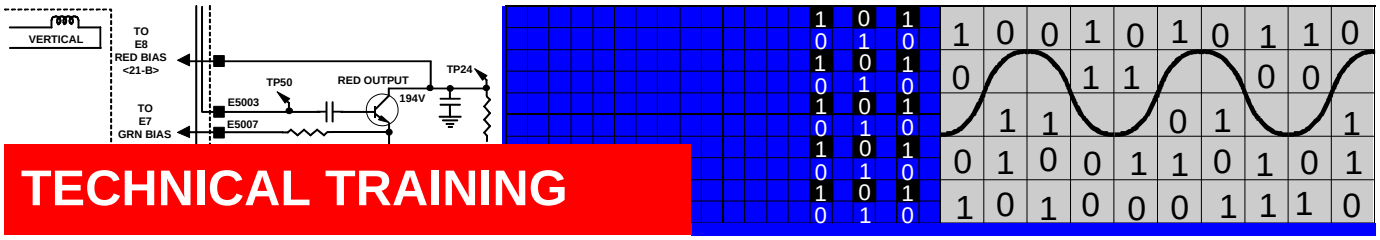
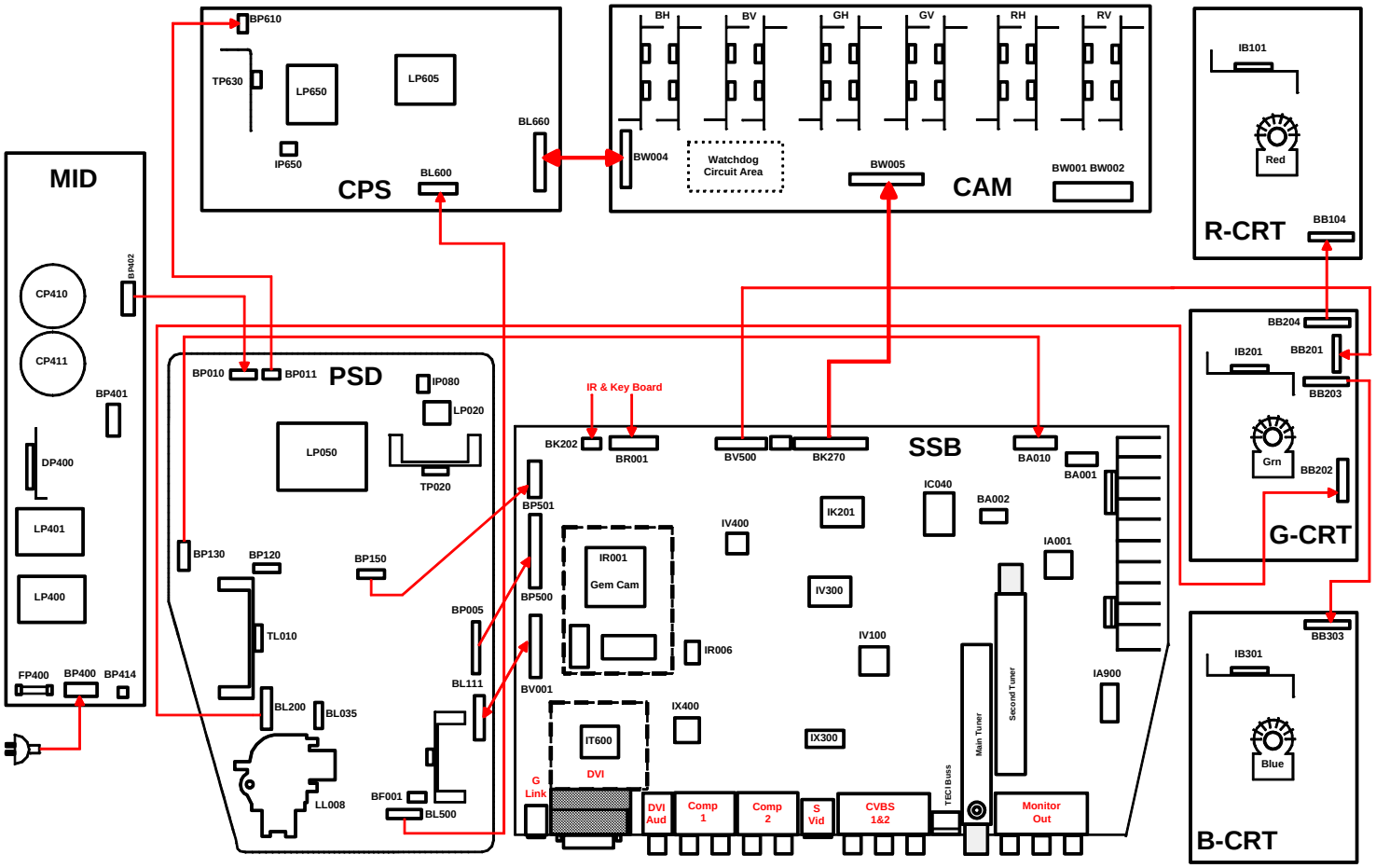


TECHNICAL TRAINING

ITC222

Field Service Guide



Sections

I

MODEL -TO- MAJOR ASSEMBLY CROSS REFERENCE

MODEL-TO-MAJOR ASSEMBLY CROSS REFERENCE

KEY TO MAJOR ASSEMBLIES

ADM1 - ATSC Tuner Board (10913610)
ADM2 - ATSC Tuner Board (10916570)
ADM3 - ATSC Tuner Board (16655100)

CAB1 - Convergence Amplifier Board (10859730)
CAB2 - Convergence Amplifier Board (5609624Q)
CAB3 - Convergence Amplifier Board (5614795Q)

CONVP1 - Convergence Power Board (10803530)
CONVP2 - Convergence Power Board (5609624R)
CONVP3 - Convergence Power Board (5614795R)

CRT1 - CRT Driver Board 10840410)
CRT2 - CRT Driver Board (Red) (10859120)
CRT3 - CRT Driver Board (Green) (10859130)
CRT4 - CRT Driver Board (Blue) (10859140)

CRTCI1 - CRT Driver Boards (56096250/A)
CRTCI2 - CRT Driver Boards (56147970/A)

DFB1 - Dynamic Focus Board (10773320)

DVD1 - DVD Assembly (21297430)

DVDIN- DVD Interface Board (10926930)
DVDIN2- DVD Interface Board (16655110)

DVDPOWER1 - DVD Power Supply (10856500)
DVDPOWER2 - DVD Power Supply (5614795S)
DVDPOWER3 - DVD Power Supply (56190900)

ES1 - EchoStar SIP Module (10856130)

FCB1 - Front Connections Board (10849270)
FCB2 - Front Connections Board (10817610)
FCB3 - Front Connections Board (5609626R)
FCB4 - Front Connections Board (5609626W)

FPA1 - Front Panel Assembly (10849250)
FPA2 - Front Panel Assembly (10849220)
FPA3 - DVD Front Panel Assembly (10856510)
FPA4 - Front Panel Assembly (5609626S)
FPA5 - Front Panel Assembly (5609626Y)

IR1 - IR Receiver Board (10849310)
IR2 - IR Receiver Board (5609626T)
IR3 - IR Receiver Board (5609626Z)

LSC1 - Loud Speaker Connections (10849520)

MID1 - Mains Input Doubler (10849430)

PSD1 - Power Supply/Deflection PCB (10849230)
PSD2 - Power Supply/Deflection PCB (10849190)
PSD3 - Power Supply/Dynamic Focus (10859740)
PSD4 - Power Supply/Deflection PCB (10802090)
PSD5 - Power Supply/Deflection PCB (10920590)
PSD6 - Power Supply/Deflection PCB (10911450)
PSD7 - Power Supply/Deflection PCB (56096260)
PSD8 - Power Supply/Deflection PCB (5609626A)

SSB1 - Small Signal Board (10857000)
SSB2 - Small Signal Board (10862350)
SSB3 - Small Signal Board (10822270)
SSB4 - Small Signal Board (10918240)
SSB5 - Small Signal Board (10914030)
SSB6 - Small Signal Board (10914040)
SSB7 - Small Signal Board (10941320)
SSB8 - Small Signal Board (16654960)
SSB9 - Small Signal Board (16655010)
SSB10 - Small Signal Board (16555050)
SSB11 - Small Signal Board (16655060)
SSB12 - Small Signal Board (16655070)
SSB13 - Small Signal Board (16655080)
SSB14 - Small Signal Board (16655090)
SSB15 - Small Signal Board (10882720)
SSB16 - Small Signal Board (10889940)

MODEL-TO-MAJOR ASSEMBLY CROSS REFERENCE

MODEL/ SERVICE NO.	CHASSIS	MAJOR ASSEMBLIES
D27F750TYX1	DV	CRT1, FCB1, FPA2, MID1, PSD2, SSB2,
D32F750TYX1	DV	CRT1, FCB1, FPA2, MID1, PSD2, SSB2,
D34W20BYX1	DV	CRT1, DFB1, FCB1, FPA2, LSC1, MID1, PSD2, SSB2,
D34EW16YX1	DV	CRT1, DFB1 ES1, FCB1, FPA2, LSC1, MID1, PSD2, SSB1,
D40EW11YX1	PTV	CAB1, CRT2, CRT3, CRT4, ES1, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB1, CONVP1
D40EW16YX2	PTV	CAB1, CRT2, CRT3, CRT4, ES1, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB1, CONVP1
D40EW16YX10	PTV	CAB1, CRT2, CRT3, CRT4, ES1, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB1, CONVP1
D40EW21YX1	PTV	CAB1, CRT2, CRT3, CRT4, ES1, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB1, CONVP1
D40W136DCYX1	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D40W15BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D40W15BYX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D40W15BYX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D40W17BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D40W17BYX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D40W17BYX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D40W20BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D40W20BYX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D40W20BYX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52GW12BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52GW12BYX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W131BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W136DBYX1	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D52W136DBYX2	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D52W136DBYX10	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D52W138DYX1	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D52W138DYX10	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D52GW12YX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1

MODEL-TO-MAJOR ASSEMBLY CROSS REFERENCE

MODEL/ SERVICE NO.	CHASSIS	MAJOR ASSEMBLIES
D52W14BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W14BYX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W14BYX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W14BYX38	PTV	CAB2, CRTCL1, CONVP2, FCB4, FPA5, IR3, LSC1, MID1, PSD8, SSB10
D52W14BYX39	PTV	CAB2, CRTCL2, CONVP2, FCB4, FPA5, IR3, LSC1, MID1, PSD8, SSB10
D52W15BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W15BYX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W15BYX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W17BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W17BYX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W17BYX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W17BYX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W19BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W19BYX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W19BYX5	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W19BYX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W19BYX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W19BYX22	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W19BYX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD3, PSD4, SSB3, CONVP1
D52W19BYX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD3, PSD4, SSB3, CONVP1
D52W19BYX32	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD3, PSD6, SSB3, CONVP1
D52W19BYX38	PTV	CAB2, CRTCL1, CONVP2, FCB4, FPA5, IR3, LSC1, MID1, PSD8, SSB8
D52W19BYX39	PTV	CAB2, CRTCL2, CONVP2, FCB4, FPA5, IR3, LSC1, MID1, PSD8, SSB8
D52W19YX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W19YX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W19BYX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W19BYX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD3, PSD4, SSB3, CONVP1
D52W19BYX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD3, PSD4, SSB3, CONVP1
D52W19BYX32	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD3, PSD5, SSB3, CONVP1
D52W20BYX5	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD3, PSD4, SSB3, CONVP1
D52W23YX22	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB4, CONVP1
D52W23YX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB4, CONVP1
D52W23YX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB4, CONVP1
D52W23YX32	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB4, CONVP1
D52W23YX33	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB4, CONVP1
D52W23YX38	PTV	CAB2, CRTCL1, CONVP2, FCB4, FPA5, IR3, LSC1, MID1, PSD8, SSB13
D52W23YX39	PTV	CAB2, CRTCL2, CONVP2, FCB4, FPA5, IR3, LSC1, MID1, PSD8, SSB13
D52W23YX50	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB4, CONVP1
D52W23YX51	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB4, CONVP1

MODEL-TO-MAJOR ASSEMBLY CROSS REFERENCE

MODEL/ SERVICE NO.	CHASSIS	MAJOR ASSEMBLIES
D52W25YX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W25YX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W25YX38	PTV	CAB2, CRTCL1, CONVP2, FCB4, FPA5, IR3, LSC1, MID1, PSD8, SSB10
D52W25YX39	PTV	CAB2, CRTCL2, CONVP2, FCB4, FPA5, IR3, LSC1, MID1, PSD8, SSB10
D52W26BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W26BYX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W26YX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB2, CONVP1
D52W26YX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB5, CONVP1
D52W26YX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB5, CONVP1
D52W26YX32	PTV	CAB2, CRTCL1, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB16
D52W26YX33	PTV	CAB2, CRTCL2, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB16
D52W26YX35	PTV	CAB2, CRTCL1, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB16
D52W26YX36	PTV	CAB2, CRTCL2, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB16
D52W26YX38	PTV	CAB2, CRTCL1, CONVP2, FCB4, FPA5, IR3, MID1, PSD8, SSB10
D52W26YX39	PTV	CAB2, CRTCL2, CONVP2, FCB4, FPA5, IR3, MID1, PSD8, SSB10
D52W27DYX1	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1
		MID1, PSD1, PSD3, SSB2, CONVP1
D52W27DYX2	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D52W27DYX10	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D52W27DYX22	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1,
		MID1, PSD3, PSD5, SSB2, CONVP1
D52W27DYX23	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1,
		MID1, PSD3, PSD6, SSB15, CONVP1
D52W27DYX32	PTV	CAB3, CRTCL1, CONVP3, DVDPOWER2, FCB3, FPA4, FPA3, IR2,
		MID1, PSD7, SSB15
D52W27DYX33	PTV	CAB3, CRTCL2, CONVP3, DVDPOWER2, FCB3, FPA4, FPA3, IR2,
		MID1, PSD7, SSB15
D52W27DYX35	PTV	CAB3, CRTCL1, CONVP3, DVDPOWER2, FCB3, FPA4, FPA3, IR2,
		MID1, PSD7, SSB15
D52W27DYX38	PTV	CAB3, CRTCL1, CONVP3, DVDPOWER3, FCB4, FPA5, FPA3, IR3,
		MID1, PSD8, SSB9
D52W27DYX39	PTV	CAB3, CRTCL2, CONVP3, DVDPOWER3, FCB4, FPA5, FPA3, IR3,
		MID1, PSD8, SSB9
D56W136DBYX1	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D56W136DBYX2	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D56W136DBYX1	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1

MODEL-TO-MAJOR ASSEMBLY CROSS REFERENCE

MODEL/ SERVICE NO.	CHASSIS	MAJOR ASSEMBLIES
D56W20BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D56W20BYX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D56W20BYX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D61W136DBYX1	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D61W136DBYX2	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D61W136DBYX10	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVD2, FCB1, FPA1, FPA3, IR1, LSC1,
		MID1, PSD1, PSD3, SSB2, CONVP1
D61W20BYX1	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
D61W20BYX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, LSC1, MID1, PSD1, PSD3, SSB2, CONVP1
HD52W59YX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM1, CONVP1
HD52W59YX8	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD5, PSD3, SSB5, ADM2, CONVP1
HD52W59YX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM1, CONVP1
HD52W59YX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM2, CONVP1
HD52W59YX22	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD5, SSB5, ADM2, CONVP1
HD52W59YX23	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD5, SSB5, ADM2, CONVP1
HD52W59YX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB5, ADM2, CONVP1
HD52W59YX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB5, ADM2, CONVP1
HD52W59YX32	PTV	CAB1, CRTCL1, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB5, ADM2, CONVP1
HD52W59YX33	PTV	CAB2, CRTCL2, CONVP2, FCB3, FPA4, IR2, MID1, PSD3, PSD7, SSB5, ADM2
HD52W59YX35	PTV	CAB2, CRTCL1 CONVP2, FCB3, FPA4, IR2, MID1, PSD3, PSD7, SSB5, ADM2
HD52W59YX36	PTV	CAB2, CRTCL2 CONVP2, FCB3, FPA4, IR2, MID1, PSD3, PSD7, SSB5, ADM2
HD52W59YX38	PTV	CAB3, CRTCL1 CONVP3, FCB4, FPA5, IR3, MID1, PSD3, PSD8, SSB11, ADM3
HD52W59YX39	PTV	CAB3, CRTCL2 CONVP3, FCB4, FPA5, IR3, MID1, PSD3, PSD8, SSB11, ADM3
HD52W59YX50	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM2, CONVP1
HD52W59YX51	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM2, CONVP1
HD52W64YX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM1, CONVP1
HD52W64YX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM1, CONVP1
HD52W64YX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM2, CONVP1
HD52W64YX38	PTV	CAB3, CRTCL1 CONVP3, FCB4, FPA5, IR3, MID1, PSD3, PSD8, SSB11, ADM3
HD52W64YX39	PTV	CAB3, CRTCL2 CONVP3, FCB4, FPA5, IR3, MID1, PSD3, PSD8, SSB11, ADM3
HD52W65YX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM1, CONVP1
HD52W65YX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM1, CONVP1
HD52W65YX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM2, CONVP1
HD52W65YX38	PTV	CAB3, CRTCL1 CONVP3, FCB4, FPA5, IR3, MID1, PSD3, PSD8, SSB11, ADM3
HD52W65YX39	PTV	CAB3, CRTCL2 CONVP3, FCB4, FPA5, IR3, MID1, PSD3, PSD8, SSB11, ADM3
HD52W66YX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM1, CONVP1
HD52W66YX10	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5, ADM1, CONVP1
HD52W66YX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB5 ADM2, CONVP1
HD52W66YX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6 ADM2, CONVP1
HD52W66YX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6 ADM2, CONVP1

MODEL-TO-MAJOR ASSEMBLY CROSS REFERENCE

SERVICE NO.	CHASSIS	MAJOR ASSEMBLIES
HD52W66YX32	PTV	CAB1, CRTCL1, FCB3, FPA4, IR2, MID1, PSD3, PSD7, SSB6 ADM2, CONVP1
HD52W66YX33	PTV	CAB2, CRTCL2, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB6 ADM2
HD52W66YX35	PTV	CAB2, CRTCL1, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB6 ADM2
HD52W66YX36	PTV	CAB2, CRTCL2, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB6 ADM2
HD52W66YX38	PTV	CAB3, CRTCL1, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12 ADM3
HD52W66YX39	PTV	CAB3, CRTCL2, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12 ADM3
HD52W66YX50	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD5, SSB6 ADM2, CONVP1
HD52W67YX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB5, ADM2, CONVP1
HD52W67YX22	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB5, ADM2, CONVP1
HD52W67YX23	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB5, ADM2, CONVP1
HD52W67YX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB5, ADM2, CONVP1
HD52W67YX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB5, ADM2, CONVP1
HD52W67YX32	PTV	CAB1, CRTCL1, FCB3, FPA4, IR2, MID1, PSD3, PSD7, SSB5, ADM2, CONVP1
HD52W67YX33	PTV	CAB2, CRTCL2, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB5 ADM2
HD52W67YX35	PTV	CAB2, CRTCL1, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB5 ADM2
HD52W67YX36	PTV	CAB2, CRTCL2, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB5 ADM2
HD52W67YX38	PTV	CAB3, CRTCL1, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB11 ADM3
HD52W67YX39	PTV	CAB3, CRTCL2, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB11 ADM3
HD52W67YX50	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB5, ADM2, CONVP1
HD52W67YX51	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB5, ADM2, CONVP1
HD52W68YX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD52W68YX22	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB3, ADM2, CONVP1
HD52W68YX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD52W68YX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD52W68YX32	PTV	CAB1, CRT2, CRT3, CRT4, FCB3, FPA4, IR2, MID1, PSD3, PSD7, SSB6, ADM2, CONVP1
HD52W68YX38	PTV	CAB3, CRTCL1, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12 ADM3
HD52W68YX39	PTV	CAB3, CRTCL2, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12 ADM3
HD52W68YX50	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD5, SSB6, ADM2, CONVP1
HD52W69DYX21	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVDIN, DVD2, FCB1, FPA1, FPA3,
		IR1, MID1, PSD3, PSD4, SSB3, ADM2, CONVP1
HD52W69DYX22	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVDIN, DVD2, FCB1, FPA1, FPA3,
		IR1, MID1, PSD3, PSD6, SSB7, ADM2, CONVP1
HD52W69DYX23	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVDIN, DVD2, FCB1, FPA1, FPA3,
		IR1, MID1, PSD3, PSD6, SSB7, ADM2, CONVP1
HD52W69DYX30	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVDIN, DVD2, FCB1, FPA1, FPA3,
		IR1, MID1, PSD3, PSD4, SSB5, ADM2, CONVP1
HD52W69DYX31	PTV	CAB1, CRT2, CRT3, CRT4, DVD1, DVDIN, DVD2, FCB1, FPA1, FPA3,
		IR1, MID1, PSD3, PSD4, SSB5, ADM2, CONVP1
HD52W69DYX32	PTV	CAB2, CRTCL1, CONVP2, DVD1, DVDIN, DVDPOWER2, FCB3, FPA4, FPA3,
		IR2, MID1, PSD7, SSB7, ADM2
HD52W69DYX33	PTV	CAB2, CRTCL2, CONVP2, DVD1, DVDIN, DVDPOWER2, FCB3, FPA4, FPA3,
		IR2, MID1, PSD7, SSB7, ADM2

MODEL-TO-MAJOR ASSEMBLY CROSS REFERENCE

MODEL/ SERVICE NO.	CHASSIS	MAJOR ASSEMBLIES
HD52W69DYX38	PTV	CAB3, CRTCL1, CONVP3, DVD1, DVDIN2, DVDPOWER3, FCB4, FPA5, FPA3,
		IR3, MID1, PSD8, SSB14, ADM3
HD52W69DYX39	PTV	CAB3, CRTCL2, CONVP3, DVD1, DVDIN2, DVDPOWER3, FCB4, FPA5, FPA3,
		IR3, MID1, PSD8, SSB14, ADM3
HD56W65YX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB5, ADM2, CONVP1
HD56W65YX21	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB5, ADM2, CONVP1
HD56W65YX38	PTV	CAB3, CRTCL1, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB11, ADM3
HD56W65YX39	PTV	CAB3, CRTCL2, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB11, ADM3
HD56W66YX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD56W66YX21	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD56W66YX22	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB6, ADM2, CONVP1
HD56W66YX23	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB6, ADM2, CONVP1
HD56W66YX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD56W66YX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD56W66YX32	PTV	CAB1, CRTCL1, FCB3, FPA4, IR2, MID1, PSD3, PSD7, SSB6, ADM2, CONVP1
HD56W66YX33	PTV	CAB2, CRTCL2, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB6, ADM2
HD56W66YX38	PTV	CAB3, CRTCL1, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12, ADM3
HD56W66YX39	PTV	CAB3, CRTCL2, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12, ADM3
HD56W66YX50	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD5, SSB6, ADM2, CONVP1
HD56W66YX51	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD5, SSB6, ADM2, CONVP1
HD56W68YX2	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD1, PSD3, SSB3, ADM1, CONVP1
HD56W68YX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD56W68YX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD56W68YX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD56W68YX38	PTV	CAB3, CRTCL1, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12, ADM3
HD56W68YX39	PTV	CAB3, CRTCL2, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12, ADM3
HD61W66YX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD61W66YX21	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD61W66YX22	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB6, ADM2, CONVP1
HD61W66YX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD61W66YX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD61W66YX32	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD7, SSB6, ADM2, CONVP1
HD61W66YX50	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD5, SSB6, ADM2, CONVP1
HD61W66YX51	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD5, SSB6, ADM2, CONVP1
HD61W68YX20	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB6, ADM2, CONVP1
HD61W68YX22	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB6, ADM2, CONVP1
HD61W68YX23	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB6, ADM2, CONVP1
HD61W68YX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD61W66YX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD4, SSB6, ADM2, CONVP1
HD61W66YX32	PTV	CAB1, CRTCL1, FCB3, FPA4, IR2, MID1, PSD3, PSD7, SSB6, ADM2, CONVP1
HD61W66YX33	PTV	CAB1, CRTCL2, FCB3, FPA4, IR2, MID1, PSD3, PSD7, SSB6, ADM2, CONVP1

MODEL/ SERVICE NO.	CHASSIS	MAJOR ASSEMBLIES
HD61W66YX38	PTV	CAB3, CRTCL1, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12, ADM3
HD61W66YX39	PTV	CAB3, CRTCL2, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12, ADM3
HD61W66YX50	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD5, SSB6, ADM2, CONVP1
HD61W66YX51	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD5, SSB6, ADM2, CONVP1
HD61W68YX22	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB6, ADM2, CONVP1
HD61W68YX30	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB6, ADM2, CONVP1
HD61W68YX31	PTV	CAB1, CRT2, CRT3, CRT4, FCB1, FPA1, IR1, MID1, PSD3, PSD6, SSB6, ADM2, CONVP1
HD61W68YX32	PTV	CAB2, CRTCL1, CONVP2, FCB3, FPA4, IR2, MID1, PSD7, SSB6, ADM2,
HD61W68YX38	PTV	CAB3, CRTCL1, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12, ADM3
HD61W68YX39	PTV	CAB3, CRTCL2, CONVP3, FCB4, FPA5, IR3, MID1, PSD8, SSB12, ADM3

CIRCUIT PROTECTION

Fusible Device	Circuit Protected	Physical Location
FL221 (1.25, 125V)	-13V Supply	Power Supply/Deflection PCB
FL231 (400ma, 125V)	+40V Supply	Power Supply/Deflection PCB
FL251 (1.25A, 125V)	+13V Supply	Power Supply/Deflection PCB
FP400 (6A, 125V)	AC Input	Mains Input Doubler PCB
FP602 (1A, 250V)	DVD Power Supply	Mains Input Doubler PCB

COMPONENT NUMBERING SYSTEM

Serviceability of this chassis is enhanced by road mapping on the top and bottom of the circuit boards. In addition components are marked as to the Component Type and generally marked as to their circuit. The operation and features of the "**ITC**" chassis is similar to the "**CTC**" series chassis. However the component numbering system is different than that in the past in the "**CTC**" series chassis but is similar to the component markings of the "**TX**" series chassis. The component numbering for the chassis reflects the component's type and use as to the general circuit areas it is used. The component labeling system is described below:

COMPONENT DESIGNATION: X X XXX

COMPONENT TYPE	CIRCUIT	COMPONENT NUMBER
B-Connector	A - Audio	01 - 499 PS/D PCB (top)
C-Capacitor	C - Chroma	500 - 599 PS/D PCB (bottom)
D-Diode	D - DC-DC Convertor	
F-Fuse	F - Vertical	01 - 099 DFB PCB (top)
I-Integrated Circuit	G - Gemstar	
J-Jumper	H - Tuner	001 - 099 FCB PCB (top)
L-Transformer/Inductor	I - IF	501 - 599 FCB PCB (top)
P-Variable Resistor	J - Sync Separator	
Q-Filter/Crystal	K - Customer Control	001 - 099 FPA PCB (top)
R-Resistor	L - Horizontal	501 - 599 FPA PCB (top)
S-Switch	P - Power Supplies	
T-Transistor	R - System Control	01 - 99 Kine PCB (top)
V-Delay Line	U - Kine Drivers	500 - 599 Kine PCB (bottom)
	V - Video	
	Z - XRP	

EXAMPLES:

- **TP20 -** ***T***ransistor, ***P***ower, 20 (number, top side of PS/D PCB)
- **RA543 -** ***R***esistor, ***A***udio, 543 (number, bottom side of SSB PCB)
- **CF04 -** ***C***apacitor, Vertical, 07 (number, top side of PS/D PCB)
- **IR02 -** ***Integrated Circuit***, System Control, 02 (number, top side of SSB PCB)

II

DISASSEMBLY

DISASSEMBLY

Direct View Models

Lower Back Cover Removal

The back cabinet is held in place with several T-20 Torx head screws. The number and placement of the screws may vary with cabinet designs.

Chassis Tray/Front Control Panel/Front AV Jack/ Removal/Service Position

1. Remove the Back Cabinet Assembly
2. Lift sides of chassis tray assembly
3. Slide chassis tray assembly away from CRT approximately 2 - 3".
4. Chassis will release from bottom cabinet assembly.
5. Remove 1 T-20 Torx head screw from Front A/V Jack Housing.
6. With a small screwdriver release tab securing Front A/V Housing to Cabinet Assembly. Slide Housing away from cabinet to remove.
7. Remove 2 T-20 Torx head screws mounting Front Control Panel to Front Cabinet Assembly.
8. Chassis may now be placed in the Service Position. See diagram below.
9. To place chassis tray back into the cabinet, align the bottom of the chassis tray with the locking mechanism of the bottom cabinet assembly.
10. Slide chassis towards the CRT. Chassis will drop into the locking mechanism. Continue to slide forward to lock chassis into place.

Note: Lead dress is critical to the performance of the instrument. Care should be taken to dress all leads in their original positions. See section on Critical Lead Dress.

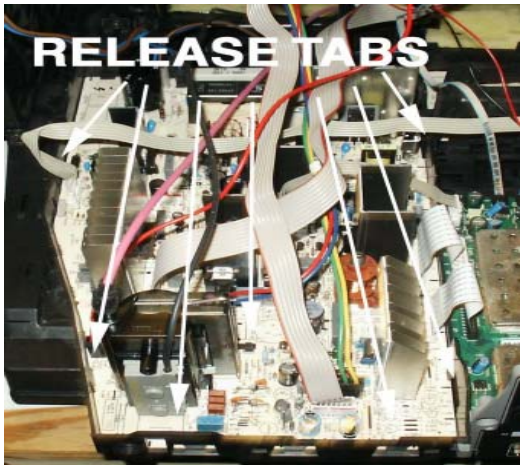
CRT Removal

1. Remove Back Cabinet Assembly (See Back Cabinet Removal).
2. Disconnect cables to Speaker Assemblies, Front Panel Assembly, Degauss Coil, Deflection Yoke, Field Correction Coil and SVM Coil.
3. Remove Front A/V Assembly. (See Front AV Jack Removal, step 6).
4. Remove Anode Lead from CRT. Care should be taken to prevent shock before removal. Discharge CRT Anode to CRT Ground.
5. Remove Kine Drive PCB from CRT.
6. Disconnect CRT Ground Lead.
7. Remove Chassis Tray Assembly. (See steps 2 and 3 of Chassis Tray Removal).
8. Remove Degauss Coil and Degauss Coil clips from CRT.
9. Remove Field Correction Coil.
10. Lay instrument face down on a soft surface to prevent damage to the Front Cabinet Assembly and CRT face.
11. Remove 4, 10mm bolts securing CRT to Cabinet Assembly.
12. Carefully remove CRT from Cabinet Assembly. Remove Ground Strap and place on new CRT.
13. Reinstall in reverse order.

Power Supply/Scan PCB Removal

1. Remove Chassis Tray from bottom Cabinet Assembly (See Chassis Tray Removal).
2. Remove Dynamic Focus PCB.
3. Disconnect cables
4. Press tabs to release Power Supply/Scan PCB from the Chassis Tray.
5. Lift PCB from the rear to remove from chassis tray.

Reinstall in reverse order.

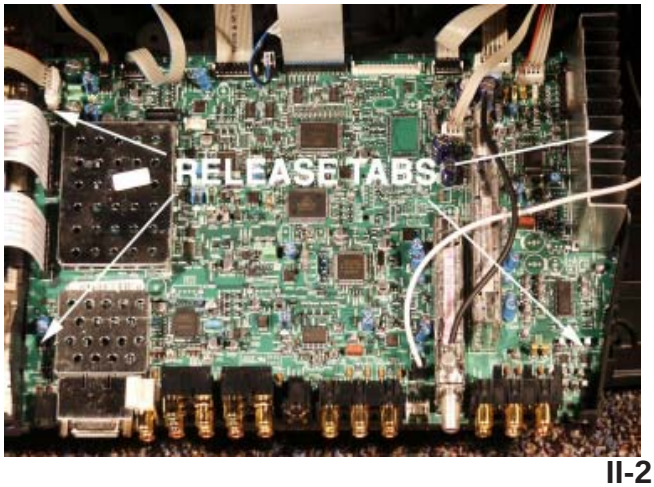


Mains Input Doubler (MID) PCB Removal

1. Remove chassis tray from cabinet assembly (See Chassis Tray Removal).
2. With a small screwdriver release 2 tabs holding MID bracket to chassis tray.
3. Disconnect cables.
4. Release tabs on chassis tray.
5. Lift MID PCB from the chassis tray.

Small Signal (SSB) PCB Removal

1. Remove DRI PCB (See above).
2. Remove DRI PCB Bracket. Release 2 tabs at front of bracket. Lift front of bracket to remove from chassis tray.
3. Remove 3 T-10H Torx head screws from Jack Panel portion of the Chassis Tray Assembly.
4. Disconnect cables.
5. Release tabs on Chassis Tray Assembly.
6. Slide Small Signal PCB towards the front of the instrument and lift out to remove.
7. Reinstall in reverse order.



DISASSEMBLY
Projection Models

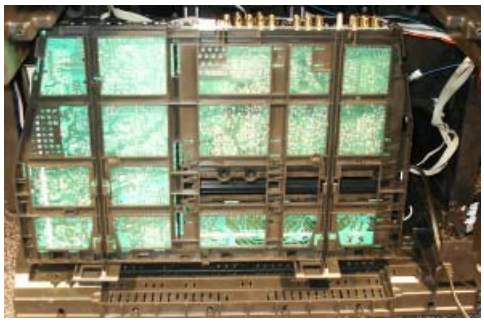
Back Cabinet Removal

The back cabinet is held in place with several T-20 Torx head screws. The number and placement of the screws may vary with cabinet designs. If model has a subwoofer, disconnect cable at bottom of cabinet assembly.

Chassis Tray Removal/Service Position

1. Remove the Back Cabinet Assembly

2. Lift sides of chassis tray assembly
3. Slide chassis tray assembly away from CRT's approximately 2 - 3".
4. Chassis will release from bottom cabinet assembly.
5. Chassis may now be placed in the Service Position. See diagram below.

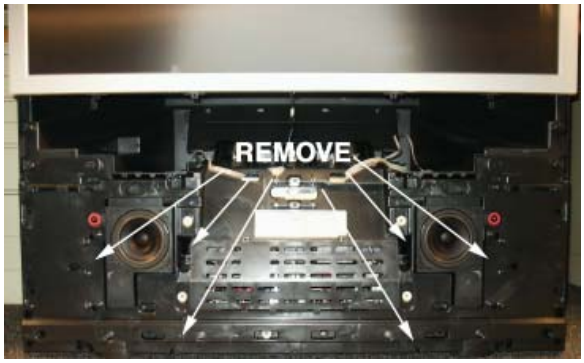


6. To place chassis tray back into the cabinet, align the bottom of the chassis tray with the locking mechanism of the bottom cabinet assembly.

Cabinet Front Disassembly, FPA/Front A/V PCB/Speaker Removal

1. Grasp Speaker Grille on the sides. Pull away from instrument to remove.
2. Remove T-20 Torx head screws holding front bottom.
3. Remove T-20 Torx head screws holding front cabinet assembly. Unplug cables for Front Panel Assembly and Front Audio/ Video Jack Assembly. FPA and Front A/V Assemblies may now be serviced.

4. Access Panel may now be removed to allow service of Kine Drive circuits.
5. Remove T-20 Torx head screws securing front frame to cabinet assembly.
6. Speaker Assemblies may now be serviced. Remove 5 T-20 Torx head screws to gain access to crossover circuit located internal to each speaker enclosure.
7. Reassembly in reverse order. If instrument is a DVD Model, ensure DVD door is aligned properly



Screen/Mirror Removal, IR PCB/Convergence Auto Sensor Replacement.

1. Remove Front Cabinet Assembly. (See steps 1 and 3 in Cabinet Front Disassembly)
2. Remove T-20 Torx head screws securing Screen Assembly to cabinet frame.
3. With Screen Assembly removed, IR PCB may now be serviced.
4. Convergence Auto Sensors may now be replaced. Remove T-20 Torx head screws securing each sensor to the cabinet frame.
5. Remove 4 T-20 Torx head screws securing the mirror to the cabinet frame.

CRT Assembly Removal, Focus/Screen Assembly/HV Splitter Assembly Replacement

1. Remove Cabinet Front Assembly. (See Cabinet Front Disassembly).
2. Remove Screen Assembly. (See Screen/ Mirror Removal).
3. Remove Kine Drive PCB's from CRT.
4. Remove IR PCB from holder located on top of CRT Assembly.
5. Disconnect Convergence Yoke Cables from Convergence Amp PCB and Deflection Yoke Cables from Convergence Adapter PCB. Disconnect SVM cables and CRT ground cables from each Kine Drive PCB.
6. Remove Anode Lead from HV Splitter (Lead from IHVT to HV Splitter). Anode Lead can be removed by pushing in slightly, then twist and pull. If HV Splitter Assembly needs to be replaced, remove Anode Leads to each CRT. Use same procedure to remove leads. Disconnect Ground lead. Remove ¼ inch screw securing assembly to bracket
7. Remove ¼ inch screw securing Focus/ Screen Assembly to CRT Frame.
8. Remove 4 T-20 Torx head screws securing CRT assembly to Cabinet Frame. Slide CRT Assembly out to remove from cabinet. (It may be necessary to remove the Speaker Assemblies).
9. Reinstall in reverse order.

Note: Lead Dress is critical to the operation of the instrument. Care should be taken to dress all leads in their original positions. See section on Critical Lead Dress.

Upper Cabinet Assembly Removal

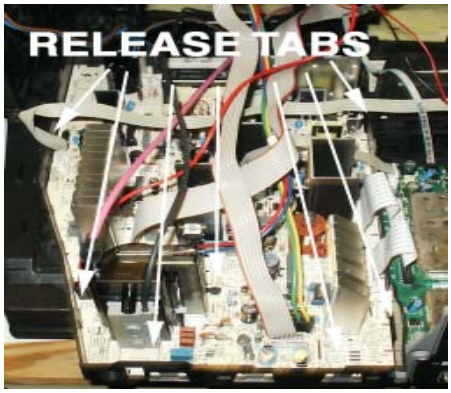
For ease of service the upper and lower cabinet assemblies may be separated.

1. Remove back cabinet assembly. (See Back Cabinet Removal).
2. Remove Cabinet Front Assembly. (See Cabinet Front Disassembly.
3. Remove Front Panel Assembly and Front A/V from holder. (Front A/V may be left in the Cabinet Front Assembly by disconnection the cables).
4. Disconnect cable to Auto Convergence Sensors.
5. Disconnect cables from DVD assembly if instrument is a DVD model.
6. Remove 4 T-20 Torx head screws securing Upper and Lower Cabinet Assemblies.
7. Lift Upper Cabinet straight up to remove.

8. Reassemble in reverse order.

Power Supply/Scan PCB Removal

1. Remove Chassis Tray from bottom Cabinet Assembly (See Chassis Tray Removal).
2. Disconnect cables
3. Press tabs to release Power Supply/Scan PCB from the Chassis Tray.
4. Lift PCB from the rear to remove from chassis tray.
5. Reinstall in reverse order.



Mains Input Doubler (MID) PCB Removal

1. Remove chassis tray from cabinet assembly (See Chassis Tray Removal).
2. Remove bracket behind SSB board.
3. With a small screwdriver release 2 tabs holding MID bracket to chassis tray.

DISASSEMBLY

4. Disconnect cables.
5. Release tabs on chassis tray.
6. Lift MID PCB from the chassis tray.

Convergence Adapter PCB/ Convergence Amplifier PCB Removal

1. Remove T-20 Torx head screw from middle of PCB.
2. Release tabs at top of PCB to remove from bracket.
3. Disconnect cables
4. Reinstall in reverse order.

Convergence Signal PCB Removal

1. Using a screwdriver pry up on tab under bracket. (See diagram below).
2. Pull back on bracket to remove convergence signal bracket from chassis.
3. Release tabs on top of bracket to remove Convergence Signal PCB.
4. Disconnect cables.
5. Reinstall in reverse order.

Small Signal (SSB) PCB Removal

1. Remove DRI PCB (See above).
2. Remove DRI PCB Bracket. Release 2 tabs at front of bracket. Lift front of bracket to remove from chassis tray.
3. Remove 3 T-10H Torx head screws from Jack Panel portion of the Chassis Tray Assembly.
4. Disconnect cables.
5. Release tabs on Chassis Tray Assembly.
6. Slide Small Signal PCB towards the front of the instrument and lift out to remove.
7. Reinstall in reverse order.

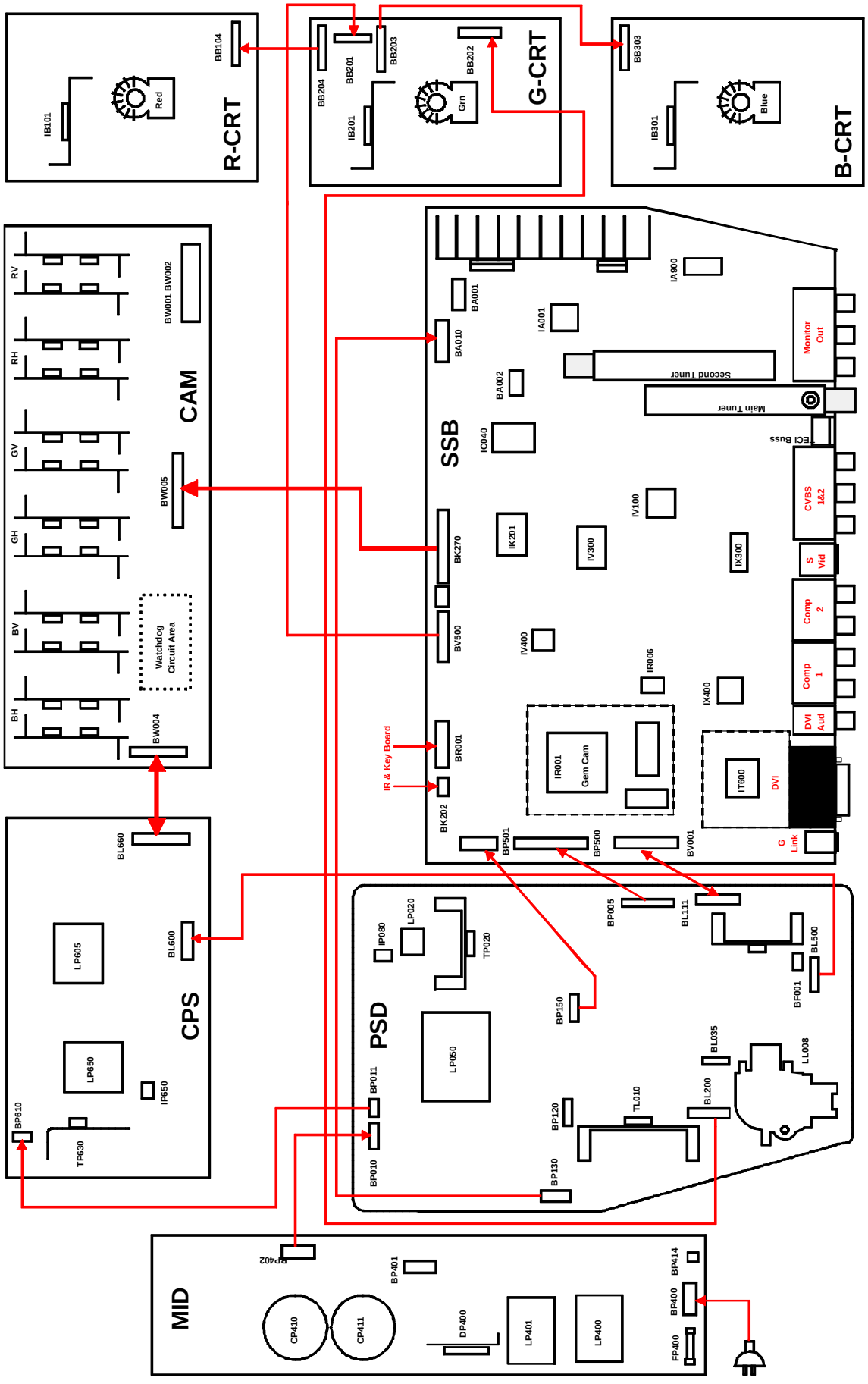
DVD Unit Removal (PTV Models)

1. Remove Back Cabinet Assembly.
2. Remove Front Cabinet Assembly (See Front Cabinet Disassembly).
3. Disconnect cables from DVD Unit.
4. Remove T-20 Torx head screws securing DVSD Unit to Cabinet Frame.
5. Lift to remove DVD Unit from Cabinet.
6. Reinstall in reverse order.

III

Interconnect

Interconnect



IV

VOLTAGE CHARTS

VOLTAGE CHARTS

Pin	BA001	Pin	BA002
1	0	1	0
2	0	2	0
3	0	3	0
4	0		

Pin	BA010
1	-15.7
2	-15.7
3	0
4	0
5	16.3
6	16.3

Pin	BR001
1	0
2	3.4
3	1.4
4	4.9
5	4.9
6	0
7	3.4

Pin	BK290
1	-0.5
2	0

BK270						
Pin	VDC		Pin	VDC	Pin	VDC
1	-0.04		10	0	19	0
2	0		11	11.6	20	-0.03
3	0		12	14.2	21	4.5
4	-0.15		13	0.03	22	0
5	0.02		14	0	23	0
6	0.03		15	0	24	14.9
7	0		16	0.13	25	14.9
8	0		17	-0.01		
9	-14.1		18	-0.02		

BX220			
Pin	VDC	Pin	VDC
1	0	6	0
2	0	7	0
3	0	8	0
4	0	9	0
5	0	10	0

BV001					
Pin	VDC	Pin	VDC	Pin	VDC
1	20.8	8	0.01	15	1.05
2	1.68	9	0	16	0.8
3	0.08	10	26.7	17	1.87
4	1.85	11	0	18	3.4
5	1.76	12	3.5	19	0
6	4.6	13	4.8	20	7.3
7	0.54	14	8.1	21	20.8

BV500			
Pin	VDC	Pin	VDC
1	14.5	9	0
2	5.5	10	0
3	0	11	5.0
4	3.7	12	0
5	0	13	0
6	3.7	14	3.2
7	0	15	0
8	3.9	16	14.8

VOLTAGE CHARTS

IA001									
Pin	VDC		Pin	VDC		Pin	VDC		
1	4.8		23	0.06		45	0		
2	4.8		24	0		46	2.6		
3	0.15		25	3.7		47	3.7		
4	0.15		26	3.7		48	0		
5	0.14		27	0		49	4.9		
6	0.14		28	3.7		50	1.5		
7	0.15		29	3.7		51	1.5		
8	0.15		30	7.0		52	0.19		
9	0.15		31	8.0		53	0		
10	5.0		32	7.0		54	2.3		
11	0		33	0		55	2.2		
12	0.14		34	3.7		56	0.2		
13	0		35	3.7		57	2.3		
14	0.15		36	3.7		58	0		
15	0.15		37	0		59	0		
16	4.9		38	3.7		60	0		
17	0.09		39	3.7		61	5.0		
18	0.09		40	0		62	0		
19	0		41	3.7		6.3	5.0		
20	0.06		42	3.7		64	0		
21	0.06		43	0					
22	0		44	0					

IA900				
Pin	VDC		Pin	VDC
1	0		15	4.5
2	4.5		16	4.5
3	9.0		17	4.5
4	4.4		18	4.4
5	4.4		19	4.4
6	4.4		20	4.4
7	0		21	0
8	0		22	0
9	4.4		23	4.4
10	4.4		24	4.4
11	4.4		25	4.4
12	4.5		26	8.9
13	4.5		27	4.8
14	4.5		28	4.8

VOLTAGE CHARTS

IK201								
Pin	VDC		Pin	VDC		Pin	VDC	
1	3.3		28	0.05		55	0.96	
2	3.3		29	0		56	0	
3	0		30	0		57	3.2	
4	0		31	3.3		58	3.2	
5	3.3		32	3.3		59	0	
6	3.3		33	0		60	0.16	
7	0.01		34	1.9		61	0.16	
8	3.2		35	0.14		62	3.3	
9	3.1		36	0.15		63	0.15	
10	0.66		37	0.14		64	0.16	
11	0		38	0.13		65	0.17	
12	3.3		39	0.14		66	0.17	
13	3.3		40	0.13		67	0	
14	0		41	0		68	0.13	
15	0		42	3.3		69	0.12	
16	0.09		43	0		70	3.3	
17	0.08		44	3.3		71	0	
18	0.09		45	0.16		72	0.36	
19	3.2		46	0.16		73	3.3	
20	0		47	0		74	3.3	
21	1.05		48	0.17		75	0	
22	0.28		49	0.17		76	0	
23	0		50	3.3		77	0	
24	0		51	0.15		78	3.1	
25	1.2		52	0.15		79	3.2	
26	3.3		53	0		80	2.0	
27	0.67		54	0.5				

IT600								
Pin	VDC		Pin	VDC		Pin	VDC	
1	3.2		19	0		37	3.2	
2	3.2		20	3.2		38	3.2	
3	3.2		21	0		39	3.2	
4	0		22	3.2		40	0	
5	3.2		23	0		41	3.2	
6	3.2		24	3.2		42	3.2	
7	3.2		25	0		43	0	
8	3.2		26	0		44	0	
9	3.2		27	3.2		45	0	
10	0		28	0		46	3.2	
11	3.2		29	0		47	0	
12	0		30	3.2		48	3.2	
13	3.2		31	0		49	3.2	
14	3.2		32	3.2		50	0	
15	3.2		33	0		51	3.2	
16	0		34	0		52	3.2	
17	3.2		35	0				
18	0		36	0				

VOLTAGE CHARTS

IR001							
Pin	VDC	Pin	VDC	Pin	VDC	Pin	VDC
1	3.4	41	2.8	81	0.01	121	3.4
2	1.6	42	2.8	82	4.8	122	0
3	0	43	2.7	83	4.8	123	0.05
4	1.1	44	2.6	84	4.9	124	3.4
5	2.5	45	0.71	85	3.4	125	0
6	3.2	46	0.71	86	3.4	126	0
7	3.3	47	0.71	87	0.04	127	1.8
8	2.9	48	2.7	88	0	128	3.4
9	3.3	49	3.0	89	3.4	129	0
10	0.05	50	3.4	90	0	130	0
11	3.2	51	0	91	3.4	131	0
12	3.4	52	3.0	92	3.4	132	0
13	3.4	53	2.9	93	1.6	133	0
14	3.4	54	2.9	94	0	134	1.4
15	0	55	2.9	95	3.3	135	0
16	3.2	56	3.1	96	3.2	136	3.4
17	3.4	57	2.9	97	3.4	137	1.3
18	3.4	58	0.11	98	5.0	138	0
19	0.55	59	2.6	99	3.4	139	3.4
20	0.36	60	2.6	100	1.8	140	0.02
21	1.5	61	1.8	101	4.9	141	0.02
22	1.8	62	0	102	0	142	0.02
23	0	63	0.13	103	4.9	143	0.02
24	0.66	64	3.4	104	4.9	144	3.4
25	0.49	65	0	105	4.9	145	0
26	3.4	66	0.43	106	4.9	146	1.6
27	0	67	0.58	107	4.9	147	1.5
28	0.29	68	0.01	108	3.4	148	2.0
29	1.1	69	0.43	109	1.9	149	0
30	1.6	70	0	110	0.23	150	3.3
31	0.84	71	4.9	111	2.8	151	0
32	0.35	72	4.9	112	0.22	152	1.8
33	0.76	73	4.9	113	0.05	153	3.4
34	0.6	74	4.9	114	3.4	154	0
35	0.69	75	4.9	115	0	155	0
36	0.85	76	4.9	116	3.4	156	1.8
37	0.64	77	0.06	117	0	157	1.8
38	3.4	78	0	118	3.4	158	1.4
39	0	79	4.9	119	3.4	159	1.4
40	0.81	80	0.25	120	0.38	160	0

VOLTAGE CHARTS

IR110											
Pin	VDC		Pin	VDC		Pin	VDC				
1	3.4		19	2.5		37	1.05				
2	0.56		20	0.01		38	1.6				
3	3.4		21	0.43		39	0.55				
4	0.33		22	0.05		40	0				
5	0.47		23	2.8		41	0				
6	0		24	2.8		42	0.88				
7	0.65		25	1.5		43	3.4				
8	0.48		26	1.9		44	0.4				
9	3.4		27	3.4		45	0.53				
10	0.32		28	0		46	0				
11	0.35		29	0.72		47	0.56				
12	0		30	0.71		48	0.72				
13	0.67		31	0.71		49	3.4				
14	3.4		32	2.7		50	0.88				
15	0.43		33	3.0		51	0.65				
16	3.3		34	3.0		52	0				
17	2.9		35	2.9		53	0.83				
18	3.3		36	0.05		54	0				

IR130											
Pin	VDC		Pin	VDC		Pin	VDC				
1	2.6		17	0.12		33	0.47				
2	0.11		18	3.0		34	0.78				
3	2.9		19	2.7		35	0.78				
4	3.1		20	0.71		36	0.59				
5	2.9		21	0.71		37	3.4				
6	2.9		22	0.71		38	0.59				
7	2.9		23	2.5		39	0.24				
8	0		24	2.7		40	0.36				
9	0.56		25	2.8		41	0.65				
10	0.01		26	3.3		42	0.72				
11	3.4		27	0		43	0.89				
12	3.4		28	3.2		44	0.67				
13	0.42		29	0.59		45	0.82				
14	3.4		30	0.85		46	0				
15	0.08		31	0.36		47	3.4				
16	0.43		32	0.37		48	2.6				

VOLTAGE CHARTS

IV100									
Pin	VDC		Pin	VDC		Pin	VDC		
1	3.3		28	1.8		55	1.0		
2	0.75		29	0		56	1.0		
3	0		30	0.16		57	1.0		
4	0		31	0.16		58	1.0		
5	1.8		32	0.16		59	3.3		
6	3.3		33	0		60	0		
7	3.3		34	1.8		61	0.9		
8	0.9		35	1.8		62	1.5		
9	0		36	0		63	1.5		
10	0.17		37	0.16		64	1.8		
11	0		38	2.2		65	0		
12	3.3		39	1.1		66	1.8		
13	3.3		40	0.7		67	0		
14	0		41	1.1		68	1.8		
15	0.17		42	1.8		69	0.35		
16	0.17		43	0		70	0.58		
17	0.25		44	3.3		71	0		
18	0.06		45	0		72	3.3		
19	0		46	0.02		73	0		
20	0.02		47	0.02		74	0		
21	0.17		48	0.02		75	0.33		
22	0.17		49	0		76	0.85		
23	0.01		50	1.8		77	0		
24	3.4		51	0		78	3.3		
25	3.3		52	0.9		79	0.87		
26	0		53	1.0		80	0		
27	3.3		54	1.0					

Pin	NH101	NH201
1	2.19	2.2
2	0	0
3	1.1	0
4	4.89	4.8
5	4.89	4.8
6	4.9	5.0
7	4.9	5.0
8	0	0
9	33.9	33.9
10	0	0
11	0	0
12	0	0
13	2.23	2.3
14	2.06	1.9
15	0	0
16	0.77	.7
17	0	0
18	5.0	5.0
19	0	0
20	0	0

IV400									
Pin	VDC		Pin	VDC		Pin	VDC		
1	1.8		16	3.9		31	2.0		
2	1.9		17	8.0		32	1.9		
3	3.3		18	4.7		33	1.9		
4	1.8		19	0		34	0.24		
5	0		20	1.0		35	1.5		
6	0		21	1.0		36	1.5		
7	4.7		22	0		37	1.5		
8	2.0		23	0.01		38	0.63		
9	0.65		24	0.25		39	8.0		
10	4.8		25	2.6		40	2.6		
11	4.8		26	1.7		41	2.8		
12	5.0		27	1.7		42	2.7		
13	0.8		28	1.7		43	2.6		
14	3.5		29	0		44	4.8		
15	3.8		30	1.9					

VOLTAGE CHARTS

IX300	
Pin	VDC
1	3.3
2	4.8
3	4.5
4	4.8
5	4.4
6	3.3
7	9.0
8	4.4
9	9.0
10	3.3
11	3.6
12	0
13	3.2
14	3.2
15	3.2
16	3.2
17	3.2
18	3.2
19	0
20	3.6

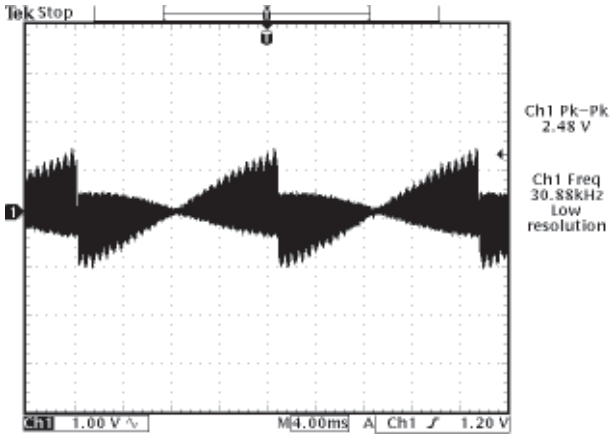
IX400					
Pin	VDC	Pin	VDC	Pin	VDC
1	2.9	17	0	33	2.9
2	2.9	18	1.0	34	2.9
3	2.9	19	0	35	2.9
4	1.0	20	2.9	36	1.0
5	1.0	21	0	37	1.0
6	0	22	0	38	0.05
7	2.9	23	0	39	2.5
8	2.9	24	0	40	5.0
9	2.9	25	2.8	41	2.9
10	1.0	26	2.8	42	2.9
11	1.0	27	2.8	43	2.9
12	5.0	28	5.0	44	1.0
13	2.	29	4.9	45	1.02
14	2.4	30	4.8	46	0.06
15	3.2	31	4.8	47	2.5
16	2.4	32	5.0	48	0

IV300					
Pin	VDC	Pin	VDC	Pin	VDC
1	0.92	28	4.8	55	0
2	0	29	0	56	0
3	0	30	4.8	57	7.6
4	4.6	31	2.1	58	6.9
5	0	32	0	59	0
6	4.6	33	0	60	5.0
7	4.6	34	-0.17	61	5.0
8	9.0	35	4.9	62	0
9	0	36	0	63	5.0
10	0	37	0.09	64	0.35
11	0	38	0	65	0
12	3.0	39	1.4	66	5.0
13	3.0	40	2.5	67	5.0
14	2.9	41	5.7	68	5.0
15	0	42	5.4	69	0
16	9.0	43	0	70	5.5
17	0	44	6.7	71	1.1
18	3.9	45	9.0	72	0
19	3.9	46	0	73	0
20	0	47	0.17	74	5.3
21	3.9	48	0	75	9.0
22	0	49	0.03	76	0
23	0.22	50	0.25	77	4.4
24	3.9	51	0	78	6.4
25	3.9	52	0.01	79	0
26	3.9	53	2.0	80	0
27	0	54	0		

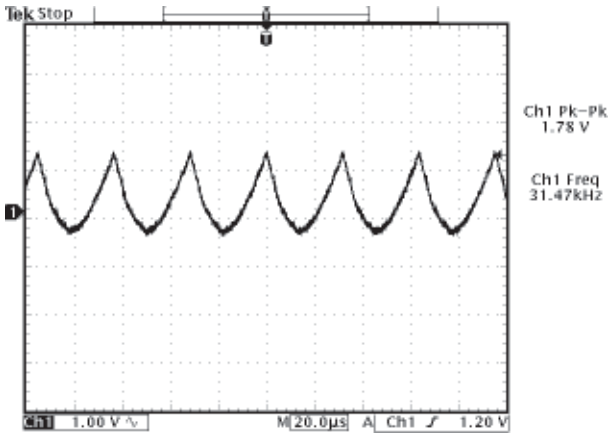
V

WAVEFORMS

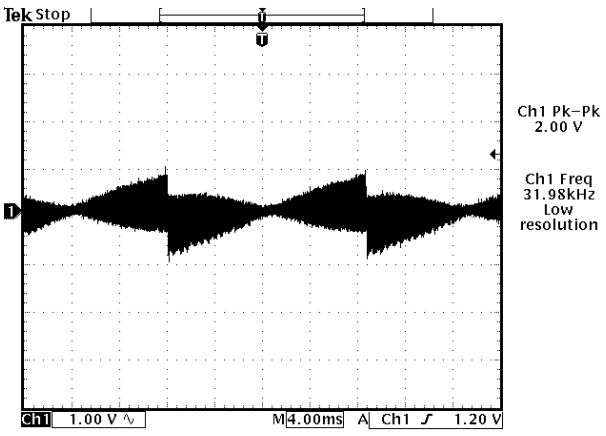
WAVEFORMS



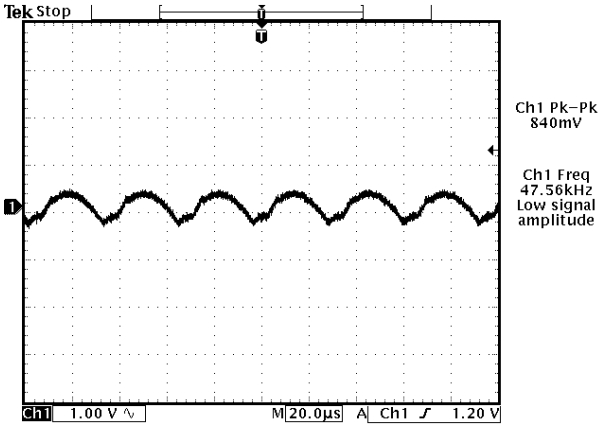
WFC10



WFC11



WFC12



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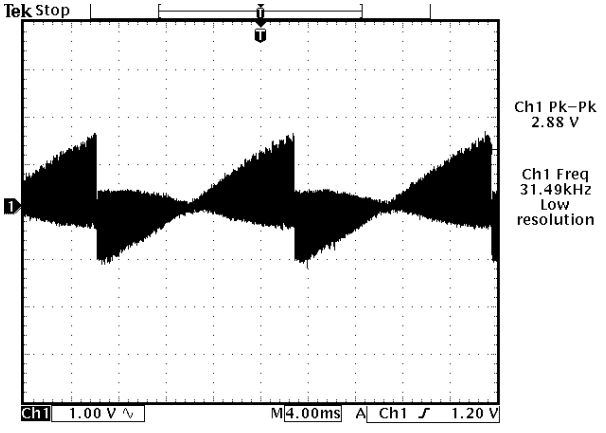

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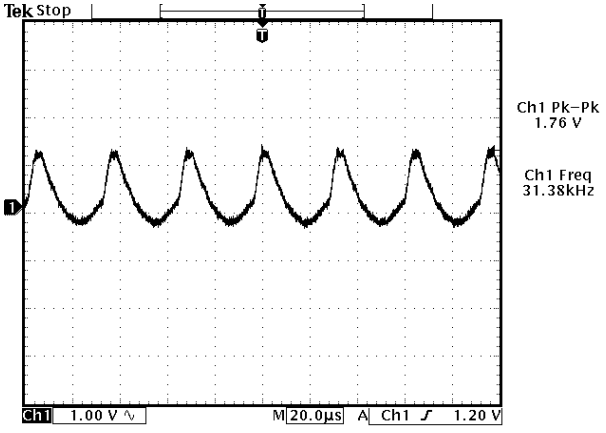

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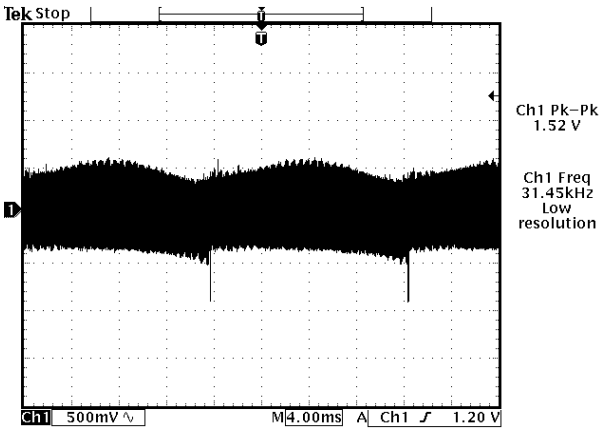

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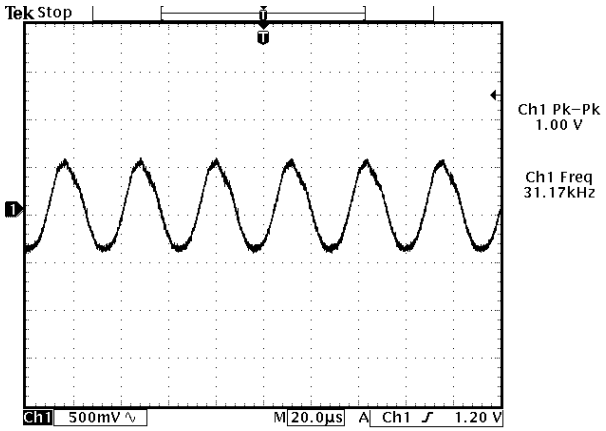

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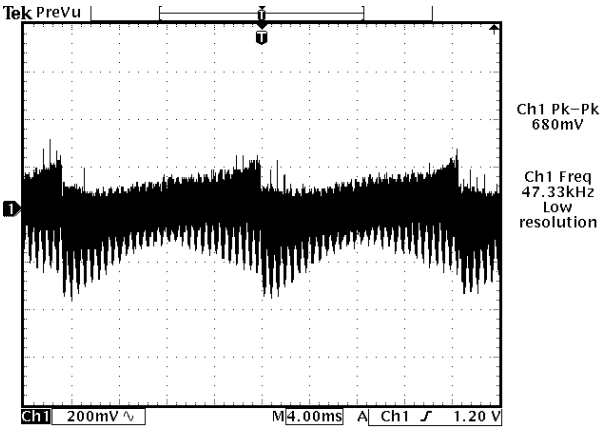

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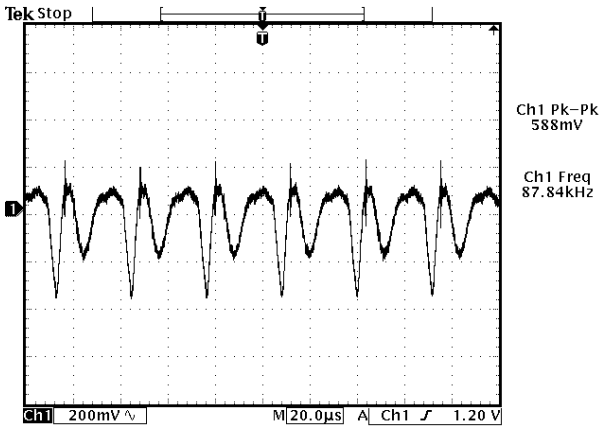

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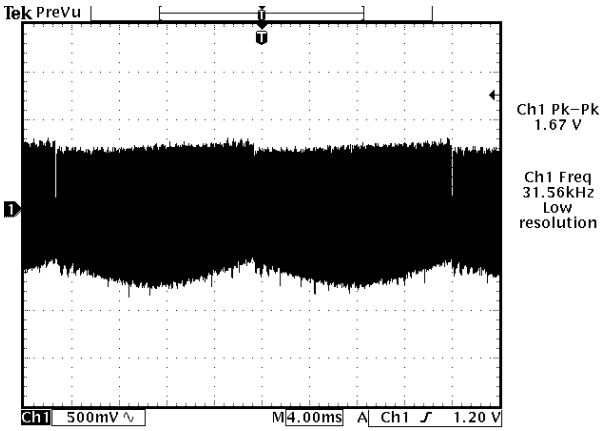

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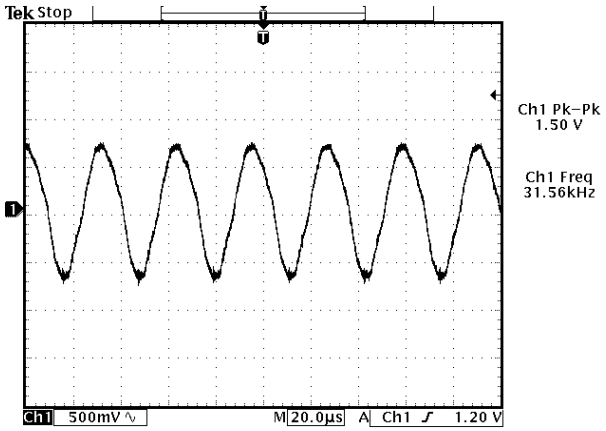

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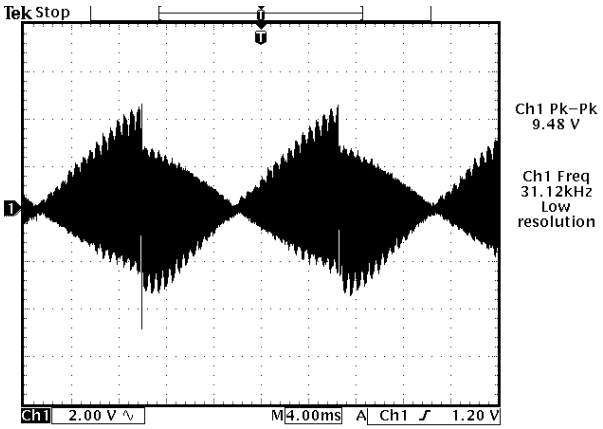

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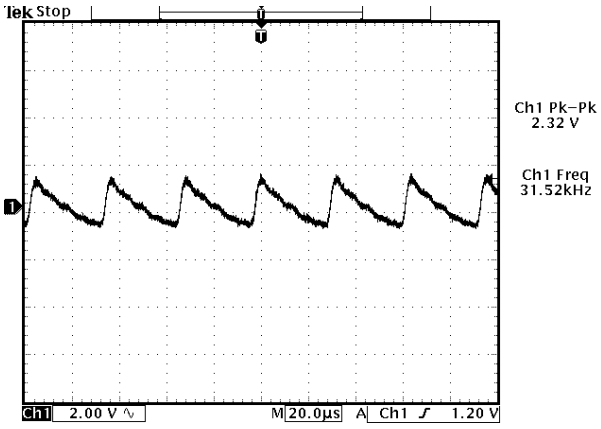

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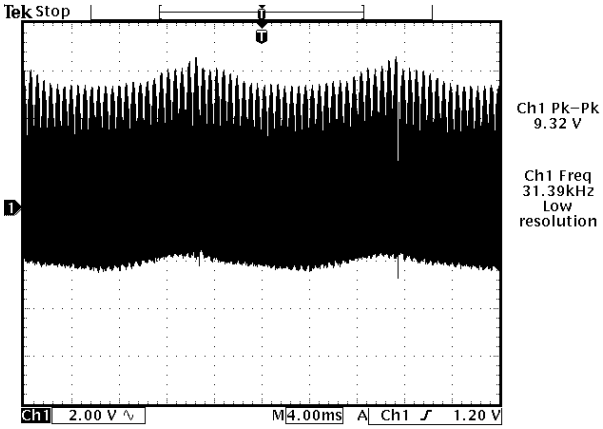

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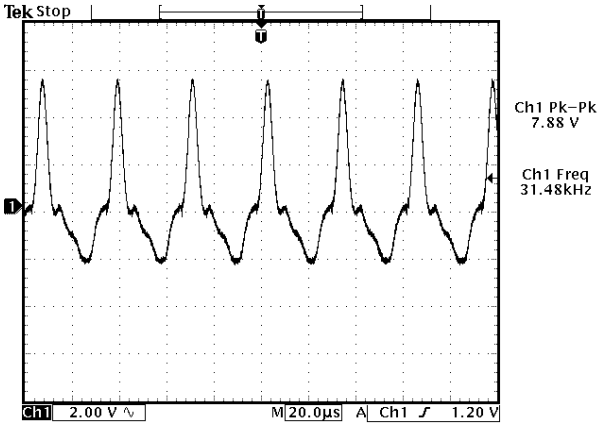

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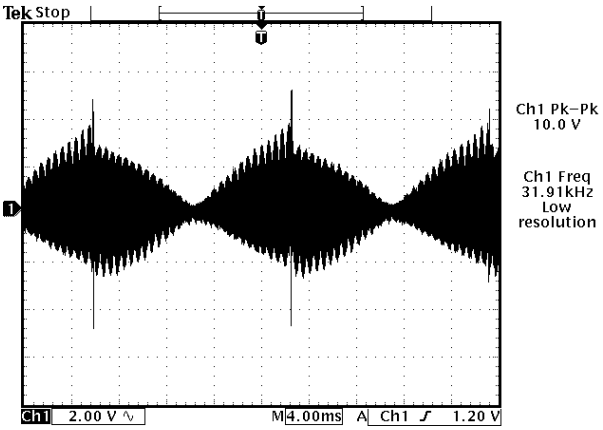

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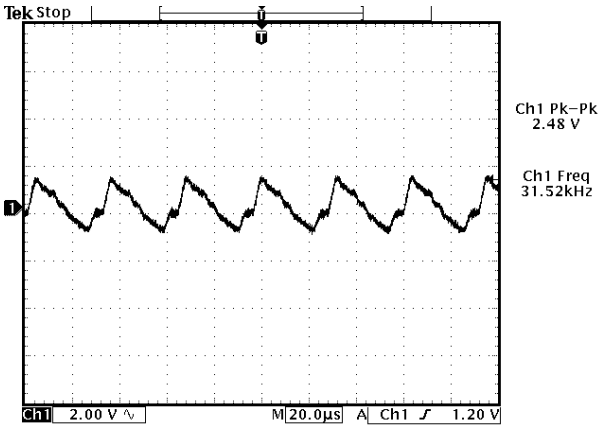

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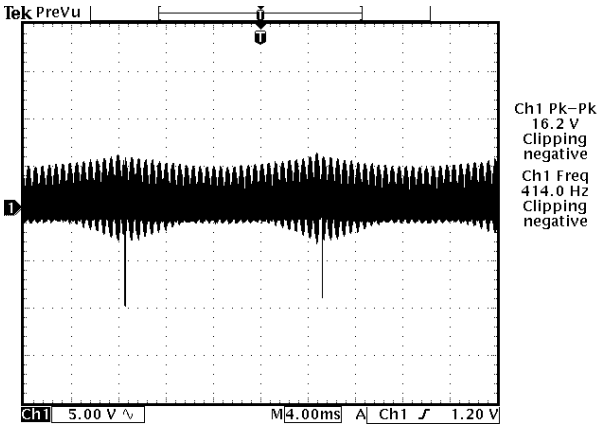

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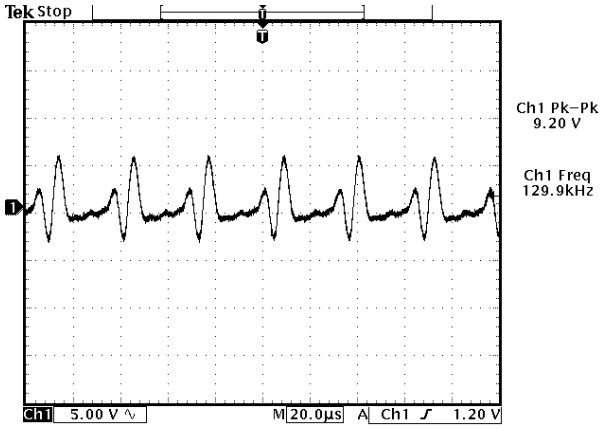

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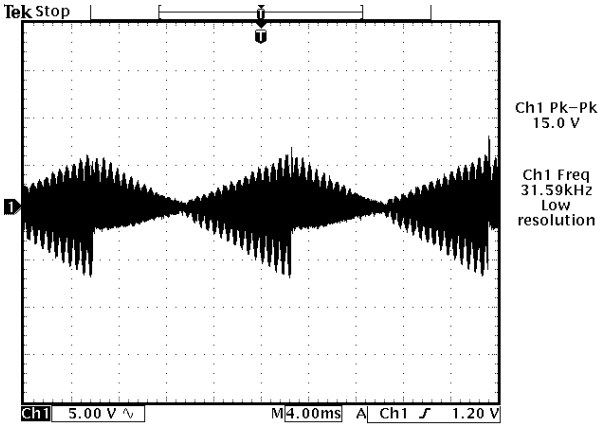

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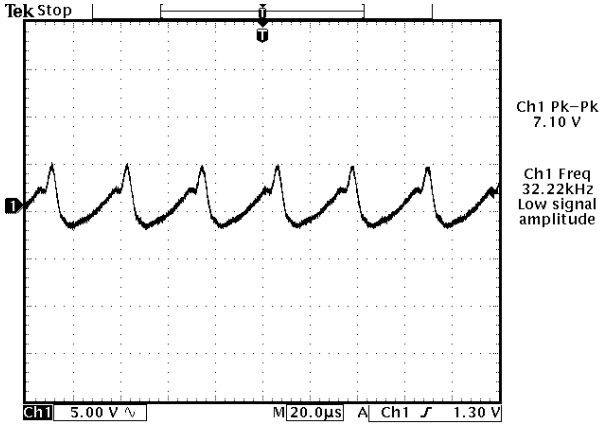

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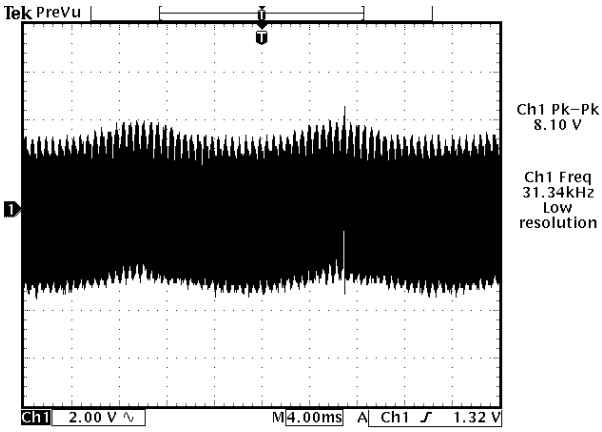

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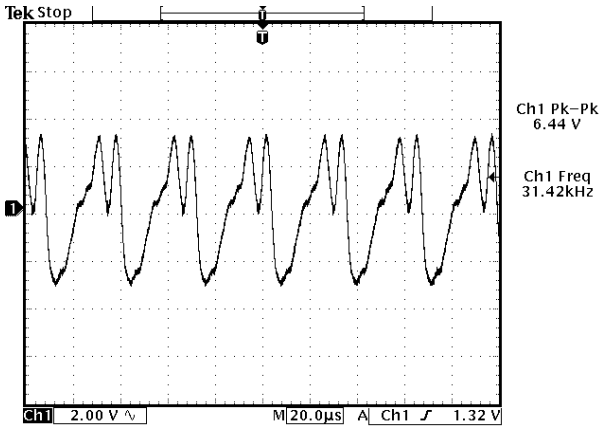

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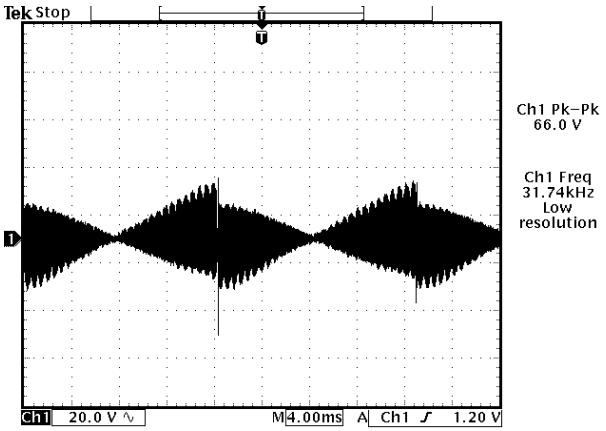

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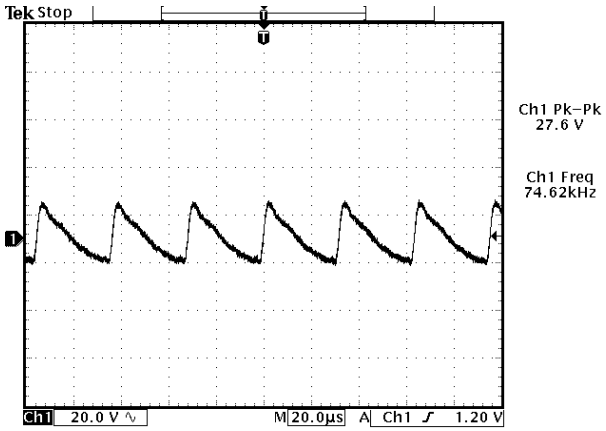

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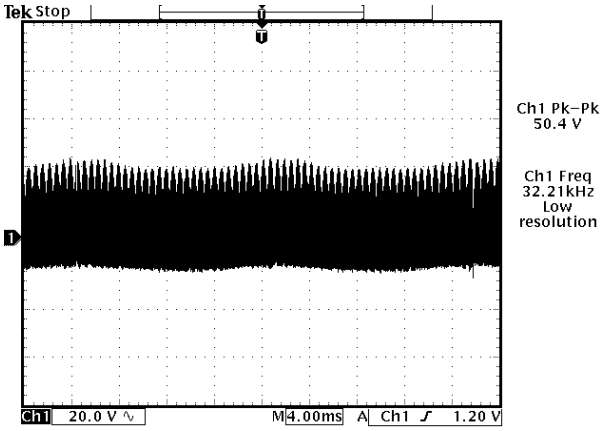

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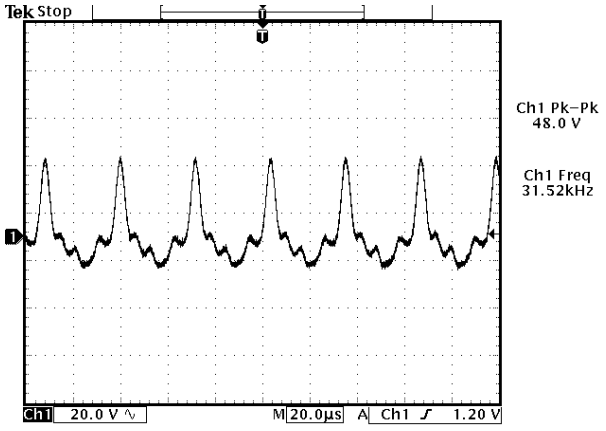

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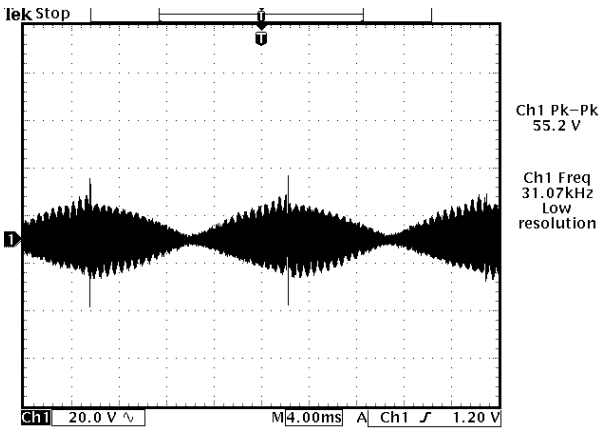

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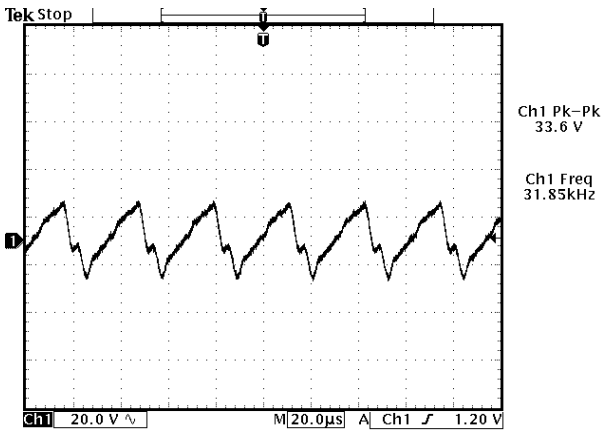

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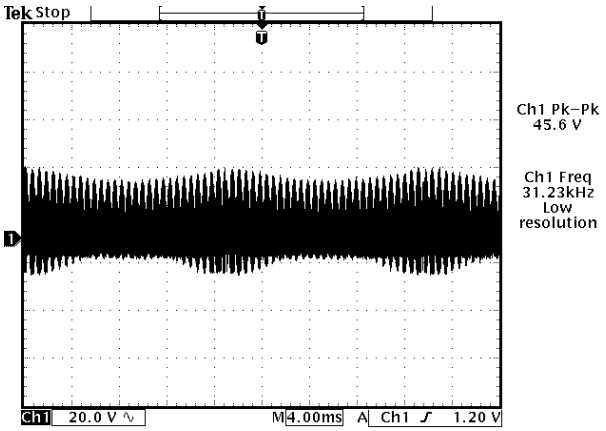

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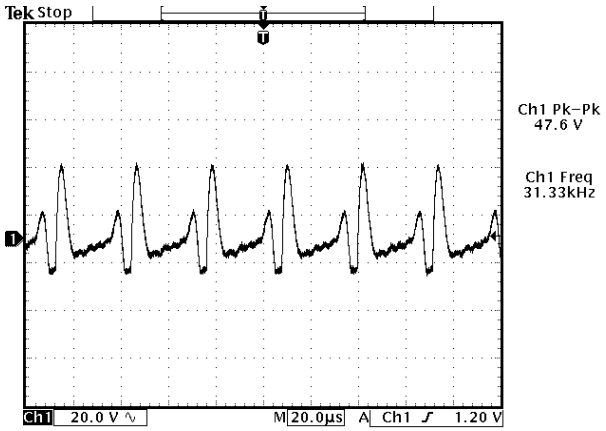

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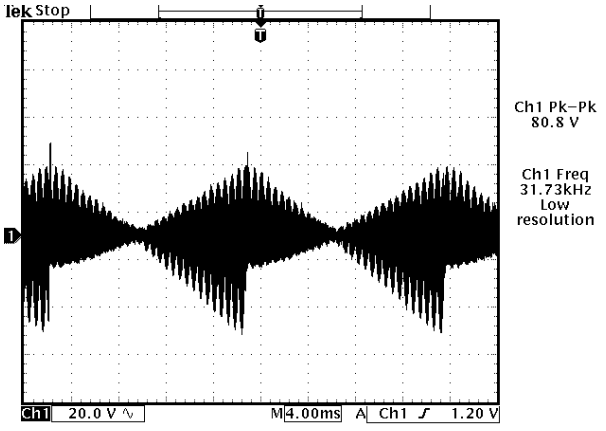

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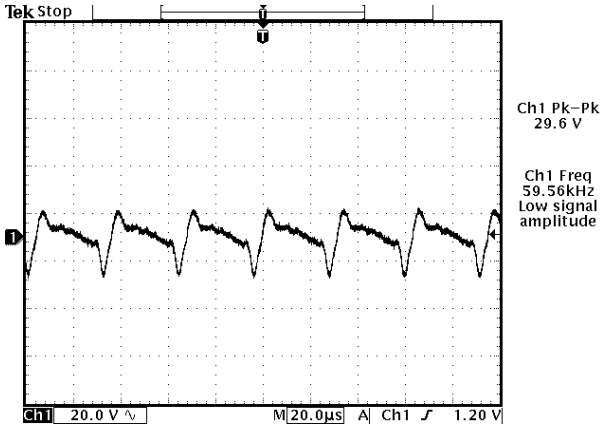

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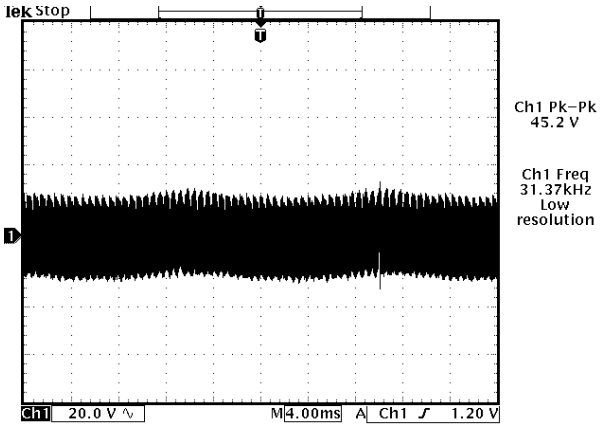

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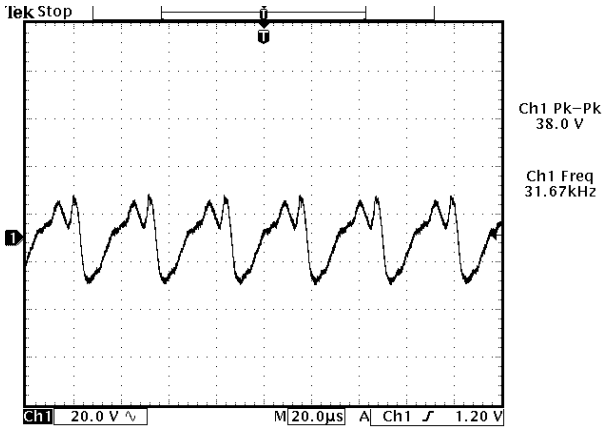

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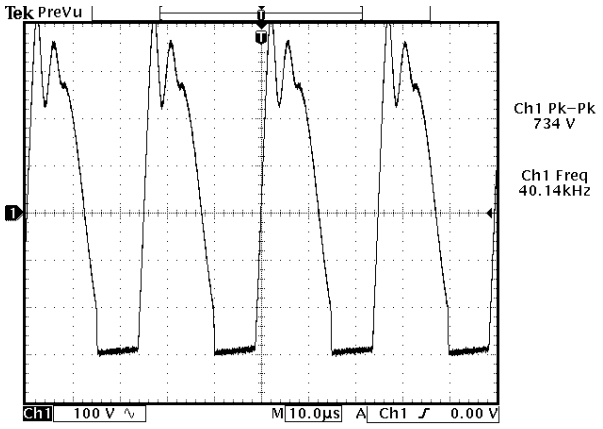

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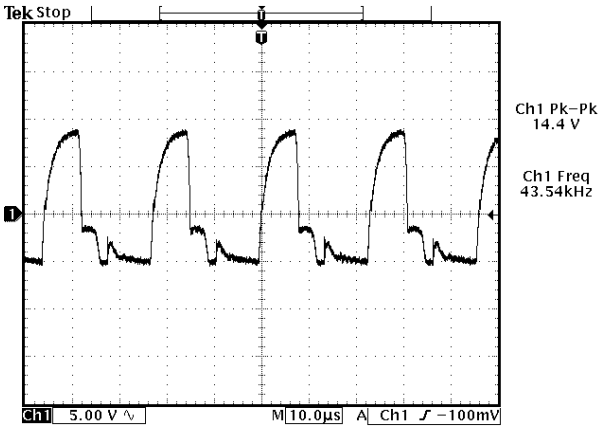

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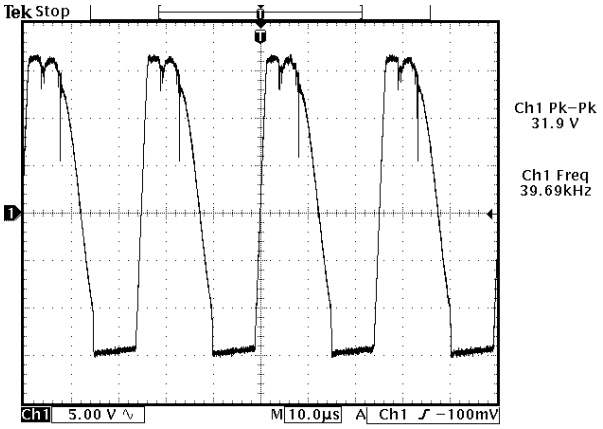

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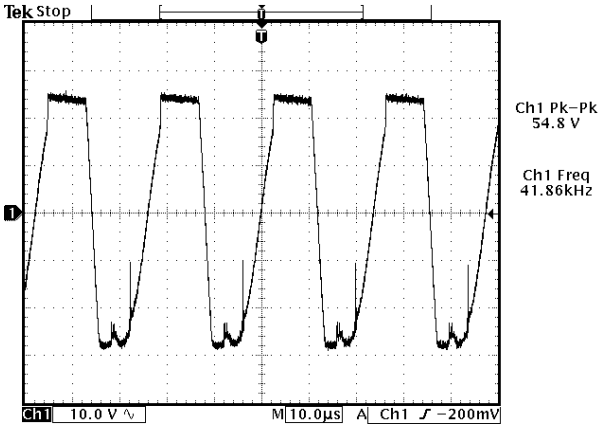

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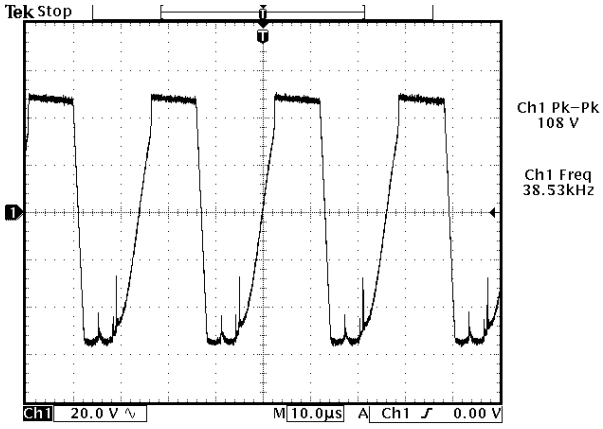

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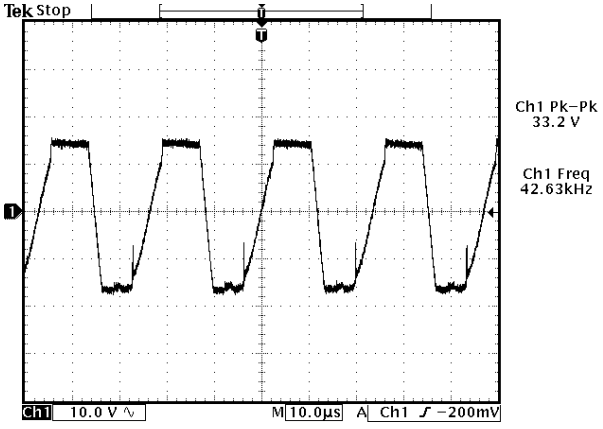

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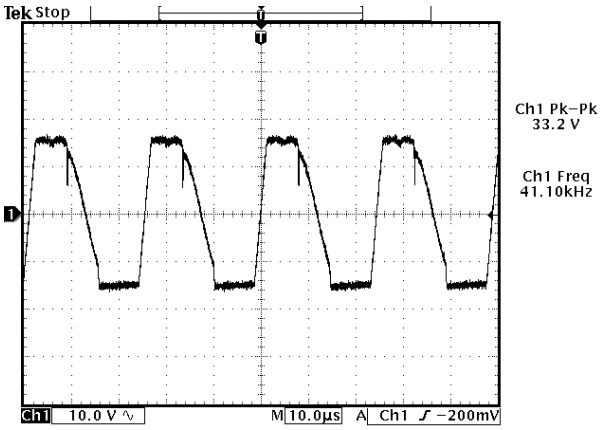

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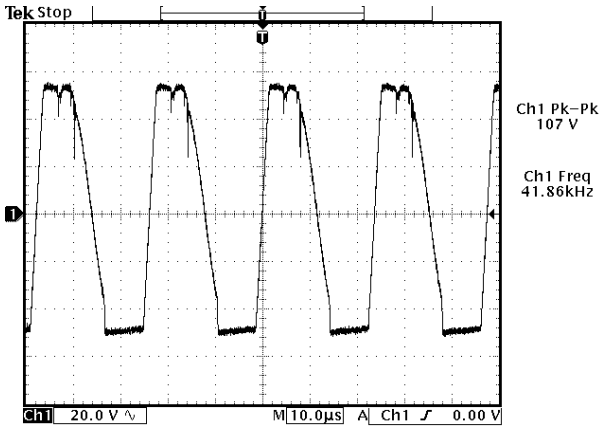

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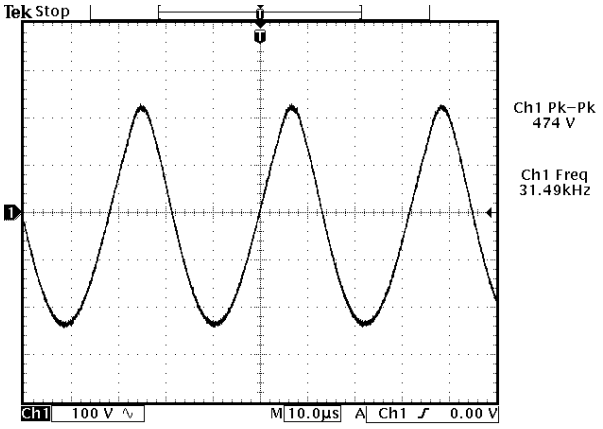

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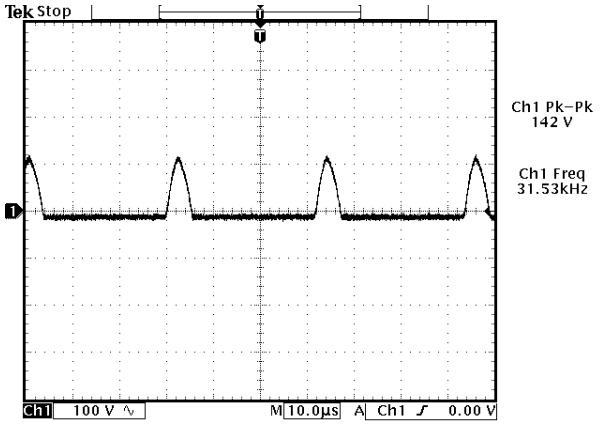

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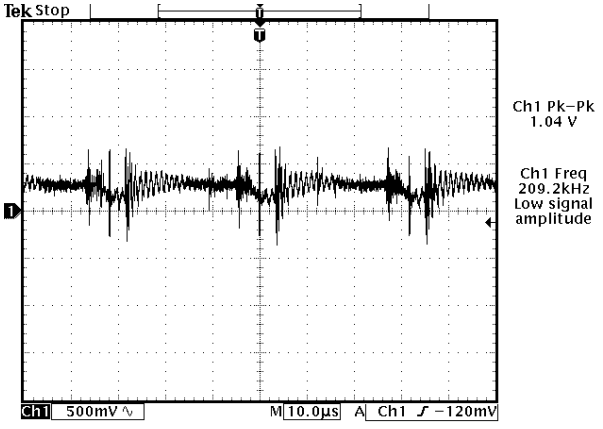

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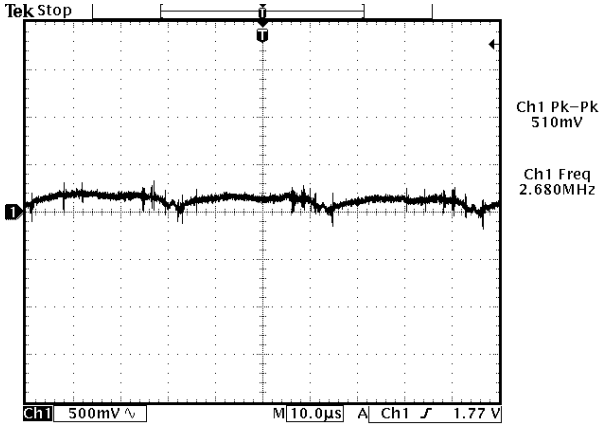

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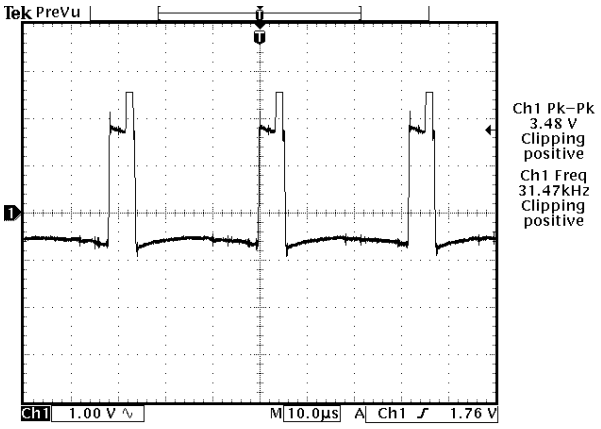

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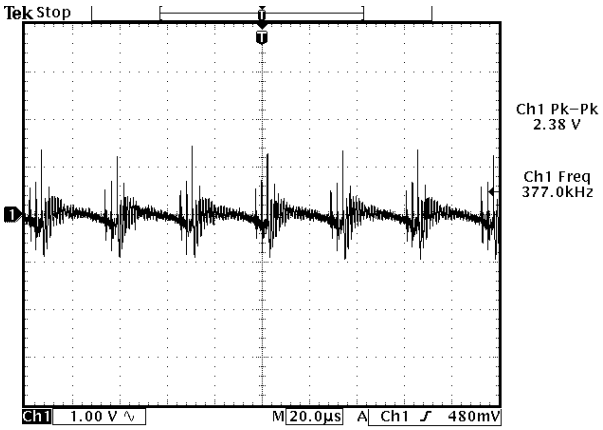

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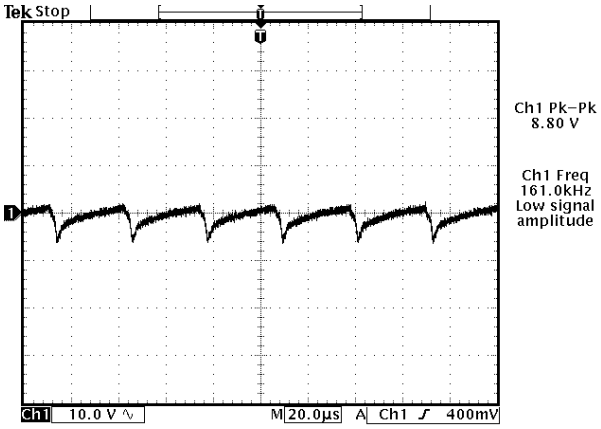

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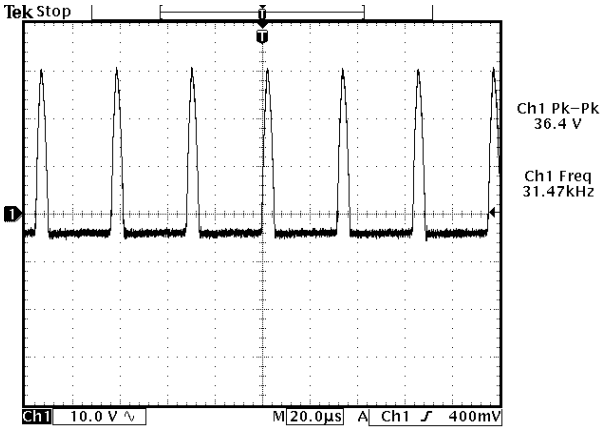

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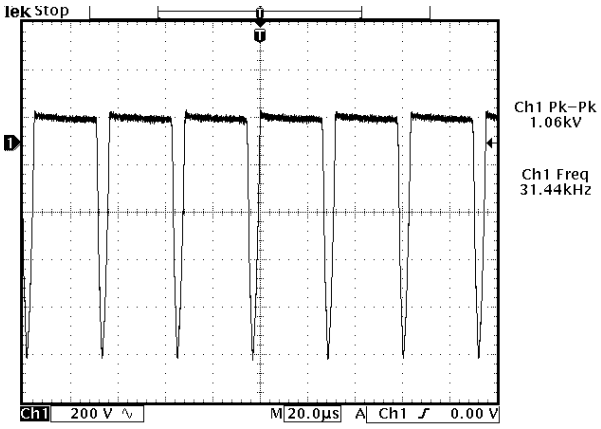

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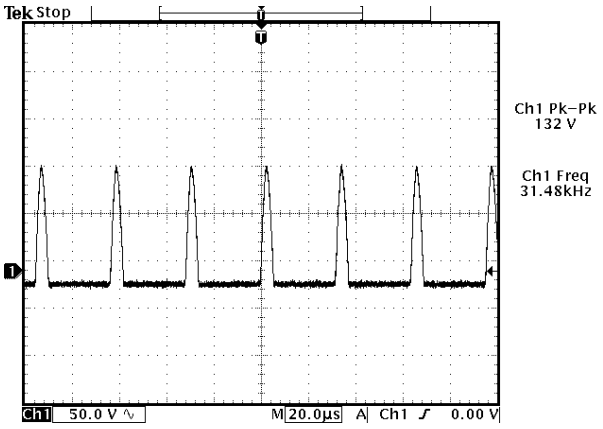

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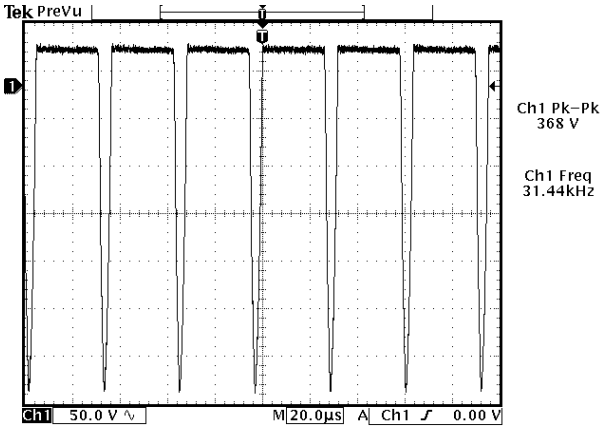

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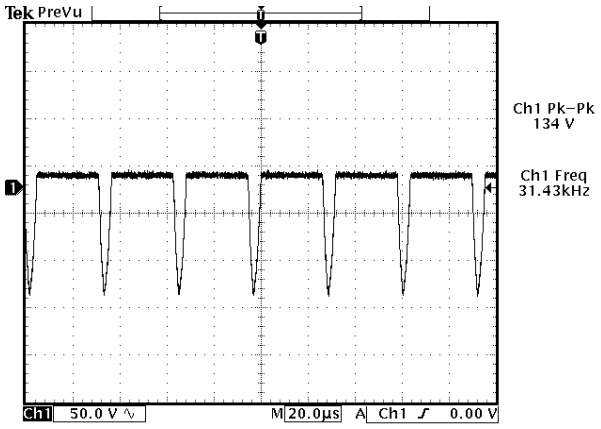

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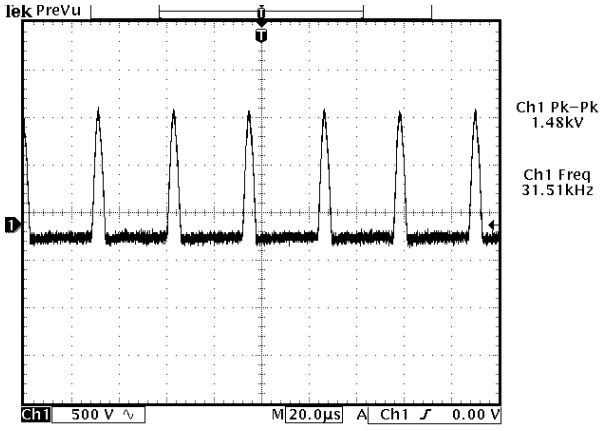

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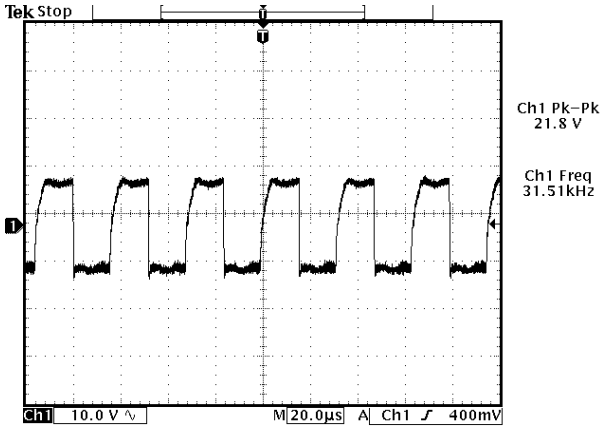

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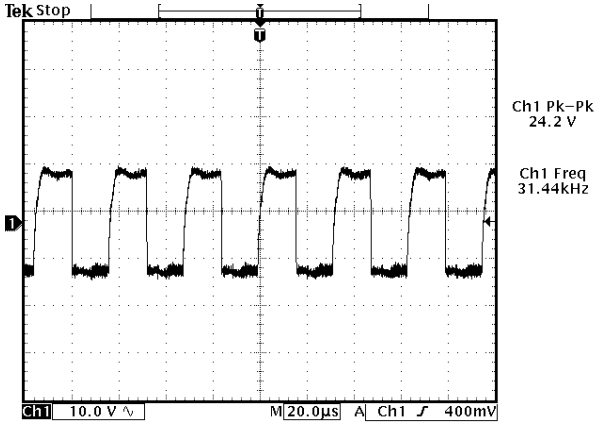

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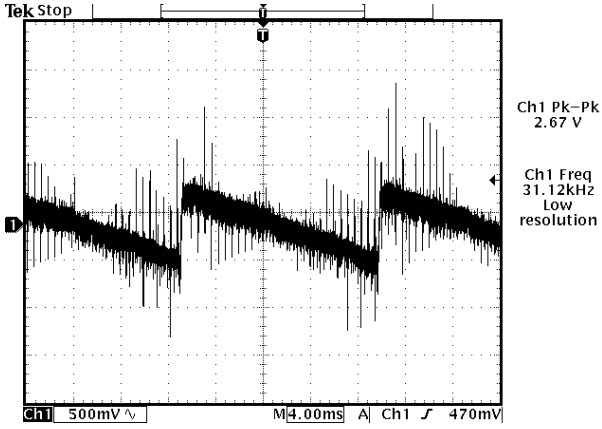

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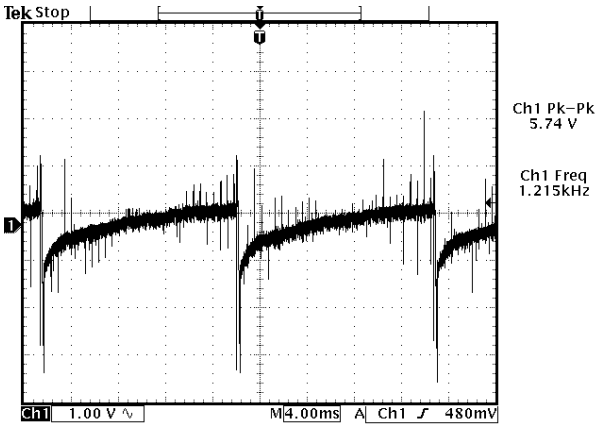

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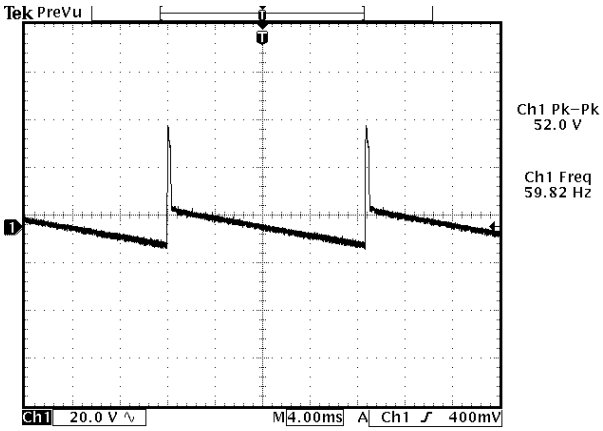

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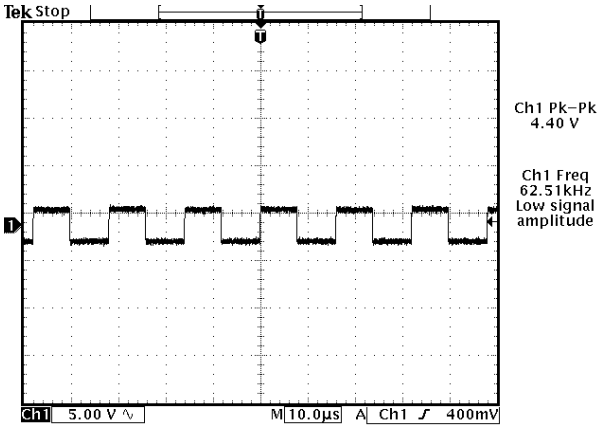

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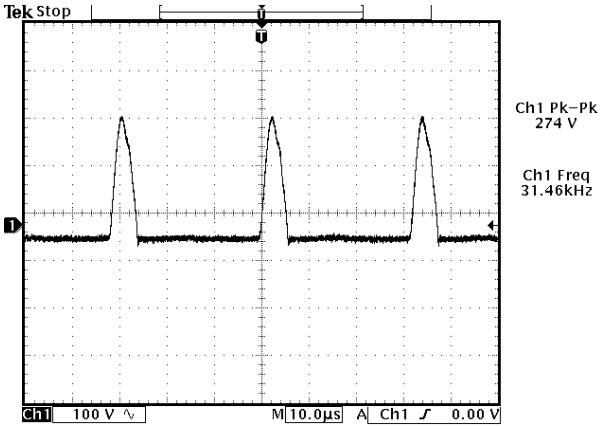

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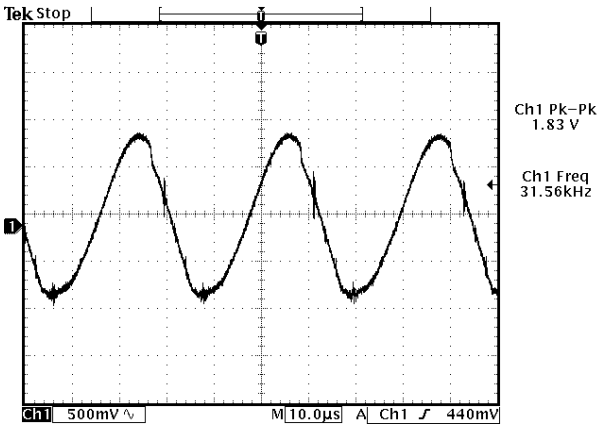

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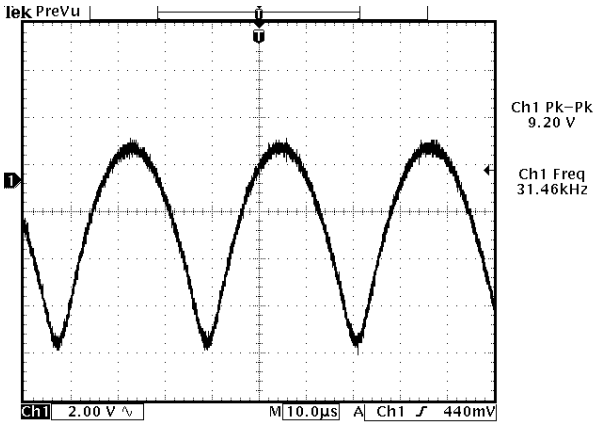
WAVEFORMS



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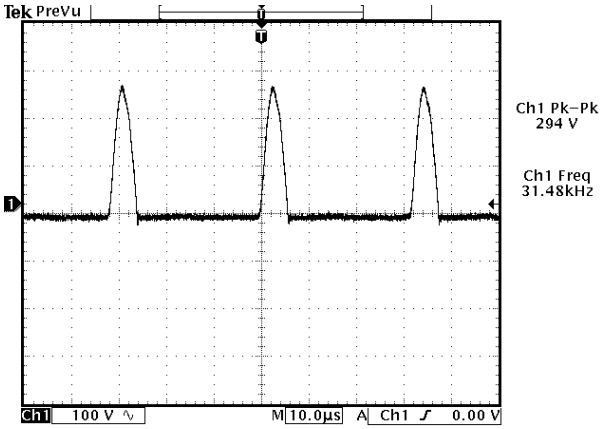
WFD32



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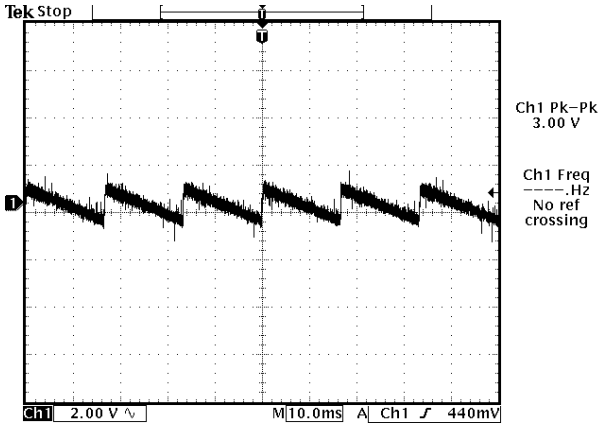

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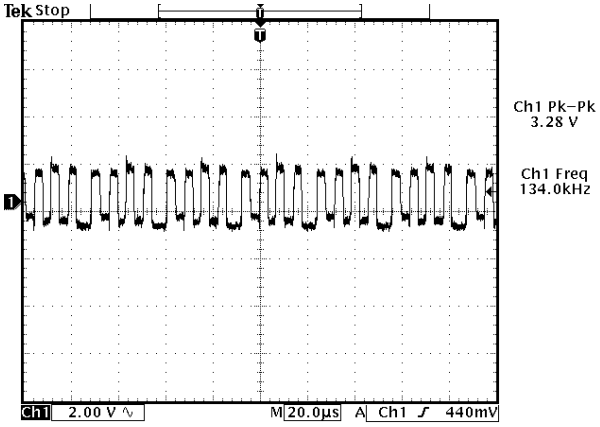

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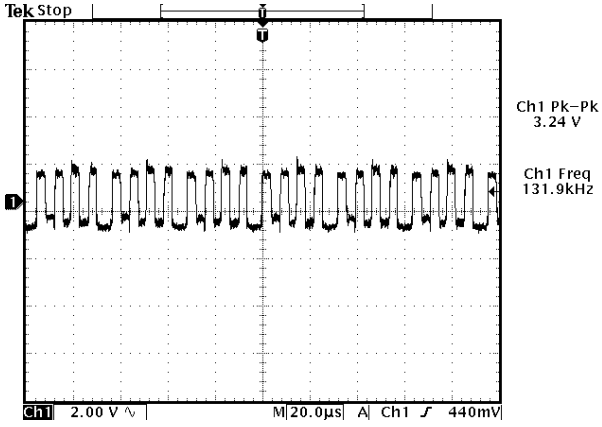

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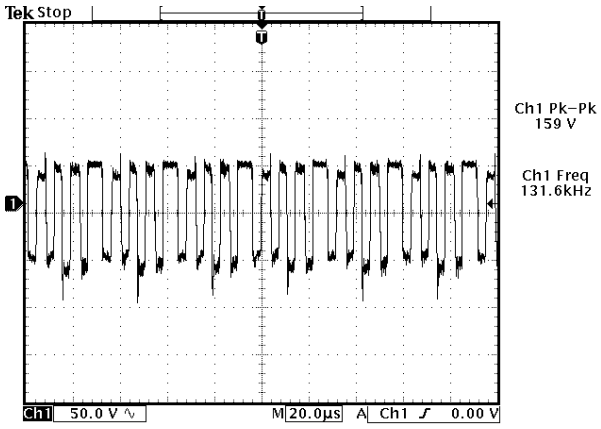

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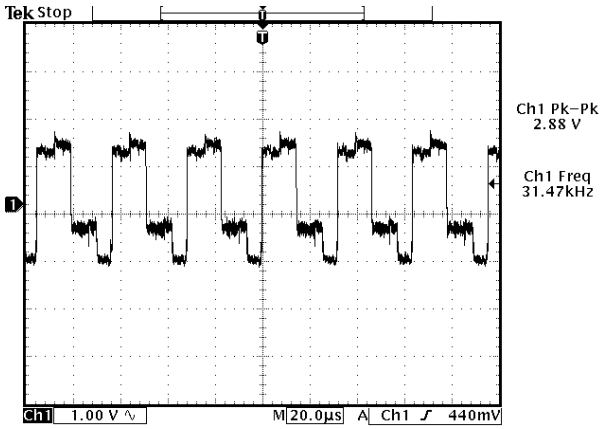

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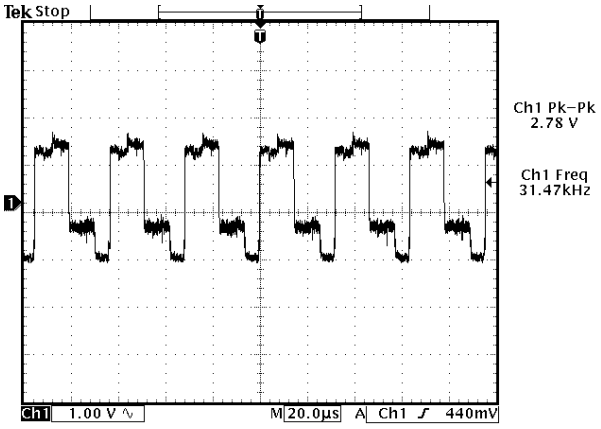

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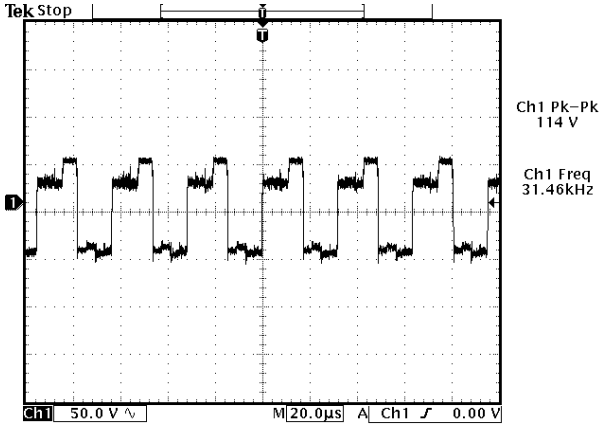

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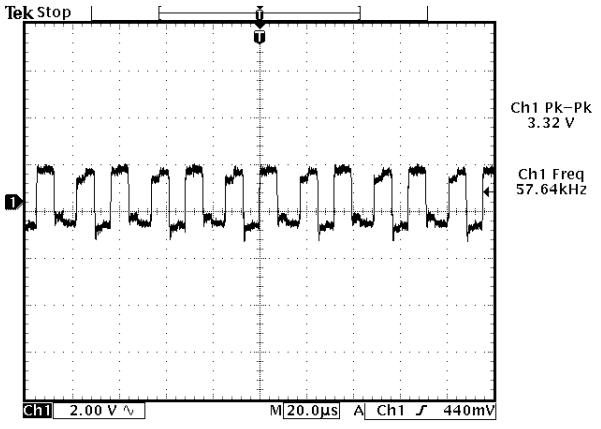

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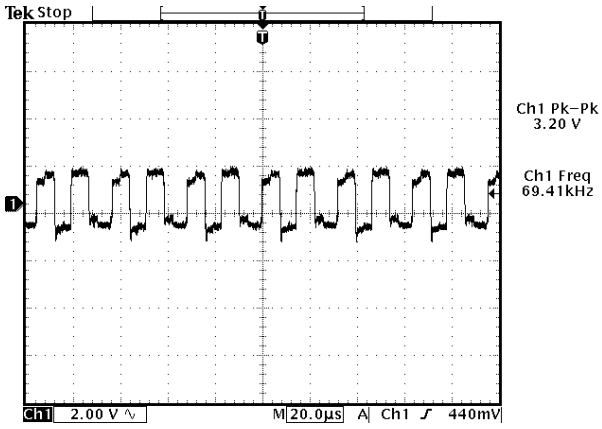

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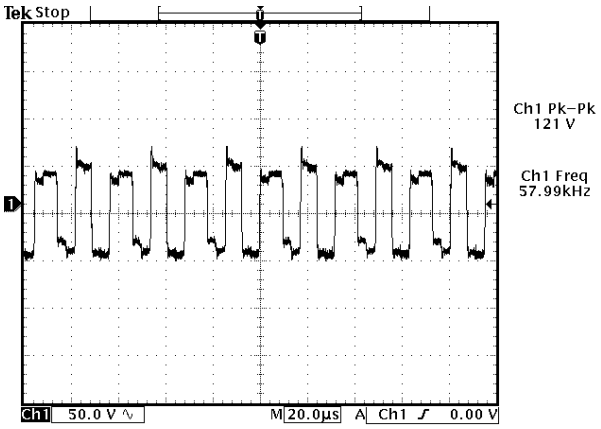
WAVEFORMS



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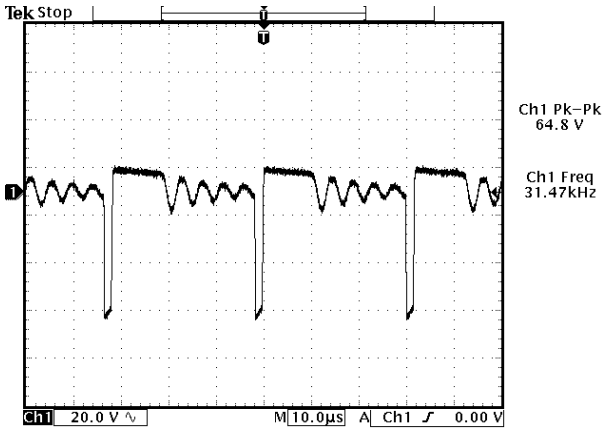

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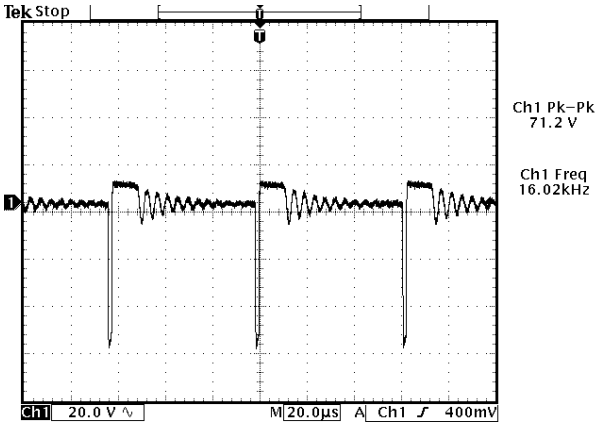

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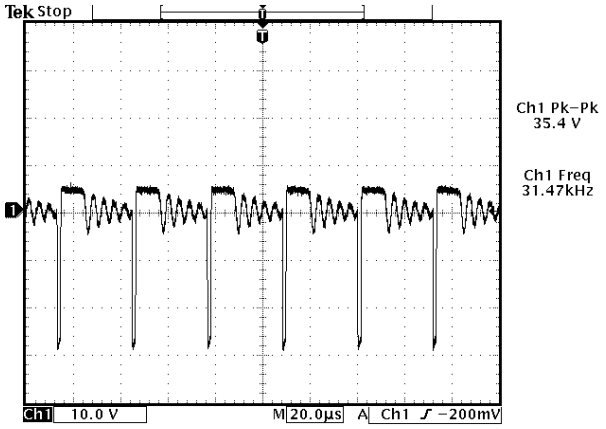

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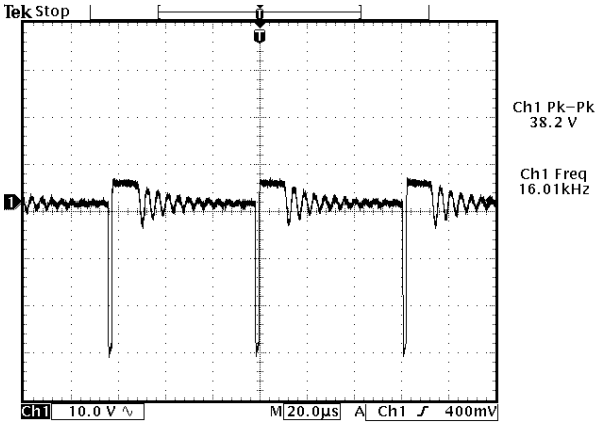

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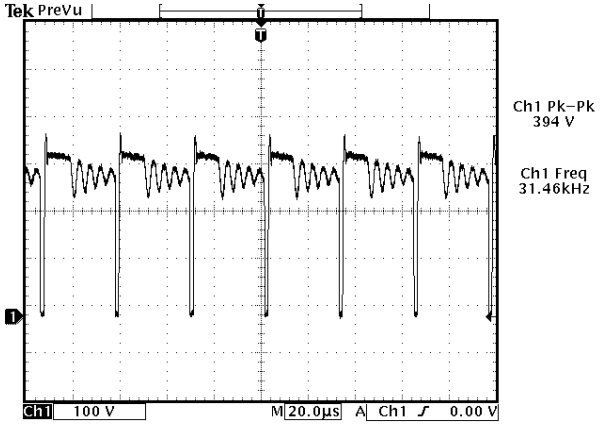

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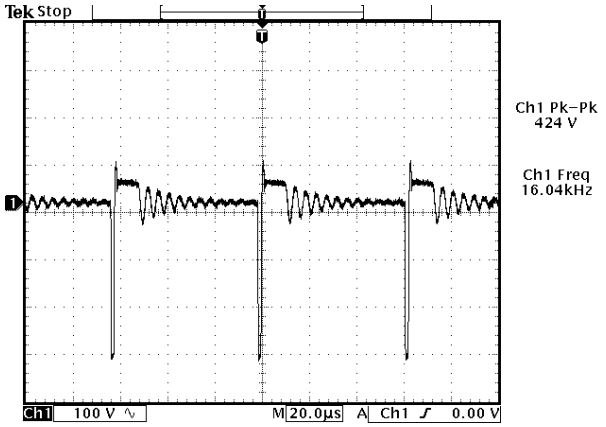
WAVEFORMS



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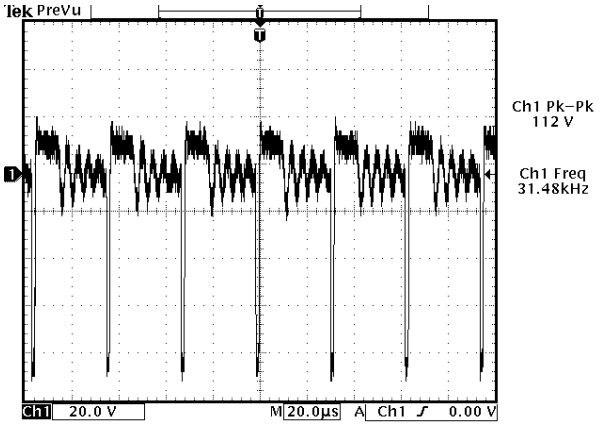

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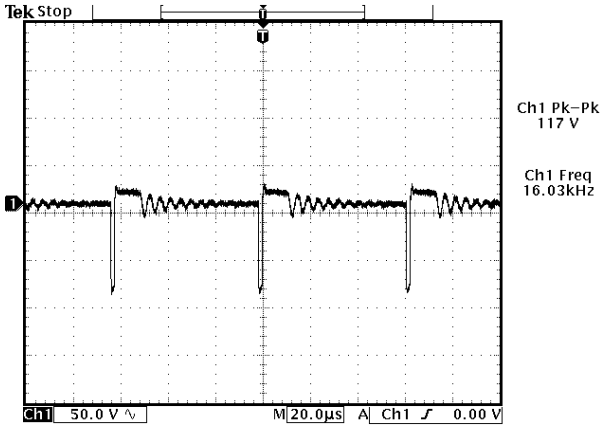

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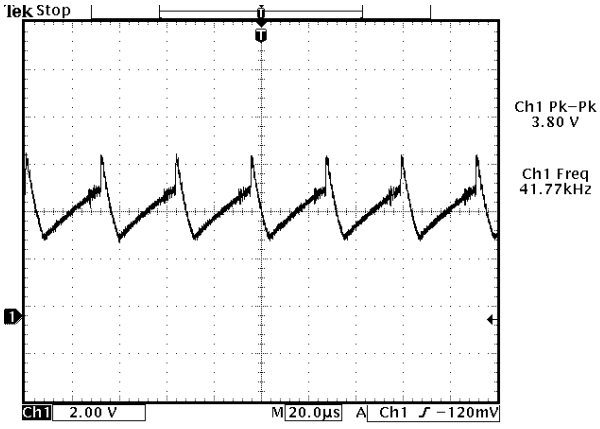

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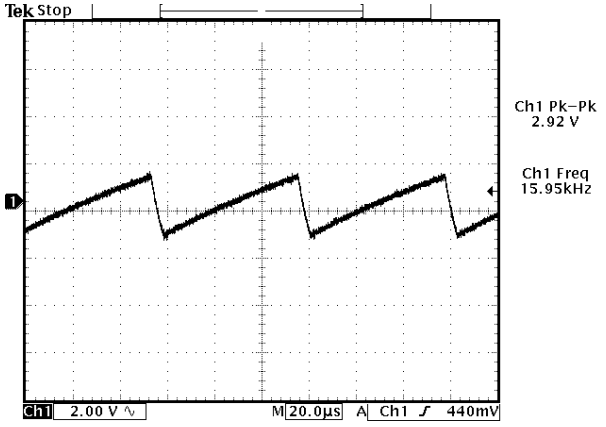

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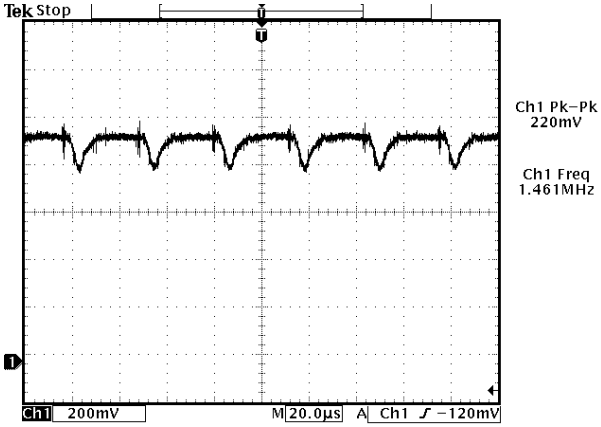

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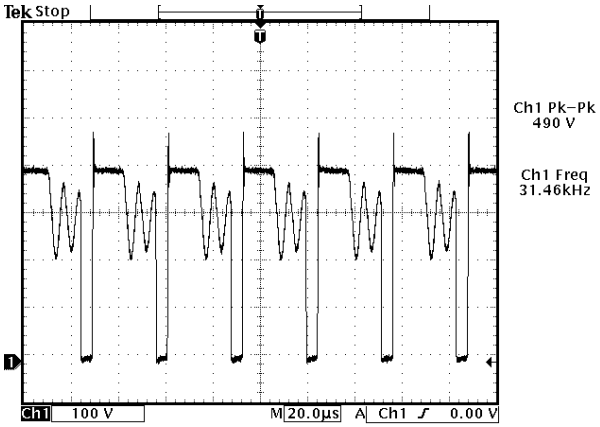
WAVEFORMS



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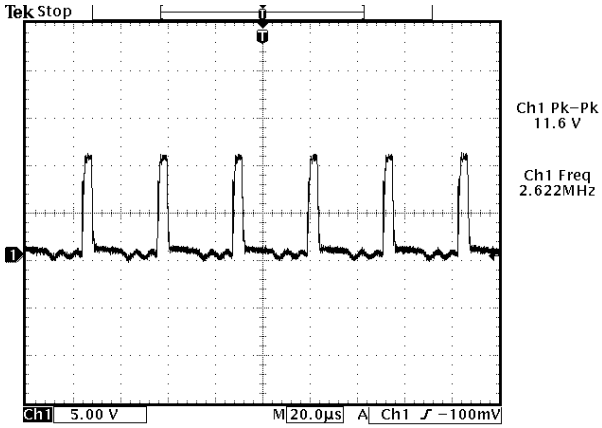

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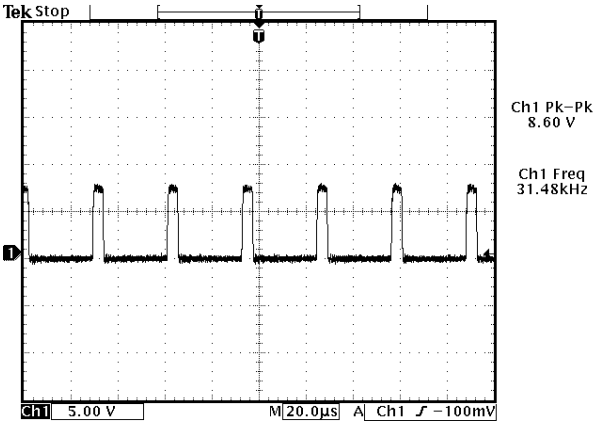

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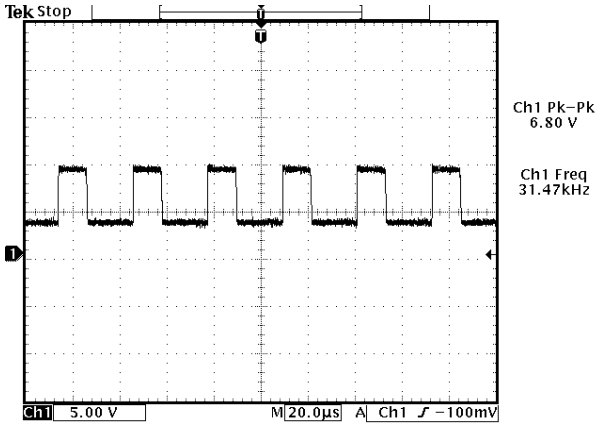

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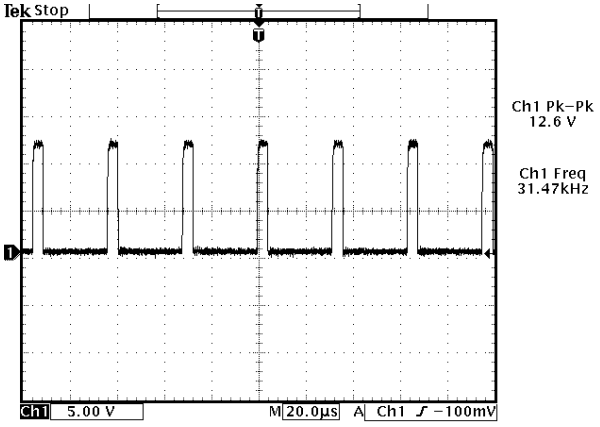

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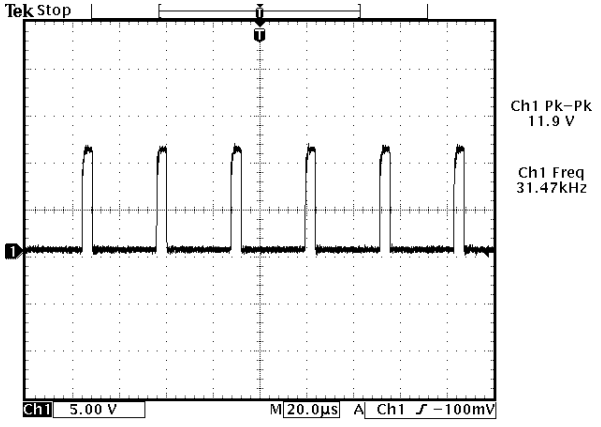

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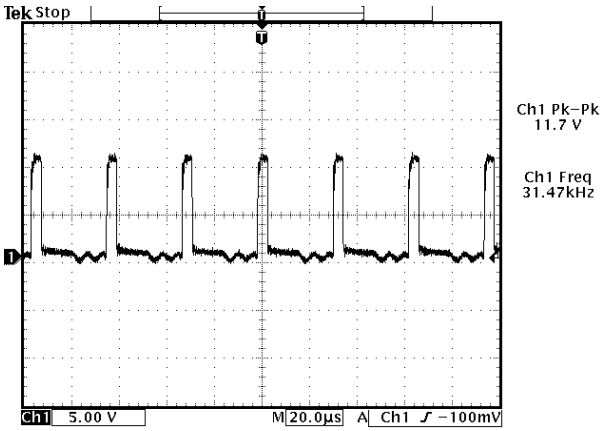
WAVEFORMS



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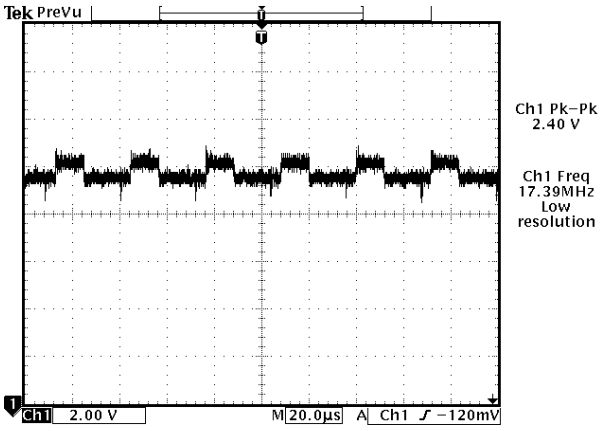

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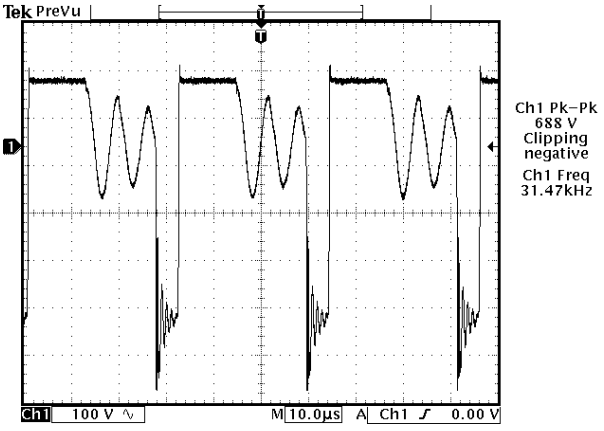

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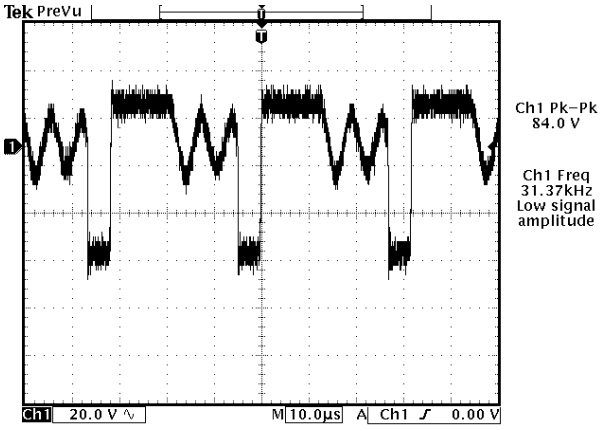

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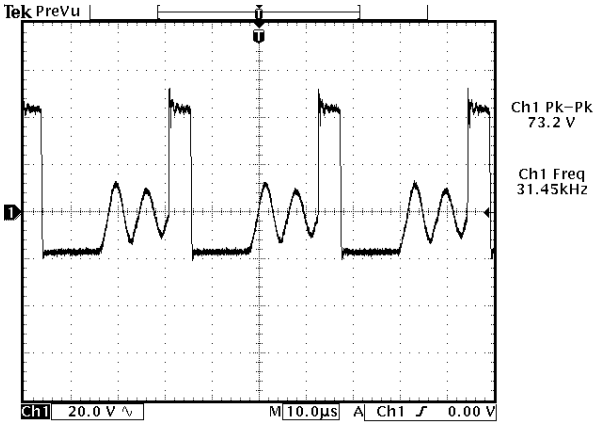

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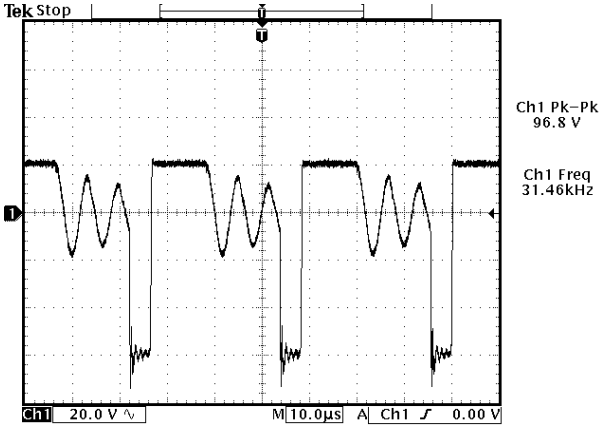

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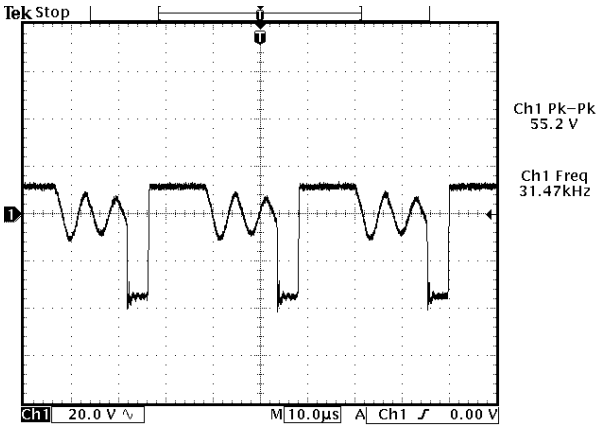
WAVEFORMS



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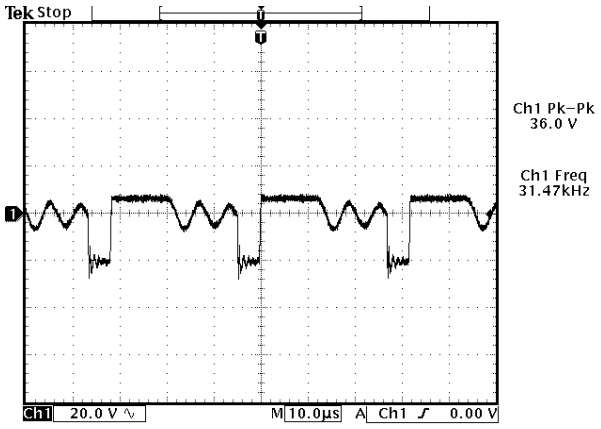

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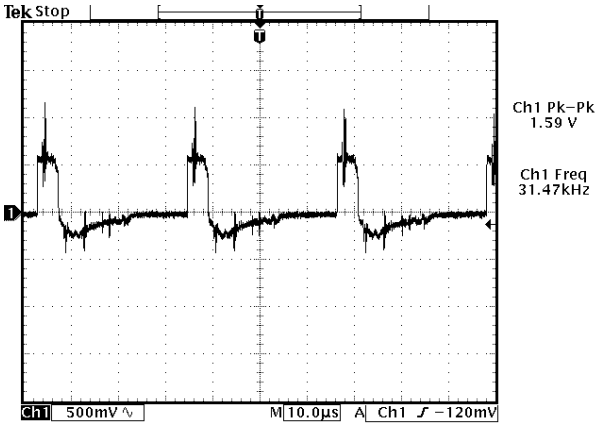

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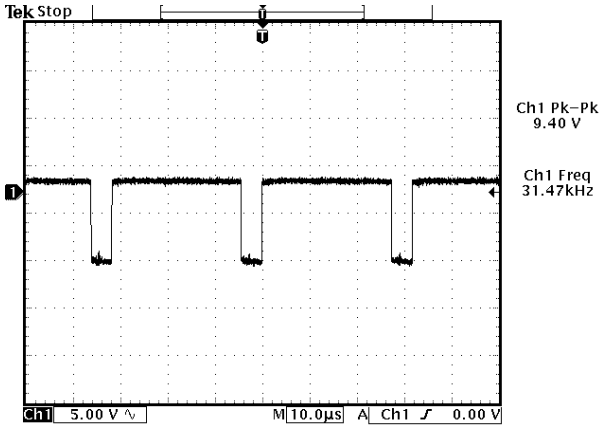

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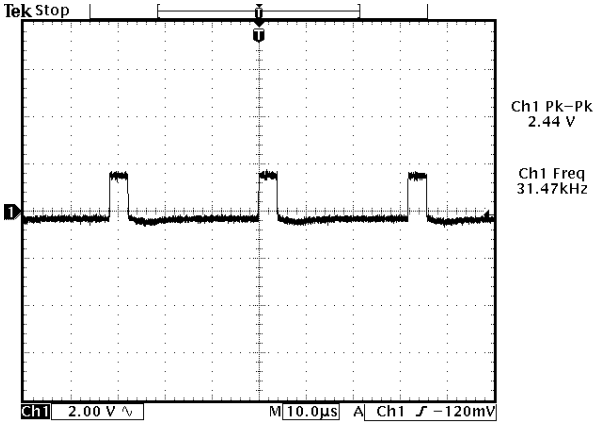

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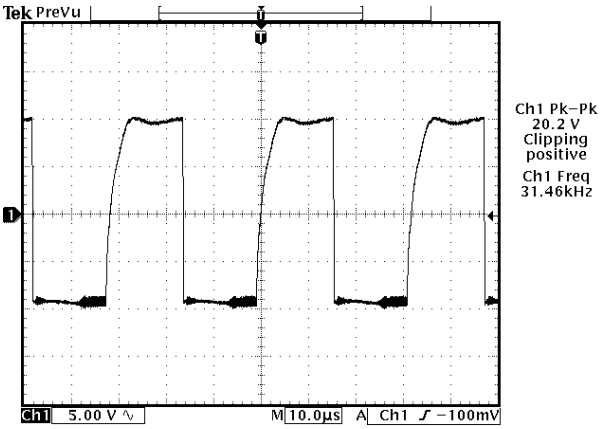
WFP25


Tek PreVu
Ch1 Pk-Pk
20.2 V
Clipping
positive
Ch1 Freq
31.46kHz
Ch1 5.00 V
M 10.0µs A Ch1 -100mV

WFP25

VI

ALIGNMENT PROCEDURES

ALIGNMENT PROCEDURES

Operating Conditions

Unless otherwise noted, the following conditions must be observed when aligning the ITC222 chassis: Chassis must be operated from a 120VAC isolation transformer, with line voltage set to 120VAC (±2.0V).

Picture controls (black level, contrast, etc.) must be set to factory presets via the Picture Quality menu. Procedures must be performed in the sequence given. A 10X probe must be used for oscilloscope and frequency measurements.

The audio output leads must not be shorted together or to ground with the chassis on. All video signals must have -40 IRE sync tips unless specified otherwise. Chassis AC power must be removed for 10 seconds before disconnecting any cable.

A 3-minute warm-up is required for chassis or module related alignments. A 15-minute warm-up is required for Kine or Convergence related alignments.

Required Test Equipment

- Dual-Trace Oscilloscope
- Digital Voltmeter
- Frequency Counter
- Audio Signal Generator
- NTSC Signal Generator (B&K 1249, or equivalent)
- MTS Signal Generator (B&K 2009, or equivalent)
- Sweep/Marker Generator (or Standard Signal Generator)
- YPrPb Signal Generator (DVD player w/YPrPb)
- DC Power Supply (5.0V/0.25A) for TAG001
- Chipper Check® software
- Chipper Check® interface box and computer
- Personal Computer (IBM Compatible w/ CD ROM and Sound Card)

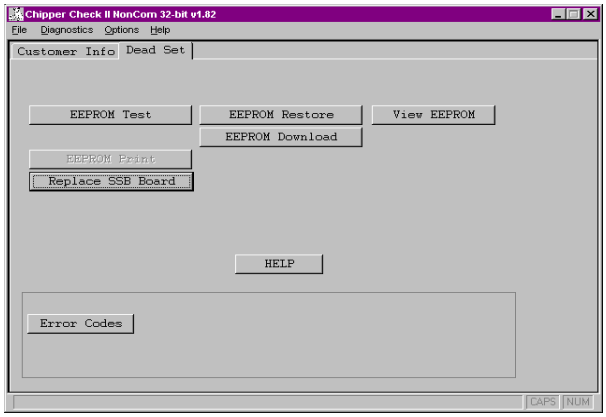
NOTE: For optimum performance it is critical that this instrument be properly aligned. For Auto Convergence to work correctly it is **HIGHLY RCOMMENDED** that the geometry alignments are first verified

Small Signal Board (SSB) Replacement

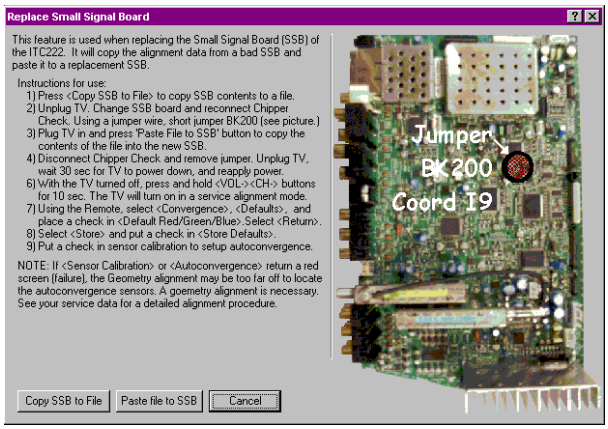
All alignment data is stored in EEPROMs located on the Small Signal Board (SSB). If the SSB needs to be replaced, it is **HIGHLY RECOMMENDED** the EEPROM data be downloaded by using Chipper Check. Once the SSB has been replaced, upload the alignment data back into the instrument. Then verify that the instrument is properly aligned.

1. Open Chipper Check. Select "**Dead Set" "ITC222"**. Follow the On Screen Instructions to establish a connection. Fill in the Customer Information on the **"Customer Info"** tab and change to the EEPROM tab.

   The following menu should appear.



2. Press the "Replace SSB Board" The following screen appears



3. Follow the instructions on this screen to copy the alignment data from the defective SSB to the new SSB.

NOTE: It may be necessary to perform the geometry alignment to get the auto convergence to work correctly. Please refer to the section on Geometry Alignments

CRT Replacement (PTV Models)

If only 1 or 2 CRT's are replaced use a convergence pattern to align the new CRT. Align the new CRT to the pattern generated by the existing CRT. Then run Auto Convergence.

If all 3 CRT's are replaced, it will be necessary to first center the Green CRT using a pattern with a center dot. Then align Red and Blue following the Geometry Alignment procedures in the service data.

Service Mode

Most of the alignments for this chassis are software-driven. Most of the alignments must be accessed and modified through the front panel service mode.

Entering the TV Service Mode Using the Front Panel Controls

1. Press and release the **POWER** button to turn the instrument off.
2. Wait 10 seconds before trying to enter the Field Service Mode.
3. Press and hold the **VOLUME DOWN** and **CHANNEL DOWN** buttons for at least 8 seconds.
4. The instrument will switch on and come up with the field service main menu on the screen. LED will illuminate before the picture comes up.

The instrument should display the following menu:

Main Menu

The **CH /** and **CH \/** buttons on the front panel are used to navigate up or down in the menu.

The **VOL +** and **VOL -** buttons on the FPA are used to select a menu item or decrease or increase a value in a selection list.

NOTE: Before the Field Service Mode is exited; you must check **STORE** or all changes to alignments will be lost.

The remote control can also be used to navigate the field service mode.

- **Clear button:** When this button is pressed the Field Service Mode disappears and the every-day TV functions are available.
- **Menu button:** To re-enter the Field Service Mode, make a **long press** on the Menu button. The service technician re-enters in the same menu point where he left the Field Service Mode.
- **^:** This button is used to navigate up in the menu.
- **v:** This button is used to navigate down in the menu.

- **<:** This button is used to select a menu item, to decrease a value or to select the previous value in a selection list.
- **>:** This button is used to select a menu item, to increase a value or to select the next value in a selection list.
- **OK:** This button is used to select or deselect a menu item.

Main Menu

Soft-Ver: Displays the current software version.

Runtime Counter: Displays the total runtime in hours and mintues.

DVD Soft-Ver: For DVD models only, displays the current software version.

Config: Displays the configuration code of the instrument. Each character represents a paraticular hardware feature or option.

Serial-No.: Displays the serial number of the instrument.

Common features found in the submenus

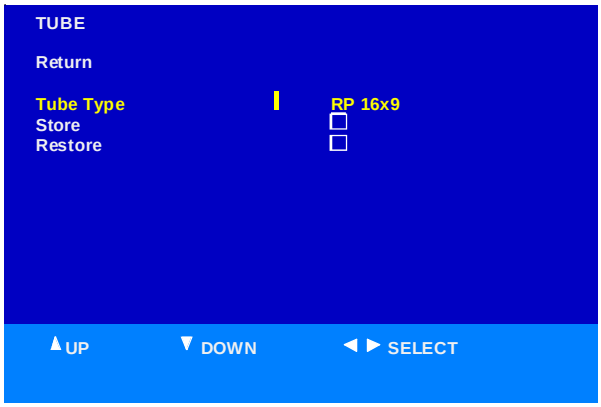
Return: The submenu is closed and the main Field Service Mode menu appears.
Defaults: The default values for the current menu are copied from ROM to RAM.

Note: If Default is checked a complete realignment of that particular menu is required.

Store: All current values from a menu group are stored into memory.
Restore: The last stored settings for the menu displayed are copied from NVM to RAM.

Tube Type Menu

1. Select the correct tube type from a pulled down list on the right hand side of the menu. (This will activate new tube type values along with default video and geometry parameters)
2. Check STORE to save new parameters in memory.



Tube Submenu

Chassis Setup

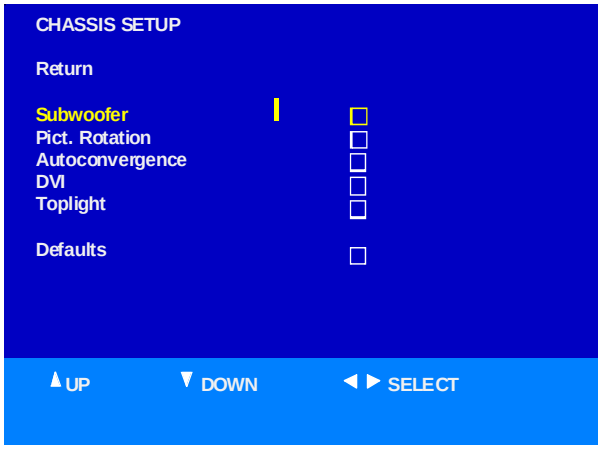
Subwoofer: Allows the instrument to be configured for a subwoofer

Pict. Rotation: Specifies whether the picture rotation option is available or not. (DV Models Only)

Autoconvergence: Specifies whether the autoconvergence option is available or not. (PTV Models Only)

DVI: Specifies whether the DVI option is available or not.

Toplight: Specifies whether the toplight option is available or not.



Chassis Setup Submenu

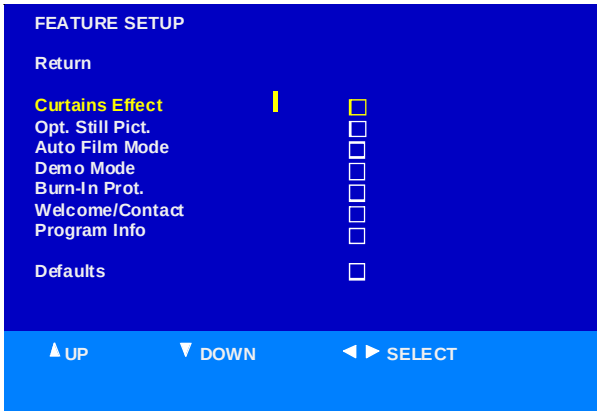
Feature Setup

Curtains Effect: Determines if the curtains feature is available to the user.

Opt. Still Pict. : Determines if the Optimised Still Picture feature is available to the user.

Auto Film Mode: Determines if the Automatic Film Mode Detection feature is available to the user.

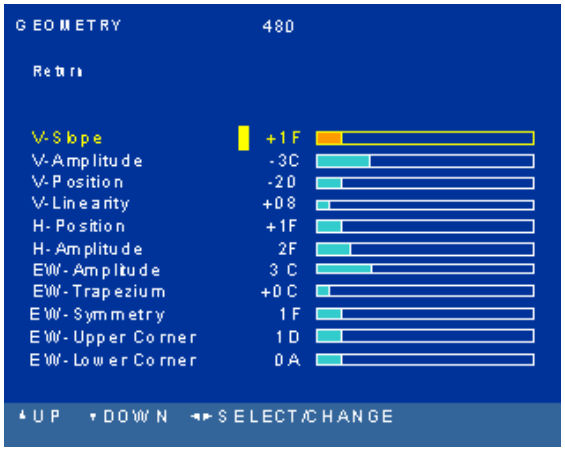
Burn-In Prot. : Determines if the Burn-In Protection feature is available to the user.



Feature Setup Submenu

Geometry Alignment

Entering the Geometry menu the display mode must be set to Standard Scanning Mode (480i/480p and 1080i). All 480i/480p alignments should be completed using the RF input. Use either component input or DVI-input for 1080i adjustments.

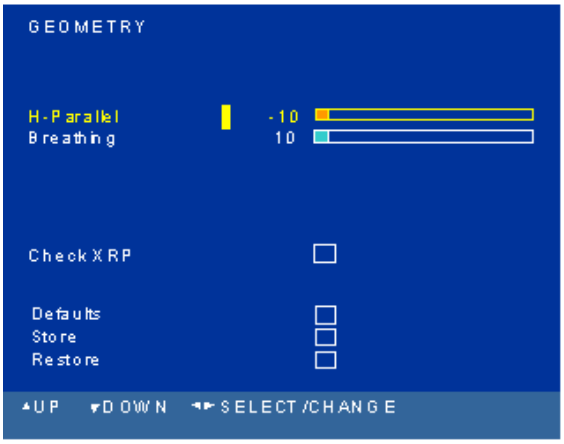


Geometry Submenu

Alignment Procedure (Direct View Models Only)

NOTE: Unless otherwise noted all Geometry adjustments must performed in both 480i/p and 1080i modes.

1. Place the instrument in the Field Service Mode.
2. Enter the Tube submenu. Verify the correct tube type is selected.
3. Enter the Geometry submenu.
4. Adjust H-Amplitude (Horizontal Amplitude) for slight underscan.
5. Enter the Video submenu. Selct the G2 alignment. Adjust the Screen control on the flyback until the just becomes visible.



Geometry Submenu

6. Adjust PL557 on the Dynamic Focus Board to center the raster between the tube border.
7. Realign G2 for 150V on the highest cathode.
8. Tune the instrument to receive a crosshatch pattern.
9. Return to the Geometry submenu.
10. Adjust V-Slope (Vertical Slope) until the middle line of the test pattern is just visible.
11. Using a Monoscope pattern, adjust V-Amplitude (Vertical Amplitude) until the first and last horizontal line of the test pattern is just hidden by the tube.

NOTE: Instruments with 16/9 CRT's must have this alignment performed with the format set to 16/9.

12. Adjust V-Position (Vertical Position) until the picture is centered vertically. It may be necessary to recheck the V-Amplitude (Step 11) adjustment.
13. Adjust V-Linearity (Vertical Linearity) for equal height of the squares in the crosshatch pattern.

NOTE: Instruments with 16/9 CRT's must have this alignment performed with the format set to 16/9.

14. Adjust H-Position (Horizontal Position) until the test pattern is horizontally centered.
15. Using a Monoscope pattern adjust H-Amplitude (Horizontal Amplitude) until the first and last horizontal line of the test pattern is just hidden by the tube. It may be necessary to recheck the H-Position (Step 14) adjustment.
16. Using a Crosshatch pattern adjust EW-Amplitude (East West Amplitude) until the vertical lines in the middle of the CRT are straight.
17. Adjust EW-Upper Corner (East West Corner) until the vertical lines are straight at the top of the screen.
18. Adjust EW-Lower Corner (East West Corner) until are straight at the bottom of the screen.
19. Adjust EW-Symmetry (East West Symmetry or H-Bow) until the left and right border of the screen are the same.

NOTE: It may be necessary to repeat Steps 14- 19 after this adjustment for optimum performance.

20. Adjust H-Parallel (Horizontal Parallelogram) the offset between the top and bottom of the picture.
21. Adjust EW-Trapezium (East West Trapezium) for best compromise between Left and right vertical lines.
22. Adjust Breathing (EHT Compensation) until horizontal amplitude will change with different beam current at the same ratio as vertical amplitude.
23. H-Max and H-M set the range limitations of the H-Amplitude adjustment. This adjustment should only be used in cases where CRT is replaced and it does not appear in the CRT list. To access this adjustment, the Development Support must be checked in the Miscellanous Setup menu.
24. Check the box to set the shutdown threshold for the XRP circuitry. During this automatic process the screen will blank, then reappear once it is finished.
25. Before exiting the Geometry menu, check Store to save changes to memory.
26. After the Geometry Alignments, check the Earth-Field Compensation (EFC) adjustment (DV Models Only). Enter the Advanced Picture Setting Menu. Using a crosshatch pattern, adjust the EFC for minimum picture rotation at the top and bottom.

Alignment Procedure (Projection Models Only)

NOTE: Unless otherwise noted all Geometry adjustments must performed in both 480i/p and 1080i modes.

1. Place the instrument in the Field Service Mode.

NOTE: It is recommended the Geometry alignments be performed using the Green CRT only.

2. Enter the Tube submenu. Verify the correct tube type is selected.
3. Tune the instrument to receive a crosshatch pattern.
4. Return to the Geometry submenu.
5. Adjust V-Slope (Vertical Slope) until the middle line of the test pattern is just visible.
6. Exit the Geometry submenu and turn the instrument OFF. Disconnect the Convergence Yoke connectors BW001 and BW002 (Located in lower right corner of the Convergence Amplifier PCB). Turn the instrument ON and tune to receive a center line pattern. Adjust horizontal and vertical center lines according to the chart below with the static convergence magnets. When completed turn the instrument OFF and reconnect the convergence yoke connectors.

Screen Size	Red Center Line Set Left of Center	Blue Center Line Set Right of Center
40"	2.4 cm (0.94 in)	2.4 cm (0.94 in)
52"	3.1 cm (1.22 in)	3.1 cm (1.22 in)
56"	3.3 cm (1.29 in)	3.3 cm (1.29 in)
61"	3.5 cm (1.37 in)	3.5 cm (1.37 in)

7. Turn the instrument ON and place in the Field Service Mode. Tune to recieve a crosshatch pattern. Enter the Geometry submenu. Using a Monoscope pattern, adjust V-Amplitude (Vertical Amplitude) until the first and last horizontal line of the test pattern is just hidden by the tube.
8. Adjust V-Position (Vertical Position) until the picture is centered vertically.
9. Adjust V-Linearity (Vertical Linearity) for equal height of the squares in the crosshatch pattern.
10. Adjust H-Position (Horizontal Position) until the test pattern is horizontally centered.
11. Using a Monoscope pattern adjust H-Amplitude (Horizontal Amplitude) until the first and last horizontal line of the test pattern is just hidden by the tube.
12. Using a Crosshatch pattern adjust EW-Amplitude (East West Amplitude) until the vertical lines in the middle of the CRT are straight.
13. Adjust EW-Trapezium (East West Trapezium) for best compromise between Left and right vertical lines.
14. Adjust EW-Symmetry (East West Symmetry or H-Bow) until the left and right border of the screen are the same.

NOTE: It may be necessary to repeat Steps 10-14 after this adjustment for optimum performance.

15. Adjust Breathing (EHT Compensation) until horizontal amplitude will change with different beam current at the same ratio as vertical amplitude.
16. H-Max and H-M set the range limitations of the H-Amplitude adjustment. This adjustment should only be used in cases where CRT is replaced and it does not appear in the CRT list. To access this adjustment, the Development Support must be checked in the Miscellanous Setup

Yoke Centering Ring Adjustment

If Chipper Check is not available it is possible to replace a single CRT and realign geometry by using the centering rings on the CRT.

Using the convergence pattern available when in service menu the pattern from the replacement CRT may be adjusted to align with either of the two remaining CRT's using the centering rings shown in Figure 1.

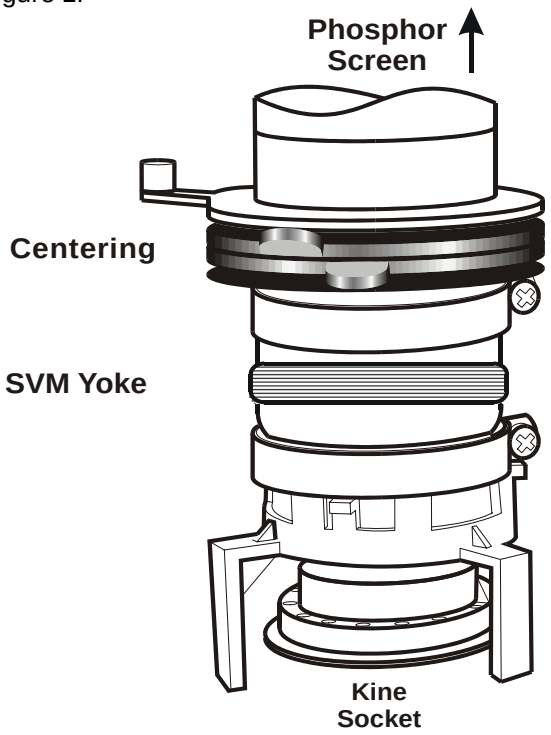


Figure 1 - Centering Rings

First make certain the replacement CRT and yoke are assembled and placed back in the mounting as close as possible to the original CRT and yoke. At this point having the convergence pattern on screen will assist in the mechanical mounting.

Using the centering rings and observing the convergence pattern, rotate and move the pattern until the replacement color overlays as close as possible to the two colors not replaced. Moving the ring tabs together around the neck of the CRT draws the raster in small circles. Spreading the tabs apart moves the raster in more linear angles. The closer the tabs are together, the less affect on the CRT beam they have.

When the raster is as close as possible fix the magnets with paint or nail polish to prevent further movement.

After fixing the magnets, if gross geometry errors are apparent, geometry alignment is indicated. If the raster is close, use the "Auto-convergence" feature provided in the consumer menu to re-align convergence. This should correct most minor geometry problems. Follow auto-convergence with the consumer red and blue centering adjustments, then evaluate the raster again.

In most cases convergence will now be acceptable. If only slight convergence errors are noted the technician should enter the manual digital convergence menu and begin "touch-up" of the screen.

If gross geometry errors are still apparent re-evaluate whether the errors are noticable on the replacement CRT or whether they are global, affecting all three CRT's. If the errors affect all three CRT's a full geometry alignment is indicated. If the errors only affect one CRT, particulary the replacement, return to the mechanical placement and centering ring adjustments and begin those procedures again.

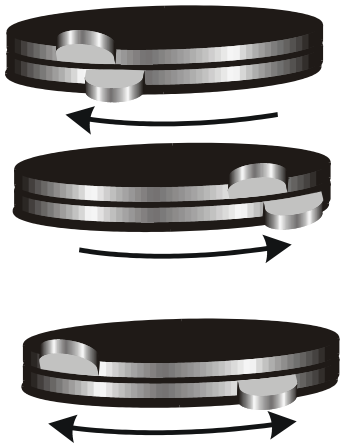


Figure 2 - Centering Ring Tab Movement

Focus Adjustments

Before attempting the Focus Adjustments, allow the
instrument to warm up for a minimum of 15 minutes.

Dynamic Focus CRT (DV Models Only)

1. Tune the instrument to receive a crosshatch pattern.
2. Turn the F1 (Static) control on the focus block fully clockwise
3. Adjust the F1 control while observing the vertical lines along the left side of the screen for best possible focus.
4. Turn the F2 (Dynamic) control on the focus block fully clockwise.
5. Adjust the F2 control while observing the horzontal lines. Adjust for best possible focus.
6. Repeat step 3 and 5 for best possible overall focus.

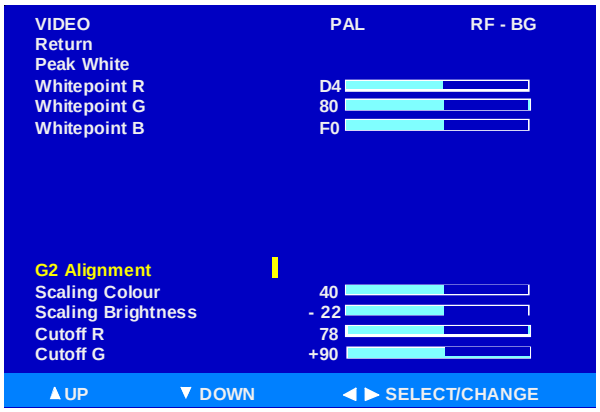
Single Focus CRT (DV Models Only)

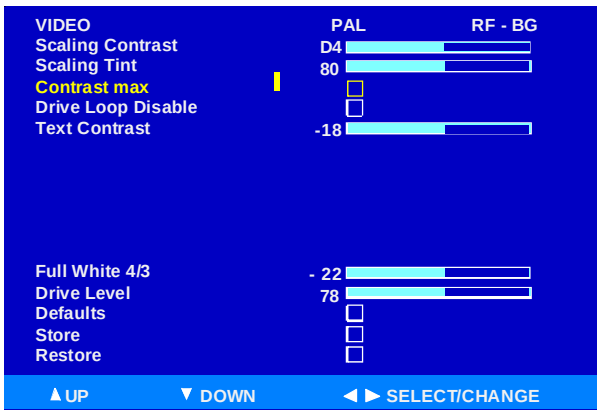
1. Tune the instrument to receive a crosshatch pattern.
2. Turn PL501 (Located on the Dynamic Focus PCB) to the full counter clockwise position.
3. Adjust F2 on the focus block for best possible focus of the horizontal lines.
4. Adjust PL501 for best possible focus of the vertical lines.
5. Repeat steps 3 and 4 for best possible overall focus.

Focus Adjustment (PTV Models)

1. Tune instrument to receive a crosshatch pattern.
2. Preset Contrast to maximun.
3. Adjust each CRT separately. Cover the two CRT's not being adjusted and adjust for best overall focus.
5. Adjust the Green Electrical Focus control, located behind the speaker grill for best overall focus.
6. Repeat procedure for the Red and Blue CRT's.

Video Alignments

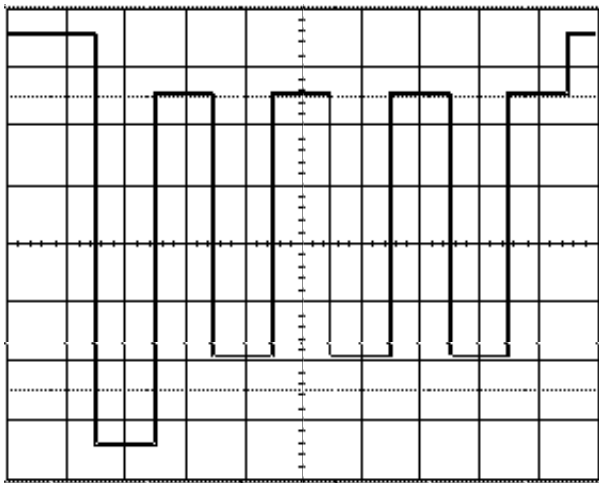




Video Alignment Submenu

Before attempting the Video Alignments, allow the instrument to warm up for a minimum of 15 minutes.

1. Tune the instrument to receive a crosshatch pattern.
5. Place the instrument in the Field Service Mode.
6. Enter the Video submenu.
7. Select G2 adjustment.
8. Adjust Screen control until retrace lines become visible, then adjust to make retrace lines invisible.
9. Press any key to exit the G2 alignment mode.
10. Select a pluge test pattern. Pattern should have a 0% background with a -2% and +2% bar.
11. Adjust Scaling Black Level to make the -2% bar invisible, keeping the +2% bar visible.
12. Select a 75% color bar test pattern.
13. Connect a scope to the Blue Cathode of the CRT board.
14. Adjust the Scaling Color to the levels shown



Note: This alignment must be performed in each of the following modes, Tuner, Comp 1H, Comp 2H, DVI and AUX_RGB (if DVD option is installed).

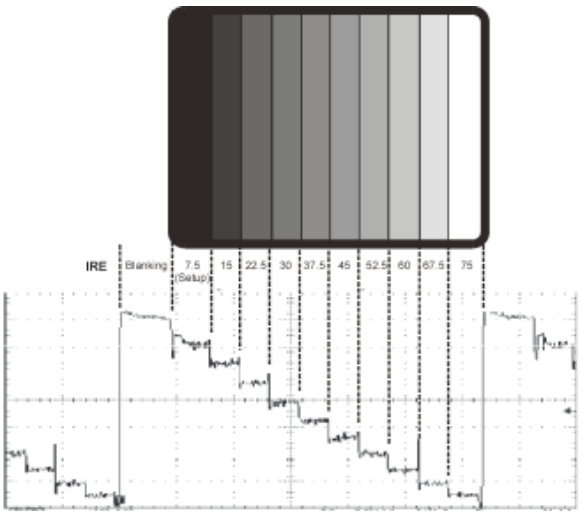
16. The Drive Level Alignment is preset according to the CRT type selected and does not need to be adjusted.
17. Before exiting the Video Alignment Submenu, check Store to save all alignments.

Color Temperature

Color Temperature for the ITC222 is similar to past chassis. Some form of staircase pattern similar to the following figure is required. Proper identification of the “0” (if available) and “7.5” or “setup” bars on screen and the waveform produced on the cathodes of the CRT will be needed. Consult the specifications manual for the pattern generator used to confirm the location of these bars.

The oscilloscope waveform shows the relationship between the bars and the video signal at the cathodes of the CRT. This waveform is present on all three cathodes. With the oscilloscope adjusted to provide a full peak to peak readout of the waveform at the horizontal rate, the 7.5 IRE setup bar will the critical area. Be certain this bar can be identified using the equipment available. If a 7.5 IRE bar is not available, 10 IRE may be used.

It should be noted that bar patterns differ. Some vary from 10 to 100 IRE in various steps and in different directions, but most should have an identifiable 7.5 to 10 IRE bar.



The purpose of the color temperature setup is to assure uniform gray level from black to the brightest scenes. If a uniform gray screen is displayed, no matter the brightness level, no tinting in either red, green or blue direction should be apparent. This is known as “color tracking”. Once the proper color temperature is set, AKB will maintain the cutoff of the CRT to assure proper low light performance.

Black Cutoff R/G, Whitepoint R/G/B Setup (Recommended Method)

1. Apply a gray test pattern giving a 12 IRE flat window. Connect Colorimeter near the center of the screen.
2. Adjust Black Offset R and Black Offset G to obtain the following color coordinates:

	Direct View	Projection TV
X	0.282	0.283
Y	0.298	0.296

3. Apply a gray test pattern giving a 50 IRE flat window.
4. Adjust Whitepoint R, G, and B for the following color coordinates:

	Direct View	Projection TV
X	0.282	0.278
Y	0.298	0.291

Note: This alignment must be done in the following modes, RF (NTSC), Comp 1H, Comp 2H, DVI and AUX_RGB (If unit has DVD option installed).

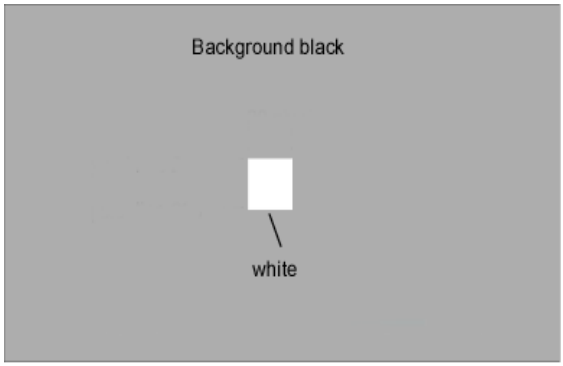
Black Cutoff R/G, Whitepoint R/G/B Setup (Alternative Method)

1. Apply a vertical gray bar staircase pattern (at least 8 bars from “7.5” to “≥75” IRE). Identify the 7.5 IRE bar location. It is the “black” or “cutoff” bar. For these adjustments this bar and the next brighter bar will be used. On most patterns the remainder of the bars will progressively become brighter.
2. Adjust Black Cutoff R or Black Cutoff G until any tinting disappears from the black bar. When properly adjusted the adjacent bar should be a very low level gray with no color tinting.
3. Now observe the brighter portions of the bars. Adjust Whitpoint R, G, or B to remove any signs of tint in the higher brightness bars. Observe the bars for signs of CRT overdrive. Some compromise may be required, but the higher IRE bars should be as free from color tinting as possible.

Note: There are separate color temperature alignments for RF (NTSC), Comp 1H, Comp 2H, DVI and AUX_RGB (If unit has DVD option installed).

Peak White Alignment

1. Apply a white centered pattern of 100 IRE 2% of the picture surface on a dark background.
2. Adjust for peak white at center of the screen.
3. Check Scaling Black Level, Whitepoint, Black Offset and Peak White adjustments. It may be necessary to adjust these alignments several times for optimum performance.



Note: This alignment must be done in the following modes, RF (NTSC), Comp 1H, Comp 2H, DVI and AUX_RGB (If unit has DVD option installed).

Full White 3/4 Alignment

1. Insert a full white pattern of 100 IRE through RF. (Instrument will automatically set to ¾ mode).
2. Adjust for full white across the screen.

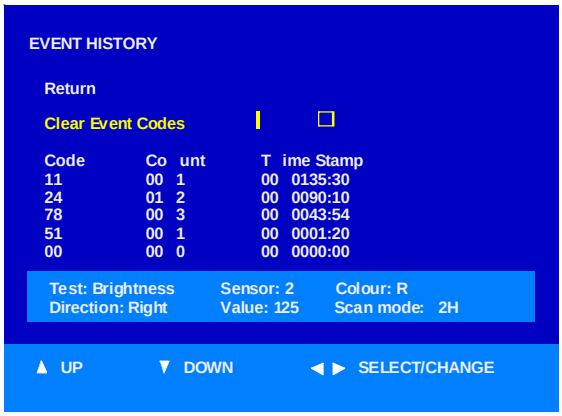
Text Contrast, Contrast Max, Scaling Contrast Alignments

1. Insert a white centered pattern of 100 IRE, 2% of the picture surface with a black background.
2. Adjust for peak white.
3. Contrast Max and Scaling Contrast are preset according to the CRT type selected and do not need to be adjusted.

Event

If a run-time event occurs, its error code will be stored in the NVM. The stored event codes can be read in one of two methods. The first is with the event menu. The last five event codes will be displayed, along with a time stamp from the run time counter. The time stamp will display the last occurrence of a particular event. The time stamp is displayed as “Run Hours”. An event counter counts how many times that event has occurred. The counter will not count beyond 255. The most recent event code is displayed on top. To clear the event codes from memory, select the Clear Event Codes box. A long press will clear all stored codes.

Only the last error code stored in the NVM can be read with this method. The LED will blink two separate digits.
Example, if the error code of 23 is the last error code stored



Event Submenu

in the NVM, the LED will have 2 short flashes, followed by a short pause. Then will flash 3 times, followed by a long pause. This will be repeated 4 times.

First allow the instrument to sit unplugged for 60 seconds. At plug in the LED will first blink twice to indicate microprocessor has reset. When an attempt is made to power up, the instrument will attempt 3 times to start. The LED will display a series of flashes followed by the error codes. The LED will flash the error code 4 times.

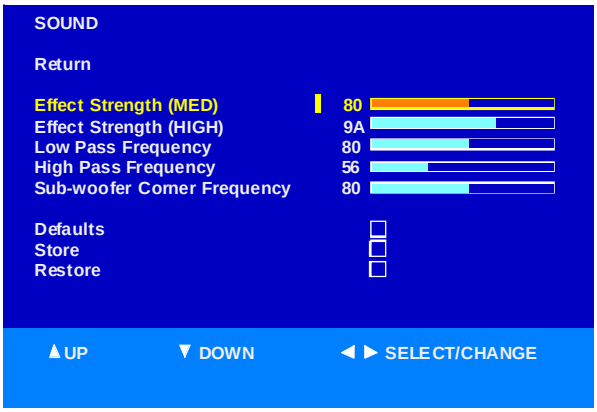
Sound Setup

Effect Strength (MED): Modifies the bass effect strength for the user setting MEDIUM.

Effect Stength (HIGH) : Modifies the bass effect strength for the user setting HIGH.
Low Pass Frequency: Modifies the low pass cut-off frequency.

High Pass Frequency : Modifies the high pass cut-off frequency.

Sub-woofer Corner Frequency : Modifies the sub-woofer corner cut-off frequency.



Sound Setup Submenu

Miscellaneous

Clear Programs: Select with a 2 second press to clear all programs stored in memory and set Picture Preference, User Picture and Audio settings to factory values. Returns the instrument to “Out of Factory Mode”.

Default Presets : Sets the default value for all factory sound and picture presets.

Bus Quiet: In this mode the NVM can be read, modified or reprogrammed. Enter this function with with a 2 second press. This mode is cancelled with a press of Clear, Left, Right, Up, Down or On-Off keys.

Development Support : Enables or Disables access to development support functions in the field service menus.

Restore Factory Settings : Restores the correct “Out of Box” condition.

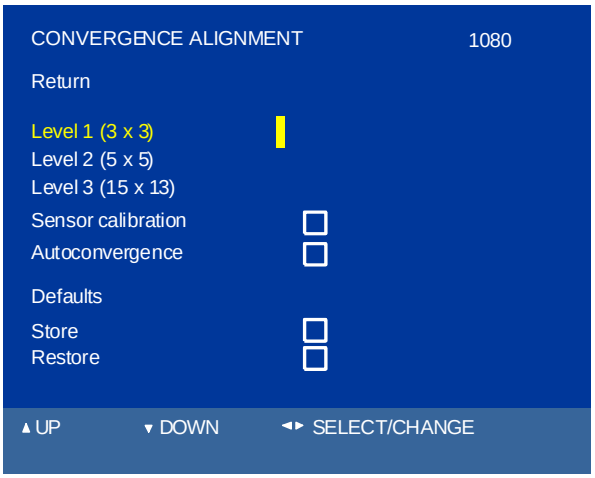
Switch 2nd Tuner to Main : Causes the current signal on the 2nd tuenr to be switched to the main screen and the monitor output jacks. Any channel change will override this feature and return tuning to normal.

Miscellaneous Setup Menu

Convergence (PTV Models Only)

The ITC222 employs a ditigal convergence circuit that makes it possible to electronically align up to 208 separate points on the screen. 3 levels of convergence adjustment is provided.

Level 1: Provides 9 adjustment points
Level 2: Provides 25 adjustment points
Level 3: Provides 195 adjustment points



Convergence Submenu

It is recommended to adjust Levels 1 and 2 only if repairs have been made to the Convergence Signal circuitry or after CRT replacement. Before performing the Convergence Alignment procedure it is **HIGHLY RECOMMENDED** the Geometry Alignment of the instrument is checked.

Note: Alignments must be performed in order. If Level 3 is adjusted, prior to Levels 1 or 2, all Level 3 alignments will be lost.

In Level 1 and 2, Press OK to select the color to be aligned. The position of the adjustment point can adjusted using the navigation keys (up, down, left and right) on the remote. Press the 2 key of the remote to move to the next adjustment point. Press the EXIT/CLEAR key to exit when completed.

Level 3 alignment works simular to Levels 1 and 2. The only difference, to move to the next adjustment point press 2 (up), 8 (down), 6 (right) and 4 (left) on the remote unit. When completed with convergence, press STORE to save all changes.

Sensor Calibration is used to calculate a reference border for the autoconvergence photo sensors. Check the box to begin the process. Autoconvergence starts the autoconvergence process.

Defaults enters a default submenu. Checking the box loads a set of default values from the

convergence backup NVM to the Convergence IC RAM. The box will remain checked until the value is changed or store or restore is pressed in the convergence submenu.

Note: Before the Convergence Alignement menu is exited, you must check Store or all settings will be lost.

Manual Convergence Procedure

1. Turn instrument **"On".** Allow to warm up for 20 munitues. Turn instrument **"Off".** Enter the Service Menu holding the **"Channel Down"** and **"Volume Down"** on the FPA for 8 seconds. Enter the **"Convergence Menu".**
2. Perform **"Level 3"** (and/or Level 1, Level 2) manual convergence as describe above. When completed, press **"Clear"**, then select **"Return"** to go back to the main Convergence Alignment Menu.
3. Check **"Store"** in the main Convergence Menu. A check mark will appear in the box.
4. Select **"Defaults"** to enter the Default Menu.
5. Select **"Store Defaults".** Press and hold **OK** on the Remote for 2.5 seconds. Then select **"Return"** to go back to the main Convergence Alignment Menu.
6. Perform **"Sensor Calibration".** Select it and press **"OK".**

Note: If the **Sensor Calibration** is successful, the software will answer by flashing a **GREEN SCREEN**. If the **GREEN SCREEN** does not appear, turn the instrument off and begain the convergence procedure again.

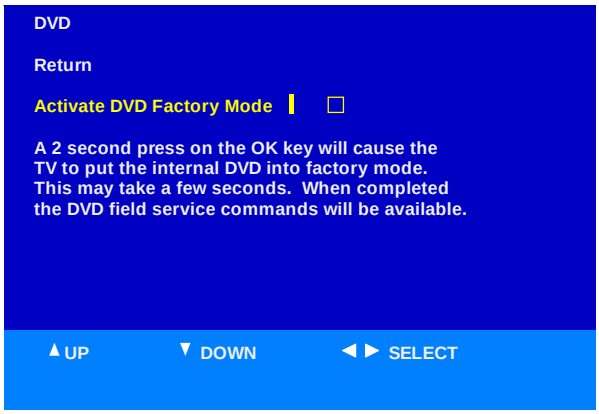
7. Select **"Return**" to exit the Convergence Alignment Menu.

Note: This procedure must be performed in both the 480P and 540P (1080I) modes. The initial service menu screen will indicate which mode the instrument is in.

DVD (DVD Models Only)

1. Place the instrument in the Field Service Mode.
2. Enter the DVD submenu.
3. Activate DVD Factory Mode by selecting the box. Press and hold the OK button for at least 2 seconds. The screen will then show the menu shown below. This process may take several seconds.

1. Place the instrument in the Field Service Mode.
2. Enter the DVD submenu.
3. Activate DVD Factory Mode by selecting the box. Press and hold the OK button on the remote for at least 2 seconds. The menu will then change to the menu shown below. This process may take several seconds.

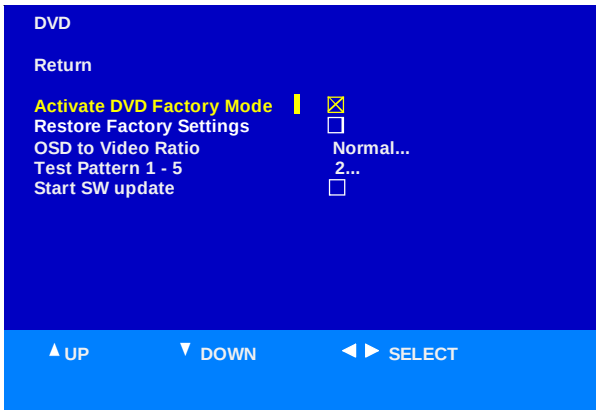


DVD Submenu

DVD Submenu (with Factory Mode Activated)

Restore Factory Settings: This will re-initialise the DVD's NVM content using the system NVM.

OSD to Video Ratio: Aligns the ratio between the



DVD Video Signal and the DVD OSD Video Signal. This is internally adjusted by the DVD and cannot be modified.

Test Pattern 1 - 5: Provides 5 test patterns for alignment.

1. Scaling Color 75/White, 75% Color Bars
2. Cutoff Alignment, 140mVp/p
3. Drive Alignment, 455mVp/p
4. Peak White Alignment, 700mVp/p
5. Color Temperature and Peak White 140/170/700/359/455mVp/p

Start Software Update: Allows the DVD software to be update. The update is sent as a CDROM.

1. Selecting this function will automantically open the DVD and switch the instrument to the DVD mode.
2. Place the CDROM in the instrument. Fol low the instructions provided on the screen. Durning the update process the display will read **"Updating DVD Software".**
3. After the software update is complete, the DVD player will reboot. This may take sev eral seconds to complete. Once it is com plete, the instrument will exit the DVD Fac tory Mode. The display will return to the DVD submenu.

VII

Error Codes

Error Codes

Event Code	Event	Circuit	Condition
11	I2C_1 Low SDA Line		Data Line of I2C Bus_1 Held Low
12	I2C_1 Low SCL Line		Clock Line of I2C Bus_1 Held Low
13/95	I2C_2 Low SDA Line		Data Line of I2C Bus_2 Held Low
14/95	I2C_2 Low SCL Line		Clock Line of I2C Bus_2 Held Low
15	I2C_3 Low SDA Line		Data Line of I2C Bus_3 Held Low
16	I2C_3 Low SCL Line		Clock Line of I2C Bus_4 Held Low
17	I2C_4 Low SDA Line		Data Line of I2C Bus_4 Held Low
18	I2C_4 Low SCL Line		Clock Line of I2C Bus_4 Held Low
19	Chassis Detection	HW	No Valid Chassis Detected
21/22/23/24			Free Event Code
25	No ACKN Main Tuner	Tuner	Main Tuner Does Not Answer
26	No ACKN PIP Tuner	Tuner	PIP Tuner Does Not Answer
27	No ACKN IX300	Video	Video Switch Does Not Answer
28	No ACKN IV300	PSI	PSI IC Does Not Answer
29	PDD Bit Is Set	PSI	IV300 Power Down Detection
31	No ACKN IV400	Deflection	IC Does Not Answer
32	POR Bit Is Set	Deflection	IV400 Power Down Detection
33	Safety_INT Is Active	Deflection	Safety Circuit Is Active
34	NHF Bit Is Set	Deflection	Horizontal Flyback Problem
35	NRF Bit Is Set	Deflection	Oscillator Is Not Locked
36	BCF Bit Is Set	Deflection	Tube Is Still Not Warm After Warmup Time
37	NDF Bit Is Set	Deflection	Vertical Problem
38	XRP Bit Is Set Durning Normal Operation	Deflection	X-Ray Protection
39	SL Bit Is Set	Deflection	Phase 1 Not Locked
41	No ACKN IA001	Audio	IA001 Does Not Answer
42	RESET Bit is Set	Audio	The RESET Bit of IA001 Is Active
43			Not Used
44	No ACKN IA900	Audio	IC Does Not Answer
45	Wrong MSP	Audio	Wrong MSP Is Fitted
46/47			Reserved/Not Used
48	No ACKN Main IF	IF	IF IC (Main Tuner) Does Not Answer
49	No ACKN PIP IF	IF	IF IC (PIP Tuner) Does Not Answer

Error Codes

Event Code	Event	Circuit	Condition
51	No ACKN IV100	Upconverter	IC Does Not Answer
52	POR Bit Is Set	Upconverter	Power Down Detection (IV100)
53			Not Used
54	No ACKN IR005		NVM IC Does Not Answer
55	No ACKN IR006		Port Expander IC Does Not Answer
56	FLS Bit Is Set		Flash Info Of The HOP Occurred
57	TECI Message Failed		Software Can Not Perform A System Command
58	Event Code Validation		Code Validation Failed
59	Wrong GenCAM Version Used		GenCAM cut 2.1 Must Be Used
61	5V Good	HW	Switched 5V Not Available
62	5V and 8V Good	HW	Switched 5V & 8V Not Available
63	Power_Fail	HW	Unexpected Level On Power_Fail Line Found (Mains To Low)
64	XRP Alignment	HW	XRP Adjustment Detected Overvoltage
65	XRP NVM Verify	HW	Write To XRP NVM Area Failed
66	XRP NVM Not Recoverable	HW	XRP NVM Contents Are Corrutped And Can Not Be Recovered
67			Reserved
68	5V Failed During Operation	HW	Switched 5V Not Available During Operation
69	H & V Sync Not Valid	HW	H & V Sync (For OSD) Not Present
71	No ACKN IC040	Video	Frame Comb Filter IC Does Not acknowledge
72	No ACKN IX400	Video	2H Video Switch Does Not Acknowledge
73/74/75/76/77			Reserved
78	No ACKN DVD Unit	DVD	DVD Does Not Answer
79	DVD Ready Bit	DVD	DVD Ready Bit Is Set
81	No ACKN Convergence IC IK201	PTV Models	Convergence IC Does Not Answer
82	No ACKN M24C32 (RP-NVM)	PTV Models	NVM IC Does Not Answer
83	Wrong Convergence Test Pattern	PTV Models	Convergence Test Pattern Is Wrong
84	Before Is Was An RP	PTV Models	Tube Type Is RP, But Convergence Was Not Detected
85	Convergence NVM 1 Problem	PTV Models	Convergence 1 NVM Data Is Wrong
86	Convergence NVM 2 Problem	PTV Models	Convergence 2 NVM Data Is Wrong
87	IK201 Loop Blocked	PTV Models	IK201 Electrical Loop Blocked
88	POR Bit Is Set	PTV Models	The POR Set Of IK201 Is Set
89	Convergence Power Supply Off	PTV Models	Convergence Power Suopply Is Not Valid
91	Watchdog Disabled	SW	Watchdog Function Is Disabled

Error Codes

Event Code	Event	Circuit	Condition
92	General I2C Problem	SW	General Problem Of One Of The I2C Cells
93	Install Problem Of I2C Bus 1 & 2	SW	Problem To Install I2C Bus Driver
94	Install Problem Of I2C Bus 3 & 4	SW	Problem To Install I2C Bus Driver
95	Install Problem Of Port Driver Or Bus Driver	SW	Problem To Install The Port Driver Or I2C Bus Driver
96	Install Problem Of ADC Driver	SW	Problem To Install ADC Driver
97	Install Problem Of AV-Link Driver	SW	Problem To Install AV-Link Driver
98	Install Problem Of SDRAM Timing	SW	Problem To Install The SDRAM Timing
99	Watchdog	SW	Watchdog Was Active

VIII

Troubleshooting Flow Charts and Procedures

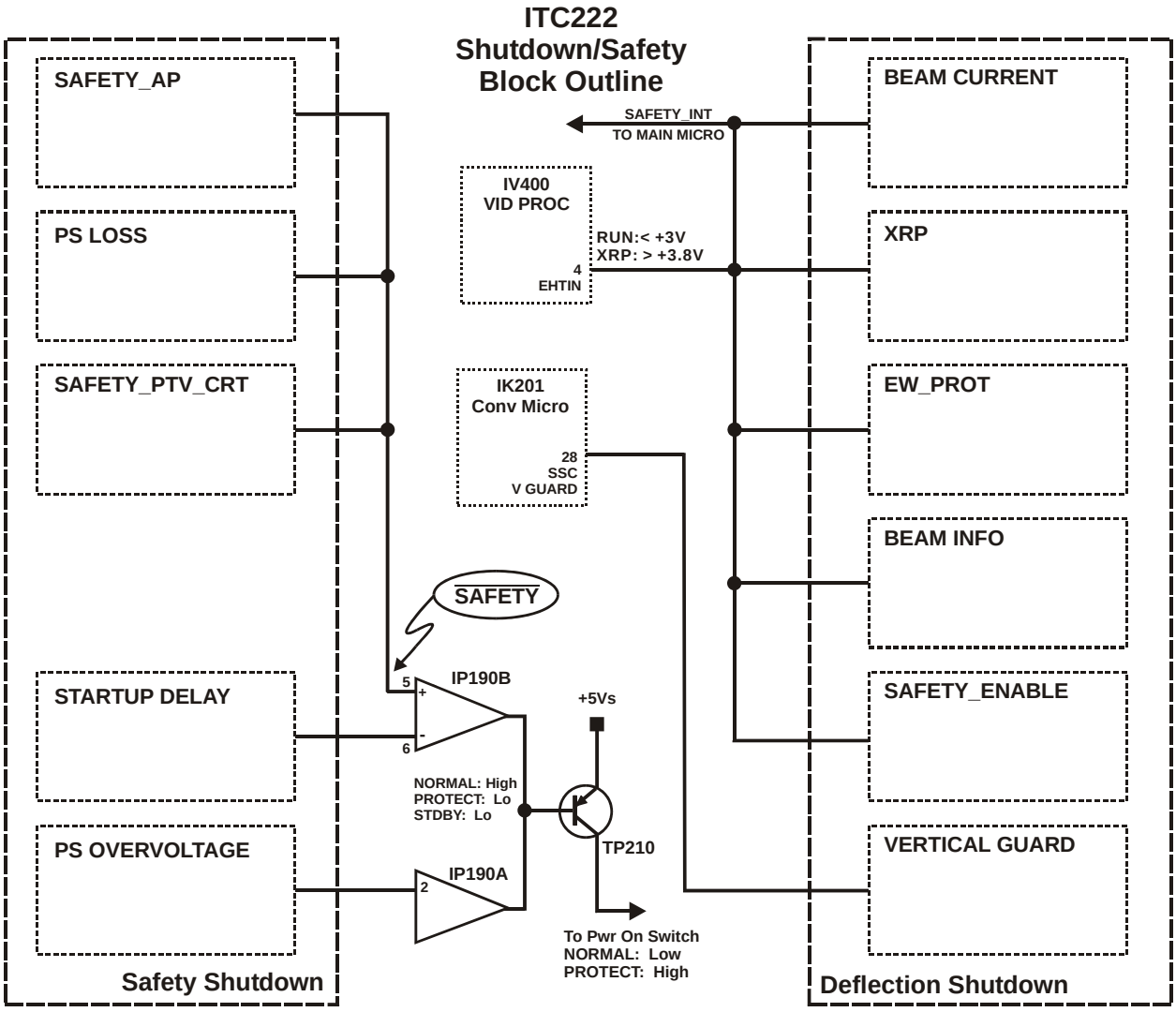


Figure 4; Shutdown / Safety Block

Tool Box Key

The graphic below is a key to the ICONS found in the troubleshooting procedures. It lists the tools and test equipment required to perform each procedure.

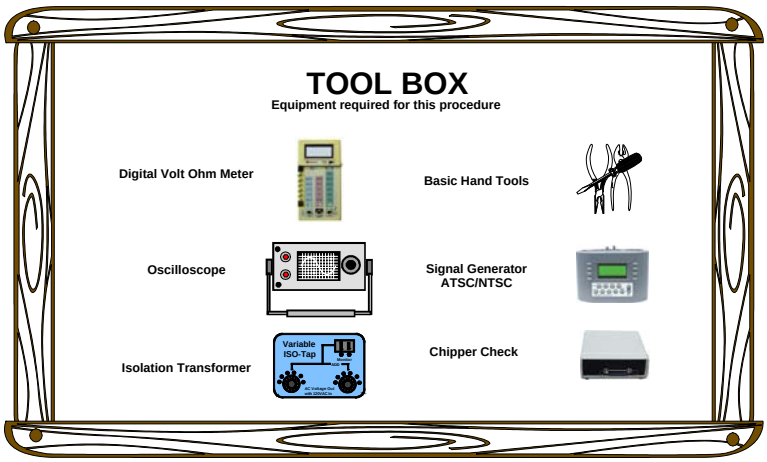


Figure 5; Tool Box Key

ITC222 Dead Set Troubleshooting

The first step in all troubleshooting is to determine what is or is not working. The following information should be used when the set is totally dead or nothing happens when the power button is pushed.

1 Once the main fuse has been eliminated as a potential problem, measure the +1.8Vs supply at IP551 on the SSB board:

Figure 6; STBY 1.8V Location

The +1.8Vs voltage is the main supply for the main microprocessor, IR001. Without it, nothing will fire up. If missing, troubleshoot the Standby Power Supply.

2 Once the +1.8Vs supply has been confirmed as operational, check the clock (pin 6) and data (pin 5) lines to the main NVM, IR005.

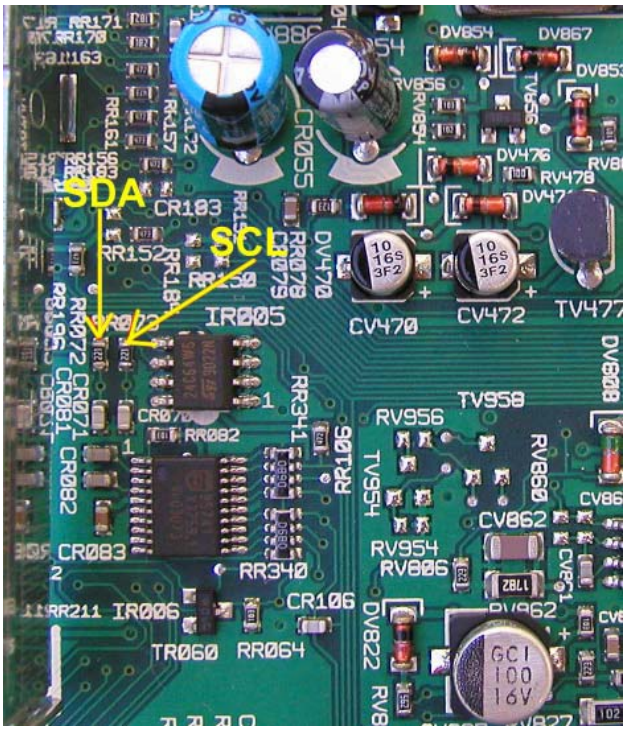


Figure 7; Clock and Data Location

In the first 100mS after AC power is applied the CLOCK and DATA lines must rise to very near +5V and have at least few cycles of data. This indicates communication between the main microprocessor and NVM (EEPROM). Note only a limited amount of Data is transferred when AC is applied. Communications will cease until the power ON button is pressed to start the chassis. However, the short amount of data transfer between the microprocessor and NVM is a good indication that communications between the main microprocessor, ROM and RAM were successful and the main microprocessor is alive.
From observing clock and data activity, there are two failure indications. First, if there were no signs of data or clock suspect the main microprocessor is defective. However if there is constant communications it indicates the microprocessor is trying to communicate with the NVM and cannot. Suspect a defective NVM (EEPROM). In either case the SSB should be replaced.
NOTE: In some cases it may be required to check the communications again. To do so requires the main micro be in a zero voltage state. Be aware the mains doubler can hold a significant voltage for a long period of time. AC must be removed for at least several minutes to give the +1.8Vs supply time to completely bleed off. To save time the +1.8Vs supply may be bled by shorting CP555 on the SSB module. Check the +1.8Vs supply to make certain it is less than +0.2V before attempting to reapply AC power.

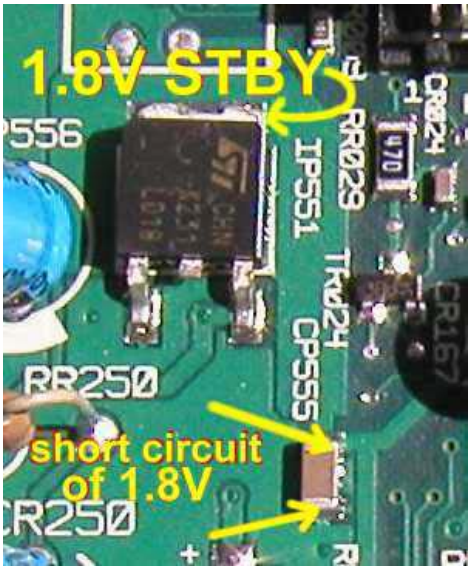


Figure 8; Location of Reset Cap

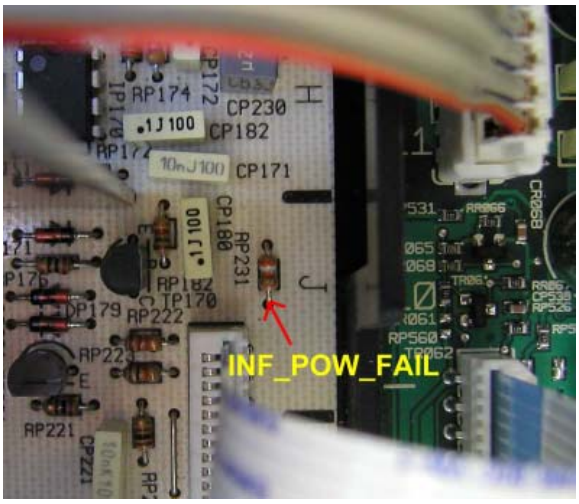
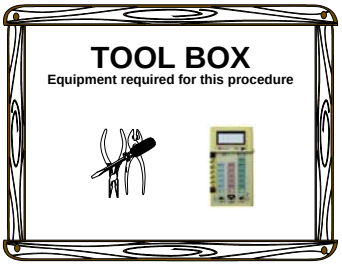


Figure 9; Inf_Pow_Fail

Power Fail (INF_POW_FAIL)
Another useful preliminary check is the INF_POW_FAIL voltage located on the PSD board. The voltage monitors an unregulated rectified output from the +7Vs winding. This can be located on one end of RP231 as shown. During normal operation this voltage will be less than -1V and normally stays around -2V. INF_POW_FAIL can indicate severe loading problems on the standby supplies. Absence of a negative INF_POW_FAIL signal will not allow the chassis to start.

Troubleshooting flow charts and procedures

Shutdown or Three Strikes



Device	Voltage
DP220-C	+7.2V
IP250-3	+4.99V
DP240-C	+3.4V

Start

Apply AC power and Press the power switch

Does the FPA LED flash?

No → Check standby power supply voltages per chart

Yes

Voltages correct?

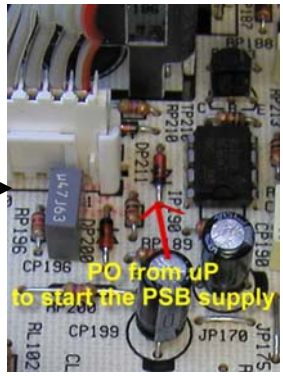
No → Troubleshoot the Standby power supply

Yes → System Reset

See Bottom of Page for System Reset

Monitor the PO (Power ON) line at DP211-A and press the power switch

Location INFO



Did the PO line change state (go from low to high)?

No → Troubleshoot System control

Yes

System Reset

See Bottom of Page for System Reset

System Control is trying to turn on the run supply. Monitor the Safety shutdown at TP210-C and press the power switch.

Does TP210-C go high (Protect)

No → Troubleshoot Deflection Shutdown

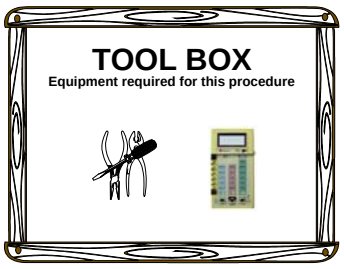
Yes

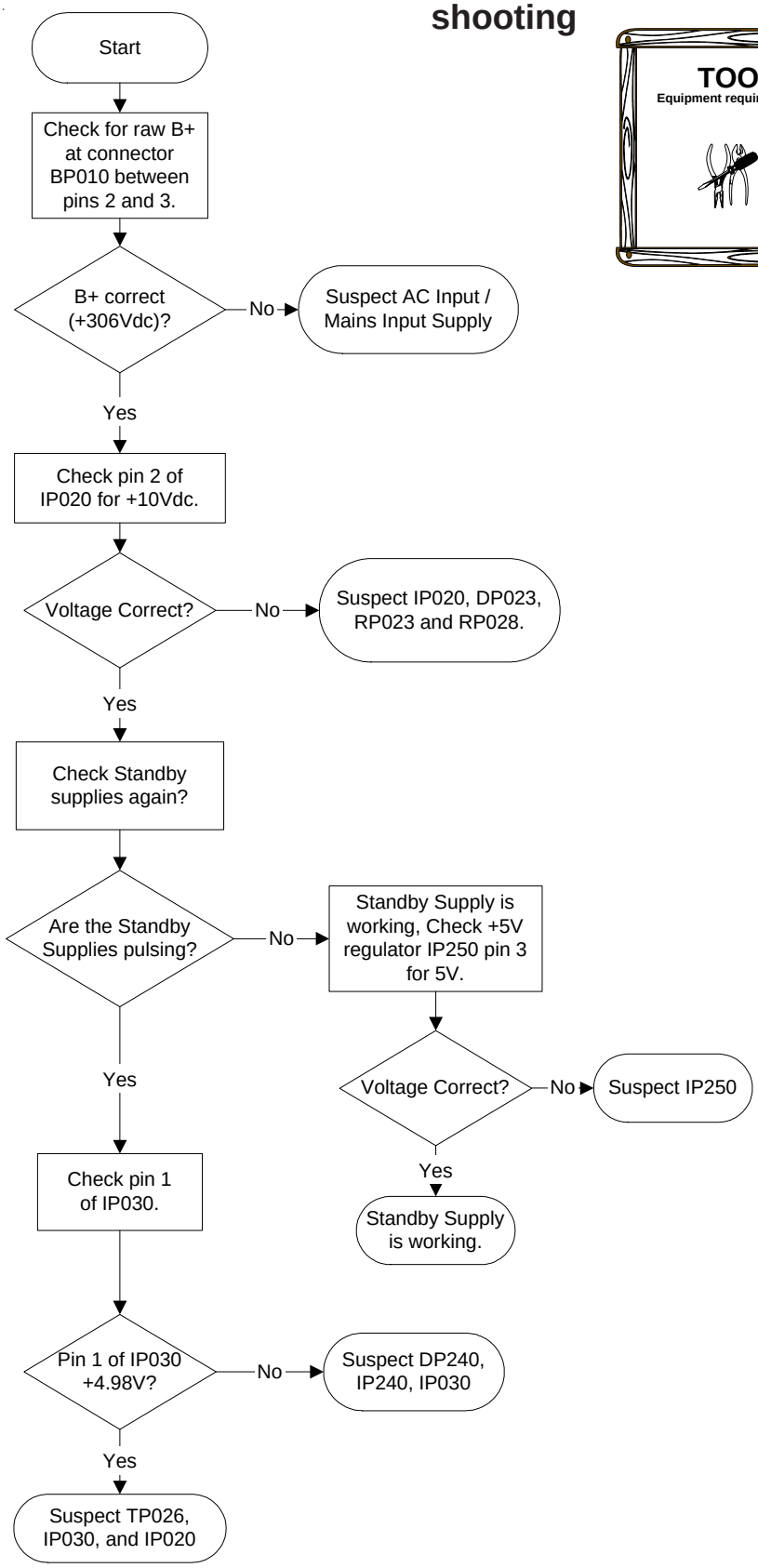
Troubleshoot Safety Shutdown

System Reset: *Remove AC power and short out CP555 for 10 seconds then reapply AC power.* *See page 11 for details.*

Troubleshooting flow charts and procedures

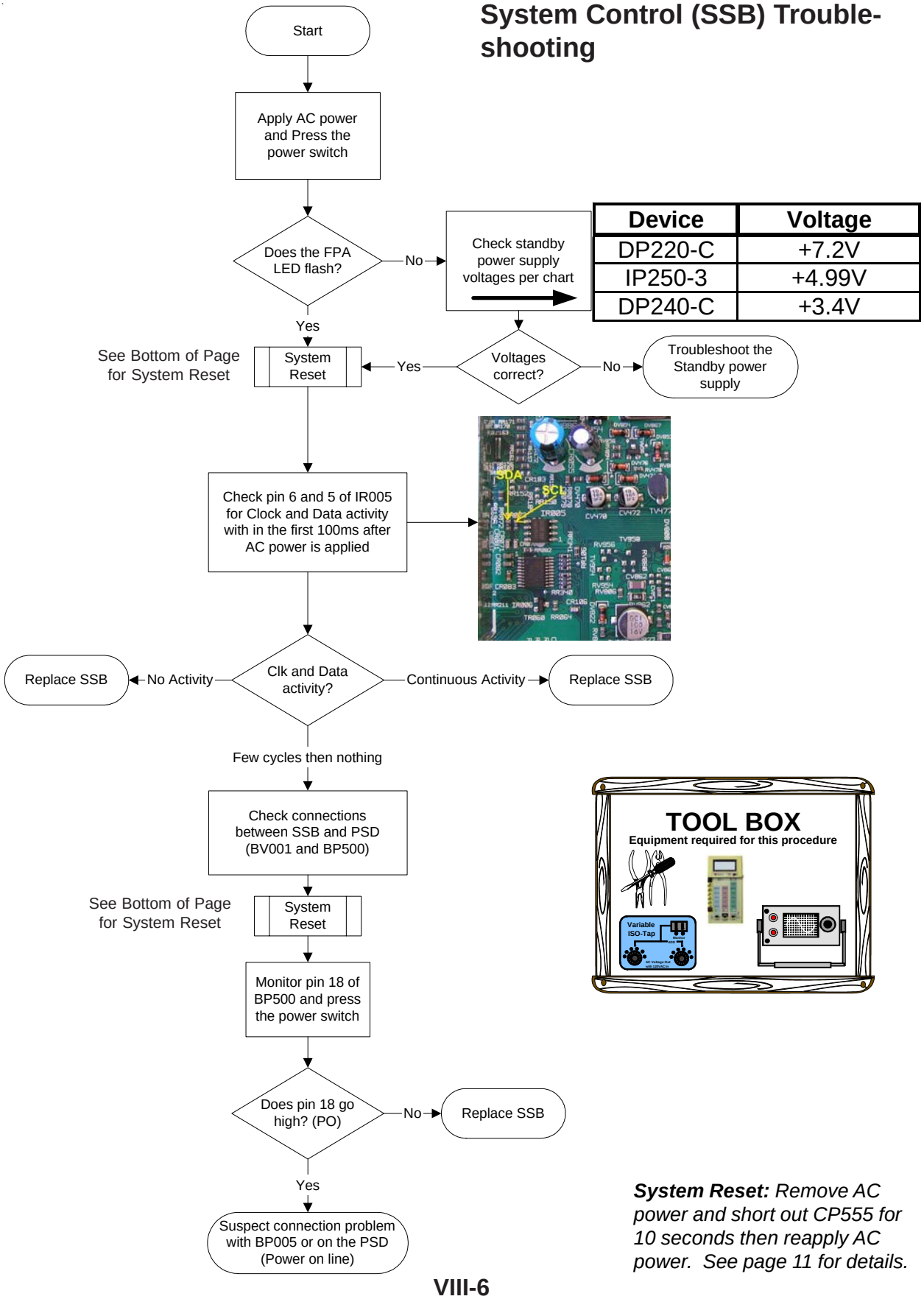
Standby Power Supply Trouble-shooting





Troubleshooting flow charts and procedures

System Control (SSB) Trouble-shooting

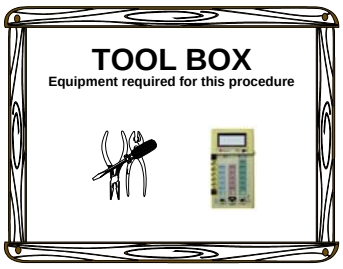


Device	Voltage
DP220-C	+7.2V
IP250-3	+4.99V
DP240-C	+3.4V

System Reset: *Remove AC power and short out CP555 for 10 seconds then reapply AC power. See page 11 for details.*

Troubleshooting flow charts and procedures

Safety Shutdown



Safety Shutdown Start

Disconnect BA010 to disable SAFETY_AP and press the power switch.

Does the set start and run with no audio?

Yes → Troubleshoot Audio Output Circuit

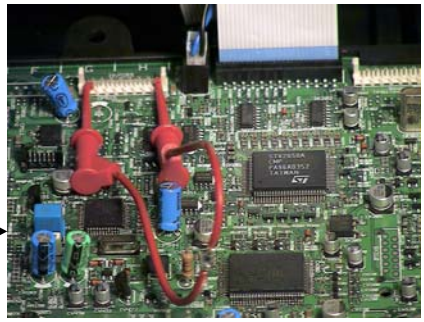
No

System Reset

See Bottom of Page for System Reset

Disconnect BV500 from SSB and jumper pins 1 and 16 on BV500 and press the power switch.

Location INFO →



Does the set start and run?

Yes → Troubleshoot PTV Interlock Circuit.

No

Remove AC power and check RUN supplies for excessive loads or shorts. Use the chart found on page 16 as reference for what supplies to check.

Resistance checks ok?

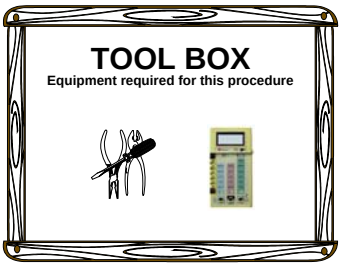
Yes → See Force on RUN supply.

No

Troubleshoot Circuit where resistance was not correct.

System Reset: *Remove AC power and short out CP555 for 10 seconds then reapply AC power. See page 11 for details.*

Troubleshooting flow charts and procedures



ITC222 Force ON RUN supply

1. Unsolder collector of TL010 (Horizontal Output)
2. Short base to emitter of TP210
3. Short emitter to collector of TP150
4. Apply AC power

Note: Without horizontal drive (H_DRIVE), regulation is disabled. The +137Vr will vary from +140V to +160V. This is considered normal operation for the Run Supply when forced to operate without Horizontal feedback.

5. With the run power supply forced on, check the following voltages per the chart below. If all voltages are ok, suspect system control or power ON problem. If one or more voltages are incorrect or all are missing, troubleshoot the missing or incorrect voltage from the run supply.

Safety Shutdown	Device	Resistance to GND
Sense_3V3	IC001-2	.5K
Sense_2V5	IC006-2	.4K
+3V3	IP530-2	.57K
+5V	TP520-S	160 Ohms
+8V	IP510-3	1.5K
+9V	IP540-3	1.2K
USYS	DP110-C	27K
20V	DP120-C	3K
10V	DP140-C	1.3M
6V	DP150-C	1.2M

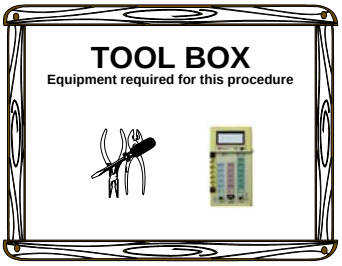
Figure 10; Resistance Chart

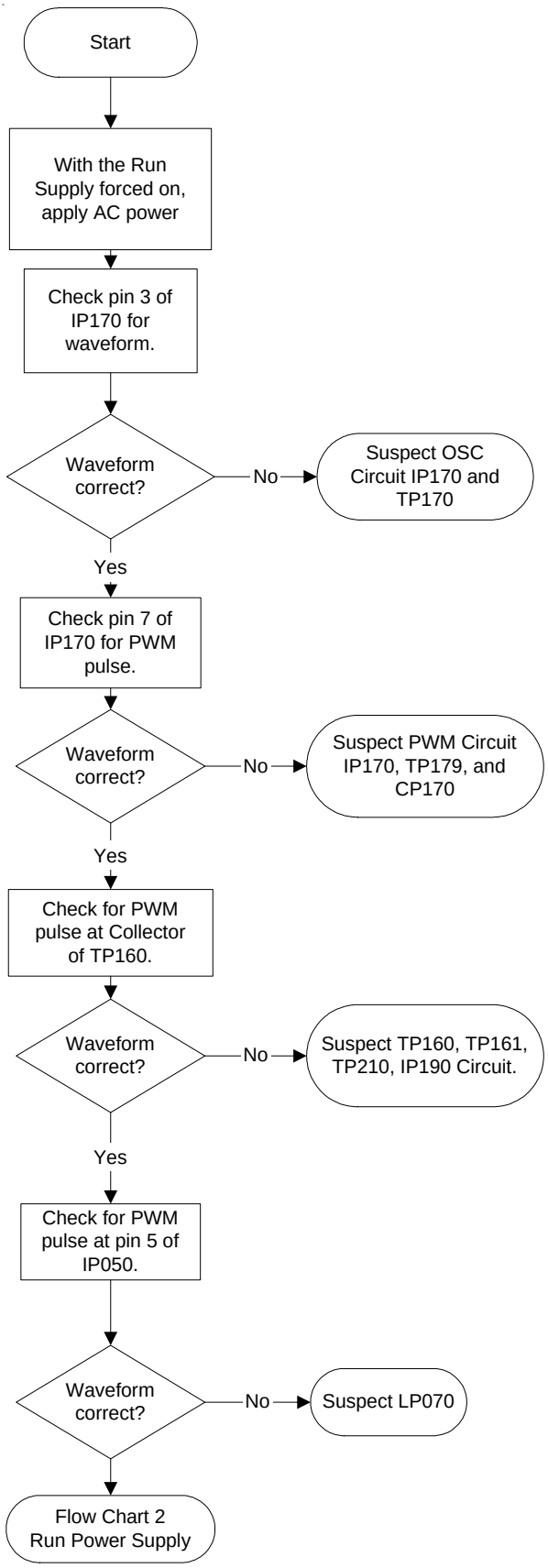
Device	Voltage
DP110-C	+142.5V
DP130-C	+15.9V
DP135-A	-15.7V
DP120-C	+20.5V
DP140-C	+11.0V
DP150-C	+6.2V
IP540-3	+9.0V
IP510-3	+7.9V
TP520-S	+5.1V
IP530-2	+3.2V
IP531-2	+1.8V

Figure 11; VoltageChart

Troubleshooting flow charts and procedures

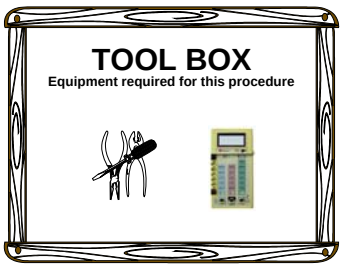
Run Supply Troublehsooting

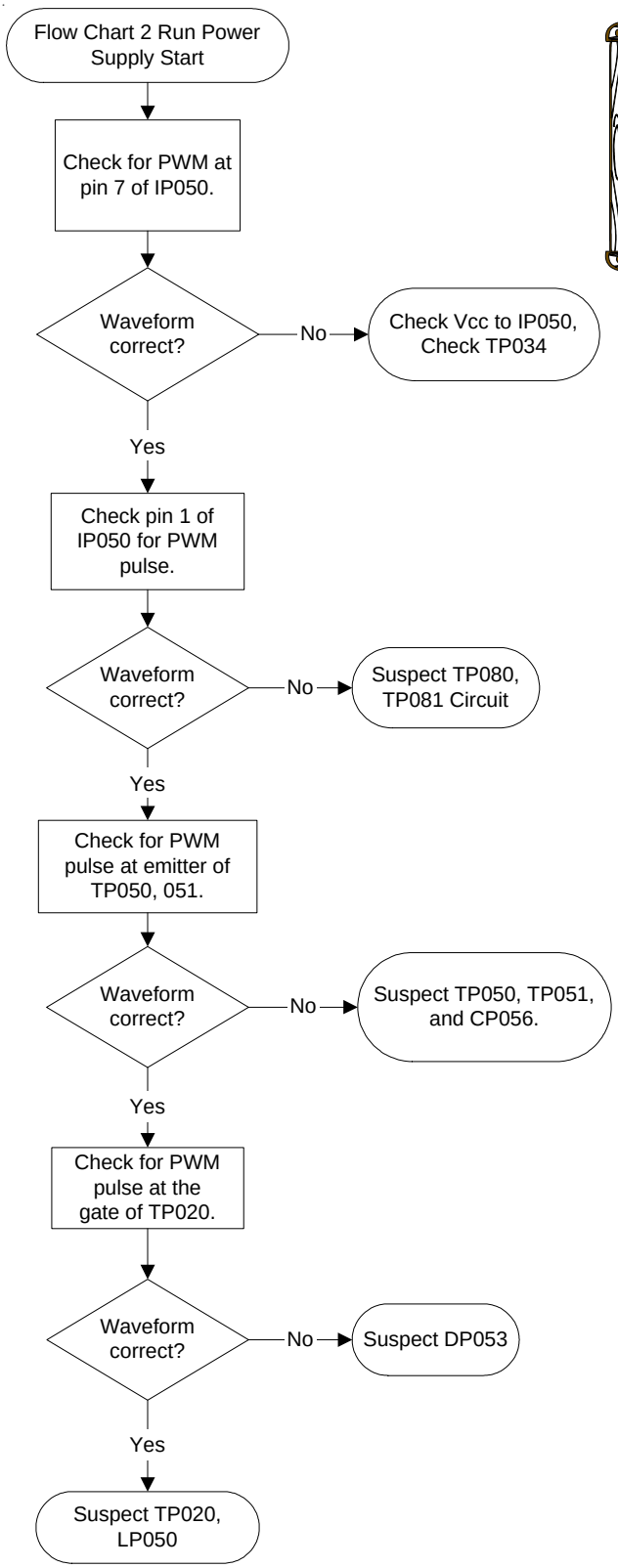




Troubleshooting flow charts and procedures

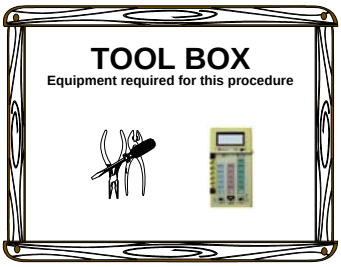
Run Supply Troublehsooting Continued

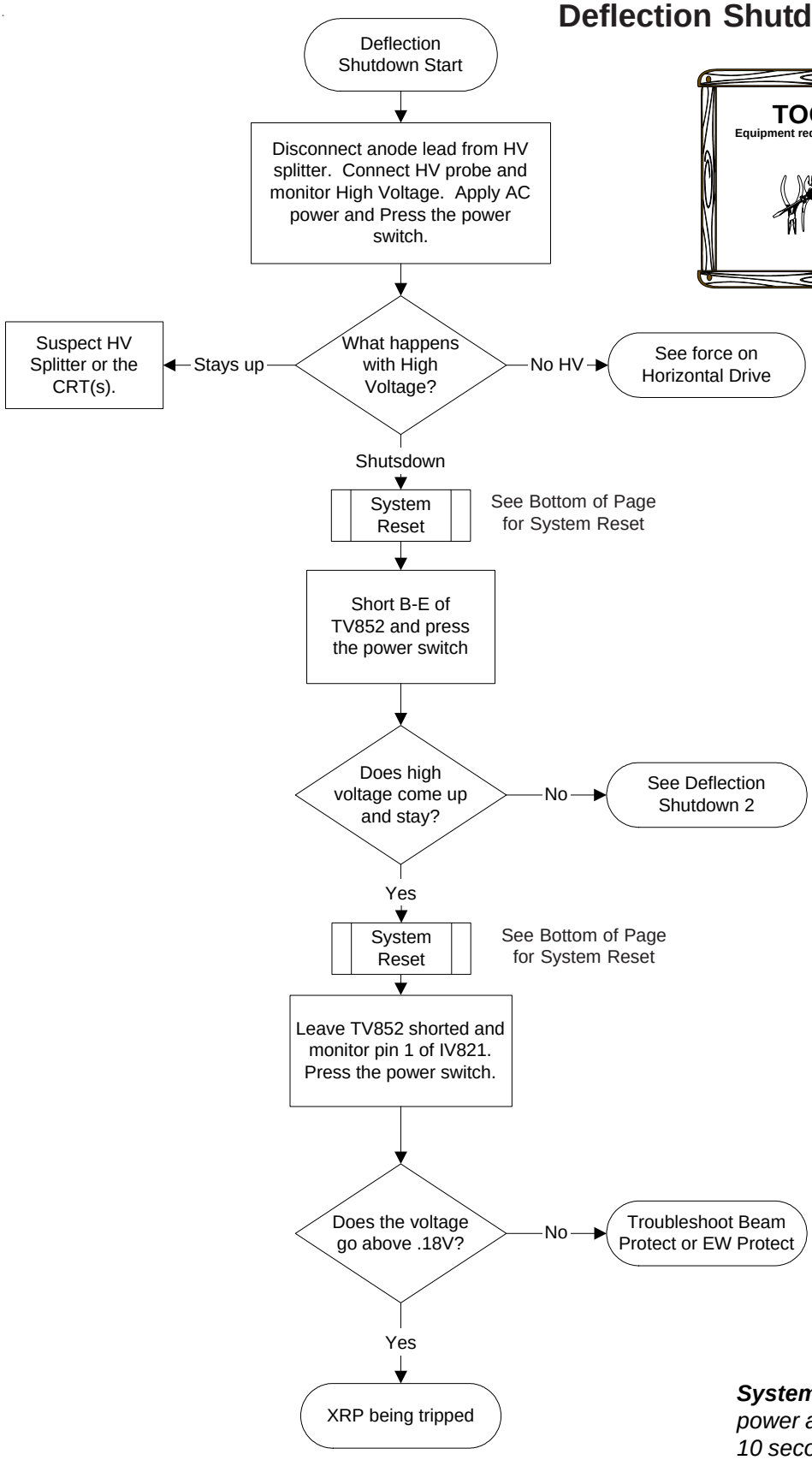




Troubleshooting flow charts and procedures

Deflection Shutdown





System Reset: *Remove AC power and short out CP555 for 10 seconds then reapply AC power.* *See page 11 for details.*

Troubleshooting flow charts and procedures

ITC222 Force on Horizontal Drive

This procedure will verify if the SSB is generating horizontal drive or not. If drive is present from the SSB, then see Deflection Shutdown 2 Troubleshooting, if not suspect the SSB as the problem.

1. Remove ribbon cable BL111 to BV001
2. Jumper pins 1 and 21 on BL111 PSD CBA
3. Add 1K resistor to ground (Cold) from pin 17 of BV001
4. Monitor waveform at pin 8 of IV400 or DC voltage. Voltage or waveform will remain for about 1.5 seconds when power is pushed.

DC reading on pin 8 of IV400:
4Vdc = no drive
2Vdc = drive

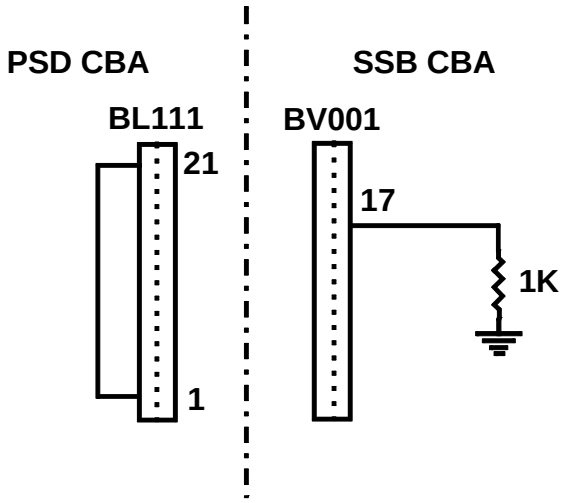
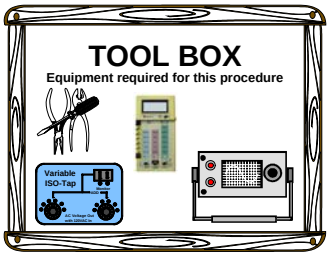


Figure 12; Force On H-Drive



Troubleshooting flow charts and procedures

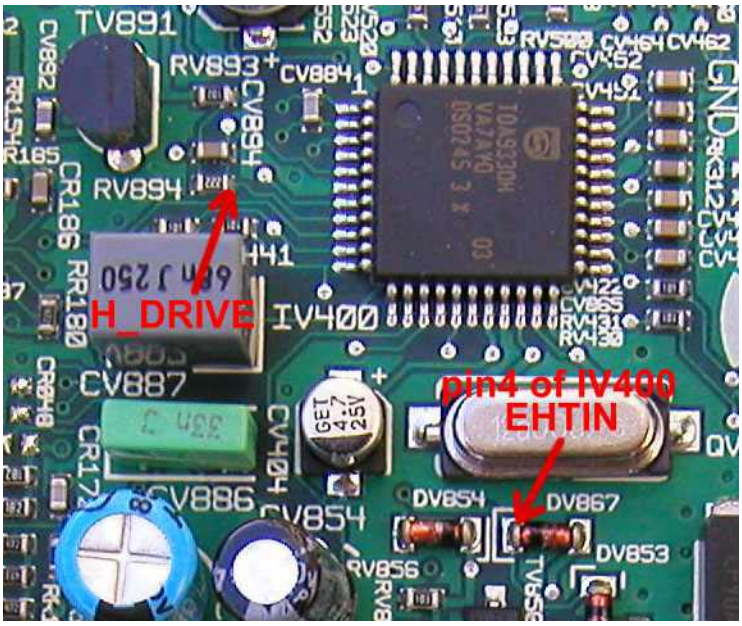


Figure 12a; Force On H-Drive

H_DRIVE when forced on

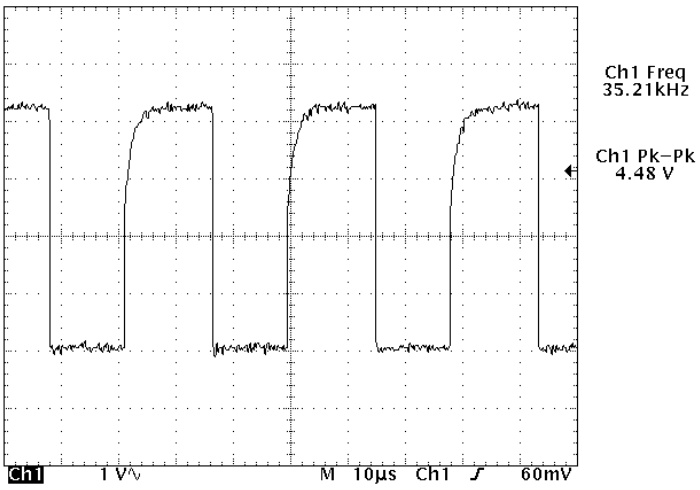
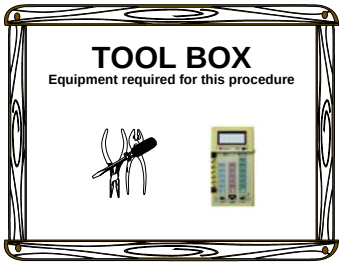
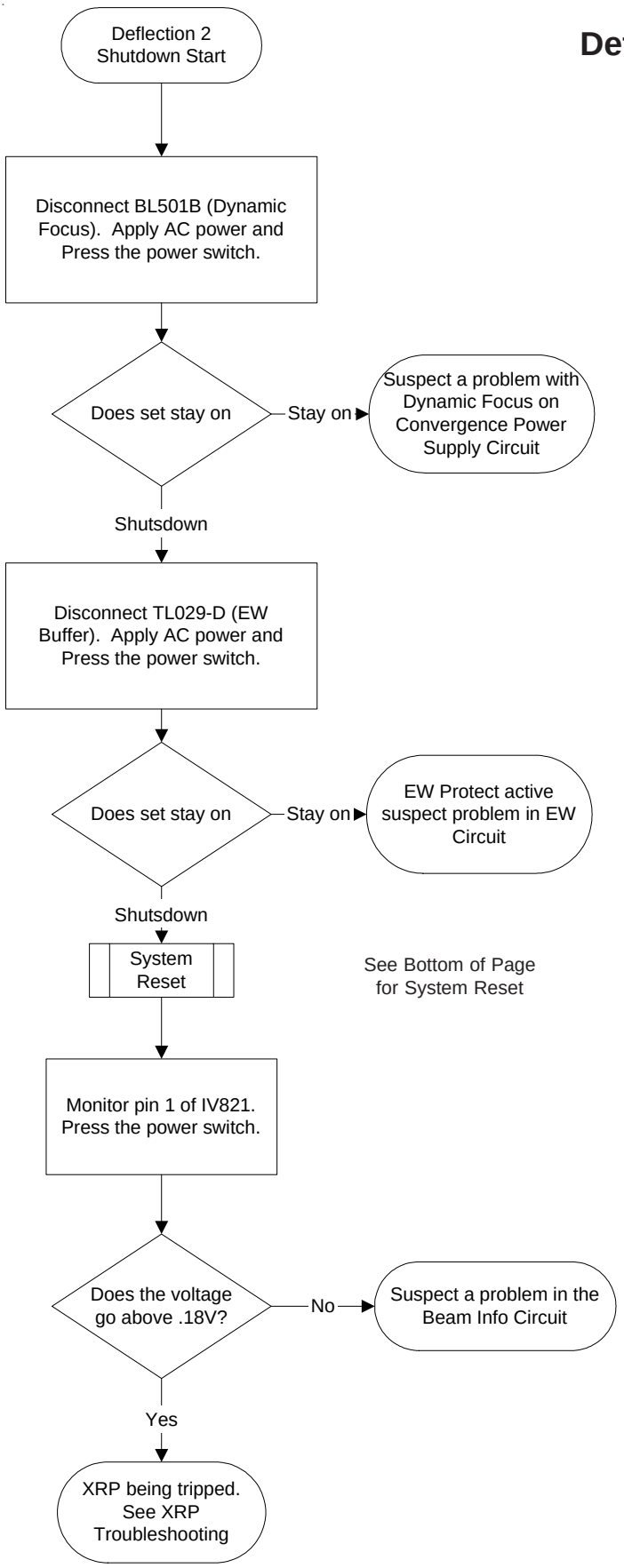


Figure 12b; Force On H-Drive Waveform

Troubleshooting flow charts and procedures

Deflection Shutdown 2

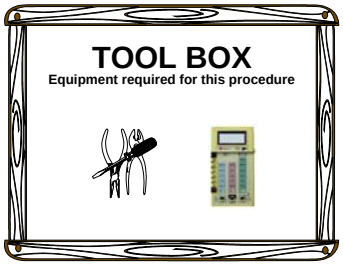


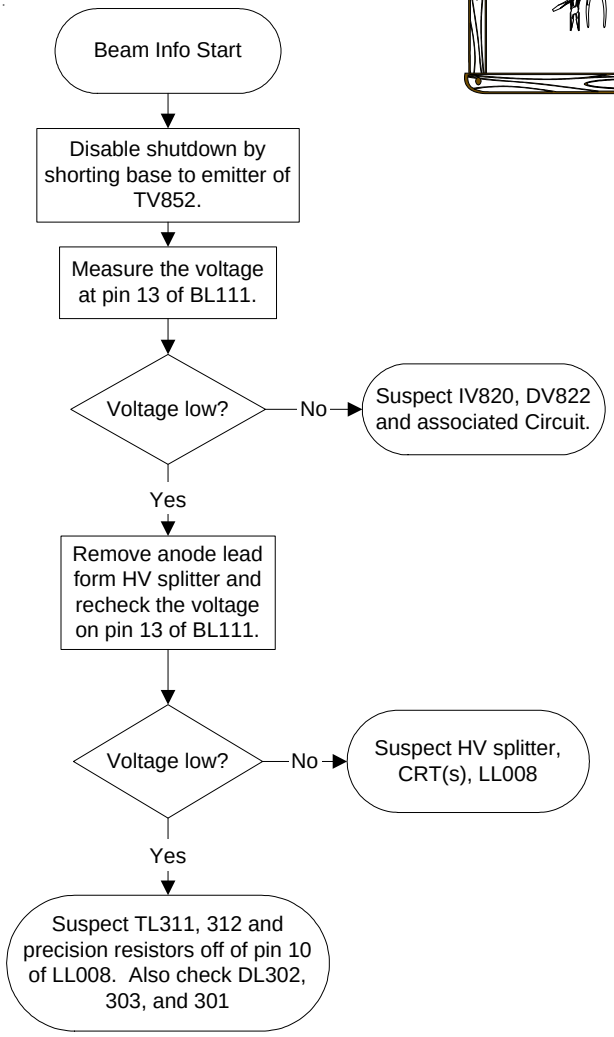


System Reset: *Remove AC power and short out CP555 for 10 seconds then reapply AC power.* *See page 11 for details.*

Troubleshooting flow charts and procedures

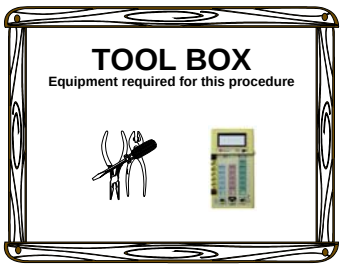
Beam Info Troubleshooting

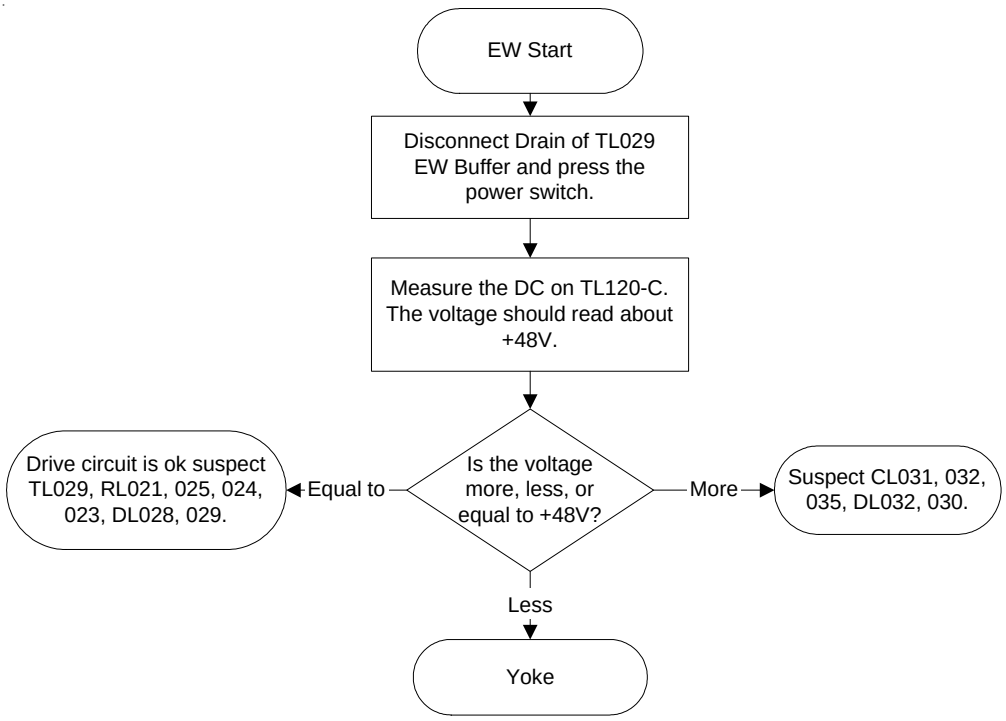




Troubleshooting flow charts and procedures

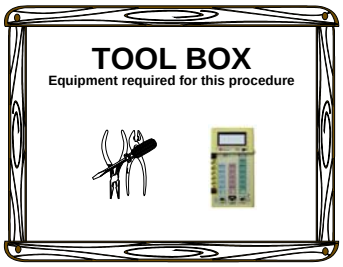
EW Troubleshooting





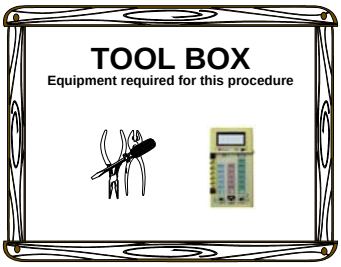
Troubleshooting flow charts and procedures

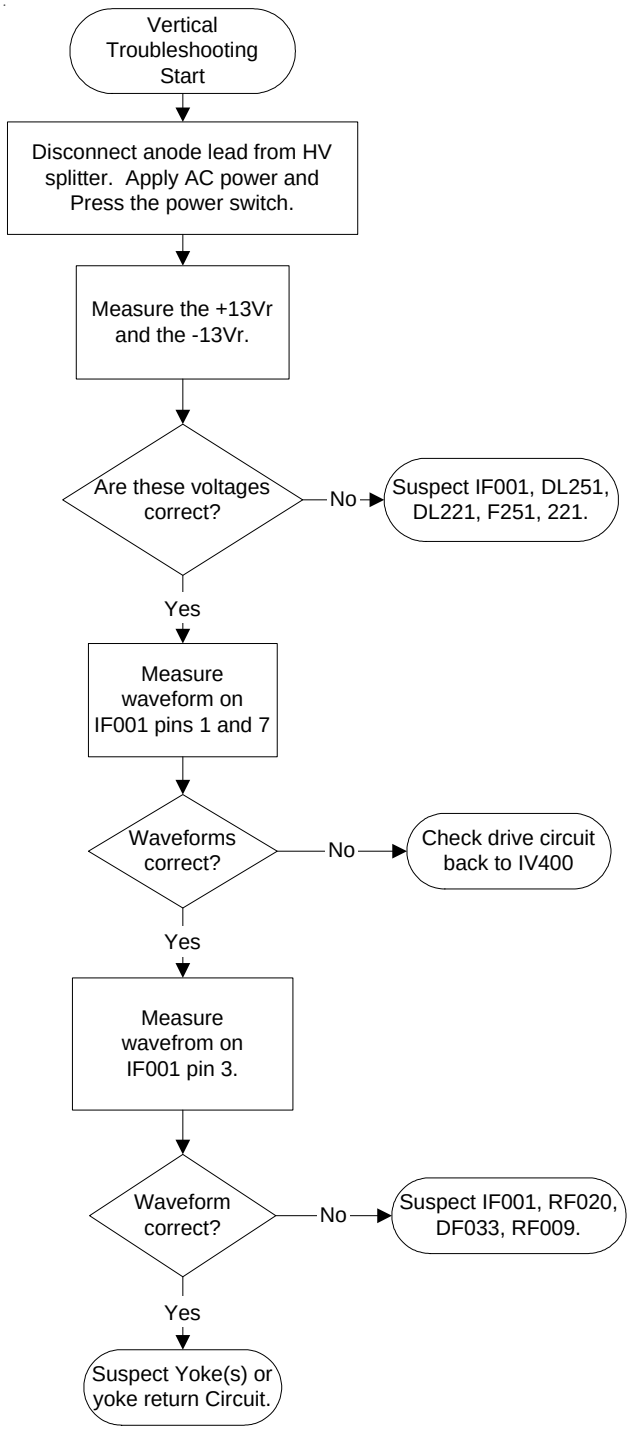
XRP Troubleshooting



Troubleshooting flow charts and procedures

Vertical Troubleshooting





IX

Common Parts Ordered

In-Home Service Information

Common Parts Ordered

Stock	Symbol	Description	Drawing
259296	LL008	TRANSFORMER, IHVT	1075648000
259899	TL010	TRANSISTOR, HORIZONTAL OUTPUT	2557637000
265409	LL008	TRANSFORMER, IHVT	1079963000
261665	REMOTE	REMOTE TRANSMITTER-RCR615TELM1	16196910
268828	LL037	COIL, HORIZ LINEARITY	1051825000
264658	TUNER	TUNER/IF ASSEMBLY: FE6241A	21370120
264110	CIRCUIT	CIRCUIT, SMALL SIGNAL BOARD	10809350
258513	SCREEN	SCRN 52"" 16:9 15% TINT 1.5F"	16411670
264102	CIRCUIT	CIRCUIT, POWER BOARD	10802090
257783	DP410	DIODE	1045521002
263048	PT620	CRT ASSY, PROJECTION: RED	16165320
265434	CIRCUIT	CIRCUIT, SMALL SIGNAL BOARD	10889940
264103	CIRCUIT	CIRCUIT, CONVERGENCE AMP BOARD	10803510
263049	CRT B	CRT ASSY, PROJECTION: BLUE	16165420
259856	TP020	TRANSISTOR	2551355000
258738	IF001	IC, VERTICAL OUTPUT	1035288000
263050	PT600	CRT ASSY, PROJECTION: GREEN	16165930
259214	FL221	FUSE, 1.25A 125V	1076051070
258736	IA002	IC, AUDIO POWER AMP	1034879000
249239	IB101	IC	1533365000
264185	FOCSCR	CONTROL, FOCUS/SCREEN	1085109000
264104	CIRCUIT	CIRCUIT, CONVERG. POWER SUPPLY	10803530
268851	CIRCUIT	SMALL SIG BOARD AS222 MDZ*95RM	10914030
264659	DVD ASSY	DVD ASSEMBLY W/ MPEG/FE CBA	21297430
265472	CRT R	CRT ASSY, PROJECTION: RED	16298030
258740	DP111	DIODE	1036028002
264117	CIRCUIT	CIRCUIT, RED KINE DRIVE	10821560
268904	TUNER	NTSC TUNER FE 6240A	21370110
263092	HV SPLIT	HIGH VOLTAGE SPLITTER	1606412A
265461	CRT G	CRT ASSY, PROJECTION: GREEN	16298010
265473	CRT B	CRT ASSY, PROJECTION: BLUE	16298050
259275	IP020	IC, SWITCHING REGULATOR	1070780000
264119	CIRCUIT	CIRCUIT, BLUE KINE DRIVE	10821580
259273	IP050	IC	1070778000
264118	CIRCUIT	CIRCUIT, GREEN KINE DRIVE	10821570
259216	FP400	FUSE, 6A 125V	2556048000
264190	YOKE	LDEFL 90 B YOKE CLUSTER 108643	1086439A
265507	CRT B	CRT ASSY, PROJECTION: BLUE	16298110
264108	CIRCUIT	CIRCUIT, BLUE KINE DRIVE	10805640
265432	CIRCUIT	CIRCUIT, SMALL SIGNAL BOARD	10882720
264106	CIRCUIT	CIRCUIT, RED KINE DRIVE	10805620
264107	CIRCUIT	CIRCUIT, GREEN KINE DRIVE	10805630

In-Home Service Information

Always have the consumer purchase receipt information, model number (including service suffix) and serial number of the instrument, and the Authorized Service Center number available before placing calls to Thomson.

Most Use & Care or accessory issues can be resolved by the consumer online at www.RCA.com or www.rcascenium.com .

Consumer Issue:		Information Location	Contact Details
Use and care Issues:		Refer to IB or website	800-336-1900 (Automated) 580-634-0123 (Live Agent)
Complex Installations		Get Connected Services	888-206-3359
Replacement IB		Website or service data	http://tv.rca.com/en-US/RLSearch.html
TVGuide+ Issues		Gemstar Assistance	580-634-0195
Consumer issue with service or product		Consumer Relations	580-634-0151
Service Contract		Service Contracts	800-283-6193
Cosmetic damage		Refer to Selling Dealer	
Shipping Damage		Refer to Delivery Agent	
Parts			
Ordered Part, received incorrect part		Contact Distributor	
Ordered Part, received incorrect part multiple times		Thomson Technical Assistance	580-634-0160
Part backorder over 30 days		Field Service Manager	580-634-0170
Instrument Warranty Elligible		Refer to IB, Consumer Receipt & ESI Monthly	PartsFinder II on most recent ESI Monthly CD
Part Warranty Elligible		ESI Monthly	PartsFinder II on most recent ESI Monthly CD

Service		Information Location	Contact Details	
Hints & Tips:		Technical Assistance	580-634-0160	Select "TECH TIPS"
Component level troubleshooting assistance		Technical Assistance	580-634-0160	Select “OTHER”
Chipper Check		Technical Assistance	580-634-0160	Select "OTHER"
Confirm Service Contract		Service Contracts	800-283-6193	

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Tech-Line Information

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Chassis	Symptom/Notes	Solution
ITC222	high pitched noise when first on.	change ll037
ITC222	adjust green geometry.	servicer will perform level 2 and 3 convergence adjustments for green.
ITC222	after warm-up set looses tuning	suspect ssb
ITC222	arcing in picture	checking hv splitter ,ihvt
ITC222	as soon as the picture comes up the set shuts off, this is the second ssb he put in	we reset the breathing adjustment with no signal then it would stay on
ITC222	audio cuts out	suspect ssb
ITC222	audio delay when using the DVD	told him to change the DVD unit
ITC222	audio distorts	suspect ssb
ITC222	audio lags the video on the DVD, and the DVD intermittently skips	DVD unit
ITC222	audio problem on component inputs.	servicer found bt900 disconnected.
ITC222	auto convergence, will not work	suspect geometry alignment
ITC222	bl111 only has 1 volt at pin 10	suspect dl043 and tl010
ITC222	bl111 pin 15 @ 1.4 vdc	suspect tl029
ITC222	bow across the top of the screen	check convergence generator
ITC222	bowed in top/bottom, replaced the ssb. e-w correction does not adjust.	he will replace tl120,029,105,dl030,32
ITC222	bright blue pic when cold, if you tap tube it will work, he resoldered crt board	suspect crt
ITC222	bright blue picture, spots burned into the crt face.	disconnect blue kine board to confirm that the red & green will come up
ITC222	bright green	suspect kine board and dl201
ITC222	bright green and then shutdown	suspect ib201
ITC222	bright red then shutdown, replaced drive ic ,still bright red	replacing crt and ssb
ITC222	bright red with retrace. varying in intensity.	servicer will replace the red crt board.
ITC222	brightness changes	check the 240 v supply
ITC222	burnt crts	check bl200 traces
ITC222	came on with 3 vertical lines and then shutdown	if001, fl251, fl231
ITC222	cannot get a green grid for convergence adjustment	ssb
ITC222	can't get the unit to converge	sent sb TV 03001
ITC222	cant store convergence adjustments	ssb
ITC222	convergence not on no dc at pin 3 of bw00w. even with the yokes unplugged	suspect tw019 on the amp board
ITC222	convergence bad.	tw019 open .
ITC222	convergence is messed up.	tv03001
ITC222	convergence just goes out	told him to look for bad connection on the convergence assembly
ITC222	convergence out and can not adjust it	told him to try the ssb
ITC222	convergence power supply not coming up	suspect tw019
itc222	convergence power supply shutdown, subbed power supply and still shutdown	checking convergence amp board
ITC222	convergence problem. damaged sum coils.	servicer will replace sum coils
ITC222	convergence problems	refer to sb TV 03001
iTC222	cp110 was laying lose in the set. reinstalled it and it still won't fire up.	check sb TV 03006
ITC222	cp110 was open.	the standby b+ is to high check the feedback circuit.
ITC222	crts are in retrace	found ll201 folded over onto the trace at pin 9 of bl200 and the trace was burnt in half he had 200 volts at the diode but no the pin
ITC222	cycled	dl201 shorted
ITC222	cycles	hot shorted
ITC222	cycles	dl030 shorted
ITC222	cycles	rl044 open getting 74 volts on dl043
itc222	cycles	check reg b+, disconnect crt boards from the main board, splitter, ssb?
ITC222	cycles & shuts down	check drive to the (b) of the h output, bl111 10,15
ITC222	cycles & shuts down	check loads off the secondary of the power supply
ITC222	cycles , reg b+ is too high around 190 volts	he will check tp080, tp081 and tp034
ITC222	cycles 3 times	check the crts
ITC222	cycles getting high voltage but no dc at pin 10 bl111	suspect dl043, c1043, rl044

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Chassis	Symptom/Notes	Solution
ITC222	cycles only getting 5 volts at bl111 pin 10	rlo44 open
ITC222	cycles reg b+ jumping up to 200 volts	suspect ip170, ip190, cp150
ITC222	cycles x-ray only coming up to 2 volts	has a bad crt
ITC222	cycles,	rl044 open
ITC222	cycles, and makes a squealing noise	fly back
ITC222	cycles, cap on red crt vented	check red driver ic & crt
ITC222	cycles, error code 19	ssb
ITC222	cycles, gets high voltage for a second but bl111 pin 10 only goes to 8 volts	he is not getting 74 volts at dl043 he will check cl131, cl130, rl043 and circuit from tl010
ITC222	cycles, getting 70 volts at rl045 but nothing at rl044, no dc at pin 10 of bl111	rl044 open
ITC222	cycles, he has put in a new deflection board and ssb getting 28 volts at bl111 pin 10 and 3.3 at pin 15 on both boards	yoke
ITC222	cycles, high voltage comes up and then it shuts down	he will check the crts and the splitter
ITC222	cycles, hot goes to 137 volts, bl111 pin 15, 1 volt, bl200 h gets 230 before the set shuts off, but pin ten only has 16 volts	suspect dl030 dl043 and rl044
ITC222	cycles, the deflection board is coming up fine	ssb
ITC222	cycles, they have replaced the deflection board but they are only getting 1 volt on bl111 pin 10	shorted yoke
ITC222	cycles, x-ray turning the set off	told him to check for shorted e/w, or vertical
ITC222	cycles,, unplugged cart's & yoke still wouldn't operate. when he attempted to measure the voltage on dp110 it started to work	check cp150
ITC222	cycles. only getting 10 kava before it shuts down he has the crts and splitter disconnected.	fly back
ITC222	dead	told him he needed to try the small signal board gave him part number 264120
ITC222	dead	replacing cp150
ITC222	dead	suspect ip050
ITC222	dead	suspect lp020
ITC222	dead	replacing open rp231
ITC222	dead	suspect tp020
ITC222	dead	suspect ssb
ITC222	dead	suspect ssb
ITC222	dead , cycles	kine drive board
ITC222	dead , no standby	ip020
ITC222	dead , the hot was shorted. ran for 3 days and shipped out and the hot was shorted again.	told him to order the splitter and the fly back
ITC222	dead no standby have 300 volts off the bridge but nothing at pin 3 of ip020	rp020, ip020
ITC222	dead only 7 volts to ip020	rp020 open
itc222	dead set	replacing open rp019 and ip020
ITC222	dead set	suspect the deflection/pwr supply cab.
ITC222	dead set	cp110 appears to be broken lose from the board.
itc222	dead set	suspect the SSB cab.
itc222	dead set	suspect ssb
ITC222	dead set cp110 has blown up and now the 137 volt supply is going up to 240-vcd. all the secondary voltages are high expect the +6 volts is 3-volts.	cp150 has the negative lead broken flush with the cap. the original cp150 in the board is a 1800-ufd at 35wvdc. after replacing the capacitor the set worked.
ITC222	dead set the collector of tl010 measured 158 ohms to ground. the set trys to come on. pulses three times and then nothing.	dl030 shorted in the horizontal yoke out circuit. (located in the 480 select circuit)
ITC222	dead set will blink three times the 20 volt line is running at 47 volts.	check the pll in the power supply
ITC222	dead set tries to come on three times.	check the crt cbs
ITC222	dead set, the hot was shorted, now it will attempt to start 3 times but still dead.	suspect the ihvt.
ITC222	dead set, no standby, pin 3 ip020 was at 7 vdc. found rp020 open. resistor did not show signs of being stressed.	replace rp020

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Chassis	Symptom/Notes	Solution
ITC222	dead set. lpo50 is not working.	suspect the ss cba
ITC222	dead set. trys three time found dl201 shorted.	suspect the driver chips on the crt cba's
ITC222	dead set. now unit is in shutdown.	servicer found ew protect. pin causing the shutdown.
ITC222	dead,	rp020 open, possible shorted ip020
ITC222	dead, never worked out of the box	check cp150
ITC222	dead, roaches in side of set, b+ @ 210vdc	check tp221 & tp179
ITC222	dead, set had the flyback arc. replaced the flyback. found the ip020 shorted. replaced ip020 and only have 7 volts at pin 3. the regulator ip020 won't run.	we found rp020 100 ohm resistor in the 300 volt supply to ip020-3 open. replaced the resistor which restored normal operation.
ITC222	dead. replaced ssb now the set shutsdown. at turn-on the xrp line only increases up to 9vdc & the e-w protect only to .1vdc. he claims there is hv	suspect dl30,32,28,29, cl130,131
ITC222	deflection problems when cold,not at set	checking deflection board for thermal problem
itc222	digitized picture	checking to see if it does it in 2h compoenet
ITC222	disconnected the flyback and the set still cycles	check the secondaries for open fuse link and the run supply
ITC222	distortion on only channel 4. with a generator it was a good picture.	suspect the ssb cba or the power supply
ITC222	dl032 keeps shorting.	check and replace dl30, cl029 cl032, dl032
ITC222	does not start	suspect iv820 and iv821
ITC222	does not start	ssb
ITC222	does not start , has standby	ssb
ITC222	does not start, has standby	ssb
ITC222	does not start, replaced the ssb no power on from bp005 has standby	front panel
ITC222	dvd dosen't work	dvd
ITC222	dvd freezing	told him change the dvd
ITC222	dvd is skipping, or error load disk	told him to change the dvd player
ITC222	dvd not reading	suspect dvd assbly
ITC222	dvd will lock up	replaced dvd
ITC222	dvi loses picture but not audio.	servicer will replace the small signal board.
ITC222	electrical noise interference with rabbit ears.	considered normal operation.
ITC222	erratic convergence.	suspect the convergence power supply.
ITC222	error code 19	suspect ssb
ITC222	everytime the turn on the set is asks what language	must do complete setup
ITC222	fl221,251 opened	suspect problem in the vertical circuit
ITC222	flashes green	suspect crt
ITC222	flashes in the picture, subbed out the chassis/ hv splitter & problem still remained. bringinup a green & blue screen it was ok. on a red screen there was flashing	suspect red crt
ITC222	flashing blue intermittently.	servicer will order the blue crt board.
ITC222	forced on and it squealed an he smelt something burning	flyback
itc222	format keeps changing	told him to check to see if auto-format is tunred on in the customers menu
ITC222	found a piece of a resistor end across jp150 and jp151, rp120, rp185, never get any high voltage	ip170
ITC222	found rb367 burnt	check spot killer circuit, tube may have arced
ITC222	geometry problem	servicer will adjust the geometry after installation of the small signal board.
ITC222	getting a red green and blue line at the top of the screen only when there is a very dark screen that is 4 inches down from the top.	ssb
ITC222	getting error code 31 no ack. from iv200	he is checking the 9 volts supply to iv200
ITC222	getting error code 59	ssb

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Chassis	Symptom/Notes	Solution
ITC222	got the set to turn on but it is shutting down	check vertical, e/w and fuse links off flyback
ITC222	green pic	suspect ib201
ITC222	green picture	suspect crt
ITC222	green shading on the edge of the picture, green haze	check green drive ic1b101
ITC222	green tracking keeps changing	suspect crt
itc222	green tube burnt	replace it
ITC222	green with retrace	check green driver ic
ITC222	has 7 units with 300 volts on the run supply secondary, shutting down	lp070 bad connection, set started working after he started checking the waveforms in this circuit
ITC222	has audio but no video	convergence power supply
ITC222	have a flicker in the video	he also described the problem as breathing, he will go into the alignments and check the geometry adjustments.
ITC222	high pitched squeal.	ll037 defective
ITC222	hot was shorted	dl201 shorted
ITC222	hot was shorted and the flyback was bad. the front light is going off and on.	check the high voltage splitter
ITC222	how do you install the hv wire into the xfmr.	insert the wire first and then the retainer
ITC222	how to perform geometry alignments	explained how to use a crosshatch generator.
ITC222	how you get the information out of the old eeprom.	use chipper check.
ITC222	hum in the audio	ssb
ITC222	hv comes up and then it shutsdown	ssb
ITC222	int a high-pitched squeal	suspect ll037,ll029
ITC222	int flashes blue	replace blue drive ic
ITC222	int has a line across the screen through the video from the center to the right . thin and very intermittent	ssb
ITC222	int picture blinks, black lines that appear momentarily	ssb
ITC222	int shutdown, pin shutdown votlage at 1.2 volts	found rl021 and rl025 increased in value
ITC222	int shutsdown by itself	make certain that the xrp & breathing has been adjusted properly
ITC222	int shutsdown pin 15 of bl111 at 1.3 volts	he will adjust pin to bring the voltage within range
ITC222	int white flash, have replaced ssb, hv splitter, checked lead dress	dl201, connector bl200-bb202
ITC222	int will shutdown ater audio crackles	check audio output
ITC222	intermittent arcing and popping and then it blanks out	check the crts
ITC222	intermittent audio output	suspect ssb
ITC222	intermittent color	suspect ssb
ITC222	intermittent convergence .	check the pwr supply and amp cba.
ITC222	intermittent dead	suspect the ss cba or the crts associated components.
ITC222	intermittent flicker in video. does it in menu mode also.	servicer will try small signal board.
ITC222	intermittent format changes	this is a feature that can be accessed and turned off in the customers menu.
ITC222	intermittent gets blurry, have adjusted the focus 2 times	replace the focus assembly and the splitter
ITC222	intermittent on and off.	servicer will try the hv splitter assy to repair the unit
ITC222	intermittent picture will go to black and white	suspect the ssb
itc222	intermittent shutdown	suspect ssb
ITC222	intermittently turn on, or pulse on and off flashes code 78	suspect the connectors going to the dvd, cp110 and cp150
ITC222	it just pulses when you turn the set on.	check the crt
ITC222	keeps shorting if001	told her to check the yokes
ITC222	ll0307 rings intermittently	either replace or use rtv
ITC222	loaded in chipper check v1.83 & now it won't recognize a 008 chassis nor does it recognize a itc222	uninstall & reinstall chipper check
ITC222	looses the audio from the tuner on 2 channels	replace the tuner
ITC222	no audio	told him to try a small signal asy

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Chassis	Symptom/Notes	Solution
ITC222	no blue	told him to check ib301
ITC222	no blue thru dvd	suspect dvd assbly
ITC222	no blue when they have all three crts hooked up, but if they take off one crt board the other 2 work fine	ssb
ITC222	no color	suspect ssb
ITC222	no color on hd	adm1 deffective.
ITC222	no convergence	suspect tw019
ITC222	no convergence	suspect convergence board
ITC222	no convergence	the convergence cable was unplugged
ITC222	no convergence	reseated the cable from the ssb & it worked
ITC222	no convergence at all. yokes loading down convergence power supply	red crt bad, yokes bad.
ITC222	no convergence grid	bv010 plugged in backwards
ITC222	no east west correction	check dl 30/32
ITC222	no h width adjust ment when in the service menu	will check tl120,029,dl032,30,cl029 etc.
ITC222	no hd from the ssb	ssb
ITC222	no horizontal drive from iv400, he is getting 8v b+ but never generates any drive and pin 4 is low	ssb
ITC222	no output from the optical output	ssb
ITC222	no red from the crt	suspect ib101
ITC222	no red, have blue and green no g2 at the crt, swapped with the green and still low	red kine board
ITC222	no standby supply	check ip020
ITC222	no standby supply	check ip020
ITC222	no standby voltages	rp020
ITC222	no vertical	suspect df033 df031 tf041
ITC222	no vertical	replaced shorted df011
ITC222	no vertical	replacing if001
ITC222	no vertical has three lines on the screen. has 7 v p-p drive input to pin 1 ofif001.	lf022 was shorted to from primary to secondary.
ITC222	no vertical sweep	the fuse in the + 13-volt supply is open
ITC222	no video	checking for vertical signal pin 3 if001
itc222	no video ,osd good	suspect ssb
ITC222	no video convergence power supply not running	told him to check tw19
ITC222	no video or osd	suspect if001
ITC222	not adjusting ew pincushion	checking tl029
ITC222	not enough red	checking alignments
ITC222	objects are stretched , hour glas	suspect clo035,36,dl032,rl032
ITC222	on the component 1 video it is to full missing the selections in the menu for autoformat they are there on the component 2 input	ssb
ITC222	on the extreme right side there is a shade of green like a haze of green about 3 inches wide in the gray bar when in the 4x3 mode it is not that noticable on full or 16x9.	replace the green crt
ITC222	only getting 5 volts to ip020	rp020 open
ITC222	only getting 1.8 volts at pin 10 of bl111	check dl043 for 74 volts and then suspect rl044
ITC222	osd up all the time	suspect ssb
ITC222	out of focus for first twenty minutes.	servicer will try rl303 and cl301 or the focus screen control
ITC222	p on screen when cold	suspect ssb
ITC222	pale yellow border on the left side of the picture only when a white background is on the screen	check optics
ITC222	picture flickers	the focus block took care of the problem
ITC222	picture is flickering.	suspect the hv splitter.
ITC222	picture is stretched out and pincushion problem.	suspect cl032, dl032, rl042.
ITC222	picture tears on the sides, line pairing at the top	check drive from the ssb
ITC222	picture to big for the screen and bowed down from the top	suspect tl120, dl030 and dl032
ITC222	pin problem	change dl032 dl030 cl032
ITC222	pin problem dl032 shorted	told him to check cl032
ITC222	pincushion problem	suspect dl032

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Chassis	Symptom/Notes	Solution
ITC222	pincushion problem	suspect dl032 cl032
ITC222	pincushion problem	cl032 and dl032
ITC222	pincushion problem	suspect dl032 cl032
ITC222	pincusion problem	suspect dl030 dl032 cl032 cl031
ITC222	pincusion problem	told him to check dl032
ITC222	pip tuner is snowy on the unit.	servicer will order the small signal baord to repair the unit.
ITC222	plays good when using the video inputs but when you use the antenna inputs the unit will shutdown and you have to unplug it and plug it back in to get it to reset.	suspect the ss cba
ITC222	power supply dead, dp21 & 20 shorted.	replace ip020, and rp020.
ITC222	power supply problem.	ip050 and ip170
ITC222	problem with autoconvergence	servicer will verify geometry alignment`
ITC222	problem with run power supply reg b+ rising to 200vdc.	suspect rp900, rp185, and rp183
ITC222	problem with the video scrambling intermittently.	servicer will try the small signal board.
ITC222	problem with unit going into shutdown.	the servicer will replace the small signal board.
ITC222	pulled down from the top and up from the bottom	suspect cl032 dl032
ITC222	purity	trying magnets
ITC222	red cast to picture at channel change	suspect red crt
ITC222	red convergence changes with scene	suspect the crt
ITC222	red p at the bottom of the screen	hold the volume - button down until it disappears
itc222	red, green & blue line	check vertical deflection
ITC222	repaired the power supply cp150 was broken off now the sides are flucuating but the b+ is solid	suspect tl029 and rl024
ITC222	repalced ssb & wanted to know how to adjust the set for autoconvergence	adjust geometry first
ITC222	replaced green crt & now auto convergence doesn't work… damaged svm coil & green is out of focus on the edges of the picture.	replace svm coil & then recheck the symptoms
ITC222	replaced ssb now convergence is off	will need to align
ITC222	replaced the blue crt , the red is stretched at the bottom and compressed at the top and will not move	convergence amp board
ITC222	replaced the convergence amp and power supply but still no video	pj362 two of the wires were not in the holder pin 12 and 3
ITC222	replaced the dvi, no grid to do convergence	check the cable from bk01 it may be plugged in backwards
ITC222	replaced the front panel, ssb, dvi board. still does not try to start getting error code 19	dl201 shorted
ITC222	replaced the green crt, not sure what he is suppose to do now	told him to do convergence
ITC222	replaced the small signal board and now it won't convergence.	set the geometry first and then go back to the convergence alignments.
ITC222	replaced the ss cba and now it is out again.	check the service mode for the adjustments. after you make changes be sure to store the new settings.
ITC222	replaced the ssb & now can't adjust the geometry/convergence correctly in order for the autoconvergence to work properly.	will have to either string the strings or order the templates to adjust.
ITC222	replaced the ssb , auto convergence does not work	do the convergence alignments
ITC222	replaced the ssb , cycles gets drive at pin 20 but not at the hot. reg b+ 150	suspect the drive circuit tl003, tl004 and tl 005
ITC222	replaced the ssb again still no convergence in the menu	found an open rw015, not switching on the convergence power supply so convergence was not detected.
ITC222	replaced the ssb and all the convergence is out	uploasd the data from the old board to the new one
ITC222	replaced the ssb and auto convergence does not work	either do the alignements or do the procedure on cc for replacing the board
ITC222	replaced the ssb and the kines the picture is very dark	the g2 was way to low
ITC222	replaced the ssb still cycles can force on tp210 and get about 118 volts at tl010	suspect rp900 and cp150, dl032 dl030,

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Chassis	Symptom/Notes	Solution
ITC222	set will shutdown. monitoring connector bl111(10) xrp the dc voltage only increased up to 15vdc. normal voltage can vary from 26-31 vdc depending on the version of the power supply deflection board.	rl044 220k 1% tolerence increased in value up to 680k. replacement repaired the set
ITC222	shading on the right side	told him to try the ssb
ITC222	shorted vertical ic, replaced the ic not getting the 40 volts to the ic	dl231 open
ITC222	shutdown	suspect green kine board
ITC222	shutdown	suspect ssb
ITC222	shutdown	suspect ssb
ITC222	shutdown	checking yokes
ITC222	shutdown	checking xray protect
ITC222	shutdown	suspect ssb
ITC222	shutdown	checking ihvt
ITC222	shutdown	replacing shorted dl201
ITC222	shutdown	suspect ihvt
ITC222	shutdown	replacing shorted dl201
ITC222	shutdown	suspect ssb
ITC222	shutdown	replacing shorted dl012
itc222	shutdown	suspect ssb
ITC222	shutdown	suspect cp150
ITC222	shutdown	suspect ssb
ITC222	shutdown	checking safty lines
ITC222	shutdown	suspect dl201
ITC222	shutdown	suspect ssb
ITC222	shutdown	suspect green kine board
ITC222	shutdown	suspect ssb
ITC222	shutdown	suspect ssb
itc222	shutdown	suspect ssb
ITC222	shutdown	checking voltages iv821
ITC222	shutdown	suspect ssb
ITC222	shutdown dl201 shorted	checking crts and drive to crts
ITC222	shutdown tl010 was shorted	checking ihvt splitter
ITC222	shutdown, had 7 sets doing the same, he found c150 had 1 leg sheered off on all 7 sets	replaced c150
ITC222	shutsdown,	check dl201
ITC222	shutsdown, regb+ is running 190vdc before shutdown	check the pwm circuit around ip050
ITC222	shutsdown, xrp line was increasing to 89vdc on bl111(10) replaced flyback & now the xrp line is @ 50vdc. reg b+ is ok	suspect dl043,rl044.45
ITC222	shutsdown. standby voltages were very low	suspect dp220, 5 v standby reg.
ITC222	shutsdown. u video increases to 240vdc then shutsdown with bl200 disconnected. xrp input is only 9 v on bl111	suspect dl043
ITC222	shutsdown. xrp is only 1vdc	suspect rl045,44,43, dl043
ITC222	shutting down	suspect cl029 cl025
ITC222	shutting down	found rl106 open
ITC222	shutting down error code 87	told him to try the ssb
ITC222	sniverts, barkhousing	inspect around the flyback & hv splitter.
ITC222	snowy on all channel	told him to change ssb
ITC222	some kind of interference on channels 2 and 5	suspect dp112, lp114 and cp114
ITC222	squealing from deflection board.	suspect ciols in deflection board including ll037 lin.
ITC222	the 6 volt supply is only 2 volts and the run supply is running at over 200 volts	cp150
ITC222	the ac fuse is blown , found a coil burnt lp004	tp020
ITC222	the audio skips	suspect the ssb cba.
ITC222	the blue crt is dark, can turn up the screen control and it will go to retrace	check drive at bb201 pin 14
ITC222	the blue crt is flashing off and on will stop if he turns up the g2 but then he has retrace	replace the blue driver board
ITC222	the blue tube appears to be bad.	the dc input to the driver chip is to high. check the transistors in the driver circuit

Tech-Line Information

Chassis	Symptom/Notes	Solution
ITC222	the close caption does not turn off and the pip does not work	ssb
ITC222	the convergence power supply drops out	no dc at pin 11 of bk270 ssb
ITC222	the convergence power supply is not running	tp624, tp625, tp626
ITC222	the customer has a hiss in the left side of the speaker.	suspect the ss cba
ITC222	the customer unpluged the set for a day and now only the little light blinks very slow.	he will resolder the caps on the pwr/defl cba.
ITC222	the door won't opne on the dvd	the clip that opens the door was missing
ITC222	the dvd does not work, replaced dvd complete and it still does not work	replace the dvd power supply
ITC222	the dvd not working , replaced the dvd and power supply. it still does not open	suspect ik001 on the front panel
ITC222	the dvd will not open	replace the dvd
ITC222	the focus lead was hooked to the g2 on the red drive board. switched back but the crt goes into retrace	kine board damaged by the wrong hookup
ITC222	the green crt is out of focus	check for a leaking crt
ITC222	the green crt was leaking they replaced the crt and the drive board was repaired, blows the hot at turn on	check dl201 for a short
ITC222	the green crt was replaced, how does he align the green, it is piteched to the right and does not line up with the red and blue	straigthen the yoke and use the rings to center the green
ITC222	the hot was shorted, replaced it and the flyback, now it cycles getting 140 to the hot and the hv is coming up but on 1 volt at bl111 pin 10	suspect an open rl045 or rl 044
ITC222	the hv comes up and then shuts down. it draws a lot of current.	dl201 is shorted
itc222	the lower channels 2 - 6 has lines in	check the power/supply and the high voltage xfmr.
ITC222	the main picture is missing.	change the ss cba
ITC222	the picture and audio comes on for a few secondsthe fades away on both tuner and a/v circuits	ssb
ITC222	the picture flashes even 15 to 25 seconds	ssb
ITC222	the picture flickers.	check the breathing adjustment.
ITC222	the picture is bowed all sides and top and bottom	check the convergence power supply
ITC222	the picture is going light and dark int.	check the abl circuit on the convergence power supply
ITC222	the picture is not good on the tuner grainy looking, not clear.	ssb
ITC222	the picture is pulsing, the osd and the video are shifting to the right and then back again, the longer the set is on the faster it pulses. if he brings up the internal osd it will stop.	ssb
ITC222	the picture tears and jumps, does it on all inputs	ssb
ITC222	the picture was stretched, adjusting horizontal width in the service menu didn't have any effect on the problem. on tl029 the voltage on the drain was 6vdc.	replacement of cl029 repaired the set.
ITC222	the red convergence goes out on the left side and then the set shutsdown, not with the unit	convergence amp board
ITC222	the red convergence will not adjust no drive from the ssb	ssb
ITC222	the red crt has leaked.	try to clean the circuit board, check the yoke. order the tube and the drive ic for the red crt
ITC222	the red crt is in retrace	crt was set too high on the g2
ITC222	the red is smearing	drive circuit
ITC222	the reg b+ is going up to 200 volts already checked rp900 and rp185	suspect cp150 and ip170
ITC222	the reg b+ is going up to over 200 volts	cp150
ITC222	the screen flashes green and then shuts down.	suspect the crt cba.

Tech-Line Information

Chassis	Symptom/Notes	Solution
ITC222	the volume bar onlt goes 1/4 of the way then turns red	volume limiter set
ITC222	the volume will only go up so far and stop	check the maximum volume setting in menu
ITC222	they replaced the ssb still cycling, replaced all three kine drivers still cycles, rp900 and rp185 check fine. the high voltage does not appear to be coming up	flyback
ITC222	third deflection board, still goes into pin shutdown, pin 15 of bl111 id 1.39 volts. can short tv852 and the picture lookd perfect.	checking rl024
ITC222	tl010 h output blown	check flyback, splitter, h output circuit
ITC222	tl010 is shorted , what should he check	flyback, yoke or dl021
ITC222	tl010 shorted	suspect ihvt
ITC222	tl010 shorted , replaced tl010 and flyback , high voltage came up and then tl010 shorted again	dl201 shorted
ITC222	totally out of convergence	check the convergence cable between the ssb and the amp board
ITC222	tp020 keeps shorting out	suspect cp021 cp022 dp021 dp020
ITC222	tp020 shorts at plug-in	suspect lp050,tp020,lp051,tp050,51 etc
ITC222	tp020 tp034 ip170 ip050tp080 tp081 tp51 were all shorted now it is cycling	told him to check the safety from the crts and disconnect the splitter
ITC222	tp020 was blown upon replacement the reg b+ was only increasing up to 15vdc at turn-on, disocnnecting the © of the hot the power supply increased up to 137vdc?	suspect tp050,51,ip050, h output circuit
ITC222	tpo20,tp410,411 blows	replace dp053,61,60,tp050,51
ITC222	tuner would go snowy then start to work. have replaced the ssb	check rp117/ 33v supply
ITC222	tuning problem, the svc had change the ssb three times and still had the same problem. found the 33 vdc going to the tuner low	found rp117 open
ITC222	tv doesn't respond to the remote	reset to factory defaults
ITC222	unit going into shutdown	servicer will try ll005 to repair the unit
ITC222	unit plays for about 5 minutes then shuts off	told him to check the crts
ITC222	unti going into shutdown.	servicer will replace the green crt board.
ITC222	venitian blinds from the top to the bottom	suspect hv splitter
ITC222	vertical ic was shorted , replaced the ic and now it cycles	check the e/w circuit and the crts
ITC222	vertical is stretched at the top the dc on pin 5 low and the adjustment have no effect	if001
ITC222	volume bar only increases up to 40% of the way	ssb
ITC222	went bright red and shutdown,red tube has burnt spot	replace crt and kine board
ITC222	when going to tuner the picture shifts to the left	told him to check alignments
ITC222	when he plays a dvd after awhile it starts to pixelize.	clean the dvd and it you still have a problem change the mech.
ITC222	when plugged in the front light will flash 3 times but the set will not turn on.	pin 19 is at .7 volts ssb
ITC222	when the set has been plugged in for a couple of minutes the remote control won't operate	suspect ssb
ITC222	when you connect the antenna and tune a station the set shuts down	check rp185 and rp900
ITC222	when you press the power on the unit won't come on	suspect the adm1 tuner.
ITC222	where is green convergence	level 3
ITC222	wide bright lines in the video.	servicer will try the small signal board.
ITC222	width varies during scene change	check pincushioning circuit rl044,45,43, dl030
ITC222	will not auto converge	verify alignment of the convergence crosshatch pattern.
ITC222	will not auto converge	needs to check alignments
ITC222	will not auto convergence	servicer will perform the geometry adjustment
ITC222	will not autoprogram	check rf agc settings

Tech-Line Information

Chassis	Symptom/Notes	Solution
ITC222	won't start	found rl044 open
ITC222	won't start	check rl045 rl044
ITC222	won't start	told him to try the small signal board
ITC222	won't start back after being on for a time, if you let it set over night it will come back on	suspect rp185 rp900
ITC222	won't start xrp running low	suspect cl131 cl130 cl038 cl039
ITC222	won't start, pin 10 of bl101 going to 60vdc	suspect cl101 cl130 cl038 cl039
ITC222	won't turn off	check ssb
ITC222	won't turn on	suspect ssb
ITC222	xrp going to high	suspect cl131 cl130 cl038 cl039
ITC222	yellow bar in pic at side	suspect blue crt
ITC222	yellow spot lower of picture	told him to check the coolant in the tubes
ITC222	yoke plug was burned up, now excessive width	suspect dl030,32,tl120,029

XI

Misc. Information

Cross Reference Charts

Bulletins (TTP, TV)

ITC222 CRT Cross-Reference

4/05 Rev. 1

TV Screen Size	CRT Color	CRT Type	A-B Lens	RCA Stock #
40"	RED	P16LSG03RJA	DELTA 240	265463
40"	RED	P16LSG03RJA	DELTA 78	265456
40"	RED	P16LTG00RFA	DELTA 240	258482
40"	RED	P16LTG00RFA	DELTA 78	263044
40"	RED	P16LXL00RFA	DELTA 240	263039
40"	RED	P16LXL00RFA	DELTA 78	265455
52"	RED	P16LSG03RJA	DELTA 250	265472
52"	RED	P16LSG03RJA	DELTA 78	265494
52"	RED	P16LTG00RFA	DELTA 250	263048
52"	RED	P16LTG00RFA	DELTA 78	263061
52"	RED	P16LXL00RFA	DELTA 250	263048
52"	RED	P16LXL00RFA	DELTA 78	265492
56"	RED	P16LSG03RJA	DELTA 260	265503
56"	RED	P16LTG00RFA	DELTA 260	263109
56"	RED	P16LXL00RFA	DELTA 260	263097
56"	RED	P16LXL00RFA	DELTA 78	268922
61"	RED	P16LSG03RJA	DELTA 260	265506
61"	RED	P16LTG00RFA	DELTA 260	258487
61"	RED	P16LXL00RFA	DELTA 260	263115
61"	RED	P16LXL00RFA	DELTA 78	268929
40"-61"	GREEN	P16LSG03HKA	DELTA 240/250/260	265461
40"-52"	GREEN	P16LSG03HKA	DELTA 78	265457
40"-61"	GREEN	P16LTG00HHA	DELTA 240/250/260	263050
40"-52"	GREEN	P16LTG00HHA	DELTA 78	263064
40"-61"	GREEN	P16LXL00HHA	DELTA 240/250/260	263050
40"-61"	GREEN	P16LXL00HHA	DELTA 78	265454
40"	BLUE	P16LSG03BMB	DELTA 240	265462
40"	BLUE	P16LSG03BMB	DELTA 78	265458
40"	BLUE	P16LTG00BMB	DELTA 240	263038
40"	BLUE	P16LTG00BMB	DELTA 78	263043
40"	BLUE	P16LXL00BMB	DELTA 240	263038
40"	BLUE	P16LXL00BMB	DELTA 78	265453
52"	BLUE	P16LSG03BMB	DELTA 250	265473
52"	BLUE	P16LSG03BMB	DELTA 78	265495
52"	BLUE	P16LTG00BMB	DELTA 250	258486
52"	BLUE	P16LTG00BMB	DELTA 78	263062
52"	BLUE	P16LXL00BMB	DELTA 250	263049
52"	BLUE	P16LXL00BMB	DELTA 78	265493
56"	BLUE	P16LSG03BMB	DELTA 260	265504
56"	BLUE	P16LTG00BMB	DELTA 260	263110
56"	BLUE	P16LXL00BMB	DELTA 260	263098
61"	BLUE	P16LSG03BMB	DELTA 260	265507
61"	BLUE	P16LTG00BMB	DELTA 260	258488
61"	BLUE	P16LXL00BMB	DELTA 260	263116

ITC222 Power Board & Small Signal Board Cross-Reference

POWER BOARD			SSB BOARD	
PSB-850	264102		AS-350	264110
PSB-940	264102		AS-270	264120
PSB-910	265324		AS-480	264126
PSB-920	265324		AS-390	265426
PSB-930	265325		AS-720	265432
PSB-950	265326		AS-940	265434
PSB-980	265326		AS-030	268851
PSB-460	270198		AS-040	268852
			AS-240	270199

Power Board
Bar-Code Label Location

Small Signal Board
Bar-Code Label Location

Product Technical Support Mail Stop INH905 P.O. Box 1976 Indianapolis, IN 46290-1102

Technical Information
Television Service Bulletin

TV-04006B

Replaces Bulletin TV-04006A

DATE: **3/30/2006**

Chassis: **ITC222 Projection Television**

TOPIC: **Identifying IHVT Replacement Parts**

Symptom: **Replacement IHVT does not generate high voltage**

In ITC222 projection televisions there are several possible IHVT versions used on the main Power Supply/Deflection boards. Although these IHVTs are physically interchangeable they are not electrically compatible. When ordering a replacement IHVT from RCA-Parts, the manufacturing part number from the label on the side of the IHVT must be used to cross-reference to the correct parts number. There are several numbers and some text on the label, however the manufacturing (Drawing) number will appear in a similar format and sequence as noted in the table below. Note: The "x" character in the table represents leading or trailing characters that may change over time. Only refer to the characters found before or after the "x".

CAUTION!! Always replace with the correct IHVT. Do not interchange these IHVTs. Several values of safety critical related components are matched with each IHVT version. As always, refer to the most recent service information parts list to insure repairs are completed using the proper components and values.

Drawing/Manufacturing Number	RCA-Parts Number
10756-48x	259296
10799-63x	265409
1090633x	270125
xBSC310103x	270125

Example: 259296. Note Drawing #10756-480 on bottom line.

Product Safety Information

Product Safety information is contained in the appropriate Thomson, Inc. Service Data covering models/chassis referenced herein. All specified Product Safety requirements and testing shall be complied with prior to returning equipment to the customer. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damages and may expose themselves and others to possible injury.

Third Edition - First Printing

Printed in U.S.A.

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Indianapolis, Indiana 46206 U.S.A.

ITEM \ FUNCTION	V -CHIP LOCK OR LOCK MODE	CHILD LOCK OR FRONT PANEL BLOCK	GEMSTAR FACTORY RESET	GEMSTAR TEST
ATC113	Unknown Password Push menu button on TV and TV button on the remote for 3 seconds (some units use volume down button instead of TV button on the	Menu button on front panel does not work Go to parental control and turn off front panel lockout	Osd changes but channel doesn't Push menu, 7, 1, goback, 9, 9 buttons in sequence on remote	No information in Guide Push menu, 7, (6 for mono), 1, goback, info, reset in sequence on remote
ATC221/222	Unknown Password with remote press menu go to the parental screen press the channel up and volume up on front panel for 3 to 5 seconds	N/A	N/A	N/A
ATC221/222	Unlock DVD press and hold the open/close button and the stop button on the front of the TV	N/A	N/A	N/A
ATC311	Unknown password Press menu button on the front panel and the volume down on the remote contro for 3 - 5	N/A	Osd changes but channel doesn't Push menu, 1, 2, goback, input, clear buttons in sequence on remote	Guide VBI test Push menu, 1, 2, goback, tv in sequence on remote
CTC 185	Unknown Password Go to parental menu then push mute, display, clear, reset buttons in sequence on remote	Menu button on front panel does not work Go to parental control and turn off front panel lockout	N\A	N\A

THOMSON - TTE COMMUNICATION

RCA

Technical Procedure

ITC222 Chassis (SSB)

TTP 05-002

The information contained herein is provided solely to assist qualified Technician in the diagnosis of the problem described. It is not intended as a modification or alteration of the product.

DATE: **09/16/2005**

CHASSIS: **ITC222**

TOPIC: **Red "P" On-screen Display**

SYMPTOM: **After replacing the SSB, there is a RED "P" displayed when set is turned on and won't clear off the screen.**

Stock Numbers: 258760, 258761, 258766, 264110, 264116, 264120, 264126, 264127

As part of the pre-alignment process at the factory, the SSB board is placed in "Program" mode. This program mode is indicated by a small 'P' showing on screen. To stop the 'P' from being displayed, the program mode needs to be exited. The following procedure explains how to exit the program mode.

Changing SSB from Program mode to Operational mode

To exit the programming mode: (Using a compatible remote control.)

1. Place the remote control in the "**TV**" mode by pressing the '**TV**' button
2. Then, press and hold the '**VOL-** (Volume Down) button. Continue to hold the button for 6-8 seconds after it reaches minimum volume. The 'P' will disappear and the board is ready for normal consumer use.

This is not a problem with the SSB or the set but merely an alignment mode that was not exited when the SSB left the factory. Doing this procedure will restore normal operation to the television.

Product Safety Information

Product Safety information is contained in the appropriate Thomson Service Data covering models/chassis referenced herein. All specified Product Safety requirements and testing shall be complied with prior to returning equipment to the customer. Servicers who defeat safety features or fail to perform safety checks may be liable for any resulting damages and may expose themselves and others to possible injury.

Prepared by
Thomson, Inc for TTE Technology, Inc

TTE