Retrieve, Load and Flash Tune File to LIGHTNING™ II Scan Head with TuneMaster II Support Module 4.5.2

1 Introduction

This technical bulletion is to provide instructions for users to retrieve, load and flsh tunefiles to LIGHTNING™ II (LII) scan head.

Note that each LII scan head has its unique tune file. ONLY the original tune file that iscreated with a LII scan head at the factory can be loaded and flashed into that scan head. NEVER load or flash a tune file from a different LII scan head. This will cause thescan head to shut down. To obtain the original tune file for a LII scan head, please contact Cambridge Technology and provide its serial number.

2 Prerequisite

2.1 Hardware connection

The LIGHTNING II servo board stack must connect to a computer by a USB cable. The other end of the USB cable must be plugged into the USB port on the X-servo board.Power on the servo boards with +48V. The LIGHTNING II board stack doesn't have to connect to the galvos.

A 3-axis LIGHTNING II scan head is used as an example in this technical bulletin.

2.2 Software tool

Users need to have TuneMaster II (TM2) Support Module 4.5.2 installed on the computerthat connects to the LII servo stack. Please contact Cambridge Technology to get the TM2 software and installation instructions.

The screenshot in Figure 1 shows the TM2 Support Module connected to a 3-axis LIGHTNING II servo stack. Servo Status being green indicates that the servo boards areconnected to the galvos. If a galvo is not connected, the status is red.

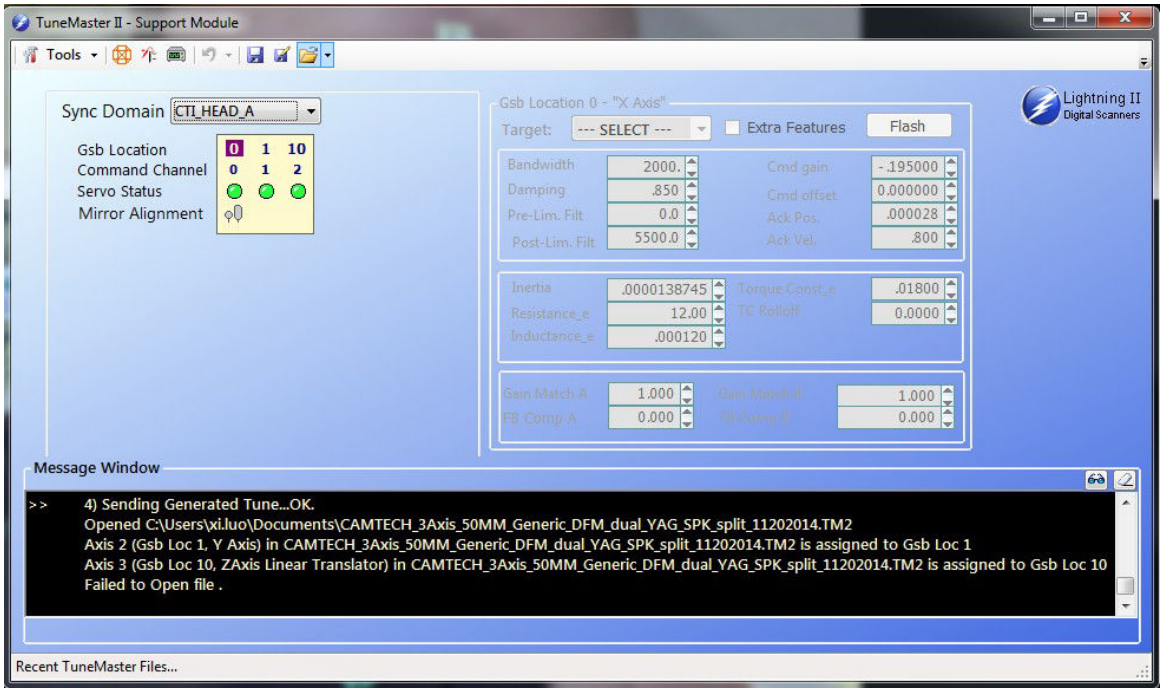

Figure 1 - TM2 Support Module Connected to a 3-axis LII

3 Retrieve Tuning Parameters from Lighting II

Follow the steps described below to retrieve tune file and load tuning parameters fromthe LIGHTNING II servo board:

1. If ‘Gsb Location 0’ (x-axis) is chosen n (highlighted), click the ‘Tools’ menu. In thedropdown list, select ‘Retrieve TM2 files from Gsb Location 0’ (See Figure 2).

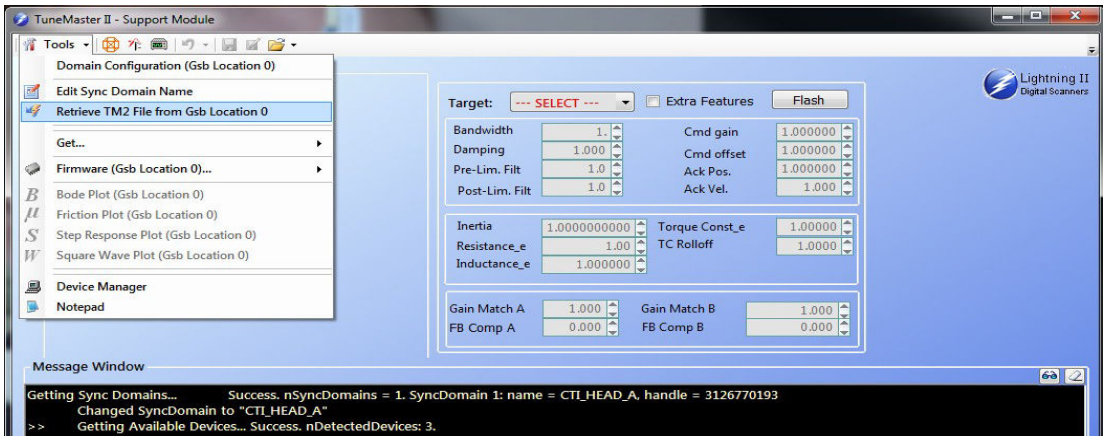

Figure 2 - Retrieve TM2 File from Gsb Location 0

2. A pop-up window will ask you to save the tune file (.TM2) (See Figure 3).

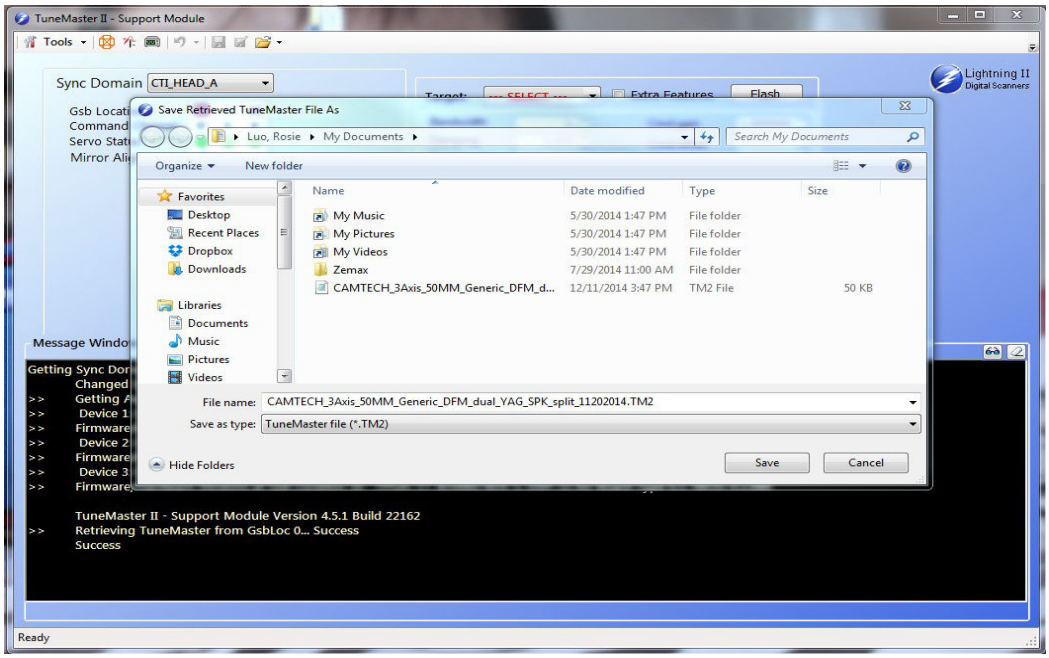

Figure 3 - Save Tune File

3. This will load a subset of the tuning parameters into the TM2 support module main window. In the ‘Target’ dropdown list you can choose either ‘Speed X’ (or sometimesit’s ‘SpeedXY’) to see the tune parameters for the X axis.

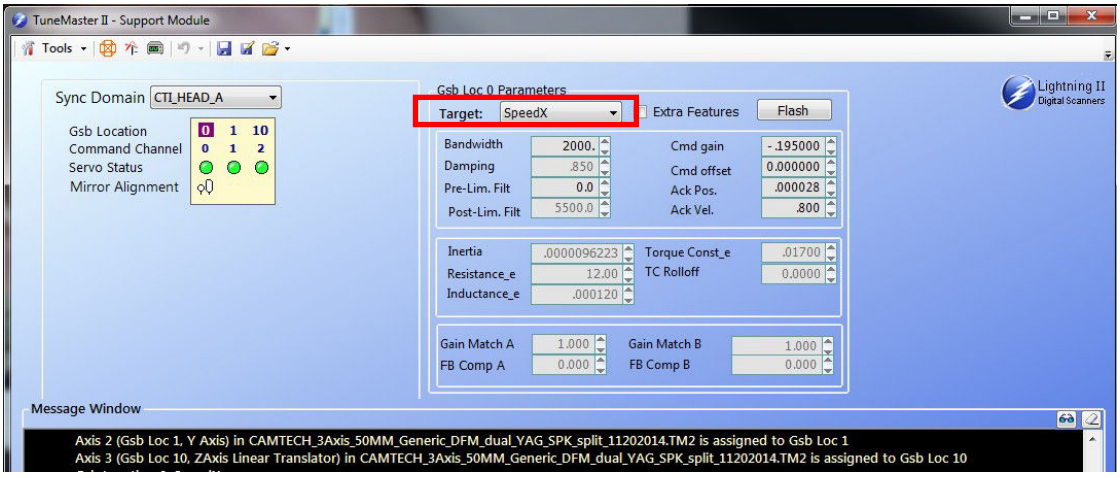

Figure 4 - A Subset of Tuning Parameters Loaded in TM2

4. This will finish loading the tuning parameters into TM2 for the X axis.
5. If you want to see the parameters for the Y or Z axis, choose ‘Gsb Location 1’ (for 2-axis LII, ‘Gsb Location 9’ is for Y axis) or ‘Gsb Location 10’ and repeat steps 1-4.

4 Load and Flash a Tune File (.TM2) to TuneMaster II

Loading a tune file to TM2 without flashing it to LII servo board will ONLY temporarily load and apply the tuning parameters to LII scan head. Power cycling the LII scan headwill lose the tune temporarily loaded.

Flashing a tune file to LII servo board however permanently changes the tune saved inLII servo board.

It is worth emphasizing again that ONLY the original tune file created with a LII scan head at the factory can be loaded or flashed into that scan head. NEVER load or flash atune file from a different LII. This will cause the LII scan head to shut down.

Follow the steps described below to load a tune file to TM2 and temporarily apply thetuning parameters to LII scan head.

1. Choose ‘Gsb Location 0’ (X axis) first.

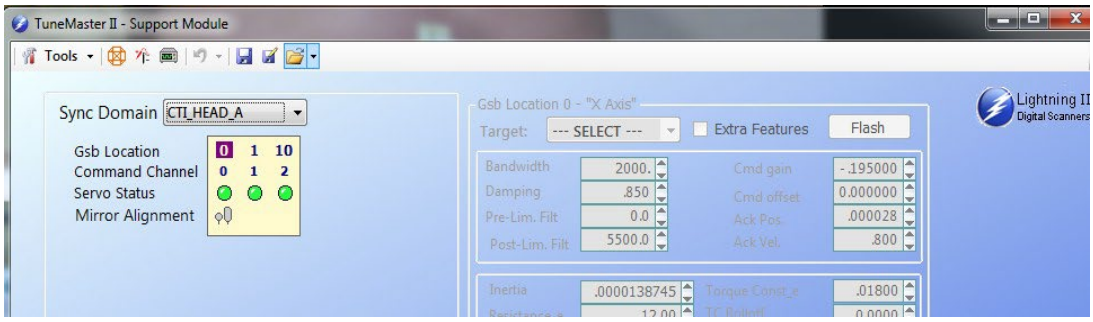

Figure 5 - Choose ‘Gsb Location 0’ (X axis)

2. Click the ‘open folder’ icon (Figure 6), then choose and load the tune file (Figure 7).

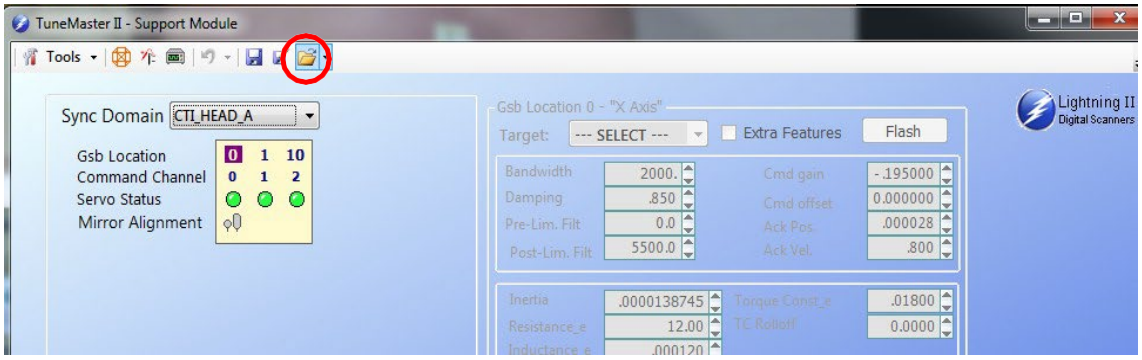

Figure 6 - Open Folder to Browse for the Tune File to Load

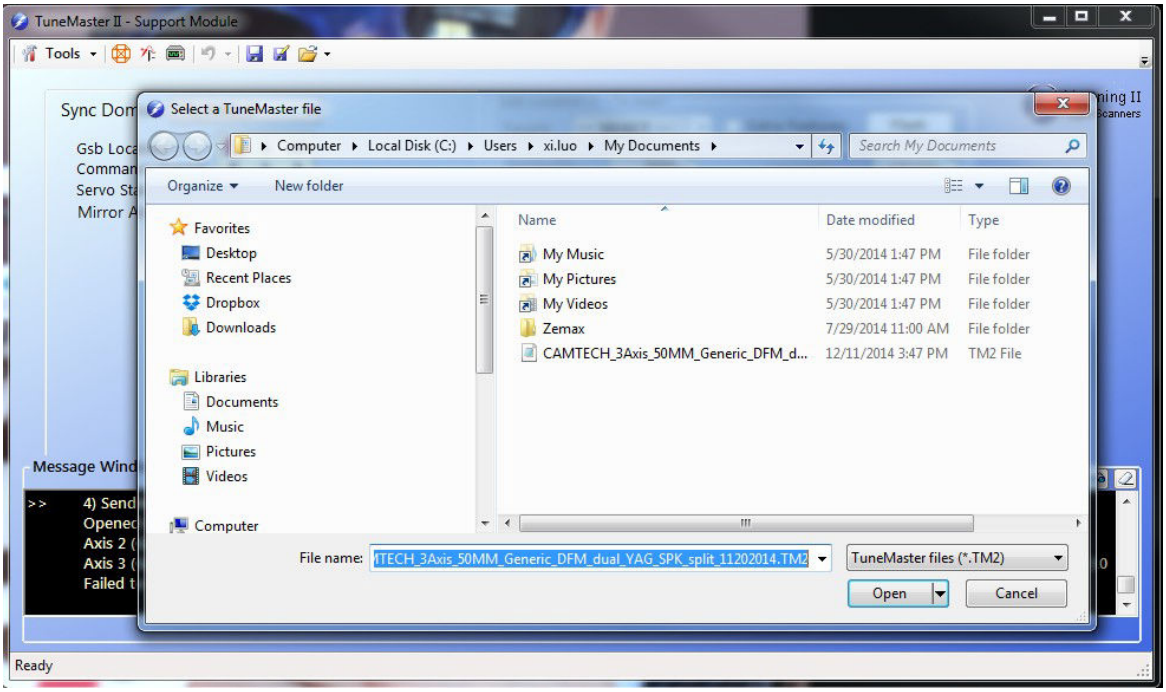

Figure 7 - Choose and Load the Tune File

3. You can verify the loaded tune file by selecting ‘SpeedX’ (or sometimes it’s ‘SpeedXY’)in the ‘Target’ dropdown list. But this step is not necessary.

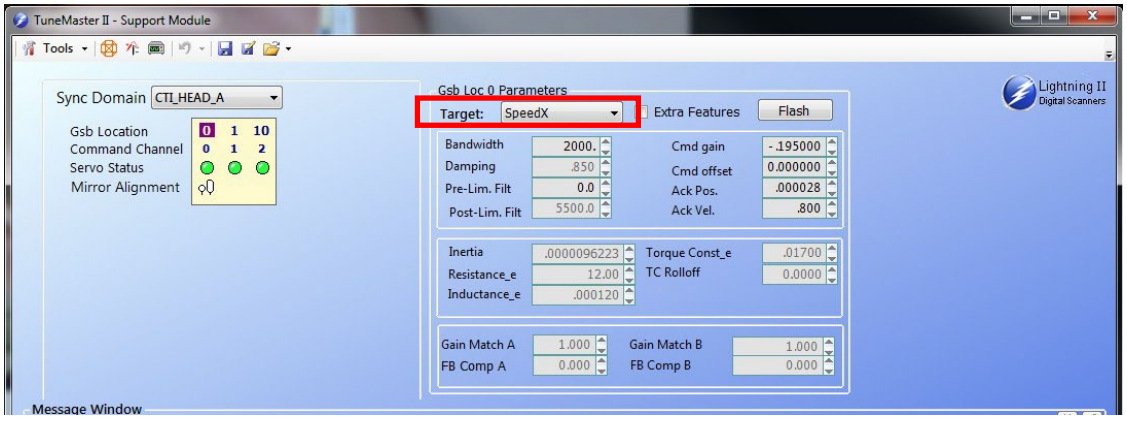

Figure 8 - Select ‘SpeedX’ to Verify the Tune Loaded

4. Click the ‘Flash’ button to flash the new tune to the X-servo board (Figure 9).

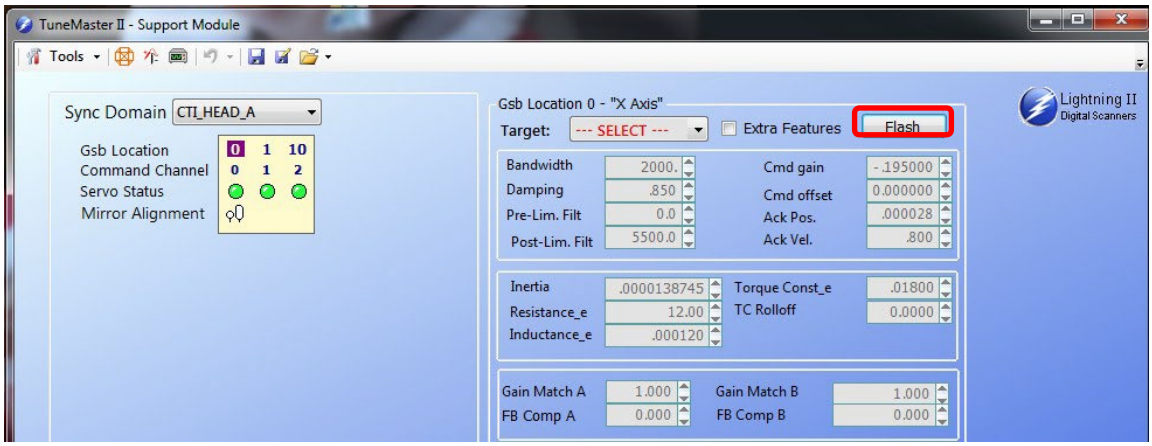

Figure 9 - Flash the Loaded Tune to X-servo Board

5. When the flash is complete, you will see the ‘success’ message in the messagewindow (Figure 10).

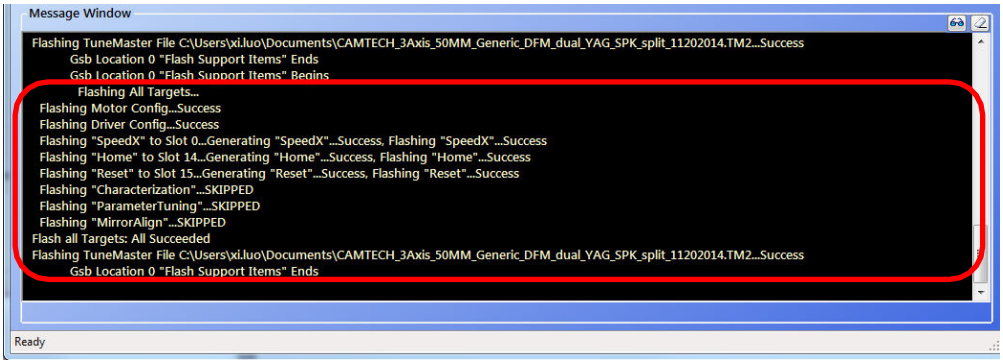

Figure 10 - Success Messages

6. **Important!** You have to repeat the same steps (from step 1 to 4) for **Gsb location1 and Gsb location 10** if it's a 3-axis system (for **Gsb location 9** if it's a 2-axis system) to flash the tune file to all axes of the LIGHTNING II scan head.
7. Power cycle the LIGHTNING II scan head to complete the tune flashing process.