ATC351/352/362 Service Menu and Alignments Index

SERVICE MENU AND ALIGNMENTS

1.1 OVERVIEW

A service menu facilitates instrument alignments only (all other alignments Tuner, Chassis, etc. will require the aid of a Service Computer). With the instrument on, press and hold the **MENU** and **Channel Down** button simultaneously. The Service Menu should appear, then select the Service Alignment option and the instrument should immediately display a service menu box on the screen:

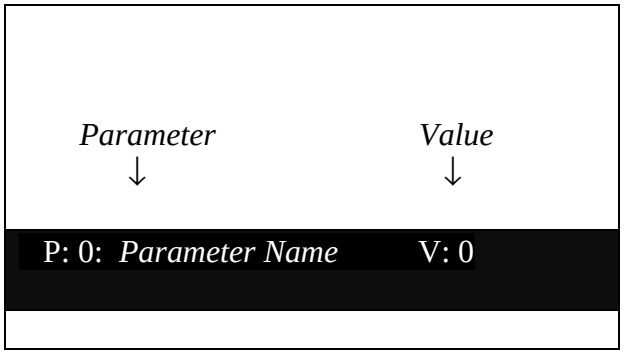

FIG 1.

The decimal value on the left is the parameter number and the decimal value on the right is the current value of that parameter. The **Channel-Up** and **Channel-Down** buttons increment and decrement the parameter number, while the **Volume+** and **Volume-** buttons adjust the current value of that parameter. When parameters are modified the corresponding IC registers and EEPROM locations are updated. Pressing the **Power-Off**, or **Power-Toggle** buttons will exit the service mode.

When the Service Mode is first activated, the Parameter will be 0. This 0 parameter is used for security purposes to protect the factory alignments from inadvertent modification by the customer, in that this parameter requires that a specific value be selected before other parameters may be accessed. If Channel Up is pressed while in Parameter 0, Service Mode will be exited. The Security Parameter must be selected before the serviceman may proceed. While Parameter = 0, press **VOL UP** to set the Security Pass Value or the desired parameter group, then press **CH UP** to Enter that Group. The following Table shows the available Security Pass Values:
Note: The value will wrap around (0 Þ 255, 255 Þ 0).

SECURITY PASS VALUES	
Value	**Parameter Group**
50	Error Code Access
64	Feature Customization
76	Instrument and ADM3 module alignments
80	MD3: Vertical and Horizontal centering
90	Warranty Clock
200	Chipper Check Mode when Channel Up is pressed

FIG 1.

SYSTEM INFORMATION SCREEN

A System Information Screen allows the servicer information regarding the various software versions that are in the instrument. To access this screen with the instrument on, press and hold the **MEN**U and **Channel Down** button simultaneously. The instrument should immediately display a service information screen. To see the software revisions, select the Information option.

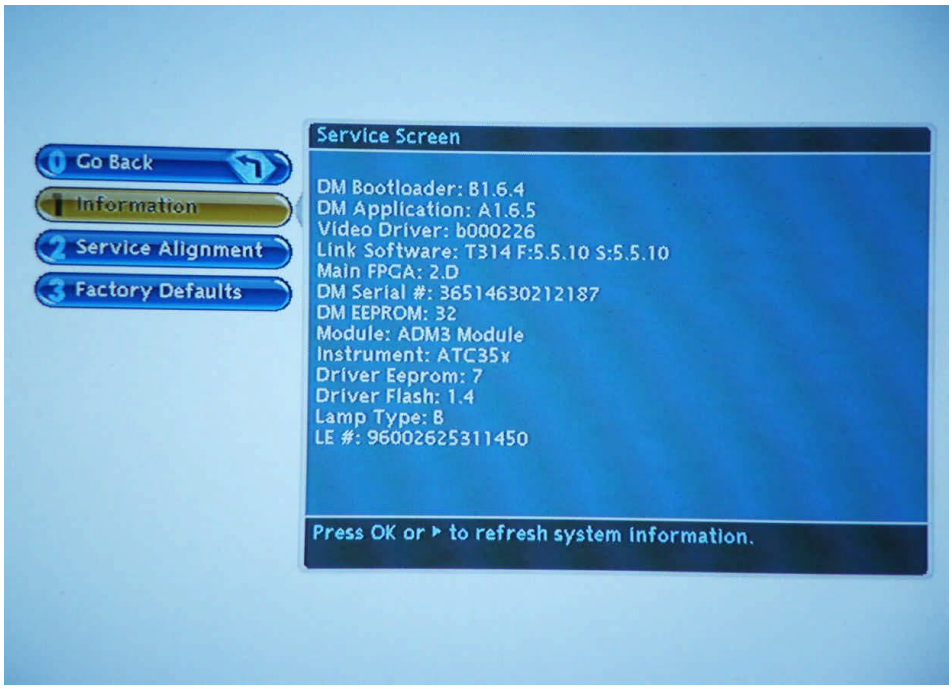

FIG 3.

1.2 ERROR CODES

Upon certain interruptions or errors occurring in the chassis, an error code will be stored in the EEPROM along with a time stamp for the most recent occurrence. Access to the Error Codes is obtained by selecting Value = 50 at Parameter = 0

If an Error of the same TYPE is already logged, the error will overwrite the existing error of that type and the count will be increased, except:

- For IIC Errors separate errors are logged if the Chip/Bus differs

- All DLP errors will be logged separately

If an Error of the same TYPE is not already logged, then the errors will be stored in the following order: First, Second, Third,… Last

FIG 4.

Information is displayed in the following order:

Error sequence #,	Date,	Time,	error code,	Count,	Explanation Code
1	8/18/2006	12:32:39	21	04	3001010001000000

Error Codes

Error codes	Description		Explanation Code Values		
			0	1	2
3	Chassis Power	Initial Power Fault	10	n/a	n/a
		Other	14	n/a	n/a
		Invalid Handle	15	n/a	n/a
		Power Supply Fault	16	n/a	n/a
8	DLP	Driver Fan Fail	40	n/a	n/a
		Lamp Fail	41	n/a	n/a
		No Lamp Strike	42	n/a	n/a
		No Lamp Lit	43	n/a	n/a
		DDP1010 Reset	47	n/a	n/a
		Color Wheel Blower	48	n/a	n/a
		System Fan Fail	49	n/a	n/a
21	IIC Read		See Figure 6	See Figure 6	See Figure 6
22	IIC Write		See Figure 6	See Figure 6	See Figure 6
23	IIC Bus Latched		See Figure 6	See Figure 6	See Figure 6
31	App (General)		n/a	n/a	n/a
32	Reset Count	ADM3	See Figure 7		
41	Software Watchdog		See Figure 8		
42	Hardware Watchdog		n/a	n/a	n/a
81	POD (cable card)	SCTE28	n/a	n/a	n/a
82	POD (cable card)	Bad Certs	n/a	n/a	n/a
83	POD (cable card)	Trans Timeout	n/a	n/a	n/a
84	POD (cable card)	FR Timeout	n/a	n/a	n/a
85	POD (cable card)	Session Timeout	n/a	n/a	n/a
E1	DM Hardware Error	Revert to Auto DLL	n/a	n/a	n/a
E2	DM Hardware Error	VPIP Dropped Ball	n/a	n/a	n/a

FIG 5.

1.3 ERROR CODE CHARTS

For Error codes 21, 22, and 23, the chart below will provide circuitry information to identify the Error failure. Use this chart by identifying the "Chip" number as the first set of two digits of the 16 digit explanation code, the "Bus" number as the second set of two digits of code, and the "Details" as the third set of two digits

Additional Data Description IIC Errors ("Code")					
			Bus	Module	Comment
	Chip	24	DM	ADM3	ATI 314 Link
		30	DM	ADM3	Picture Signal Improvement (PSI) FPGA
		34	DLP	DLP	DDP3021 Light Engine Controller
		80	DM	ADM3	Micronas Audio Processor
		86	DM	ADM3	TDA9885 Tuner/IF
		98	DLP	DLP	LM75 Digital Temperature Sensor
		98	DM	DM3	TDA9970 HDMI/HDADC
		A0	DM	DM3	DMx Main EEProm
		AC	DLP	DLP	Light Engine Eeprom (lower 256 bytes)
		AE	DLP	DLP	Light Engine Eeprom (upper 256 bytes)
		BA	DM	ADM3	TVP5160 VDEC

21,22,23	**Bus**	**00**			3 Bus: Digital Module Bus
		02			Run Bus: DLP Bus
21,22	**Details**	**01**			Chip did not acknowledge when was expected to
		02			Some hardware error detected, maybe one of the lines is grounded
		03			Some software error, e.g. not enough memory, or could not acquire the mutex

FIG 6.

For Error code 41, you will need to use Figure 7 to identify the bus failure. The "Hex Value" will be the first two digits of the 16 digit Explanation code.

Thread Name	Hex Value		Thread Name	Hex Value
UNKNOWN_TASK_ID = 0,	00		EXT_CHAN_MAIN_TASK_ID,	38
CC_TASK_DRAW_MAIN_ID,	01		POD_HOMING_TASK_ID,	39
CC_TASK_MAIN_ID,	02		MMI_MAIN_TASK_ID,	3A
CC_TASK_WINMAIN_ID,	03		POD_RESMGR_MAIN_TASK_ID,	3B
DM_MAIN_TASK_ID,	04		POD_SESSION_MAIN_TASK_ID,	3C
AV_DRV_MONITOR_ID,	05		POD_TRANSPORT_MAIN_TASK_ID,	3D
AV_DRV_CTL_MAIN_ID,	06		POD_UPGRADE_TASK_ID,	3E
AV_DRV_CTL_PIP_ID,	07		TL9_VIDEO_SERVICE_TASK_ID,	3F
CA_MAIN_TASK_ID,	08		PSI_TASK_ID,	40
CC_DRAW_MAIN_ID,	09		CHAN_SEARCH_LIB_TASK_ID,	41
CC_MAIN_TASK_ID,	0A		EEP_DEV_RPC_TASK_ID,	42
CHANACQ_MAIN_TASK_ID,	0B		KMG_DEV_RPC_TASK_ID,	43
CHANACQ_PIP_TASK_ID,	0C		AUD_DEV_RPC_TASK_ID,	44
CHANACQ_VBI_TASK_ID,	0D		NET_DEV_RPC_TASK_ID,	45
CHANACQ_RECORD_TASK_ID,	0E		PSI_DEV_RPC_TASK_ID,	46
CHANEPG_MAIN_TASK_ID,	0F		DLP_DEV_RPC_TASK_ID,	47
CHANEPG_PIP_TASK_ID,	10		POD_DEV_RPC_TASK_ID,	48
CHANEPG_VBI_TASK_ID,	11		ASW_DEV_RPC_TASK_ID,	51
CHANEPG_RECORD_TASK_ID,	12		FTL_DEV_RPC_TASK_ID,	52
EAS_MAIN_TASK_ID,	13		WATCHDOG_RPC_TASK_ID,	53
EPG_ACQ_TASK_MAIN0_ID,	14		PEC_DEV_RPC_TASK_ID,	54
EPG_ACQ_TASK_MAIN1_ID,	15		PCP_DEV_RPC_TASK_ID,	55
EPG_ACQ_TASK_MAIN2_ID,	16		MMI_DEV_RPC_TASK_ID,	56
EPG_ACQ_TASK_MAIN3_ID,	17		FPKBDRMT_RPC_TASK_ID,	57
EPG_ACQ_TASK_MAIN4_ID,	18		PHC_DEV_RPC_TASK_ID,	58
EPG_ACQ_TASK_MAIN5_ID,	19		GEMSTAR_RPC_TASK_ID,	59
EPG_ACQ_TASK_MAIN6_ID,	1A		PWRDEV_THREAD_ID,	5A
EPG_ACQ_TASK_MAIN7_ID,	1B		PWRMON_THREAD_ID,	5B
EPG_ACQ_TASK_MAIN8_ID,	1C		IDD_RPC_SERVER_TASK_ID,	5C
EPG_ACQ_TASK_MAIN9_ID,	1D		PTV_MAIN_THREAD_ID,	5D
EPG_ACQ_TASK_MAIN10_ID,	1E		CRT_MAIN_THREAD_ID,	5E
EPG_ACQ_TASK_MAIN11_ID,	1F		IDD_MAIN_THREAD_ID,	5F
HWCTRL_TASK_ID,	20		ERROR_LOG_RPC_TASK_ID,	6E
POD_CTRL_OOB_MONITOR_TASK_ID,	21		RES_CLIENT_REMOTE_QUEUE_TASK_ID,	6F
POD_CTRL_MAIN_TASK_ID,	22		PERIODIC_UPDATE_THREAD_ID,	70
SCHED_TASK_MAIN_ID,	23		SBY_MAIN_THREAD_ID,	71
TP_BRIDGE_TASK_ID,	24		SBY_RPC_THREAD_ID,	72
TP_EXT_CHAN_TASK_ID,	25		PWR_RPC_THREAD_ID,	73
TP_RECEIVE_TASK_ID,	26		Not Assigned	74

TUNER_CABLE_TASK_ID,	27		Not Assigned	75
TUNER_AIR_TASK_ID,	28		Not Assigned	76
UI_MAIN_TASK_ID,	29		Not Assigned	77
XDS_MAIN_TASK_ID,	2A		Not Assigned	78
ASW_MODE_DETECT_TASK_ID,	2B		Not Assigned	79
AUDIO_STATUS_TASK_ID,	2C		Not Assigned	7A
DLP_POWER_TASK_ID,	2D		Not Assigned	7B
DLP_TASK_ID,	2E		Not Assigned	7C
FPA_SCAN_TASK_ID,	2F		Not Assigned	7D
FPIR_REMOTE_IST_ID,	30		Not Assigned	7E
FPIR_KEYBD_IST_ID,	31		Not Assigned	7F
FPIR_KEYBD_PTR_IST_ID,	32		Not Assigned	80
POD_IST_ID,	33		Not Assigned	81
POD_PHYS_LINK_MAIN_TASK_ID,	34		Not Assigned	82
POD_LINK_SEND_MAIN_TASK_ID,	35		Not Assigned	83
KEYMGR_MAIN_TASK_ID,	36		Not Assigned	84
POD_CAMAIN_TASK_ID,	37		Not Assigned	85

FIG 7.

1.4 ADM 3 MODULE ALIGNMENTS

Select security parameter 76 for the ADM3 module alignments. The aligned values are to be stored in the ADM3 main EEprom.

Alignment Parameter	Range	Comment
OSD Background	00 01	00 = Black ; 01 = Transparent

FIG 8.

1.5 Horizontal and Vertical Centering, Overscan, Color Wheel Index, and Actuator.

Select security parameter 80 to enter MD3 H&V centering adjustment mode. Upon entry into this sub-menu, a description of what keys to press comes up:

INPUT: Change Modes. SKIP: Next Image. MENU: Toggle Image.

Pressing the INPUT key cycles through the Horizontal/Vertical Centering, Overscan Cropping, the Color Wheel Index, and Color Temp Adjustments, if the set has a smoothing actuator, Actuator Adjustment.

The alignment adjustments would be saved "on the fly" rather than at the end.

* Test patterns are: Transparent (none), White, Black, Checkerboard, Red, Green, Blue, and the 4 line patterns. These can be changed by the “skip” button during alignment.

The remote control should be used for alignment purposes.

The following keys would be active while in this menu:

Button	Function
Power Off/Toggle	Exit Alignment, return to P:0 V:80 display
Skip &/or Info	Next Test Pattern**
Reset or Go Back	Display 1st Test Pattern
Menu	Toggle Current Test Pattern
Arrow Up/Down	When in Horizontal/Vertical Adjust or Overscan Cropping: Adjust Vertical Position/cropping
Volume Up/Down	When in Color Wheel Index or Color Temp or Actuator Adjust: Adjusts the parameter value up and down
Channel Up/Down	When in Color Temp Adjust: Cycles through Cool CIE x, Cool CIE y, Normal CIE x, Normal CIE y, Warm CIE x, and Warm CIE y.
Antenna	When in Color Wheel Index or Color Temp, or Actuator Adjust: Resets the value to the factory setup values.
Mute	When in Color Wheel Index: Starts the sequence to overwrite the factory aligned values.
Swap	-When in Color Wheel Index: Verification that the user does want to overwrite the factory aligned values -When in the Actuator Adjustment: Swaps between the fine and coarse modes.
Buttons not shown above	*All other keys would be discarded while in the menu*

FIG 9.

Vertical and Horizontal Centering Adjustments (cont):

Alignment Parameter	Range	Comment
Horizontal and Vertical Centering	-180 to +180	Picture centering
Horizontal and Vertical Overscan Cropping	-180 to +180	Adjusts width and height of picture to 5 lines over scanned on each side

FIG 10.

COLOR WHEEL, TEMP, AND ACTUATOR ALIGNMENTS

Color Wheel Index	See Figures 12 and 13	Creates Picture Smoothing
Color Temp	No need to align	Customizes Cool, Normal, Warm
Actuator	See Figure 14	Align for clean edges

FIG 11.

COLOR WHEEL ALIGNMENT

Adjust Color Wheel Index (using volume up and down) to obtain a smooth picture. See examples below.

Fig 12 Good alignment

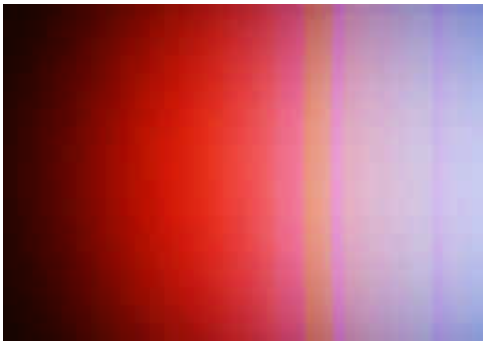

Fig 13 Bad alignment

ACTUATOR ALIGNMENT

Adjust (volume up and down) the actuator for the clearest edges in both fine and course modes (using the “swap” button on the remote). Examples of misalignment and correct adjustment are in Figures 15 and 16 respectively.

FIG 14.

Figure 15 shows the actuator out of alignment. Notice the distinct diamond shape edges around graphics.

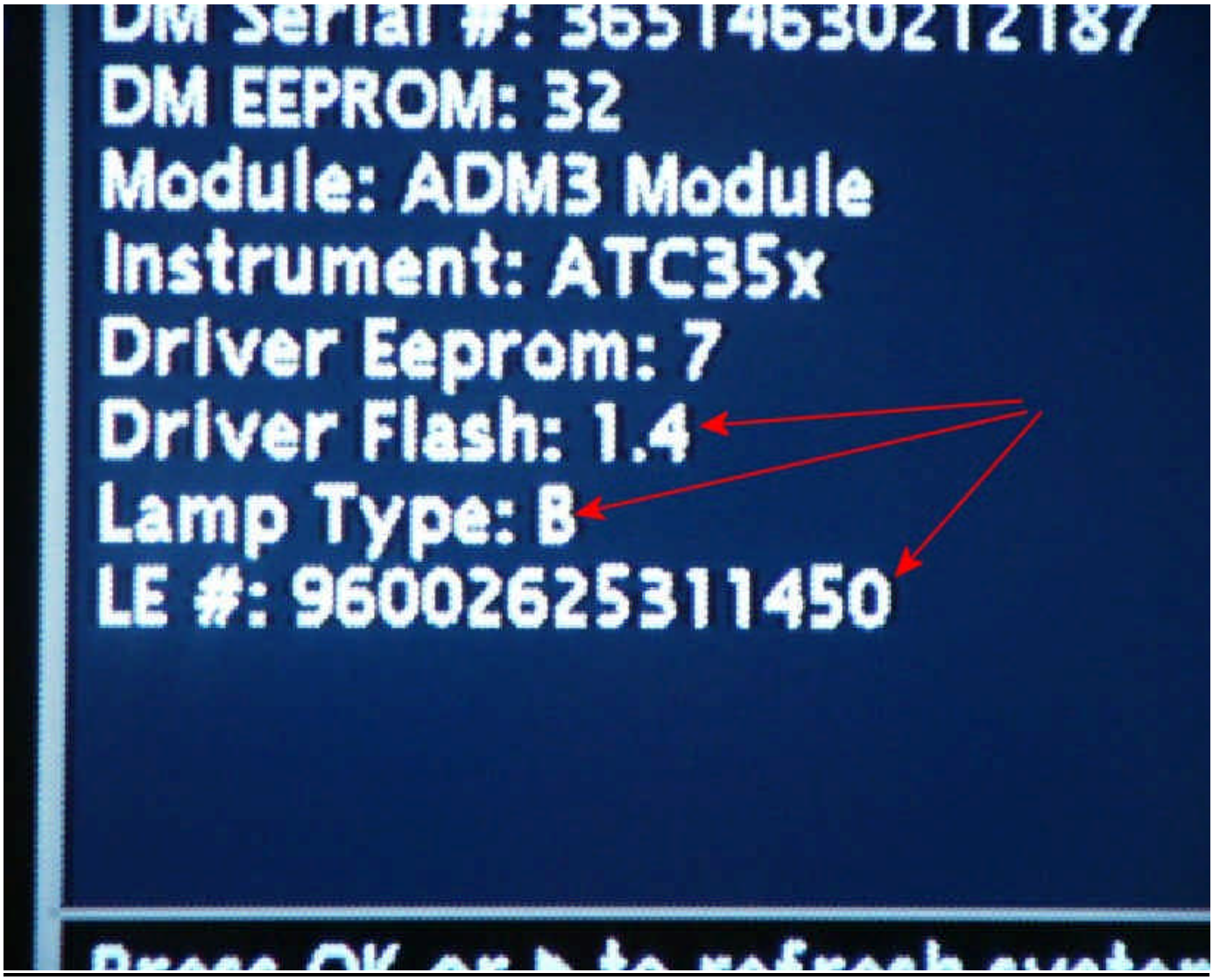

FIG 15

In Figure 16, this is an image of a correctly adjusted actuator. Notice the clean lines vertically and horizontally. On-screen graphics are the best choice of signal to perform this alignment.

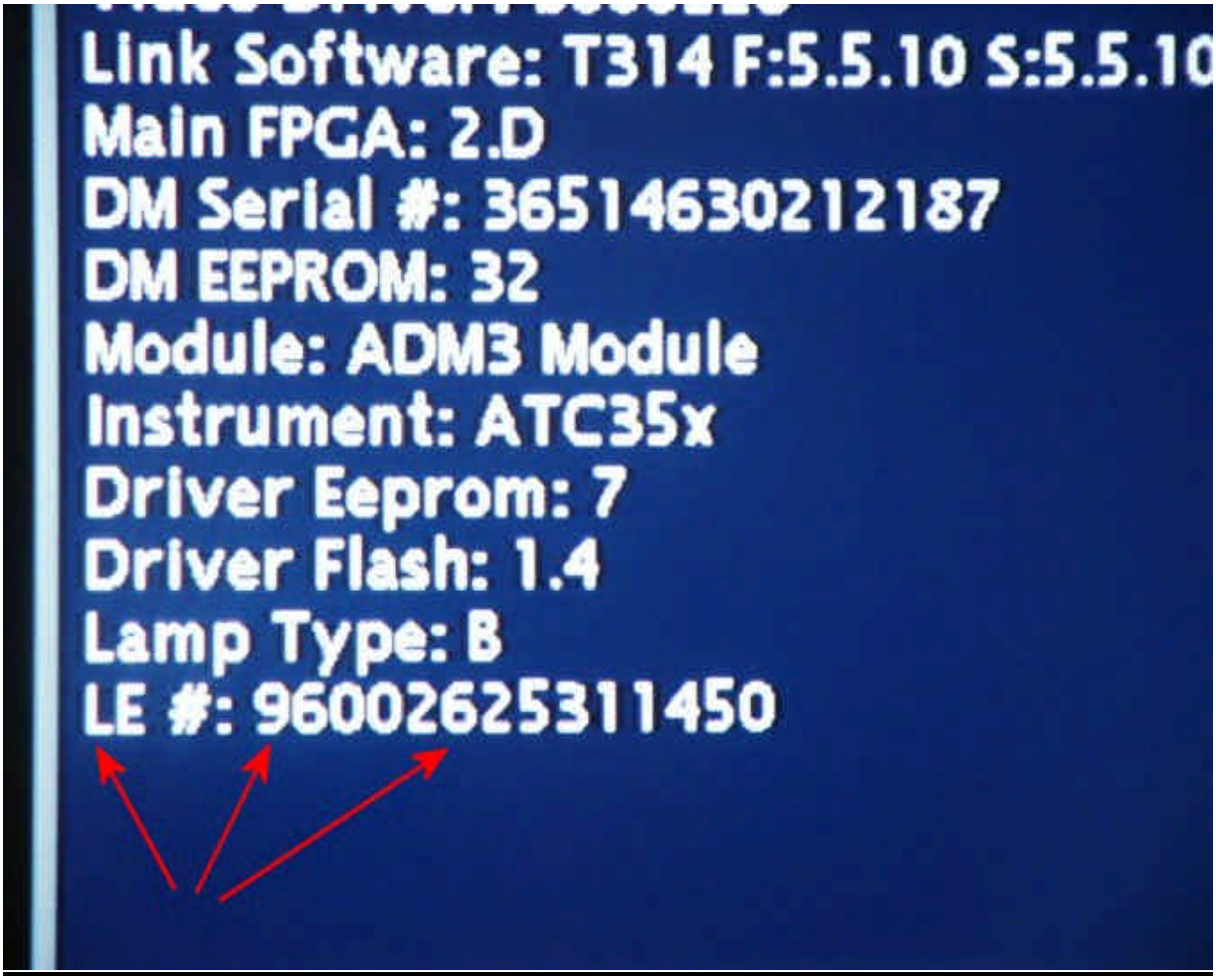

FIG 16.

1.6 FEATURE CUSTOMIZATION

Select security parameter 64 to enter Feature Cutomization mode. This mode will let a serviceman in the field to customize a generic/default module to match the features associated with the TV model he is fixing.

Feature Customization Item	Options
OSD Look	RCA, RCA Scenium
Sound Expansion	Expanded Stereo, SRS TruSurround XT, SRS Focus, SRS WOW,
Dynamic Bass	Disabled, Enabled,
Brand Name	RCA, InFocus, Vita

FIG 1 7.

1.7 PICTURE CENTERING AND ROTATION

Picture centering and rotation are controlled by mechanically aligning the position of the DMD on the COA. It is recommended that this alignment be performed in the instrument so that calibration between Light Engine and TV cabinet can be avoided

.

The following procedure should be used:

1. Projection screen should be marked with crosshairs to mark true center of the screen and 0 degrees rotation to be used as target.
2. Display video image of white crosshairs on black background.
3. Loosen screws and adjust the DMD mount to align the video crosshairs to the screen crosshairs.
4. Tighten screws.