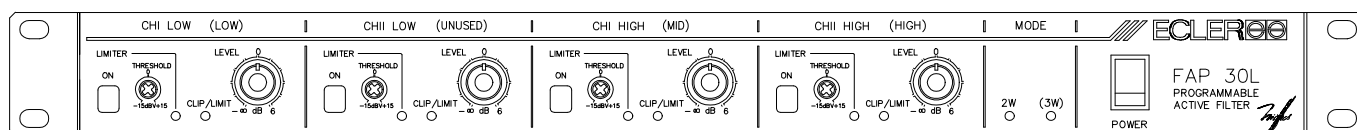


FAP30L

SERVICE MANUAL



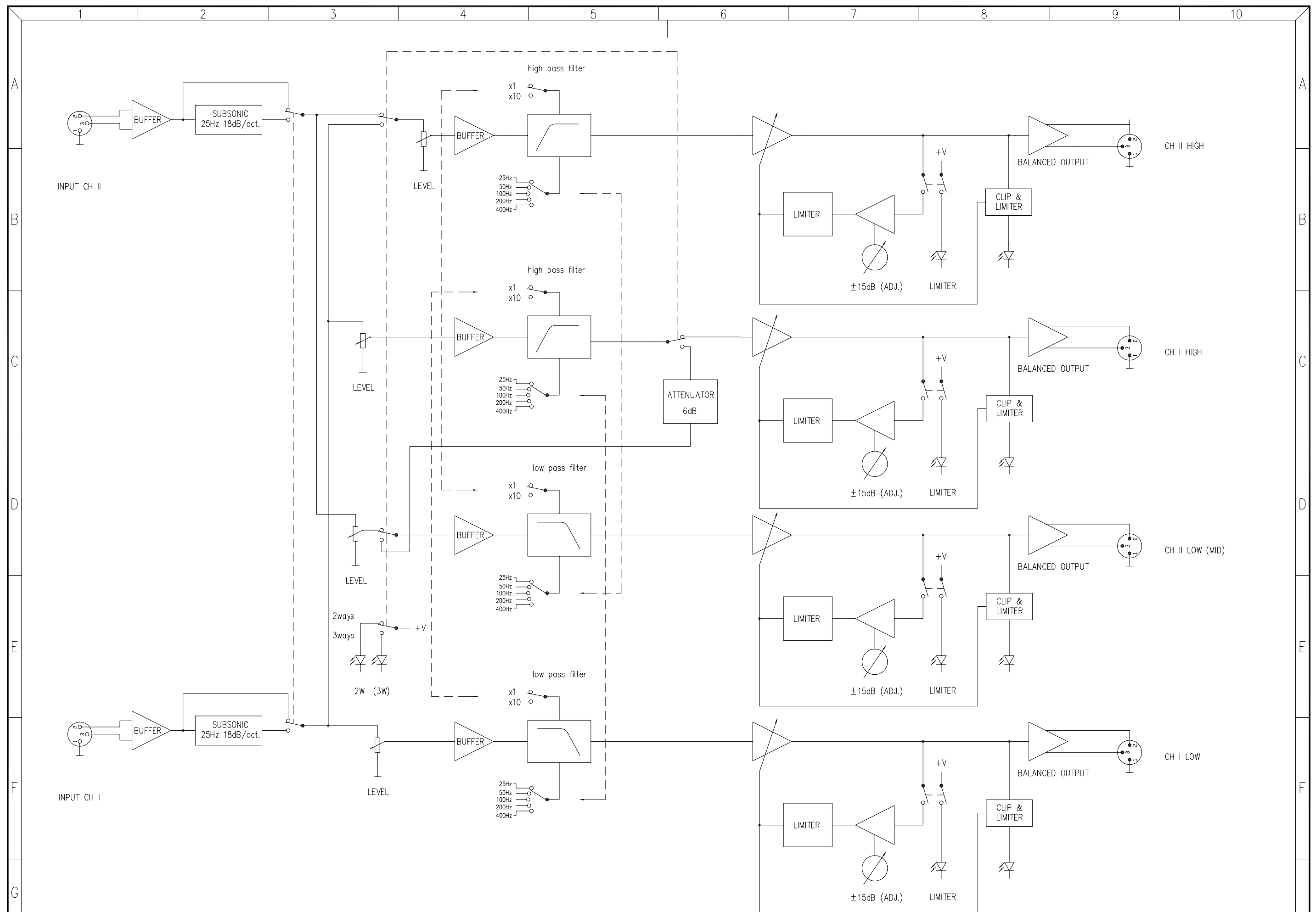
ECLEREO

AUDIO CREATIVE POWER

SERVICE MANUAL FAP30L

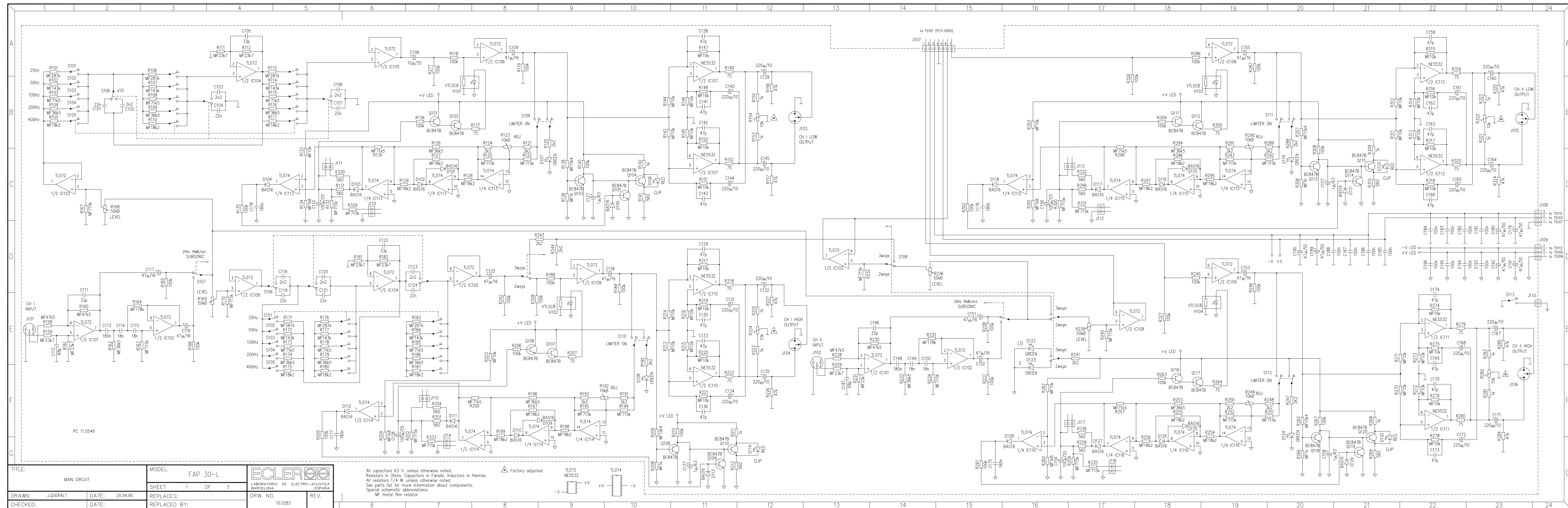
INDEX

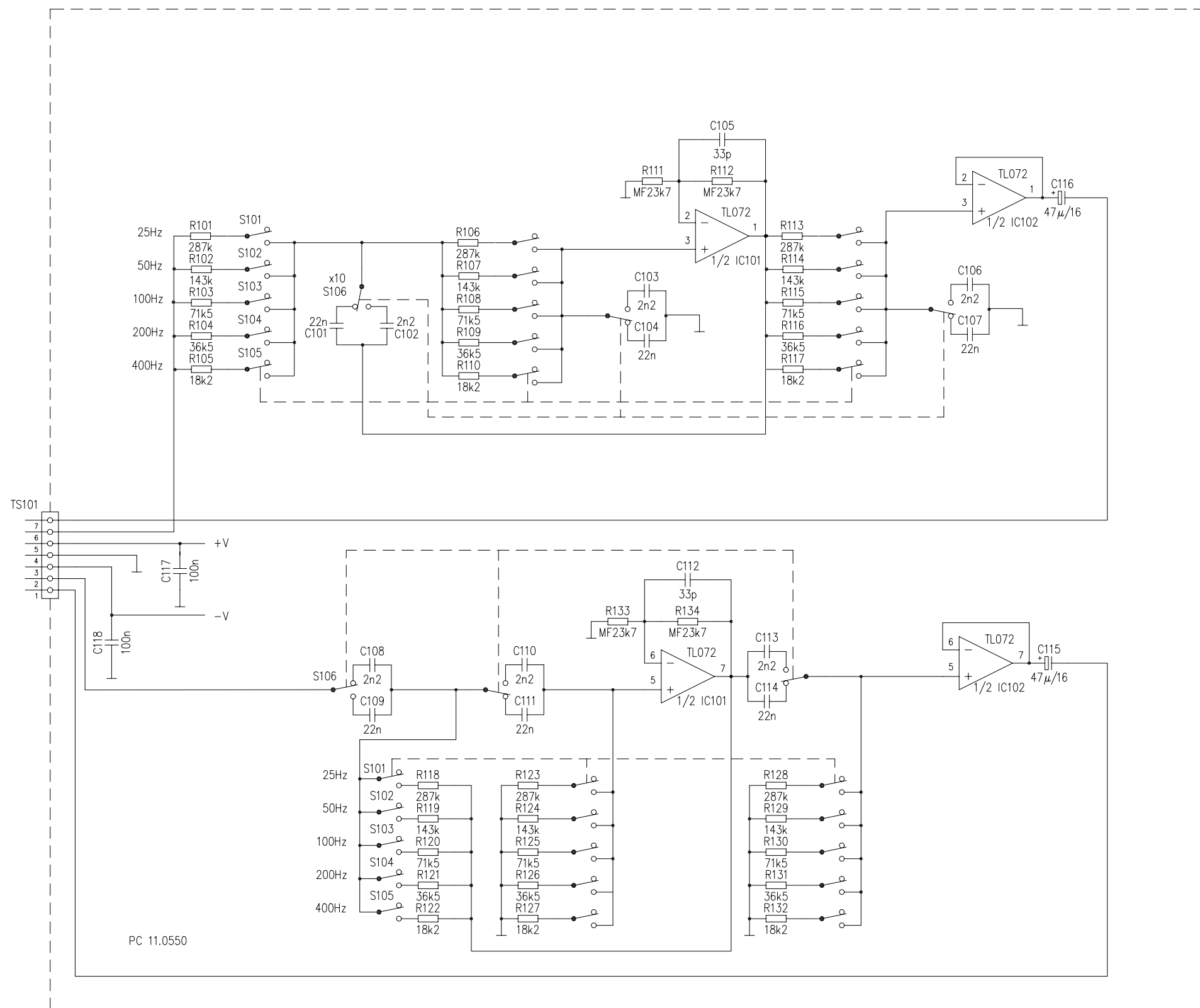
- BLOCK DIAGRAM
- SCHEMATICS
- COMPONENTS LOCATION SCHEMA
- TESTING AND QUALITY CONTROL
- TECHNICAL CHARACTERISTICS
- WIRING DIAGRAM
- MECHANICAL DIAGRAM
- PACKING DIAGRAM



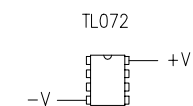
TITLE: BLOCK DIAGRAM		MODEL: FAP30L		<div>ECLER</div> <div>LABORATORIO DE ELECTRO-ACUSTICA BARCELONA ESPAÑA</div>	
		SHEET 1 OF 1			
DRAWN: J.QUERALT	DATE: 02.05.95	REPLACES:		DRW. NO. 10.0284	REV.
CHECKED:	DATE:	REPLACED BY:			

6	7	8	9	10
---	---	---	---	----

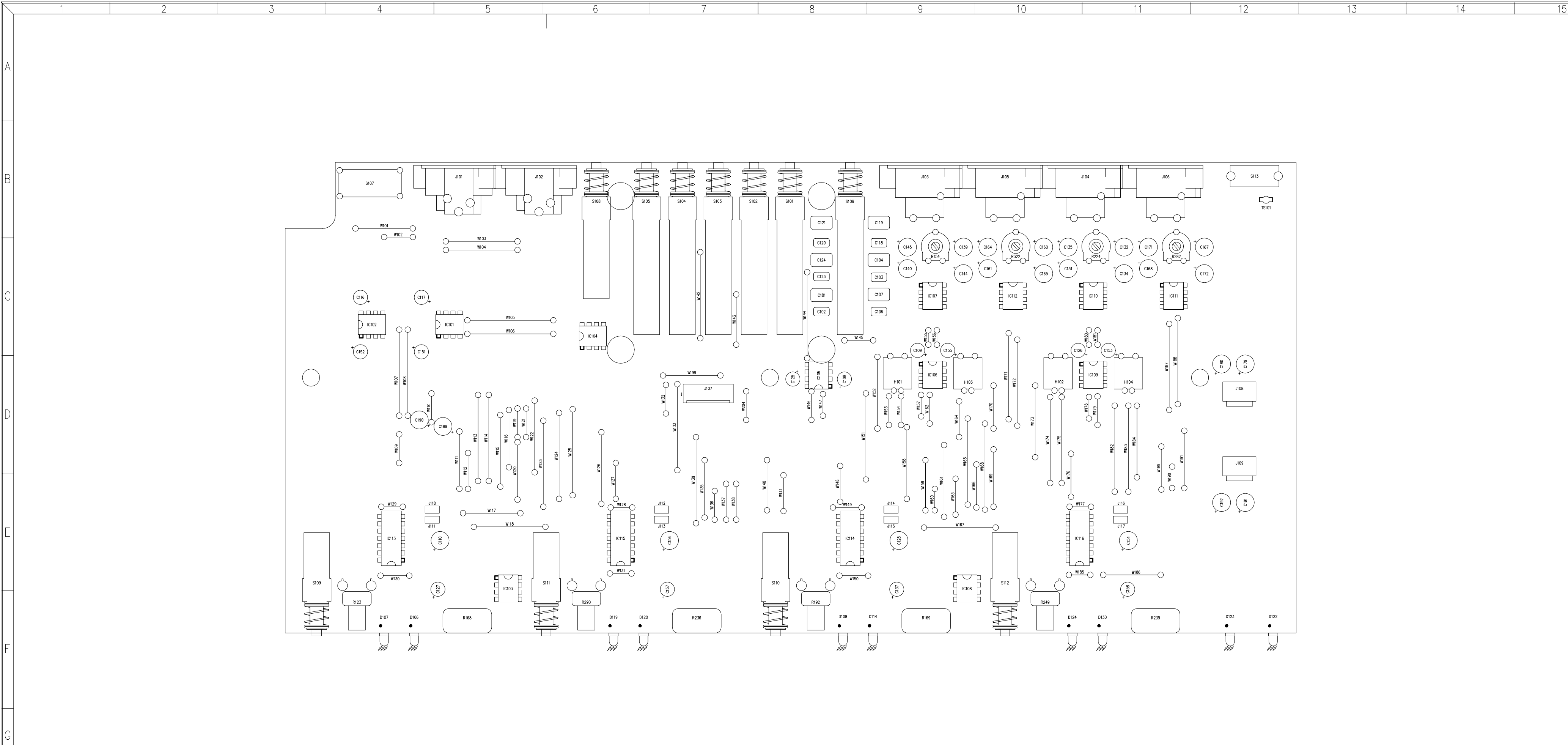




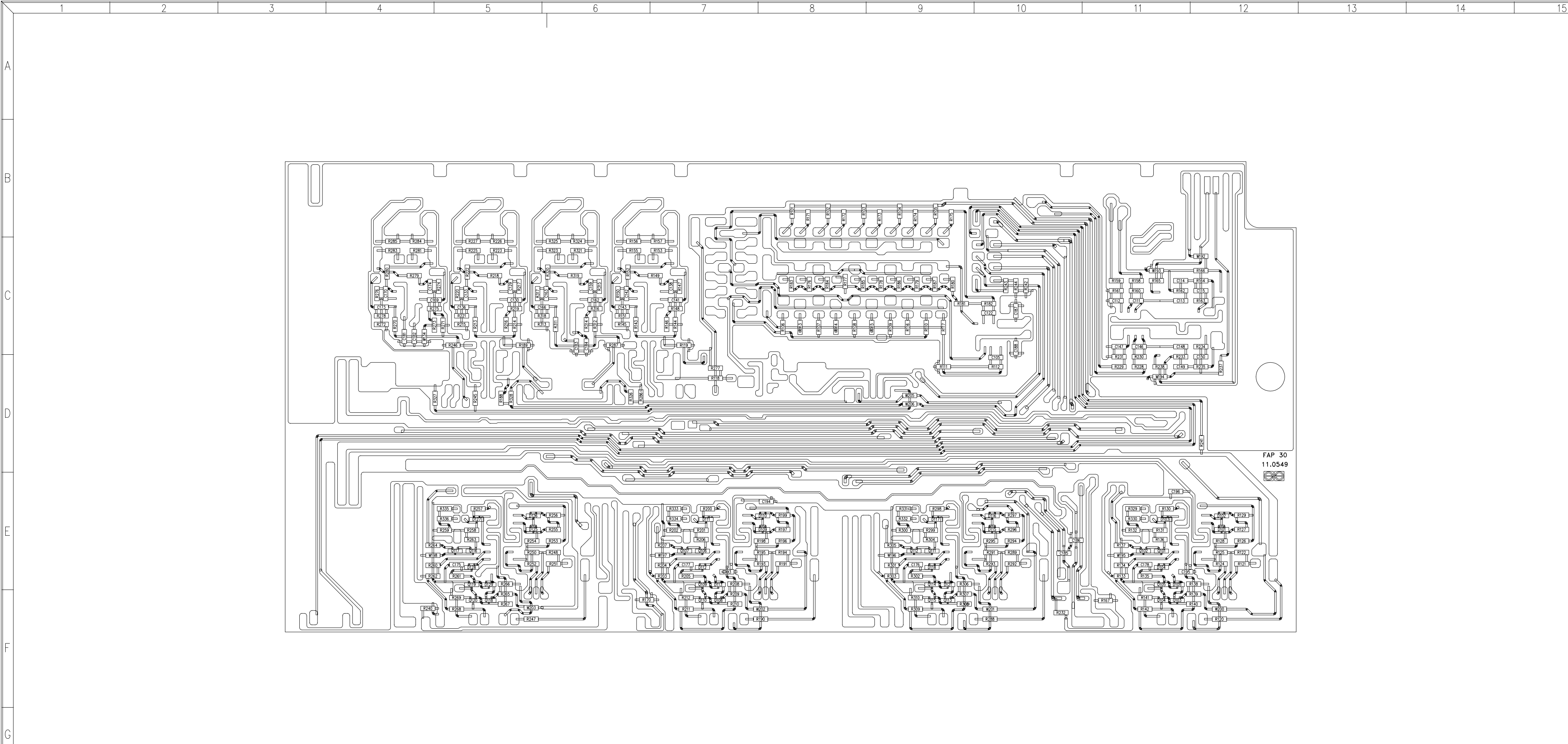
All capacitors 63 V, unless otherwise noted.
Resistors in Ohms. Capacitors in Farads. Inductors in Henries.
All resistors 1/4 W, unless otherwise noted.
See parts list for more information about components.
Special schematic abbreviations:
MF metal film resistor



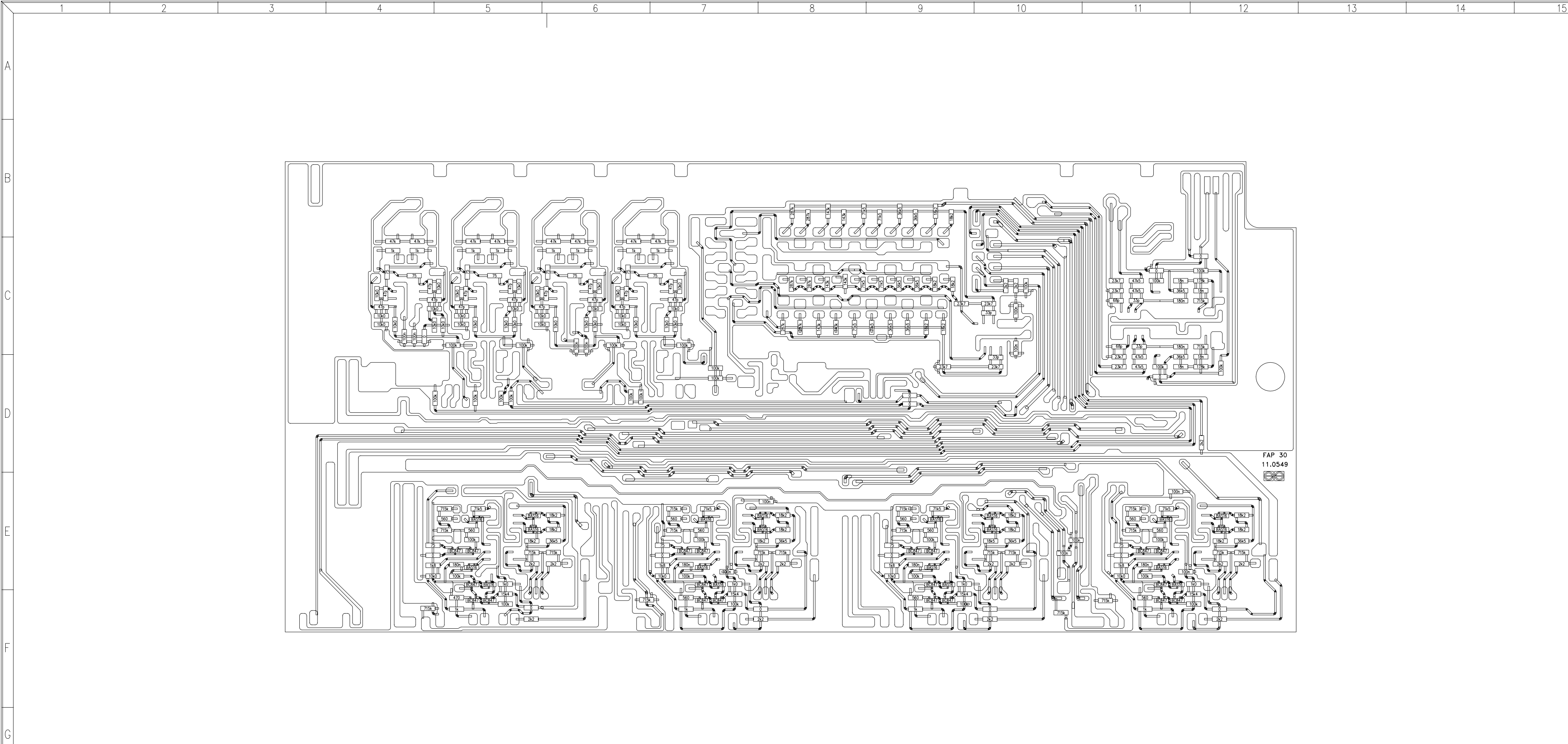
TITLE: PRINTED CIRCUIT 11.0550		MODEL: FAP 30		<div>ECLEREE</div> <div>LABORATORIO DE ELECTRO-ACUSTICA BARCELONA ESPAÑA</div>	
		SHEET 2 OF 3			
DRAWN: J.QUERALT	DATE: 25.05.95	REPLACES:		DRW. NO.	REV.
CHECKED:	DATE:	REPLACED BY:		10.0296	



TITLE: PRINTED CIRCUIT 11.0549		MODEL: FAP30-L		<div>ECLEROO</div> <div>LABORATORIO DE ELECTRO-ACÚSTICA BARCELONA ESPAÑA</div>	
		SHEET 1 OF 5			
DRAWN: AMOROS/QUERALT	DATE: 020208	REPLACES:		DRW. NO. 33.0119.02.03R/	REV.
CHECKED:	DATE:	REPLACED BY:			



TITLE: PRINTED CIRCUIT 11.0549		MODEL: FAP30-L		<div>ECLEROO</div> <div>LABORATORIO DE ELECTRO-ACÚSTICA BARCELONA ESPAÑA</div>	
DRAWN: AMOROS/QUERALT	DATE: 31.05.95	REPLACES:	DRW. NO.		
CHECKED:	DATE:	REPLACED BY:	33.0118R/		



TITLE: PRINTED CIRCUIT 11.0549		MODEL: FAP30-L		<div>ECLEROO</div> <div>LABORATORIO DE ELECTRO-ACÚSTICA BARCELONA ESPAÑA</div>	
DRAWN: AMOROS/QUERALT	DATE: 31.05.95	REPLACES:			
CHECKED:	DATE:	REPLACED BY:			
		DRW. NO. 33.0118 V/		REV.	

PARST LIST:
MODEL FAP30L
DATE: 310595

PRINTED CIRCUIT 11.0549
DWR N° 33.0118&33.0119PL REV:
SHEET 1 OF 10 REPLACED BY:

REFERENCIA

VALOR

11.0549	PRINTED CIRCUIT
C101	22n 2%
C102	2n2 2%
C103	2n2 2%
C104	22n 2%
C105	33p
C106	2n2 2%
C107	22n 2%
C108	47μ/16
C109	47μ/16
C110	100μ/25
C111	33p
C112	68p
C113	180n
C114	18n
C115	18n
C116	47μ/16
C117	47μ/16
C118	2n2 2%
C119	22n 2%
C120	2n2 2%
C121	22n 2%
C122	33p
C123	2n2 2%
C124	22n 2%
C125	47μ/16
C126	47μ/16
C127	1μ/63
C128	100μ/25
C129	47p
C130	47p
C131	220μ/10
C132	220μ/10
C133	47p
C134	220μ/10
C135	220μ/10
C136	47p
C137	1μ/63
C138	47p
C139	220μ/10
C140	220μ/10
C141	47p
C142	47p
C143	47p
C144	220μ/10
C145	220μ/10
C146	33p
C147	68p
C148	180n
C149	18n
C150	18n
C151	47μ/16
C152	47μ/16
C153	47μ/16
C154	100μ/25
C155	47μ/16

PARST LIST:
MODEL FAP30L
DATE: 310595

PRINTED CIRCUIT 11.0549
DWR N° 33.0118&33.0119PL REV:
SHEET 2 OF 10 REPLACED BY:

REFERENCIA	VALOR
C156	100μ/25
C157	1μ/63
C158	1μ/63
C159	47p
C160	220μ/10
C161	220μ/10
C162	47p
C163	47p
C164	220μ/10
C165	220μ/10
C166	47p
C167	220μ/10
C168	220μ/10
C169	47p
C170	47p
C171	220μ/10
C172	220μ/10
C173	47p
C174	47p
C175	180n
C176	180n
C177	180n
C178	180n
C179	47μ/50
C180	47μ/50
C181	100n
C182	100n
C183	100n
C184	100n
C185	100n
C186	100n
C187	100n
C188	100n
C189	47μ/50
C190	47μ/50
C191	47μ/50
C192	47μ/50
C193	100n
C194	100n
C195	100n
C196	100n
D101	BAS16
D102	BAS16
D103	BAS16
D104	BAS16
D105	BAS16
D106	RED Ý3mm
D107	GREEN Ý3mm
D108	GREEN Ý3mm
D109	BAS16
D110	BAS16
D111	BAS16
D112	BAS16
D113	BAS16
D114	RED Ý3mm
D115	BAS16
D116	BAS16

PARST LIST:
MODEL FAP30L
DATE: 310595

PRINTED CIRCUIT 11.0549
DWR N° 33.0118&33.0119PL REV:
SHEET 3 OF 10 REPLACED BY:

REFERENCIA	VALOR
D117	BAS16
D118	BAS16
D119	GREEN Ý3mm
D120	RED Ý3mm
D121	BAS16
D122	GREEN Ý3mm
D123	GREEN Ý3mm
D124	GREEN Ý3mm
D125	BAS16
D126	BAS16
D127	BAS16
D128	BAS16
D129	BAS16
D130	RED Ý3mm
H101	VTL5C8
H102	VTL5C8
H103	VTL5C8
H104	VTL5C8
IC101	TL072
IC102	TL072
IC103	TL072
IC104	TL072
IC105	TL072
IC106	TL072
IC107	NE5532
IC108	TL072
IC109	TL072
IC110	NE5532
IC111	NE5532
IC112	NE5532
IC113	TL074
IC114	TL074
IC115	TL074
IC116	TL074
J101	YKF52-5005
J102	YKF52-5005
J103	YKF52-5003
J104	YKF52-5003
J105	YKF52-5003
J106	YKF52-5003
J107	2600-7TS
J108	B3P-VH
J109	B3P-VH
J110	JP
J111	JP
J112	JP
J113	JP
J114	JP
J115	JP
J116	JP
J117	JP
Q101	BC847
Q102	BC847
Q103	BC847
Q104	BC847
Q105	BC847
Q106	BC847

PARST LIST:
MODEL FAP30L
DATE: 310595

PRINTED CIRCUIT 11.0549
DWR N° 33.0118&33.0119PL REV:
SHEET 4 OF 10 REPLACED BY:

REFERENCIA	VALOR
Q107	BC847
Q108	BC847
Q109	BC847
Q110	BC847
Q111	BC847
Q112	BC847
Q113	BC847
Q114	BC847
Q115	BC847
Q116	BC847
Q117	BC847
Q118	BC847
Q119	BC847
Q120	BC847
R101	287k
R102	143k
R103	71k5
R104	36k5
R105	18k2
R106	287k
R107	143k
R108	71k5
R109	36k5
R110	18k2
R111	23k7
R112	23k7
R113	287k
R114	143k
R115	71k5
R116	36k5
R117	18k2
R118	20k0
R119	100k
R120	2k2
R121	2k2
R122	715k
R123	10kB
R124	2k2
R125	715k
R126	36k5
R127	18k2
R128	18k2
R129	18k2
R130	71k5
R131	330Ω
R132	715k
R133	10k0
R134	1k96
R135	100k
R136	100k
R137	75Ω
R138	1k0
R139	15k4
R140	100k
R141	470Ω
R142	1k
R143	10k0

PARST LIST:
MODEL FAP30L
DATE: 310595

PRINTED CIRCUIT 11.0549
DWR N° 33.0118&33.0119PL REV:
SHEET 5 OF 10 REPLACED BY:

REFERENCIA	VALOR
R144	10k0
R145	10k0
R146	10k0
R147	10k0
R148	10k0
R149	75Ω
R150	10k0
R151	10k0
R152	75W
R153	1k
R154	10k
R155	1k
R156	47k
R157	47k
R158	47k5
R159	23k7
R160	47k5
R161	23k7
R162	36k5
R163	715k
R164	178k
R165	100k
R166	100k
R167	715k
R168	50kB
R169	50kB
R170	715k
R171	287k
R172	143k
R173	71k5
R174	36k5
R175	18k2
R176	287k
R177	143k
R178	71k5
R179	36k5
R180	18k2
R181	23k7
R182	23k7
R183	287k
R184	143k
R185	71k5
R186	36k5
R187	18k2
R188	20k0
R189	100k
R190	2k2
R191	2k2
R192	10kB
R193	2k2
R194	715k
R195	715k
R196	36k5
R197	18k2
R198	18k2
R199	18k2
R200	71k5

PARST LIST:
MODEL FAP30L
DATE: 310595

PRINTED CIRCUIT 11.0549
DWR N° 33.0118&33.0119PL REV:
SHEET 6 OF 10 REPLACED BY:

REFERENCIA	VALOR
R201	330Ω
R202	715k
R203	10k0
R204	1k96
R205	100k
R206	100k
R207	75Ω
R208	1k0
R209	15k4
R210	100k
R211	1k
R212	470
R213	10k0
R214	10k0
R215	10k0
R216	10k0
R217	10k0
R218	75Ω
R219	10k0
R220	10k0
R221	10k0
R222	75Ω
R223	1k
R224	10k
R225	1k
R226	47k
R227	47k
R228	47k5
R229	23k7
R230	47k5
R231	23k7
R232	715k
R233	36k5
R234	715k
R235	178k
R236	50kB
R237	100k
R238	100k
R239	50kB
R240	715k
R241	2k2
R242	100k
R243	2k2
R244	2k2
R245	20k0
R246	100k
R247	2k2
R248	715k
R249	10kB
R250	715k
R251	2k2
R252	2k2
R253	36k5
R254	18k2
R255	18k2
R256	18k2
R257	71k5

PARST LIST:
MODEL FAP30L
DATE: 310595

PRINTED CIRCUIT 11.0549
DWR N° 33.0118&33.0119PL REV:
SHEET 7 OF 10 REPLACED BY:

REFERENCIA	VALOR
R258	330Ω
R259	715k
R260	1k96
R261	100k
R262	10k0
R263	100k
R264	75Ω
R265	15k4
R266	1k0
R267	100k
R268	1k
R269	470Ω
R270	10k0
R271	10k0
R272	10k0
R273	10k0
R274	10k0
R275	10k0
R276	10k0
R277	100k
R278	10k0
R279	75Ω
R280	75Ω
R281	1k
R282	10k
R283	1k
R284	47k
R285	47k
R286	20k0
R287	100k
R288	2k2
R289	715k
R290	10kB
R291	715k
R292	2k2
R293	2k2
R294	36k5
R295	18k5
R296	18k2
R297	18k2
R298	71k5
R299	330Ω
R300	715k
R301	1k96
R302	100k
R303	10k0
R304	100k
R305	75Ω
R306	1k0
R307	15k4
R308	100k
R309	1k
R310	470Ω
R311	10k0
R312	10k0
R313	10k0
R314	10k0

PARST LIST:
MODEL FAP30L
DATE: 310595

PRINTED CIRCUIT 11.0549
DWR N° 33.0118&33.0119PL REV:
SHEET 8 OF 10 REPLACED BY:

REFERENCIA	VALOR
R315	10k0
R316	10k0
R317	10k0
R318	10k0
R319	75Ω
R320	75Ω
R321	1k
R322	10k
R323	1k
R324	47k
R325	47k
R326	100k
R327	100k
R328	100k
R329	715k
R330	560Ω
R331	715k
R332	560Ω
R333	715k
R334	560Ω
R335	715k
R336	560Ω
S101	PBS62H01
S102	PBS62H01
S103	PBS62H01
S104	PBS62H01
S105	PBS62H01
S106	PBS62H01
S107	17170
S108	PBS42H01
S109	PBS22H01
S110	PBS22H01
S111	PBS22H01
S112	PBS22H01
S113	17128
TS101	FASTON 2.8mm
W101	20mm
W102	10mm
W103	25mm
W104	25mm
W105	30mm
W106	30mm
W107	30mm
W108	30mm
W109	10mm
W110	10mm
W111	20mm
W112	12.5mm
W113	30mm
W114	30mm
W115	25mm
W116	20mm
W117	20mm
W118	25mm
W119	10mm
W120	20mm
W121	10mm

PARST LIST:
MODEL FAP30L
DATE: 310595

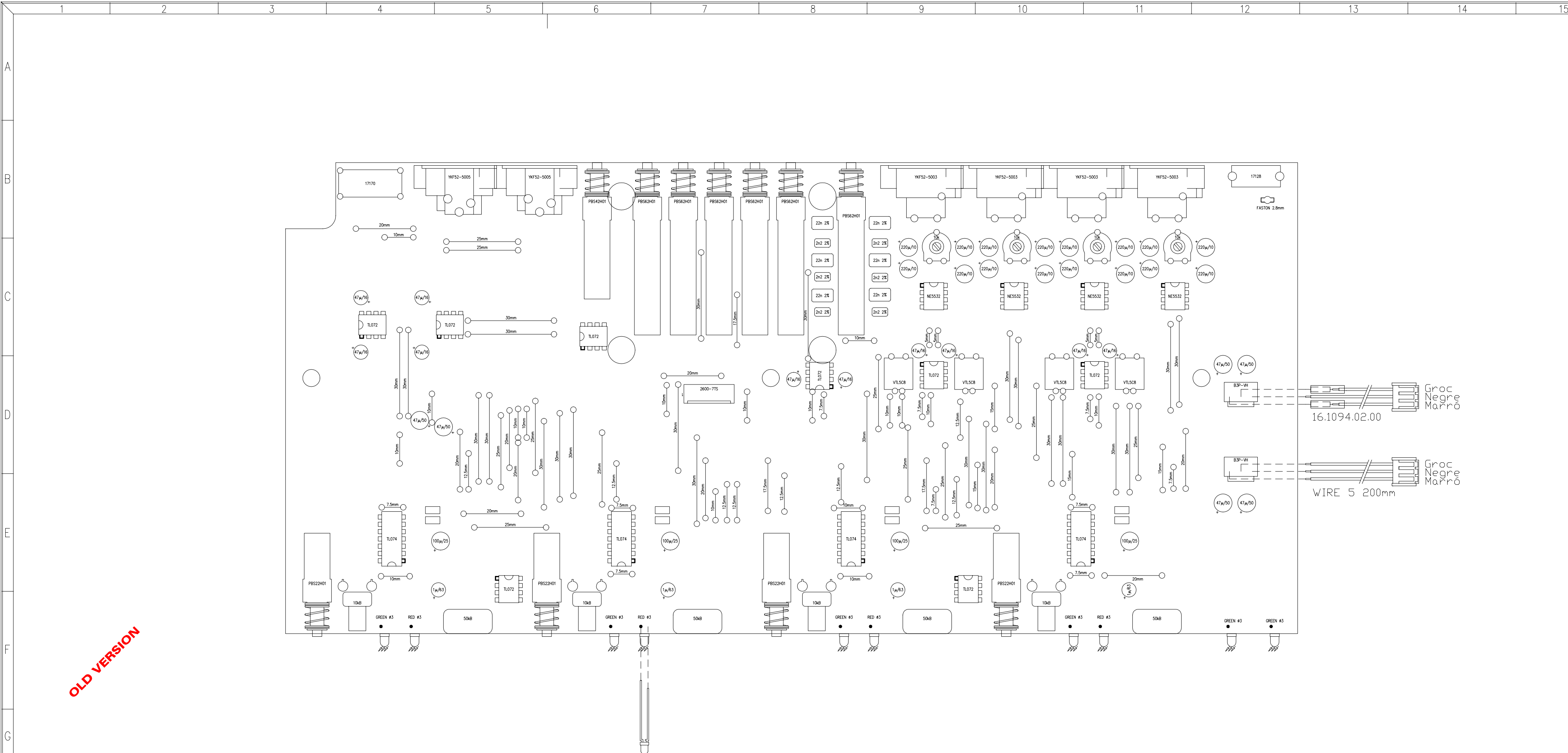
PRINTED CIRCUIT 11.0549
DWR N° 33.0118&33.0119PL REV:
SHEET 9 OF 10 REPLACED BY:

REFERENCIA	VALOR
W122	25mm
W123	30mm
W124	30mm
W125	30mm
W126	25mm
W127	12.5mm
W128	7.5mm
W129	7.5mm
W130	10mm
W131	7.5mm
W132	10mm
W133	30mm
W134	0Ω
W135	20mm
W136	10mm
W137	12.5mm
W138	12.5mm
W139	30mm
W140	17.5mm
W141	12.5mm
W142	30mm
W143	17.5mm
W144	30mm
W145	10mm
W146	10mm
W147	7.5mm
W148	12.5mm
W149	10mm
W150	10mm
W151	30mm
W152	25mm
W153	10mm
W154	10mm
W155	5mm
W156	5mm
W157	7.5mm
W158	25mm
W159	17.5mm
W160	7.5mm
W161	25mm
W162	10mm
W163	12.5mm
W164	12.5mm
W165	30mm
W166	15mm
W167	25mm
W168	30mm
W169	20mm
W170	15mm
W171	30mm
W172	30mm
W173	25mm
W174	30mm
W175	30mm
W176	15mm
W177	7.5mm
W178	7.5mm

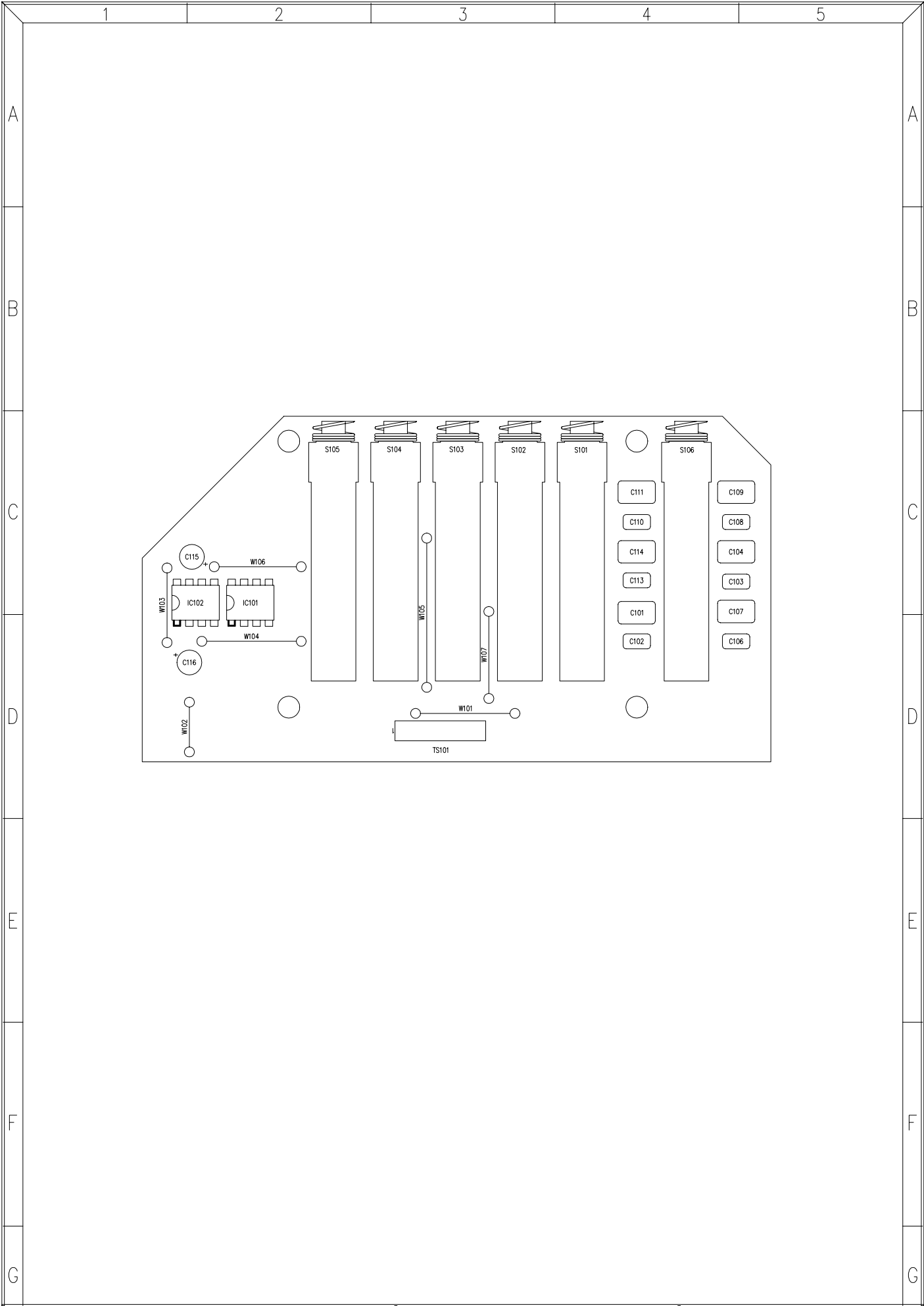
PARST LIST:
MODEL FAP30L
DATE: 310595

PRINTED CIRCUIT 11.0549
DWR N° 33.0118&33.0119PL REV:
SHEET 10 OF 10 REPLACED BY:

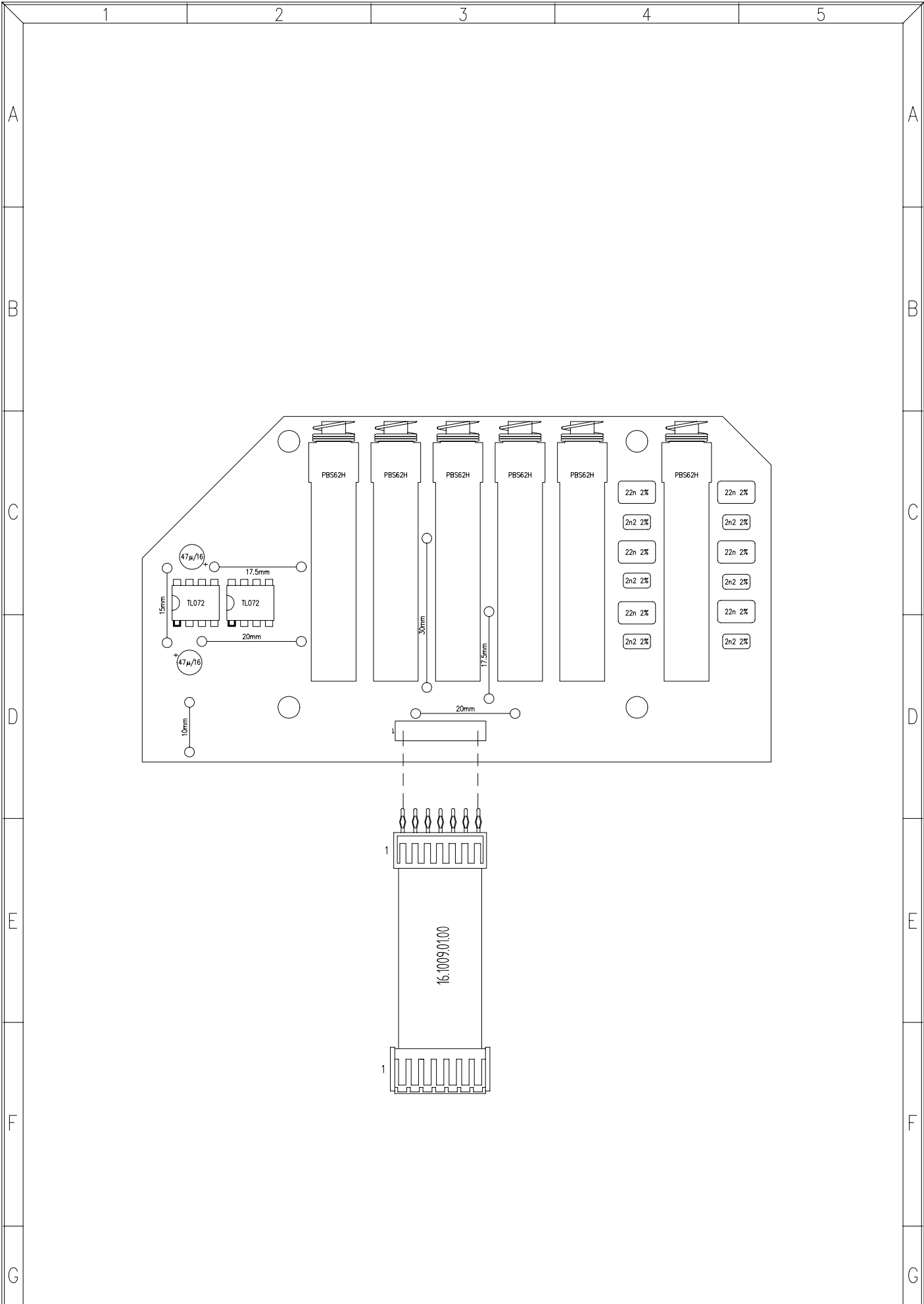
REFERENCIA	VALOR
W179	10mm
W180	5mm
W181	5mm
W182	30mm
W183	30mm
W184	25mm
W185	7.5mm
W186	20mm
W187	30mm
W188	30mm
W189	15mm
W190	7.5mm
W191	20mm
W192	0Ω
W193	0Ω
W194	0Ω
W195	0Ω
W196	0Ω
W197	0Ω
W198	0Ω
W199	20mm
W200	0Ω
W201	0Ω
W202	0Ω
W203	0Ω
W204	10mm
W205	0Ω
W206	0Ω



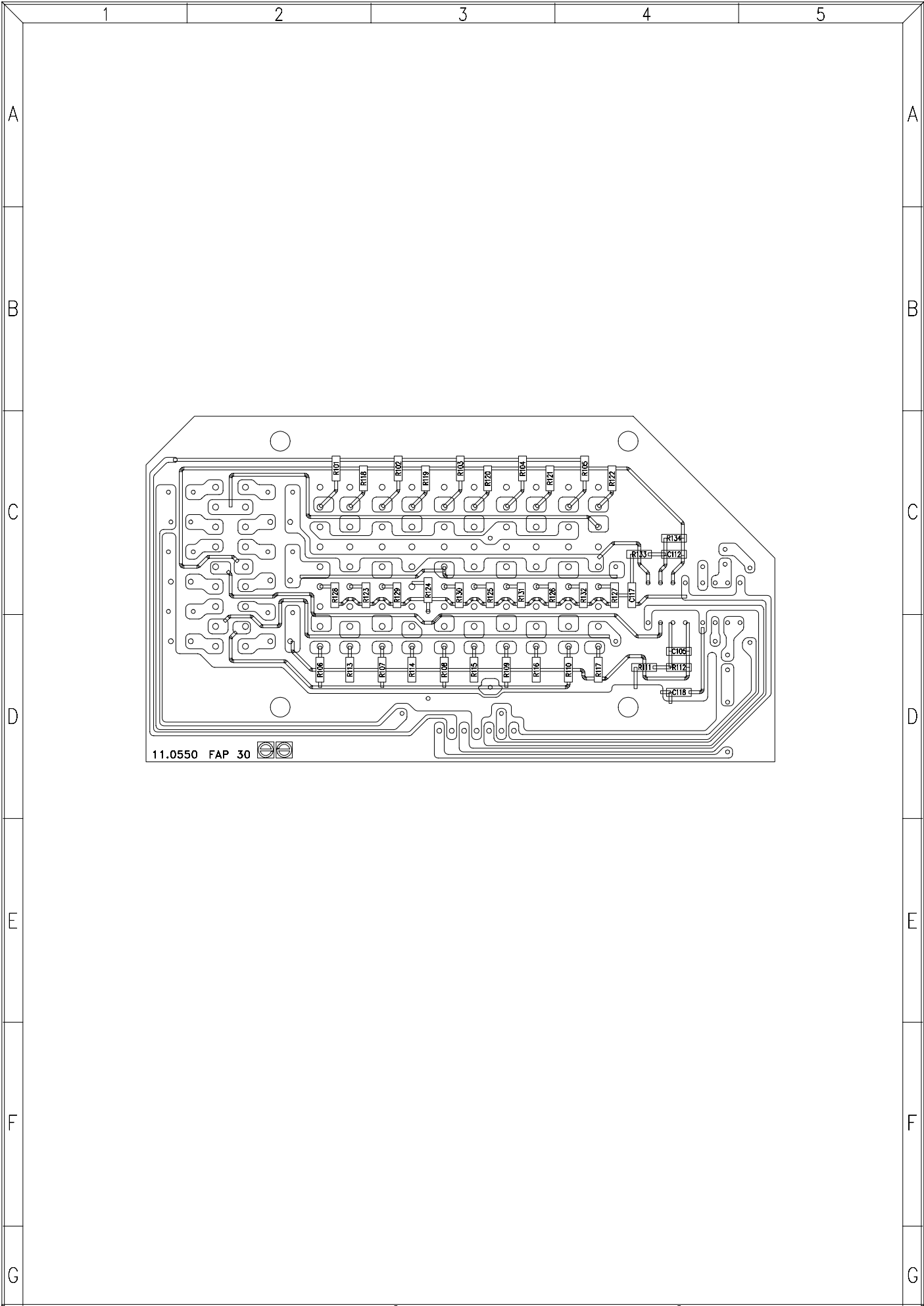
TITLE: PRINTED CIRCUIT 11.0549		MODEL: FAP30-L		<div>ECLEROO</div> <div>LABORATORIO DE ELECTRO-ACÚSTICA BARCELONA ESPAÑA</div>	
		SHEET 1 OF 5			
DRAWN: AMOROS/QUERALT	DATE: 020208	REPLACES:		DRW. NO. 33.0119.02.00	REV.
CHECKED:	DATE:	REPLACED BY:		v/	



TITLE: PRINTED CIRCUIT 11.0550		MODEL: FAP 30		<div>ECLEREO</div> <div>LABORATORIO DE ELECTRO-ACUSTICA BARCELONA ESPAÑA</div>	
		SHEET 4 OF 5			
DRAWN: AMOROS/QUERALT	DATE: 25.05.95	REPLACES:		DRW. NO.	REV.
CHECKED:	DATE:	REPLACED BY:		33.0117R/ T	




TITLE: PRINTED CIRCUIT 11.0550		MODEL: FAP30L		ECLERO LABORATORIO DE ELECTRO-ACUSTICA BARCELONA ESPANA	
		SHEET 4 OF 5			
DRAWN: AMOROS/QUERALT	DATE: 25.05.95	REPLACES:		DRW. NO.	REV.
CHECKED:	DATE:	REPLACED BY:		33.0117.01.01 V/	



TITLE: PRINTED CIRCUIT 11.0550		MODEL: FAP 30 L		<div>ECLER</div> <div>LABORATORIO DE ELECTRO-ACUSTICA BARCELONA ESPANA</div>	
		SHEET 3 OF 5			
DRAWN: AMOROS/QUERALT	DATE: 25.05.95	REPLACES:		DRW. NO.	REV.
CHECKED:	DATE:	REPLACED BY:		33.0116 R/	



TITLE: PRINTED CIRCUIT 11.0550		MODEL: FAP 30 L	 LABORATORIO DE ELECTRO-ACUSTICA BARCELONA ESPANA	
		SHEET 3 OF 5		
DRAWN: AMOROS/QUERALT	DATE: 25.05.95	REPLACES:	DRW. NO. 33.0116	REV.
CHECKED:	DATE:	REPLACED BY:	V/	

PARST LIST:
MODEL FAP30L
DATE: 250595

PRINTED CIRCUIT 11.0550
DWR Nº 33.0116&33.0117PL REV:
SHEET 1 OF 2 REPLACED BY:

REFERENCIA

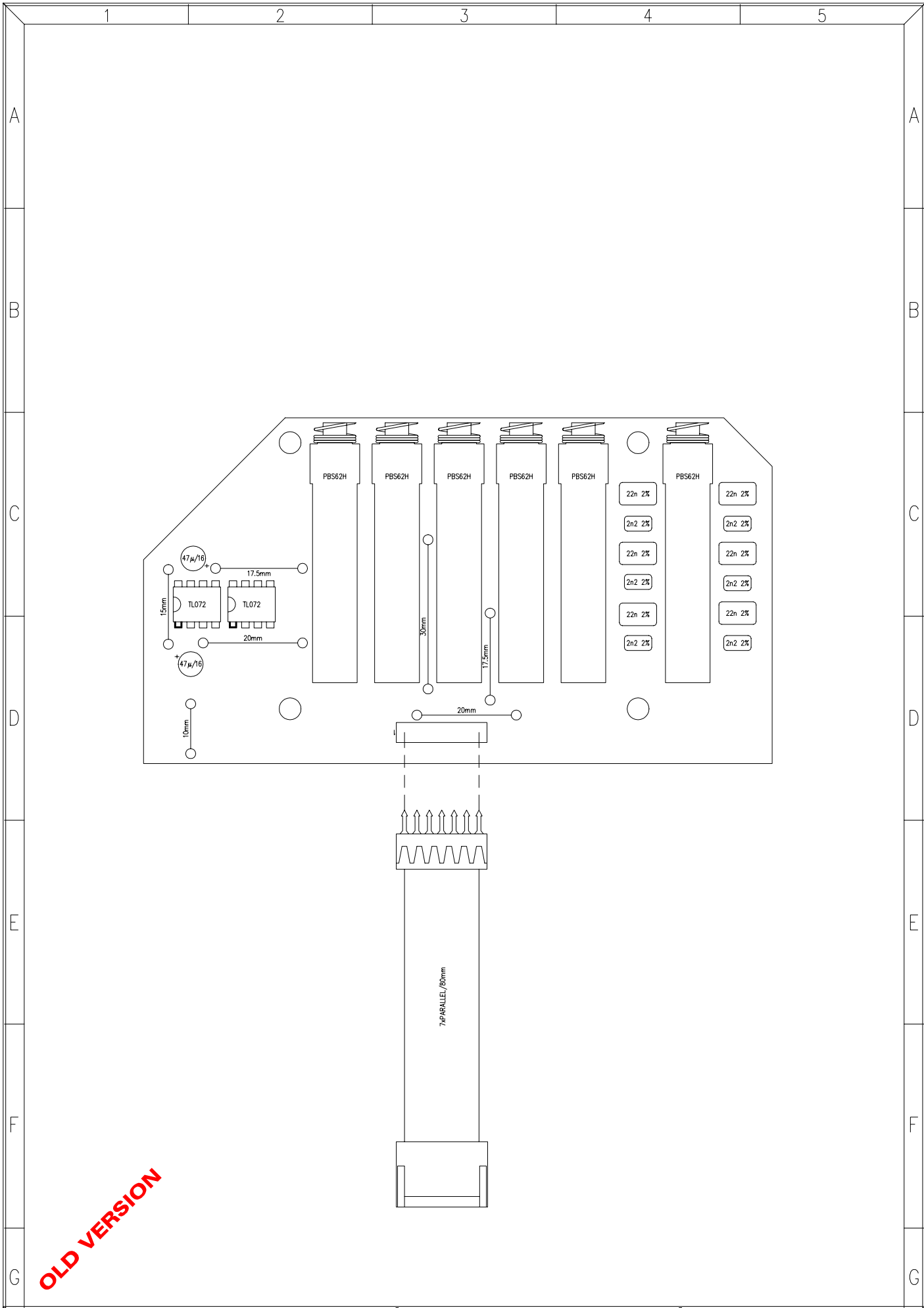
VALOR

11.0550	PRINTED CIRCUIT
C101	22n 2%
C102	2n2 2%
C103	2n2 2%
C104	22n 2%
C105	33p
C106	2n2 2%
C107	22n 2%
C108	2n2 2%
C109	22n 2%
C110	2n2 2%
C111	22n 2%
C112	33p
C113	2n2 2%
C114	22n 2%
C115	47µ/16
C116	47µ/16
C117	100n
C118	100n
IC101	TL072
IC102	TL072
R101	MF287k
R102	MF143k
R103	MF71k5
R104	MF36k5
R105	MF18k2
R106	MF287k
R107	MF143k
R108	MF71k5
R109	MF36k5
R110	MF18k2
R111	MF23k7
R112	MF23k7
R113	MF287k
R114	MF143k
R115	MF71k5
R116	MF36k5
R117	MF18k2
R118	MF287k
R119	MF143k
R120	MF71k5
R121	MF36k5
R122	MF18k2
R123	MF287k
R124	MF143k
R125	MF71k5
R126	MF36k5
R127	MF18k2
R128	MF287k
R129	MF143k
R130	MF71k5
R131	MF36k5
R132	MF18k2
R133	MF23k7
R134	MF23k7
S101	PBS62H

PARST LIST:
MODEL FAP30L
DATE: 250595

PRINTED CIRCUIT 11.0550
DWR N° 33.0116&33.0117PL REV:
SHEET 2 OF 2 REPLACED BY:

REFERENCIA	VALOR
S102	PBS62H
S103	PBS62H
S104	PBS62H
S105	PBS62H
S106	PBS62H
TS101	WIRE
W101	20mm
W102	10mm
W103	15mm
W104	20mm
W105	30mm
W106	17.5mm
W107	17.5mm



TITLE: PRINTED CIRCUIT 11.0550		MODEL: FAP 30		<div>ECLEREO</div> <div>LABORATORIO DE ELECTRO-ACUSTICA BARCELONA ESPAÑA</div>	
		SHEET 4 OF 5			
DRAWN: AMOROS/QUERALT	DATE: 25.05.95	REPLACES:		DRW. NO.	REV.
CHECKED:	DATE:	REPLACED BY:		33.0117 V/	

FAP30 / FAP30L — VERIFICATION RULES

PRELIMINARY

- Visual inspection and insertion of the mains fuse.
- Check GROUND LINK operation (leave it at the ON position).
- Plug to mains. Check the switch light is lit up at the ON position.
- Place all faders at their center points.
- For FAP30L: All buttons at the OFF position and the THRESHOLD trimmers at their minimum of -15dB.
- Subsonic switch at the OFF position.
- 2ways (3ways) buttons at the 2W position. (Make sure the corresponding LED is lit up at the front).

BALANCED OUTPUTS ADJUSTMENT

- Inject a balanced 1 KHz / 0 dB signal at the CHANNEL I input.

- LOW PASS output adjustment

- Select a much higher frequency, for instance 4000 Hz (x 10 - ON ; 400 Hz - ON); all other buttons at the OFF position.
- Now trim R154, R322 until both signals have a - 6 dB output level, approximately.
- Check that level faders operate correctly (- ∞, 0, + 6 dB).
- Verify that the Clip LED is lit up when there's about + 17 dB at the output.
- Make sure the CMRR is > 50 dB (100 Hz - 1 KHz).

- HIGH PASS output adjustment

- Select a much lower frequency, for instance 100 Hz (x 10 - OFF; 100 Hz - ON); all other buttons at the OFF position.
- Now trim R224, R262 until both signals have a - 6 dB output level, approximately as before.
- Check that level faders operate correctly (- ∞, 0, + 6 dB).
- Verify that the Clip LED is lit up when there's about + 17 dB at the output.
- Make sure the CMRR is > 50 dB (100 Hz - 1 KHz).

SUBSONIC 25Hz

- Check for a correct operation on both channels.
 - Select a higher frequency than 25 Hz for both channels, for instance 400 Hz.
 - Inject a 0 dB / 25 Hz signal at the input.
 - Watch out for the output; it must be 0 dB. Switch the subsonic ON; it must lower the volume by 3 dB.
- Make sure it does not affect any frequencies higher than 60 Hz and that those lower than 10 Hz fall about 25 dB.
- Leave the filter back at the OFF position.

LOW PASS AND HIGH PASS FILTER

- Select a frequency higher than 25 Hz (through the rear panel switches), for both channels.
- Inject a 0 dB / 25 Hz signal at the input.
- Check you get a level 3 dB lower than nominal at the corresponding output.
- Check that the signal practically disappears for frequencies higher than the selected one and that it gets these 3 dB higher for those lower (The High Pass filter operates the other way round; higher frequencies go up these 3 dB and lower ones get cut).

Repeat this procedure for each of the selected frequencies and check their good operation, taking into account that they can overlap each other. E. g. if you push / hold the 400 Hz + 200 Hz buttons you get a H.P. or L. P. filter of 600 Hz as a result (depending on how the output is assigned) and so on as to get all possible combinations. Checking one of them is enough.

- Verify that the x 10 button operates correctly by, in fact, multiplying the selected frequency by ten. (Check this on both channels just for one of the frequencies; it should be enough).

BAND PASS VERIFICATION

- Place the 2ways (3ways) button at the 3ways position.
- Check the corresponding LED is lit at the front (3 W).
- Inject a signal through channel I, for instance a 0 dB / 1 KHz one.
- Select two frequencies among which the band pass filter will be set; e. g. 400 Hz for high pass (channel I) and 4000 Hz for low pass (channel II).
- The output will be through channel II (low pass)
- Check the output is the same as the input into the band and the response falls 3 dB at the extremes.
- Verify the high pass level filter (channel I) operates over this output, from $-\infty$ to + 6 dB.
- The corresponding Clip LED in this case, as well as for the limiting circuit, is the one pertaining to CHANNEL II (LOW).
- The L.P. channel I operates as usual.
- The H.P. output belongs to channel II.

LIMITER

Trigger Threshold

Channel I and II low pass.

- Level fader at center.
- THRESHOLD fader at - 15 dB.
- LIMITER button at ON.
- Signal level at - 20 dB / 1 KHz (balanced).
- Frequency selection button; 400 Hz at ON.
- Multiplying button; x 10 at ON.
- Check the corresponding output for about a - 20 dB level.
- The LIMITER LED must not be lit up.
- Turn up the generator level up until the CLIP / LIMITER LED is lit up; verify that from this point on, (approx. - 14 dB input level) the output signal remains practically the same, no matter how high the input level gets (30:1 compression ratio). Check that when the input goes 30 dB higher, the output does not exceed 1 dB \pm 0.5 dB.
- Trim the trigger threshold with THRESHOLD., for instance at 0 dB. Check it operates again correctly, as in the previous case. Do the same for + 15 dB. If you have not got enough level for the compressor to operate, you can turn its input level through the corresponding fader.
- For high pass I and II, do the same as before, only just changing the multiplying button position, which must be at OFF.

ATTACK / RELEASE TIMES VERIFICATION

Attack time: the time elapsed from when a signal with enough level to make the limiter operate appears to when it actually compresses the output to the preset level. It is usually measured in milliseconds.

Release time: the time elapsed from when a limiter stops operating to when the signal reaches again its corresponding level.

In order to be able to measure attack time, an oscilloscope with digital memory is needed.

PROCEDURE

These times relate to the input signal, so we will match with 0 dB.

Channel I and II low pass. (Attack time).

- LIMITER button at ON.
- Generator at OFF or standby.
- Select -15 dB though THRESHOLD, for instance.
- Input level: 0 dB / 1KHz.
- 400 Hz button at ON.
- Multiplying button at x 10 / ON.
- Oscilloscope at store position, time base 2 ms / DIV. wide .5 V / DIV.
- Millivoltmeter at 0 dB.
- SINGLE oscilloscope at ON.
- Press oscilloscope reset.
- Place the generator at ON.
- Watch the oscilloscope signal; there must be some cycles at 0 dB before compression and their time should be ≈ 25 ms (With the J111, J113 MINI-JUMPER bridged it could half this time ≈ 12 ms).
Measure this up whenever the output level falls 3 dB from nominal level.
- Repeat several times and check it is always similar. Wait for a few moments between readings to be sure the capacitors are completely discharged or make the discharge manually by shortcircuiting the extremes of the 100 μ / 25 condenser.
- Leave the generator at OFF.
- Repeat the process for channel II.
- For channel I and II high pass. Repeat the same as in the previous case, but now the x 10 multiplying button must be at OFF.

Channel I and II low pass. (Release time)

- Generator at the ON position.
 - THRESHOLD at - 15 dB.
 - Input level at 0 dB.
 - 400 Hz button at ON.
 - Multiplying button: x 10 position at ON.
 - Oscilloscope at store position, time base 2 s / DIV, wide .5 V / DIV.
 - Millivoltmeter at 0 dB.
 - SINGLE at ON.
 - Press oscilloscope reset.
 - Place LIMITER button at OFF.
 - Watch how the signal grows progressively until it reaches 0 dB, after ≈ 10 sec (With the J110, J112 MINI-JUMPER bridged, the time must half of this ≈ 5 sec).
 - Repeat the same for channel II.
 - For channel I and II highpass: Repeat the same procedure, only changing the multiplying button x 10; now it must be at OFF.
- OP

FAP30L QUALITY CONTROL

Have a look at mechanical parts to detect any possible surface scratches, verify that all of the screws are well-tightened and scratchless. Also, look at the general mixer overview.

Perform a background noise test for input and outputs, drop the device over the table and make sure you do not listen to any additional noise over the background's due to contact failure.

Verify input and outputs while you play some music, checking all controls for good operation. Make sure there is an overall good sound quality (free of distortions and noises).

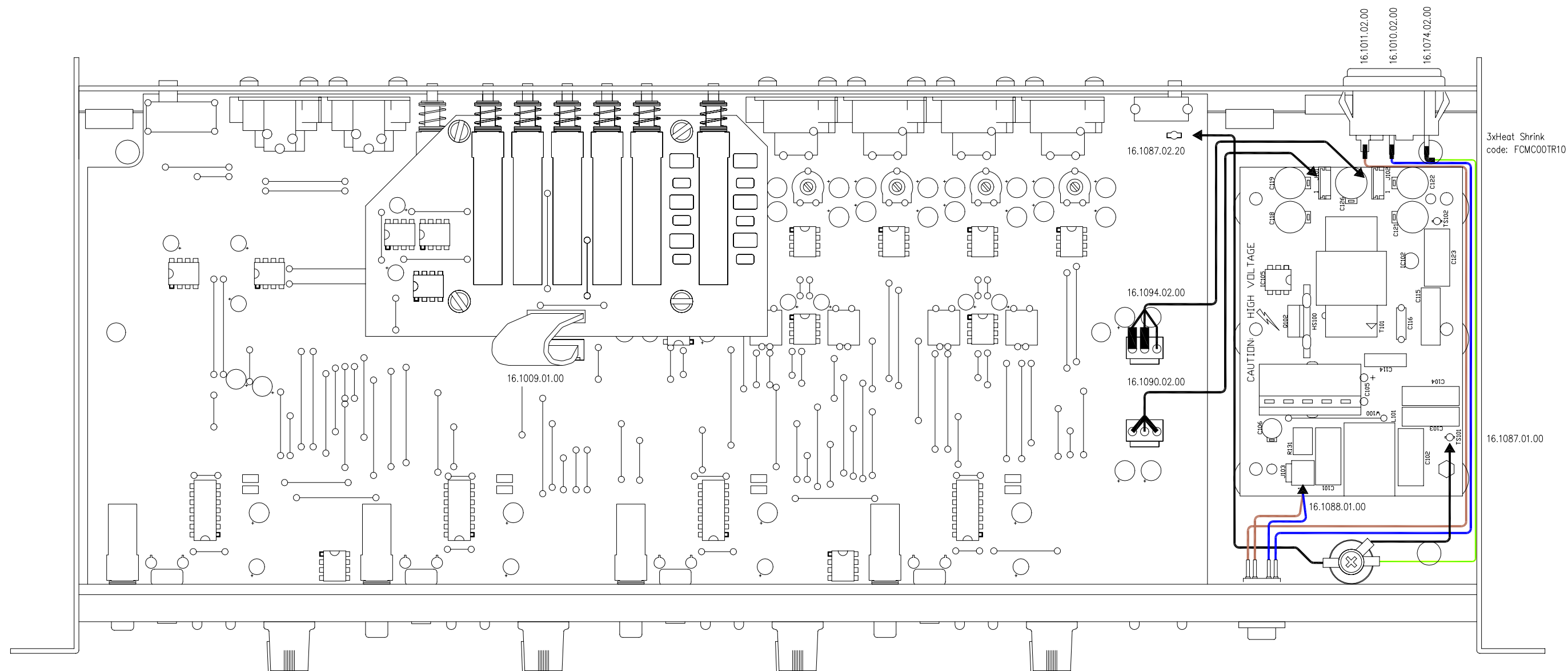
TECHNICAL CHARACTERISTICS

Inputs	Sensitivity/Impedance	0dBV/47k Ω
Outputs Level/Minimum Load		0dBV/600 Ω
Gain		6dB
CMRR		>60 dB @ 1kHz
Frequency response		10Hz-45kHz \pm 1dB
Harmonic distortion		<0.03%
Signal-noise ratio		>95dB
Indicators		at -3dB from clip (+17dBV)
Filters slope		18dB/octave. Filter type Butterworth.
Frequency Selector		25,50,100,200,400Hz or 250,500,1000,2000,4000Hz possibility to obtain further crossover frequencies by combining the above given frequencies.
Power requirements		110,120,220,230,240 Vac(*) 50/60Hz
Power consumption		13,5 VA
Dimensions		Panel 482.6X44mm Depth 182mm
Weight		2,7kg

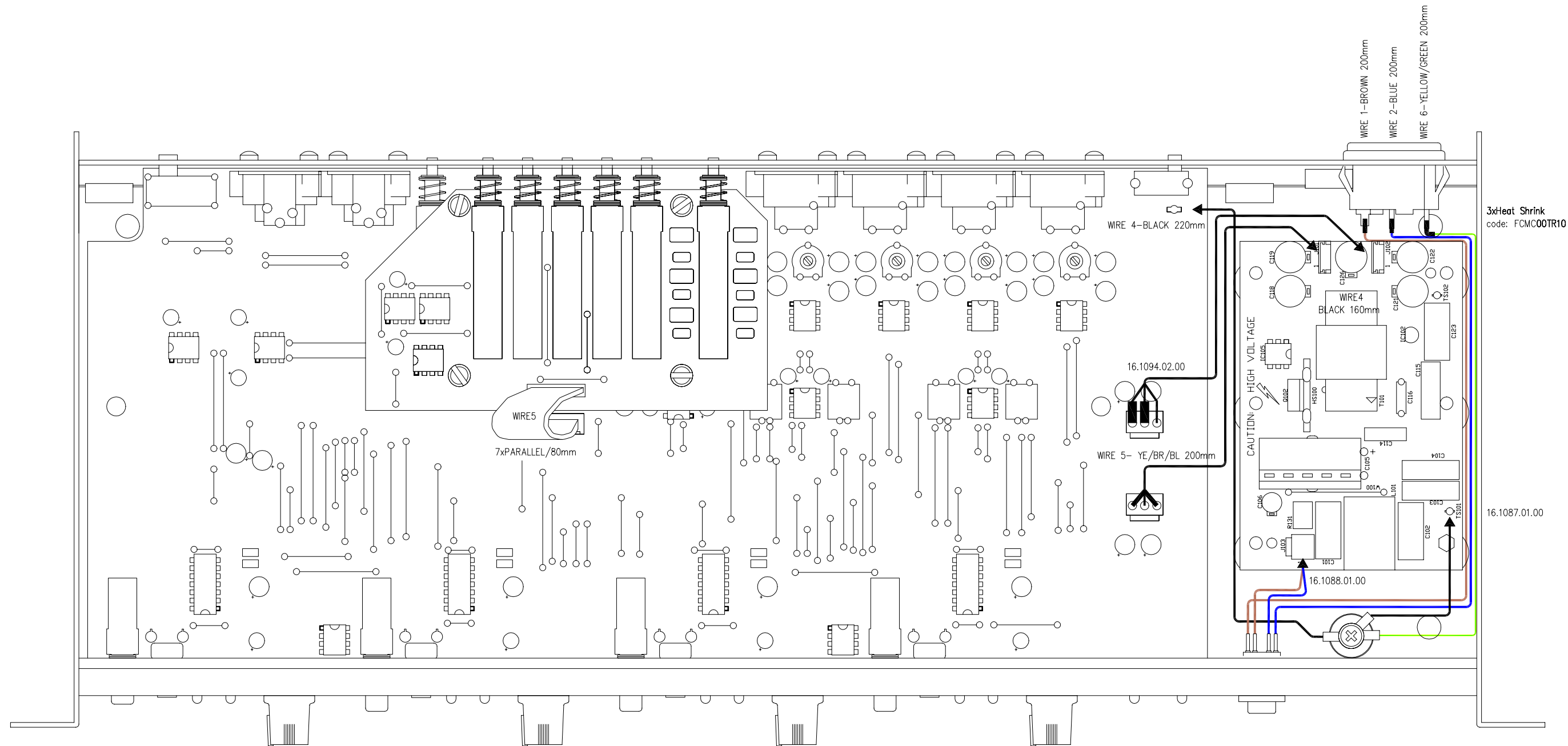
LIMITER

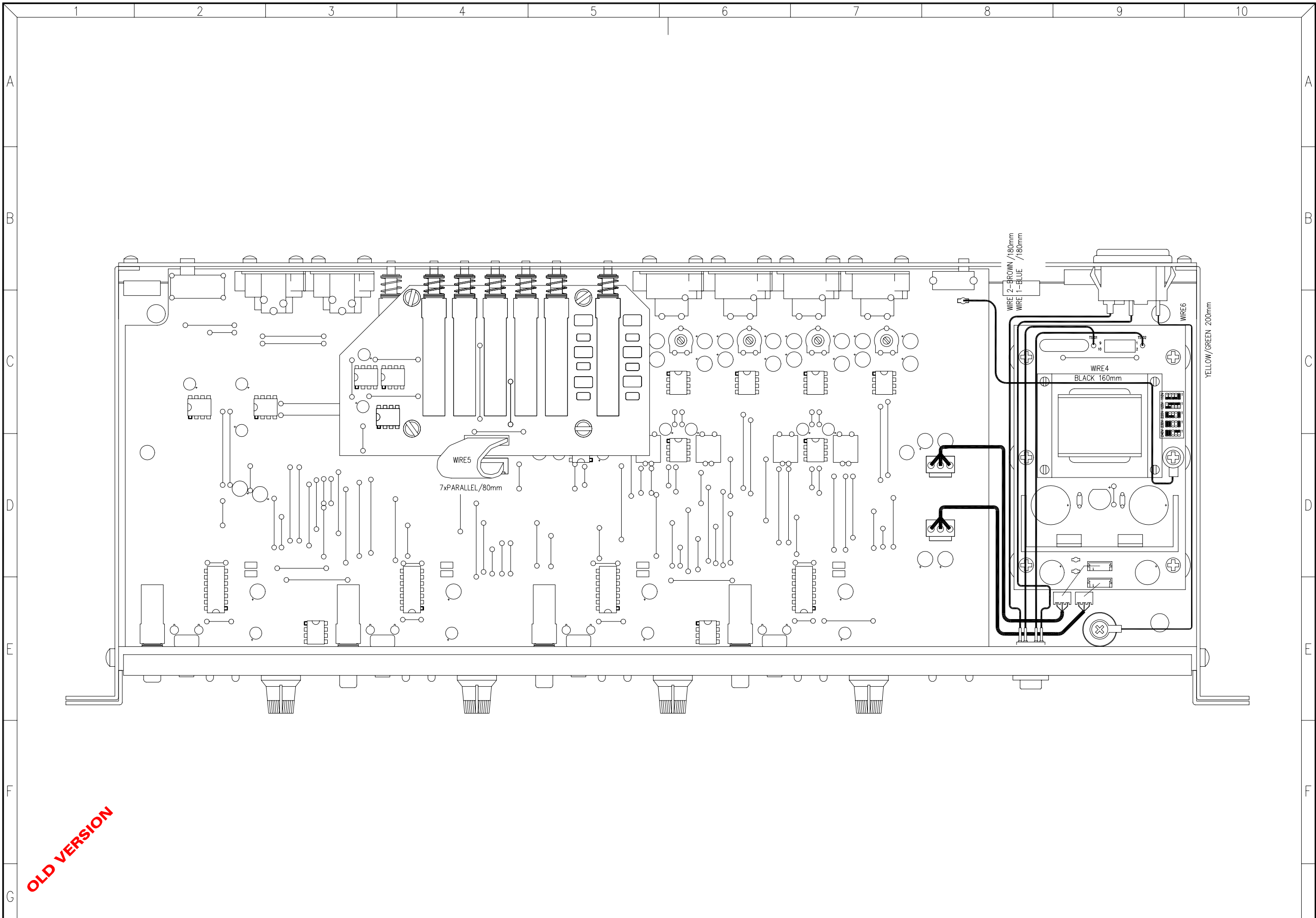
Threshold	-15 @ +15dBV (continously adjustable)
Compression ratio	Typical 30:1
Attack time (*)	Typical 14(7)ms*
Release time (*)	Typical 5(2.5)s*
Limiter actuation L.E.D.	

(*) internally selectable



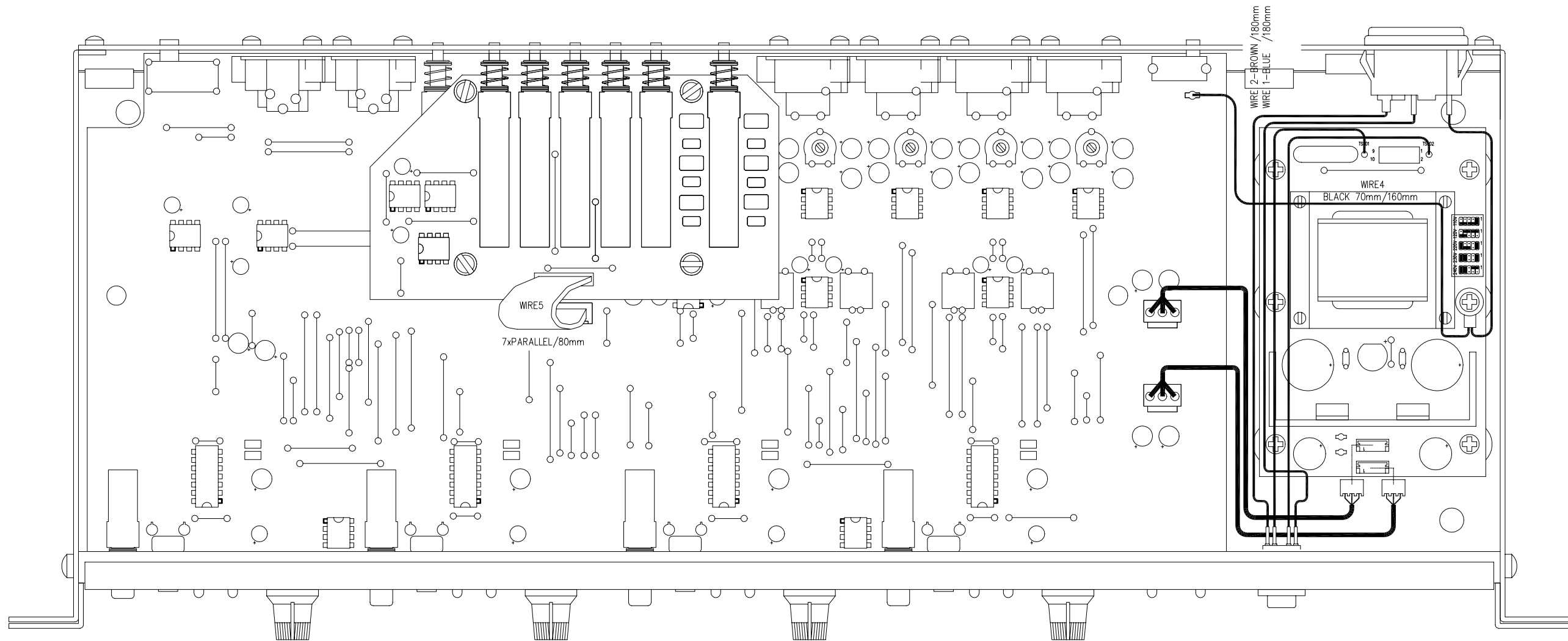
OLD VERSION



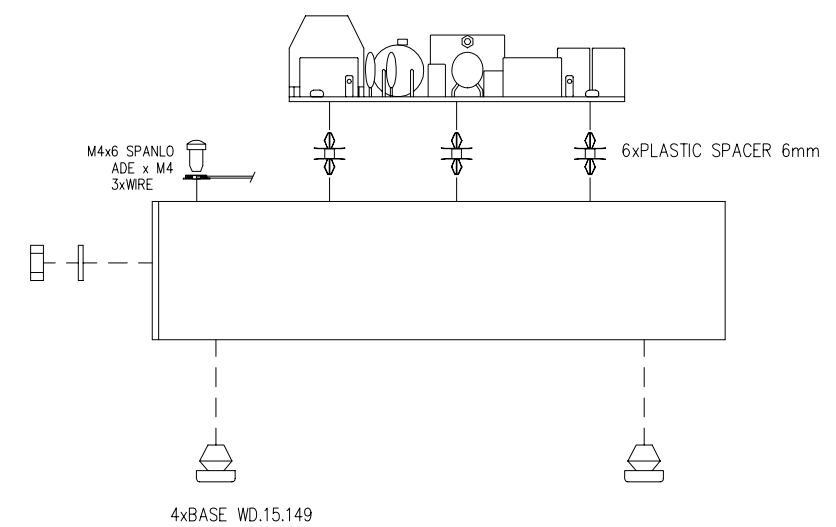
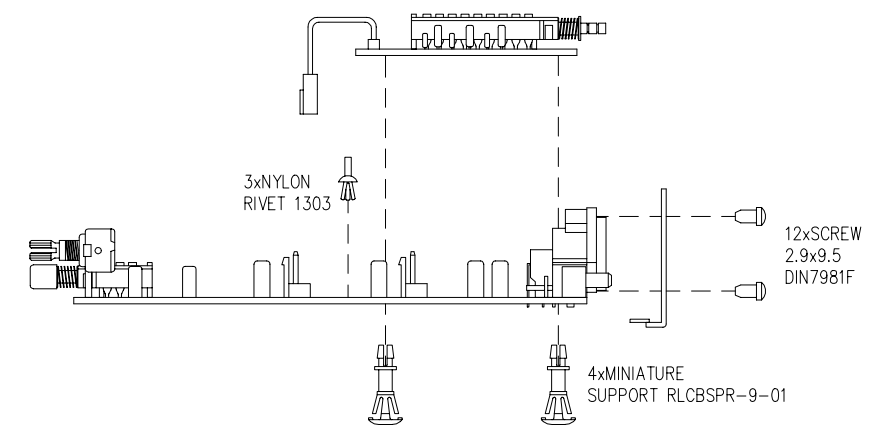
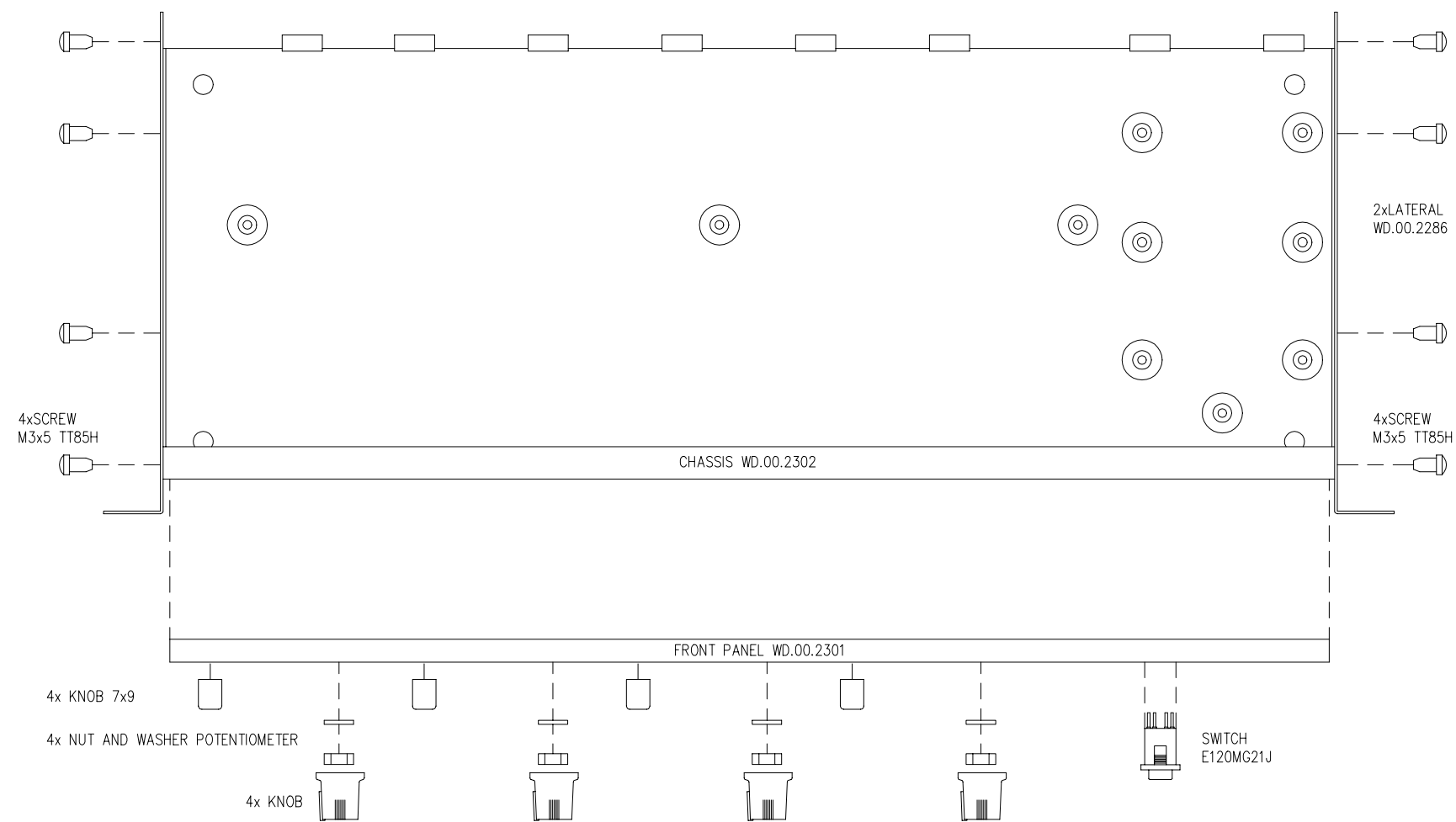
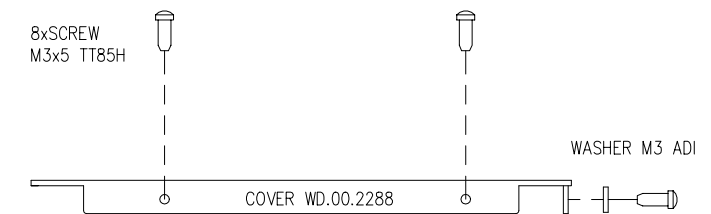
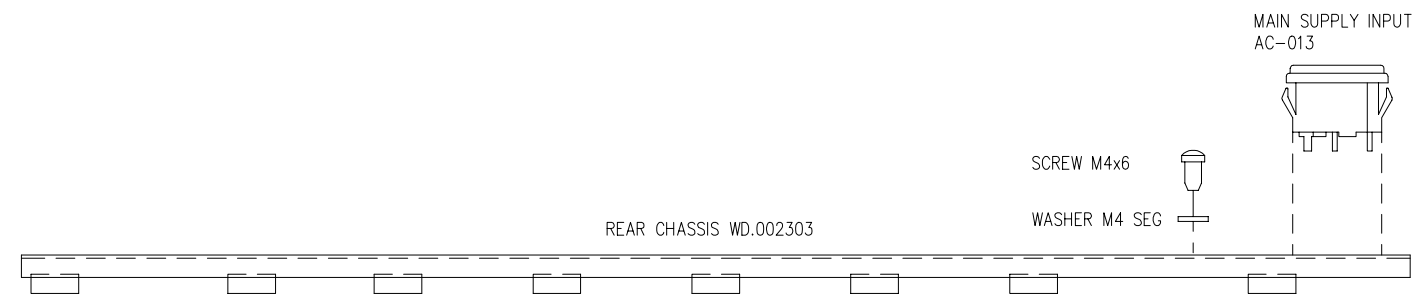


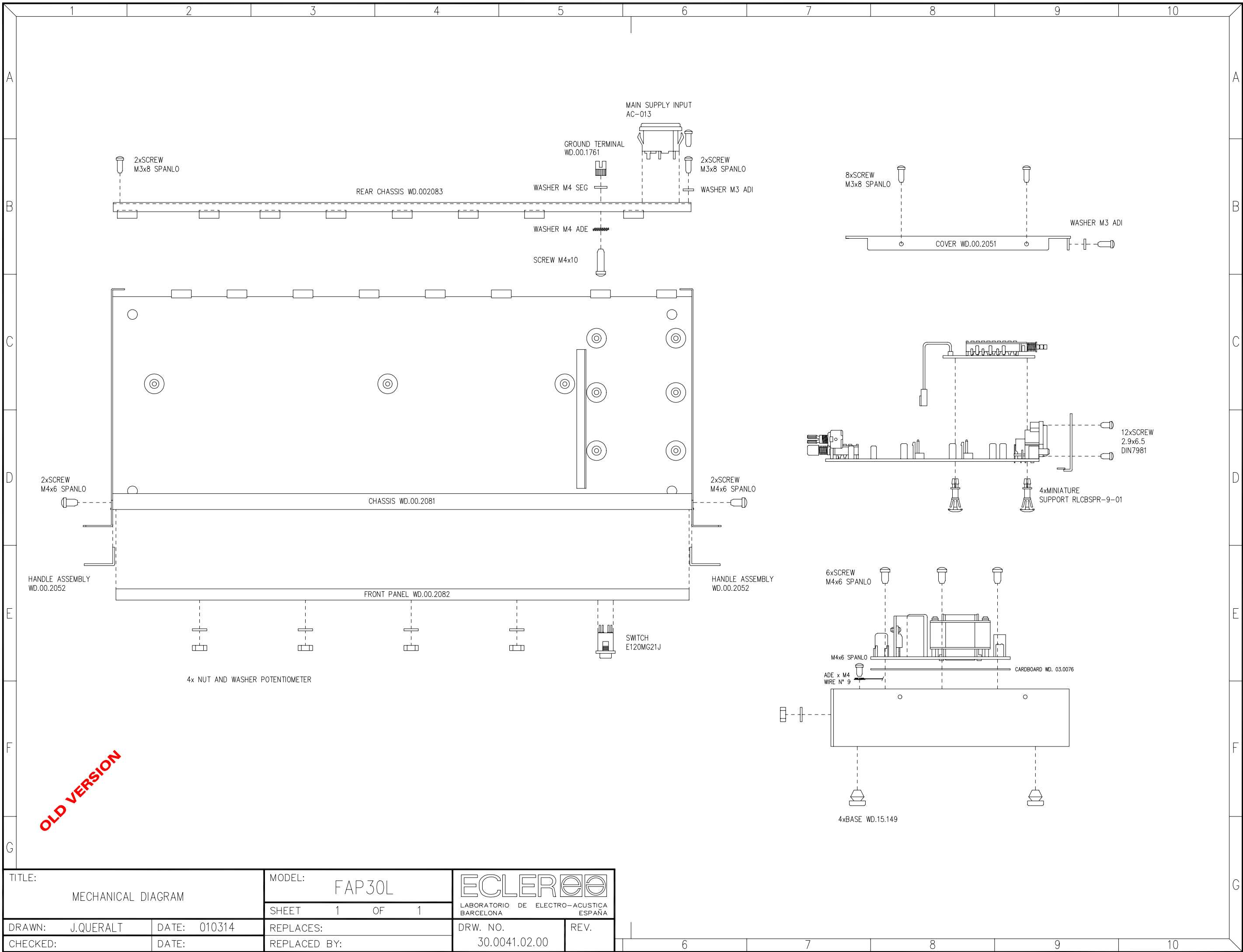
TITLE: WIRING DIAGRAM		MODEL: FAP30		<div>ECLEREO</div> <div>LABORATORIO DE ELECTRO-ACUSTICA ESPAÑA</div>	
		SHEET 1 OF 1			
DRAWN: J.QUERALT	DATE: 010314	REPLACES:		DRW. NO.	REV.
CHECKED:	DATE:	REPLACED BY:		31.0026.02.00	

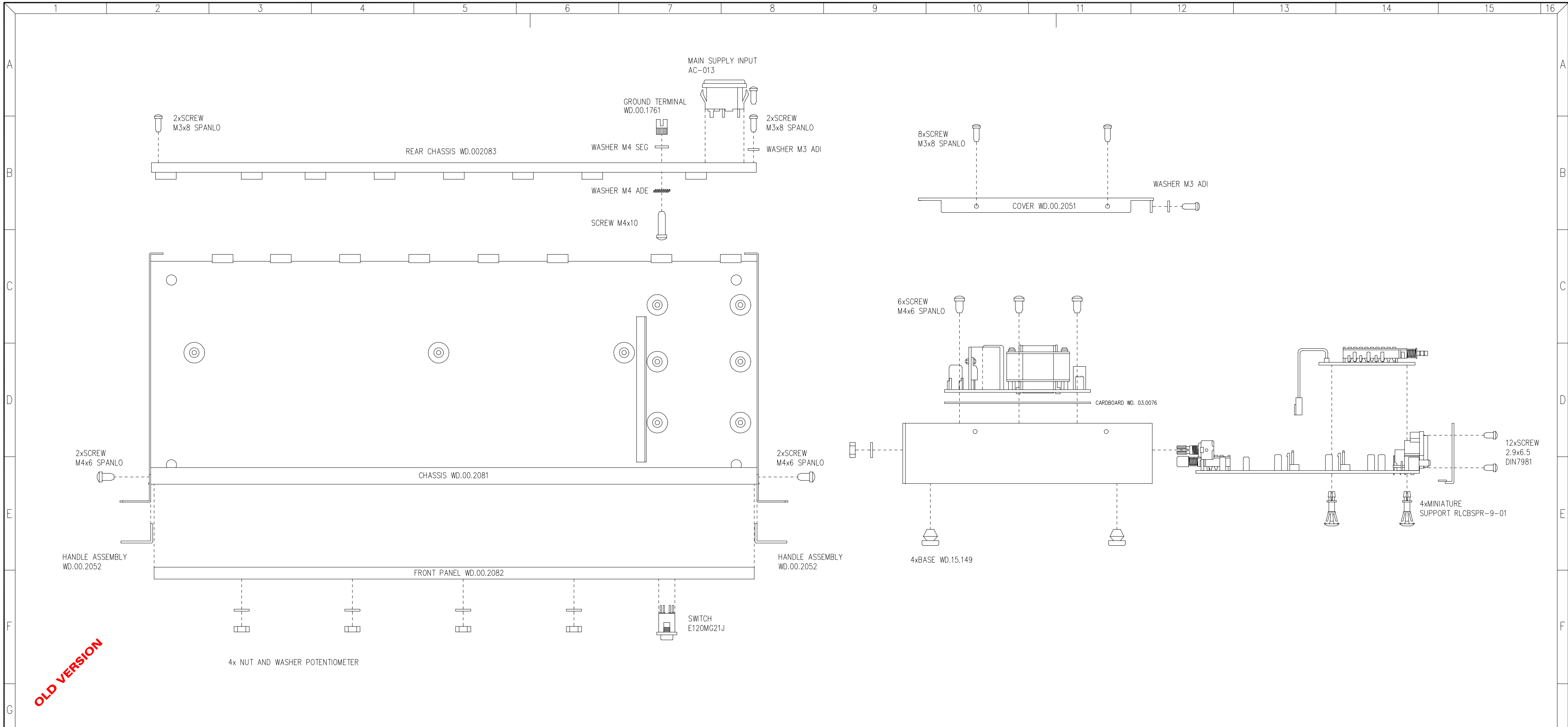
OLD VERSION




TITLE: WIRING DIAGRAM		MODEL: FAP30		<div>ECLER</div> <div>LABORATORIO DE ELECTRO-ACUSTICA BARCELONA ESPAÑA</div>	
		SHEET 1 OF 1			
DRAWN: J.QUERALT	DATE: 08.06.95	REPLACES:		DRW. NO.	REV.
CHECKED:	DATE:	REPLACED BY:		31.0026	A







OLD VERSION

TITLE: MECHANICAL DIAGRAM		MODEL: FAP30L		 LABORATORIO DE ELECTRO-ACÚSTICA BARCELONA ESPAÑA	
		SHEET 1 OF 1			
DRAWN:	J.QUERALT	DATE:	09.06.95	REPLACES:	DRW. NO. 30.0041
CHECKED:		DATE:		REPLACED BY:	

PARST LIST:
MODEL FAP30L
DATE: 310595

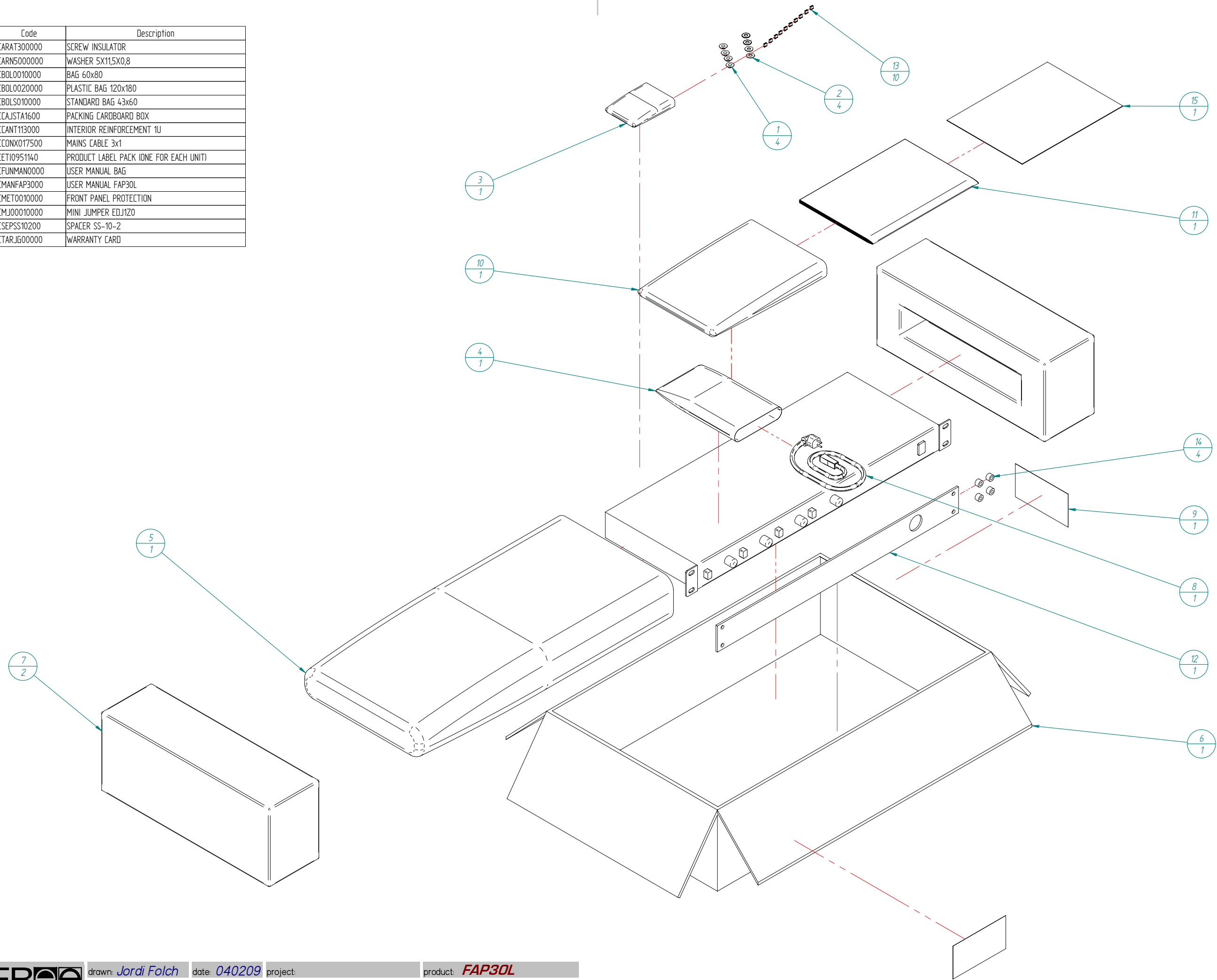
MECHANICAL DIAGRAM
DWR N° 30.0041PL
SHEET 1 OF 1

REV:
REPLACED BY:

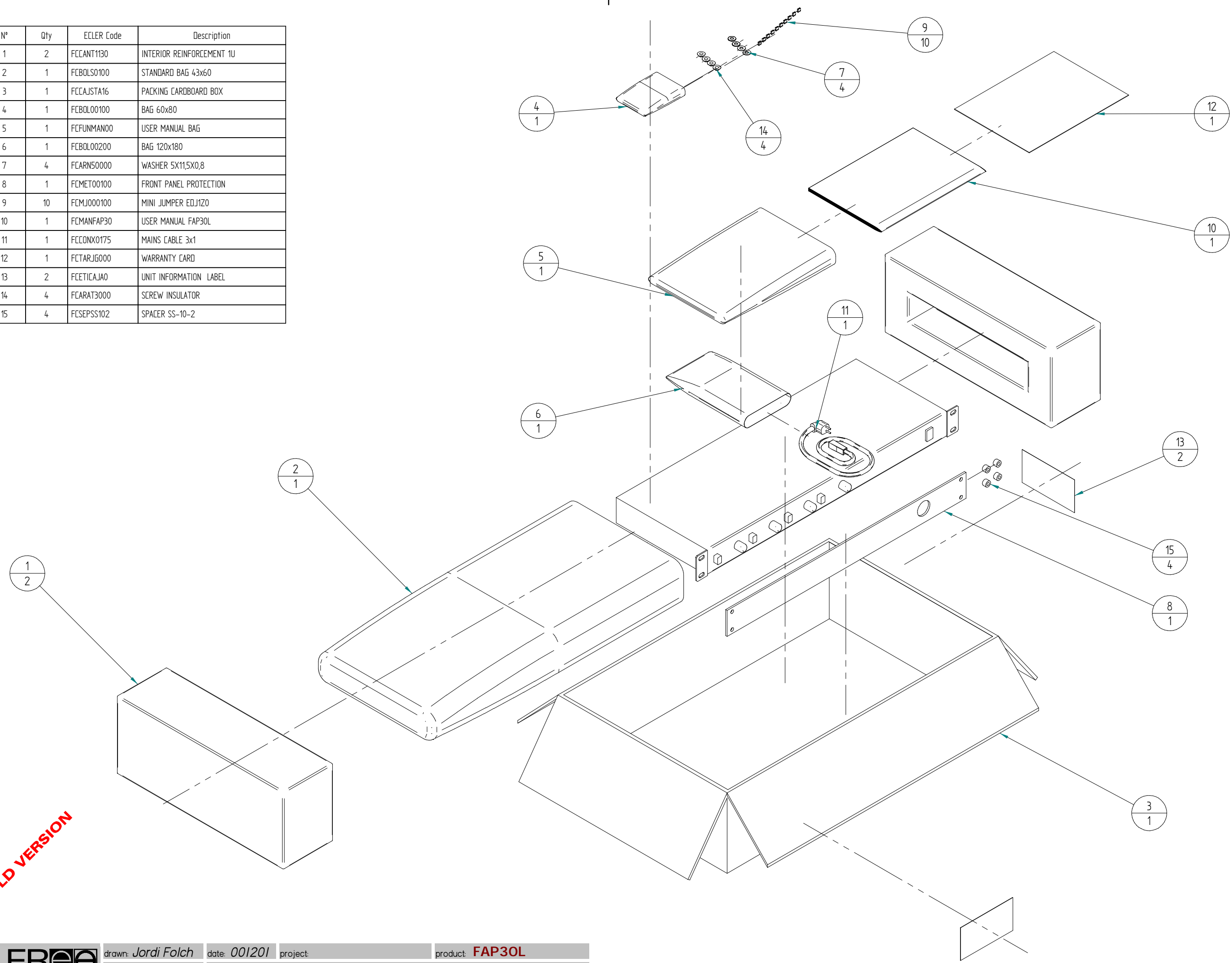
QUANTITY	VALUE
12	SCREW M3x8 SPANLO
7	SCREW M4x6 SPANLO BLACK
2	SCREW M4x6 SPANLO WHITE
12	SCREW 2.9x6.5 DIN7981
4	NUT AND WASHER POTENTIOMETER
1	WASHER M4
2	WASHER M3 ADI
4	MINIATURE SUPPORT RLCBSPR-9-01
1	MAIN SUPPLY INPUT AC-013
1	CHASSIS WD.00.2081
1	FRONT PANEL WD.002082
2	HANDLE ASSEMBLY WD.002052
1	REAR CHASSIS WD.002083
1	SWITCH E120MG21J
4	BASE WD.15149
1	COVER WD.002051

OLD VERSION

Nº	Qty	Code	Description
1	4	FCARAT300000	SCREW INSULATOR
2	4	FCARN5000000	WASHER 5X11,5X0,8
3	1	FCBOL0010000	BAG 60x80
4	1	FCBOL0020000	PLASTIC BAG 120x180
5	1	FCBOLS010000	STANDARD BAG 43x60
6	1	FCCAISTA1600	PACKING CARDBOARD BOX
7	2	FCCANT113000	INTERIOR REINFORCEMENT 1U
8	1	FCCONX017500	MAINS CABLE 3x1
9	1	FEETI0951140	PRODUCT LABEL PACK (ONE FOR EACH UNIT)
10	1	FCFUNMAN0000	USER MANUAL BAG
11	1	FCMANFAP3000	USER MANUAL FAP30L
12	1	FCMET0010000	FRONT PANEL PROTECTION
13	10	FCMJ00010000	MINI JUMPER EDJ1Z0
14	4	FCSEPSS10200	SPACER SS-10-2
15	1	FCTARJG00000	WARRANTY CARD



N°	Qty	ECLER Code	Description
1	2	FCCANT1130	INTERIOR REINFORCEMENT 1U
2	1	FCBOLS0100	STANDARD BAG 43x60
3	1	FCCAJSTA16	PACKING CARDBOARD BOX
4	1	FCBOL00100	BAG 60x80
5	1	FCFUNMAN00	USER MANUAL BAG
6	1	FCBOL00200	BAG 120x180
7	4	FCARN50000	WASHER 5X11,5X0,8
8	1	FCMET00100	FRONT PANEL PROTECTION
9	10	FCMJ000100	MINI JUMPER EDJ120
10	1	FCMANFAP30	USER MANUAL FAP30L
11	1	FCCONX0175	MAINS CABLE 3x1
12	1	FCTARJG000	WARRANTY CARD
13	2	FCETICAJA0	UNIT INFORMATION LABEL
14	4	FCARAT3000	SCREW INSULATOR
15	4	FCSEPPSS102	SPACER SS-10-2



OLD VERSION

- 1 - BAG WITH ACCESSORIES
2 - MANUAL & WARRANTY CARD
3 - PROGRAMMABLE ACTIVE FILTER FAP30
4 - STANDARD BAG 43x60
5 - POLYURETHANE PROTECTING M872/1
6 - STANDARD BOX 135x360x535mm
7 - MANUAL BAG 21.5x32.5

OLD VERSION

TITLE: PACKING DIAGRAM		MODEL: FAP30		<div>ECLER</div> <div>LABORATORIO DE ELECTRO-ACUSTICA BARCELONA ESPAÑA</div>	
		SHEET 1 OF 1			
DRAWN: J.QUERALT	DATE: 09.06.95	REPLACES:		DRW. NO.	REV.
CHECKED:	DATE:	REPLACED BY:		32.0013	

PARST LIST:
MODEL FAP30L
DATE: 090695

PACKING DIAGRAM
DWR N° 32.0013PL
SHEET 1 OF 1

REV:
REPLACED BY:

QUANTITY	VALUE
4	METAL WASHER 5x11.5x0.8
4	WASHER AT 5x11.5x3.5 ABS BLACK
8	MINI JUMPER EDJ1ZO
1	STANDARD BOX 135x360x535mm
2	POLYURETHANE PROTECTING M872/1
1	BAG FOR MANUAL 21.5x32.5
1	STANDARD BAG 43x60cm
1	MANUAL FAP30L
1	WARRANTY CARD

OLD VERSION