8.2 Limit sensors

Hall-sensors

NOTE ***When ordering the Hall-sensors specify the type of the sensor (e.g. UP/DOWN mechanism: Lift up sensor). There Hall-sensor cable assemblies of different length.***

NOTE ***The new Hall-sensor assembly must be installed in exactly same way as the old one. Incorrect cable routing may cause injury or harm to the unit.***

Always check the operation of the Hall-sensors after replacement in the Internal signal display mode. See instructions given in section “ADJUSTING SENSORS & SWITCHES” on page F-44. Adjust the sensors if needed.

Microswitches

NOTE ***The new Microswitch cable assembly must be installed in exactly same way as the old one. Incorrect cable routing may cause injury or harm to the unit.***

Always check the operation of the Microswitches after replacement in the Internal signal display mode. See instructions given in section “ADJUSTING SENSORS & SWITCHES” on page F-44. Adjust the switches if needed.

8.3 Lift motor rotation sensor replacement

a) Turn off the power. Remove the necessary covers, see instructions given in sections “Base covers” on page H-2, “Telescopic column covers” on page H-2 and “Stationary column covers” on page H-3.

b) Remove the Lift motor, see instructions given in section “Lift motor replacement” on page H-26.

NOTE ***Do not remove the Allen key from the new sensor before tightening the sensor to the lift motor.***

c) Pull the old sensor from the motor (Fig. H.27, 1). The base of the sensor and the pulse disk will remain on the motor. Remove the old pulse disk (Fig. H.27, 2).

d) If the sensor base moved when the sensor was removed, check its position with a special tool (Fig. H.27, 3). Tighten the screws of the sensor base if needed (Fig. H.27, 4).

e) Install the new sensor to the sensor base (Fig. H.27, 5). Fasten the sensor assembly with the Allen key which is in the new sensor. Check the sensor operation.

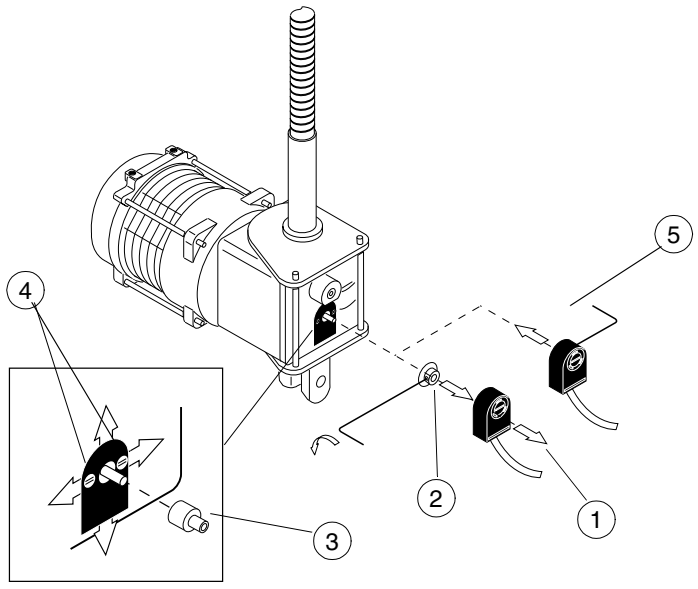


Figure H.27

8.4 C-arm motor rotation sensor replacement

a) Turn off the power. Remove the necessary covers, see instructions given in sections “Base covers” on page H-2, “Telescopic column covers” on page H-2, “Stationary column covers” on page H-3.

NOTE ***Do not remove the Allen key from the new sensor before tightening the sensor to the lift motor.***

b) Pull the old sensor from the motor (Fig. H.28, 1). The base of the sensor and the pulse disk will remain on the motor. Remove the old pulse disk (Fig. H.28, 2).

c) If the sensor base moved when the sensor was removed, check its position with a special tool (Fig. H.28, 3). Tighten the screws of the sensor base if needed (Fig. H.28, 4).

d) Place the new sensor to the sensor base (Fig. H.28, 5). Fasten the sensor assembly with the Allen key which is in the new sensor. Check the sensor operation.

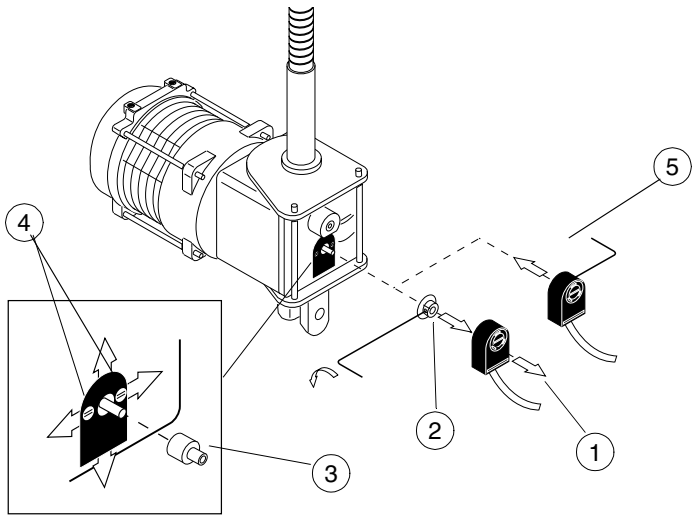


Figure H.28

8.5 MAG-motor rotation sensor replacement

a) Drive the C-arm to upright position. Turn off the power.

b) Remove the following C-arm covers: C-arm top, lower, vertical covers, Vertical cover support plate and the Right side panel, see instructions given in section “C-arm covers” on page H-4.

c) Disconnect the Mag-motor rotation sensor assembly connector from the Mag control PCB.

d) Unscrew the sensor screws and remove the sensor from the motor (Fig. H.29, 1)

e) Place the new sensor to its position and in the service mode check the sensor operation.

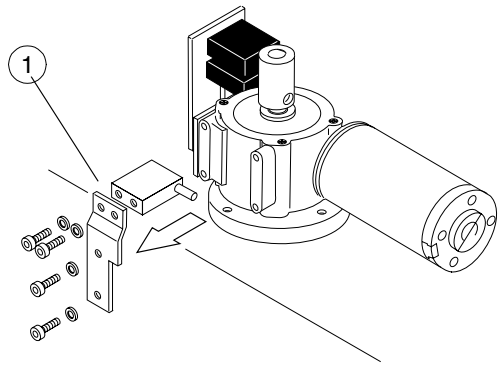


Figure H.29

9 MOTOR REPLACEMENT

9.1 Lift motor replacement

CAUTION ***The Lift motor replacement must be performed with extreme caution. The incorrectly performed Lift motor replacement can cause injury or damage.***

Preparations before replacement

a) Turn off the power.

b) Remove the necessary covers, see instructions given in section “REMOVING & REPLACING COVERS” on page H-1.

Lift motor is functional

a) Turn on the power. Place a wooden rod on the base (Fig. H.30, 1).

b) Drive the C-arm rotation motor **carefully** to hit the rod (Fig. H.30, 2). Turn off the power.

c) Unscrew the Lift motor worm screw nut’s screws (Fig. H.30, 3).

d) Unscrew the Lift motor screw and nut (Fig. H.30, 4).

e) Disconnect the Lift motor and the Pulse detector cables from the Base PCB (Fig. H.30, 5).

f) Replace a new motor in reverse order.

g) Enter the Service mode and select display of internal signal 5, see section “Diagnostic display of internal signals” on page C-10. Check that the motor is functional.

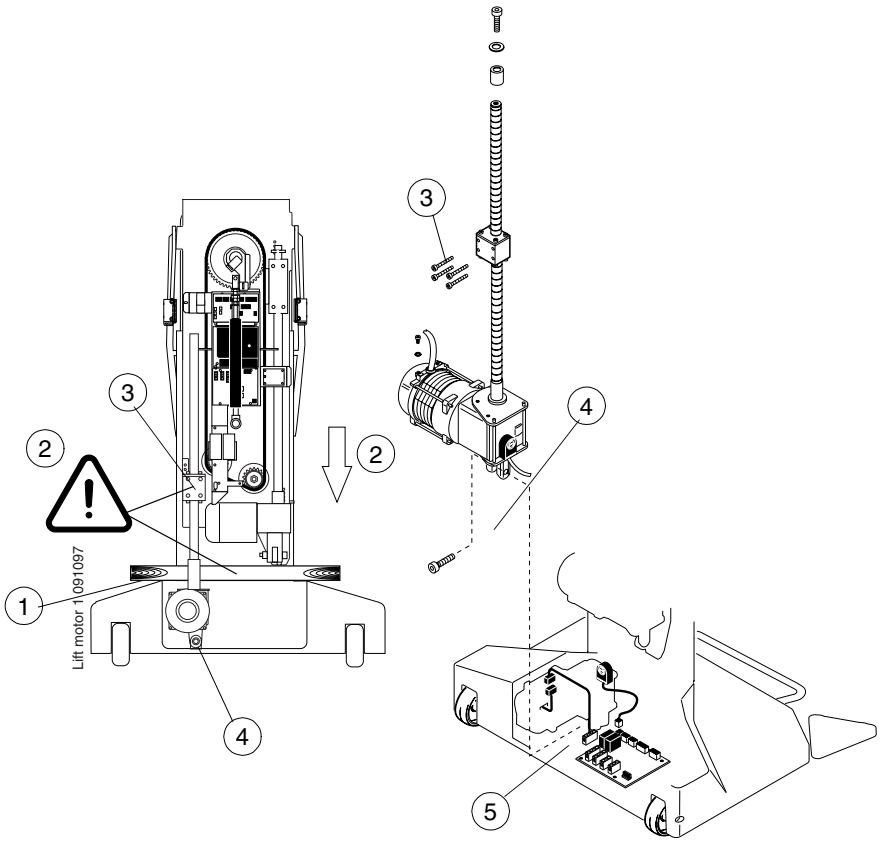


Figure H.30

Lift motor not functional

a) Place a board in right length between the C-arm rotation motor and the base (Fig. H.31, 1).

b) Unscrew the Lift motor worm screw nut's screws (Fig. H.31, 2).

c) Unscrew the Lift motor screw and nut (Fig. H.31, 3).

d) Disconnect the Lift motor and the Pulse detector cables from the Base PCB (Fig. H.31, 4).

e) Replace a new motor in reverse order.

f) Turn on the power.

g) Enter the Service mode and select display of internal signal 5, see section "Diagnostic display of internal signals" on page C-10. Check that the motor is functional.

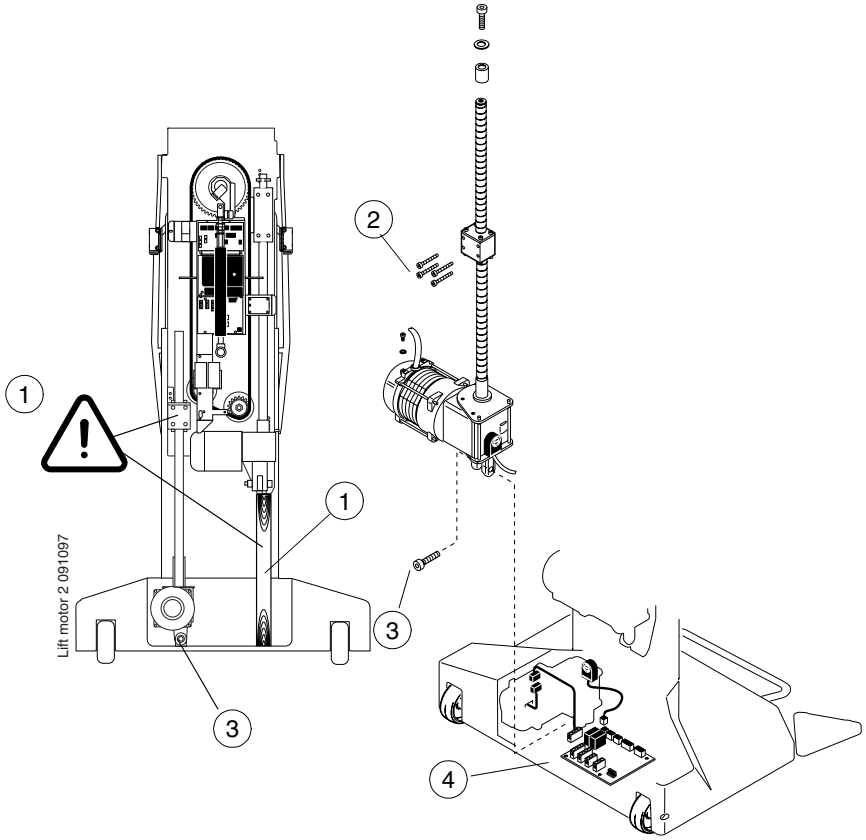


Figure H.31

9.2 C-arm rotation motor replacement

CAUTION ***Removing the motor causes the C-ARM to rotate freely. It must be supported before loosening the drive chain to prevent injuries or harm to the equipment***

CAUTION ***Protect yourself against electrical shock. The unit contains live parts on some PC-boards and connectors.***

Preparations before replacement

a) Drive the telescopic column to the highest position. Turn off the power.

b) Remove the necessary covers: base covers, stationary column covers, telescopic column covers and hood (see “REMOVING & REPLACING COVERS” on page H-1).

C-arm rotation motor is functional

NOTE ***See figures on section “C-arm rotation motor is not functional” on page H-29.***

CAUTION ***The C-arm must be in upright position when removing the gas-spring to prevent injuries or harm to the equipment.***

a) Remove the gas spring, follow the instructions given in section “GAS SPRING REPLACEMENT” on page H-38.

b) Turn on the power and in the service mode drive the unit to the -135° position. Turn off the power and wait for 2 minutes.

c) Support (you may need a helping hand) the C-arm at the tubehead while removing the four screws that fixes the chain to the worm-screw nut (see Fig. H.33).

d) Mark the place of the rotation lower detector assembly with a pen and remove it from the telescopic column (see Fig. H.34).

e) Remove the stopping collar of the worm-screw by opening the screw on the top of the worm screw (see Fig. H.34).

f) Unscrew the worm-screw nut by rotating the worm-screw with the clamp, or by driving the motor (see Fig. H.35).

g) Disconnect the cables from the motor.

h) Remove the screw that fixes the rotation motor to the telescopic column and remove the motor (see Fig. H.36).

C-arm rotation motor is not functional

a) Open the four bolts of the motor cover (Fig. H.32, 1) and remove the cover (Fig. H.32, 2).

b) Remove the stator (Fig. H.32, 3).

c) Remove the rotation sensor assembly (Fig. H.32, 4).

d) Open the pulse detector screw with the special Allen key (delivered with the rotation motor assembly) (Fig. H.32, 5).

e) Remove the rotor (Fig. H.32, 6).

f) Rotate the rotation motor worm-screw with 8 mm Allen key (Fig. H.32, 7) to move the C-arm to upright position. The gas spring (Fig. H.32, 8) can be removed in this position.

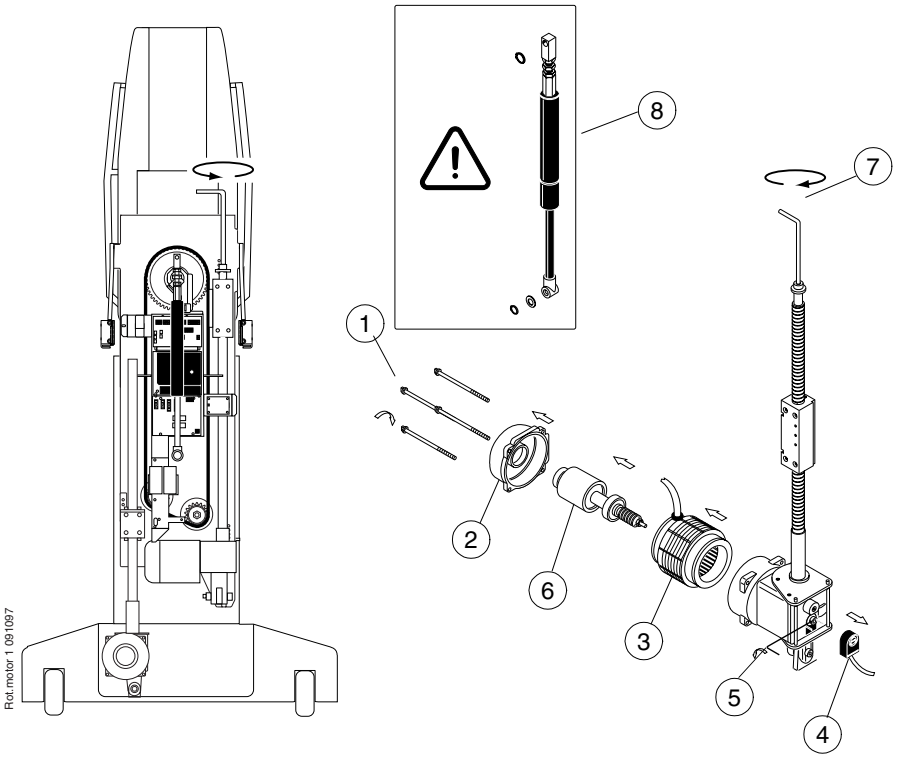


Figure H.32

CAUTION ***The C-arm must be in upright position when removing the gas-spring to prevent injuries or harm to the equipment.***

g) Remove the gas spring, follow the instructions given in section “GAS SPRING REPLACEMENT” on page H-38.

h) Rotate the worm-screw to move the C-arm to -135° position (Fig. H.33, 1).

i) Support (you may need a helping hand) the C-arm at the tubehead while removing the four screws that fixes the chain to the worm-screw nut (Fig. H.33, 2). Let the arm rotate slowly down so that the tubehead is towards the floor.

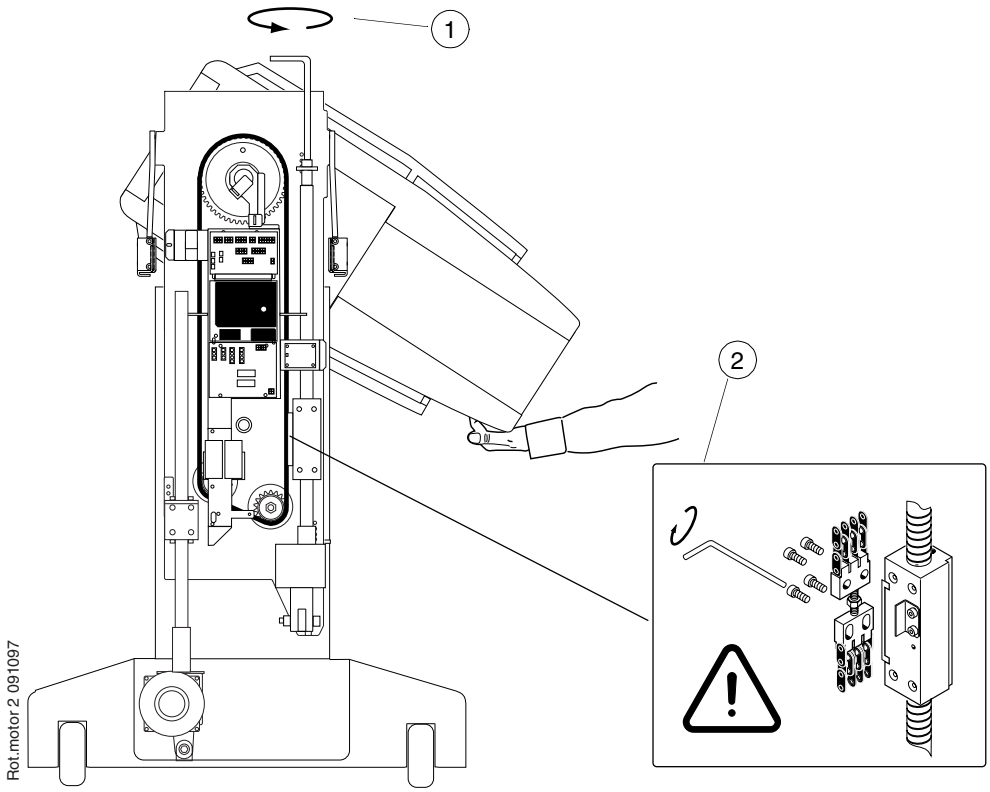


Figure H.33

j) Disconnect the motor power cable, pulse cable and the grounding wire from the motor.

k) Mark the place of the rotation lower detector assembly with a pen and remove it from the telescopic column (Fig. H.34, 1).

l) Remove the stopping collar of the worm-screw by opening the screw on the top of the worm screw (Fig. H.34, 2).

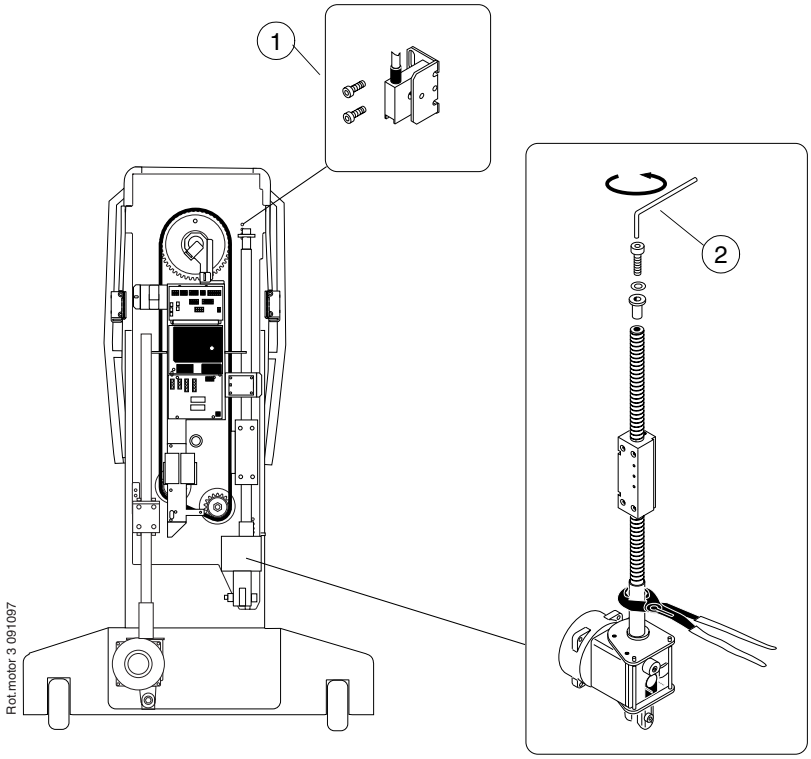


Figure H.34

m) Unscrew the worm-screw nut by rotating the worm-screw with the clamp (Fig. H.35, 1).

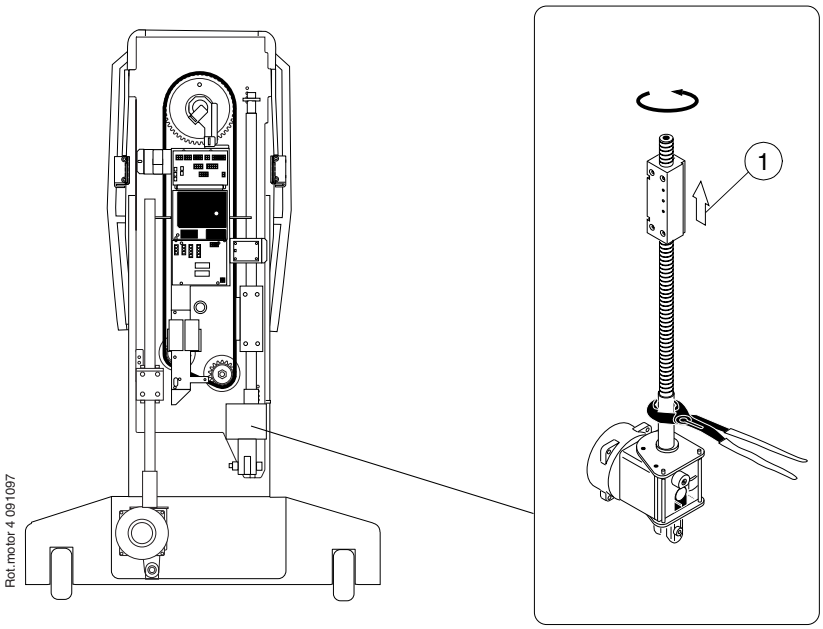


Figure H.35

n) Remove the screw that fixes the rotation motor to the telescopic column (Fig. H.36, 1) and remove the motor (Fig. H.36, 2).

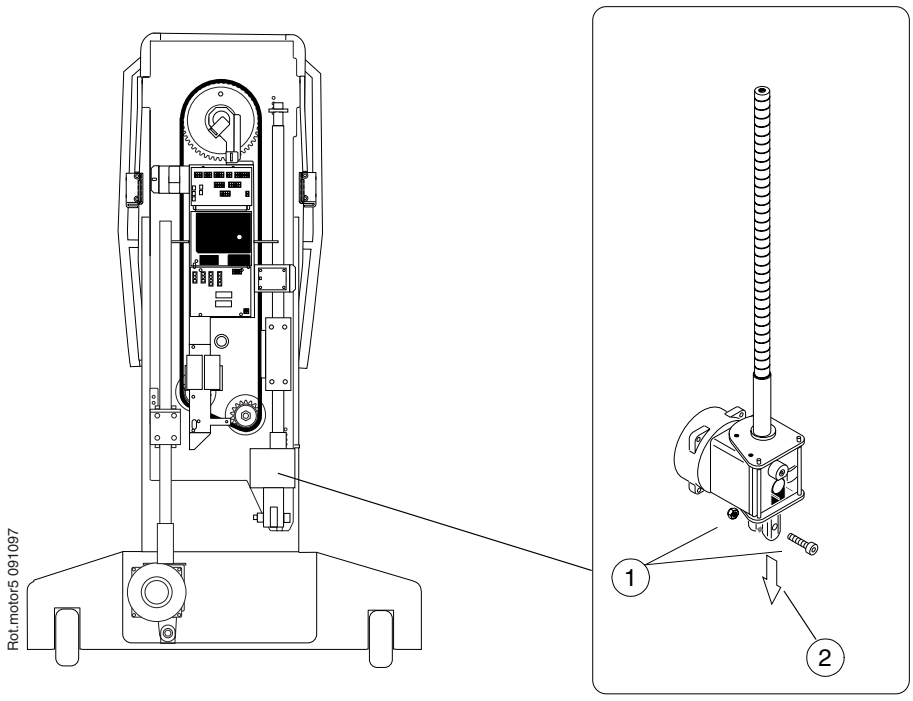


Figure H.36

Placing a new motor

a) Remove the stopping collar of the worm-screw (Fig. H.37, 1).

b) Unscrew the worm-screw nut from the worm-screw (Fig. H.37, 2).

c) Remove the guide plate and the screws from the worm-screw nut (Fig. H.37, 3).

d) Slide the guide plate in the gliding groove to the level of the chain guide opening.

e) Put in the new motor and fasten it to the telescopic column (Fig. H.37, 4).

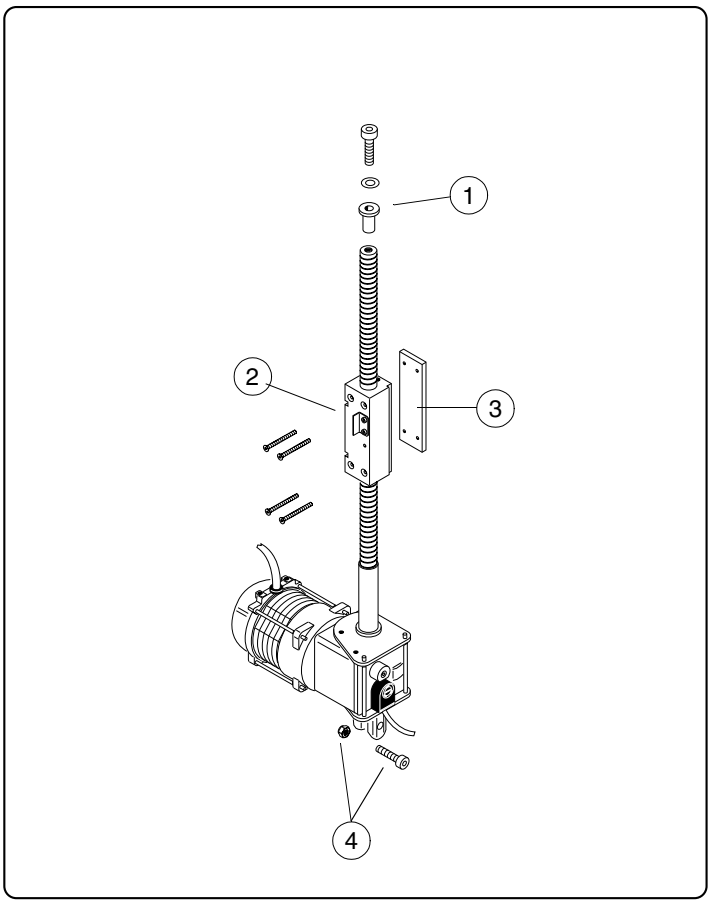


Figure H.37

f) Screw the worm-screw nut to the correct height and fasten the four screws that holds the nut fixed to the plate in the groove.

g) Lift up the tubehead until the chain ends reaches the nut. Fix the chain ends to the nut with the screws.

h) Replace the stopping collar of the worm-screw.

i) Fasten the rotation lower detector assembly to the marked place.

j) Connect all the motor cables. Check that all the cable connectors are connected to right places.

k) Replace the hood tentatively.

l) Connect the power and check the rotation limit sensor adjustment, follow the instructions given in chapter F, section 5.5.

m) Drive the C-arm to the upright position and replace the gas-spring, see instructions in “GAS SPRING REPLACEMENT” on page H-38.

n) Replace the covers and the hood and check that the unit is fully functional.

9.3 Compression motor replacement

a) Drive the C-arm to the upright position. Drive the cassette table to the upper position (MAG 1.8).

b) Turn off the power.

c) Remove the following C-arm covers: top, lower and vertical covers and vertical cover support plate. See instructions given in section “C-arm covers” on page H-4.

d) Disconnect the Compression motor cable from the Front collector PCB (Fig. H.38, 1).

e) Open the necessary cable bindings (Fig. H.38, 2) and route the cable carefully from the C-arm center frame openings. Make sure that the wires do not loosen from the connector pins.

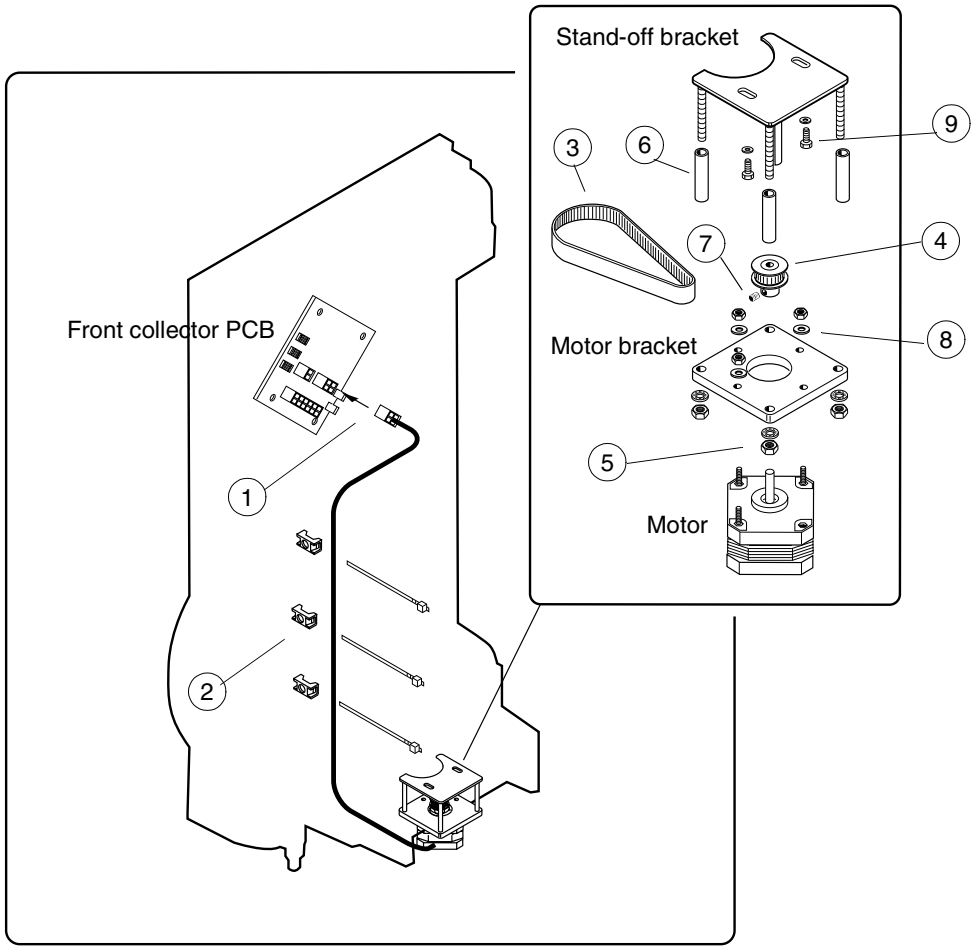


Figure H.38

f) Thread the drive belt (Fig. H.38, 3) from the Drive wheel (Fig. H.38, 4) and from the Worm-screw belt wheel.

g) Unscrew the four nuts that hold the Stand-off bracket in the Motor bracket (Fig. H.38, 5).

h) Remove the Motor bracket and the Motor from the Stand-off bracket. Make sure that the spacers (Fig. H.38,6) do not fall to the cassette shelf casting. Remove the spacers.

i) Unscrew the Motor belt drive wheel’s screw (Fig. H.38, 7) with an Allen key and remove the drive wheel (Fig. H.38, 4).

j) Unscrew the Compression motor holding nuts (Fig. H.38, 8) and remove the Motor.

k) Install the new motor and replace the removed parts in reverse order.

l) Check the strain of the drive belt. It should be slightly elastic.

m) When needed, loosen the Motor stand-off bracket’s screws (Fig. H.38, 9), adjust the bracket position and tighten the screws.

n) Enter the Service mode and select display of internal signal 7, see section “Diagnostic display of internal signals” on page C-10. Check that the motor is functional.

9.4 Magnification motor replacement

Preparations before replacement

The replacement of the Magnification motor can be performed easier if you have a special locking device. With this device the replacement can be made in this same upright position, otherwise the C-arm must be tilted to slightly more that 90 ° to prevent the cassette table mechanism from falling out.

CAUTION ***Removing the Magnification motor loosens the cassette table mechanism. The whole mechanism can fall out. Extreme caution is needed to prevent injuries or harm to the equipment.***

a) Drive the C-arm to the upright (CC-) position. Adjust the height of the unit so that the top of the C-arm is at a convenient working level. Turn the unit off and unplug it from the mains.

b) Remove the C-arm covers, see section “C-arm covers” on page H-4.

c) There are two possible C-arm positions: the upright position and slightly past horizontal position.

- When the C-arm is at the upright position, you need always a locking device. Attach the locking device to the bearing shaft (Fig. H.39, 1). It prevents the tubehead to fall down when opening the MAG-mechanism thread. (Fig. H.39, a)

CAUTION ***Failing to obey this rule can cause injury when opening the MAG-mechanism thread.***

- If you don’t have the locking device, turn on the power for a while and drive the C-arm little more that 90 degrees (slightly past horizontal) so that the cassette table is slightly higher that the tubehead. Turn off the power and unplug the unit. (Fig. H.39, b)

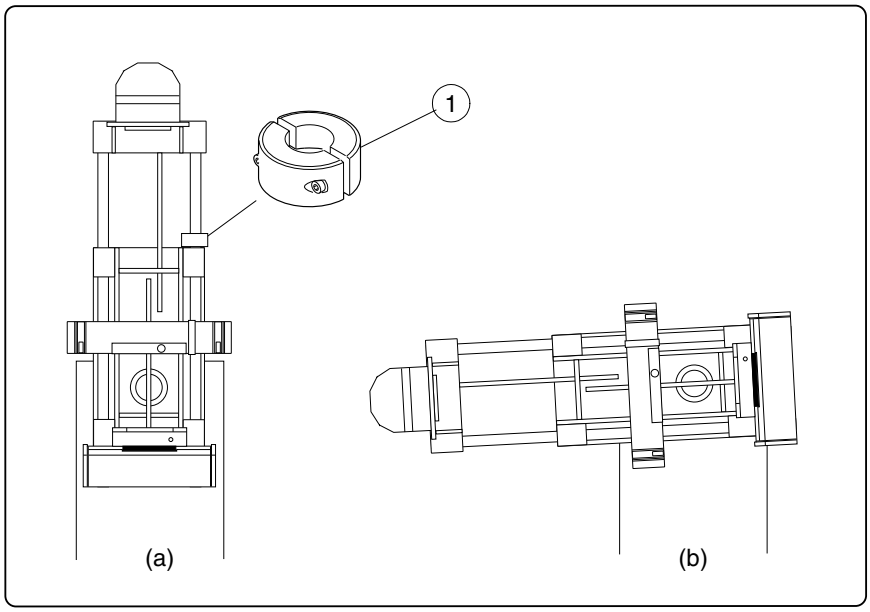


Figure H.39

Magnification motor replacement

a) Unscrew the three screws that hold the Magnification motor in the Tubehead (Fig. H.40, 1).

b) Disconnect the Tubehead temperature sensor cable and the Mag pulse hall cable from the Mag control PCB.

c) Remove the motor from the Tubehead.

d) Remove the Clutch (Fig. H.40, 2) from the motor axle.

e) Remove the Mag control PCB (Fig. H.40, 3) and the Rotation sensor assembly (Fig. H.40, 4) from the motor.

f) Place the Clutch to the new motor. Install the motor to the Tubehead and replace the removed parts to the motor. Connect the cables to the Mag control PCB.

g) Detach the locking device. Turn on the power and check the function of the motor.

h) Calibrate the MAG/LOAD mechanism position by driving the mechanism once from side to side (from limit sensor to limit sensor).

i) Turn off the power and replace the removed covers.

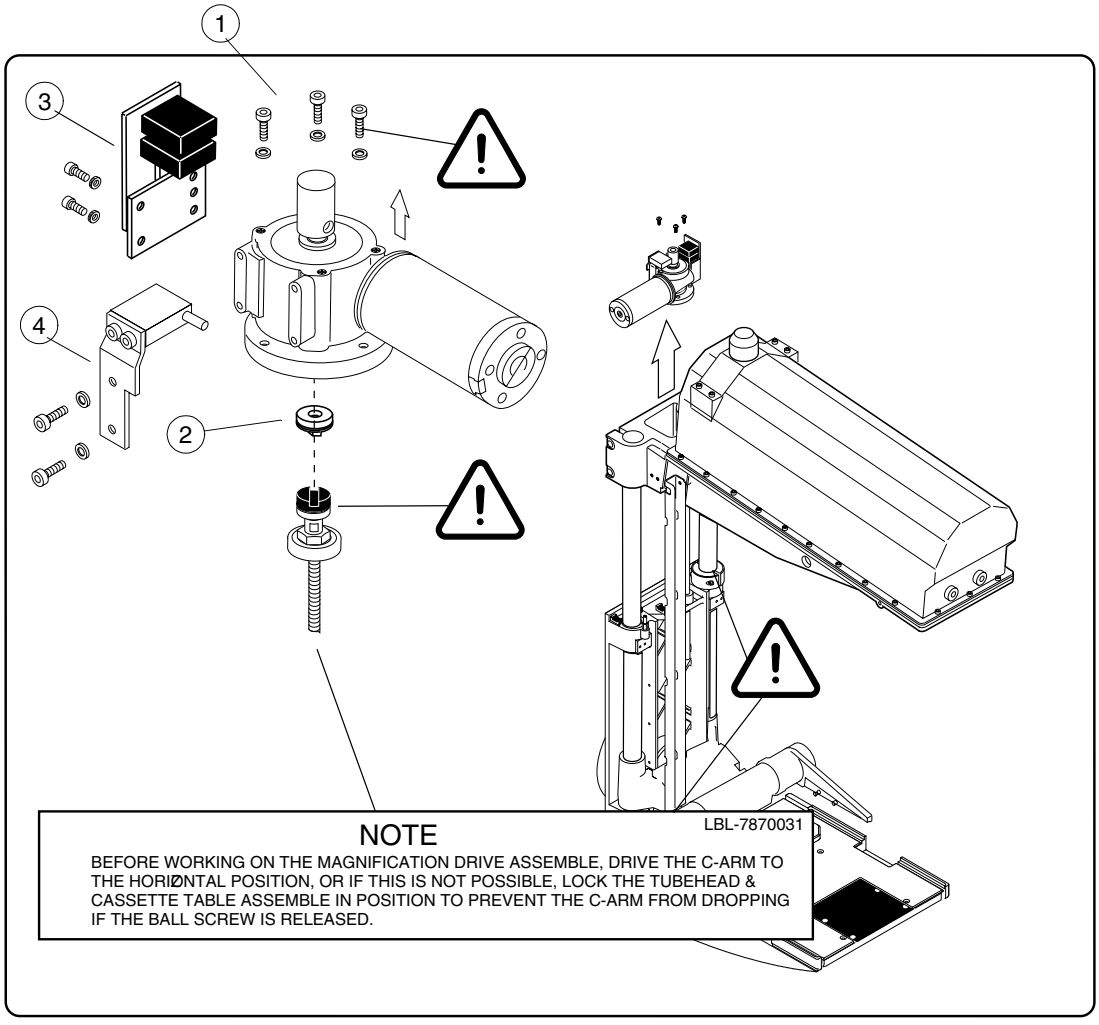


Figure H.40

10 REPLACING THE LABELING HEAD

a) Unscrew the six table cover screws (Fig. H.41, 1)

b) Lift up the table cover slightly and pull it away from the table casting (Fig. H.41, 2).

c) Unscrew the M4x8 DIN 914 labeling head fastening screw (Fig. H.41, 3). Turn the labeling head carefully upwards (Fig. H.41, 4) and lift it from its position.

d) Disconnect the labeling head cable from the Shelf collector PCB connector P8 (Fig. H.41, 5).

e) Install the new labeling head in reverse order.

f) Perform the labeling head adjustment according to the instructions given in section “Cassette table size identification switches” on page F-61.

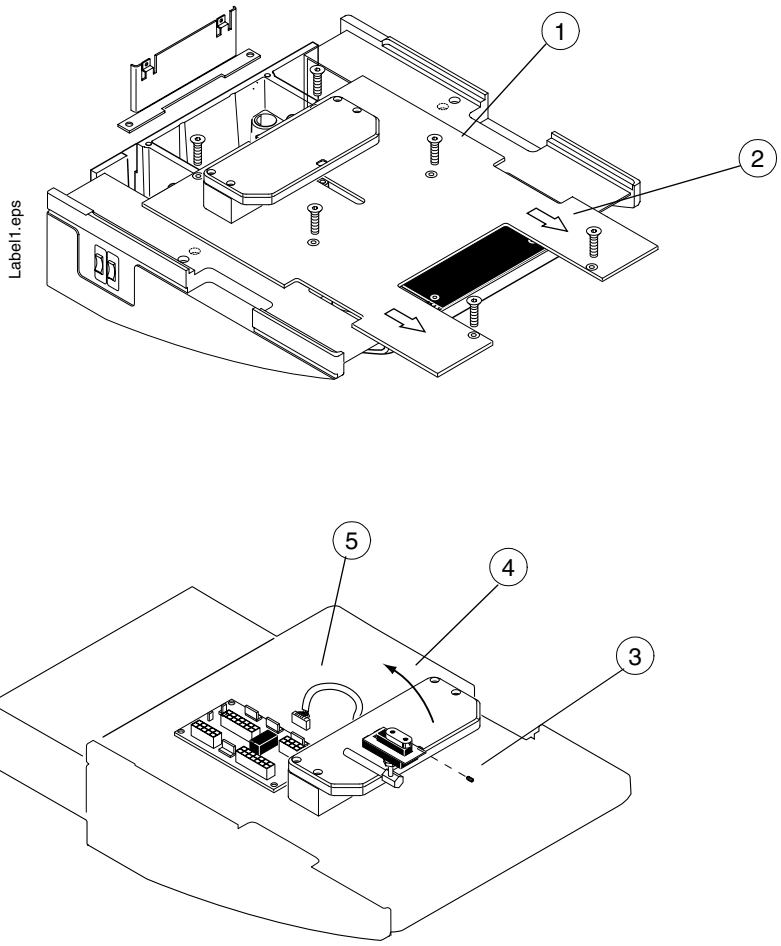


Figure H.41

11 GAS SPRING REPLACEMENT

CAUTION ***The gas spring is always in tension. Before removing it you must always adjust the tension to zero to prevent injuries and damage to the unit***

Preparations before replacement

Remove the TELESCOPIC COLUMN REAR PANEL to access the gas spring. Drive the unit up.

11.1 C-arm is functional

- Drive the C-ARM to straight upright (CC-position) and turn off the power.
- Loosen a few revolutions the upper an lower locking nuts on the tension adjustment mechanism (at the top of the gas spring). Please note that the upper locking nut and its thread in a mirror image from the normal, so it must be turned in the opposite direction.
- Release the gas-spring tension by rotating the tension adjustment bolt (the middle nut), until the gas-spring feels loose (the gas spring grows longer).
- Remove the locking washers at both ends of the gas spring shafts.
- Gently pull out the gas spring.

11.2 C-arm is not rotating

- You need a clamping device for the gas spring, otherwise you proceed as above.

11.3 Replacing the gas-spring

C-ARM IS FUNCTIONAL

- Make sure the C-ARM is in upright position.
- Adjust the length of the gas spring (by turning the tension adjustment bolt) until it fits the two shafts. Note that the piston should be downwards and the gas spring upwards.
- Replace the two locking washers that secures that the gas spring stays in place. Make sure these are not harmed.
- Tighten the gas spring by adjusting it into tension by rotating the tension adjustment bolt until the gas spring is compressed a cm or so. Secure the adjustment by the two locking nuts on the same bolt.

12 REPLACING PARTS IN COMPRESSION MECHANISM

12.1 Replacing the twin-comp damper

The spare part number is **7616108**. Please return any old spare parts in stock for free replacement.

a) Drive the C-arm to the CC-position and the compression paddle to the release (highest) position.

b) Remove the small Circlip (Fig. H.42, 1) that holds the shock absorber axle attached to the tilting mechanism. Let the drum assembly slowly drop down.

c) Remove the cover plate (Fig. H.42, 2) by removing the holding screws (Fig. H.42, 3). To make the next steps easier, drive the C-arm 90 degrees to either side.

d) Remove the large Circlip (Fig. H.42, 4) that holds the shock absorber and remove the absorber (5) by pulling it out to the rear. Tilting the mechanism down will give you more room.

e) Insert the new absorber. The rubber crimp ring (Fig. H.42, 7) must be in the position as illustrated. Replace the Circlip (Fig. H.42, 4). Replace the cover (Fig. H.42, 2) and screws (Fig. H.42, 3).

f) Lift up the drum assembly and replace the Circlip (Fig. H.42, 1). Turn the Circlips to ensure they are correctly in the grooves. Drive the C-arm back to upright.

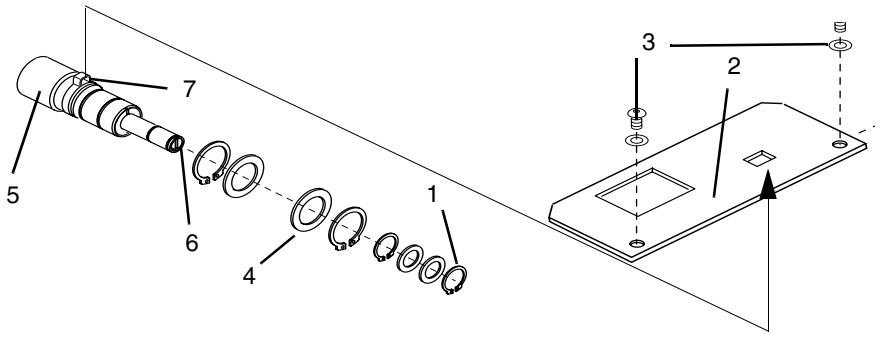


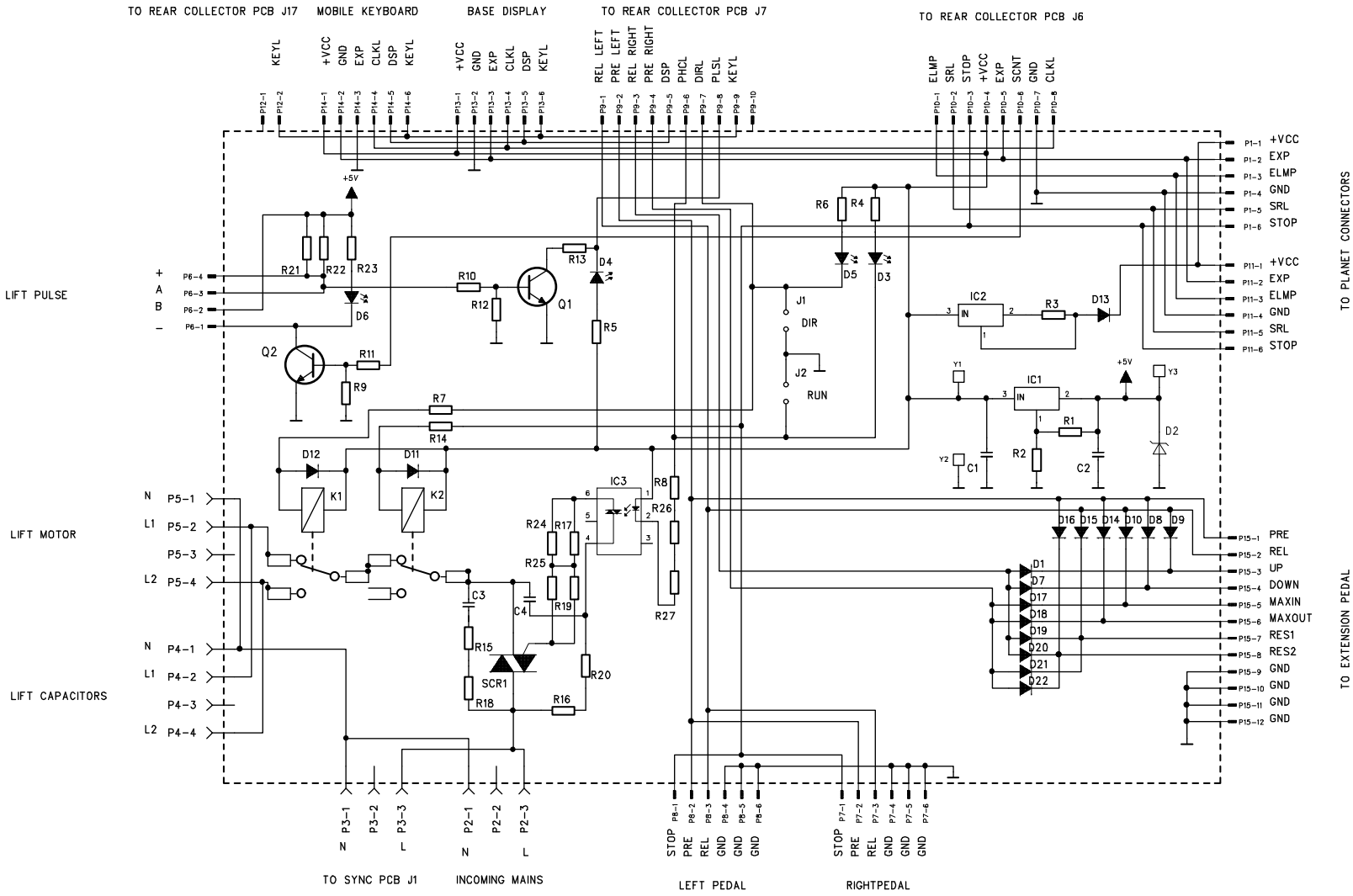
Figure H.42

CAUTION ***The Circlips are easily damaged, therefore use only special pliers intended for replacing Circlips.***

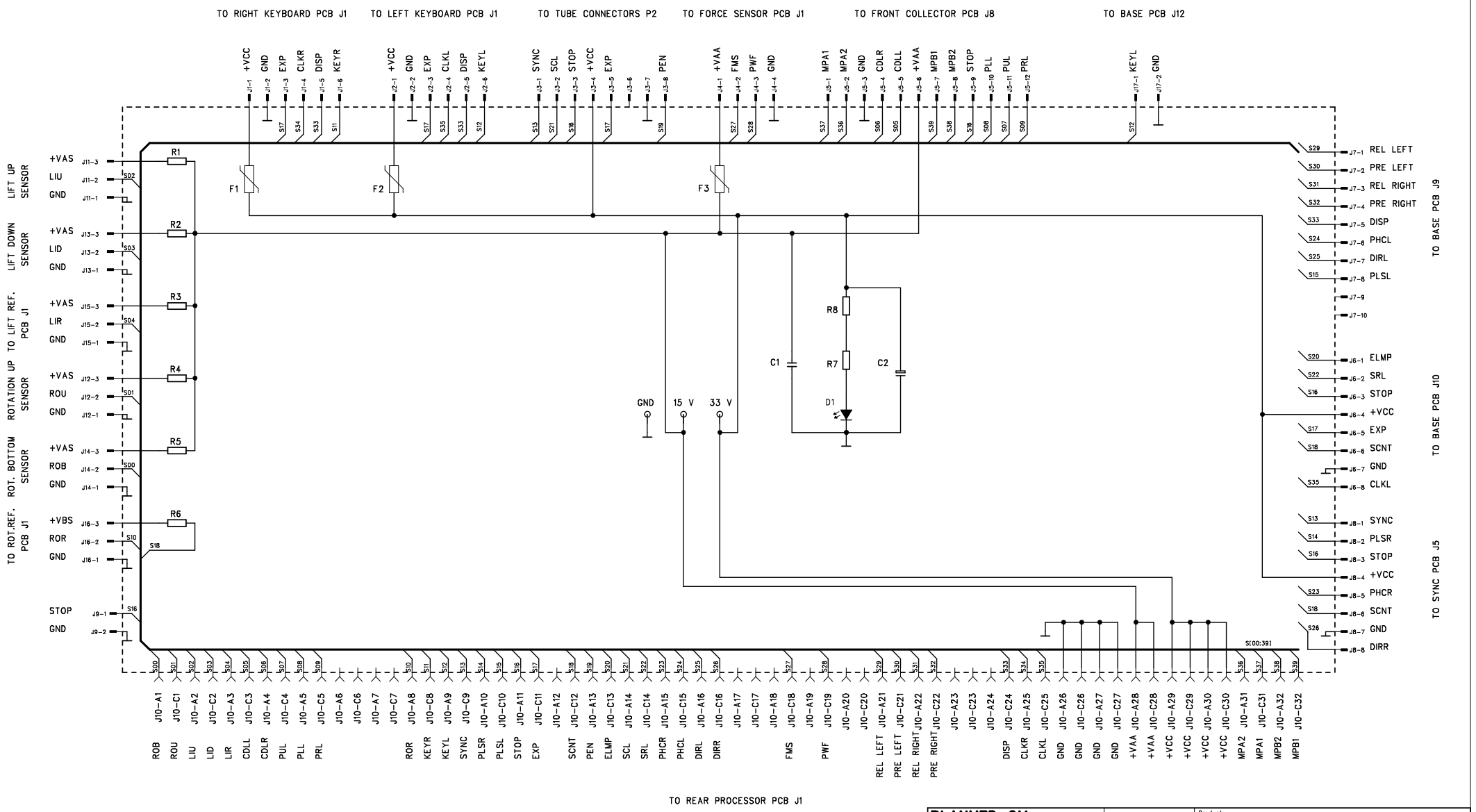
Chapter

I

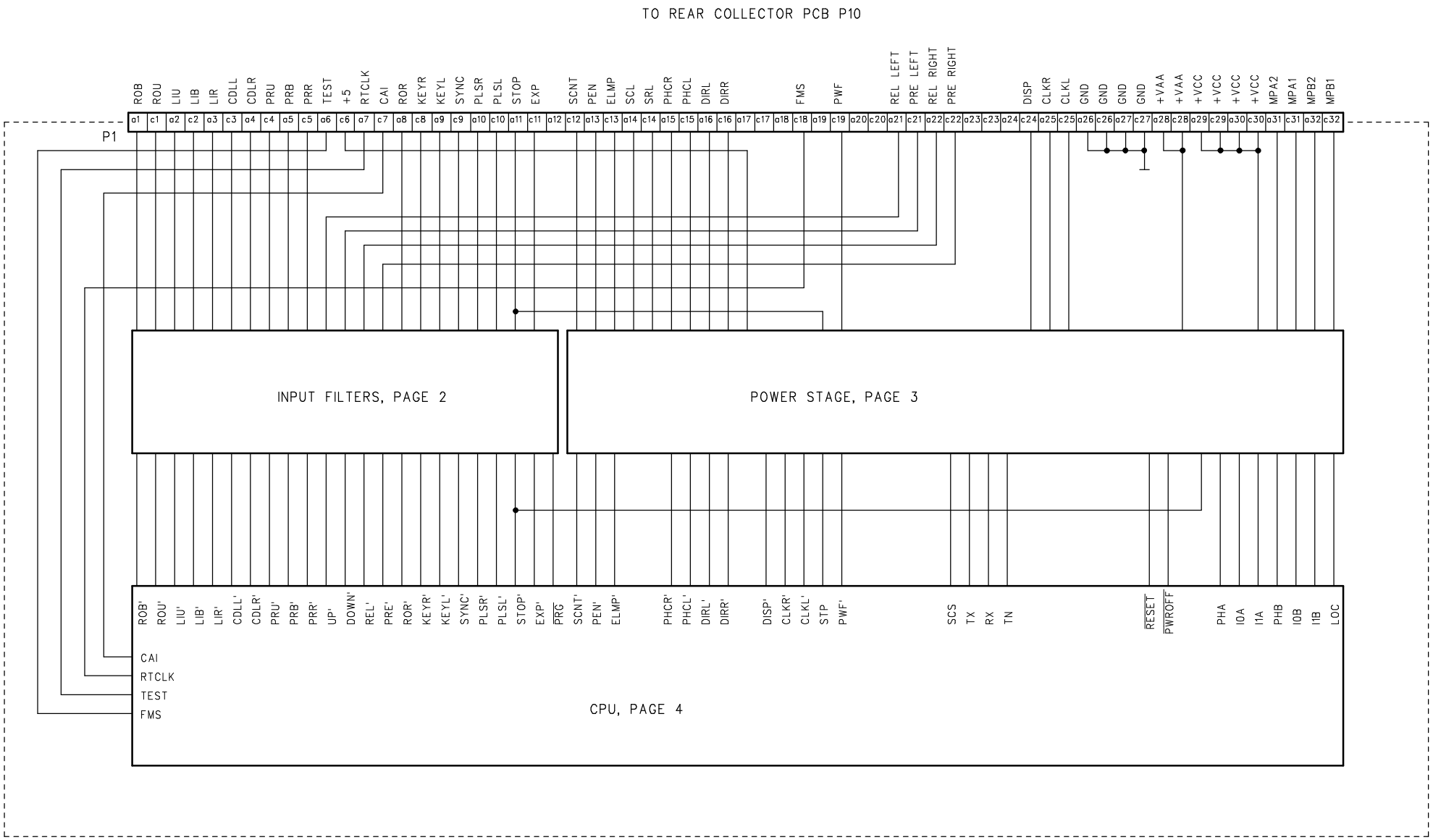
SCHEMATICS & DIAGRAMS



PLANMED OY Asentajank. 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: **SOPHIE**				
Design: **Pekka Strömmer**	Date: **17.01.2000**	PCB name: **BASE PCB**				
Modified: **Pekka Strömmer**	Date: **11.04.2000**	PCB number: **109-10-01**	PCB revision: **H**	Sheet number: **1/1**	Size: **A4**	
Checked:	Date:	Contents / Notes: – Note 1 – Note 2 – Note 3				
Approved:	Date:					



PLANMED OY Asentajank. 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: SOPHIE
Design: Pekka Strömmer	Date: 10.01.2000	PCB name: REAR COLLECTOR PCB
Modified:	Date:	PCB number: 109-10-03 / PCB revision: F / Sheet number: 1/1 / Size: A4
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3
Approved:	Date:	



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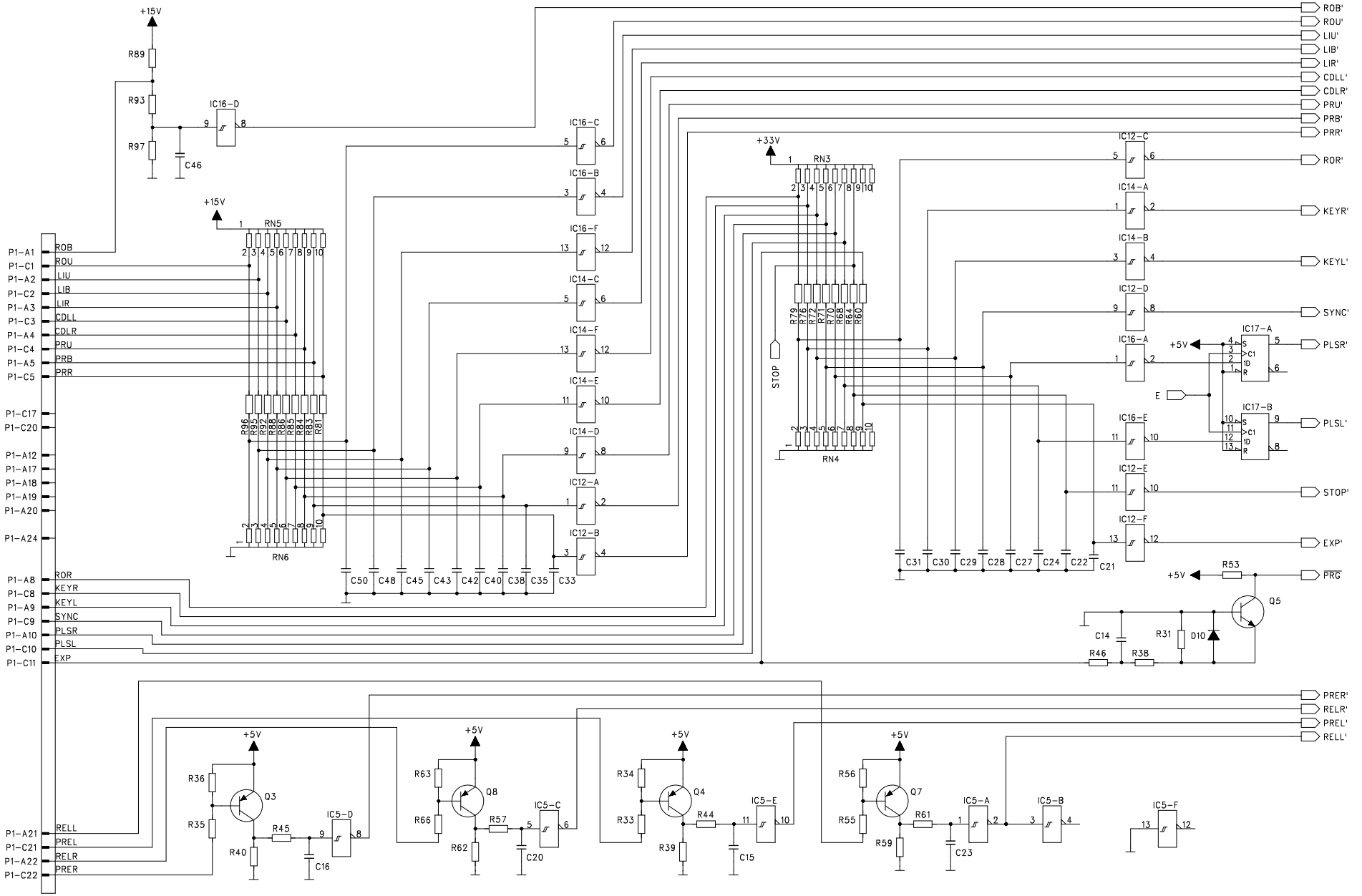
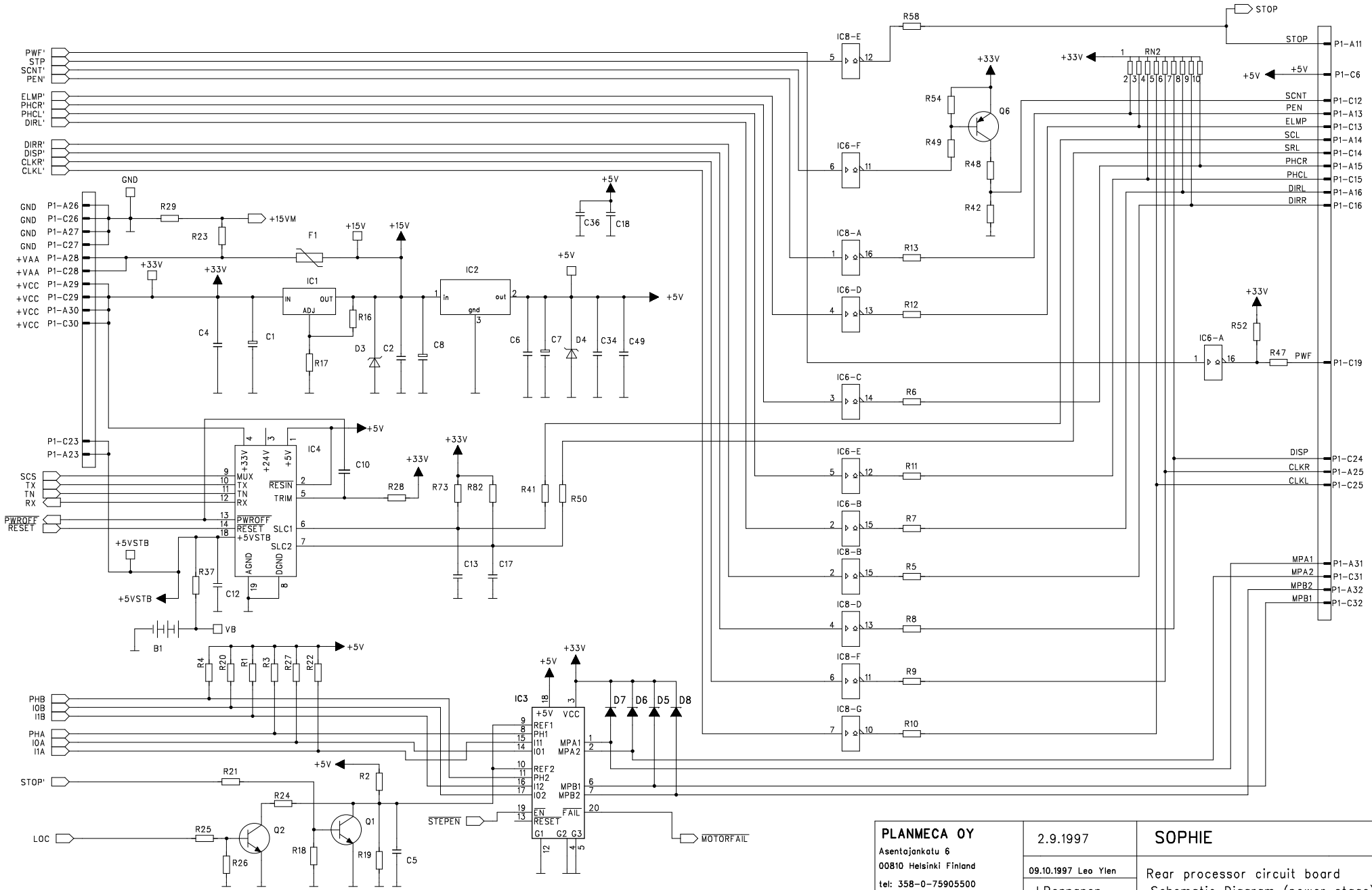
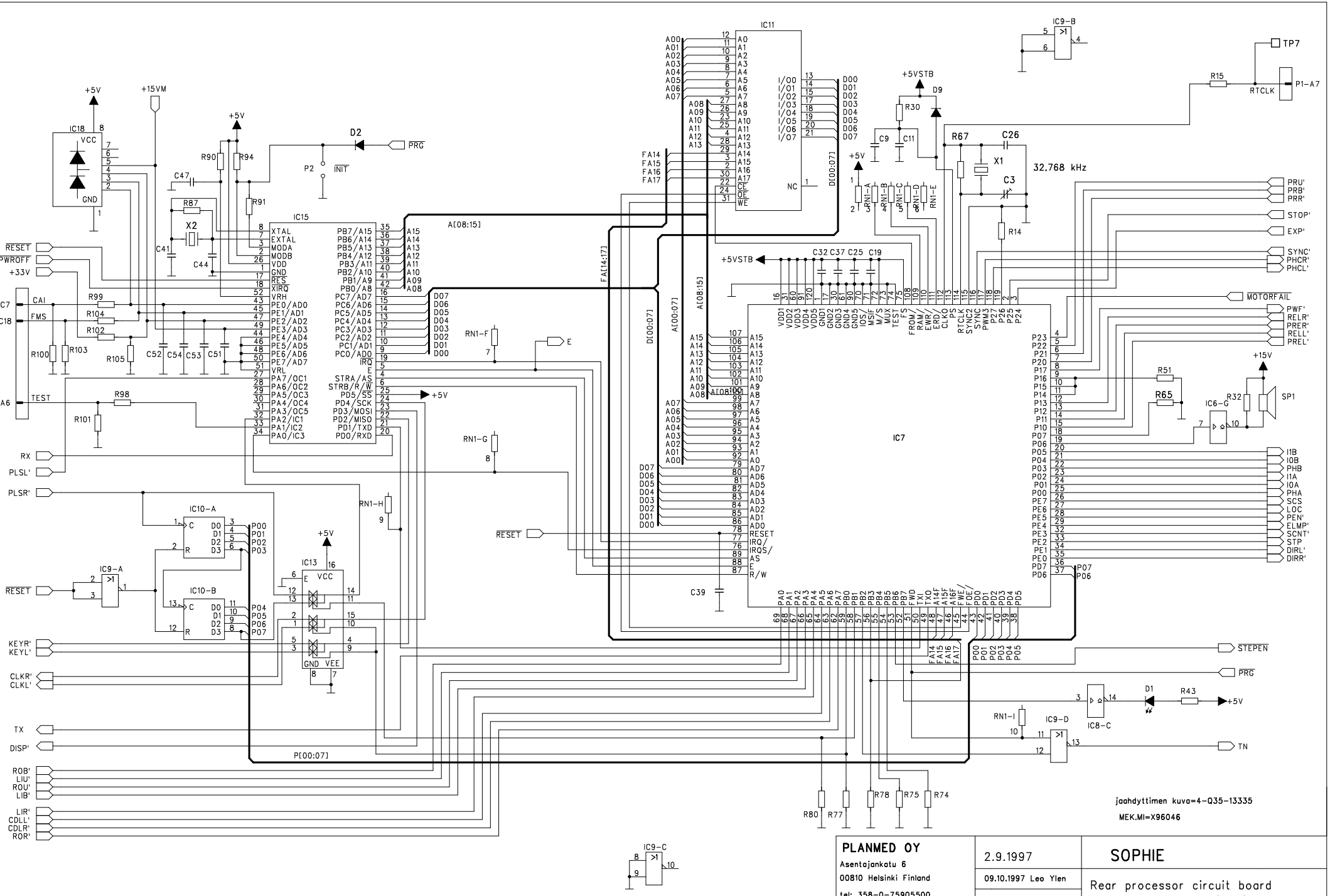
2.9.1997	SOPHIE
09.10.1997 Leo Ylen	Rear processor circuit board
J.Pennanen	Schematic Diagram (main block)
P.Strommer	109-03-04-1/4-F1 (7810004)



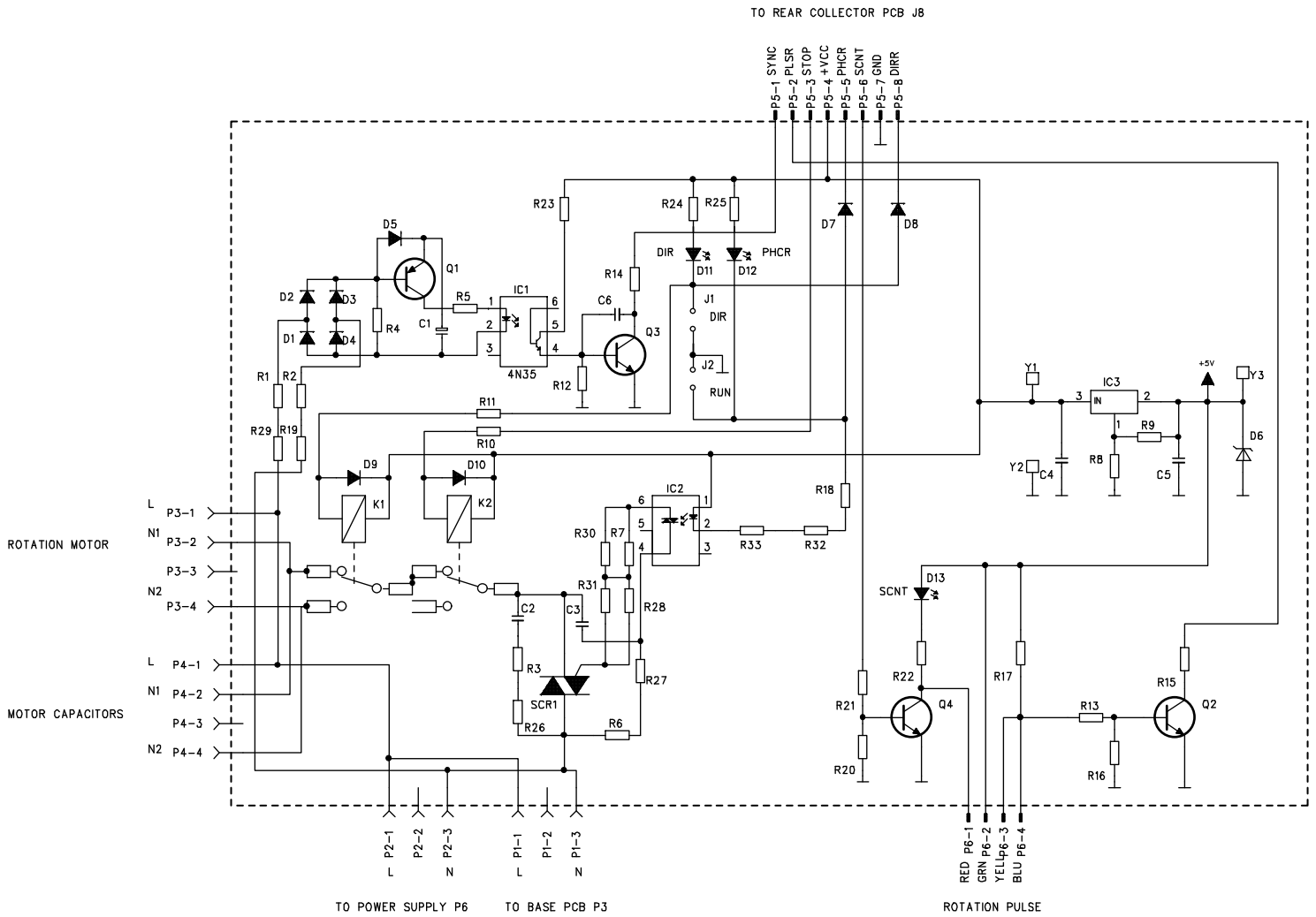
PLANMECA OY Asentajankatu 6 00810 Helsinki Finland tel: 358-0-75905500 telex: 122430 plan sf fax: 358-0-75905555	2.9.1997	**SOPHIE**
	09.10.1997 Leo Ylen	Rear processor circuit board
	J.Pennanen	Schematic Diagram (input filters)
	P.Strommer	109-03-04-2/4-F1 (7810004)



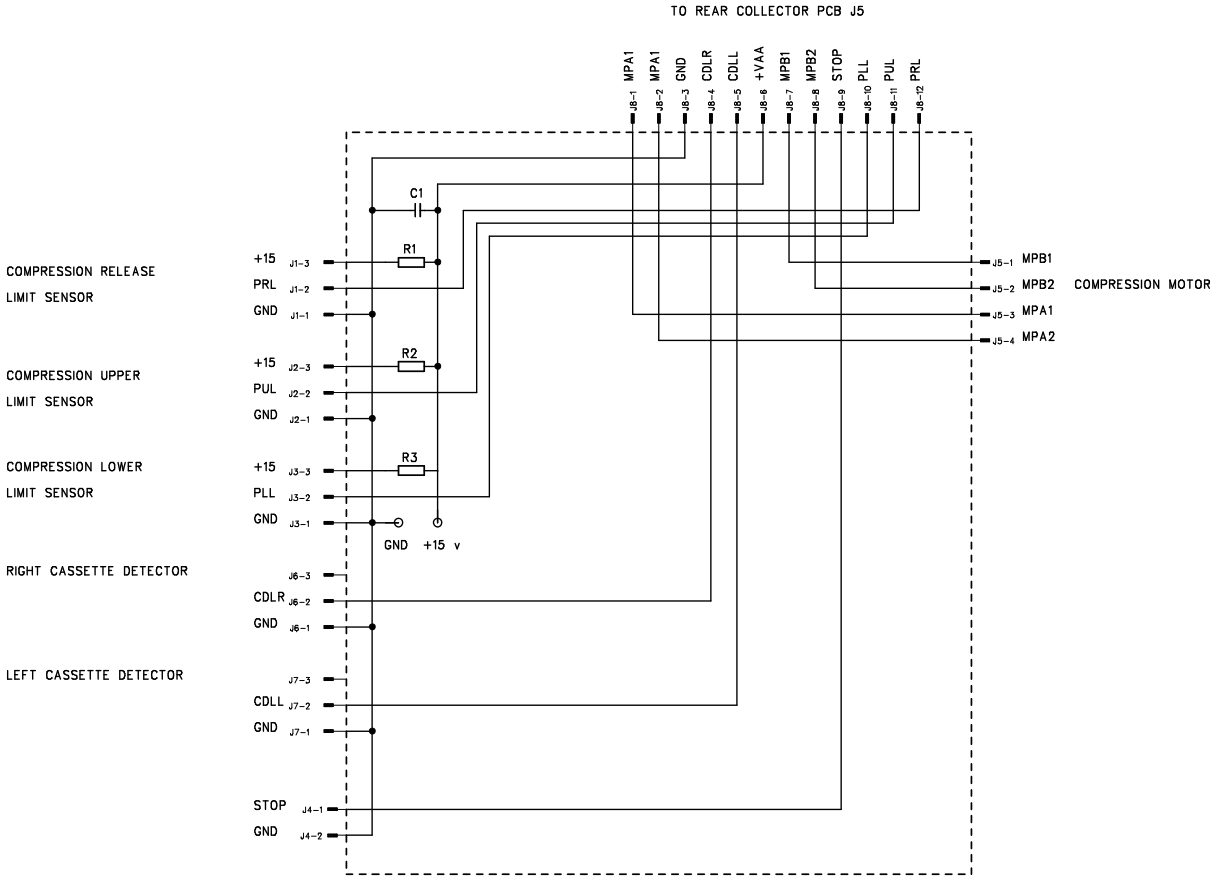
PLANMECA OY Asentajankatu 6 00810 Helsinki Finland tel: 358-0-75905500 telex: 122430 plan sf fax: 358-0-75905555	2.9.1997	**SOPHIE**
	09.10.1997 Leo Ylen J.Pennanen	Rear processor circuit board Schematic Diagram (power stage)
	P.Strommer	109-03-04-3/4-F1 (7810004)



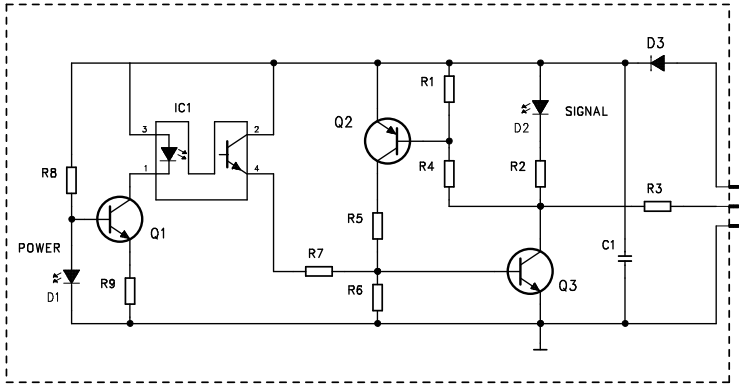
PLANMED OY Asentajankatu 6 00810 Helsinki Finland tel: 358-0-75905500 telex: 122430 plan sf fax: 358-0-75905555	2.9.1997 09.10.1997 Leo Ylen J.Pennanen P.Strommer	**SOPHIE** Rear processor circuit board Schematic Diagram (CPU) 109-03-04-4/4-F1(7810004)



PLANMED OY Asentajank. 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: **SOPHIE**				
Design: **Pekka Strömmer**	Date: **09.02.2000**	PCB name: **SYNC PCB**				
Modified: **Pekka Strömmer**	Date: **11.04.2000**	PCB number: **109-10-05**	PCB revision: **H**	Sheet number: **1/1**	Size: **A4**	
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3				
Approved:	Date:					

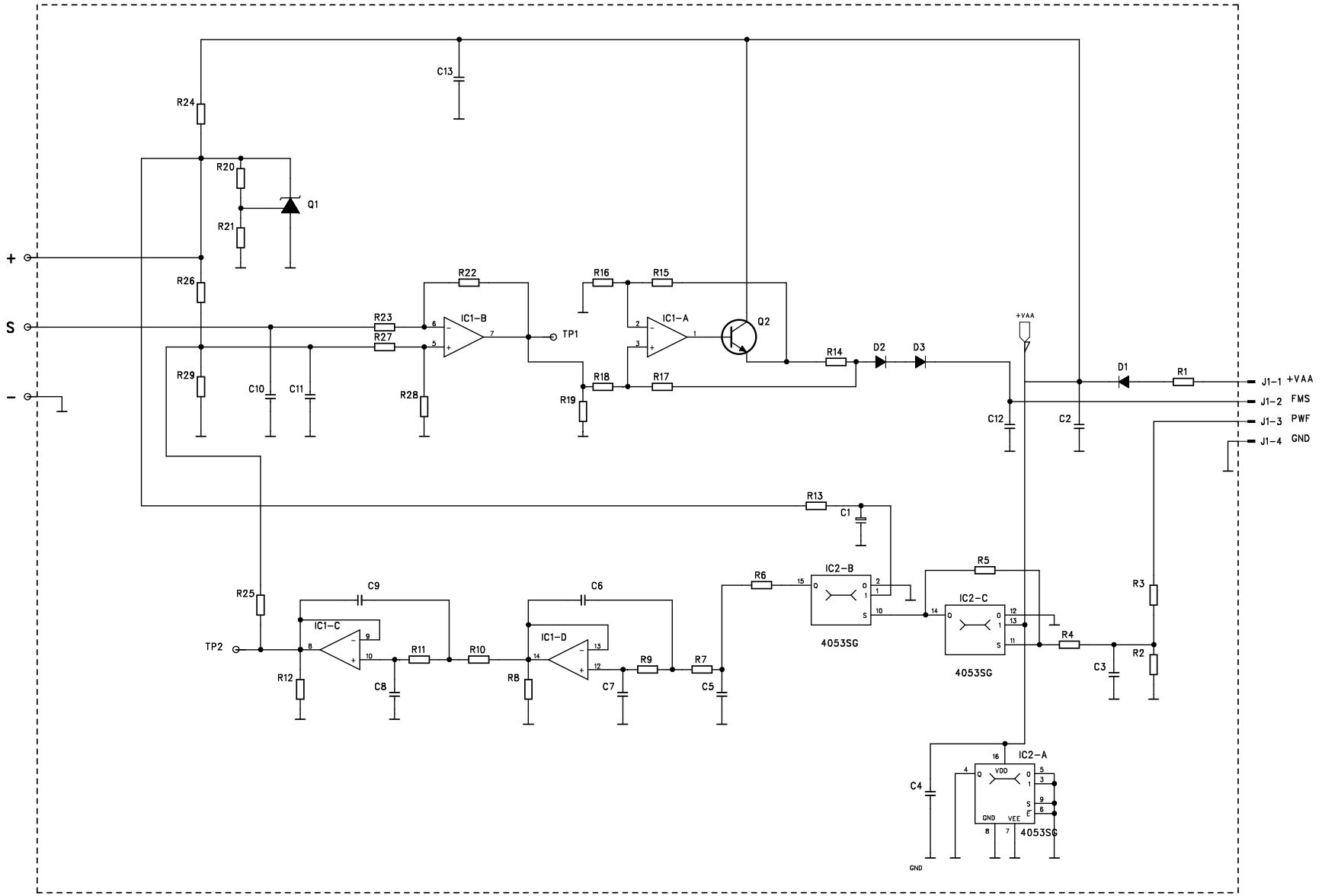


PLANMED OY Asentajank. 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: PRODUCT
Design: Pekka Strömmer	Date: 21.12.1999	PCB name: Front Collector PCB
Modified:	Date:	PCB number: 109-10-06 / PCB revision: D / Sheet number: 1/1 / Size: A4
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3
Approved:	Date:	

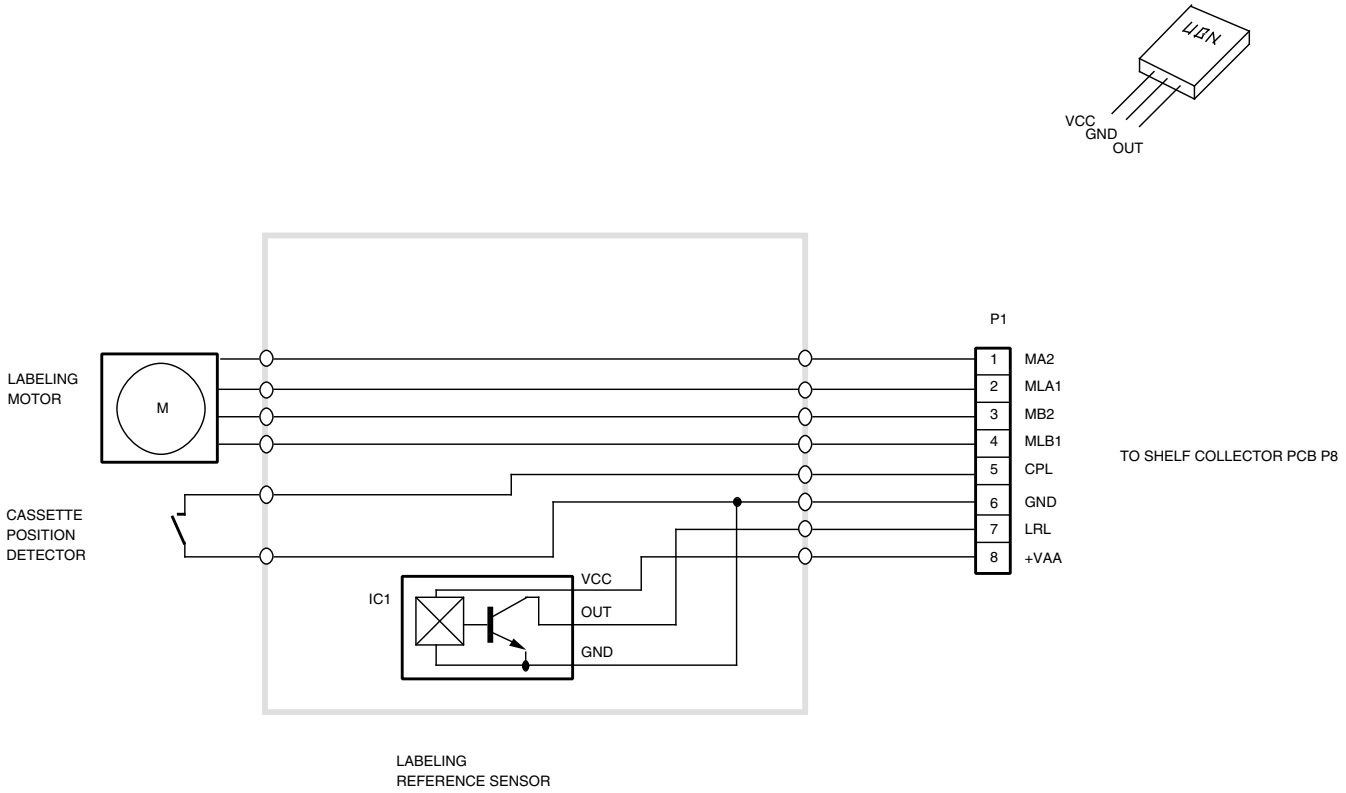


TO REAR COLLECTOR PCB J16

PLANMED OY Asentajank, 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: SOPHIE			
Design: Pekka Strömmer	Date: 28.12.1999	PCB name: Rotation Reference PCB			
Modified:	Date:	PCB number: 109-10-07	PCB revision: C	Sheet number: 1/1	Size: A4
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3			
Approved:	Date:				



PLANMED OY Asentajank. 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: SOPHIE
Design: Pekka Strömmer	Date: 28.12.1999	PCB name: Force Sensor PCB
Modified:	Date:	PCB number: 109-10-08 / PCB revision: E / Sheet number: 1/1 / Size: A4
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3
Approved:	Date:	



PLANMED OY
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00810 Helsinki Finland
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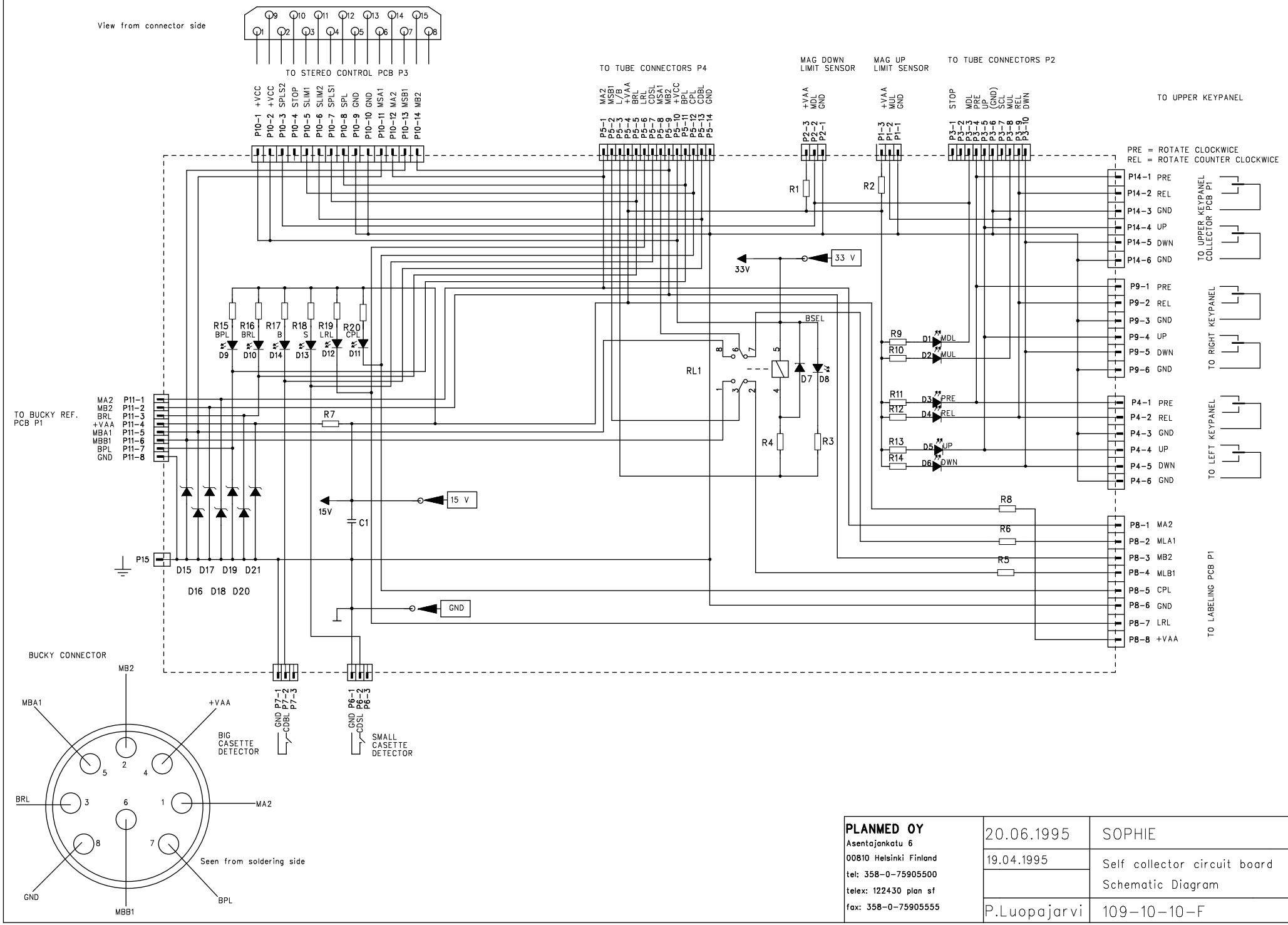
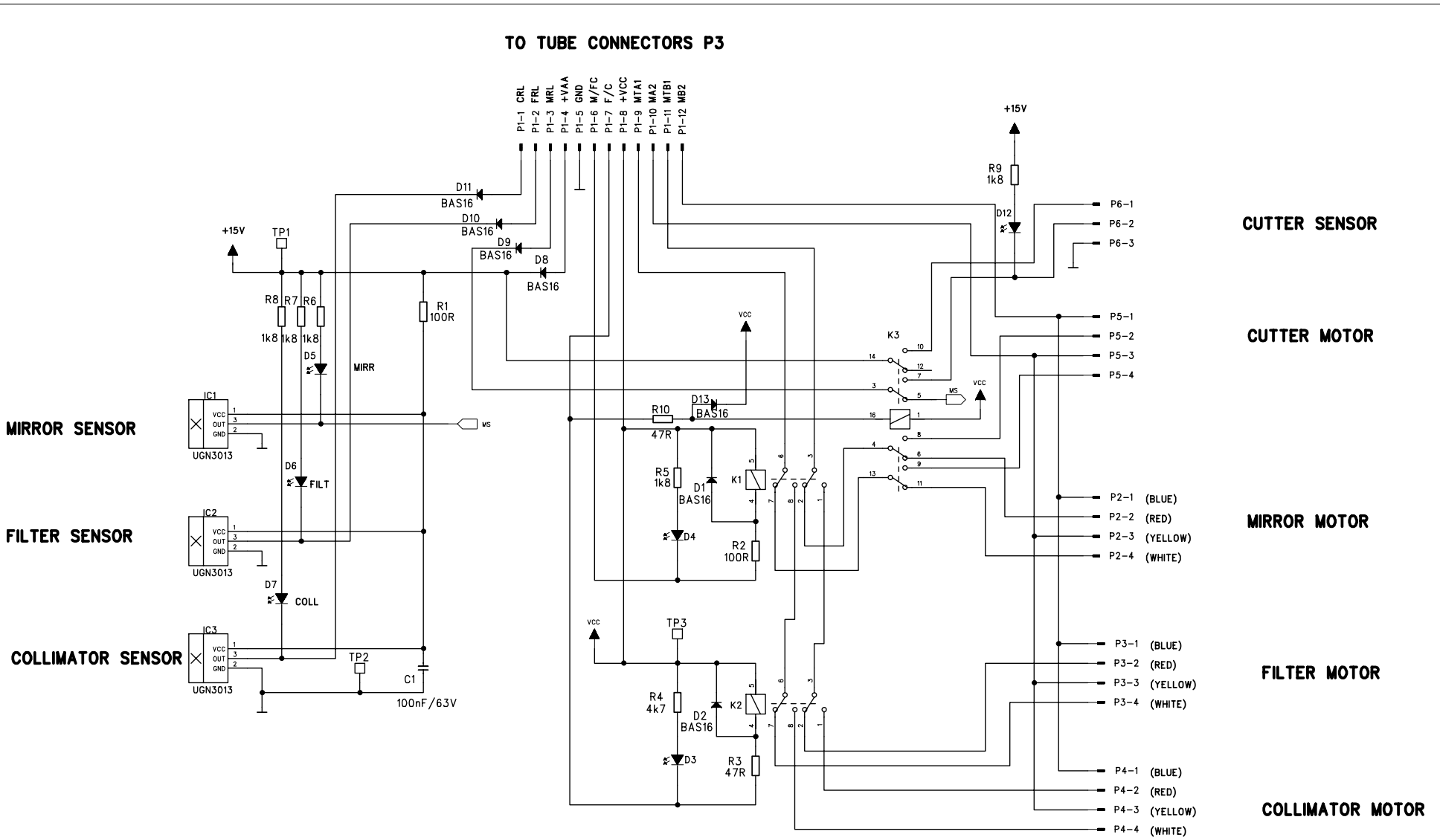
telex: 122430 plan sf
telefax: 358-0-75905555

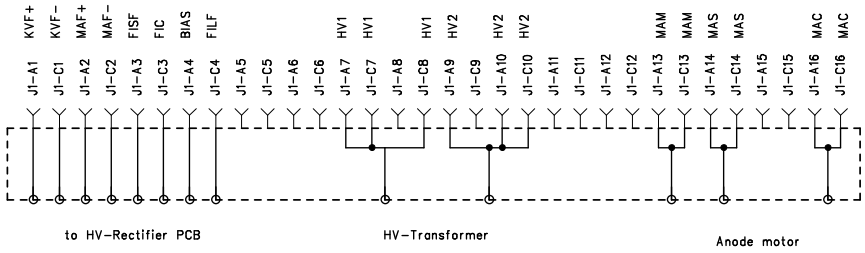
17.02.1992	SOPHIE
	Labeling circuit board
	Schematic Diagram
P. Strömmer	109-03-09-D (7810009)



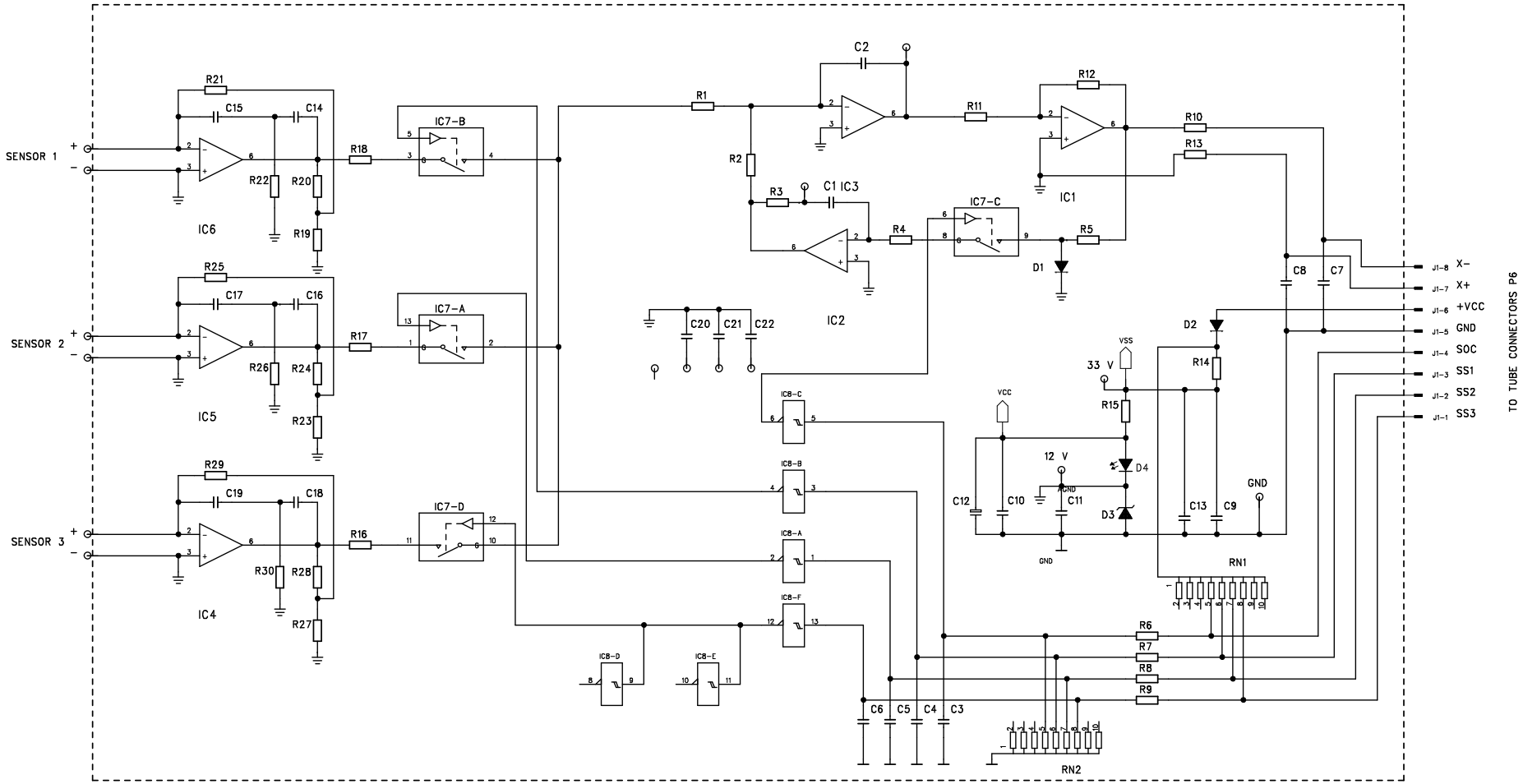
PLANMED OY Asentajankatu 6 00810 Helsinki Finland tel: 358-0-75905500 telex: 122430 plan sf fax: 358-0-75905555	20.06.1995	SOPHIE
	19.04.1995	Self collector circuit board Schematic Diagram
	P.Luopajarvi	109-10-10-F



PLANMECA OY Asentajank. 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5500 fax: +358-9-7590 5566	Product: Sophie
Design: Pekka Strömmer	Date: 17.02.1992	PCB name: Collimator Circuit Board
Modified: Harri Lehtinen	Date: 19.03.1999	PCB number: 109-10-11 / PCB revision: D / Sheet number: 1/1 / Size: A4
Checked:	Date:	Contents / Notes: - Cutter motor and sensor interface added - Note 2 - Note 3
Approved:	Date:	

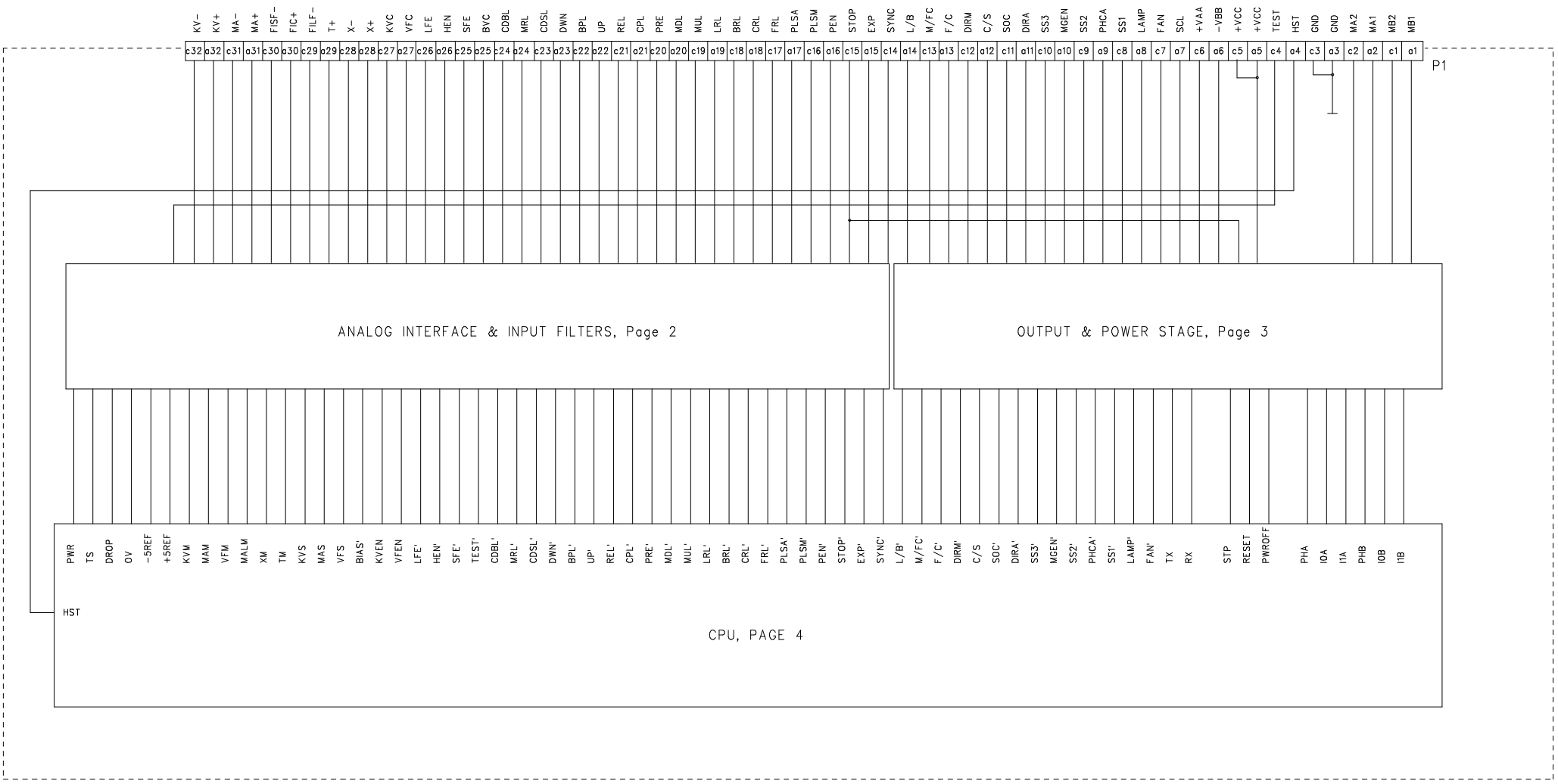


PLANMED OY Asentajank, 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: SOPHIE
Design: Pekka Strömmer	Date: 13.12.1999	PCB name: NAME
Modified:	Date:	PCB number: 109-10-12 / PCB revision: E / Sheet number: 1/1 / Size: A4
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3
Approved:	Date:	



PLANMED OY Asentajank. 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: SOPHIE
Design: Pekka Strömmer	Date: 12.01.2000	PCB name: EXPOSURE CONTROL PCB
Modified:	Date:	PCB number: 109-10-13 / PCB revision: E / Sheet number: 1/1 / Size: A4
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3
Approved:	Date:	

TO TUBE CPU STAND PCB P2



PLANMED OY
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00810 Helsinki Finland
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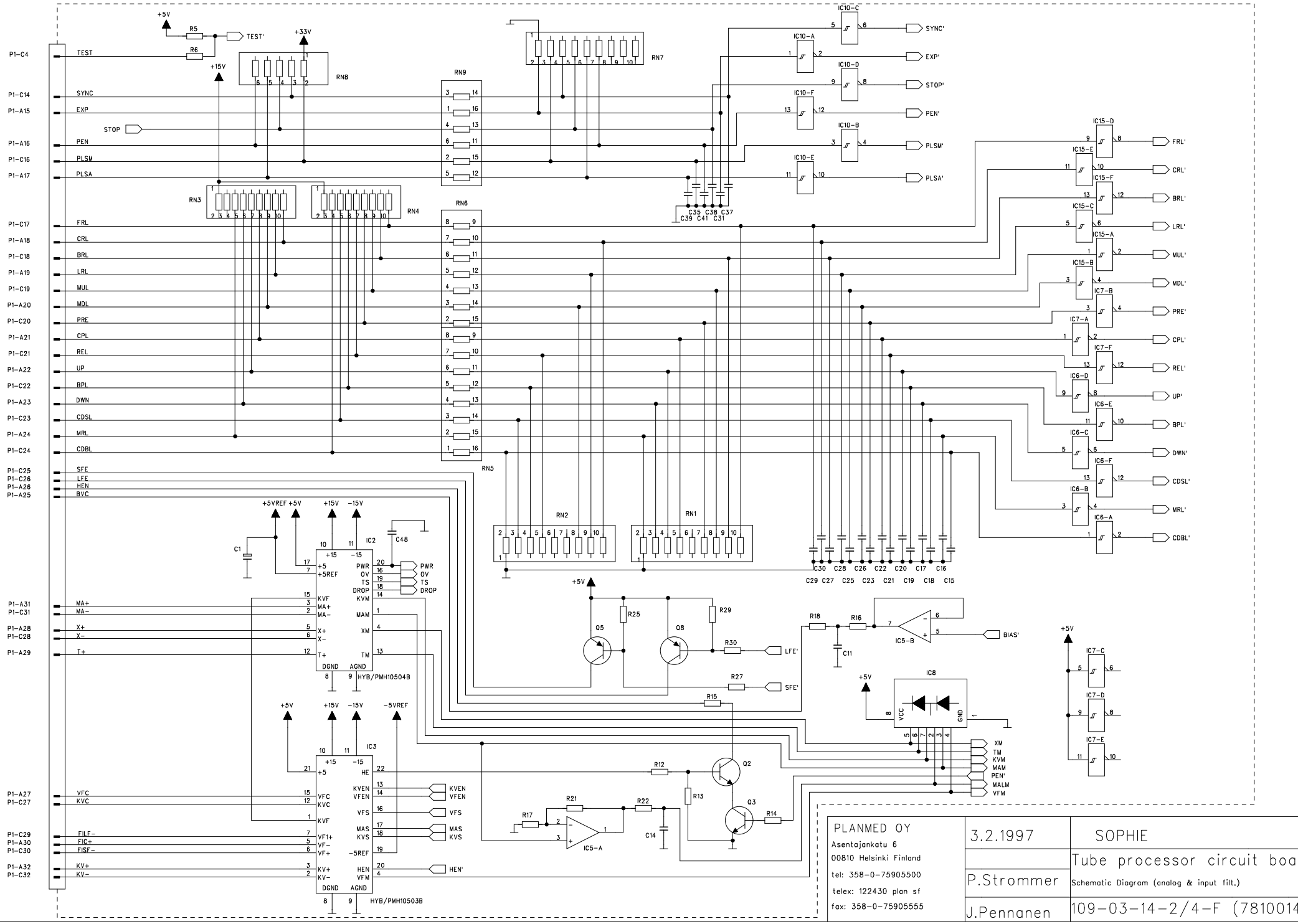
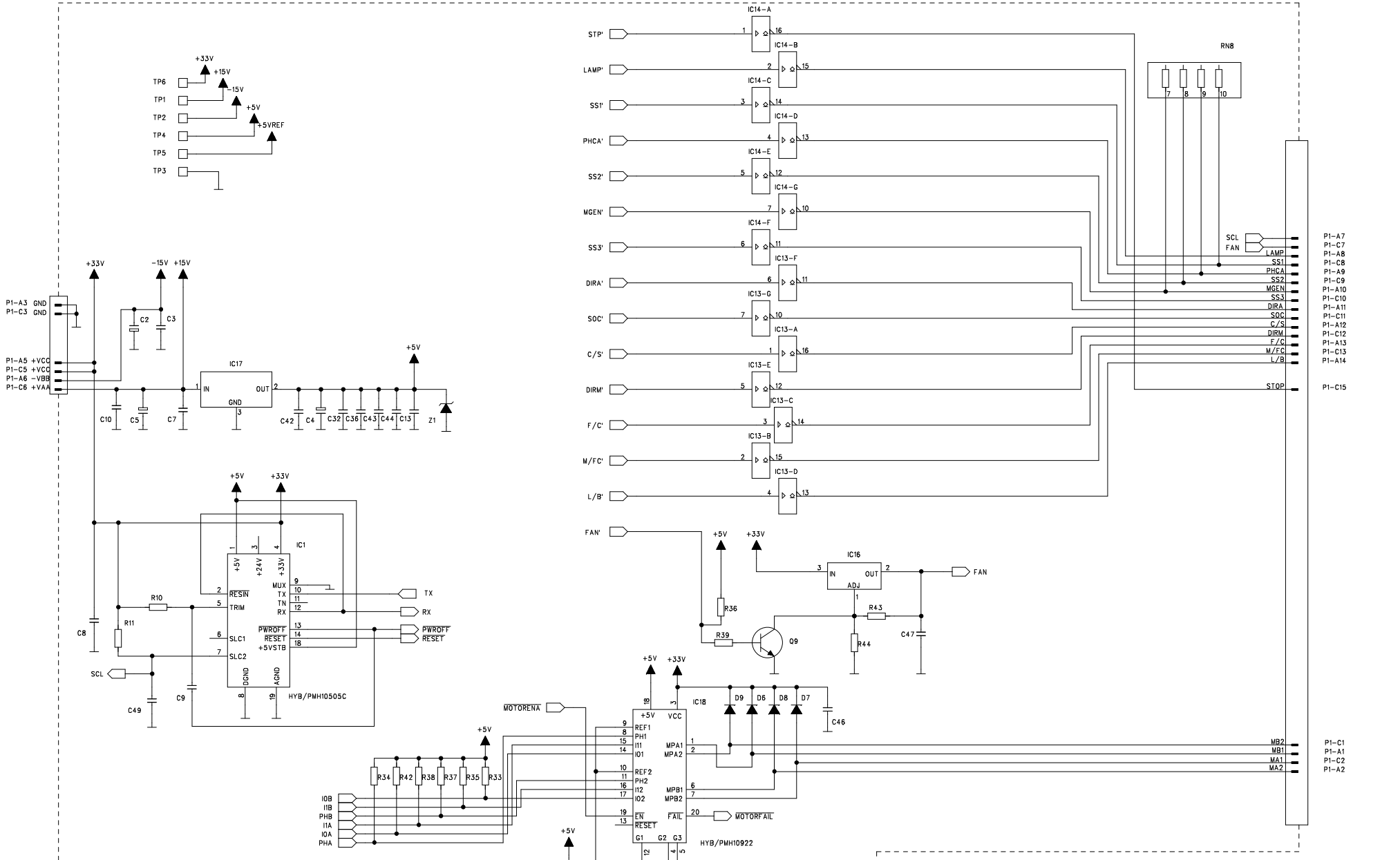
telex: 122430 plan sf
fax: 358−0−75905555

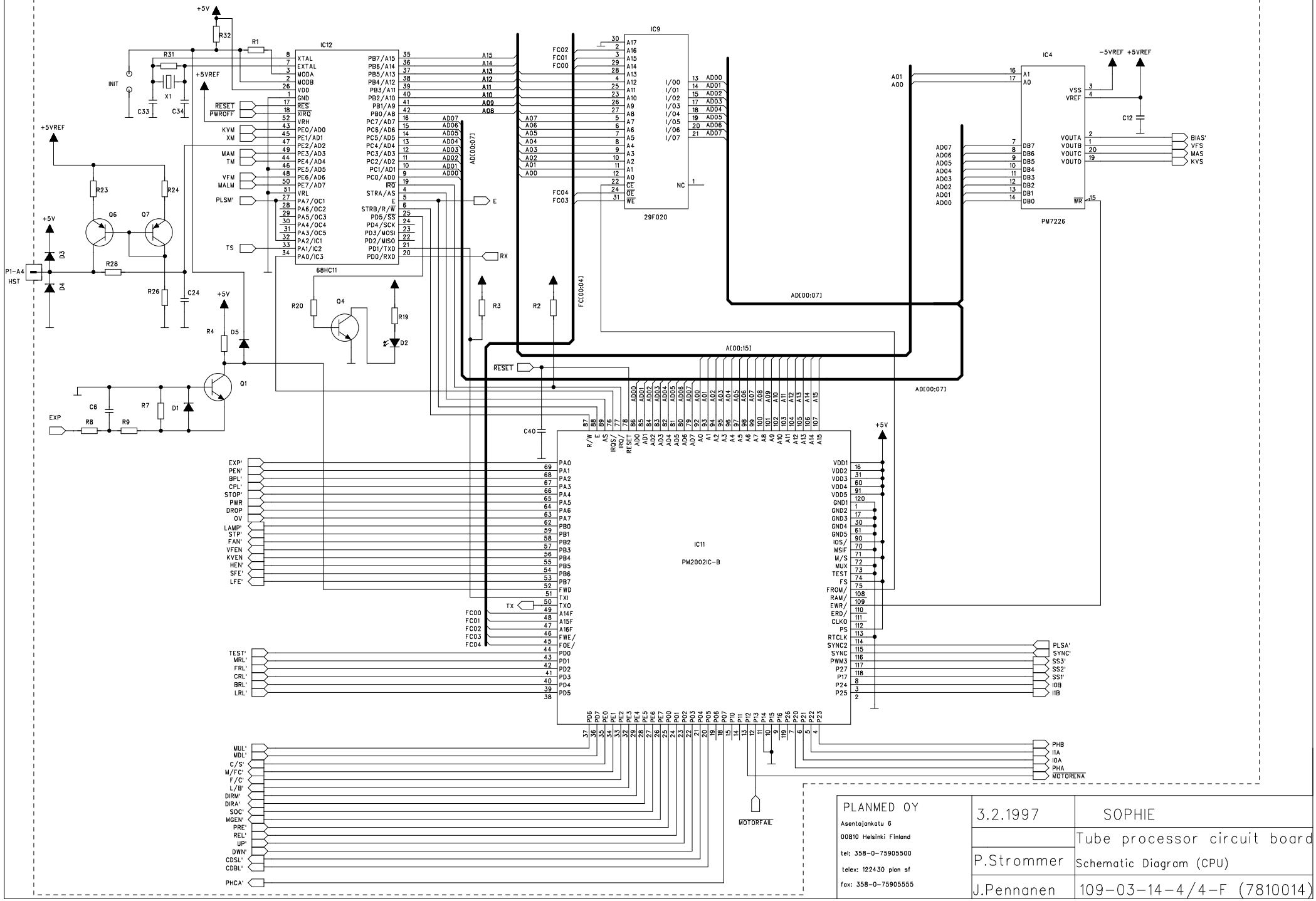
3.2.1997	SOPHIE
	Tube processor circuit board
P.Strommer	Schematic Diagram (main block)
J.Pennanen	109−03−14−1/4−F (7810014)

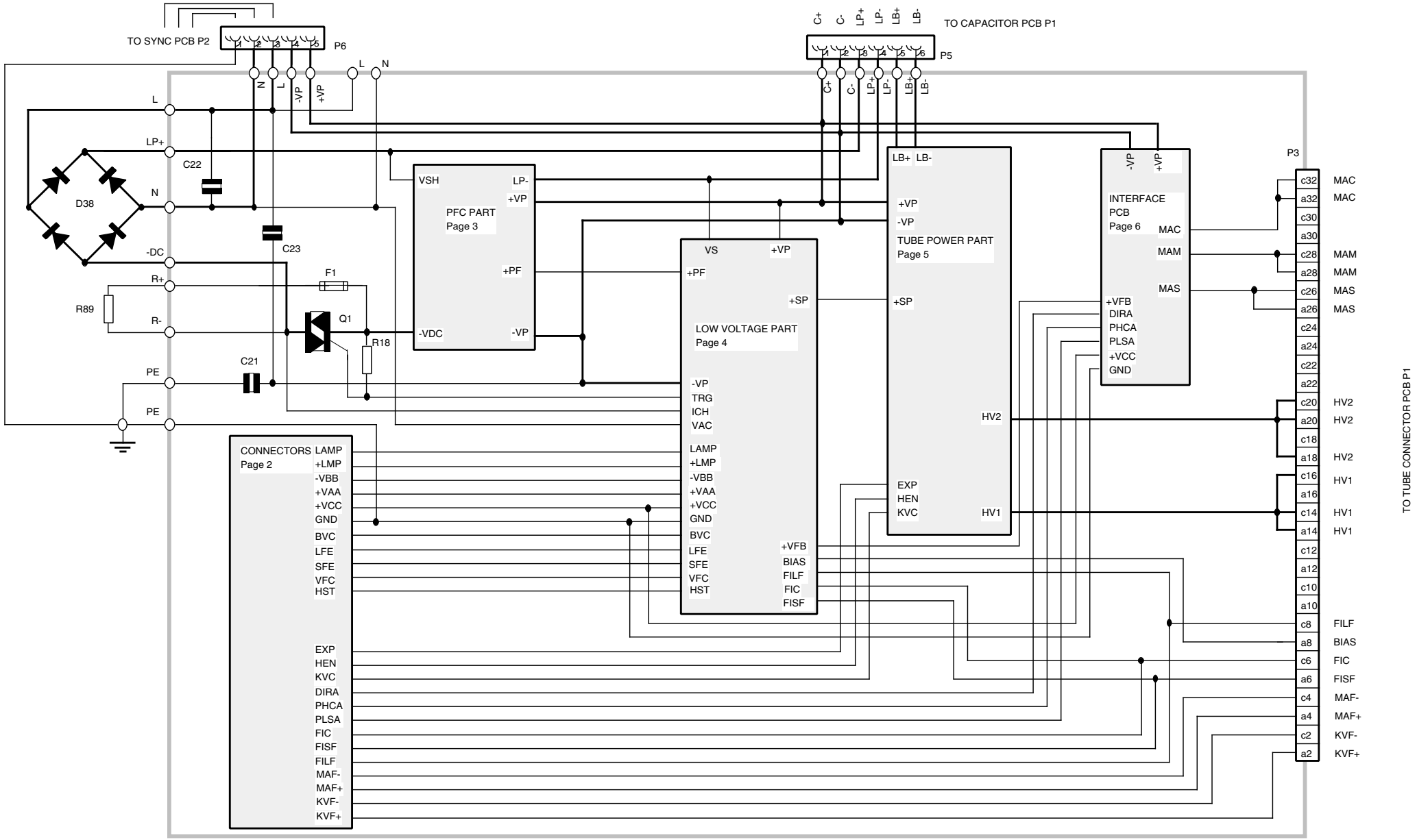


PLANMED OY Asentajankatu 6 00810 Helsinki Finland tel: 358-0-75905500 telex: 122430 plan sf fax: 358-0-75905555	3.2.1997	SOPHIE
		Tube processor circuit board
P.Strommer		Schematic Diagram (analog & input filt.)
J.Pennanen		109-03-14-2/4-F (7810014)



PLANMED OY Asentajankatu 6 00810 Helsinki Finland tel: 358-0-75905500 telex: 122430 plan sf fax: 358-0-75905555	3.2.1997	SOPHIE
		Tube processor circuit board
	P.Strommer	Schematic Diagram (output & power)
	J.Pennanen	109-03-14-3/4-F (7810014)


IC12
68HC11
IC9
29F020
IC4
PM7226
IC11
PM2002IC-B
Q1
Q4
Q6
Q7
D1
D2
D3
D4
D5
R1
R2
R3
R4
R7
R8
R9
R19
R20
R23
R24
R26
R28
R31
R32
C6
C24
C33
C34
C40
X1
INIT
EXP
P1-A4
HST
RESET
PWROFF
KVM
XM
MAM
TM
VFM
MALM
PLSM'
TS
RX
TX
E
+5V
+5VREF
-5VREF
AD[00:07]
A[00:15]
FC[00:04]
BIAS'
VFS
MAS
KVS
PLSA'
SYNC'
SS3'
SS2'
SS1'
IOB
IIB
PHB
IIA
IOA
PHA
MOTORENA
MOTORFAIL
PHCA'
PLANMED OY
Asentajankatu 6
00810 Helsinki Finland
tel: 358-0-75905500
telex: 122430 plan sf
fax: 358-0-75905555
3.2.1997
SOPHIE
Tube processor circuit board
P.Strommer
Schematic Diagram (CPU)
J.Pennanen
109-03-14-4/4-F (7810014)



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00810 Helsinki Finland
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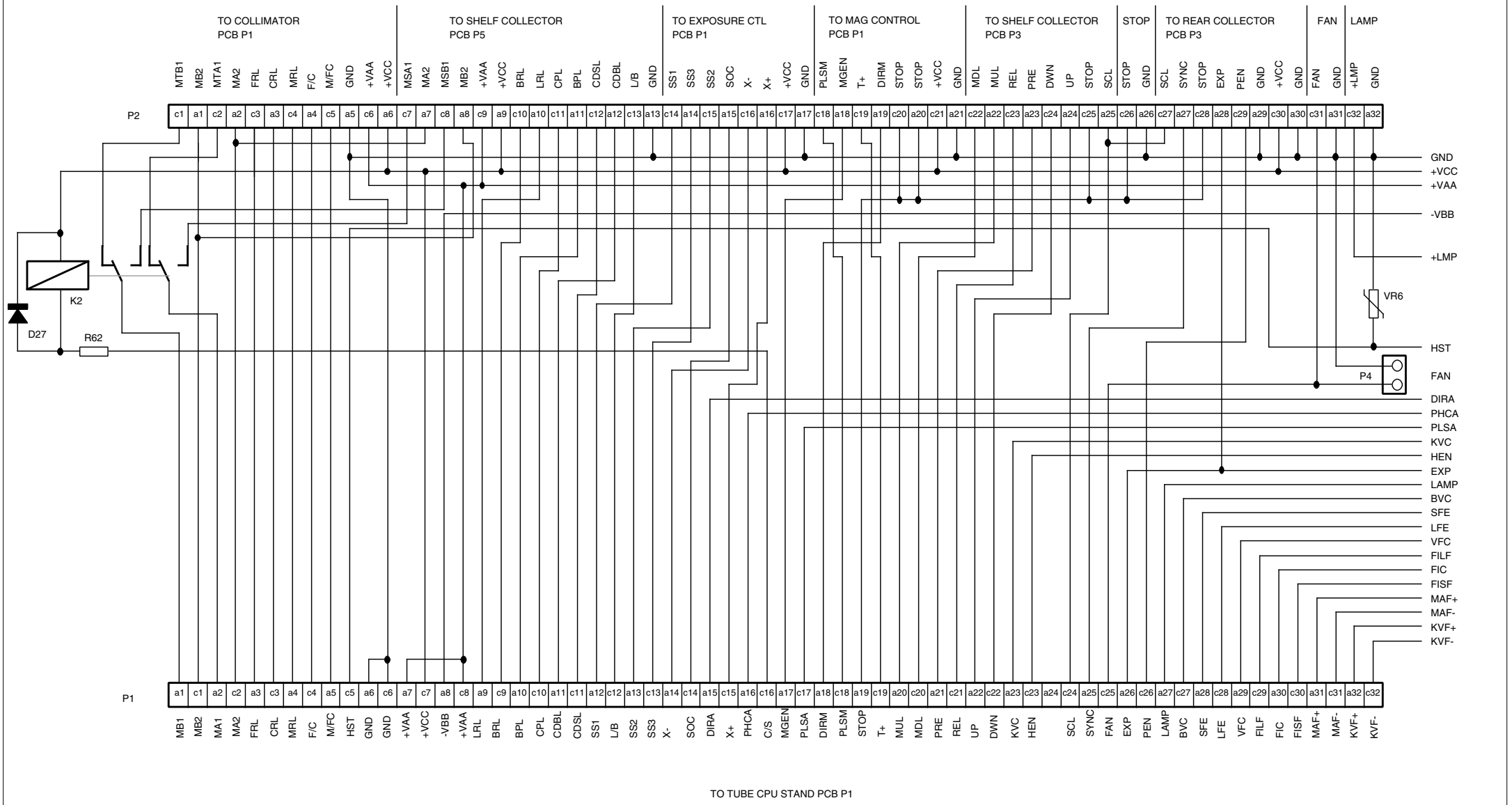
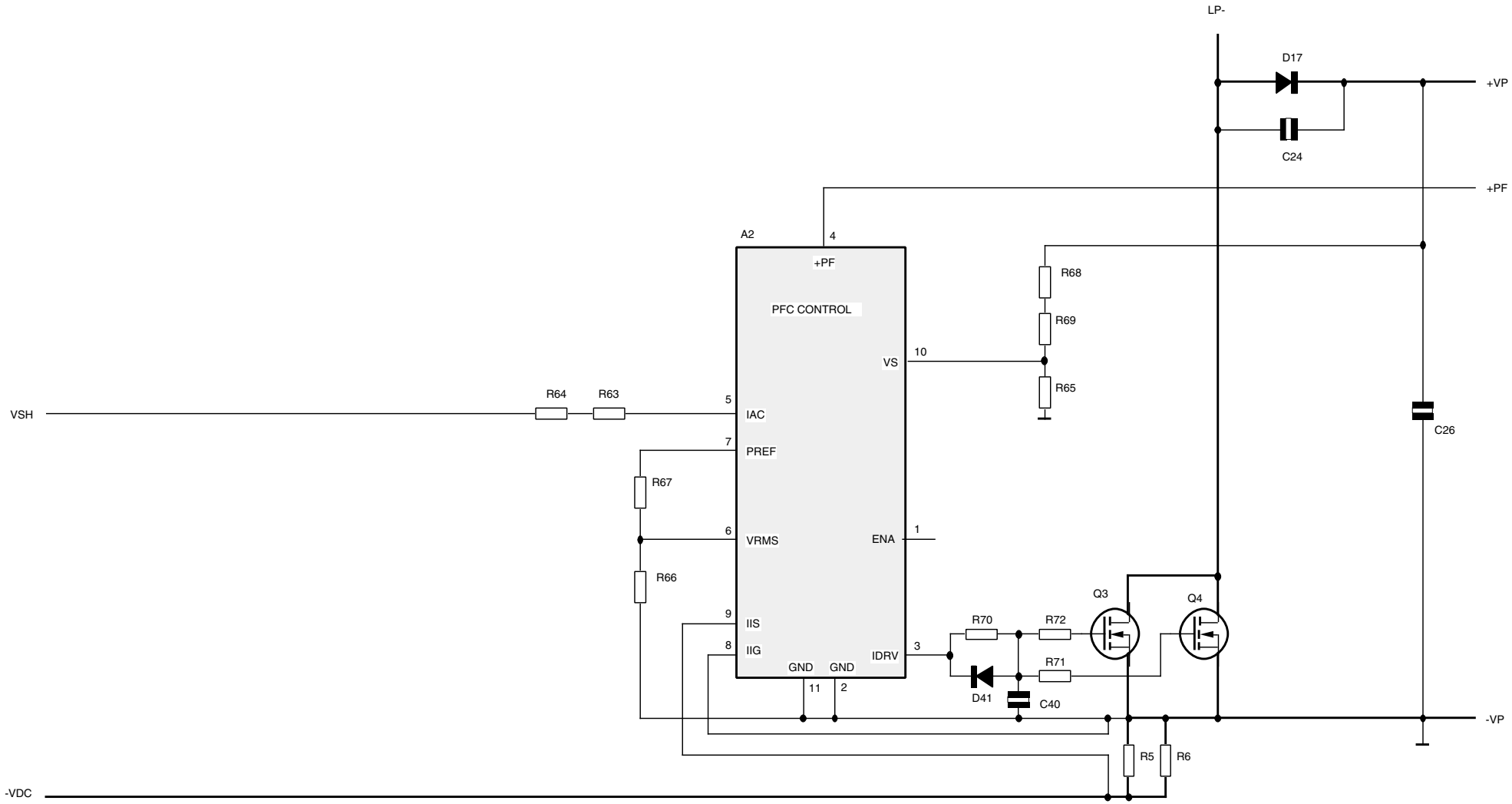
telex: 122430 plan sf
telefax: 358-9-75905555

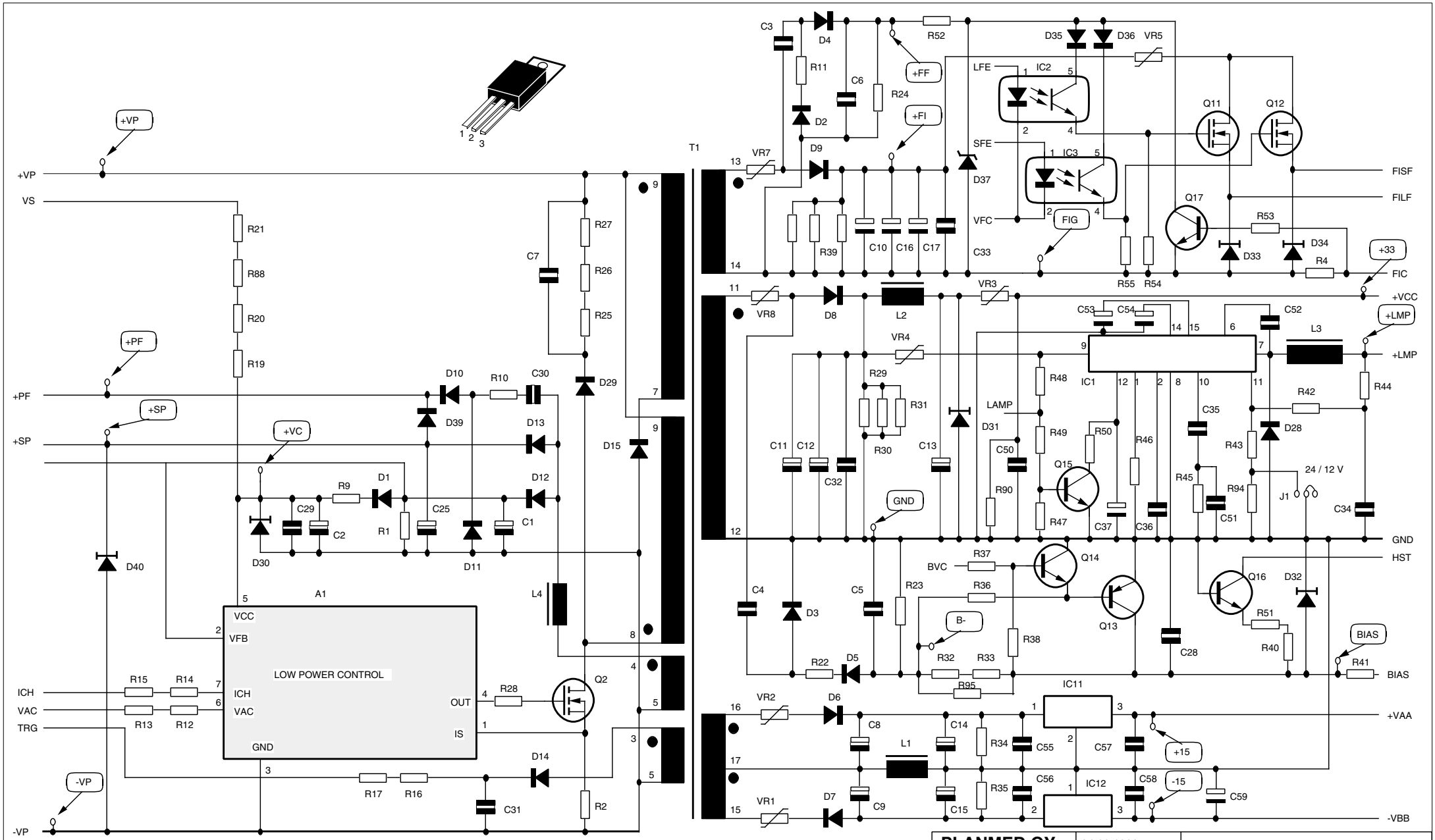
24.06.1999	SOPHIE
	Power supply Schematic Diagram (main block)
H.Lehtinen	
P.Strömmer	109 - 03 - 16 - 1/6 - M2 (20000049)



PLANMED OY Asentajankatu 6, 00810 Helsinki Finland tel: 358-9-75905300 telex: 122430 plan sf telefax: 358-9-75905555	24.06.1999	SOPHIE
		Power supply Schematic Diagram (connectors)
	P.Strömmer	109 - 03 - 16 - 2/6 - M2 (20000049)



PLANMED OY Asentajankatu 6, 00810 Helsinki Finland tel: 358-9-75905300 telex: 122430 plan sf telefax: 358-9-75905555	24.06.1999	SOPHIE
		Power supply Schematic Diagram (PFC part)
	P.Strömmer	
	J. Valkeakari	109 -03 -16-3/6- M2 (20000049)



PLANMED OY
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00810 Helsinki Finland
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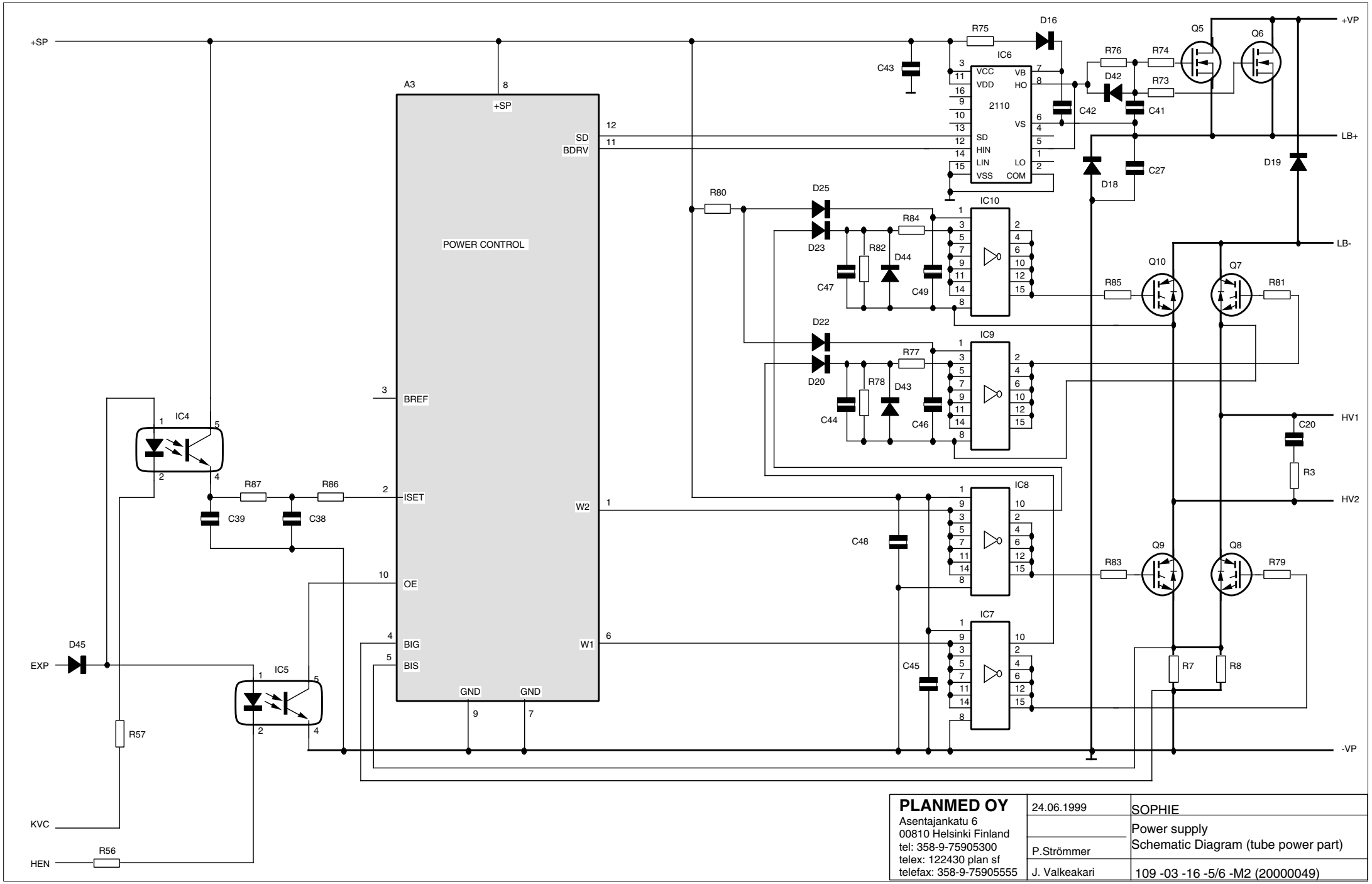
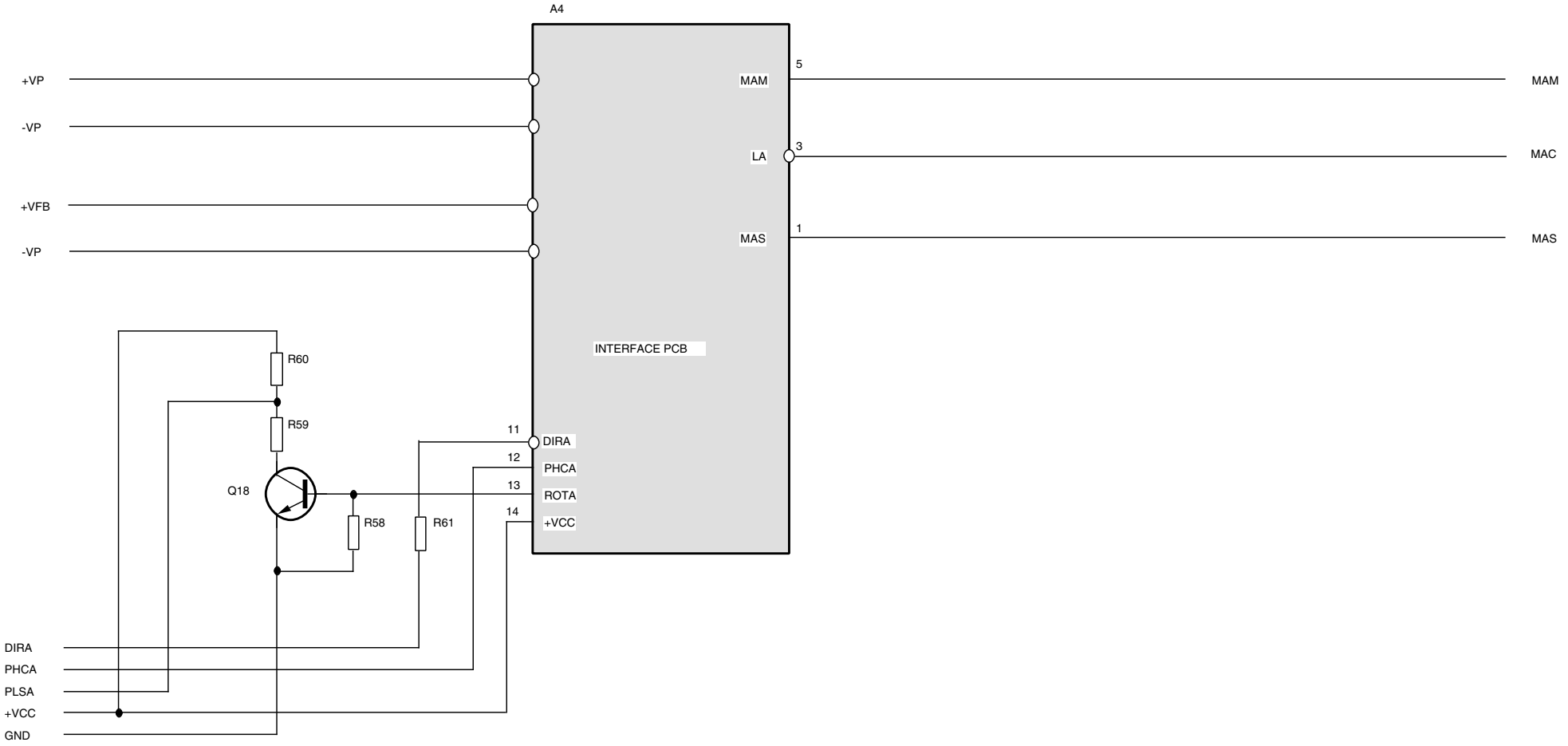
telex: 122430 plan sf
telefax: 358-9-75905555

24.06.1999	SOPHIE
P. Strömmer	Power supply
C. de Godzinsky	Schematic Diagram (low power part)
T. Roivainen	109 - 03 - 16 - 4/6 - M2 (20000049)

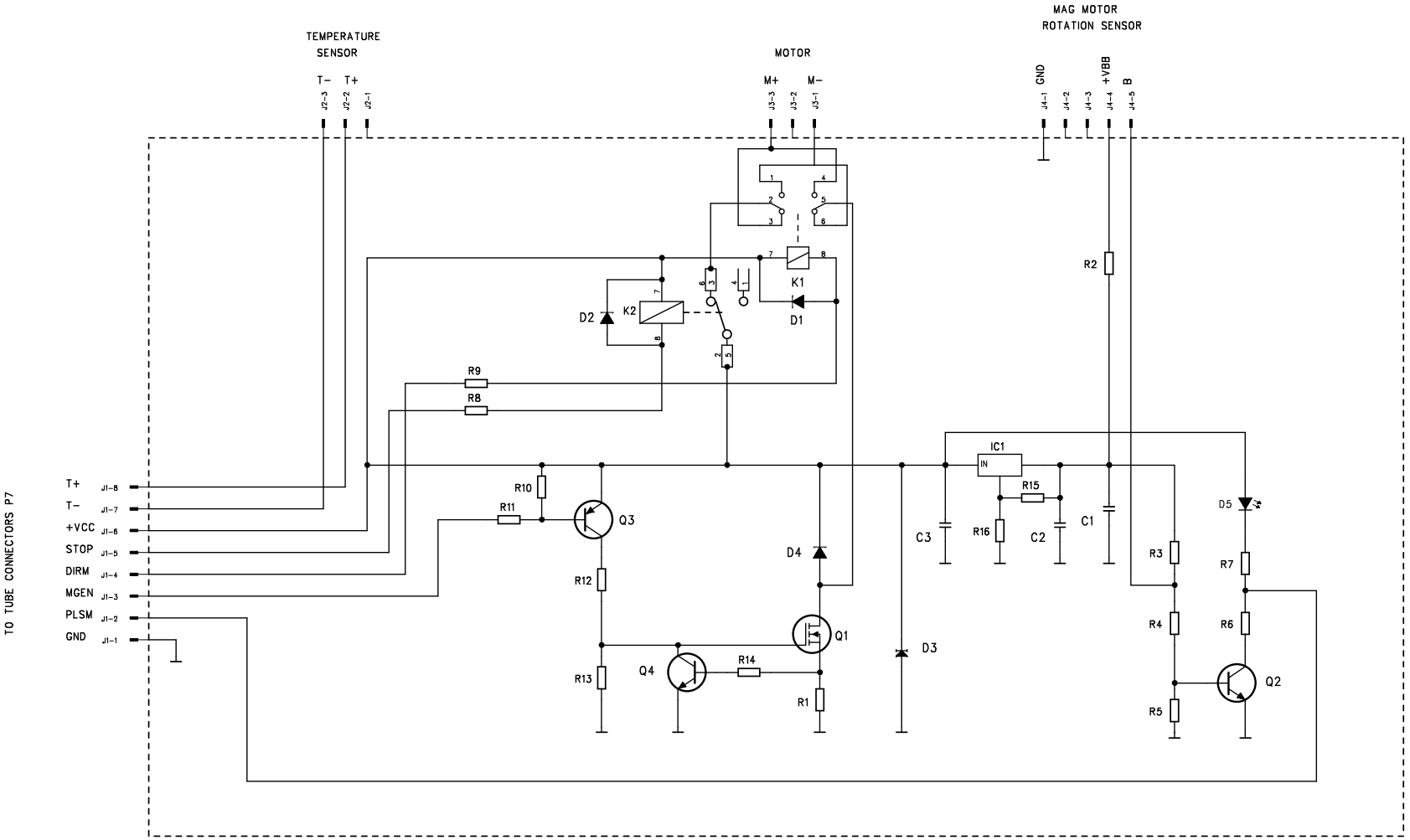


PLANMED OY Asentajankatu 6 00810 Helsinki Finland tel: 358-9-75905300 telex: 122430 plan sf telefax: 358-9-75905555	24.06.1999	SOPHIE
		Power supply Schematic Diagram (tube power part)
	P.Strömmer	
	J. Valkeakari	109 -03 -16 -5/6 -M2 (20000049)

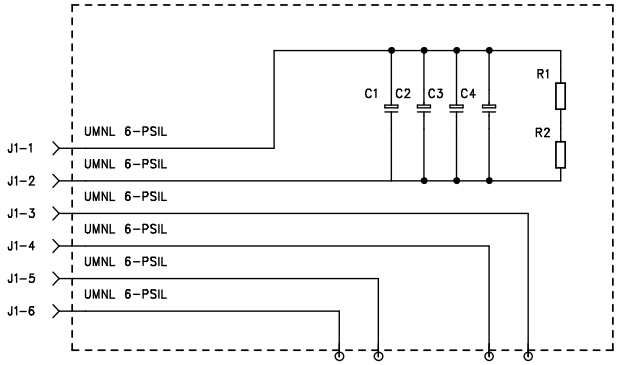


PLANMED OY
Asentajankatu 6
00810 Helsinki Finland
tel: 358-9-75905300
telex: 122430 plan sf
telefax: 358-9-75905555

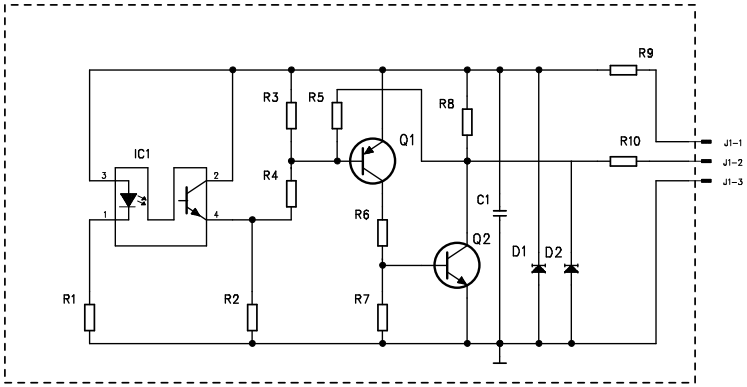
24.06.1999	SOPHIE
	Power supply Schematic Diagram(anode motor control)
H. Lehtinen	
P.Strömmer	109 - 03 - 16 - 6/6 - M2 (20000049)



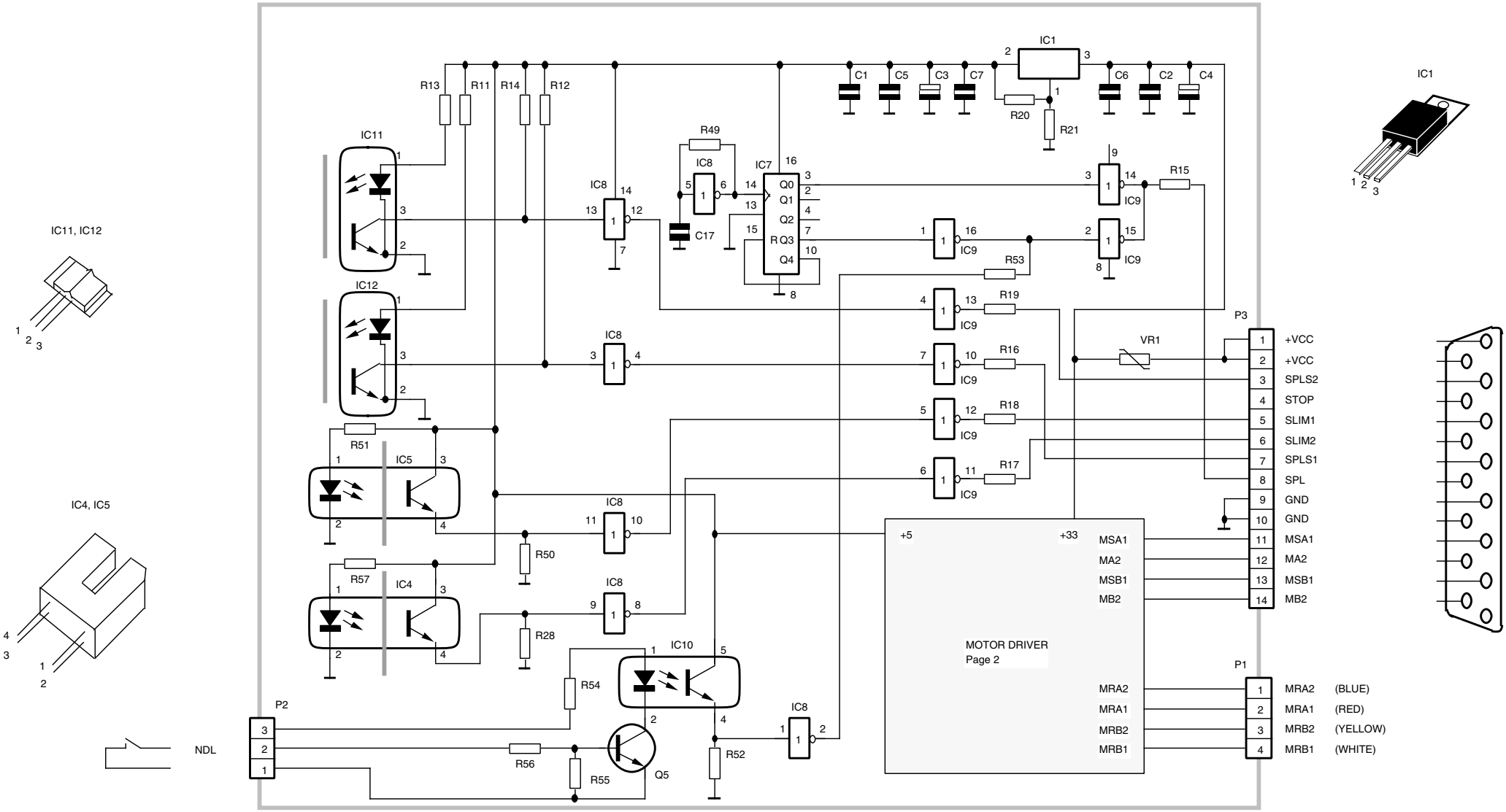
PLANMED OY Asentajank. 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: SOPHIE
Design: Pekka Strömmer	Date: 11.01.2000	PCB name: MAG Control PCB
Modified:	Date:	PCB number: 109-10-20 / PCB revision: D / Sheet number: 1/1 / Size: A4
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3
Approved:	Date:	



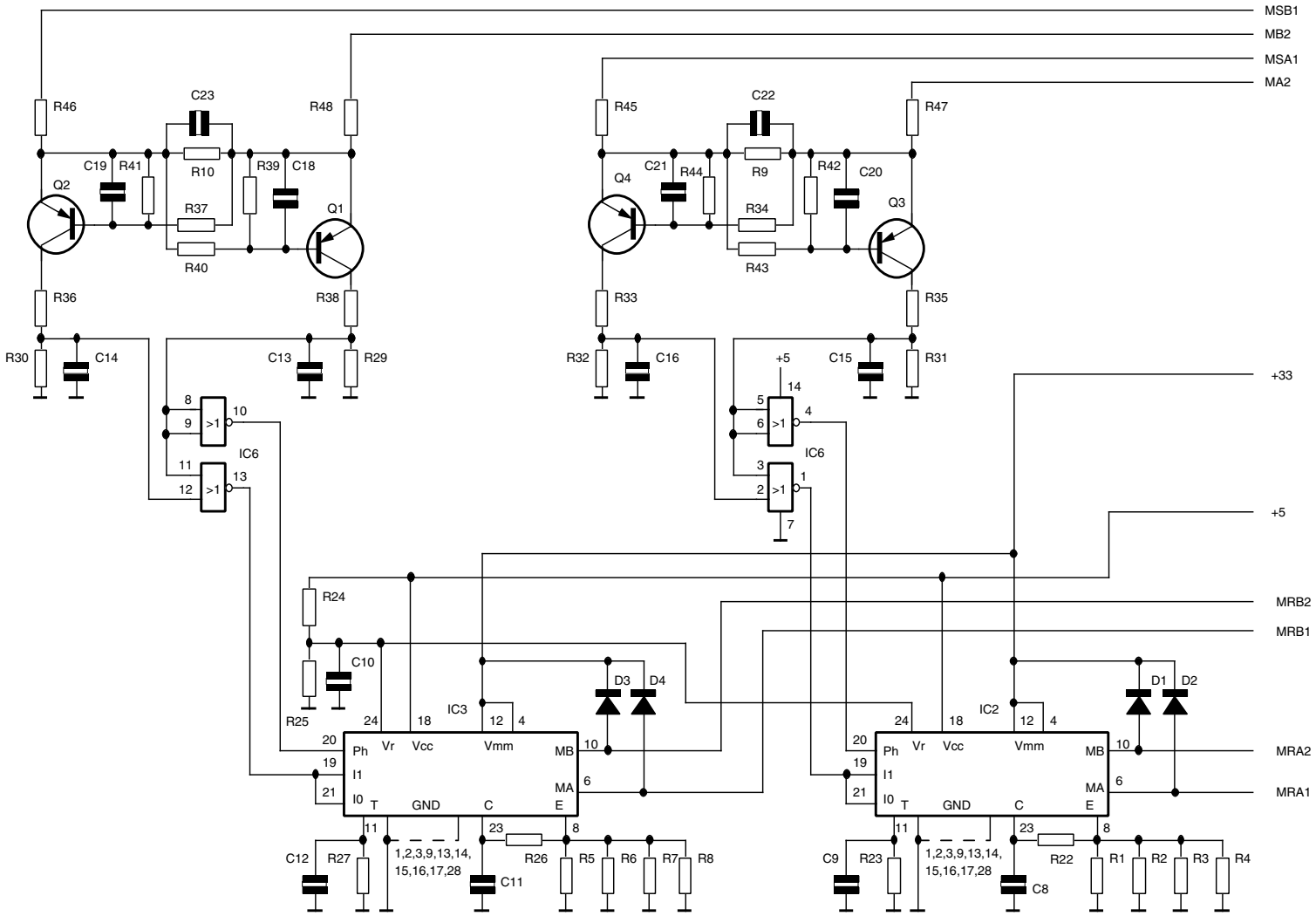
PLANMED OY Asentajank, 6, 00B10 Heisinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: SOPHIE
Design: Pekka Strömmer	Date: 17.12.1999	PCB name: Capacitor PCB
Modified:	Date:	PCB number: 109-10-22 / PCB revision: C / Sheet number: 1/1 / Size: A4
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3
Approved:	Date:	



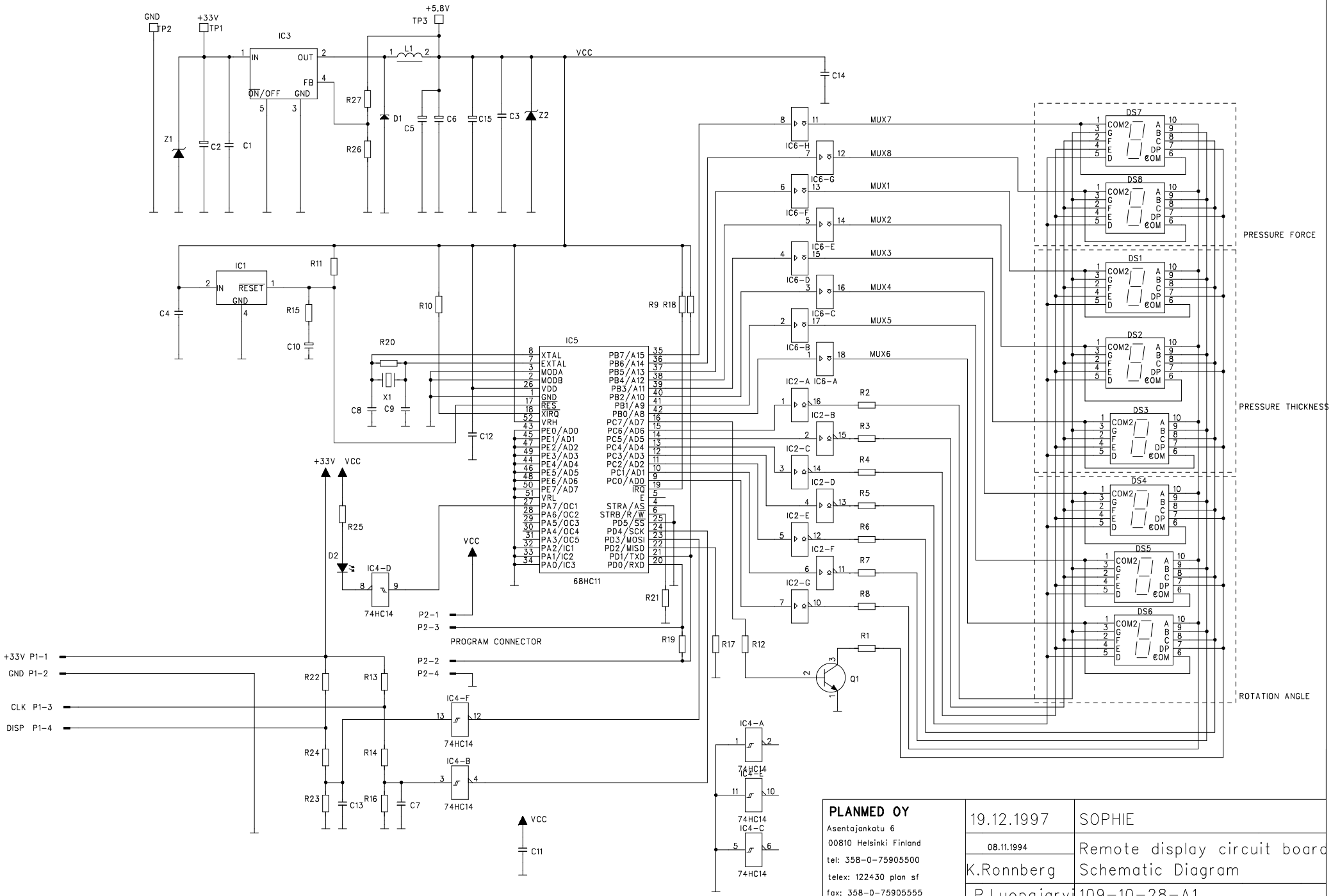
PLANMED OY Asentajank, 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: SOPHIE			
Design: Pekka Strömmer	Date: 21.12.1999	PCB name: Bucky Grid Reference PCB			
Modified:	Date:	PCB number: 109-10-25	PCB revision: C	Sheet number: 1/1	Size: A4
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3			
Approved:	Date:				



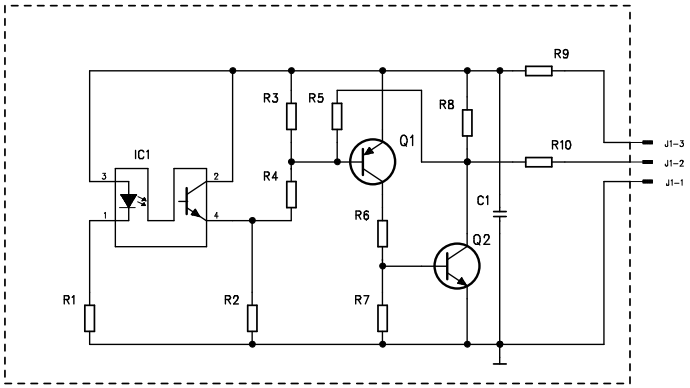
PLANMED OY Asentajankatu 6, 00810 Helsinki Finland tel: 358-0-75905300 telex: 122430 plan sf telefax: 358-0-75905555	25.05.1992	SOPHIE
		Stereo control PCB Schematic Diagram (sensors)
	P. Strömmer	109 - 03 - 26 - 1/2 - B (Part No 7810026)



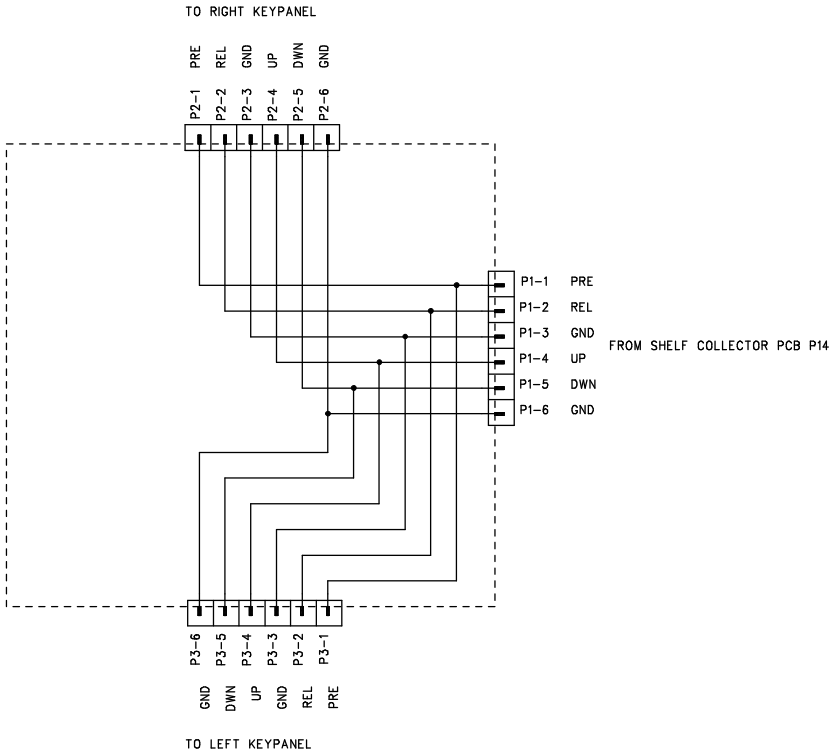
PLANMED OY Asentajankatu 6, 00810 Helsinki Finland tel: 358-0-75905300 telex: 122430 plan sf telefax: 358-0-75905555	25.05.1992	SOPHIE
		Stereo control PCB Schematic Diagram (motor driver)
	P. Strömmer	109 - 03 - 26 - 2/2 - B (Part No 7810026)



PLANMED OY Asentajankatu 6 00810 Helsinki Finland tel: 358-0-75905500 telex: 122430 plan sf fax: 358-0-75905555	19.12.1997	SOPHIE
	08.11.1994	Remote display circuit board
	K.Ronnberg	Schematic Diagram
	P.Luopajarvi	109-10-28-A1



PLANMED OY Asentajank. 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: SOPHIE
Design: Pekka Strömmer	Date: 20.12.1999	PCB name: Lift Reference PCB
Modified:	Date:	PCB number: 109-10-29 / PCB revision: C / Sheet number: 1/1 / Size: A4
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3
Approved:	Date:	



PLANMECA OY
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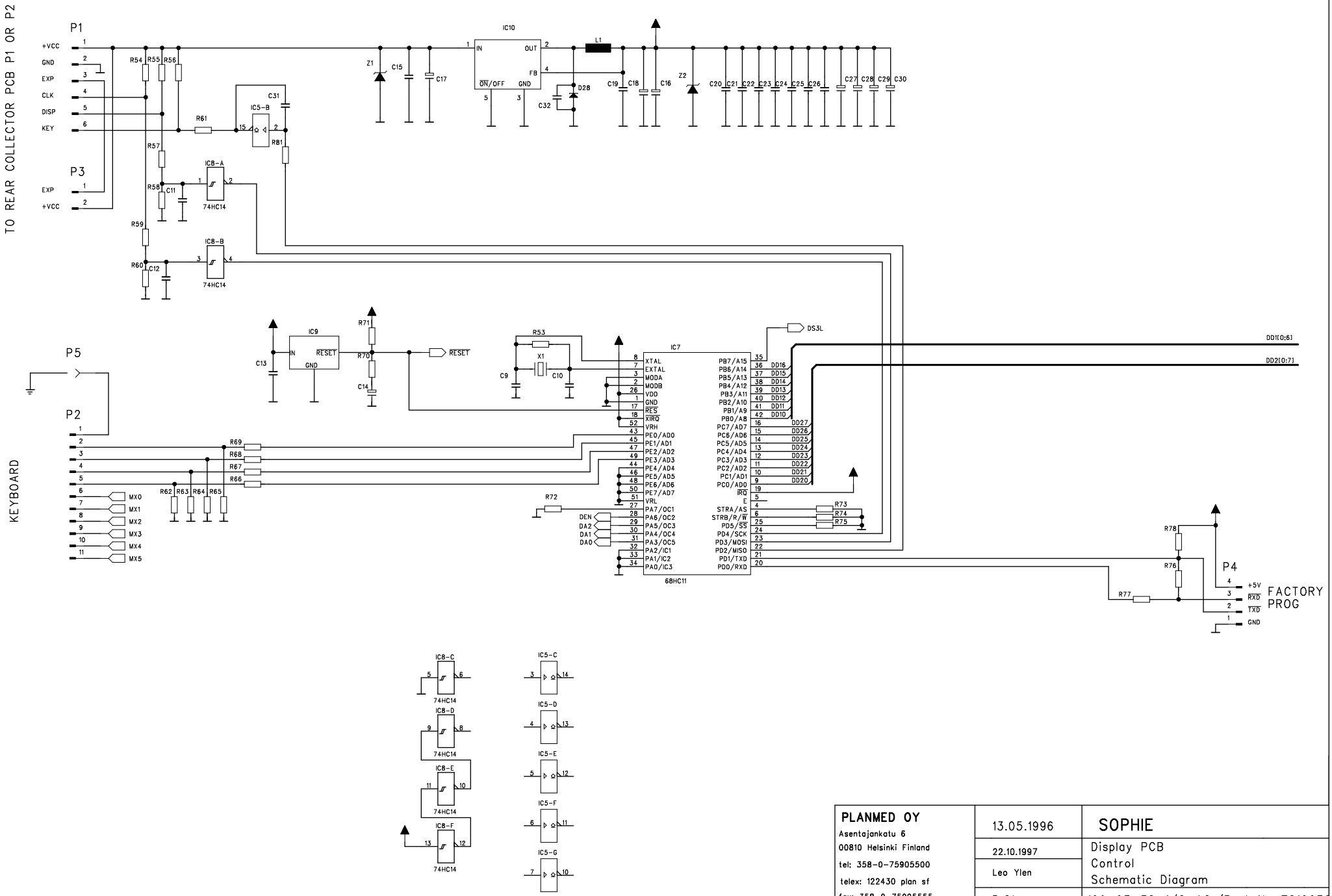
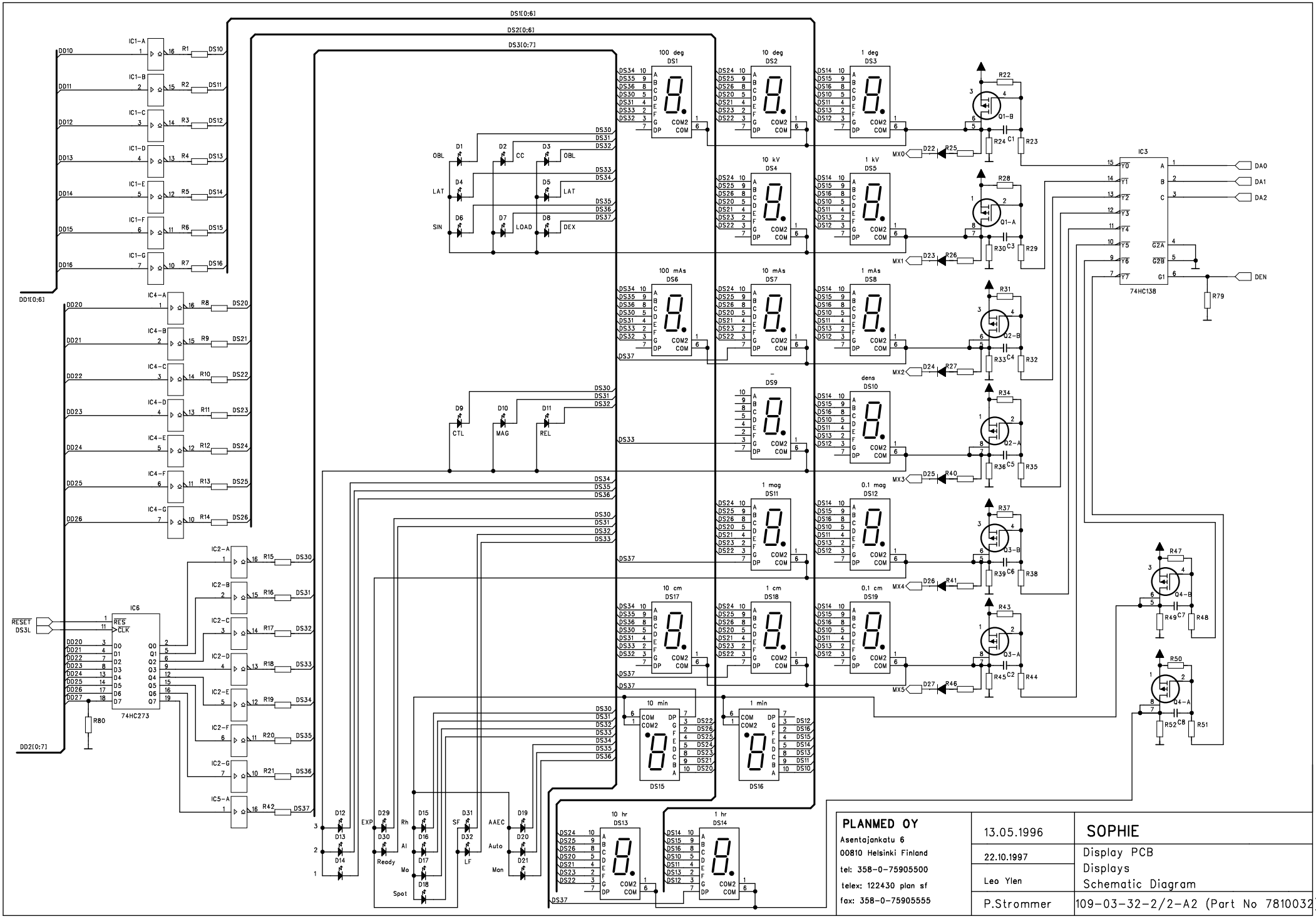
00810 Helsinki Finland
tel: 358-0-75905500
telex: 122430 plan sf
fax: 358-0-75905555

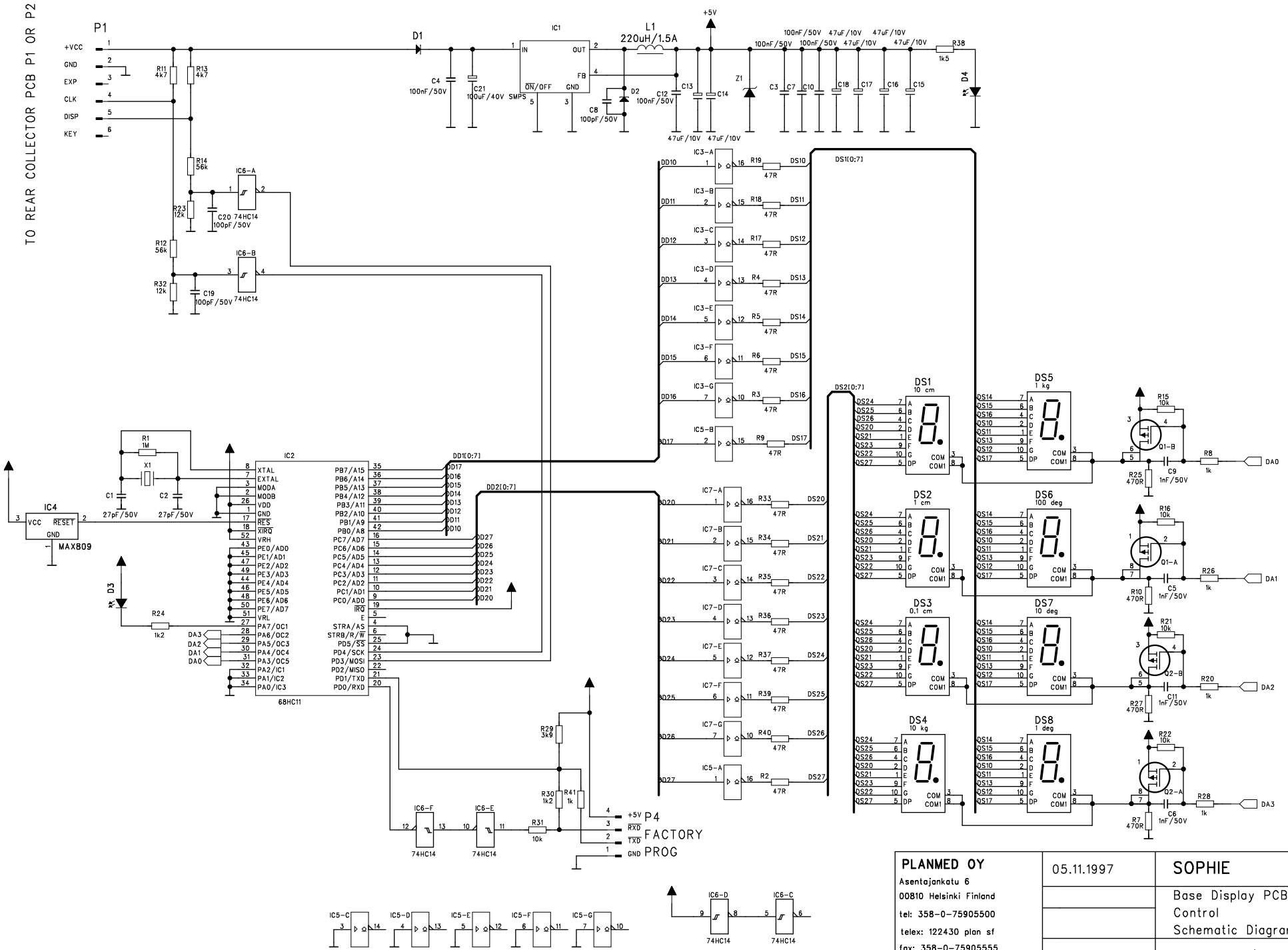
13.11.1995	SOPHIE
	Upper Keypanel Connector PCB Schematic Diagram
P.Luopajarvi	109-10-30-A



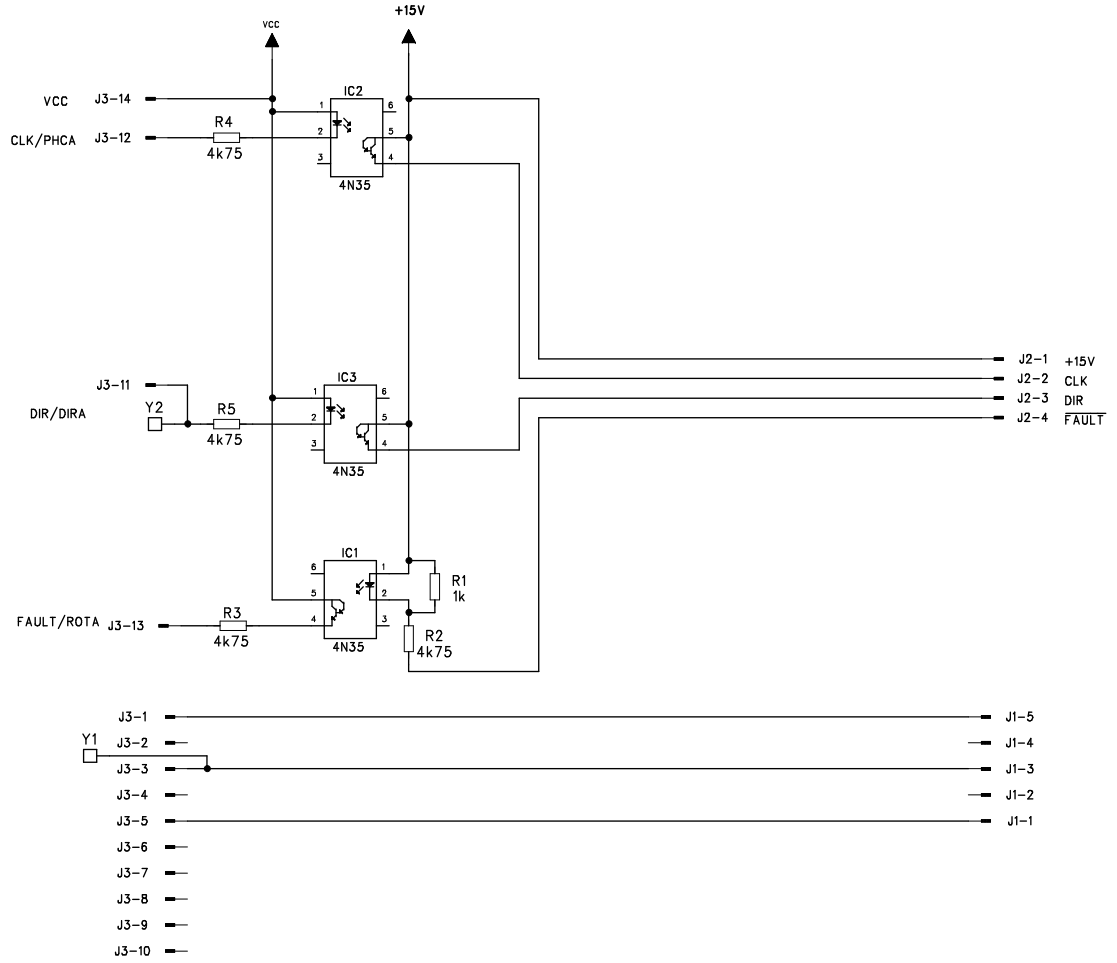
PLANMED OY Asentajankatu 6 00810 Helsinki Finland tel: 358-0-75905500 telex: 122430 plan sf fax: 358-0-75905555	13.05.1996	**SOPHIE**
	22.10.1997	Display PCB Control Schematic Diagram
	Leo Ylen	
	P.Strommer	109-03-32-1/2-A2 (Part No 7810032)



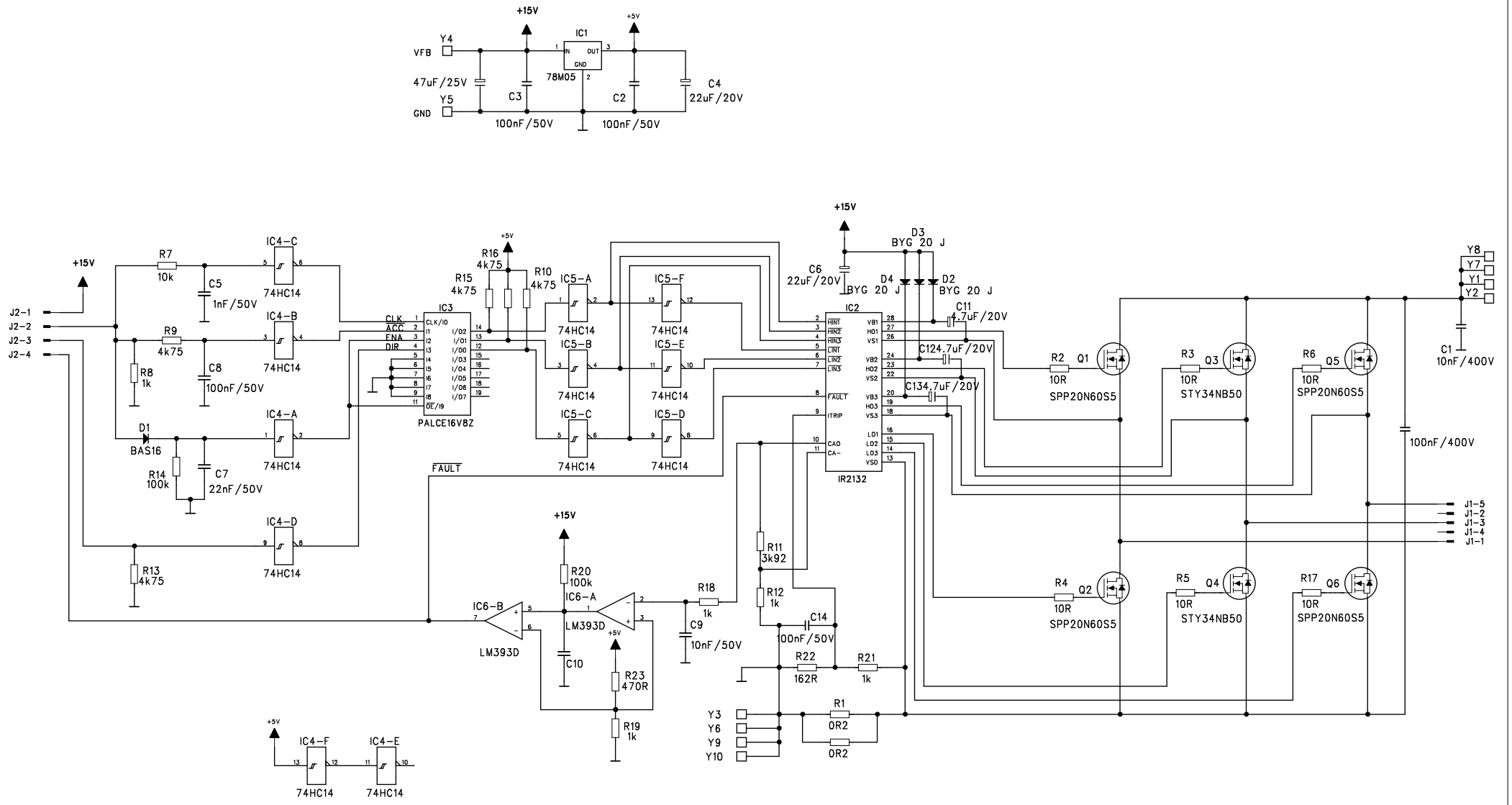
PLANMED OY Asentajankatu 6 00810 Helsinki Finland tel: 358-0-75905500 telex: 122430 plan sf fax: 358-0-75905555	13.05.1996 22.10.1997 Leo Ylen P.Strommer	**SOPHIE** Display PCB Displays Schematic Diagram 109-03-32-2/2-A2 (Part No 7810032)



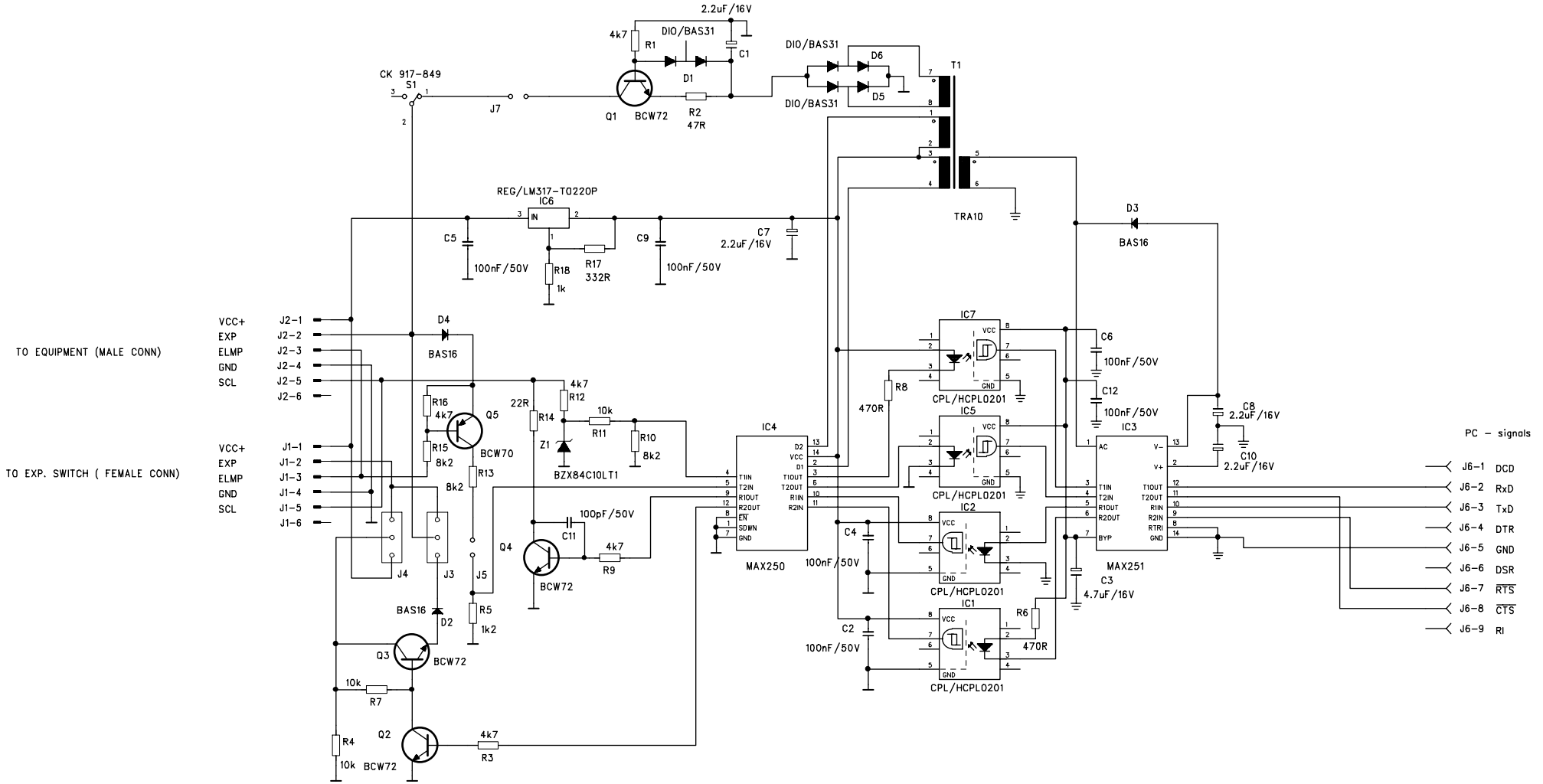
PLANMED OY Asentajankatu 6 00810 Helsinki Finland tel: 358-0-75905500 telex: 122430 plan sf fax: 358-0-75905555	05.11.1997	**SOPHIE**
		Base Display PCB Control Schematic Diagram (1/1)
	K.Ronnberg	109-03-33-A(Part No7810033)



PLANMECA OY Asentajank. 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5500 fax: +358-9-7590 5566	Product: **Sophie**
Design: **Harri Lehtinen**	Date: **17.03.1999**	PCB name: **NAME**
Modified:	Date:	PCB number: **109-10-34** / PCB revision: **B** / Sheet number: **1/1** / Size: **A4**
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3
Approved:	Date:	



PLANMECA OY Asentajank. 6, 00810 Helsinki, FINLAND	tel: +358-9-7590 5500 fax: +358-9-7590 5566	Product: **Sophie**
Design: **Harri Lehtinen**	Date: **19.03.1999**	PCB name: **Inverter PCB**
Modified: **Harri Lehtinen**	Date: **28.10.1999**	PCB number: **109-10-35** / PCB revision: **B5** / Sheet number: **1/1** / Size: **A4**
Checked:	Date:	Contents / Notes: 0,2R 2pcs current measurement resistors added 100nF/400V snubber capacitor added 47uF/25V electrolytic capacitor added
Approved:	Date:	



PLANMED OY Asentajank. 5, 00810 Helsinki, FINLAND	tel: +358-9-7590 5300 fax: +358-9-7590 5309	Product: Sophie				
Design: Pekka Strömmer	Date: 30.09.1999	PCB name: PC Adapter				
Modified: Pekka Strömmer	Date: 09.03.2000	PCB number: 109-10-36	PCB revision: B	Sheet number: 1/1	Size: A4	
Checked:	Date:	Contents / Notes: - Note 1 - Note 2 - Note 3				
Approved:	Date:					

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