Preliminary checks

Clean and lubricate edge connector. Visually inspect unit paying particular attention to the following:-

a) That there are no obvious shorts.

b) Diodes at power input are inserted for correct polarity.

c) Check that DYNAMICS LED display is soldered to 611G mother-board correctly.

Before plugging module into test jig make sure that power supply is set to give ±18.5 Volts. Also make sure correct polarity is retained between power supply and test jig. Test jig should be connected via BNC leads to a standard AMBER including CF8128 SWEPT ATTENUATOR inserted between Amber output and test jig input. SWEPT ATTENUATOR should be connected to J1 on AMBER via multi-pin lead, and IN/BYPASS switch should be left in BYPASS mode.

With power off and supply current-limit fully ACW , plug in module. Turn power on and slowly turn current limit CW noting voltage reading on power supply meter. Voltage should read ±18.5v by the time the current limit control reaches 0.5A setting (with no daughter cards fitted). Insert daughter cards, and increase current to 1 Ampere.

Input tests

INPUT	OUTPUT	STATUS	ACTION	RESULT
0(0dB 1KHz)	I/P no probe	RECORD	adjust Amber output for 0dB on Fluke	
		RECORD	ALL switches out ALL level pots ACW gain pots in detents	Red MIC LED on
0,(0dB 1KHz)	MIC	RECORD	48V Switch ON 48V Switch OFF	Drift down to -8v (±1v) 0v decaying
0,(0dB 1KHz)	MIC	RECORD	48V Switch ON	-8v (±1v)

If insert links are fitted to follow EQ and OUTPUT SELECT is set to INSERT, EQ to CHANNEL PRE and IN must be depressed.

CH MIC	INSERT	RECORD	MIC gain ACW	-22 (±1dB)
(0dB)			MIC gain CW in 6dB steps to	+9 (±1dB)

INPUT	OUTPUT	STATUS	ACTION	RESULT
CH MIC (-30dB)	INSERT	RECORD	MIC gain CW in 6dB steps	+14.5 (±1dB)
			press VCA group mute a few times, check for no DC bounce on scope.	
MIC amp noise test				
CH MIC (-30dB)	INSERT	RECORD	TEST switch to TEST release gate on Amber. 20-20k filter in -30/-90 dB range TEST switch to NORMAL +30/-30 range, gate in	<-60dB
CH MIC (0dB)	INSERT	RECORD	push FLIP and MIC gain ACW	Green LINE LED ON CUT
CH LINE (0dB)	INSERT	RECORD	F/P line trim To Indent adjust VR2 on 291 card	for -4 ±0.5dB
CH LINE (0dB)	INSERT	RECORD	F/P line trim ACW	-24 ±1dB
CH LINE (0dB)	INSERT	RECORD	F/P LINE TRIM CW	+15.5 ±0.5dB
CH LINE (0dB)	INSERT	RECORD	Set F/P line trim pot For 0dB Awe/P ±0.05dB	
CH LINE (0dB)	INSERT	RECORD	push Ø button release Ø button	note phase change note phase change
CH LINE (0dB)	INSERT	RECORD	Push S/F CUT Push VCA TO MON Release S/F CUT Release VCA to MON	No change, CUT LED on CUT, TO ROUTING LED on 0 ±0.05dB LED off No change
CH LINE	INSERT	RECORD	Push EQ to CH	0dB (±0.5dB G-series) (±0.9dB 4040s) green CH LED on

292 Equaliser test

Set AMBER to 2 Sec. CONT(inous) frequency plot mode -30 to +30 window and observe flat response as in fig 1. (FILTERS ACW, amplitude controls set to indents, both trims on 292 to centre)

HMF and LMF sections

a. Set LMF gain max, Q CW (wide), f in centre.
measure max gain (21 ±1dB)

b. set narrow Q (ACW), adjust LMFQ trim on 292 for max gain at centre frequency of 21dB; (same as in a.)

c. push LMF/3 button, note centre peak drops in frequency by 1/3

d. return gain pot to detent.

Repeat a. b. c. and d. above for HMF section, (check HMFx3 button).

LF and HF sections

a. set LF frequency at min. Gain at max. (+16.5 ±1.0dB)

b. gain at min. curve should be symmetrical to a.

c. frequency at max, check shelving response.

d. gain at max, curve should be symmetrical to c.

e. return gain to detent.

Repeat a. - e. for HF section.

Filters

a. HF filter (kHz) CW check -3dB frequency at 3kHz ±500Hz

b. LP filter (Hz) CW, then back to just before switch switches, signal should not cut. -3dB frequency should be 300-450 Hz.

Turn both filters CW, turn LMF amplitude CW (frequency in centre) note the shape of the plot

INPUT	OUTPUT	STATUS	ACTION	RESULT
MONITOR (0dB Sweep)	LF	RECORD	F/B pan button out (hex bus A on 611v) PAN left Adjust Small fader for	0dB (Flat Response)
MONITOR (0dB Sweep)	LF	RECORD	Push EQ to MON	Red MON LED off - O/P CUT
			Release EQ to CH	Red MON LED on - O/P Plot as zzzz
MONITOR (0dB Sweep)	LF	RECORD	Push SPLIT	LMF curve only No filter curve EQ to CH LED on
CH LINE (0dB Sweep)	GROUP	RECORD	Push DIRECT	Filter curves No LMF curve (+14 ±0.25dB)
			Release SPLIT	EQ to CH LED OFF
			FILTERS ACW + out	
			LMF gain to indent	
			Push EQ to DYN	Yellow LED ON
			Release EQ to DYN	Yellow LED OFF
			Release EQ to MON	Red LED OFF

VCA line-up

Deselect Amber Plot Mode, manual sweep (Fit link plug if TR module)
Set F/P line trim to indent.

If using actual chanel VCA large fader external to test jig:

fader on 0 mark	set UNGAIN on 13 card for 0db (±0.01)
fader on +10 mark	set LAW for +10 (±0.25dB)
fader on -10 mark	readjust LAW for -10dB (±0.25dB) for best balance between +10 and -10

repeat the above three tests (if necessary,)

fader on -20 mark	-20 (±0.5dB)
fader on -30 mark	-30 (±1.0dB)

INPUT	OUTPUT	STATUS	ACTION	RESULT
CH LINE (0dB)	AFL	RECORD	set fader to 0 push channel SOLO	cut -3.65 ±0.5dB
CH LINE (0dB)	GROUP	RECORD	Push CH CUT	Lamp ON, cut
CH LINE (0dB)	GROUP	RECORD	Push + hold VCA GROUP MUTE Release CH CUT	Lamp Stays ON o/p stays cut
CH LINE (0dB)	GROUP	RECORD	Release VCA GROUP MUTE	Lamp OFF 0.0dB (±0.1dB)
CH LINE (0dB)	GROUP	RECORD	Push VCA FADER Release VCA FADER	note 10dB drop ±0.5dB 0dB
CH LINE (0dB)	LF	RECORD	L/R Pan Pot to L small fader Max	CUT
			Push SF INPUT	Green LED ON +6dB ±0.4dB
			Push SF OUTPUT	Green LED ON +6 ±0.4dB
			CH fader max	+6 ±0.4dB
			Release SF INPUT	Green LED ON +16dB ±0.5dB
CH LINE (0dB)	LF	RECORD	Release SF OUTPUT	cut
	GROUP		Adjust CH Fader for	0dB ±0.05dB
CH LINE (+20dB)	GROUP	RECORD	increase f/p LINE trim until-	Red overload LED ON (+23 ±1dB)
CH LINE (+20dB)	GROUP	RECORD	return TRIM to detent	Red overload LED OFF

Dynamics Section

INPUT	OUTPUT	STATUS	ACTION	RESULT
CH LINE (+20dB)	GROUP	RECORD	All dynamics controls ACW Release time knobs out (fast attack)	
CH LINE (+20dB)	GROUP	RECORD	Push DYN to CH IN	Green LED ON (+20 ± 0.8dB)

compressor

Amber to plot, +20 to -30, 4 secs swept atten. IN, 50dB range.
Check for linear response.

CH LINE (+20dB sweep) ATTEN. in	GROUP	RECORD	Threshold Cw Ratio CW, set 0dB preset half way Adjust GAIN preset on 82E10 for flat plateau	
CH LINE (+10dB) ATTEN. out	GROUP	RECORD	Threshold ACW, Turn ratio ACW, DVM to relative Turn ratio CW adjust for 1.6dB drop on 0dB preset	
			All compression pots ACW	

gate

CH LINE (+10dB sweep)	GROUP	RECORD	Range CW Threshold CW Gate in Adjust VR3 so all green LEDS come on	
CH LINE (+20dB sweep) ATTEN. IN	GROUP		Manual sweep up Manual sweep down, ensure 1 division hysterysis on scope screen.	
CH LINE (+20dB sweep)	GROUP	RECORD	RANGE to 5:1 Threshold +5 Trace should be as - fig. XXX Pull fast release no change. Release Gate, All EXP. pots ACW	

AMBER to frequency plot mode (Manual start)

CH LINE (+20dB) ATTEN. out	GROUP	RECORD	RATIO CW Threshold CW Push EQ to DYN SC filters CW	Inverse of normal filter curve

INPUT	OUTPUT	STATUS	ACTION	RESULT
CH LINE (+20dB)	GROUP	RECORD	Filters (ACW) but not out	Flat response (approx. 2dB LF roll off)
Amber to normal mode (sin o/p, send/receive in)				
CH LINE (+20dB)	GROUP	RECORD	Release EQ to DYN SC Ratio ACW Push DYN to CH OUT	LED no change
CH LINE (+20dB)	GROUP	RECORD	push DYN SEND Release DYN to CH IN release DYN SEND	8db drop (±0.5dB) CH OUT Yellow LED on +20dB ±1dB
CH LINE (+20dB)	GROUP	RECORD	Ratio CW	+20dB decreasing with RATIO setting
CH LINE (+20dB)	INSERT	RECORD	push EQ to CH	+16dB ±1dB
CH LINE (+20dB)	INSERT	RECORD	Turn RATIO	O/P no change LED indicators on
MONITOR (+20dB)	LF	RECORD	Release EQ to CH Push DYN to MON Release DYN to CH OUT	Red LED on CH OUT LED off
MONITOR (+10dB)	LF	RECORD	Turn RATIO	+16dB (±1.0dB) decreasing with RATIO setting
			Push LINK ratio CW threshold CW Release LINK	Yellow LINK LED on. DYNAMICS RETURN LED on jig on

compression release times

INPUT	OUTPUT	STATUS	ACTION	RESULT
CH LINE (+20dB)	GROUP	RECORD	Dynamics to CH IN release MON Comp. Threshold C/W " Ratio C/W " Release C/W	 All Comp. LEDS on
			Exp. Threshold AC/W " Range C/W " Release C/W	
			Release Gate on AMBER	Green LEDS on at 0.2s int. Comp LEDS off at 1s ints.
			release DYN to CH all DYN pots ACW push GATE on Amber	

Monitoring

MIX AMP (0dB±.01dB)	GROUP	RECORD	Release DIRECT Set F/P GP TRIM AC/W	 -26dB ±1dB
MIX AMP (0dB±.01dB)	GROUP	RECORD	Turn F/P GP TRIM C/W Set G TRIM preset for +4dB ± 0.05dB	Smooth increase
CH LINE (0dB)	GROUP	RECORD	Push Direct	0.0 ±0.1dB
CH LINE (0dB)	GROUP	RECORD	Fader at +10 Push SUB GP (on module)	 cut, LINE LED extinguishes
MIX AMP	GROUP	RECORD		+14dB ±0.25dB
SLATE (0dB)	GROUP	RECORD		cut
SLATE (0dB)	GROUP	RECORD	Push SLATE CONTROL Release SLATE	+4dB ± 0.5dB cut
SLATE (0dB)	GROUP	RECORD	Push VCA to MON Release VCA to MON	cut
CH LINE (0dB)	MIX BUS 1	RECORD	Release SUB GP	cut

check routing switches

CH LINE (0dB)	MIX BUS 1	RECORD	Push ROUTING SW 1 Set R-PAN ACW (odd)	+6 ±0.3 dB
CH LINE (0dB)	MIX BUS 1	RECORD	Push PAN SW Turn R-PAN CW (even)	No change Decrease to cut
CH LINE (0dB)	MIX BUS 2	RECORD	Push Routing SW 2	Within ± 0.1dB of previous reading
CH LINE	MIX BUS 1	RECORD	Set R PAN to indent	+1.5 ±0.25dB
CH LINE	MIX BUS 2	RECORD		+1.5 ±0.25dB
CH LINE (0dB)	MIX BUS 2	RECORD	Turn PAN CW (even) release R-PAN SW.	Increase to +6dB ±0.25 No change
CH LINE (0dB)	MIX BUS 2	RECORD	Release Routing SW2	cut
CH LINE (0dB)	MIX BUS 3	RECORD	 Push Routing SW 3	cut +6dB ± 0.25dB

Continue to switch to next mix bus, check that o/p is cut, then push routing switch check o/p is +6dB. Repeat for all 32 mix o/ps.

Release all buttons

Quad o/p tests

INPUT	OUTPUT	STATUS	ACTION	RESULT
MONITOR (0dB)	LF	RECORD	f/b PAN SW out L/R PAN left S FADER to min.	cut
MONITOR (0dB)	LF	RECORD	Set S FADER to 0	-4.4dB ±0.5dB
MONITOR	LF	RECORD	Set S FADER to +10	+5.6dB ±0.5dB

Check O/P's with following table:-

Selected output	L/R pan position	F/B pan position	F/B switch position	reading
LF	L	F	OUT	+6dB
.	R	.	.	-
RF	.	.	.	+6dB
.	L	.	.	-
LB	.	.	.	-
.	R	.	.	-
RB	.	.	.	-
.	L	F	IN	-
.	.	B	.	-
.	R	.	.	+6dB
LB	.	.	.	-
.	L	.	.	+6dB
.	.	F	.	-
.	R	.	.	-
RF	.	.	.	+6dB
.	L	.	.	-
.	.	B	.	-
.	R	.	.	-
LF	.	.	.	-
.	L	.	.	-
LF	.	F	.	+6dB

note: for 611V:-

Check left & right panning of each stereo pair, A,B & C.

For FILM PAN (852281)

INPUT	OUTPUT	STATUS	ACTION	RESULT
MONITOR	LF		TURN PAN POT ACW(L)	±5.5dB
MONITOR	RF		TURN PAN POT CW(R)	±5.5dB
MONITOR	LB		TURN PAN POT CW & ACW and check signal only in 'centre'	±5.5dB
MONITOR	RB		PRESS F/B PAN BUTTON 'IN' TURN F/B PAN POT TO 'BACK' Check L/R Pan has No Effect	
MONITOR	LF/RF		F/B PAN BUTTON 'OUT' Put +18V onto U.66 Check L&R PAN FADE IN AND OUT PAST CENTRE DETENT ON Both LF&RF. LEAVE IN ACW (L)	

end of film pan test

INPUT	OUTPUT	STATUS	ACTION	RESULT
MONITOR (0dB)	LF	RECORD	L/R PAN AC/W (L) B/F PAN C/W (F)	+5.6 ±0.25
MONITOR (0dB)	LF	RECORD	Set meter to relative L/R PAN to indent (c) B/F PAN to indent (c) Set LF trim preset for -8.5dB (rel.)	
MONITOR (0dB)	RF	RECORD	Set RF Trim preset as above	
MONITOR (0dB)	LB	RECORD	Set LB trim preset as above	
MONITOR (0dB)	RB	RECORD	Set RB trim preset as above	

Repeat above procedure once to eliminate preset interaction

Monitoring switching

MONITOR (0dB)	LF	RECORD	L/R pan AC/W (L) F/B pan CW (F) F/B SW OUT	+5.6dB ±.25dB
MONITOR (0dB)	LF	RECORD	Push VCA to MON	+5.6dB ±.25dB (O/P level controlled by CH Fader)
MONITOR (0dB)	LF	RECORD	Release VCA to MON Push FLOAT Release FLOAT	cut
MONITOR	LF	RECORD	push S/F CUT	Red LED on cut
			Release SF CUT	+5.6dB ±.25dB
MONITOR	LF	RECORD	Push SF SOLO	No change, yellow SOLO LED on MON CUT BUS LED on
MONITOR	LF	RECORD	Solo Isolate in push CH SOLO	SOLO lamp on CH cut bus LED on 5.6 ±0.25dB
			Push and hold mon cut bus Release S/F solo	no change S/F cut LED on, cut
			Pull solo isolate	5.6 ±0.25dB S/F cut LED off solo disable bus LED on
			Release CH solo	cut S/F cut LED on solo disable bus and mon. cut bus LED off
			Release mon. cut bus	5.6 ±0.25dB S/F cut and mon. cut bus LED off.
			Push and hold Ch. cut bus	o/p no change ch. cut bus LED on
			Solo Isolate sw. in	o/p no change Ch. cut lamp on
			Push Ch. solo	Ch. solo lamp on Ch. cut lamp off o/p no change

INPUT	OUTPUT	STATUS	ACTION	RESULT
MIX AMP (0dB)	METER	RECORD	Set SW3 82E12 to on (Record Sense)	cut
			Push Track Record Sense	611 RED LAMP ON
			Reset SW3 to off	
			Push VCA to METERS	-1.6vDC, VCA LED (jig) Check O/P varies between OV and -1.6V with CH FADER control
			Push READY TAPE	Lamp full on TAPE LED on cut
MIX AMP (0dB)	METER	RECORD	Release DIRECT Push READY GROUP	Lamp full on TAPE LED off
			SET FP GROUP TRIM TRIM for	0dB ±.05dB
			Push RECORD button Push RECORD button several times	Lamp half brightness Module alternates in and out of Record.
			Leave module in Record	RED LED on RED CONTACTS LED on 0dB ±0.25dB
MIX AMP (0dB)	METER	REC+M/R		0dB (No change) Record Lamp full brightness READY TAPE half bright
MIX AMP (0dB)	METER	REPLAY		RECORD half bright R/T and R/G half bright GROUP LED off TAPE LED on, cut
MONITOR (0db)	METER	REPLAY		0dB ±0.25dB
MONITOR (0dB)	METER	REPLAY	Release READY TAPE	0dB ±0.25dB
MONITOR (0dB)	METER	REC+M/R		cut
MIX AMP (0dB)	METER	REC+M/R		0dB ±0.25dB
MIX AMP (0dB)	METER	RECORD		0dB ±0.25dB

MIX AMP (0dB)	METER	RECORD	Push READY TAPE Release READY GROUP	cut, Record Lamp still on.
MONITOR (0dB)	METER	RECORD		0dB ± .25dB
MONITOR	METER	REC+M/R		0dB ± .25dB
MONITOR	METER	REPLAY		0dB ± .25dB
MONITOR	LF	REPLAY		+5.6 ± .25dB
MONITOR	LF	REC+M/R		cut
MIX AMP (0dB)	LF	REC+M/R		+5.6 ± .25dB
MIX AMP (0dB)	LF	RECORD		cut
MONITOR	LF	RECORD		+5.6dB ± .25dB
MONITOR	LF	RECORD	Push READY GROUP	+2.5dB ± .25dB
MIX AMP (0dB)	LF	RECORD		+2.5dB ±.25dB
MIX AMP (0dB)	LF	REC+M/R		+5.6dB ± .25dB
MIX AMP (0dB)	LF	REPLAY	Release READY TAPE Release READY GROUP	Record Lamp extinguishes cut
MONITOR	LF	REPLAY		+5.6dB ± .25dB
MONITOR	LF	MIX	Push LF routing SW	cut LED on, +5.6dB ±.25dB
MONITOR	RF	MIX	Push RF routing SW	cut LED on, +5.6dB ±.25dB
MONITOR	LB	MIX Push LB routing		cut LED on, +5.6dB ±.25dB
MONITOR	RB	MIX Rush RB routing SW		cut LED on, +5.6dB ±.25dB

Pan check

INPUT	OUTPUT	STATUS	ACTION	RESULT
MONITOR (0dB)	RB	MIX	Routing PAN CW (R) Push routing PAN SW in	+6.5dB ± .25dB (no change)
MONITOR	RB	MIX	Turn PAN ACW (L)	cut
MONITOR	LB	MIX		+5.6dB ± .25dB
MONITOR	LB	MIX	Turn PAN CW (R)	cut
MONITOR	RF	MIX		+5.6dB ± .25dB
			Turn PAN ACW (L)	cut
MONITOR	LF	MIX		+5.6dB ± .25dB
MONITOR	LF	MIX	Turn PAN CW (R)	cut
MONITOR	LF	MIX	Release PAN SW Release L/R F/B Routing	+5.6dB ± .25dB
LINE (0dB)	LF	MIX	Set SF to min. Release FLIP	cut +6 ±.25dB, green LED on
LINE	MIX BUS 1	MIX	Push routing 1.	cut
LINE	MIX BUS 1	MIX	Push SF OUTPUT ON	cut
LINE	MIX BUS 1	MIX	SF to max	+16dB ± .25dB
LINE	MIX BUS 1	MIX	Push SF INPUT ON	+6dB ±.25dB
LINE	MIX BUS 1	MIX	Push FLOAT Set SF to min.	+6dB ± .25dB
LINE	MIX BUS 1	MIX	Push READY GROUP ON	+6dB ± .25dB
LINE	MIX BUS 1	MIX+REC		cut, LINE LED off Red MIC LED on.
LINE	MIX BUS 1	MIX+REC	Release READY GROUP Release FLOAT	+6dB ±.25dB Line LED on cut, Mic LED off

Cues Test

INPUT	OUTPUT	STATUS	ACTION	RESULT
LINE	ST CUE L	MIX+REC	Ch Fader max.	
			Small Fader max.	
			St. Cue ON and UP	
			Pan L	+6 ±0.25dB
			Pan centre	+1.5 ±0.25dB
	ST CUE R		" "	no change
			Pan R	+6 ±0.25dB
			Check ON/OFF switch (leave on)	+6dB / cut
LINE	AUX 1	MIX+REC	Aux 1 ON and UP	+6 ±0.25dB
			check ON/OFF switch (leave on)	+6dB / cut
			Repeat previous test for AUXs 2,3 and 4 Leave pots ON and UP.	
LINE	AUX 4	MIX+REC	push all Small Fader buttons Check o/p follows small fader repeat for all aux O/Ps	
LINE	ST CUE R	MIX+REC	Push all PRE buttons	cut
			check all aux O/Ps	cut
			release s/f buttons	-4 ±0.5dB
			check all aux O/Ps	-4 ±0.5dB
MONITOR	ST CUE R	MIX+REC		cut
			push s/f button	-4 ±0.5dB
			push s/f CUT	cut
			set switch 5 ON on 293 card	-4 ±0.5dB
			Check all Aux o/p inc.	stereo
LINE	METERS	MIX+REC	LINE trim full up connect one end of probe to +18v. connect other end to pin 53 upper bus card (line in to meters enable)	+20dB ±1dB TAPE LED on jig OFF