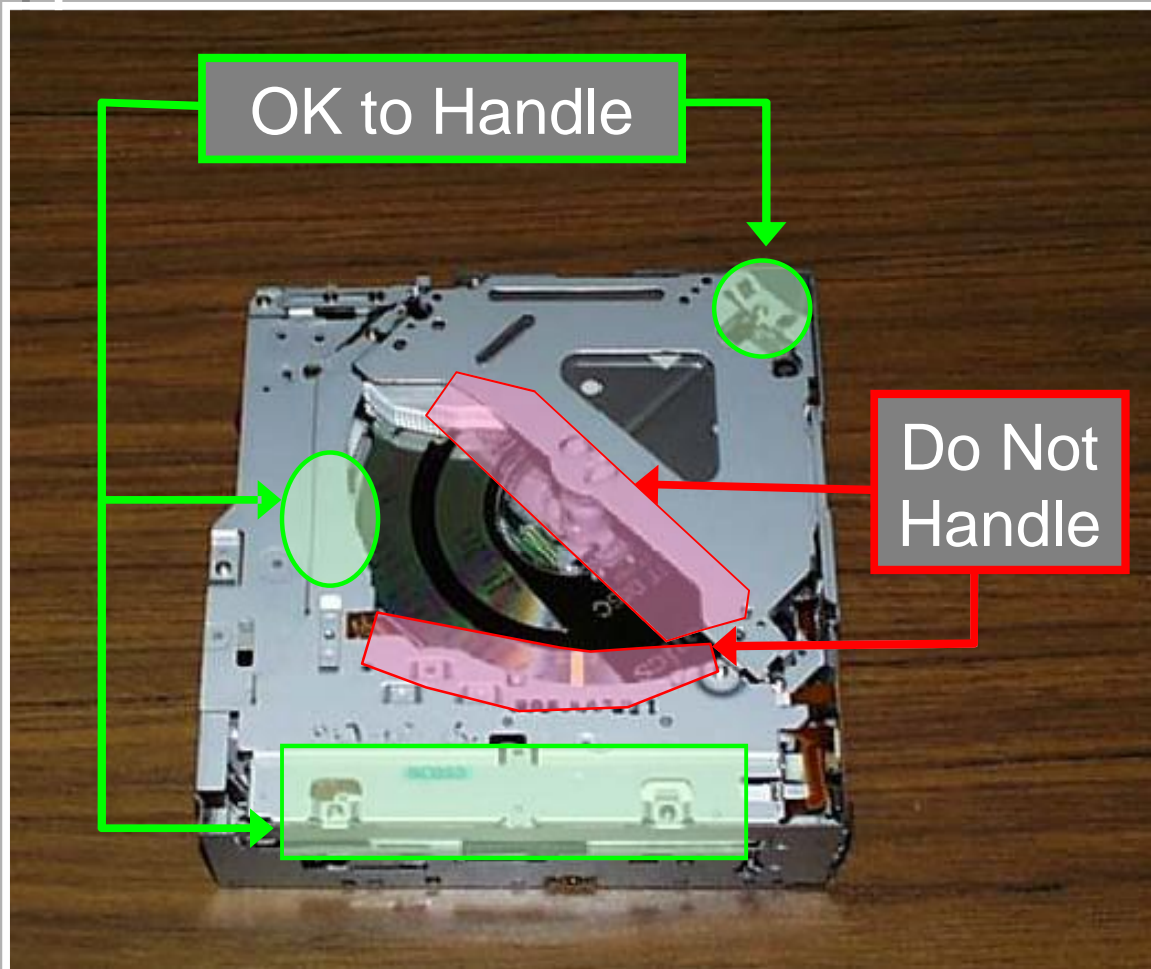
## IDC Module 2 : PROPER HANDLING of the IDC UNIT.

### Caution



Just beneath the Load Assembly is the **Optical Deck Unit** which contains the Optical Pickup, a Laser Diode that is highly sensitive to **ESD**.

**E D**  
SENSITIVE DEVICE



Overview of correct (green) and incorrect (red) handling areas.



# IN DASH CHANGER UNIT - Module 2

Proper Handling of the IDC Unit.

End Module 2

# IN DASH CHANGER UNIT - Module 3

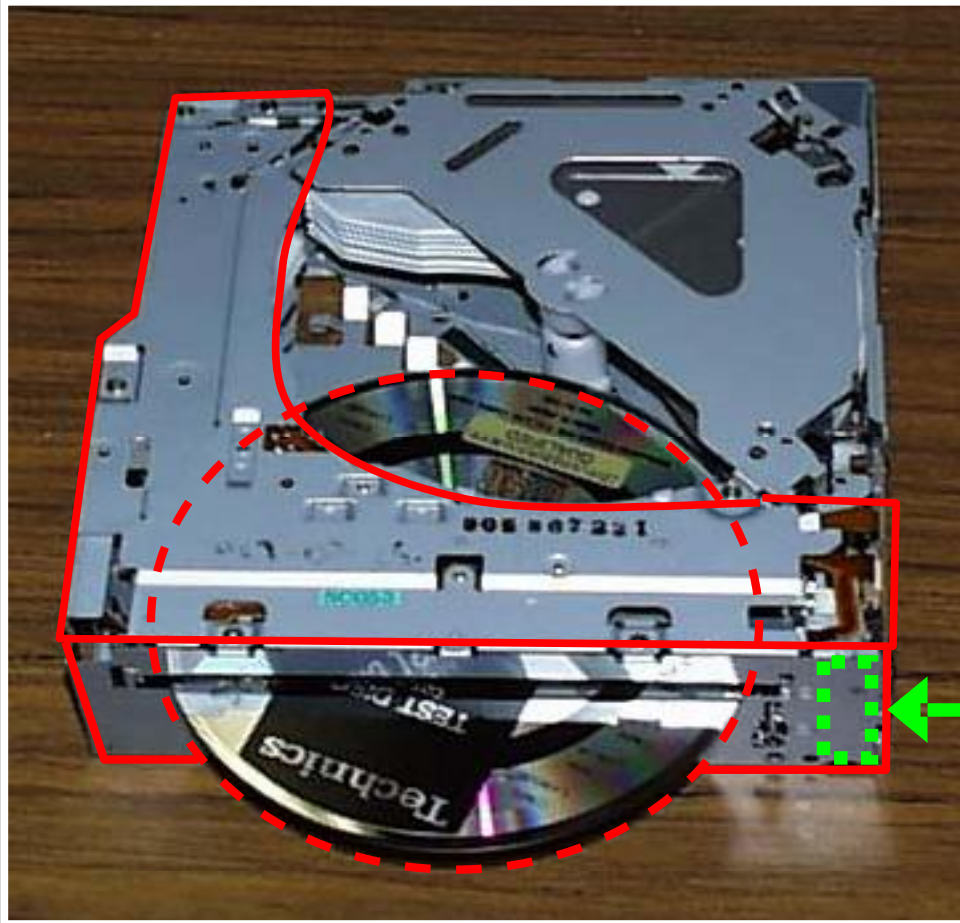
Removal and Re-installation of the Upper chassis unit

Part One

## Preliminaries

- A. The CD always follows the same sequence in the deck. For example, it must travel to the stocker before going onto the play position or ejection mode.
- B. Not all disc handling is electromechanical. Some handling is purely mechanical (no motors involved).
- C. Manual operation of Horizontal Rack is the basis to checking correct deck assembly.
- D. Many gears have alignment points which aid in repair and confirming correct operation.

## Basic Overview of the Upper chassis unit

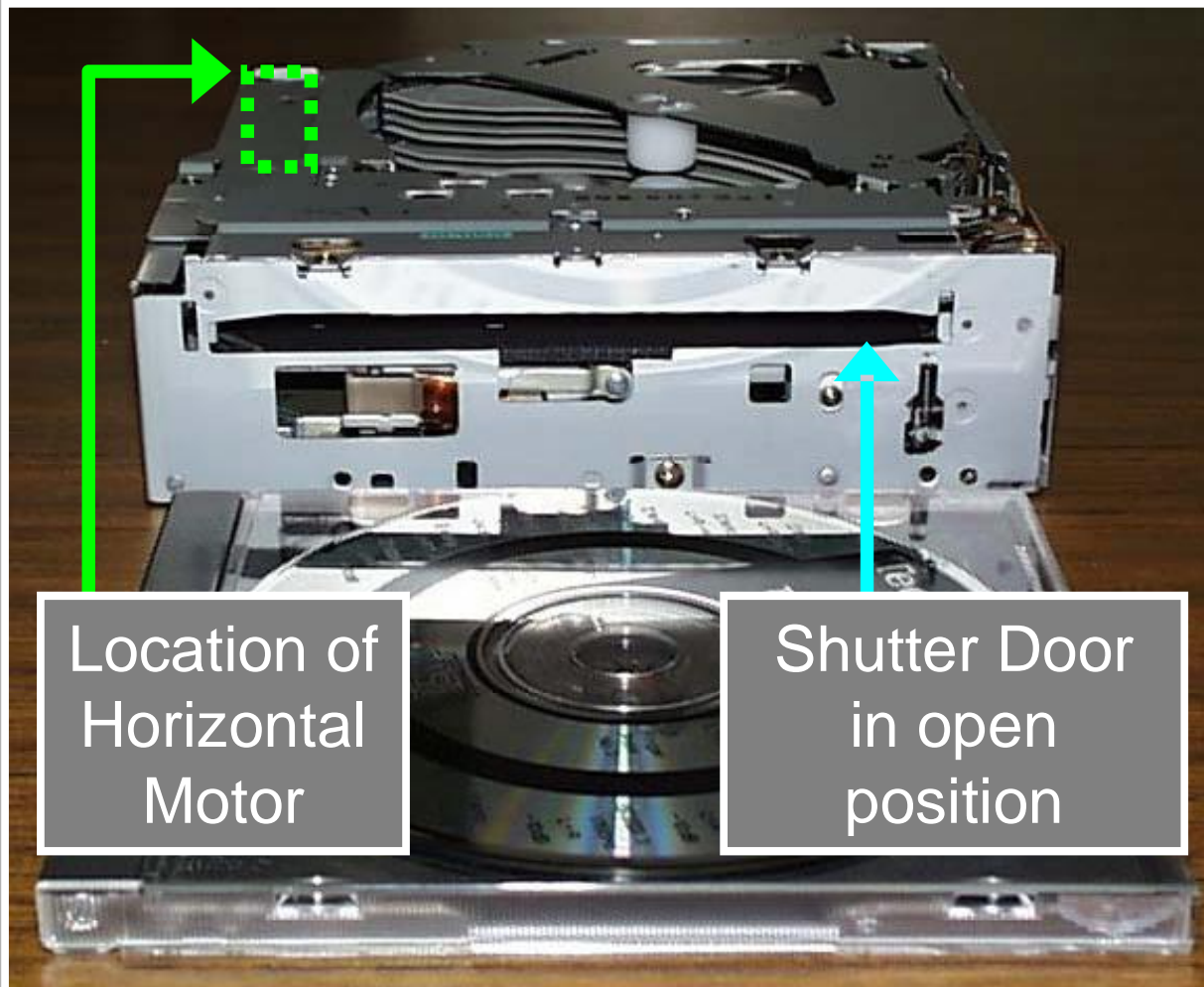


The Upper chassis unit accepts and transfers the disc into the stocker for storage before retrieval into the play position or the ejection mode.

Location of  
Load Motor



## Basic Overview of the Upper chassis unit



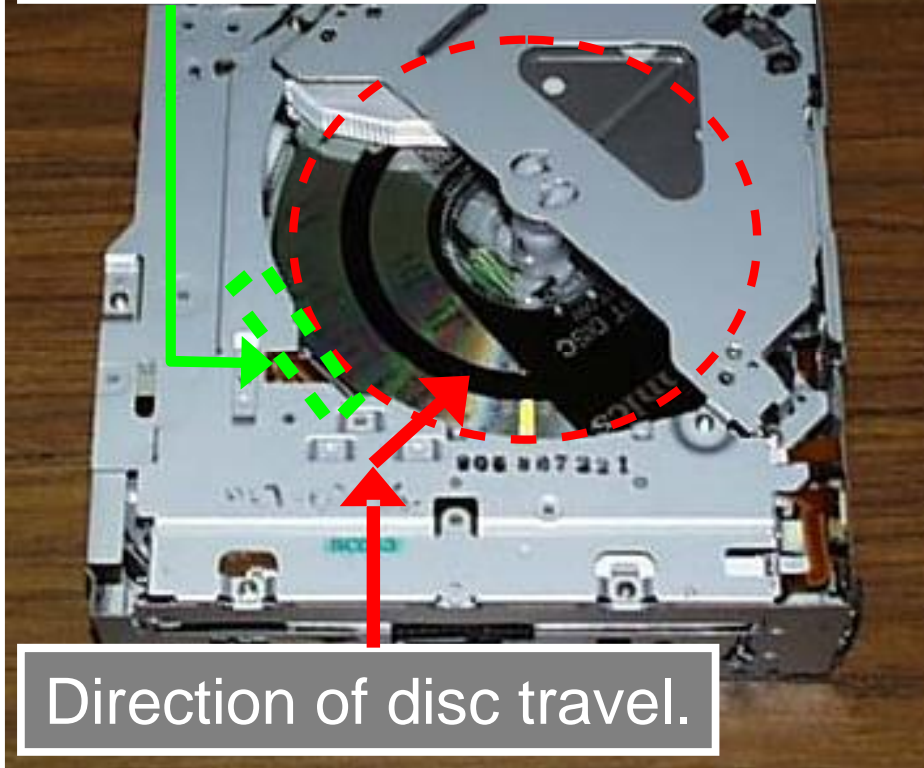
The Horizontal Motor controls the shutter door.

Location of Horizontal Motor

Shutter Door in open position

## Basic Overview of the Upper chassis unit

### Location of Push Lever #1

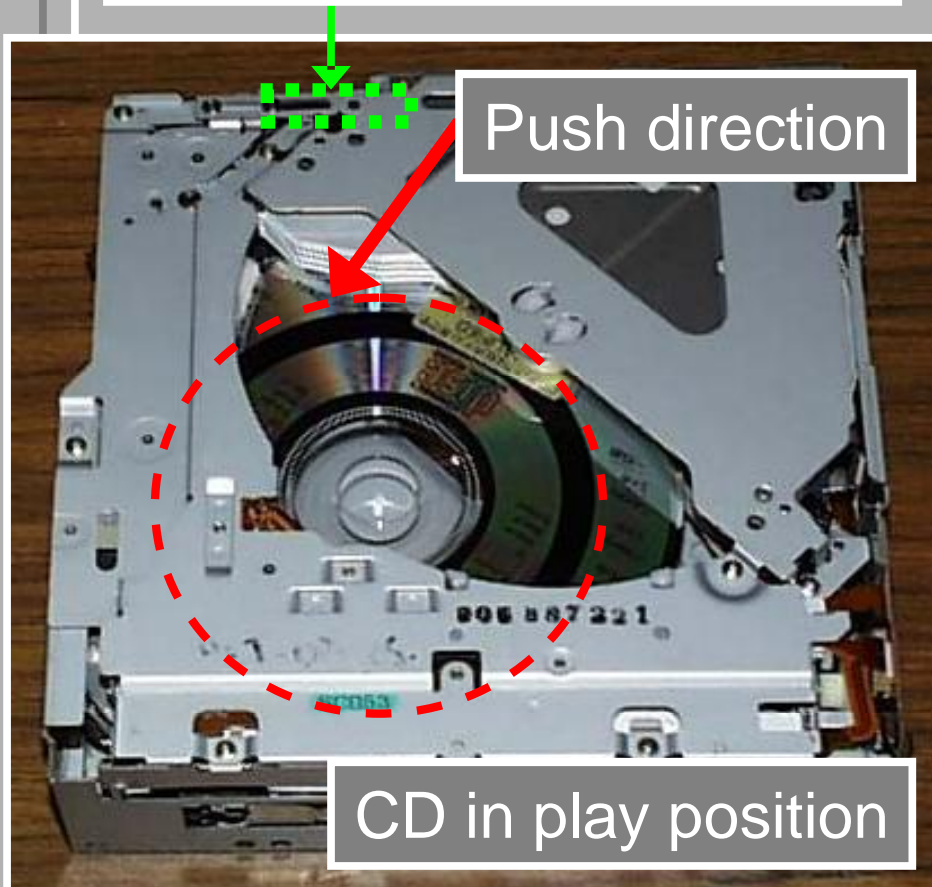


Direction of disc travel.

Push Lever #1 is spring loaded, not motor driven. The disc is pushed into the stocker for storage, located in the right rear of the unit.

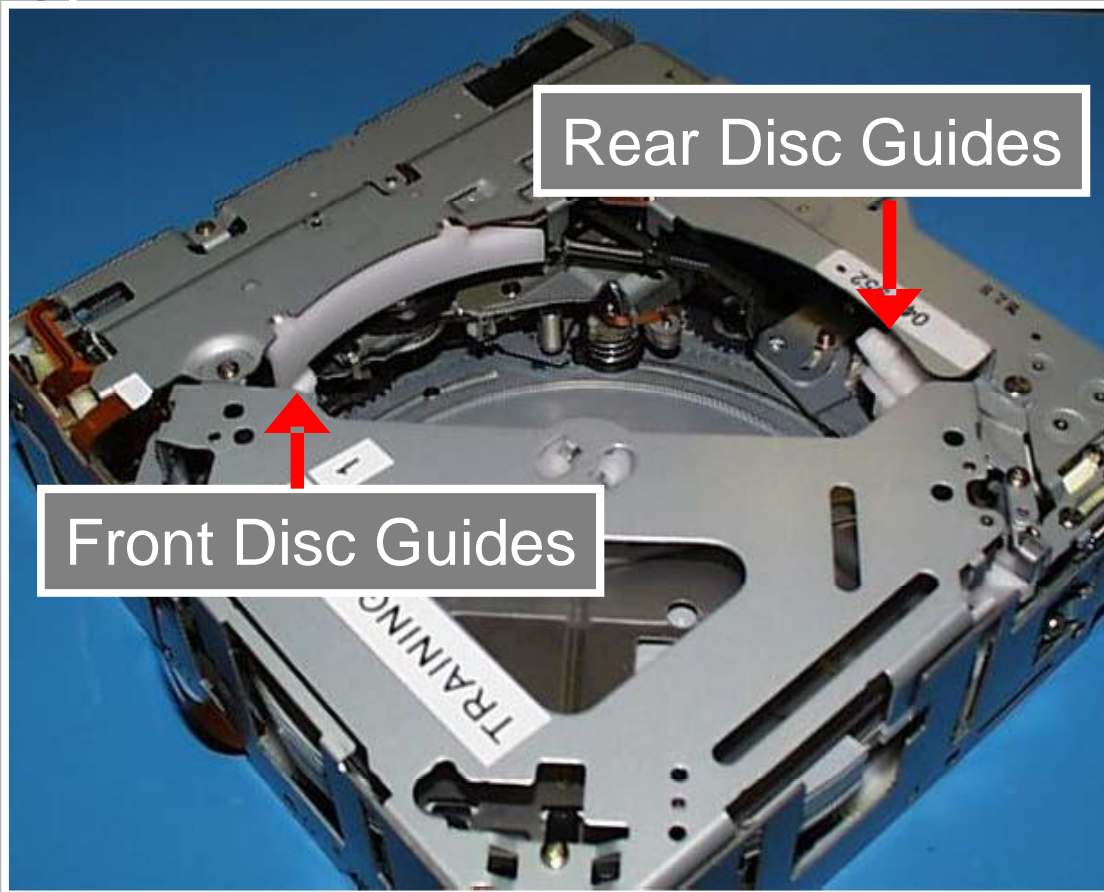
## Basic Overview of the Upper chassis unit

Location of Push Lever #2



Push Lever #2 is operated by the Horizontal Motor and mounts to the inside of the Stocker Assembly Cover Plate.

## Basic Overview of the Upper chassis unit



The Front and Rear Disc Guides are operated by the Horizontal Motor.



## Basic Overview of the Upper chassis unit



Optical Deck Spindle

The Front and Rear Disc Guides clamp the disc and lower it onto the Optical Deck Spindle.

# IN DASH CHANGER UNIT - Module 3

Removal and Re-installation of the Upper chassis unit

Part Two

## Removal of the Upper chassis unit



Deck must be in “Home” position before disassembling. Home position is where the alignment points on the Horizontal Rack and Main Chassis meet.

## Removal of the Upper chassis unit

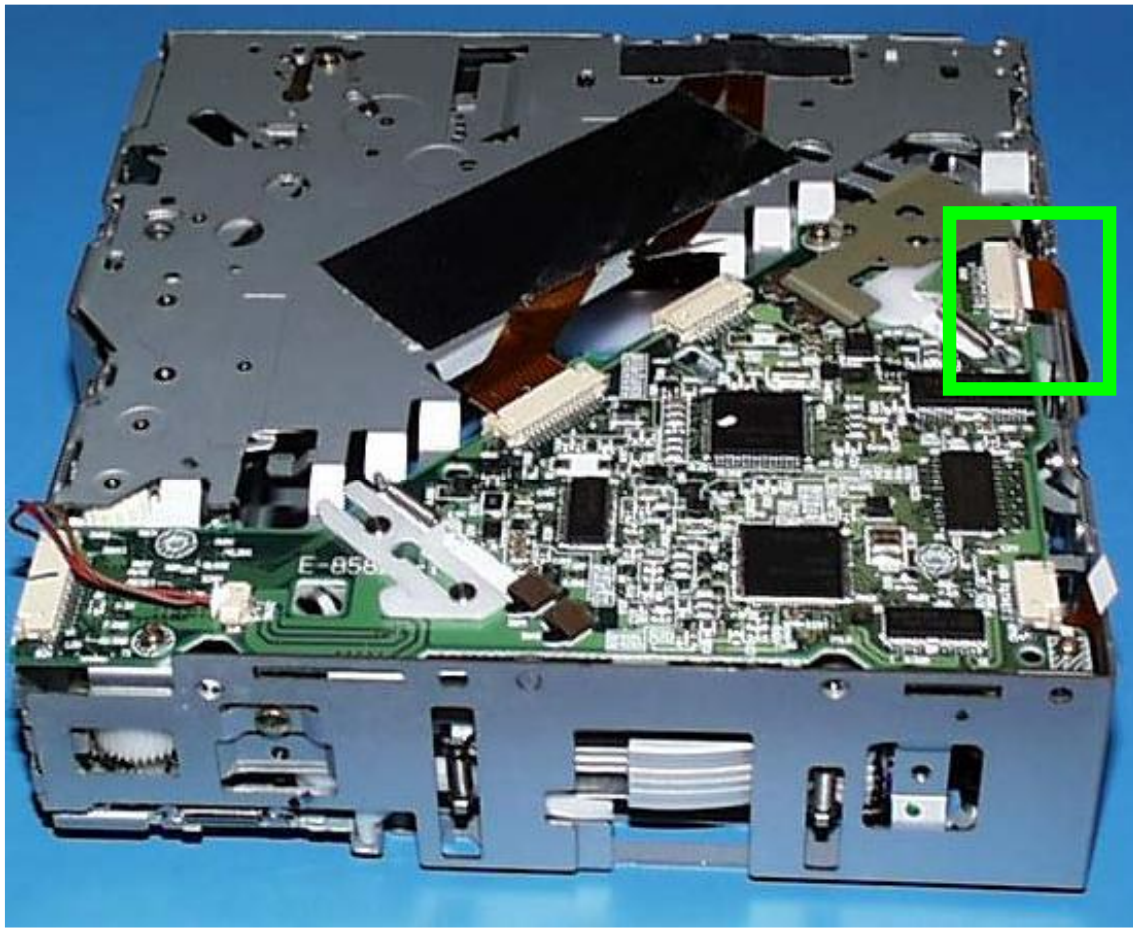


Use a paper clip jig to hold Horizontal Motor in place during load assembly removal. There is no displacement in timing if work is performed with a paper clip inserted into the alignment holes.



## IDC Module 3 : Removal and Re-Installation of the Upper chassis unit.

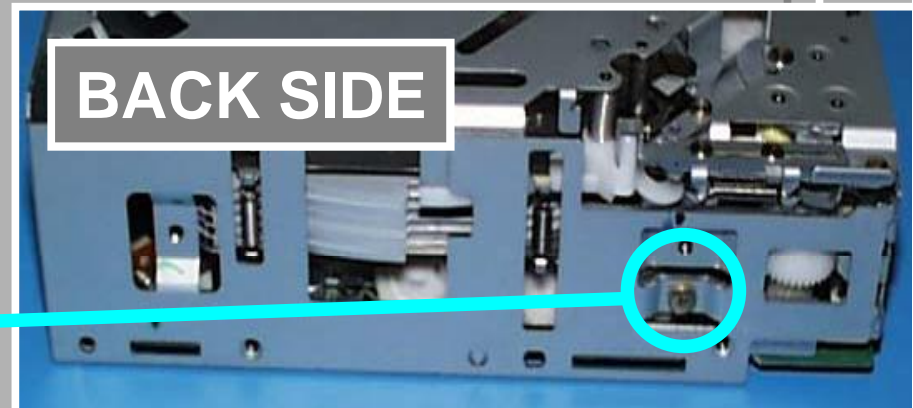
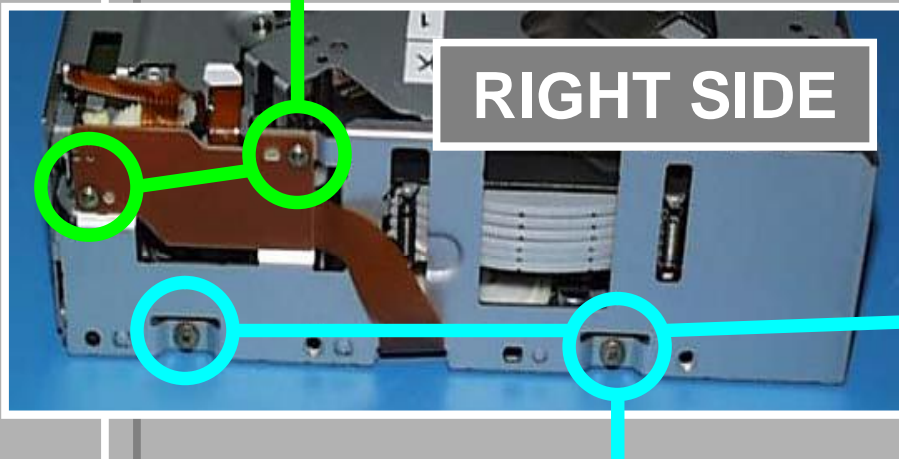
### Removal of the Upper chassis unit



Disconnect the Loading Motor ribbon cable from connector CN301.

## Removal of the Upper chassis unit

A. Remove the **two** screws that secure the flex PCB to chassis. Carefully fold flex cable away from the chassis.



B. Remove the **three** screws and then lift off the side Chassis. Note that all three screws are the same size.

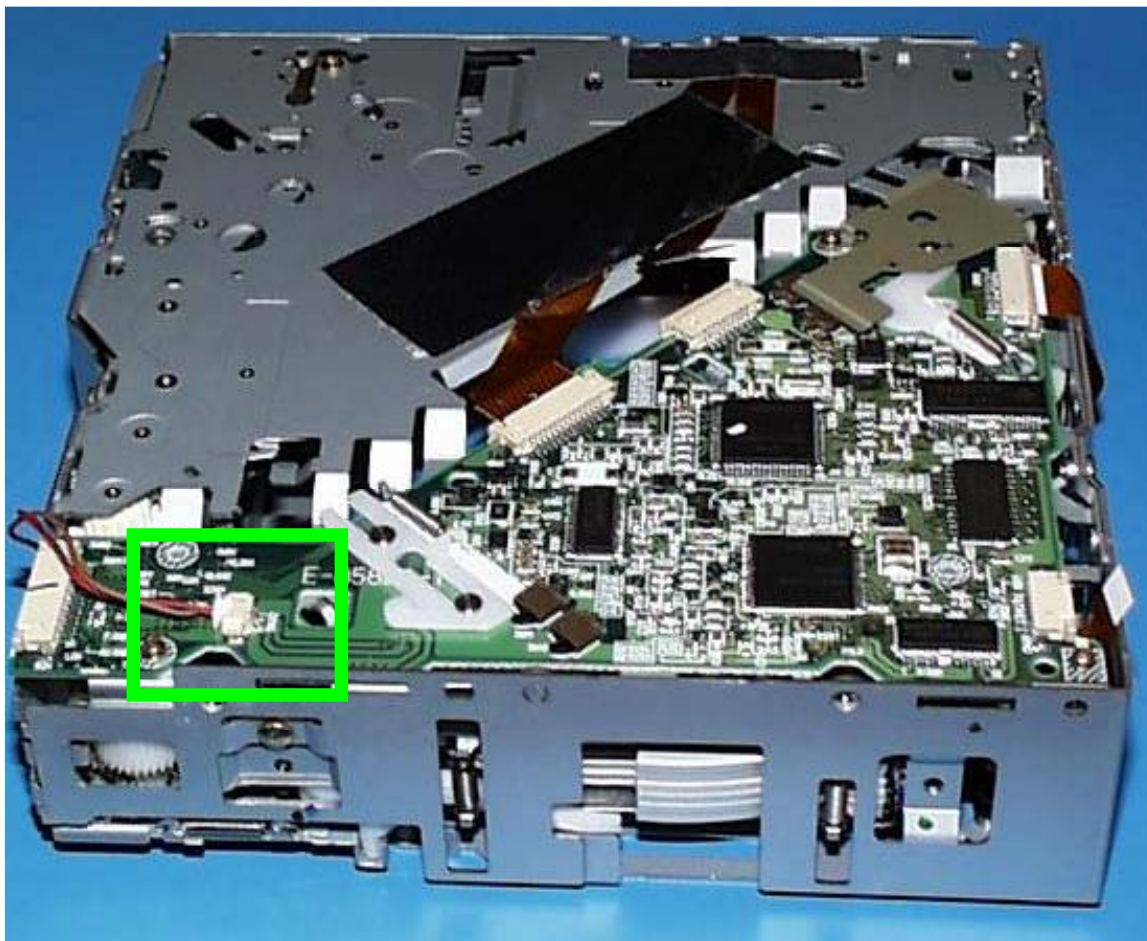


## Removal of the Upper chassis unit



Remove the single screw that connects the stocker cover plate to the load assembly on the top side of the chassis.

## Removal of the Upper chassis unit



Disconnect the horizontal motor cable from connector CN402 on the bottom side of the chassis.

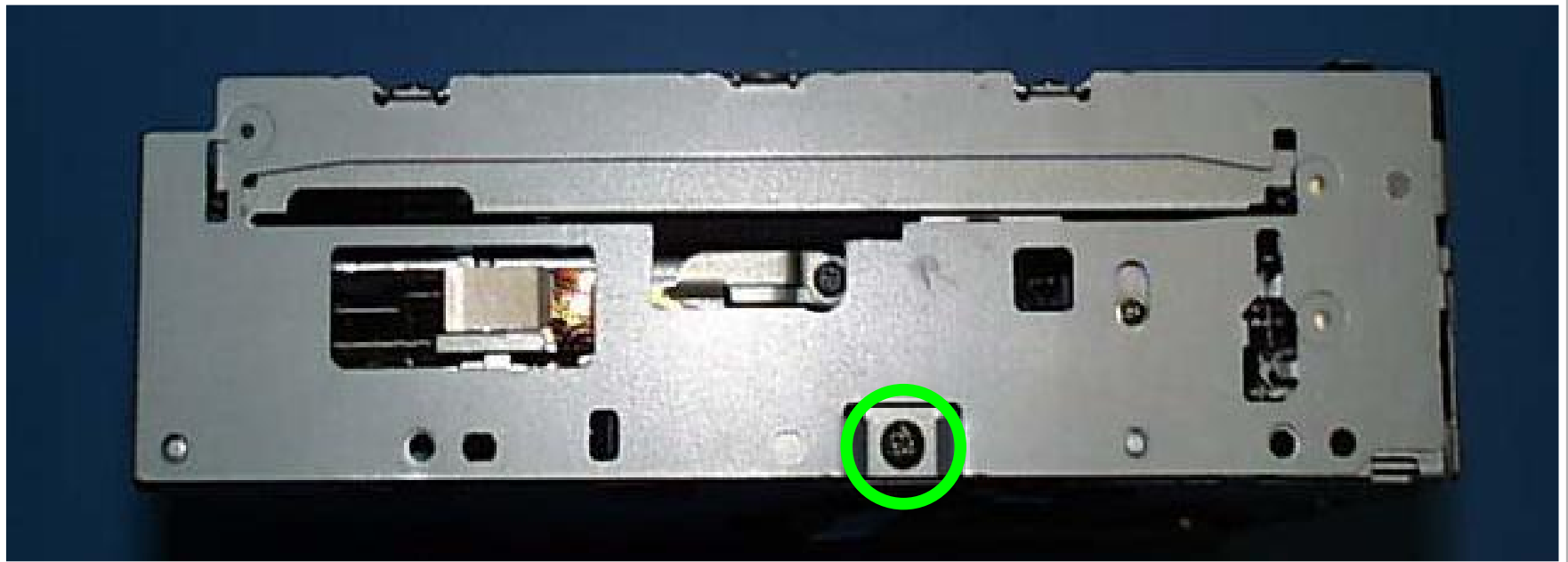
## IDC Module 3 : Removal and Re-Installation of the Upper chassis unit.

### Removal of the Upper chassis unit



Remove the **two** screws on the left side of the chassis.

## Removal of the Upper chassis unit



Remove the single screw from the shutter door side of the chassis. Note that this screw is shorter than the previous two and must be replaced to the same location.

## Removal of the Upper chassis unit



Separate the Upper chassis unit from the main chassis.

Unit is now separated into three sections:

1. Main Chassis
2. Upper chassis unit
3. Side Chassis

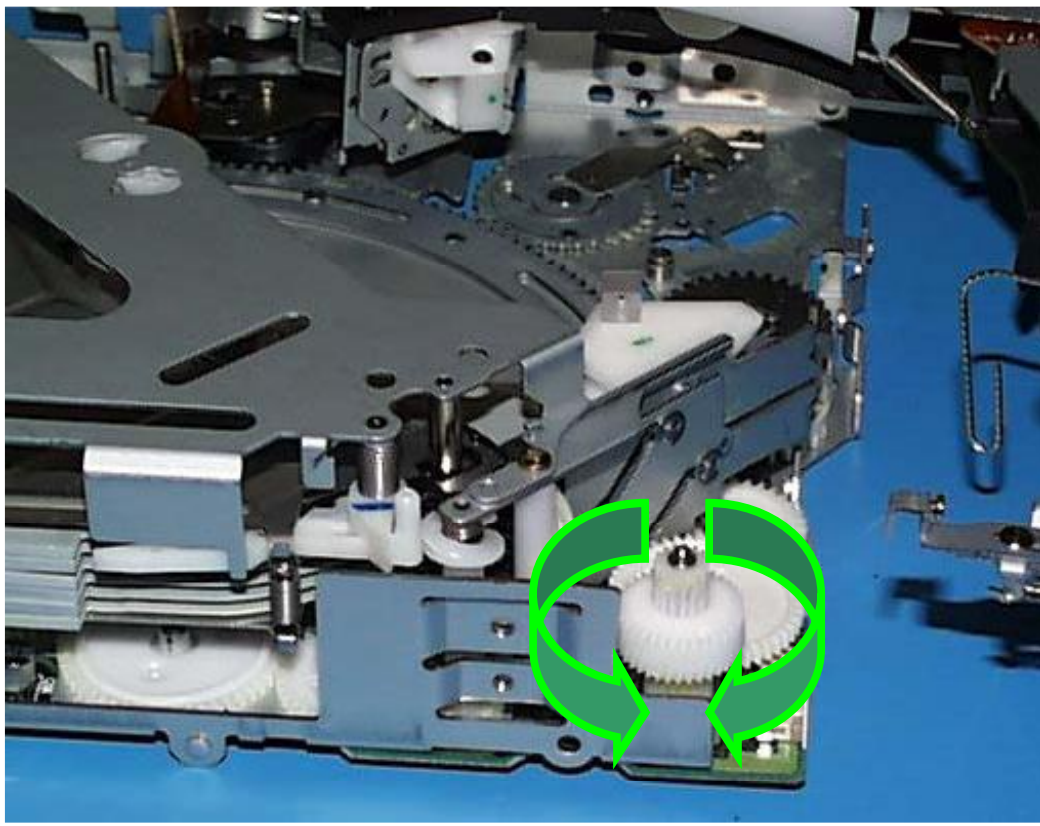
# IN DASH CHANGER UNIT - Module 3

Removal and Re-installation of the upper chassis unit

Part Three

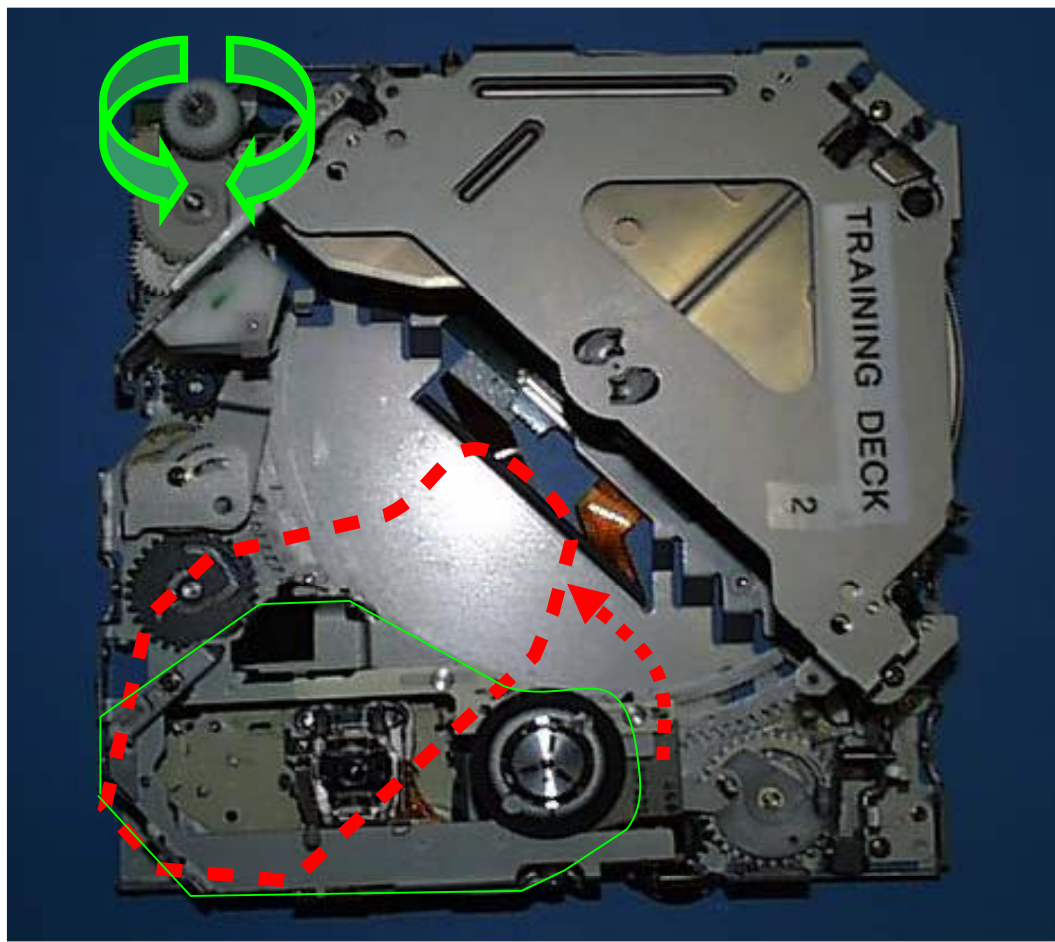


## Manually Checking Unit Functions.



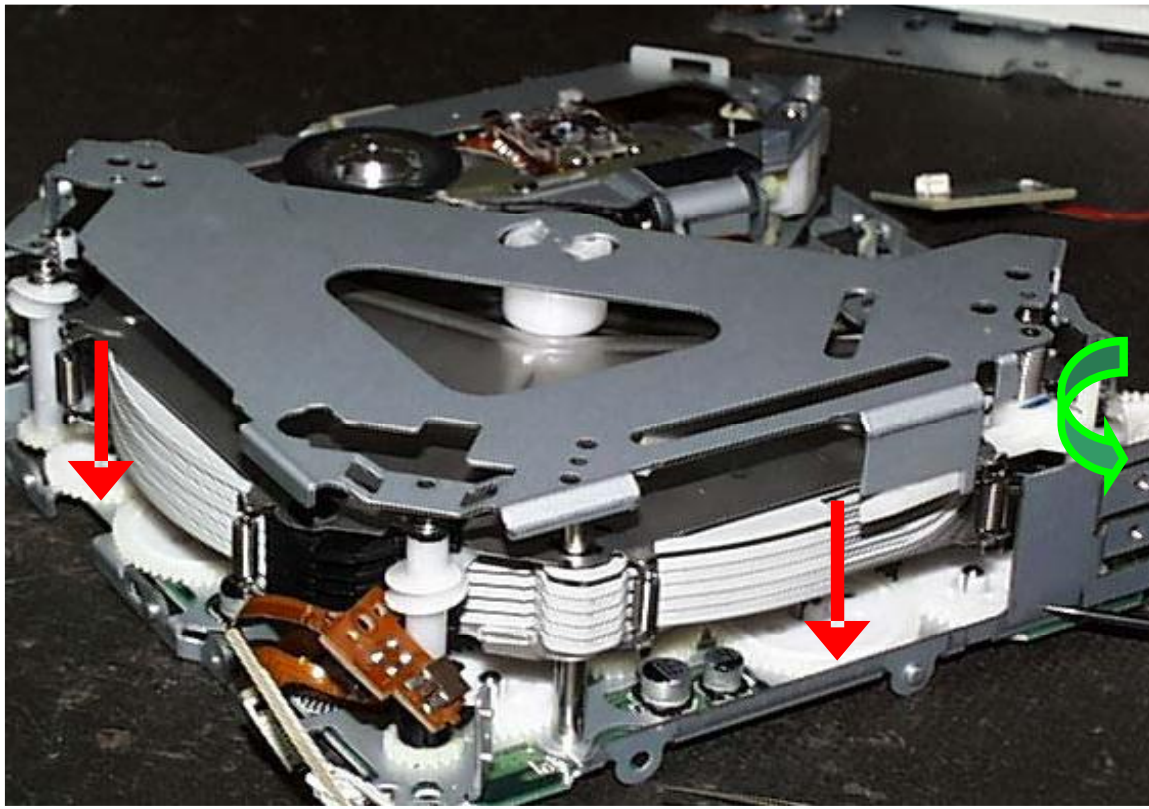
Manual rotation of the horizontal gear is the basis for checking unit function and correct deck assembly.

## Manually Checking Unit Functions.



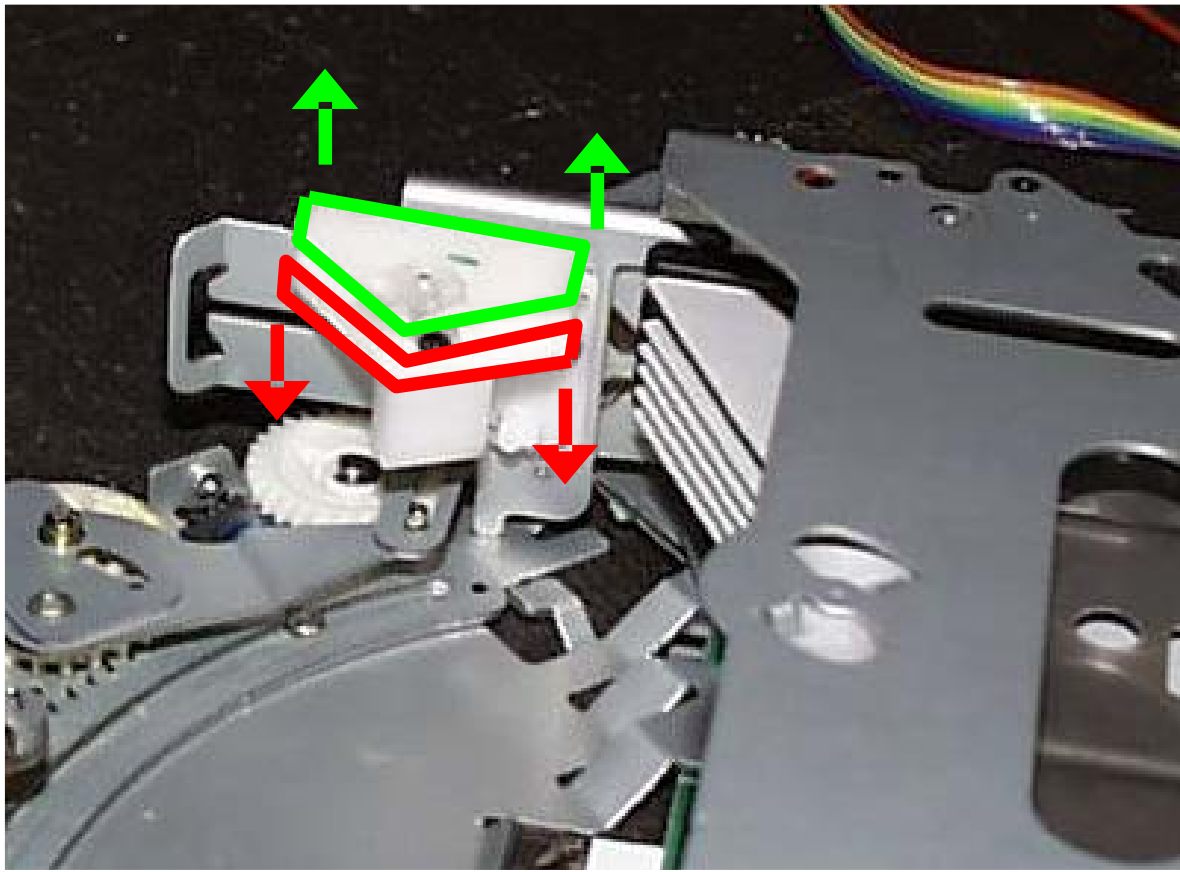
While manually rotating the horizontal gear, observe that the Optical pickup unit swings from its **home** position, out into the **play** position.

## Manually Checking Unit Functions.



While manually rotating the horizontal gear, observe that the stocker plates lower into the chassis.

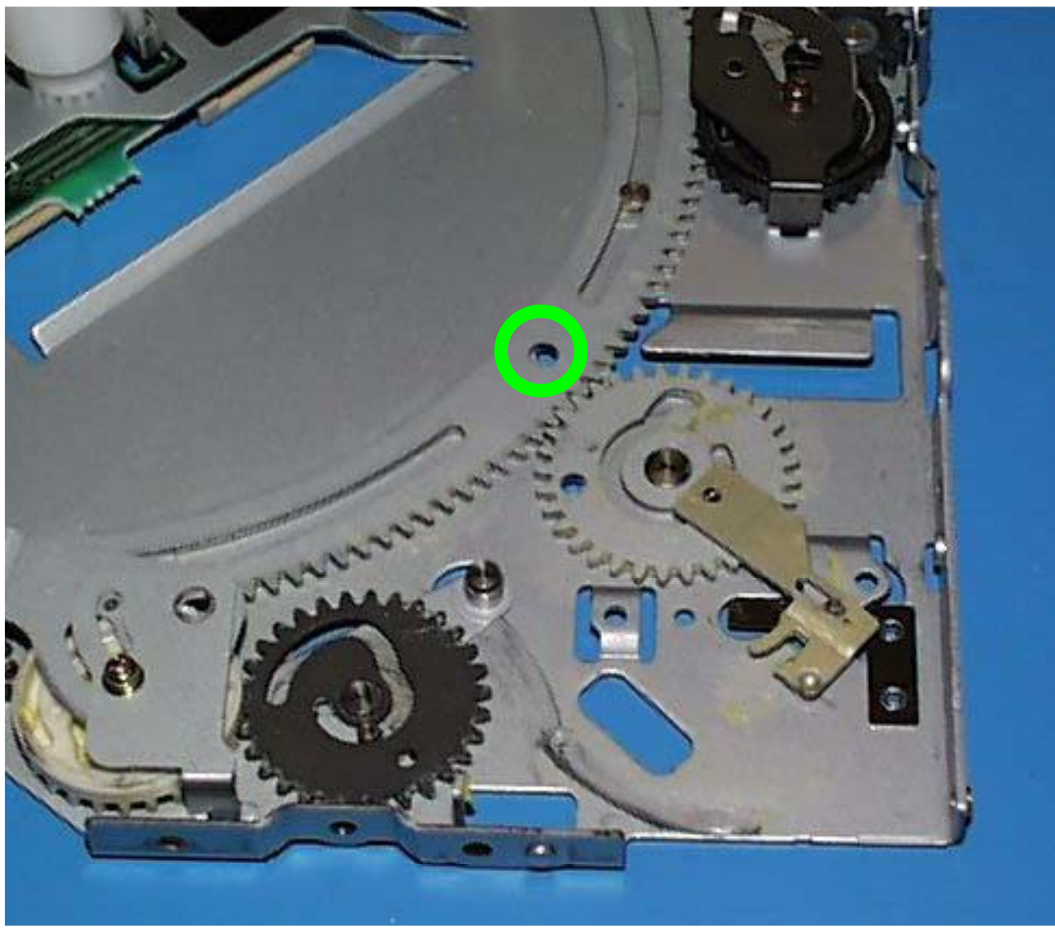
## Manually Checking Unit Functions.



While manually rotating the horizontal gear, observe that the Rear Disc Guides separate.



## Manually Checking Unit Functions.



After observing unit functions, return the horizontal rack to the home position.



# IN DASH CHANGER UNIT - Module 3

Removal and Re-installation of the Upper chassis unit

Part Four

## Reinstalling the Upper chassis unit

The procedure for reassembling the Upper chassis unit onto the Main Chassis is basically performing each of the previous steps for removal in reverse order.

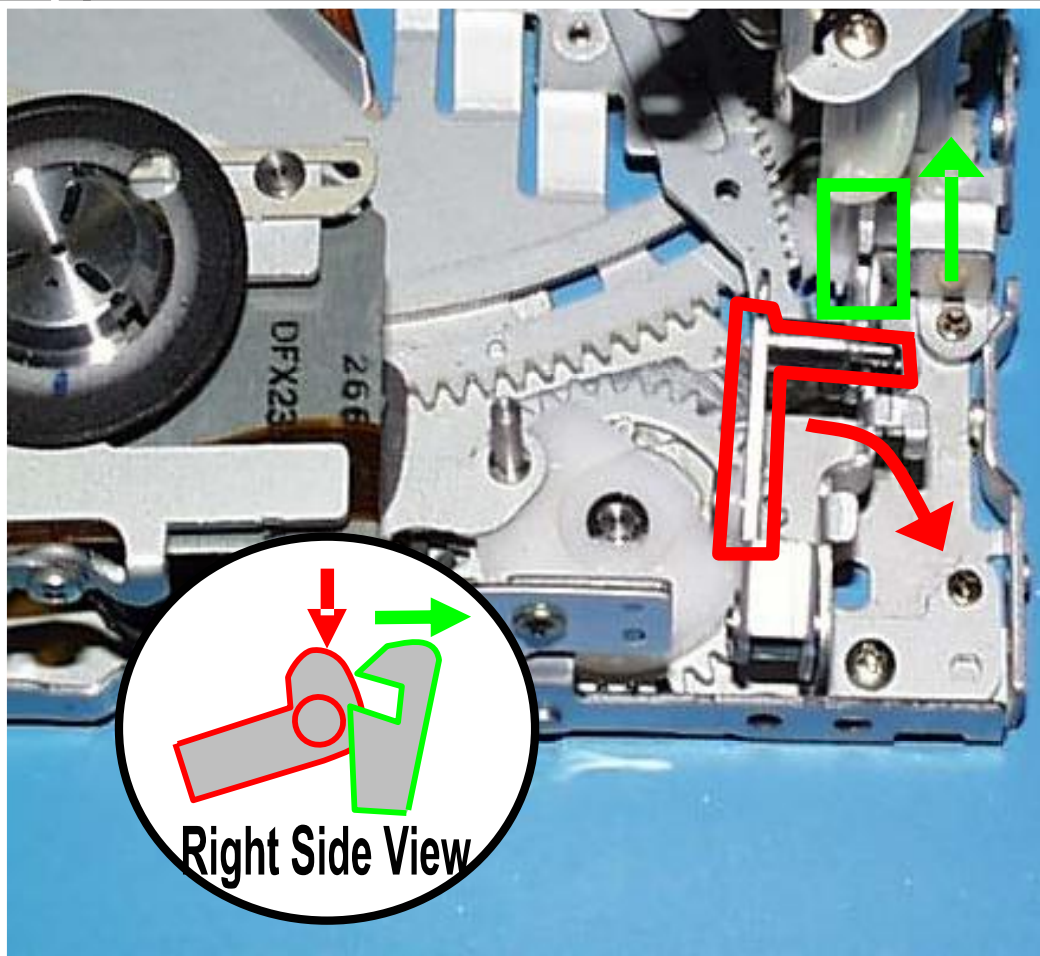
There are however, some preliminary positioning requirements that must be observed before beginning reassembly.

### **Tips:**

**A.** Attach front of load assembly first.

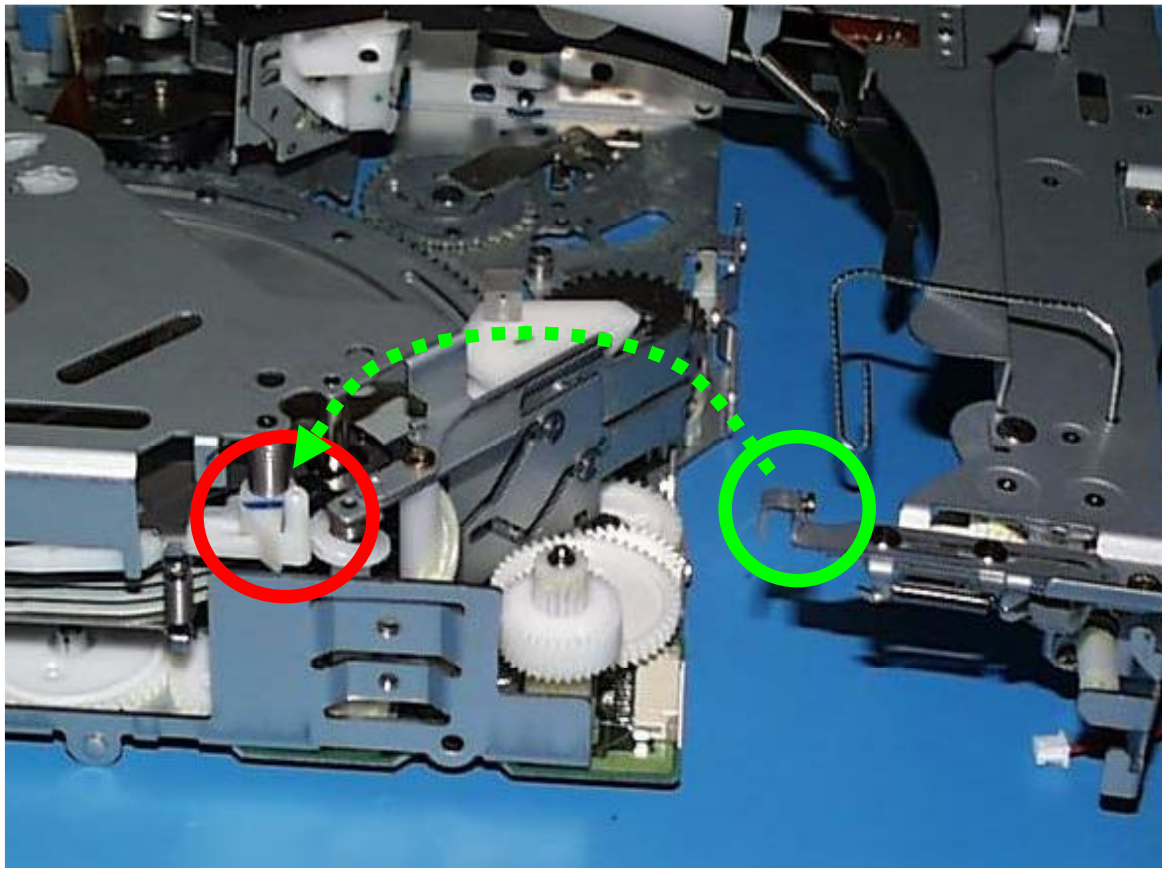
**B.** Make sure horizontal motor connector cable is out of the way.

## Reinstalling the Upper chassis unit.



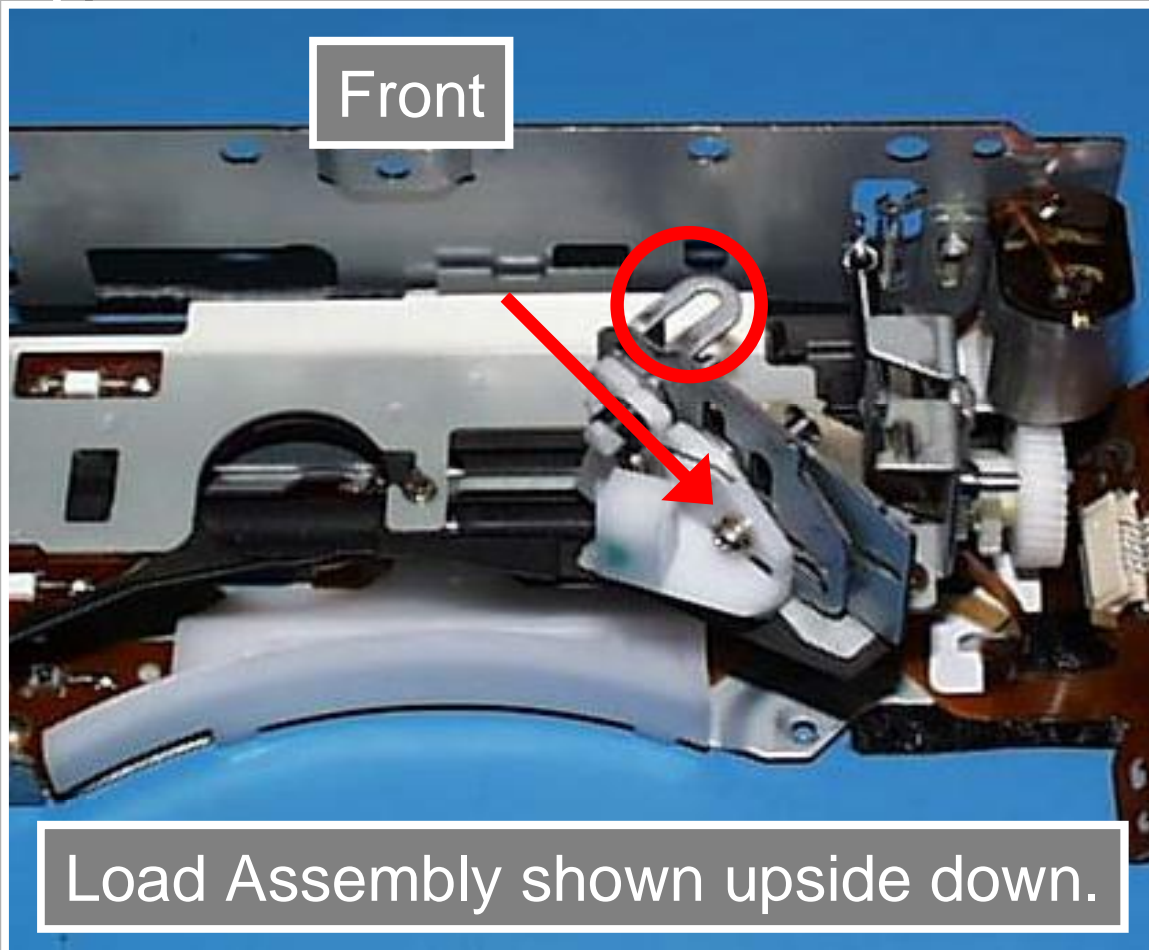
The **spring loaded catch** of the Lever Guide Plate Assembly should be pulled completely back to allow the **Lever** to drop to its lowest possible position.

## Reinstalling the Upper chassis unit



The **Push Lever Plate** of the Upper chassis unit must connect over top of **Push Lever #2** on the Main Chassis .

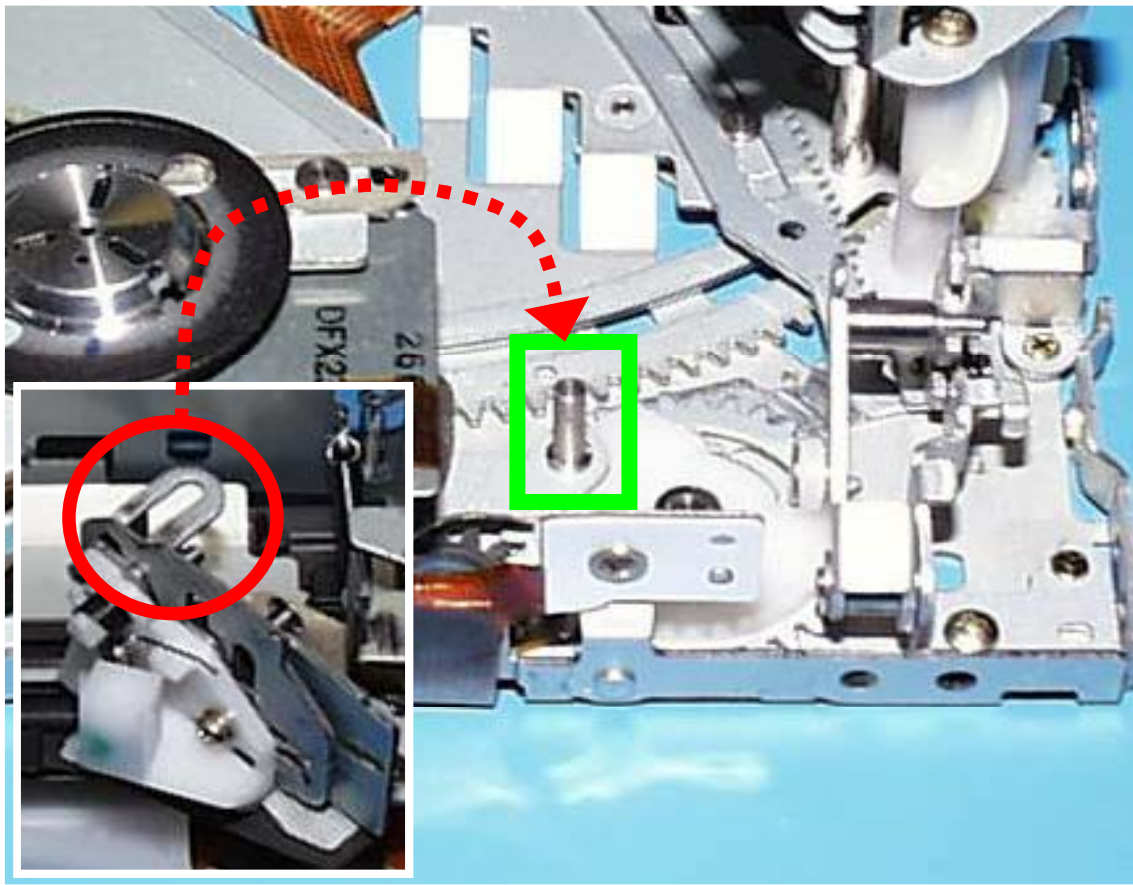
## Reinstalling the Upper chassis unit



Push the **eyelet** of the Guide Cam Plate away from the front of the Load Assembly.

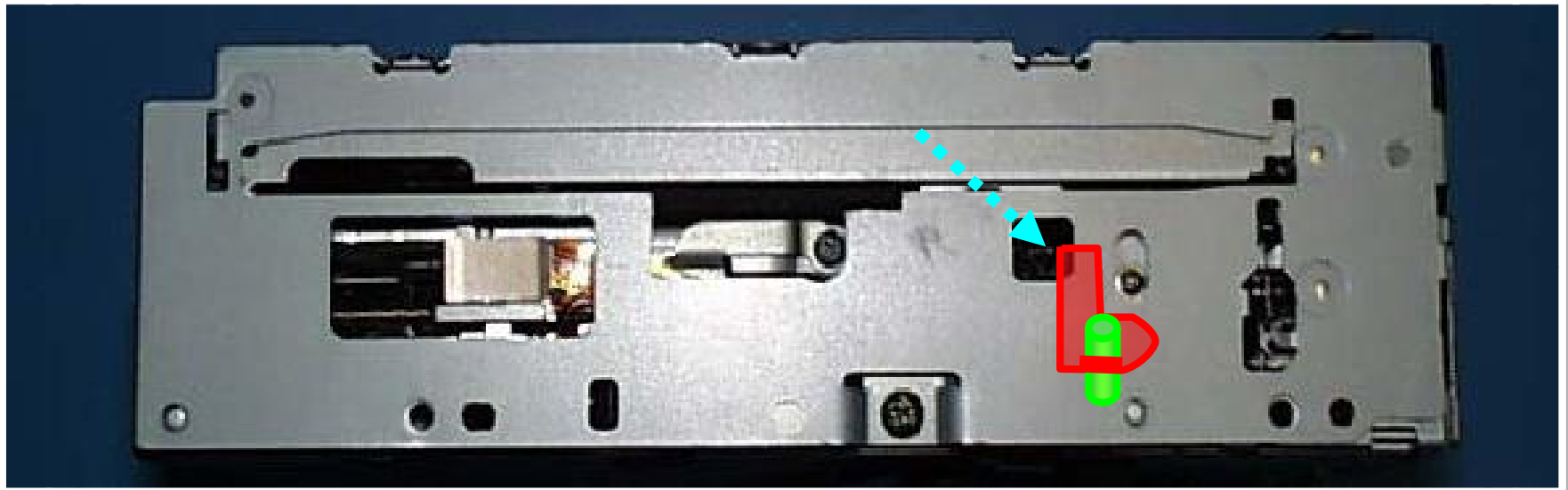


## Reinstalling the Upper chassis unit



The Guide Cam **Lever** on the Main Chassis must be inserted into the **eyelet** of the Guide Cam Plate of the Load Assembly.

## Reinstalling the Upper chassis unit



Confirm that the Guide Cam **Lever** has been inserted into the **eyelet** of the Guide Cam Plate by **viewing** through the opening just below the shutter door on the front of the upper chassis unit.

## Confirming Proper Unit Operation.

After completing reinstallation, confirm proper operation of the unit by manually rotating the horizontal gear. Manual operation should not require an excessive amount of force. Verify that:

- A. The shutter door opens and closes.
- B. The optical deck swings into play position.
- C. The front and rear disc guides operate.
- D. The stocker assembly lowers into the chassis.

After confirming proper operation, return the horizontal rack to the home position.

# IN DASH CHANGER UNIT - Module 4

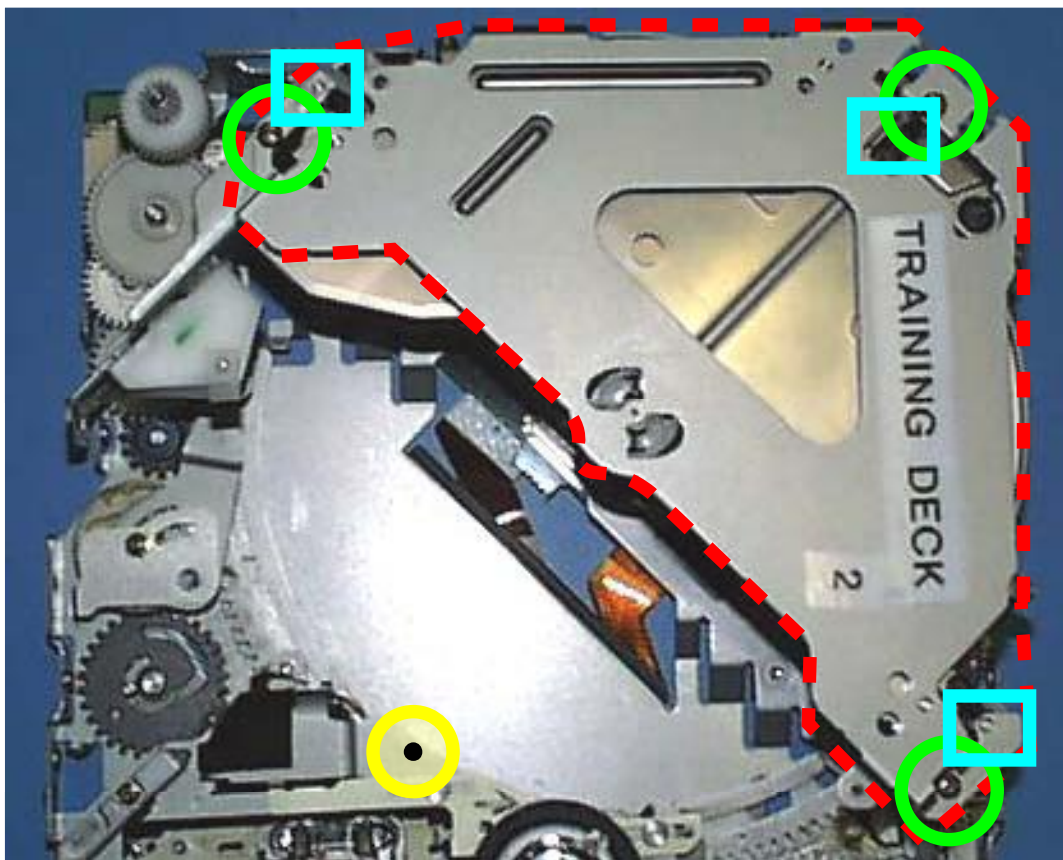
## Removal and Reinstallation of the Stocker block

The Upper chassis must be removed first.

Part One

## Removal of the Stocker block

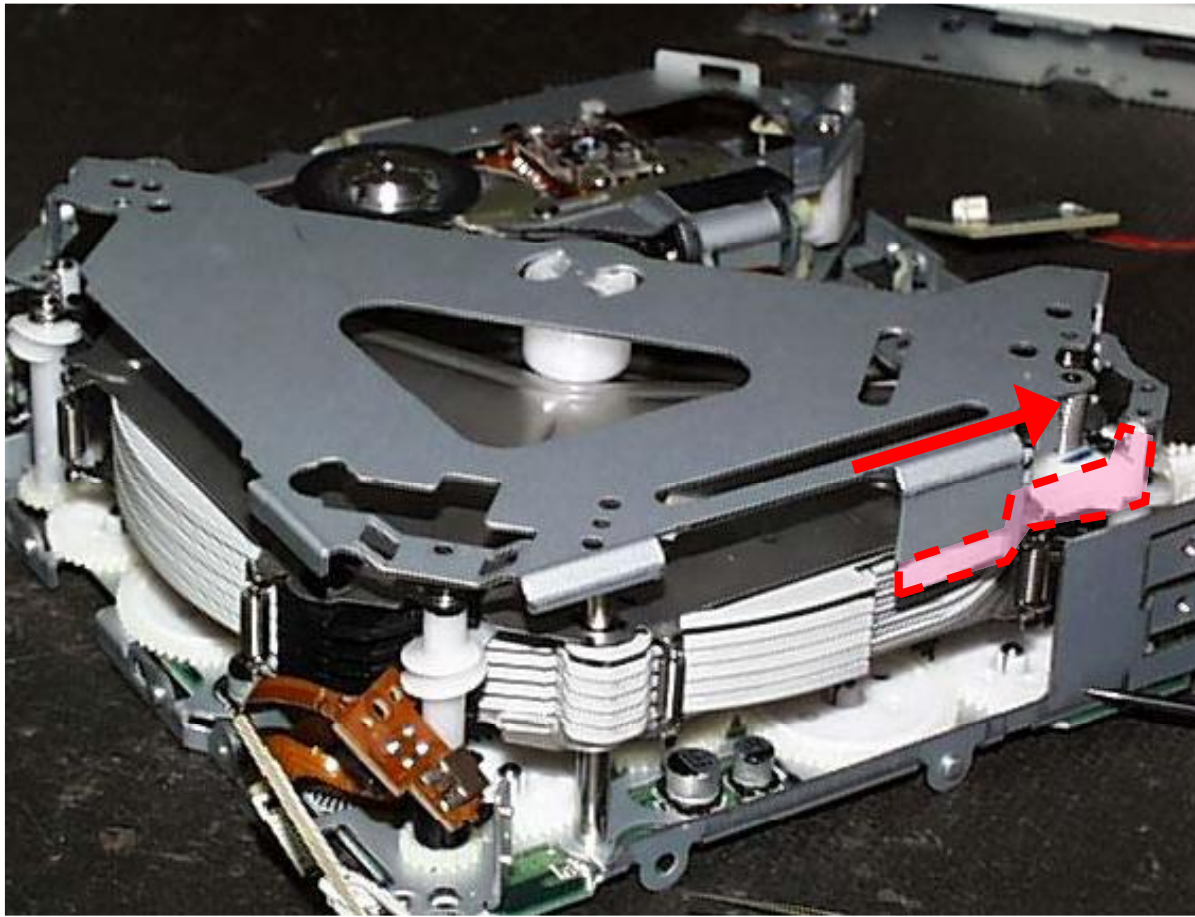
Begin by setting the horizontal rack to the **home position**.



Before removing the **three** cover plate screws, be careful not to lose the **three** thrust springs positioned beneath the **cover plate**. The springs mount on top of the Cam Gear #1 and Cam Gears #2.

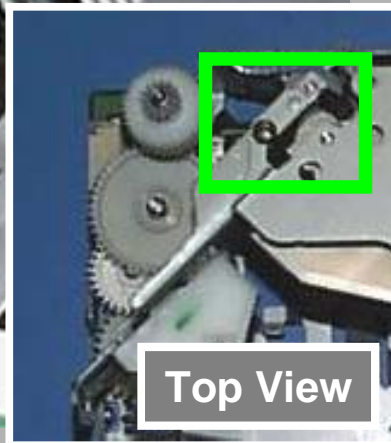
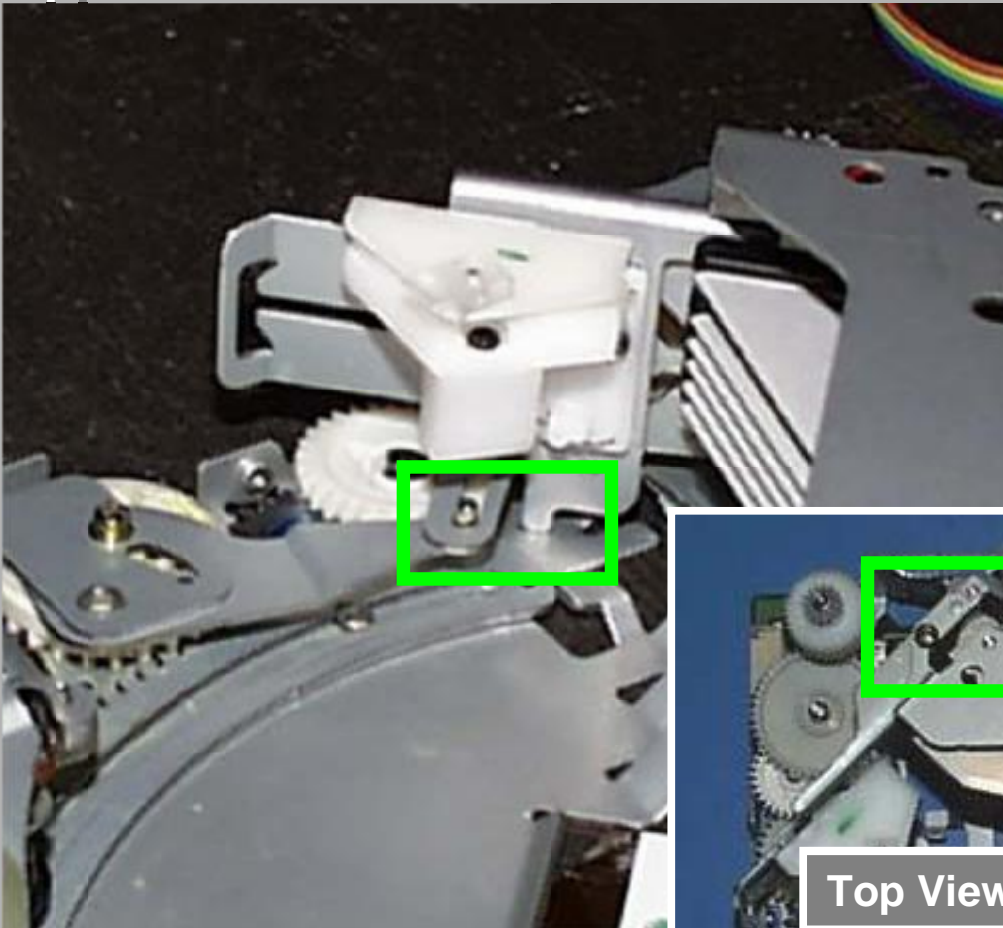


## Removal of the Stocker block



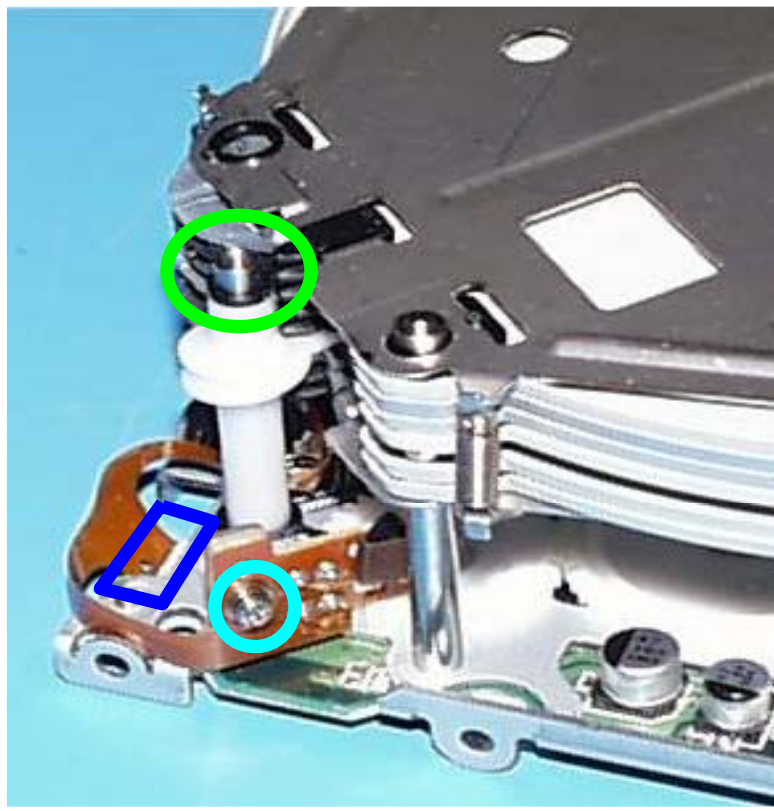
While lifting the cover plate, carefully work the **Push Lever #2** out from the stocker block

## Removal of the Stocker block



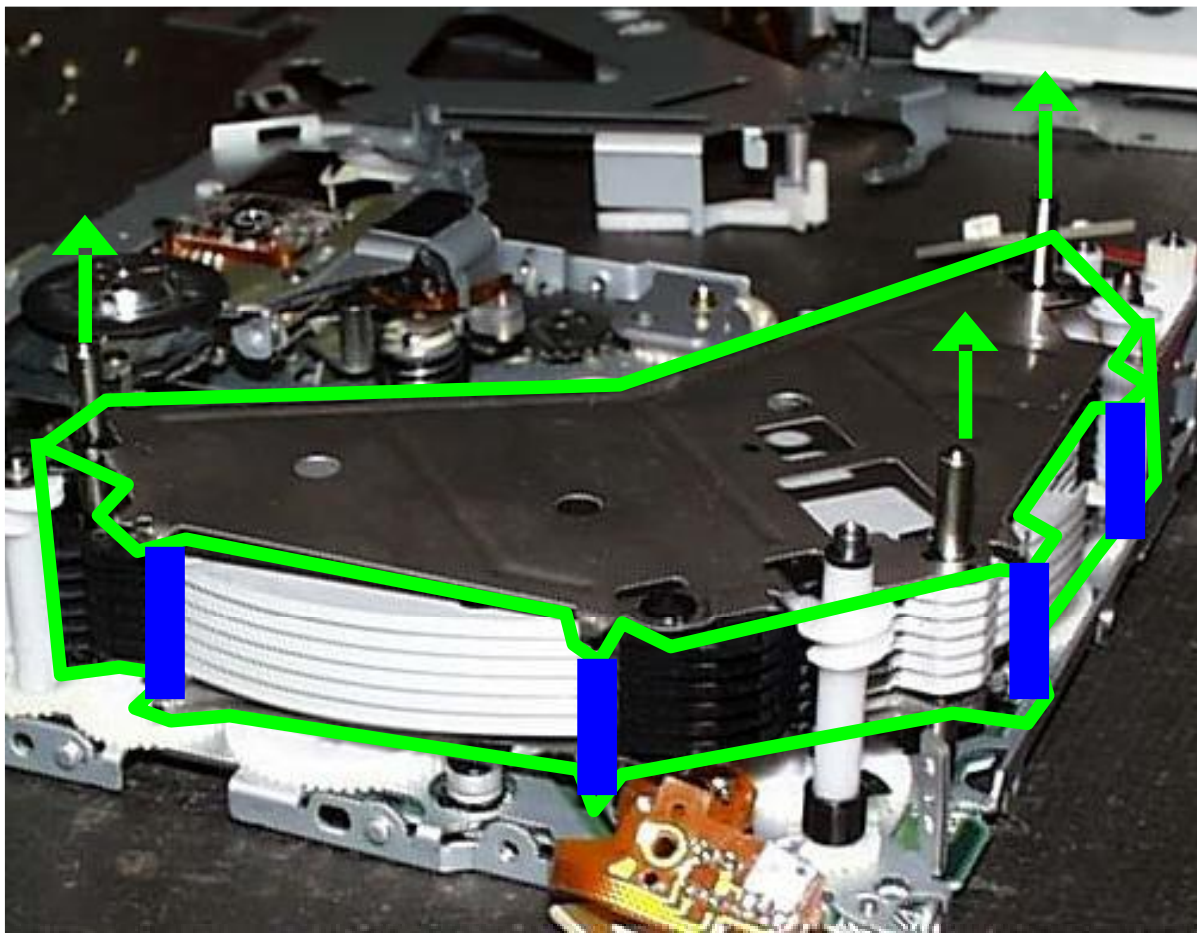
Separate the Rear Disc Guide Assembly from the Main Chassis. Make note of the **alignment points** that mate with the stocker cover plate and the Main Chassis.

## Removal of the Stocker block



- A. Take care not to lose the black cam gear **ring** as the stocker cover plate is lifted.
- B. Disconnect the ribbon cable from connector **CN401**.
- C. Remove the single **screw** that secures the stocker switch PCB to the Main Chassis.

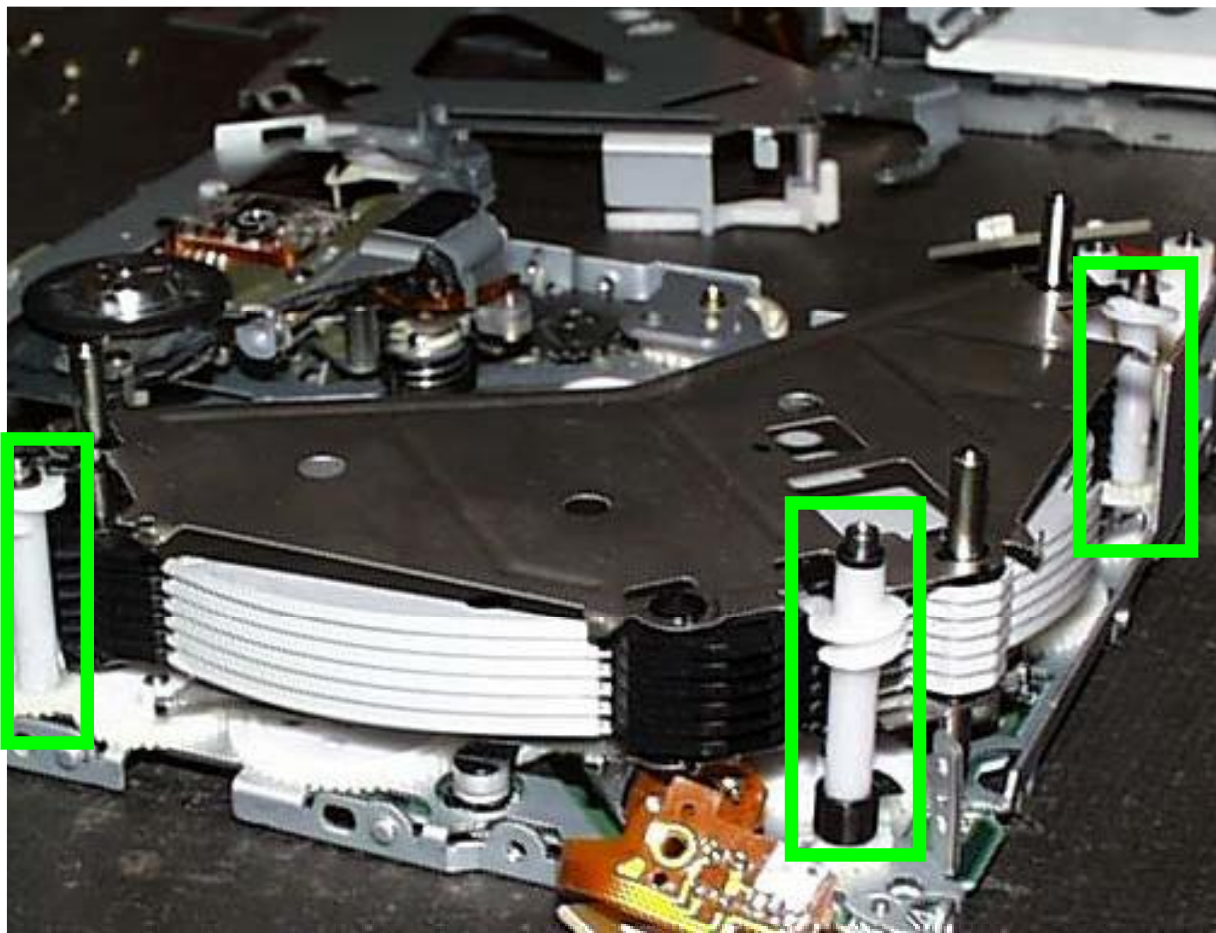
## Removal of the Stocker block



The entire **stocker block** can now be lifted off with the four stocker **springs** remaining in place.



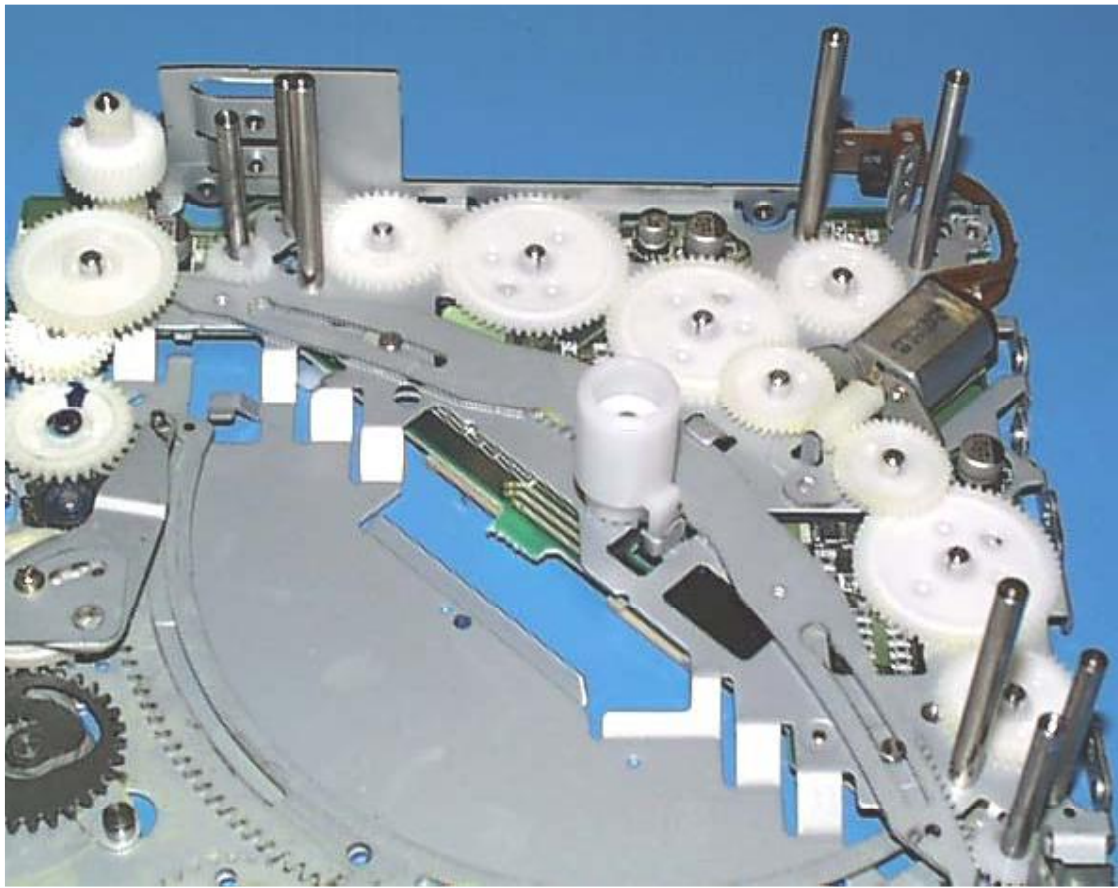
## Removal of the Stocker block



The Plastic Cam Gears, five in all, will lift off with the tray assembly, this is ok.



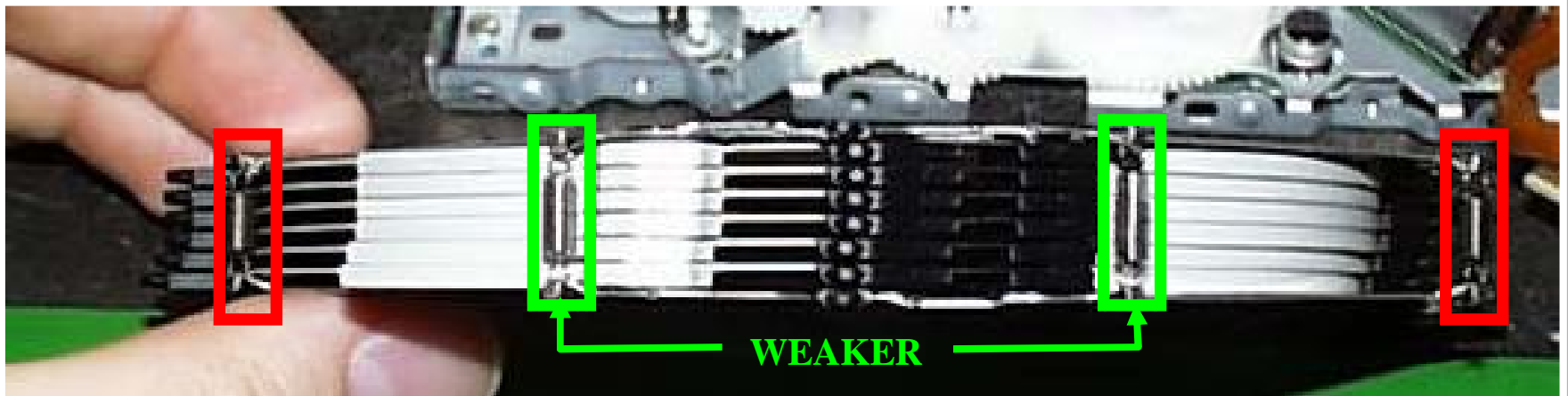
## Removal of the Stocker block



The Main Chassis shown with the Stocker block removed.

## Removal of the Stocker block

The trays can now be separated by removing the four stocker springs and lifting off each tray individually.



**Note:** The **outer** two stocker springs are stronger than the **inner** two springs. Make note of this for proper reassembly.

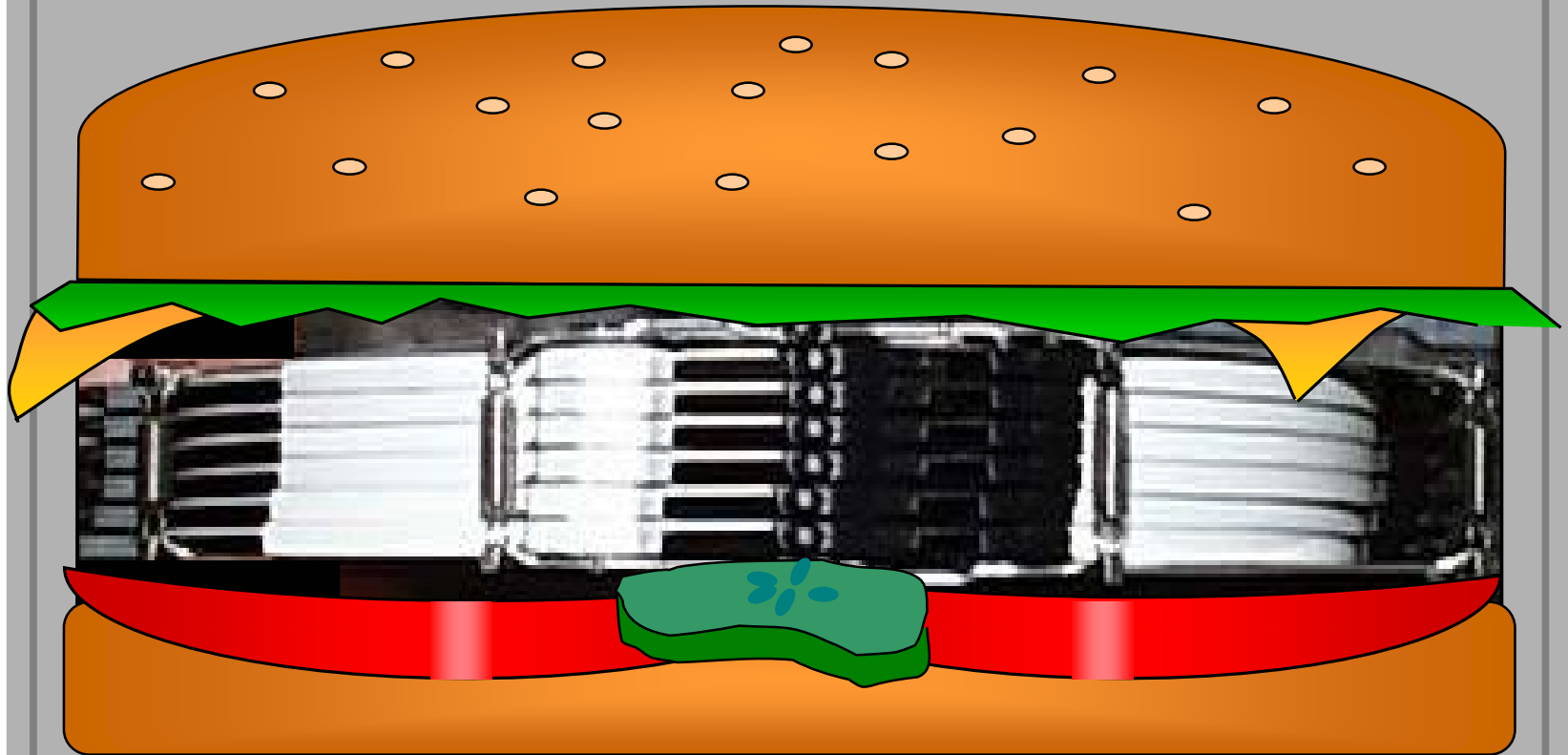
# IN DASH CHANGER UNIT - Module 4

## Reinstalling the Stocker block

“Reinstalling the stocker block is like making a sandwich with six layers of meats and cheeses. “

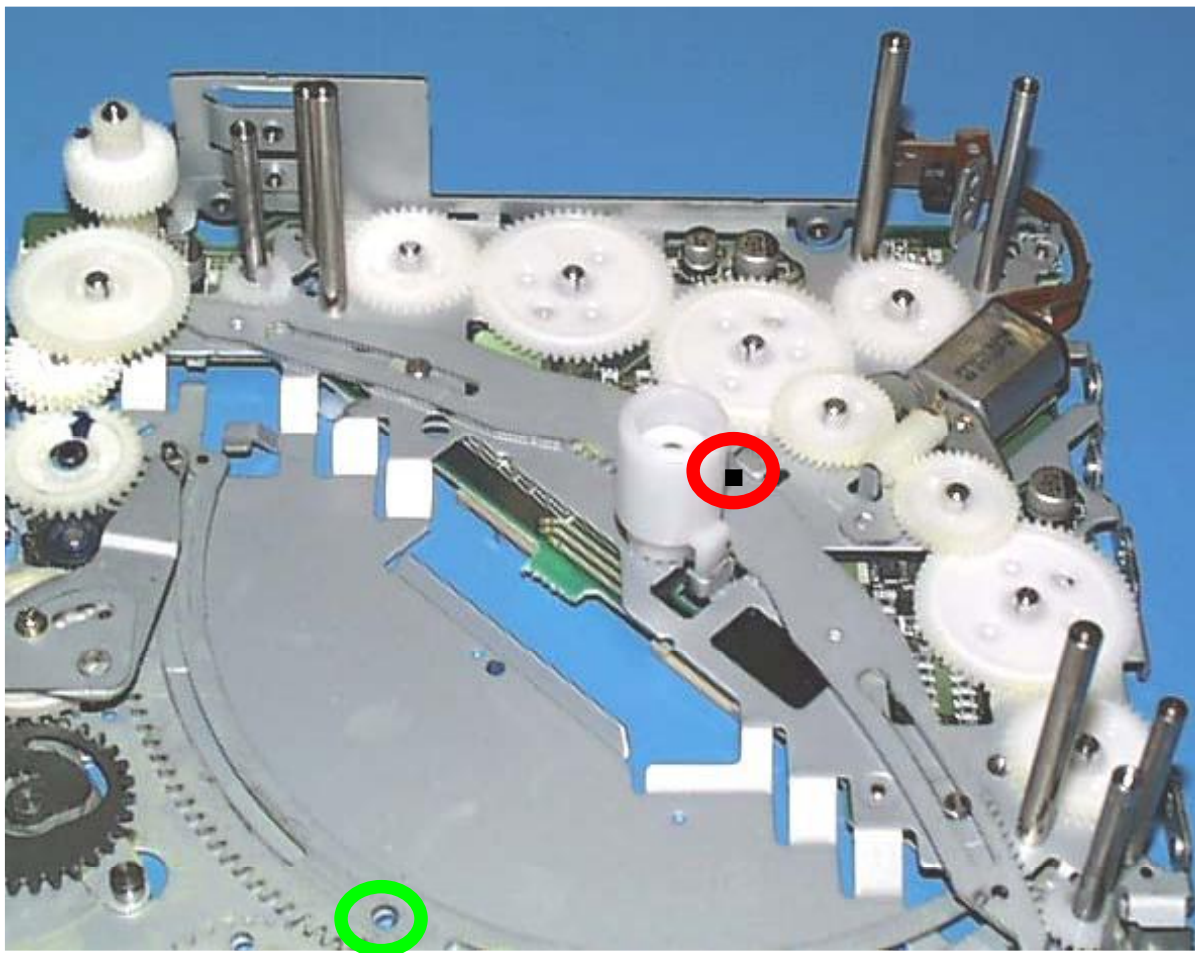
Part Two

## Reinstalling the Stocker block



The “Double - Triple Decker!!”

## Reinstalling the Stocker block

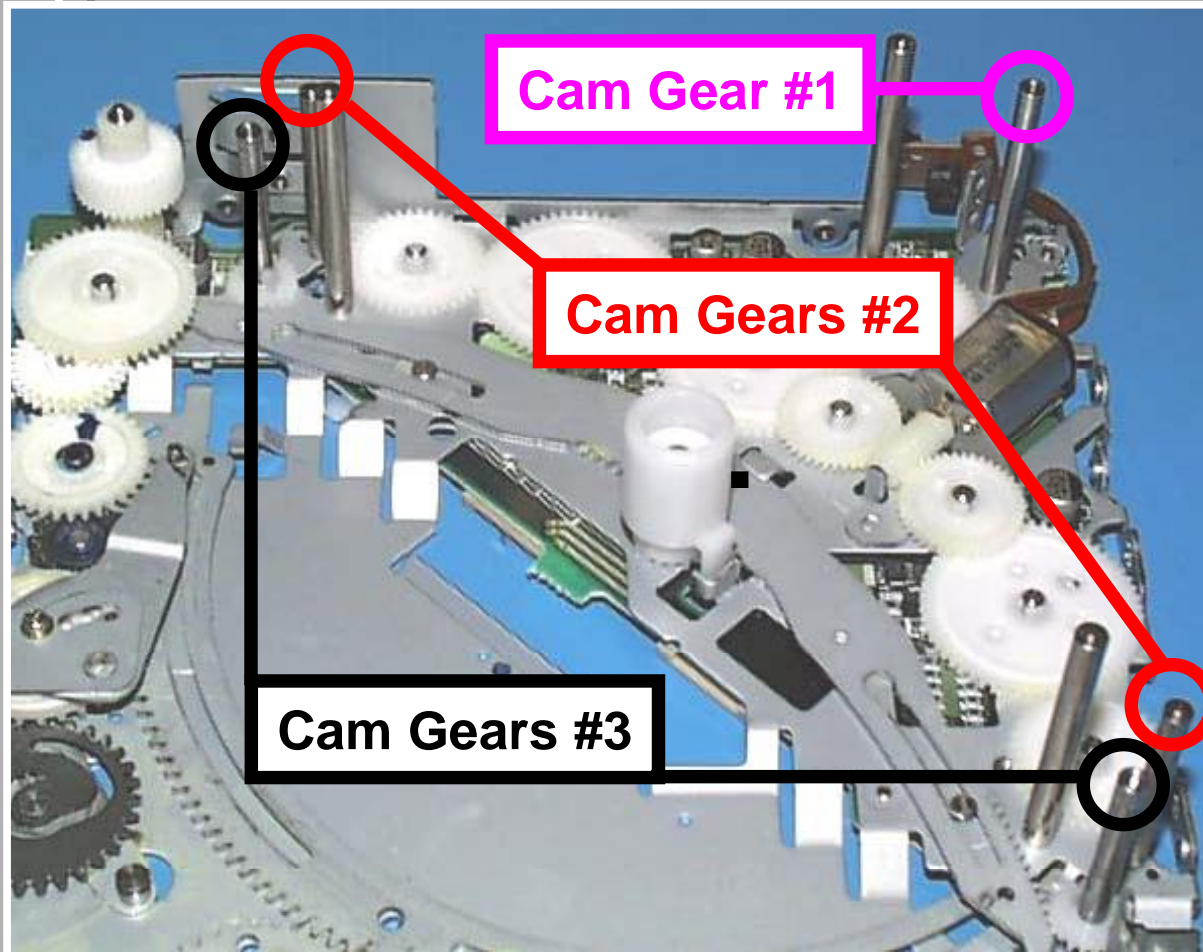


Align the  
**Horizontal  
rack** to home  
position.

The **Stocker  
rack** should  
also be in  
home position  
at this point.

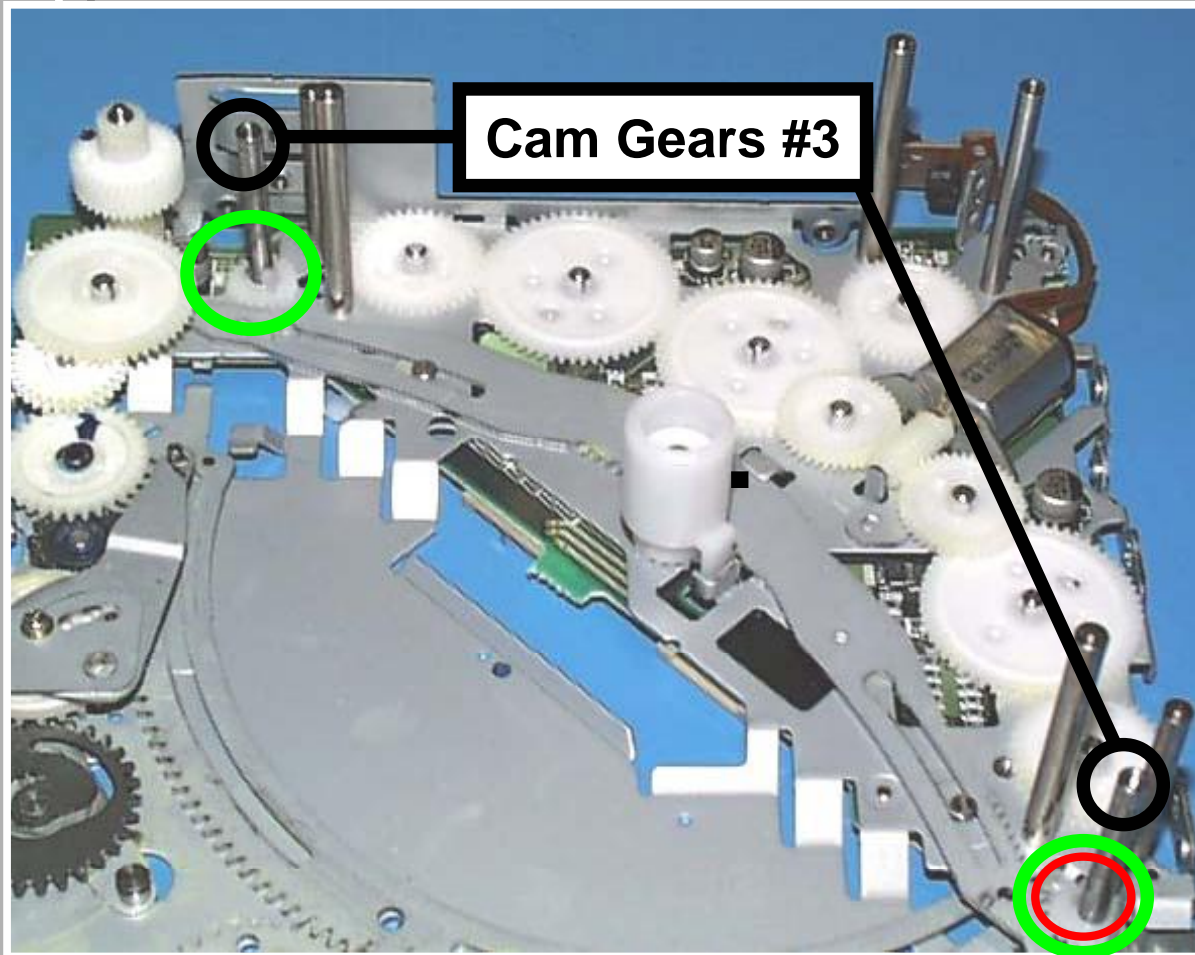


## Reinstalling the Stocker block



Replace all five of the Cam Gears onto their respective shafts according to their alignment markings. Refer to page 59 of the Technical Guide for more information on gear alignment.

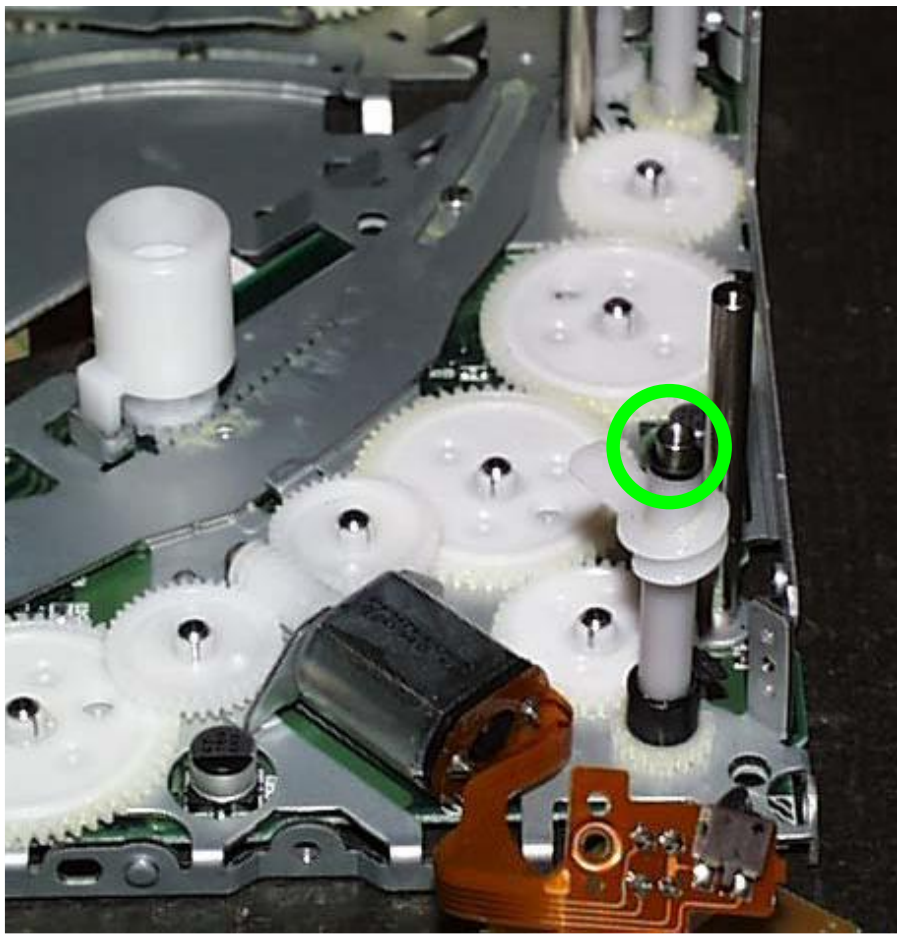
## Reinstalling the Stocker block



Cam Gears #3 are aligned according to the position of the **ELV** gears at the base of the shaft.

The ELV gear on the **right** side uses a notch in the main chassis for alignment.

## Reinstalling the Stocker block



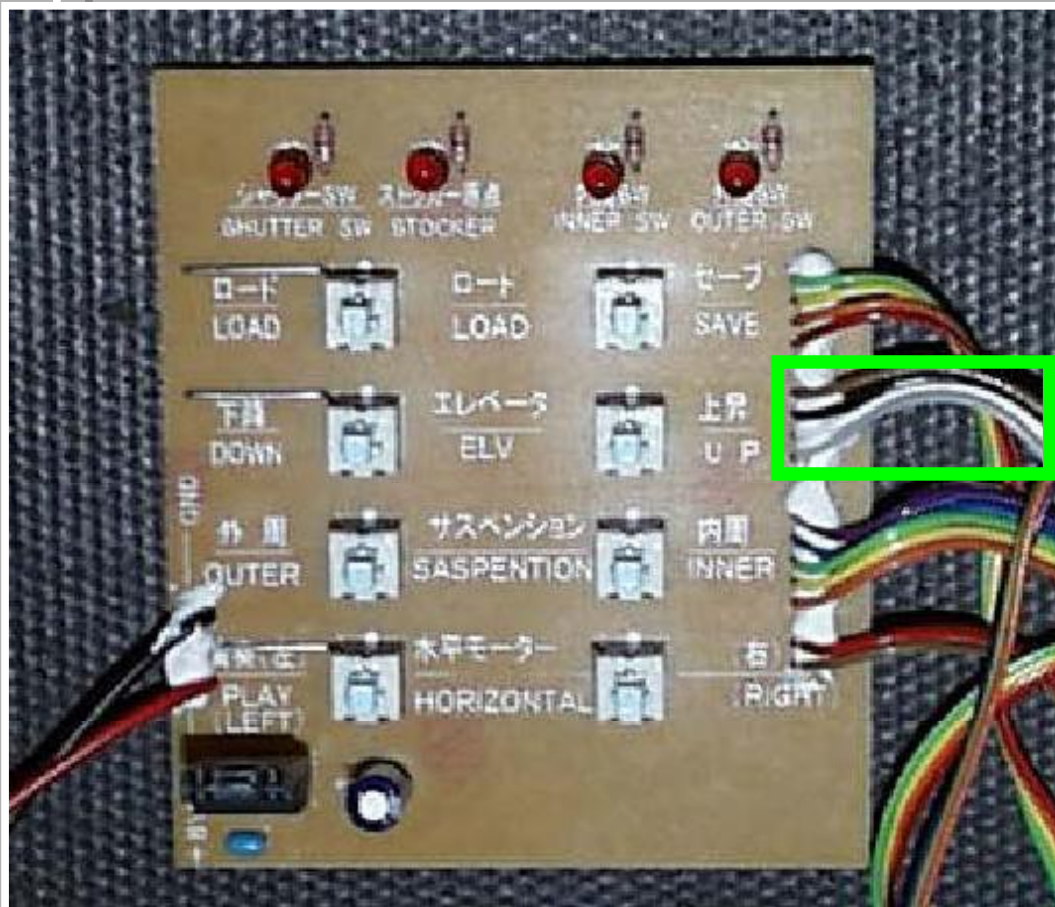
**A.** Replace the black cam gear **ring** onto Cam Gear #1.

**B.** Check that there is also a cam gear ring inserted into the top of both Cam Gears #2.

**C.** The Cam Gears #3 have no cam gear ring.

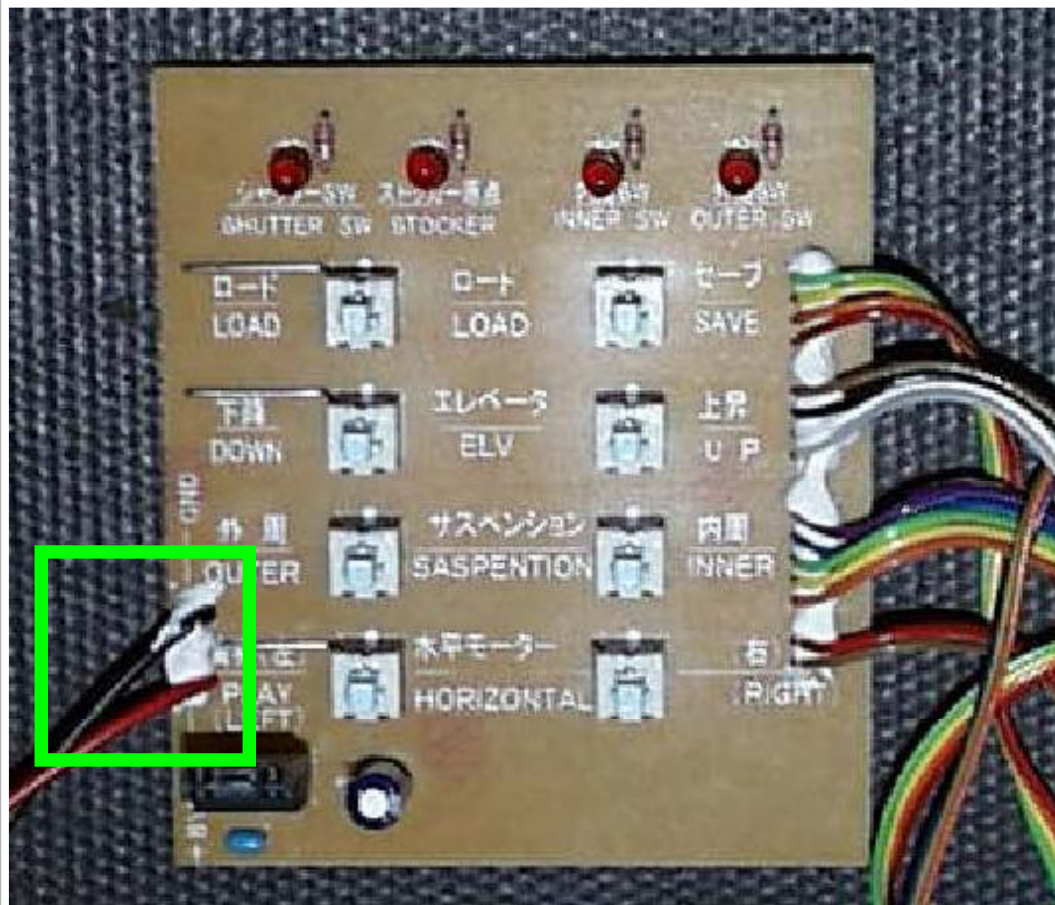


## Reinstalling the Stocker block



Connect the Elevator Motor Cable to the Elevator Motor connector on the Simplified In-dash Control Jig.

### Reinstalling the Stocker block

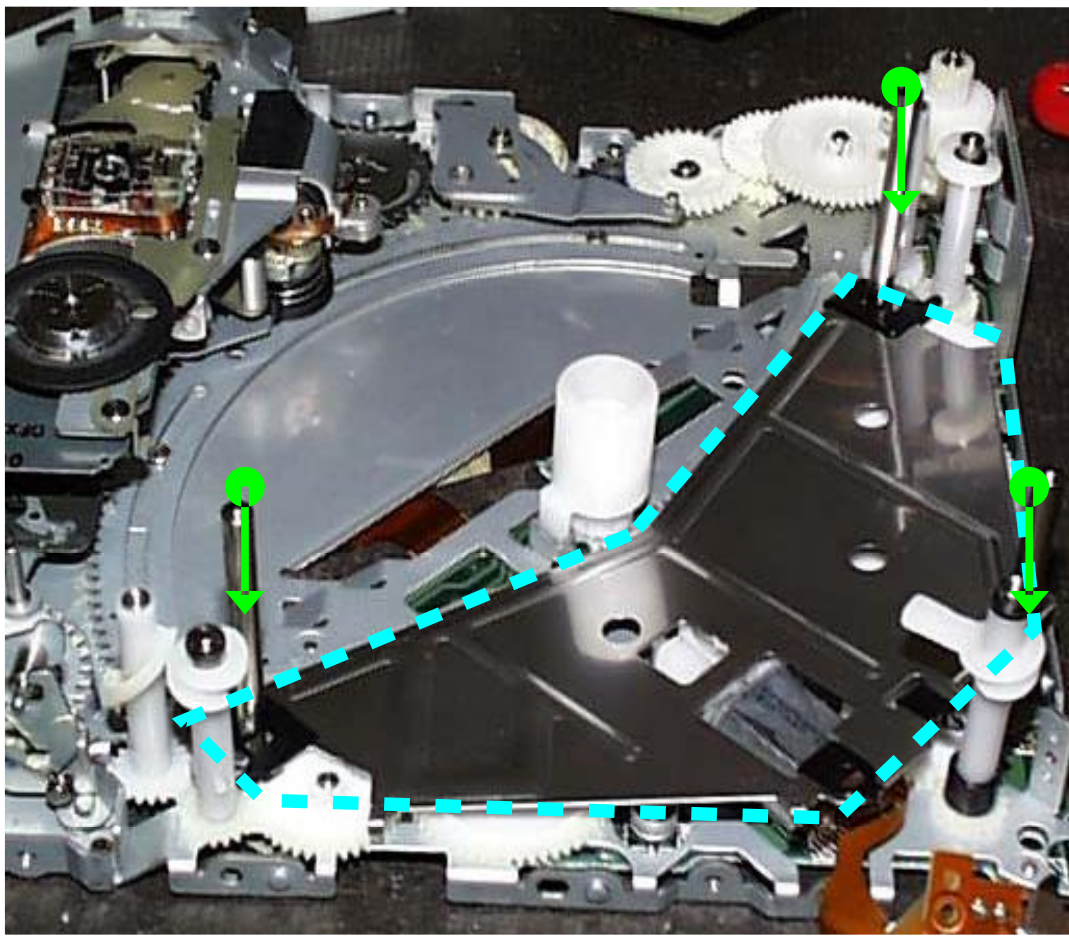


Set the voltage of the power supply to 5 volts then turn the power supply off.

Connect the black (negative) and the red (positive) wires to the power supply and then turn the power supply on.

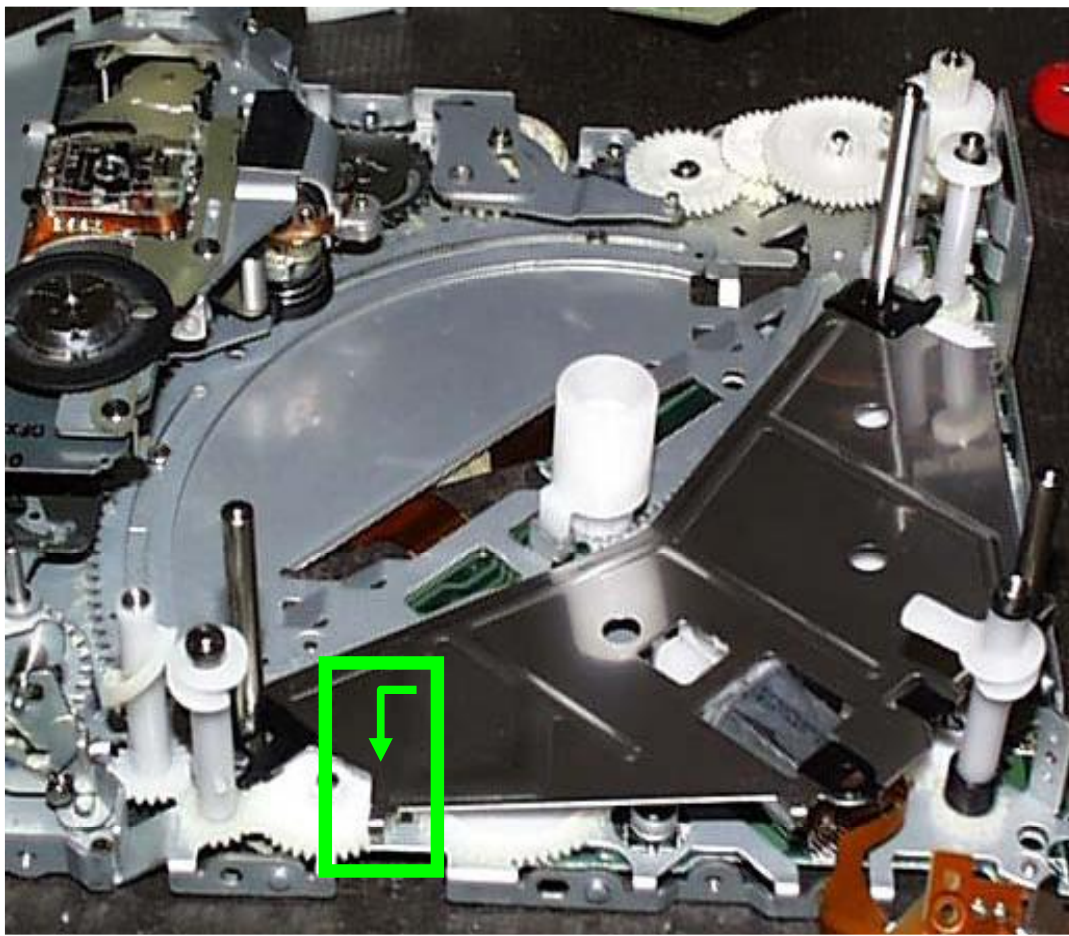


### Reinstalling the Stocker block



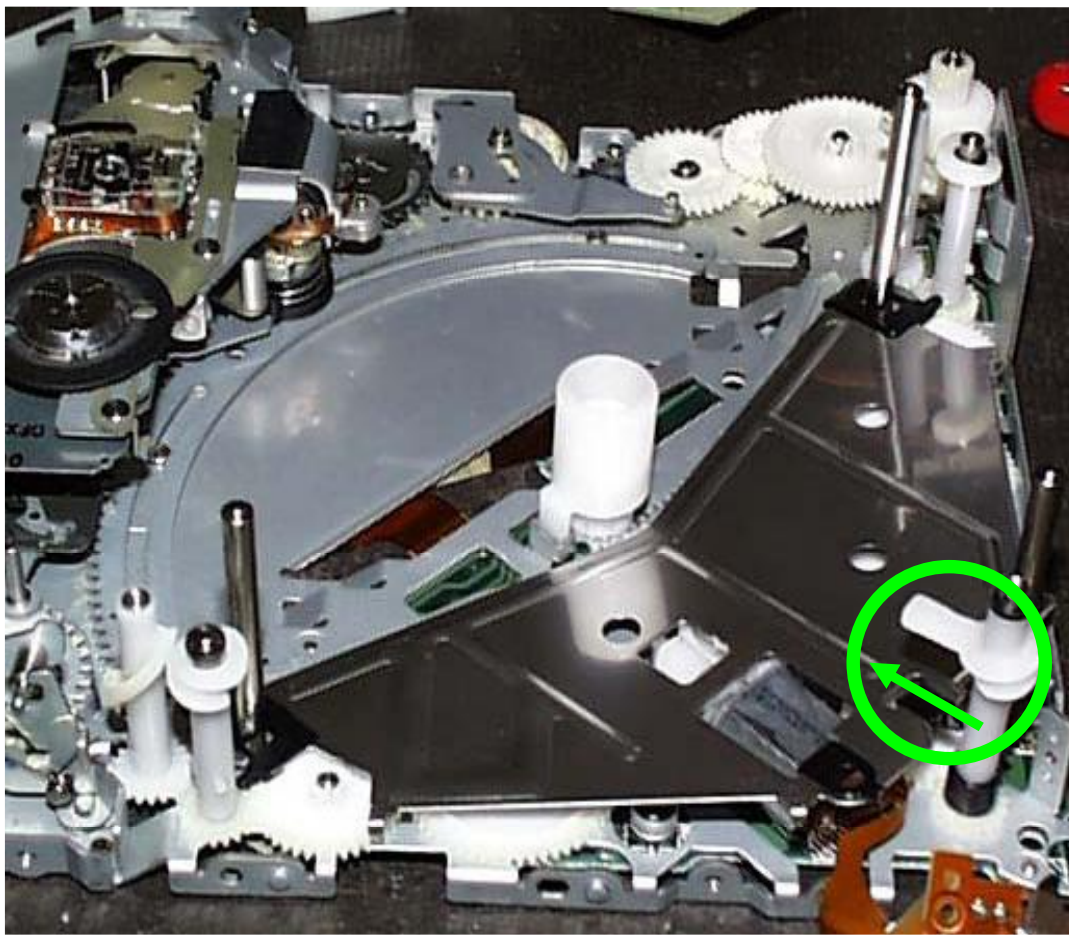
Place the bottom stocker tray housing **plate** onto the **guide shafts** and press the elevator down switch on the control jig. The plate should then fall into place.

### Reinstalling the Stocker block



Be sure that the **spring tabs** on the bottom housing plate are pointing downward. The spring tabs on the upper plate should be pointing upward so that they will retain the stocker springs when they are reinstalled.

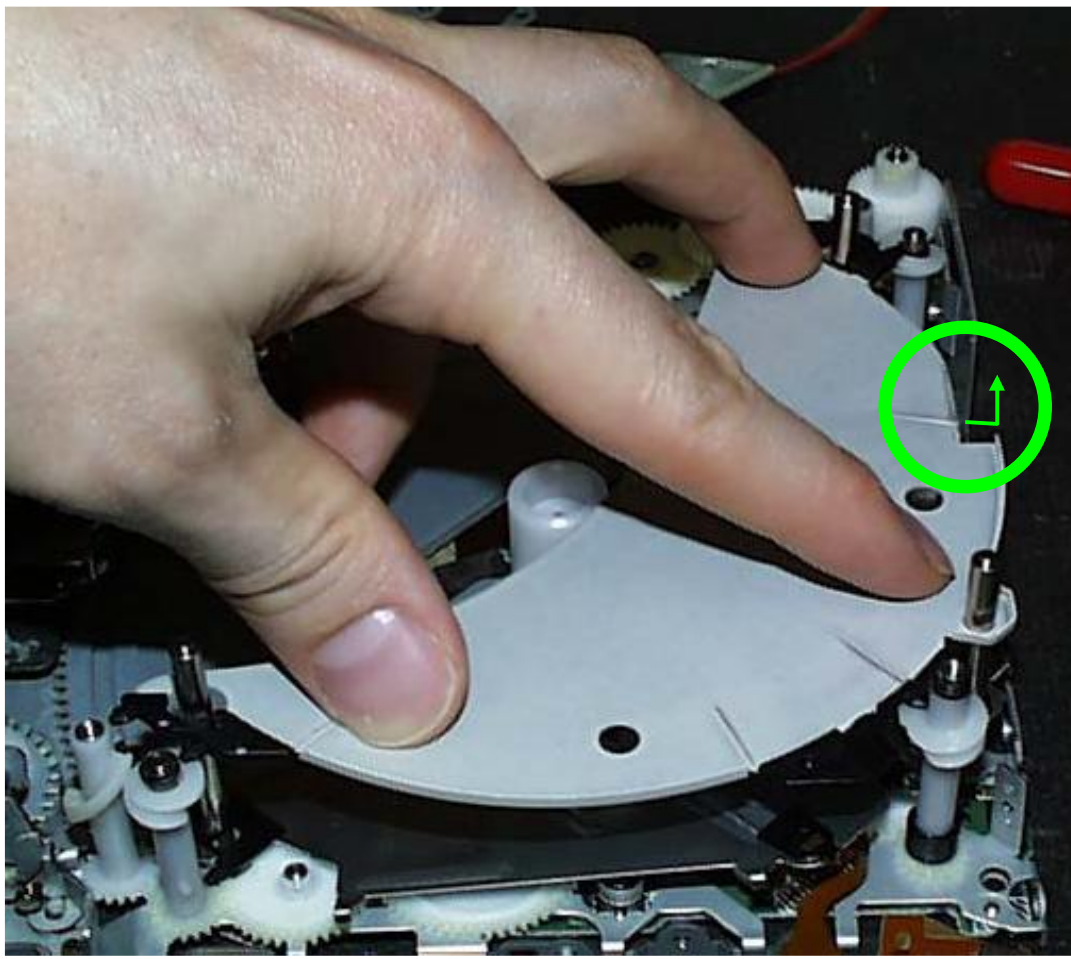
## Reinstalling the Stocker block



Prepare for installing the trays by positioning the **tab** on Cam Gear #1 in an inward direction.

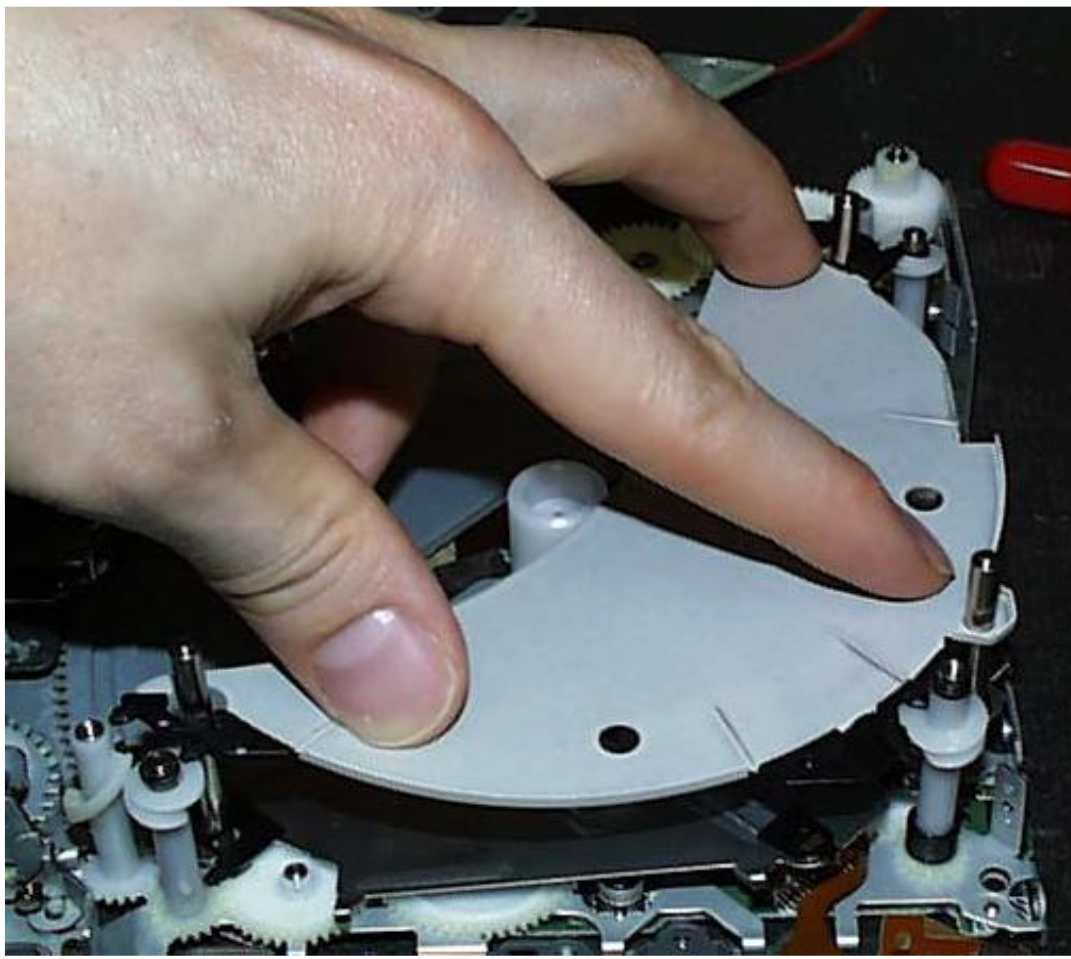


## Reinstalling the Stocker block



Ensure that the edges of the stocker trays are facing upwards, then place tray on the guide shafts and press the elevator down switch on the control jig. Repeat this procedure for each tray.

## Reinstalling the Stocker block



**Tip:** It may help to apply a slight pressure near the guide shaft holes in the trays as you press the elevator down switch on the control jig.



## Reinstalling the Stocker block

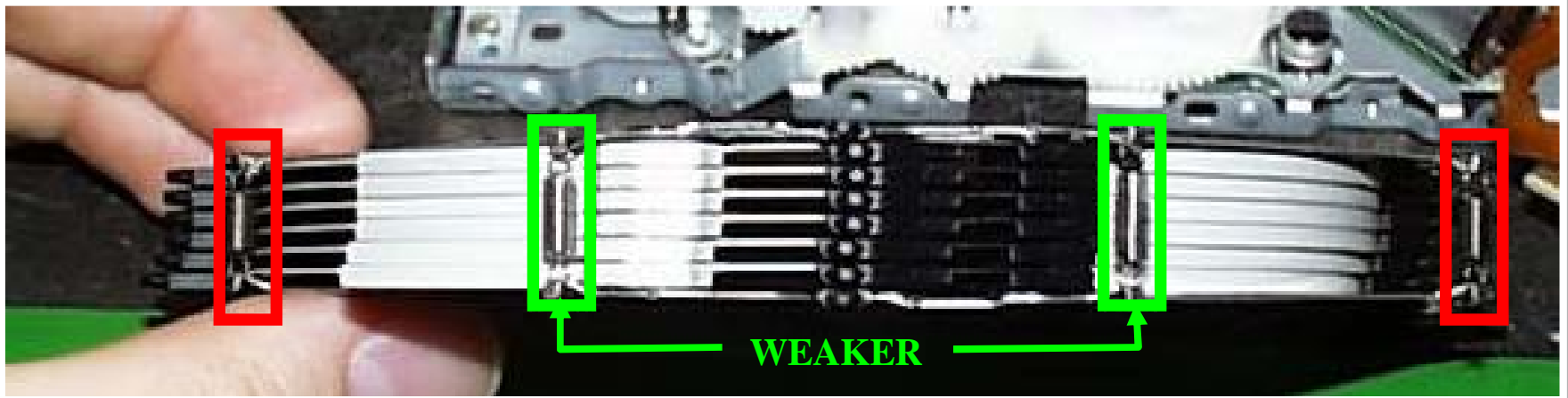


Install the top housing plate with the spring **tabs** pointing upwards.

Disconnect the elevator motor cable from the control jig.

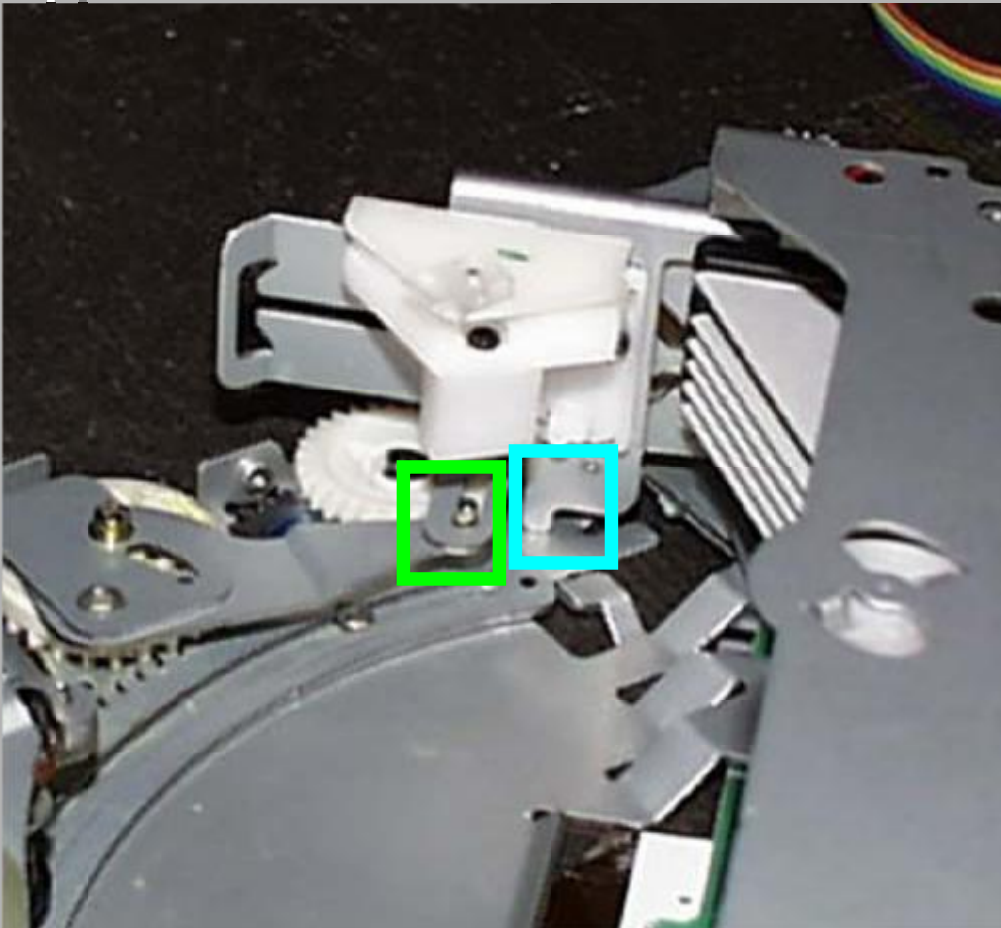
## Reinstalling the Stocker block

Replace the stocker springs onto the housing plates.



**Remember:** The **outer** two springs are stronger than the **inner** two springs..

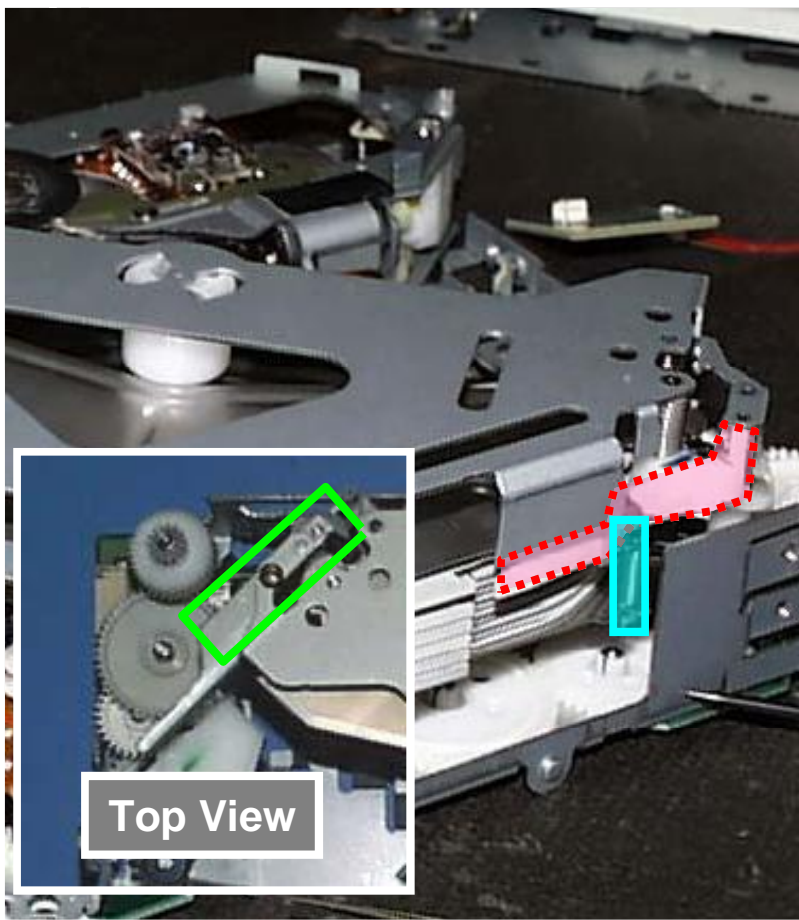
## Reinstalling the Stocker block



Place the Rear Disc Guide Assembly onto the Main Chassis. Make note of the alignment points. The **shaft** must be inserted into the **eyelet** and the **tab** into the **chassis**.

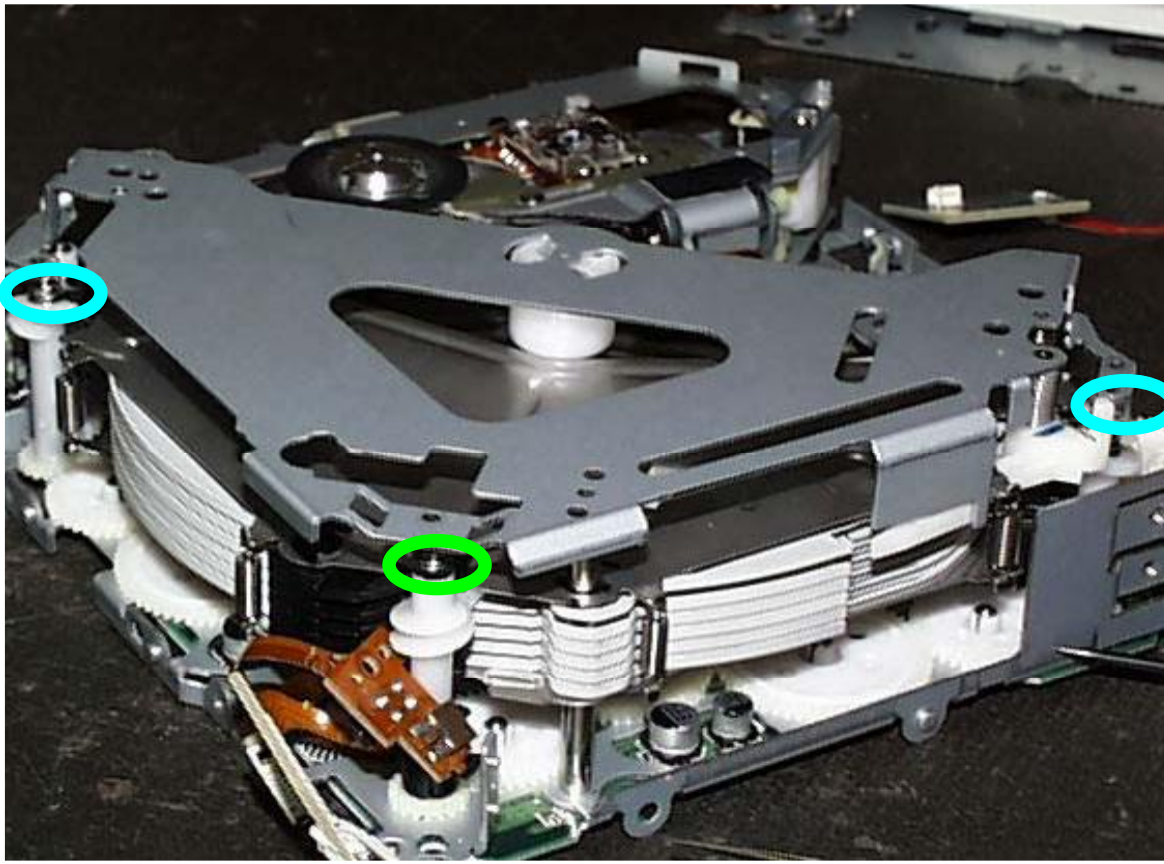
## Reinstalling the Stocker block

Place the stocker assembly cover plate on top of the stocker block. Be sure that Push **Lever #2** is inserted on the inside of the stocker **spring** and that the Disc Guide Assembly is mated with the **alignment points** underneath the stocker cover plate on the top side of the unit.





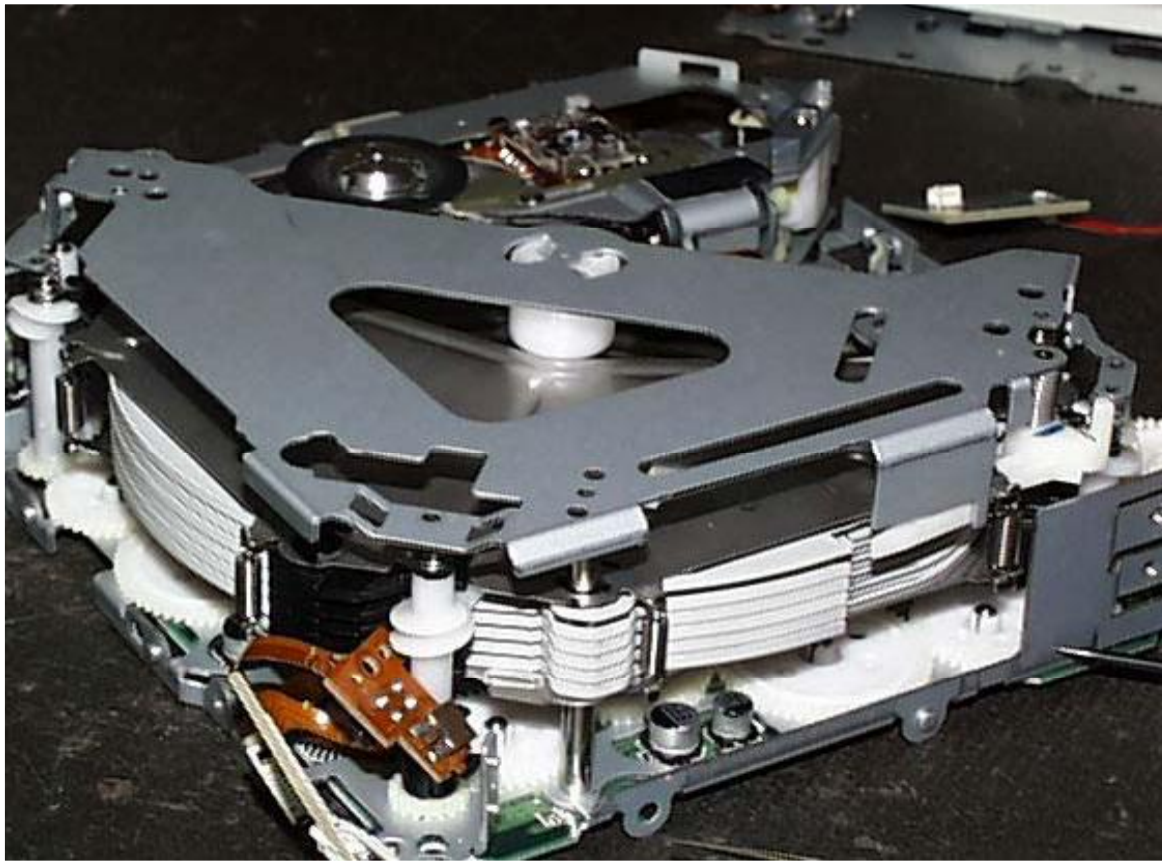
## Reinstalling the Stocker block



Slightly lift the cover plate and insert the stocker thrust springs on top of the Cam Gears #1 and #2. Partially tighten each screw to retain the springs as the assembly continues.



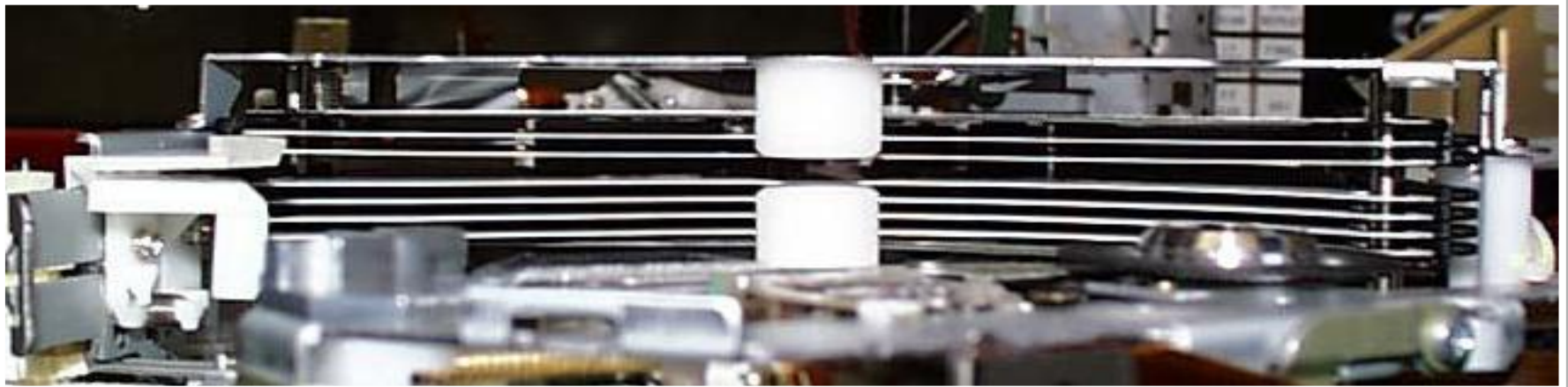
## Reinstalling the Stocker block



Inspect the installation for alignment. Finish tightening the cover plate screws. Reconnect the elevator motor cable to the control jig.

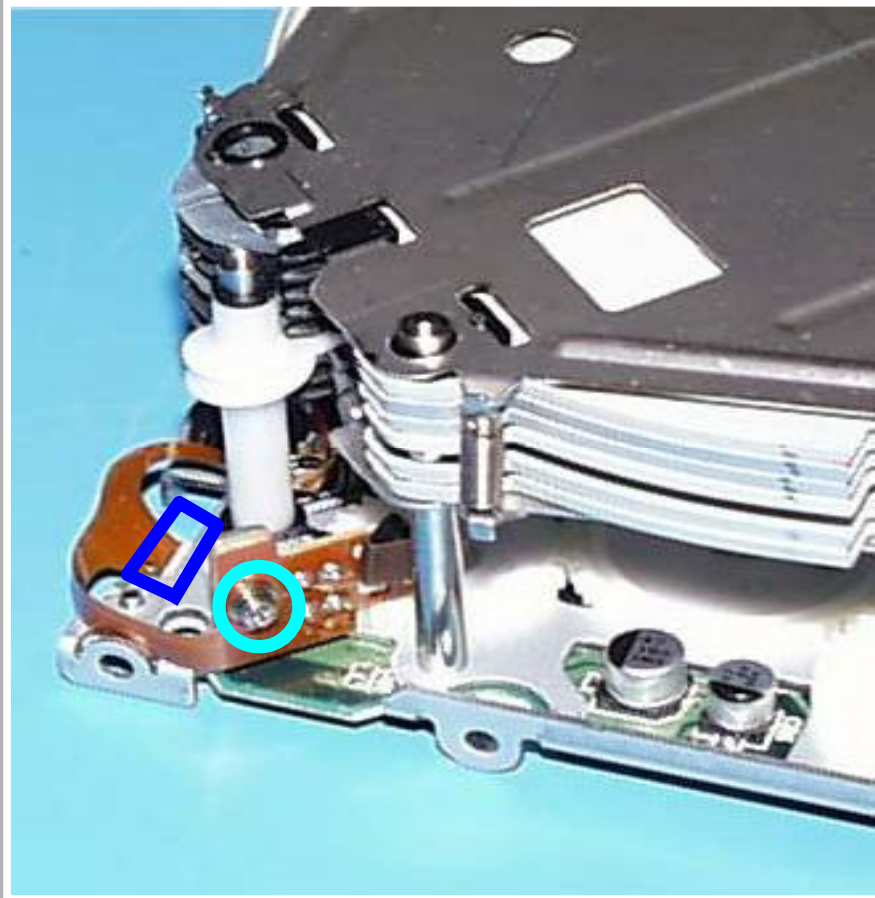
## Reinstalling the Stocker block

Operate the stocker assembly with the control jig to confirm that all trays separate evenly.



**Caution!** Do not allow tab on stocker Cam Gear #1 to travel higher than the top plate or lower than the bottom plate. This will cause the stocker assembly to jam.

## Reinstalling the Stocker block



After confirming proper operation of the stocker block , turn off the power supply and disconnect the control jig. Insert the ribbon cable into **CN401**. Insert and tighten the single **screw** that secures the stocker switch PCB to the chassis.

## Reinstalling the Stocker block

Reinstall the Upper chassis unit (Module 3).

Confirm that all deck functions are working properly.

# IN DASH CHANGER UNIT - Module 5

## Removal and Reinstallation of the Optical pickup unit

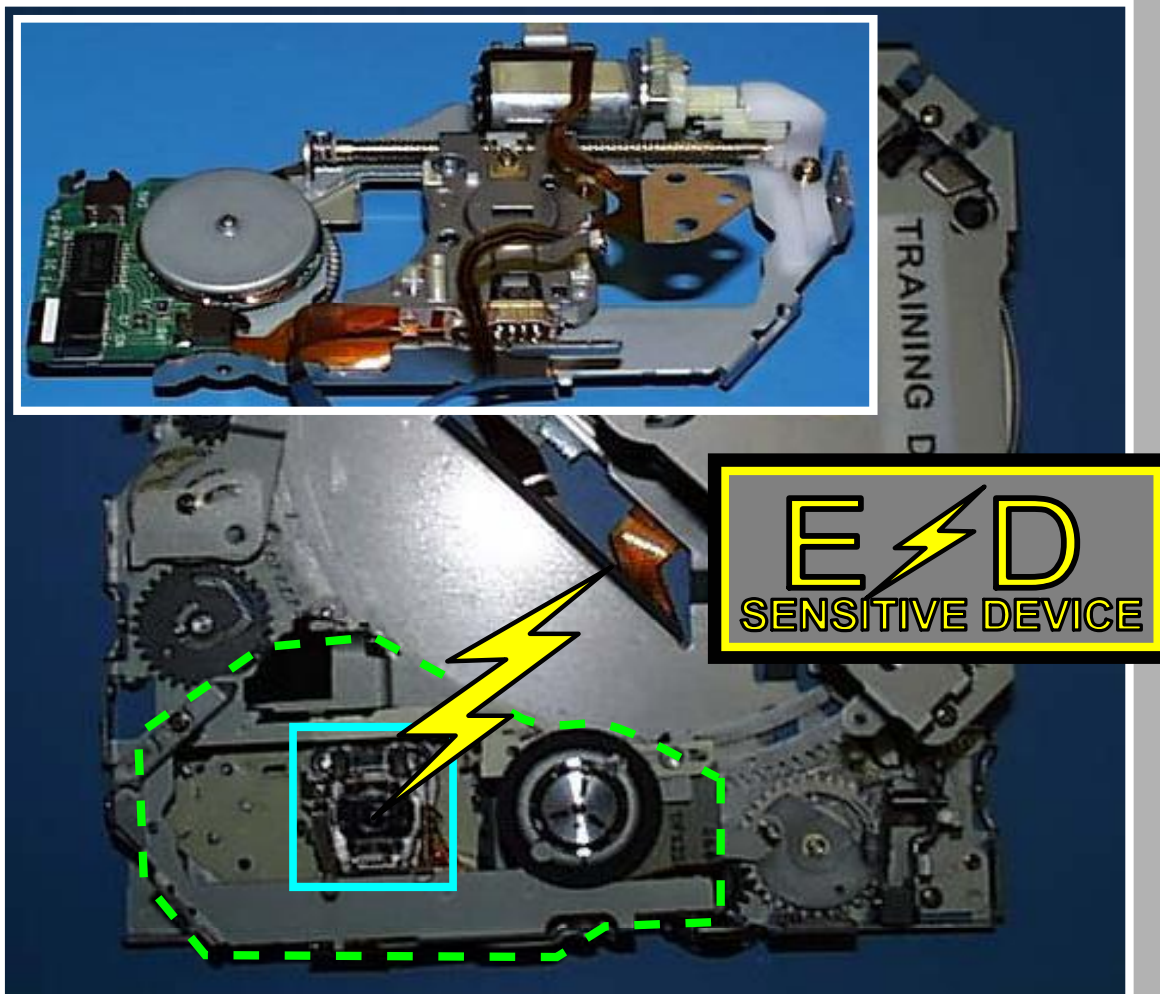
CD Load Assembly must be removed first.



Part One



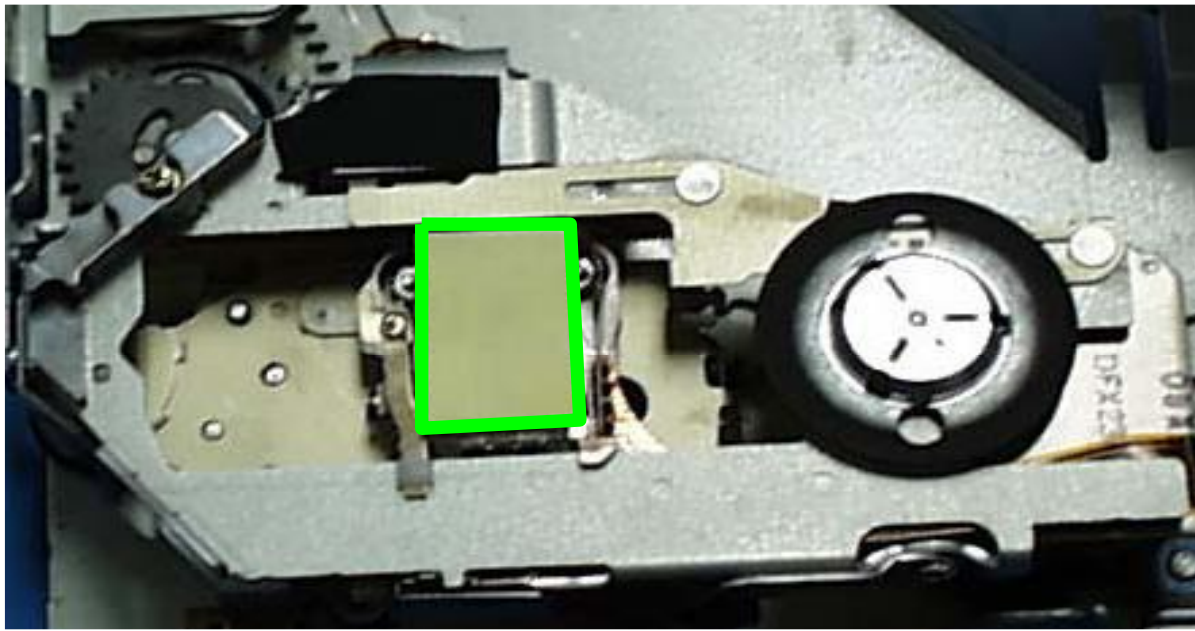
## Removal of the Optical pickup unit



The **Optical pickup unit** contains the Optical Pickup, a **Laser Diode** which is highly sensitive to ESD.

Be sure to observe **ESD** precautions.

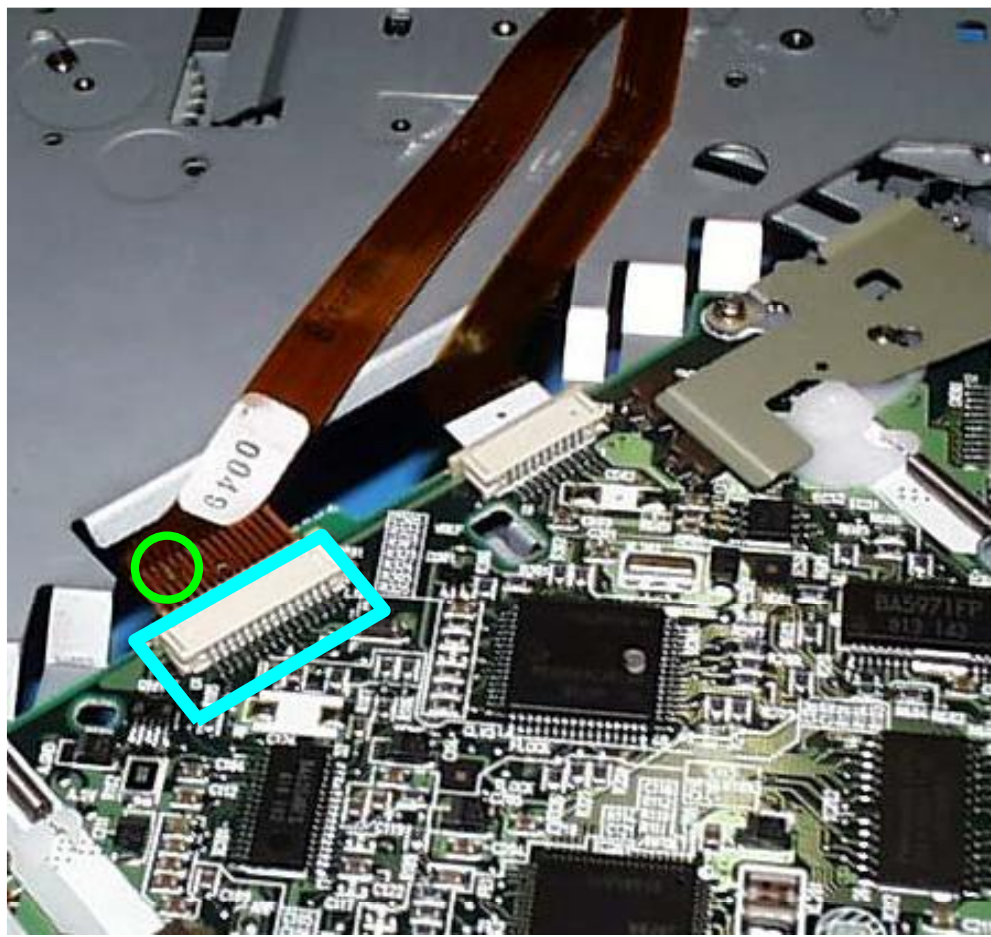
## Removal of the Optical pickup unit



Cover the lens of the optical pickup with a **post-it note** making sure the adhesive is not put directly on the lens. This will protect the lens from any contact during handling.



## Removal of the Optical pickup unit

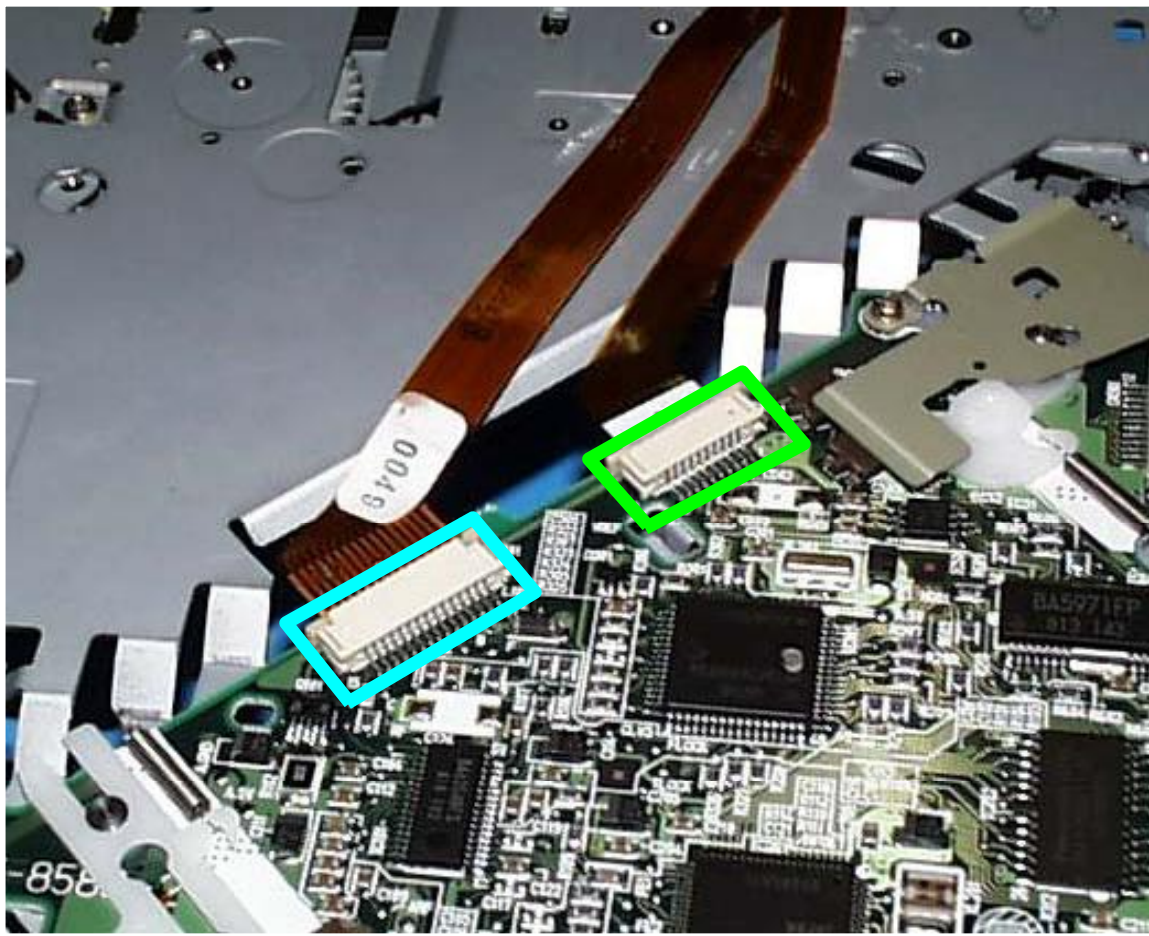


Place a solder bead between the two **exposed** conductors on the ribbon cable that connects to **CN101**.

**Safety Alert!:** Eye protection required when soldering.

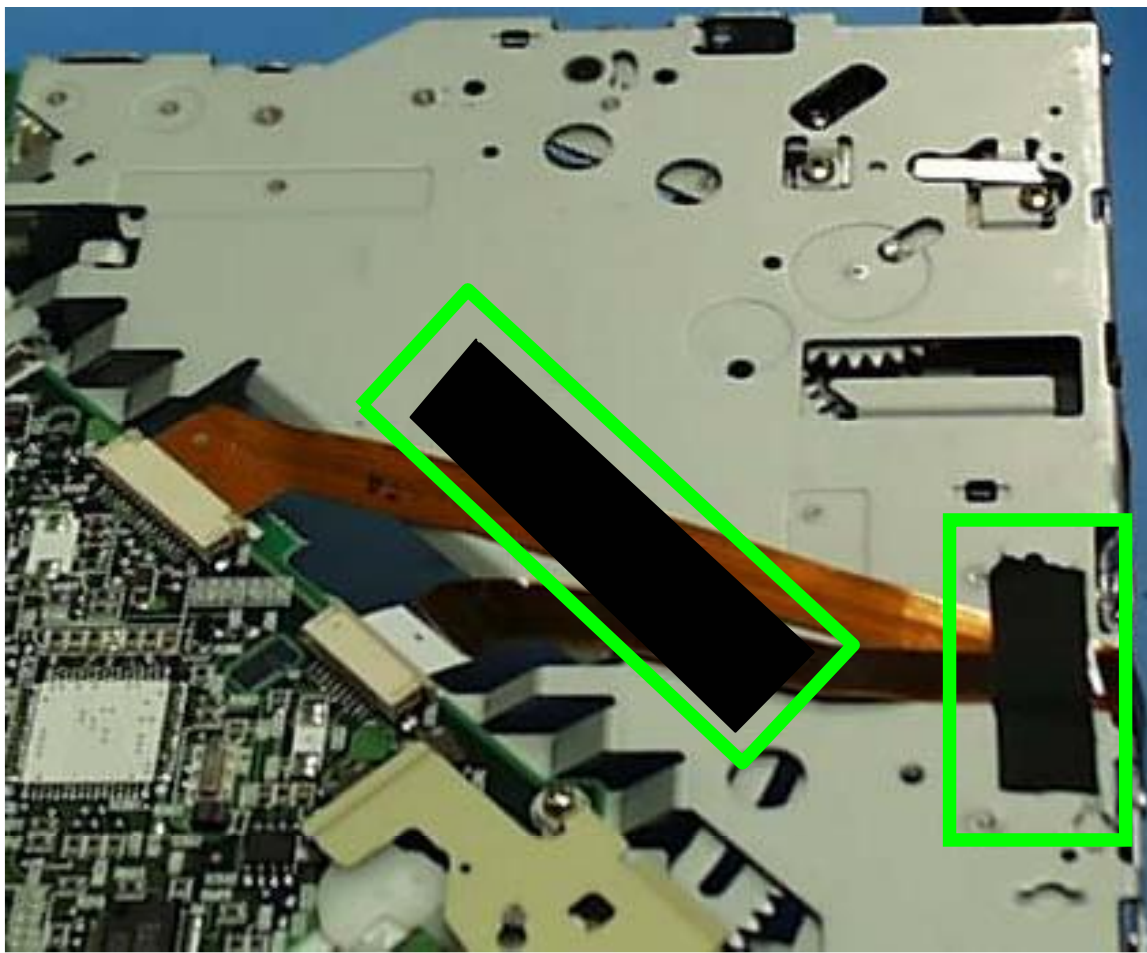


## Removal of the Optical pickup unit



Disconnect  
the ribbon  
cables  
leading to  
connectors  
CN 101 and  
CN 501.

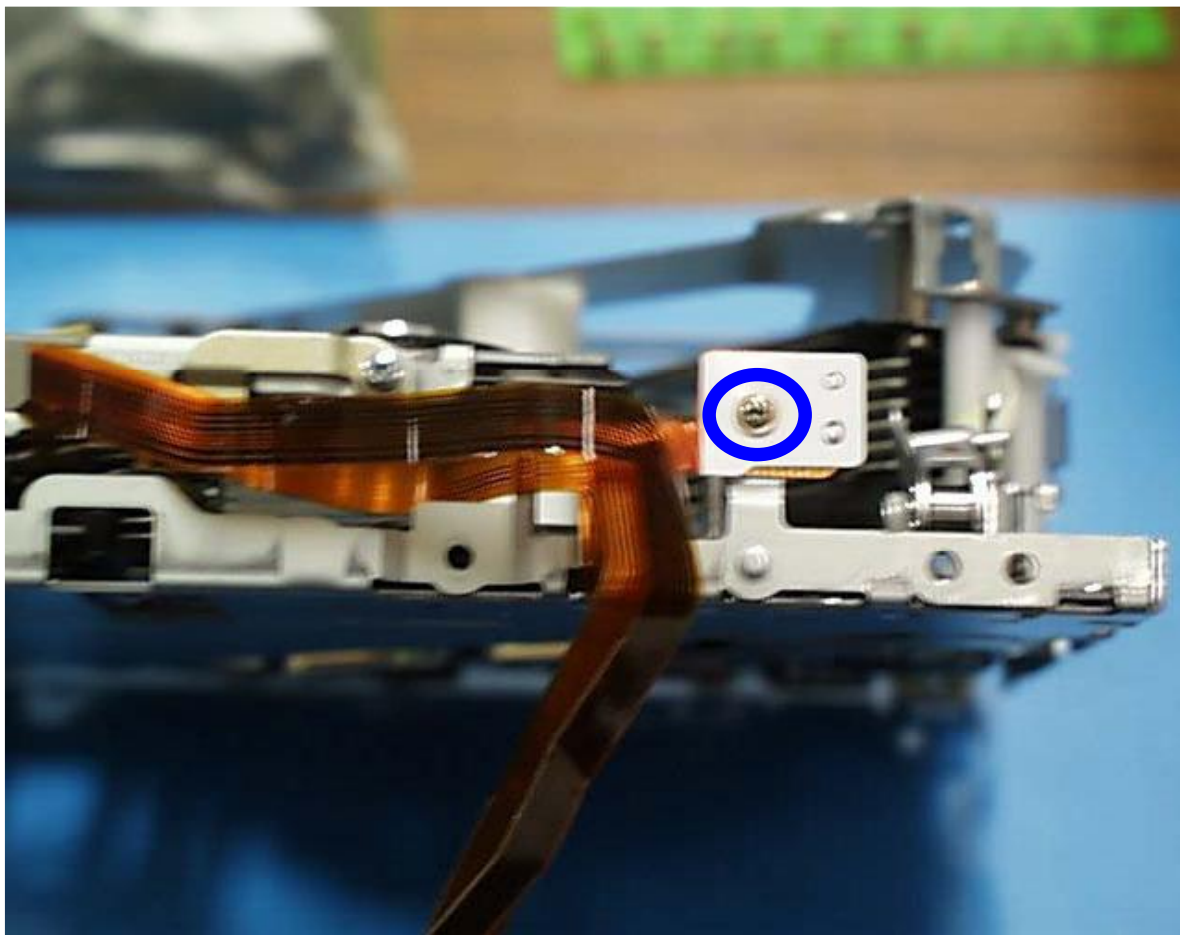
## Removal of the Optical pickup unit



Carefully remove the **tape** that secures the ribbon cables to the chassis. Reserve the tape for reapplication.



## Removal of the Optical pickup unit



Remove the single **screw** that secures the ribbon cables to the chassis. Examine and make note of the folding pattern of the ribbon cables for easier reinstallation.

## Removal of the Optical pickup unit



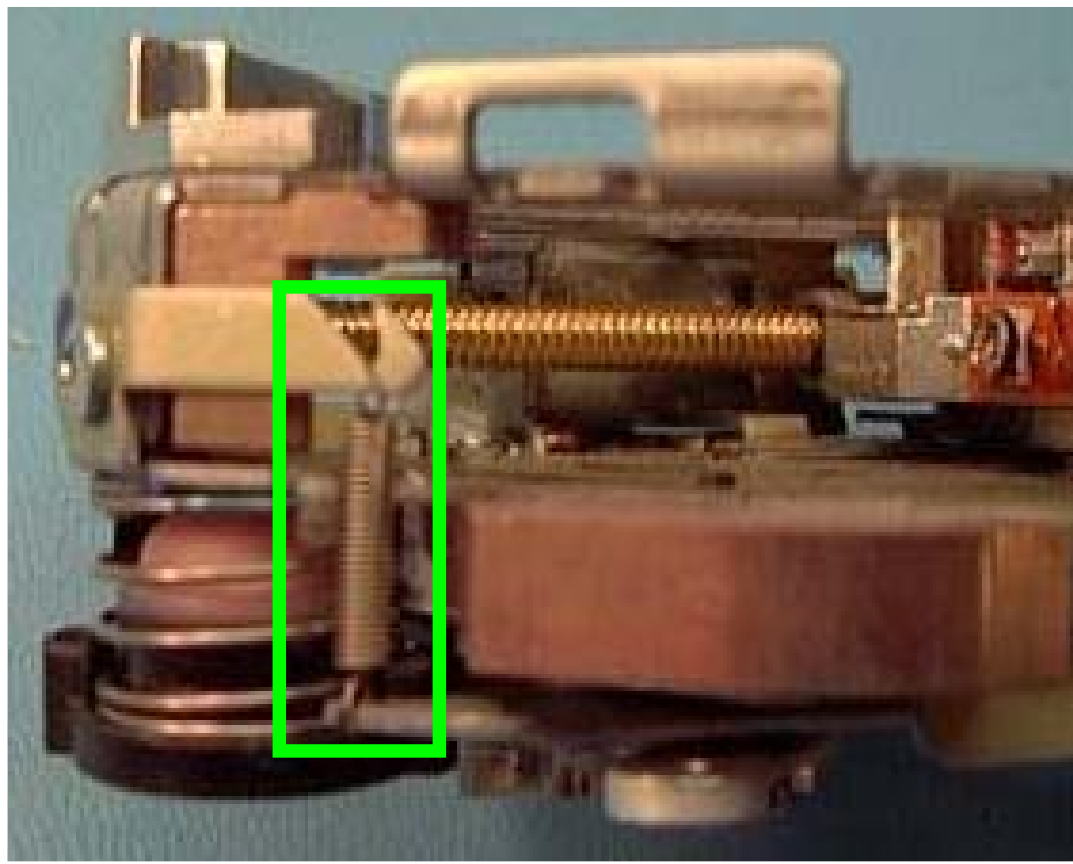
To remove the Optical pick up unit , remove the **two** screws that secure the assembly to the main chassis. Rotate the Optical pickup unit **play position** then slide off of the swing lever shaft.

# IN DASH CHANGER UNIT - Module 5

Removal and Reinstallation of the Optical pickup unit

Part Two

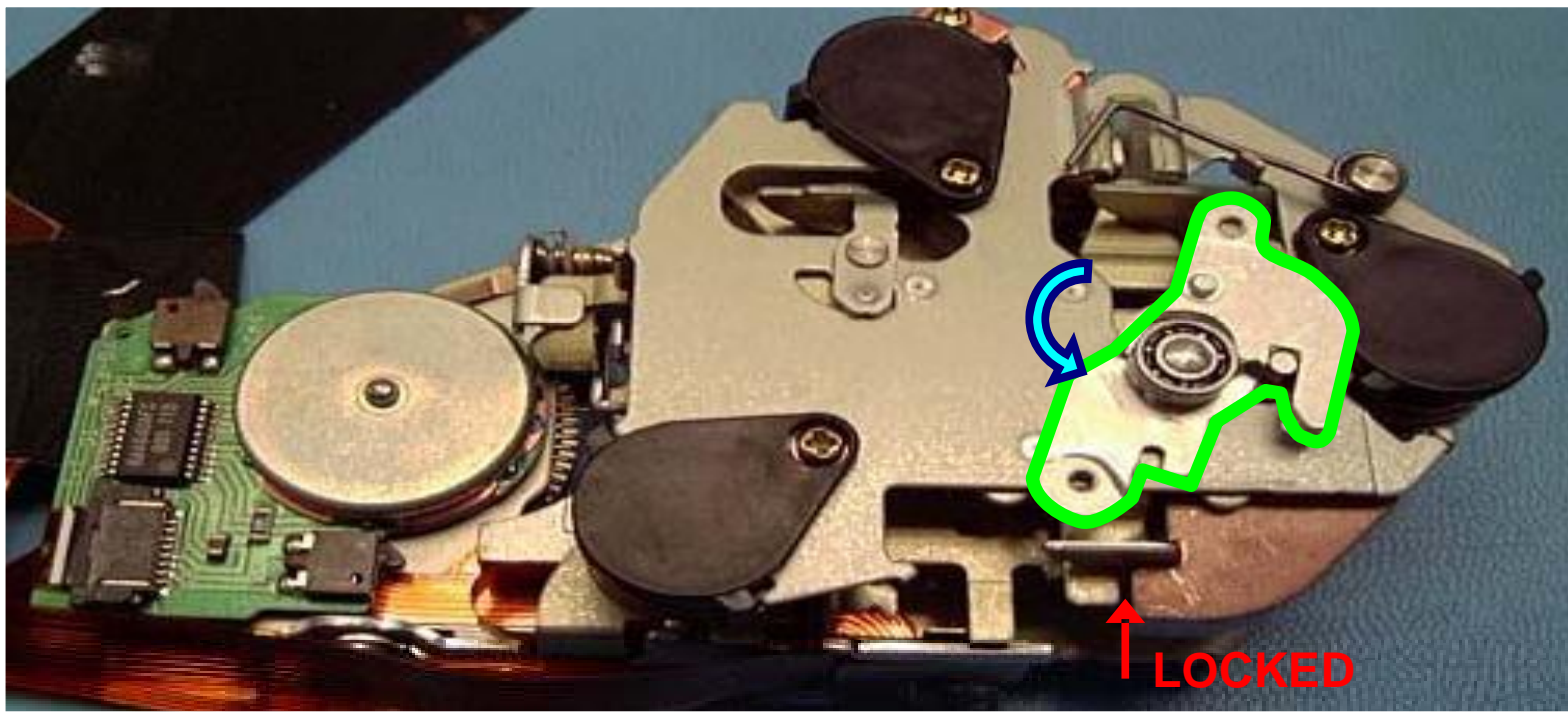
## Disassembling the Optical pickup unit



Remove the Balance **spring** that connects the suspension plate to the swing chassis.

Some unit versions may have two balance springs.

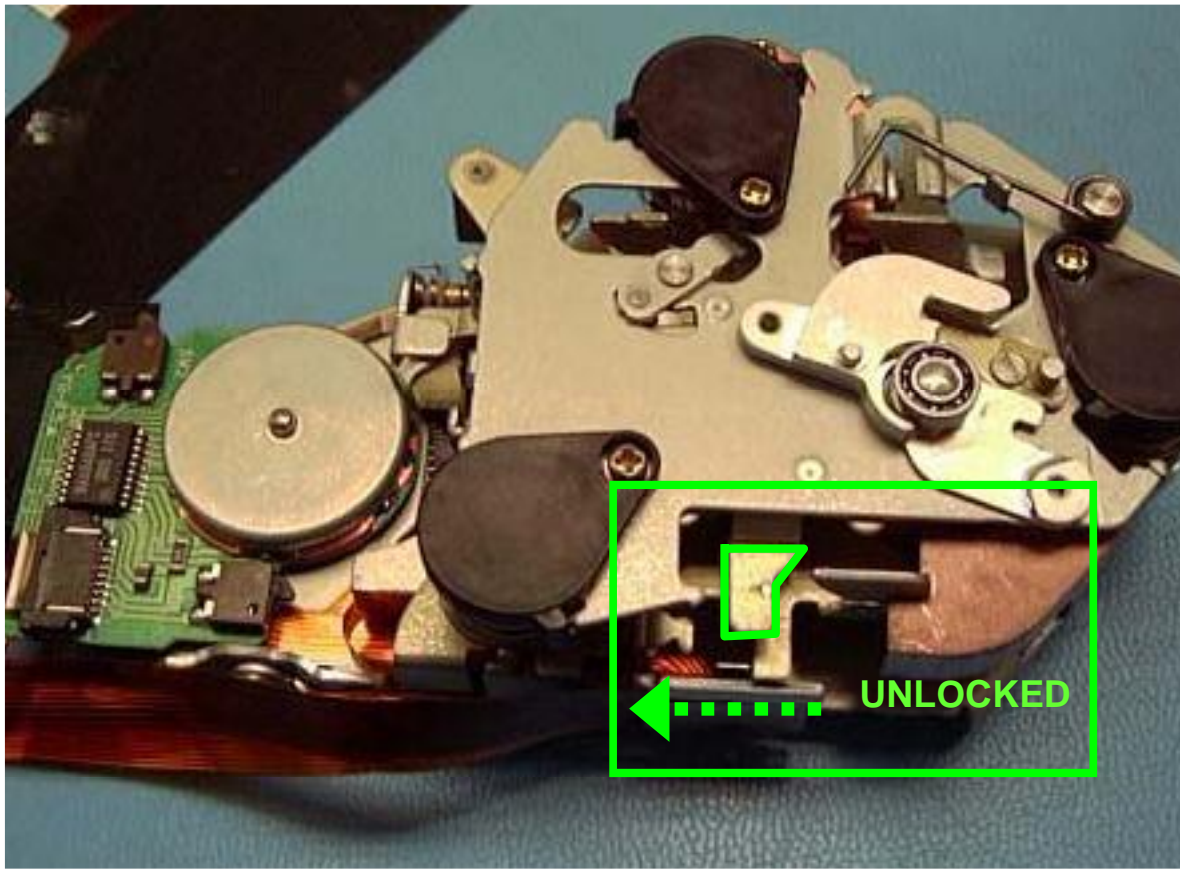
## Disassembling the Optical pickup unit



On the underside of the assembly, turn the bearing **bracket** counter clockwise to release the suspension plate.

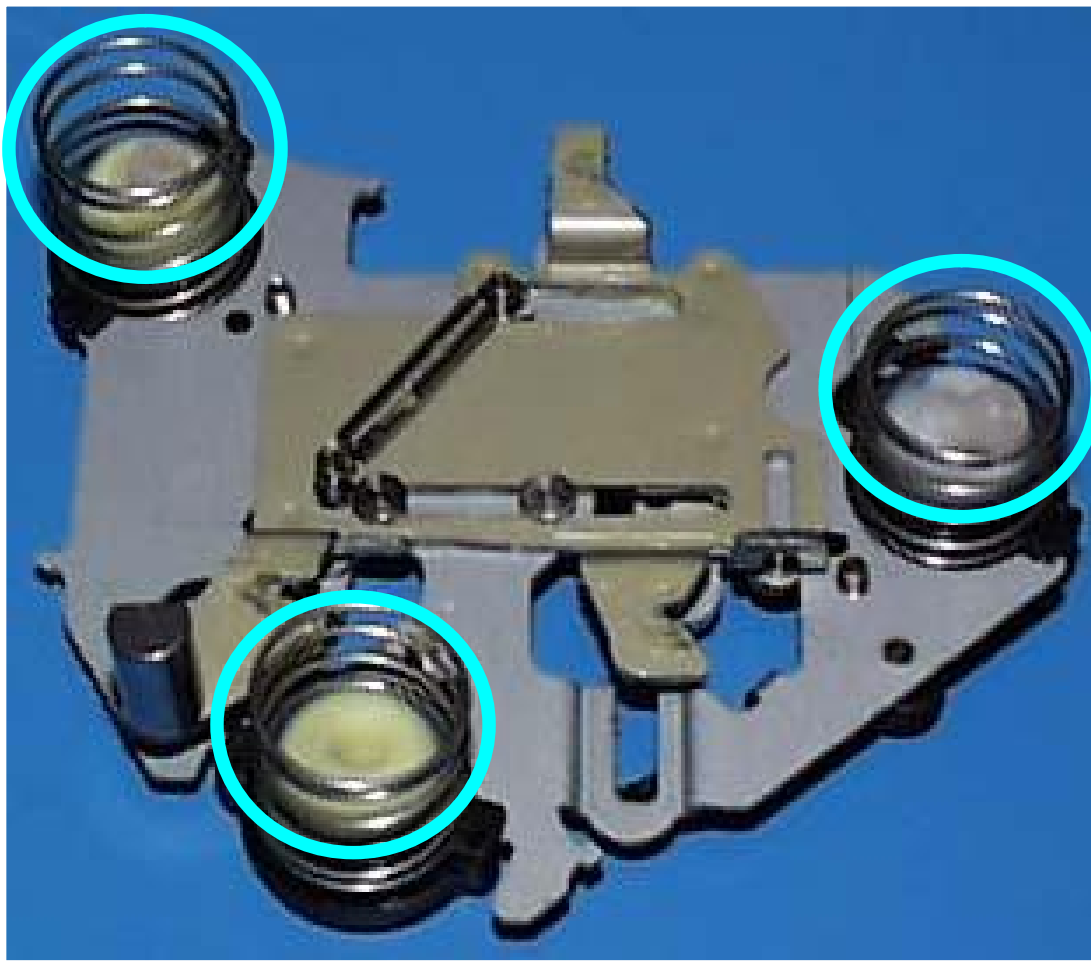


## Disassembling the Optical pickup unit



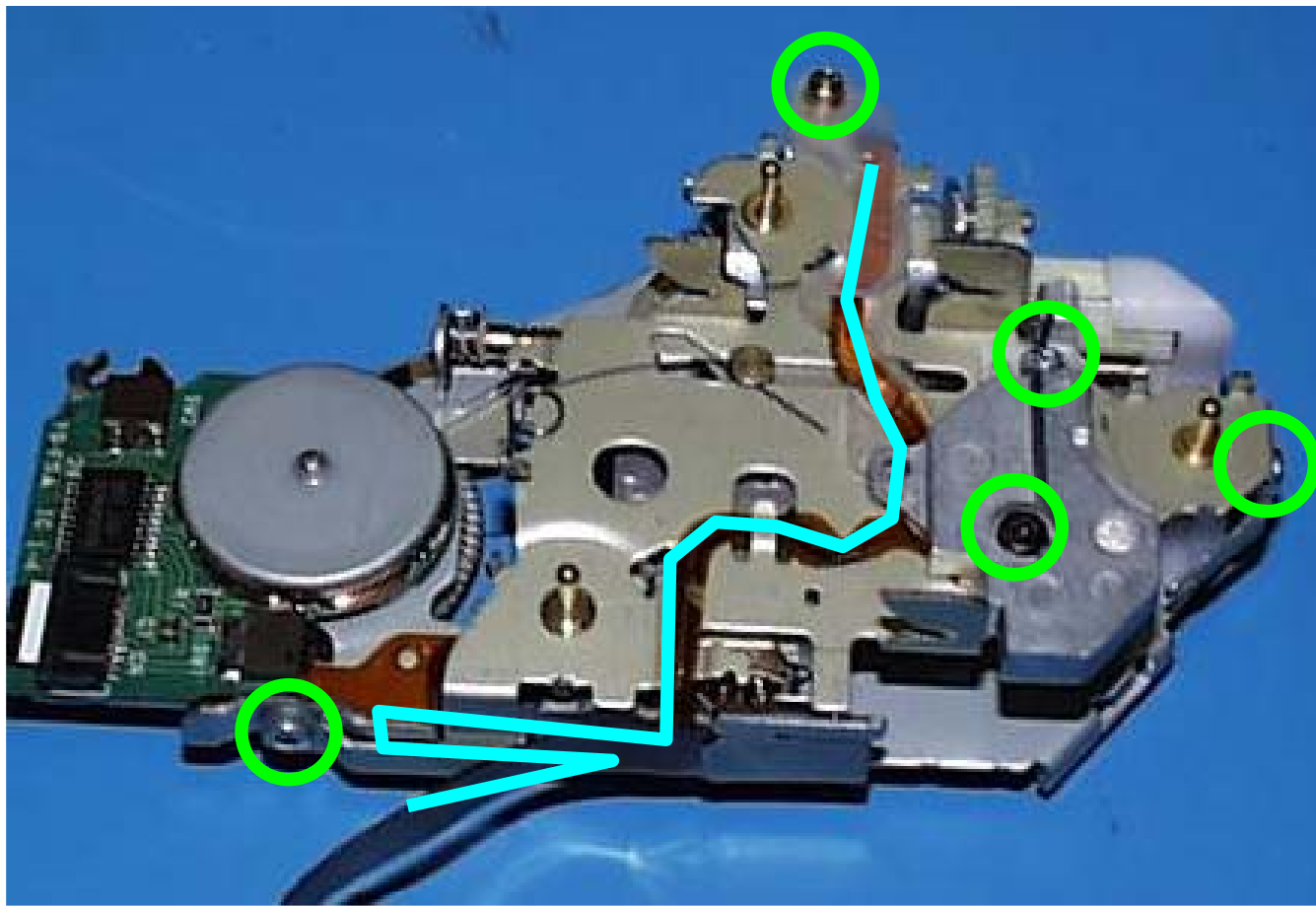
After rotating the bearing bracket counter clockwise, slide the suspension plate to the left to “unlock” it before removal but do not remove it yet.

## Disassembling the Optical pickup unit



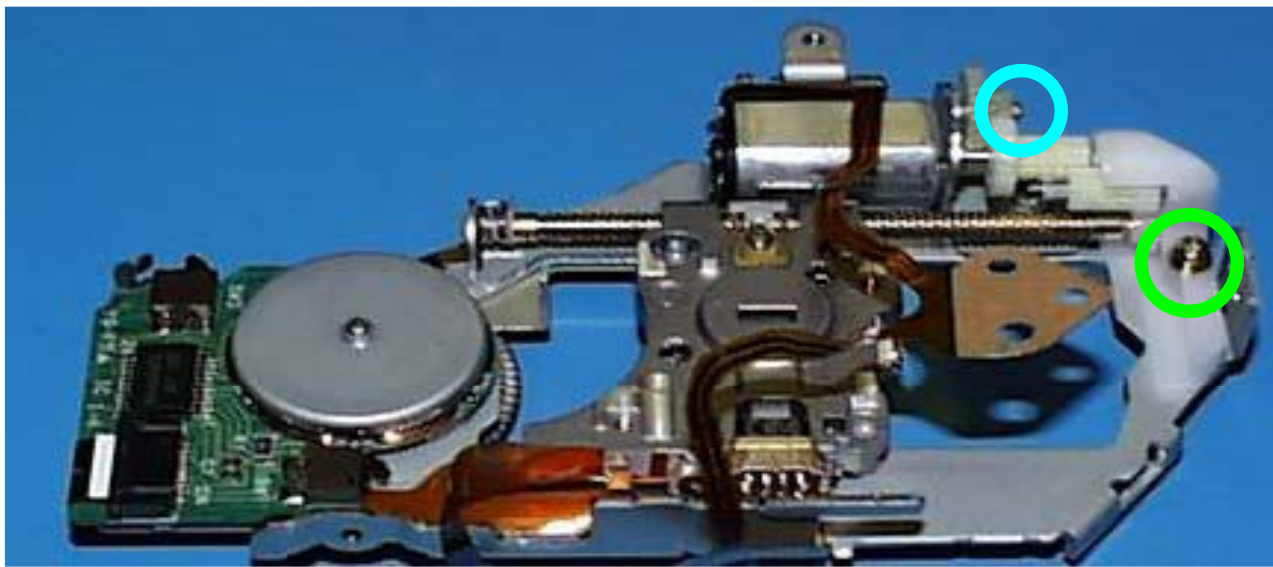
Before removing the suspension chassis bottom plate, make note of the specific location of each **damper spring**. Although all springs are the same height, each has a different tension strength.

## Disassembling the Optical pickup unit



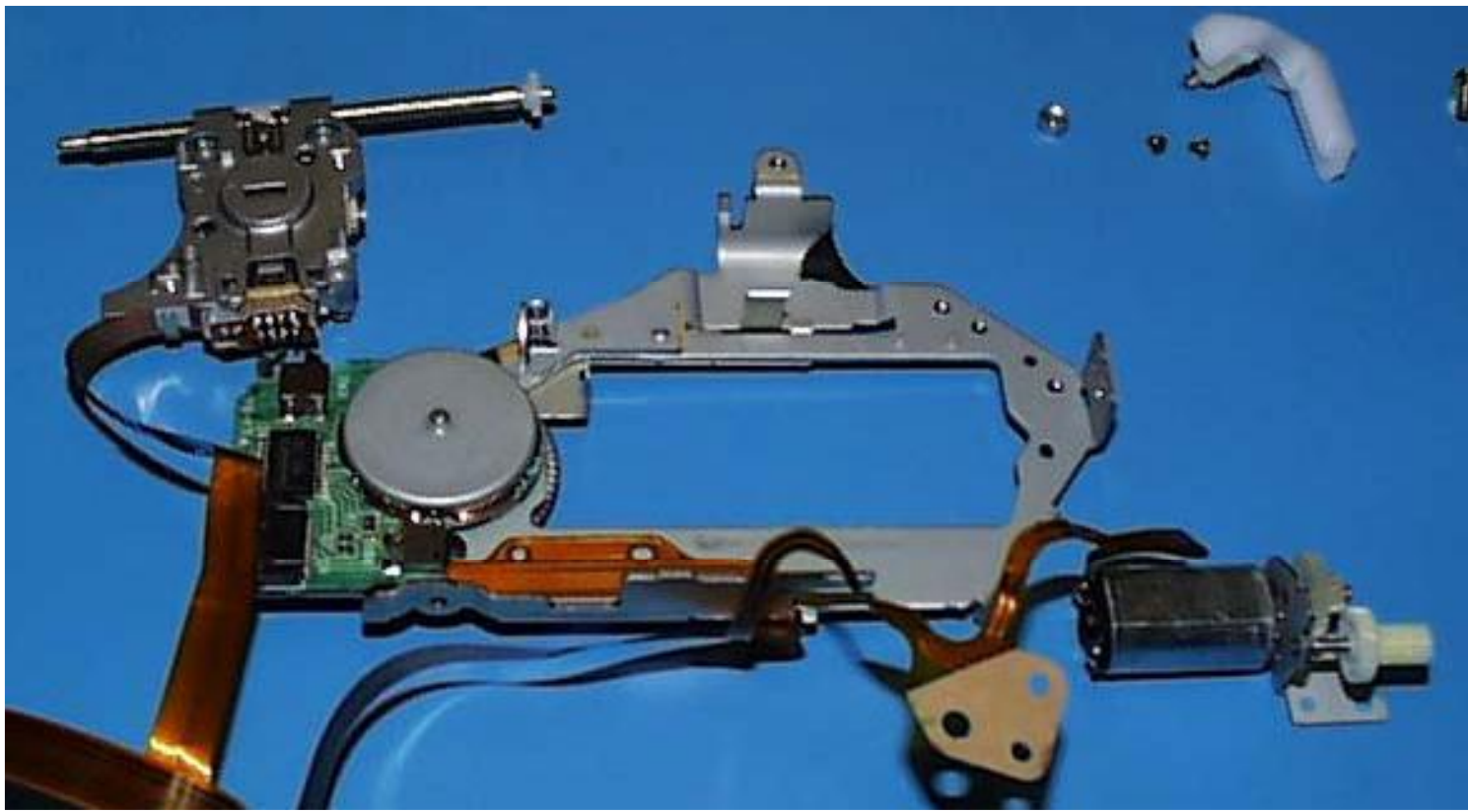
Remove the **five** indicated screws. Replace all screws to the exact location. Note the exact **route** of the ribbon cable.

## Disassembling the Optical pickup unit



Next remove the screw from the **gear bracket** assembly.  
Then remove the screw from the **traverse motor bracket**.  
Now the optical pickup can be separated from the suspension chassis.

## Disassembling the Optical pickup unit



Optical Pickup completely disassembled.



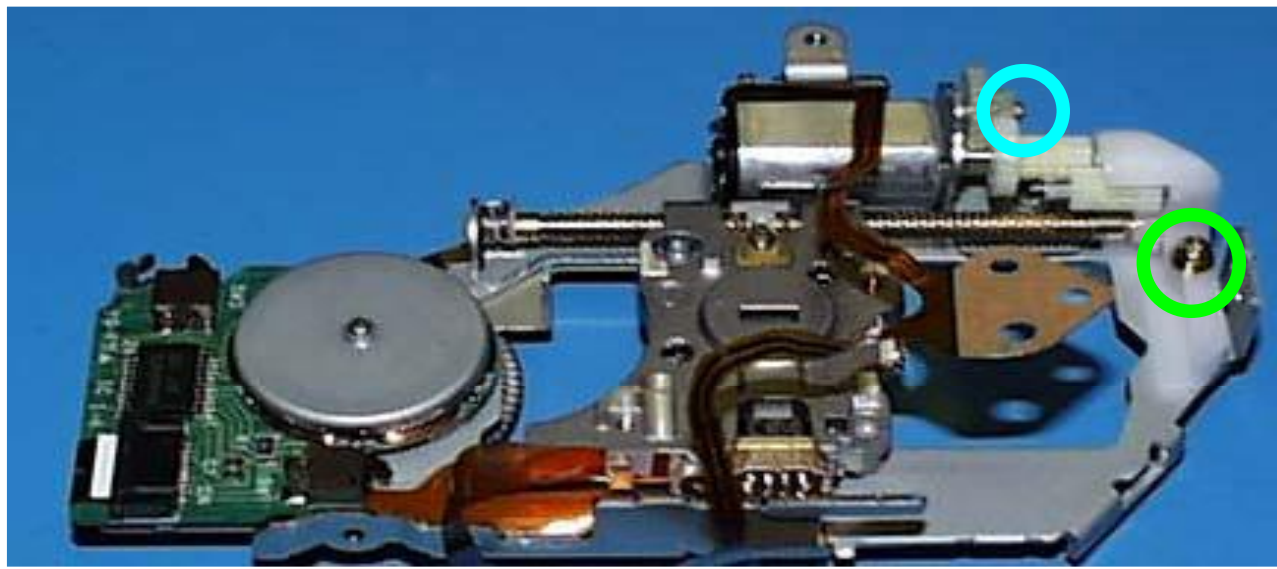
# IN DASH CHANGER UNIT - Module 5

## Reassembling and Reinstalling the Optical pickup unit

Reassembly and reinstallation of the optical deck basically consists of performing each of the previous steps in reverse order with the exception of some pre-positioning requirements.

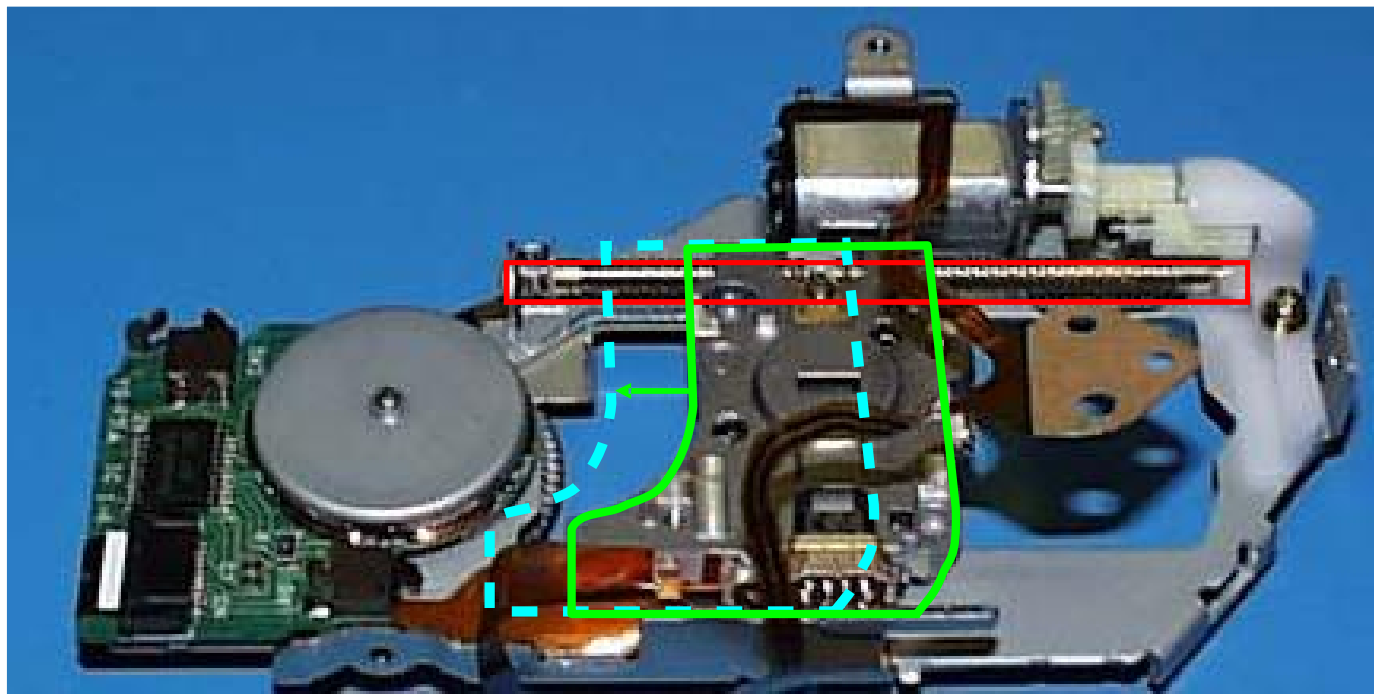
(Refer to pages 48 ~ 56 of the Technical Guide for more information on reinstalling the Optical Deck.)

## Reassembling the Optical pickup unit



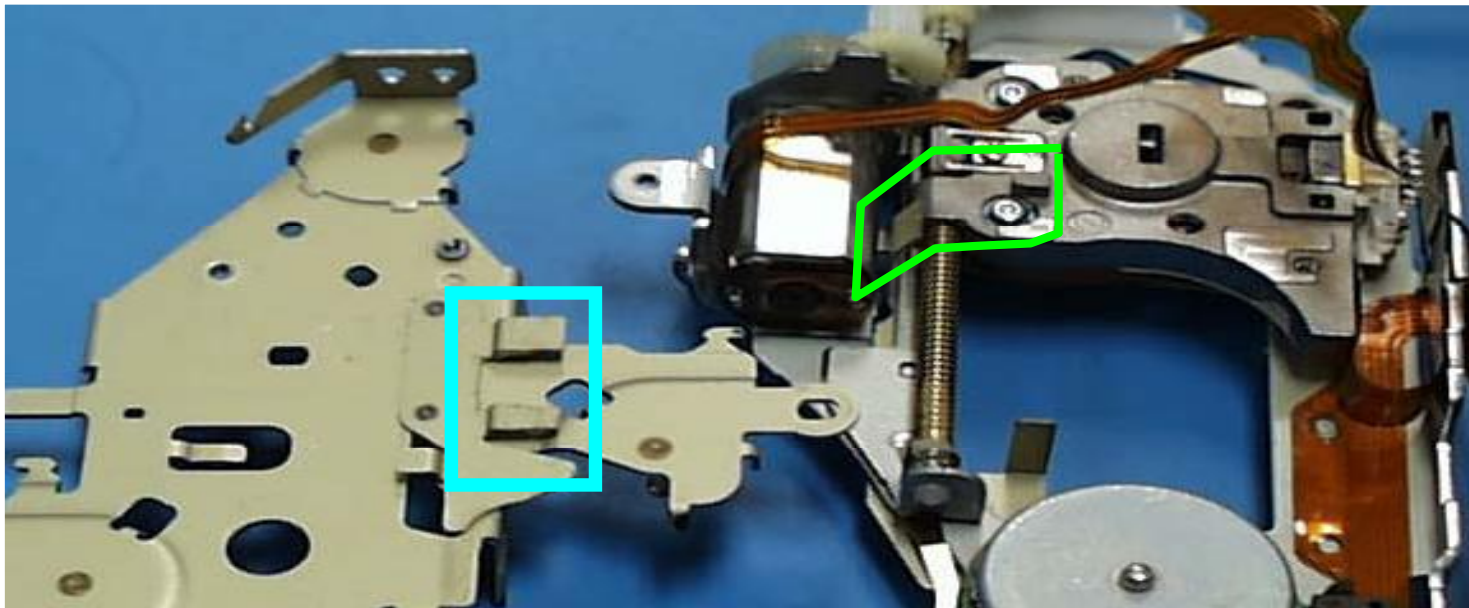
Replace the screw to the **traverse motor bracket** then replace the screw to the **gear bracket**.

## Reassembling the Optical pickup unit



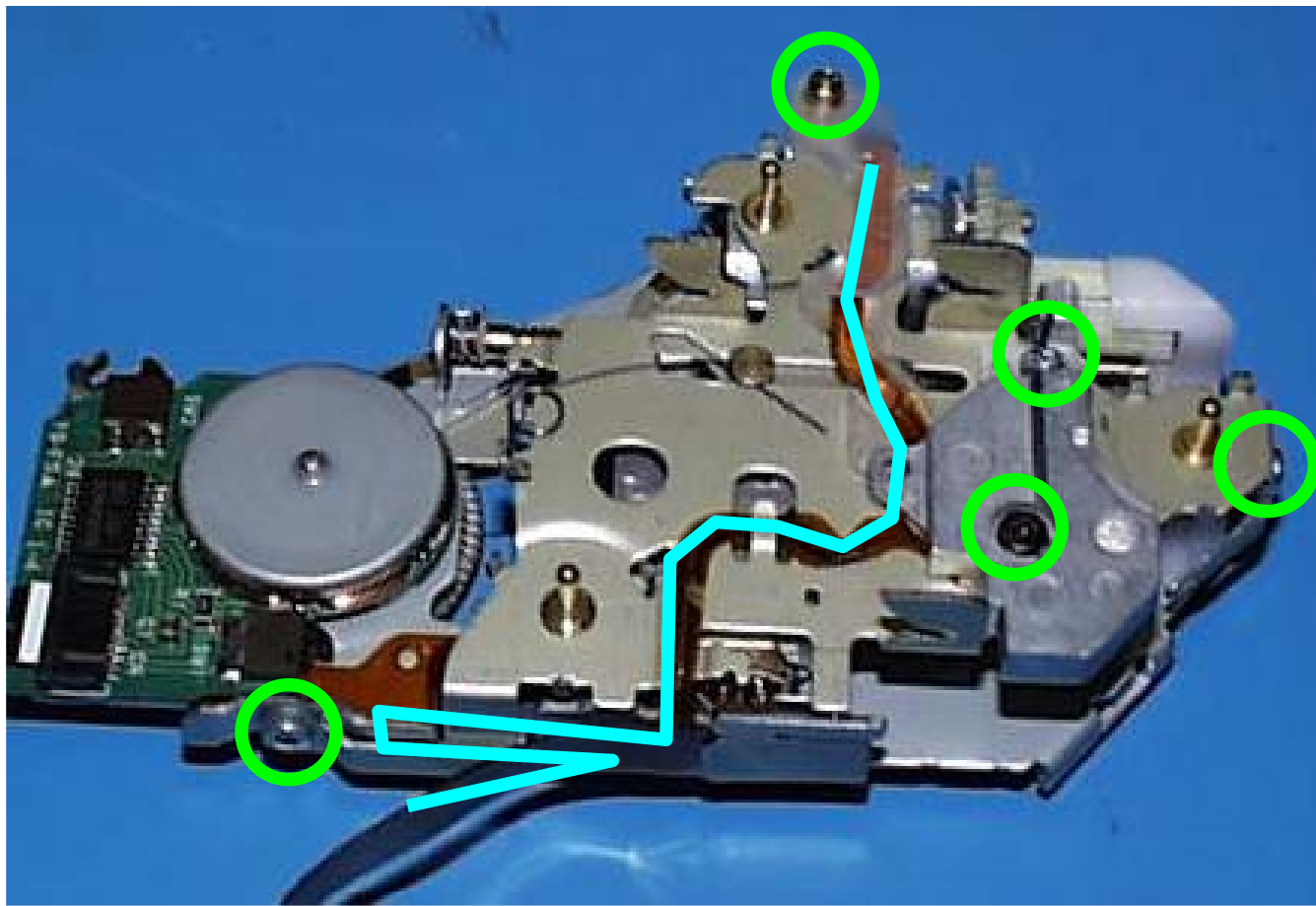
The **optical pickup a'ssy** should be adjusted completely **inward** on the **feed screw** before installing the bottom suspension plate.

## Reassembling the Optical pickup unit



When reinstalling the bottom suspension plate onto the suspension chassis, ensure that the indicated **tab** of the optical pickup is positioned between the two “**fingers**” on the bottom suspension plate.

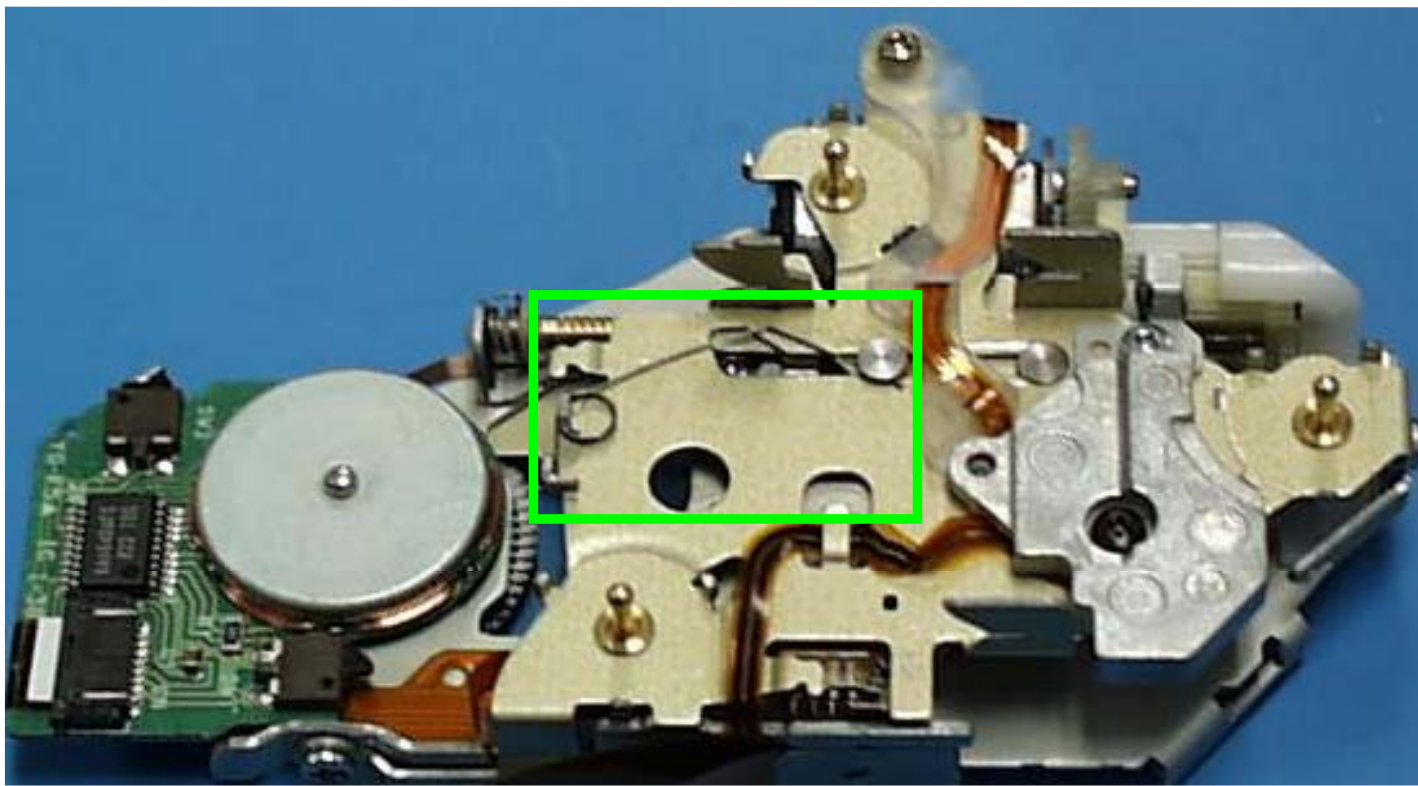
## Reassembling the Optical pickup unit



Replace each of the **five** screws to their respective locations and **route** the ribbon cable to its original path.

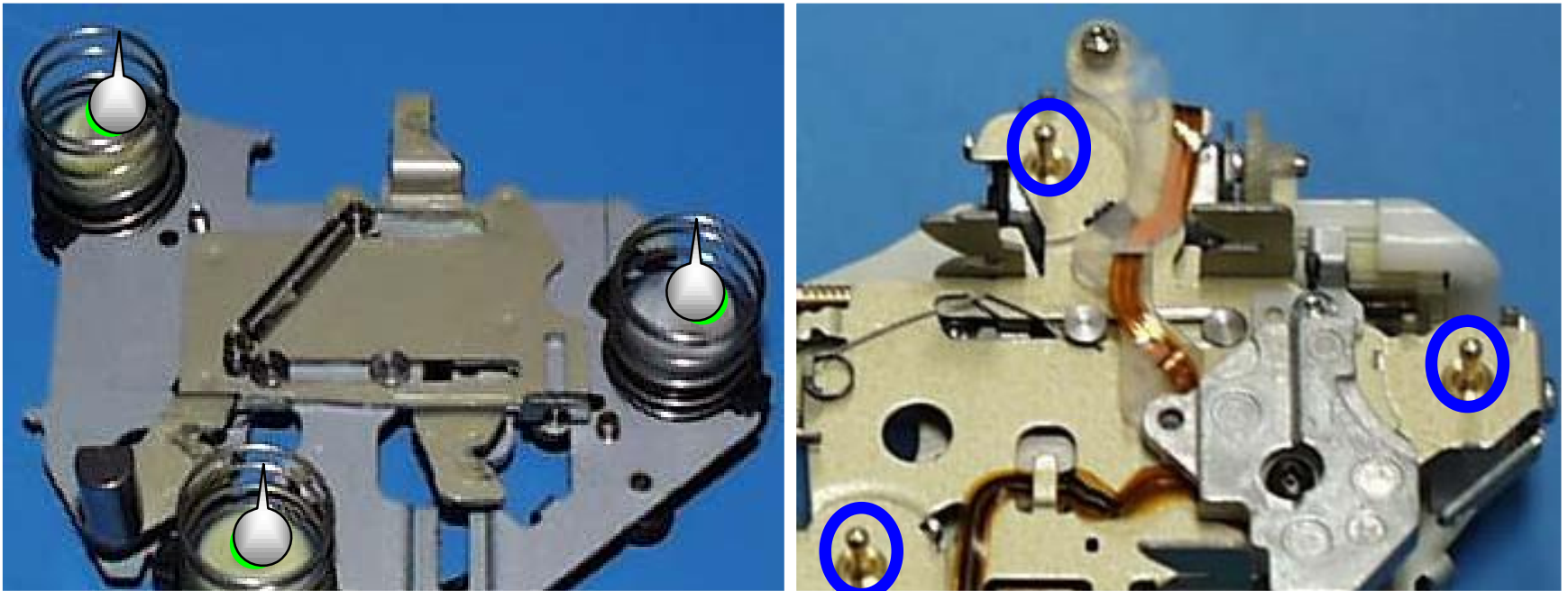


## Reassembling the Optical pickup unit



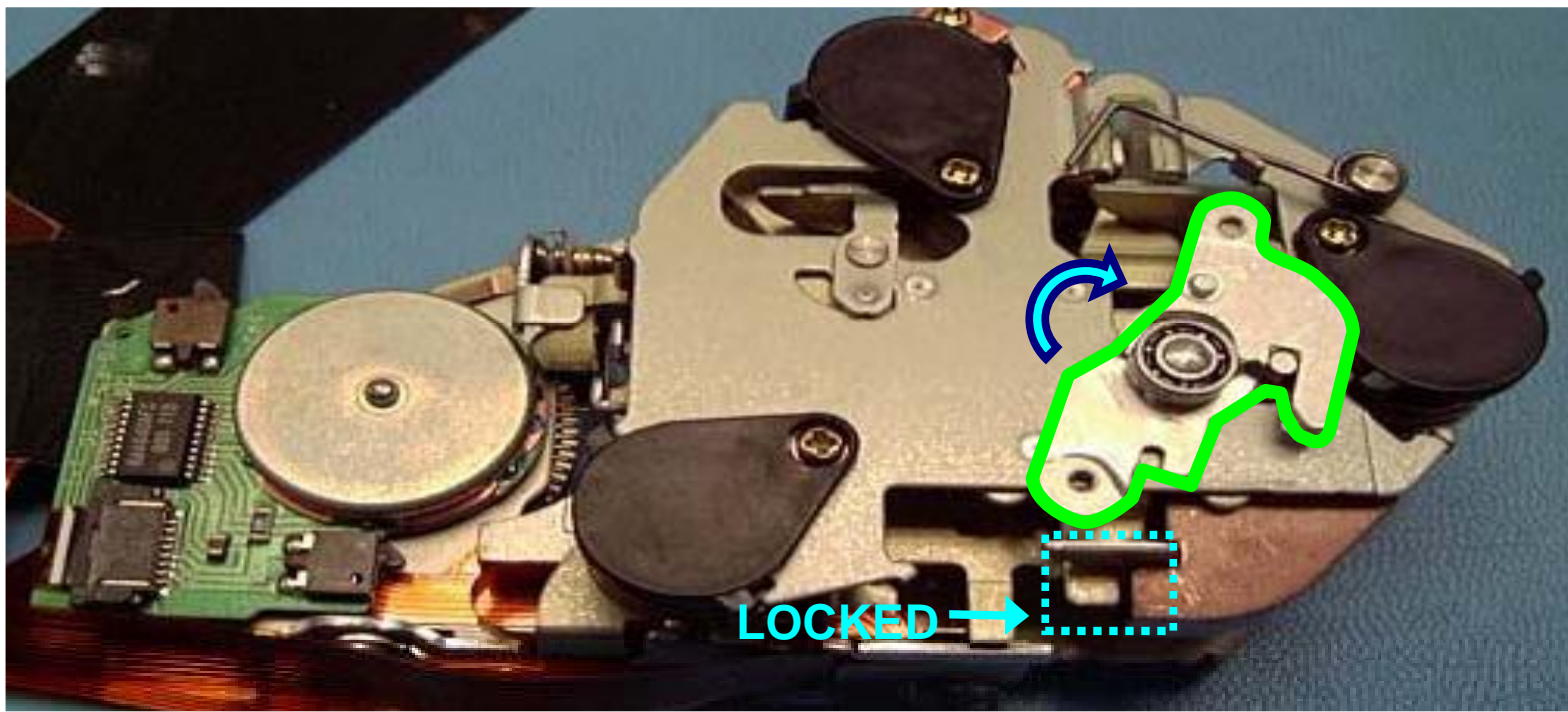
Check that the swing **spring** is in the correct position.

## Reassembling the Optical pickup unit



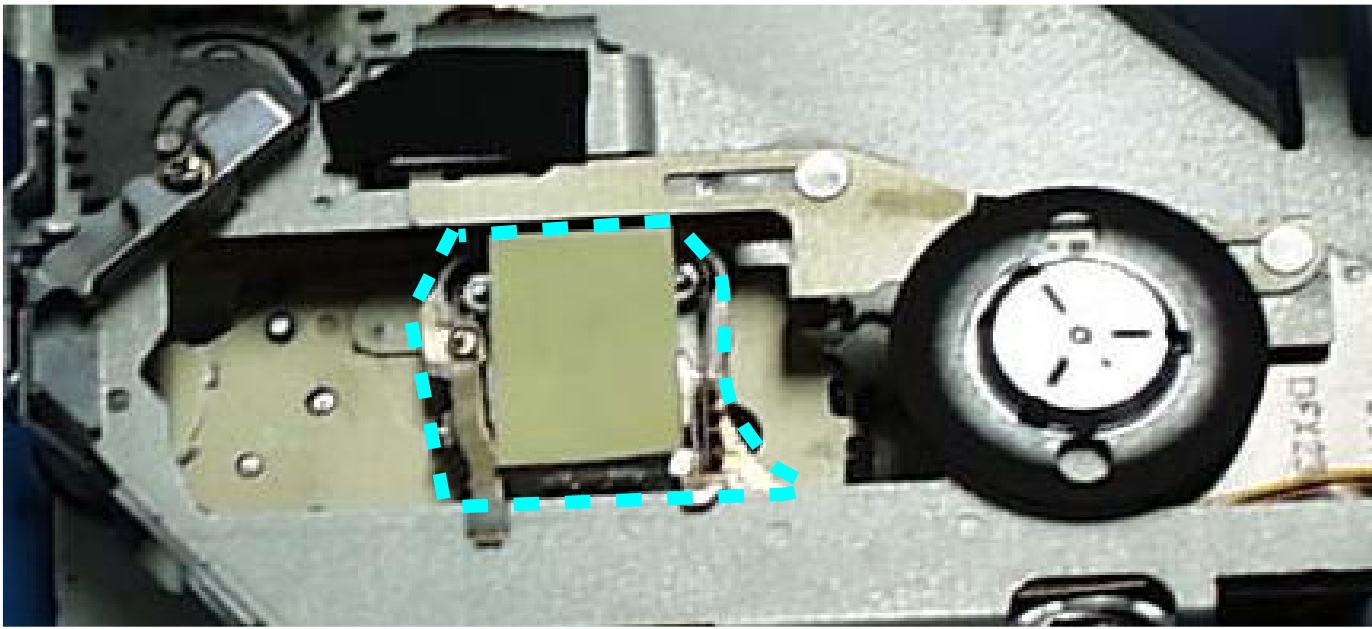
Applying a small amount of alcohol to the insertion **ports** of the three dampers will make insertion of the mating **posts** easier.

## Reassembling the Optical pickup unit



On the underside of the assembly, turn the bearing **bracket** clockwise to **lock** the suspension plate.

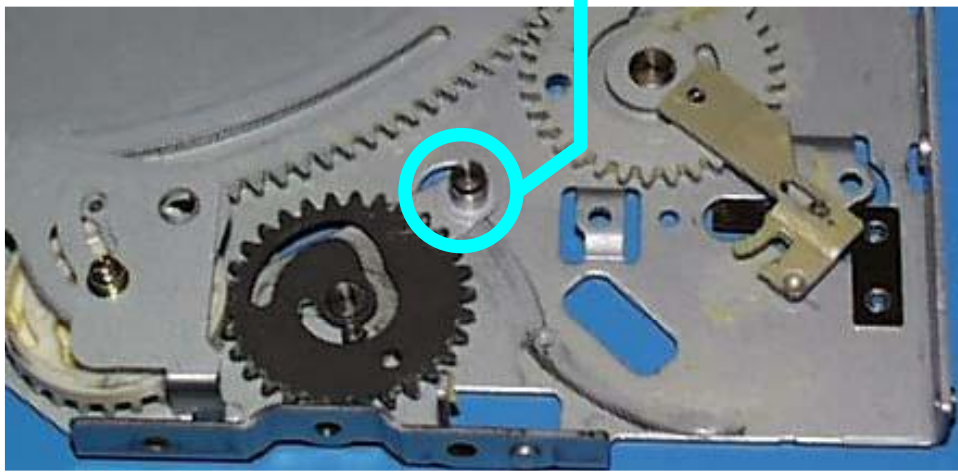
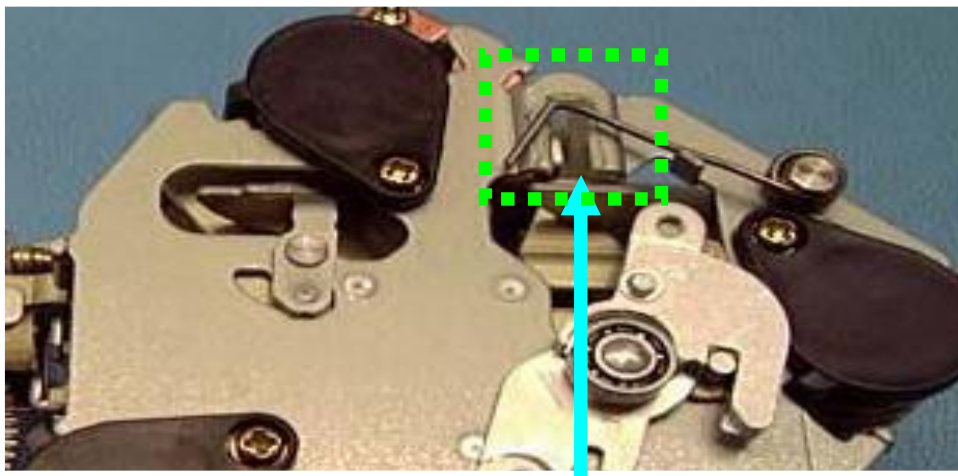
## Reassembling the Optical pickup unit



The optical pickup should now be adjusted to the center (home position) of the feed screw for the remaining reassembly.



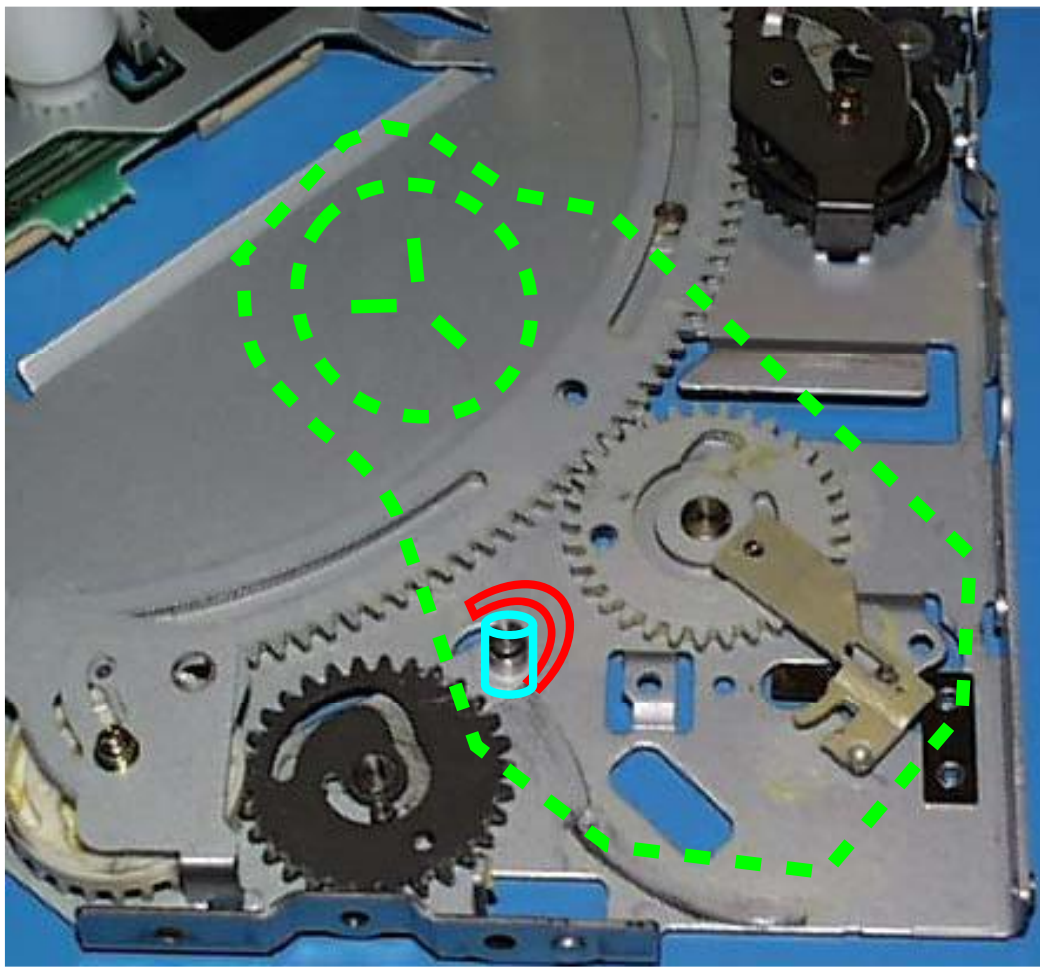
## Reinstalling the Optical pickup unit



When the optical deck assembly is flipped over for mounting to the main chassis, the swing lever **shaft** on the main chassis must be slid into the **flute** of the swing chassis.

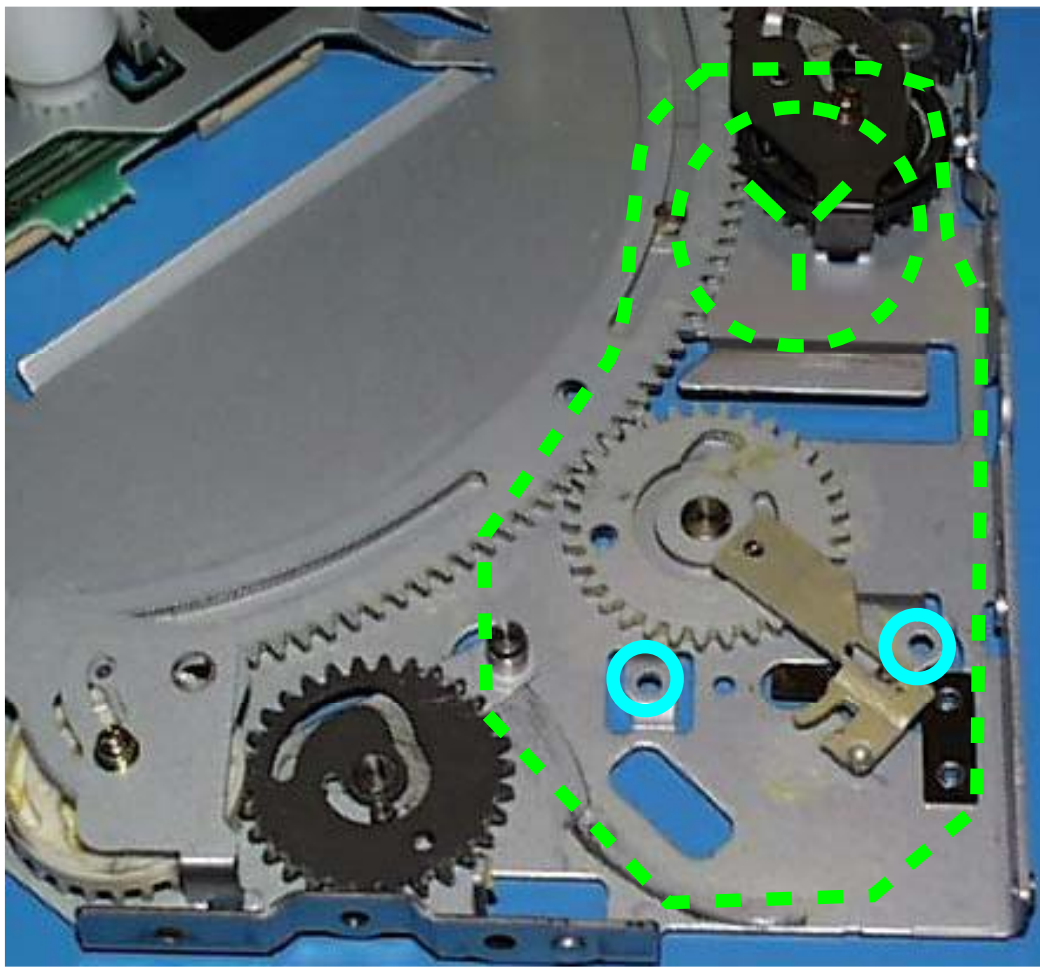


## Reinstalling the Optical pickup unit



During mounting, positioning the **optical pickup assembly** into play position will make insertion of the swing lever **shaft** into the **flute** of the swing chassis easier.

## Reinstalling the Optical pickup unit



Once the swing lever shaft is properly placed, rotate the **optical pickup assembly** into the standby (home) position and install the two support **screws** from the bottom side of the main chassis.

# IN DASH CHANGER UNIT - Module 5

## Reinstalling the Optical pickup unit

Reinstall the Upper chassis unit (Module 3) then confirm that all unit functions are working properly.

End Module Five