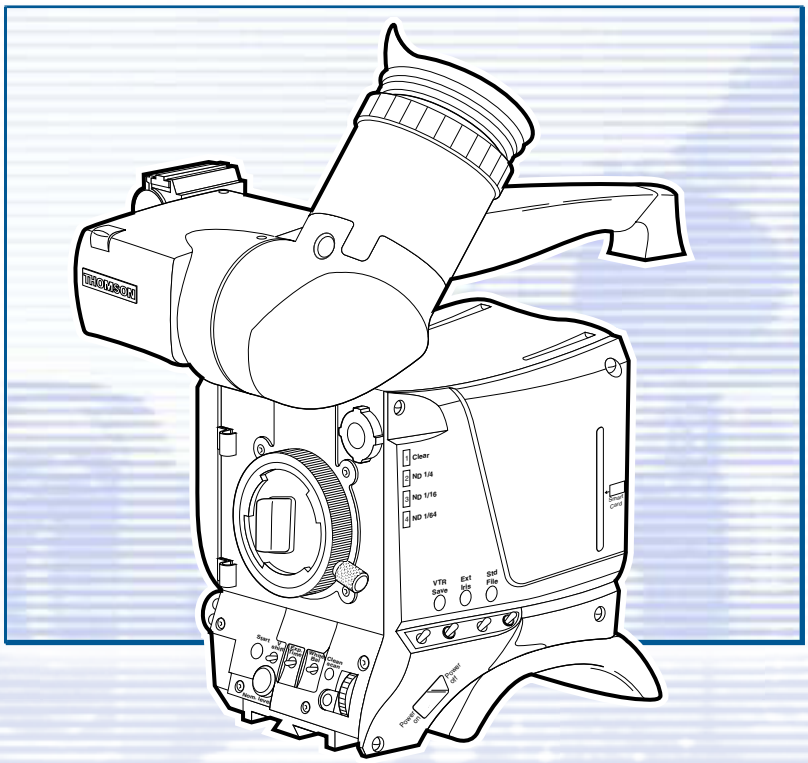
LDK 100

Multi-role Digital Camera Head



Technical Manual

3922 496 46761 St.03

THOMSON MULTI MEDIA
BROADCAST SOLUTIONS

Declaration of Conformity

We, Thomson Broadcast Solutions Nederland B.V., Kapittelweg 10, 4827 HG Breda, The Netherlands declare under our sole responsibility that this product is in compliance with the following standards:

- EN60065 : Safety
- EN55103-1 : EMC (Emission)
- EN55103-2 : EMC (Immunity)

following the provisions of:

a. the Safety Directives 73/23//EEC and 93/68/EEC
b. the EMC Directives 89/336/EEC and 93/68/EEC

FCC Class A Statement

This product generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause interference to radio communications.
It has been tested and found to comply with the limits for a class A computing device pursuant to Subpart J of part 15 of FCC rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment.
Operation of this product in a residential area is likely to cause interference in which case the user at his own expense will be required to take whatever measures may be required to correct the interference.

Copyright

LDK 100
Camera Head

Technical Manual

Contents

About This Manual

Service policy
The LDK 100 is a sophisticated camera head containing state-of-the-art electronic components which are designed to provide long-life operation without the need for maintenance. With this in mind, the service policy of Thomson Multimedia Broadcast Solutions endeavours to ensure that help will be quickly on hand in the unlikely event of anything going wrong. The guiding principles of the Thomson Multimedia Broadcast Solutions first line maintenance philosophy are speed and cost effectiveness. First line maintenance is dedicated to keeping your camera operational, despite a fault, by module replacement and the replacement of minor mechanical parts by the user.

Purpose of this manual
The provision of correct information is the first step in ensuring the operational integrity of the camera. Information on the operation of the camera is to be found in the Operators's Manual.

This technical manual is an integral part of the service policy. It ensures that you will be able to install and set-up your camera to meet the requirements of your environment. This information on the installation of the camera is contained in Section 1 of the manual. The remaining sections of the manual provide first line service information so that suitably qualified service personnel can detect and repair faults, normally by module replacement.

Because of the complexity of some of the components, second line service can only be carried out at the specially equipped service centres and information concerning second line maintenance is not supplied in this manual.

Intended audience
The manual is intended as a guide to those with a working knowledge of camera systems and installation techniques. The first line detection and repair of faults requires a general knowledge of test and measurement techniques.

Structure of this manual
The manual is divided into four different sections:

Section 1: Safety Instructions
Outlines the safety precautions that must be taken when using the camera.

Section 2: Installation.
Gives instructions on the integration of the camera into the operating environment and the customization of certain hardware functions

Section 3: Replacements.
Gives information on the replacement of components at first line level.

Section 4: Adjustments.
Contains the adjustment procedures to be followed to obtain the best performance.

Section 5: Diagnostics.
Contains diagnostic messages and block diagrams.

Section 6: Wiring & Block Diagrams

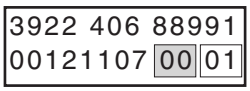
Section 7: Mechanical Exploded Views

Section 8: Parts Lists

Identification and Status
To indicate the status of a drawing, a box with the numbers 0 to 9 is shown in the bottom-right of the drawing. The number that is crossed-out is the status number of the drawing. For example, in the illustration below, the status is 1.

0	1	2	3	4
5	6	7	8	9

A sticker is used on the units themselves to identify them and to indicate their status. For example, in the illustration below, the top line is the 12-digit number that identifies the unit type.



The first four digits of the number on the second line represent a date code (year, week); the next four digits represent the serial number for that week.

The number in the grey area indicates the status of the unit. The last two digits represent the number that will be given to the next status. However, if these two digits are contained in a box, then this is the current status. For example, in the illustration above, the current status of the unit is 01.

Line 1	3922 407 00000
Line 2	123456AA0101
Line 3	VR/0123456789

Line 1
This is the code number of the printed circuit board assy. (PCB)

Line 2
This is the serial number of the PCB. The first 6 digits and the 2 letters are for internal use. The last four digits reperesent the date of the manufacturing: wwyy.
Example:
123456AA1402 means the PCB is manufactured in week 14 of the year 2002.

Line 3
This is the status of the PCB.
The digit after the first slash is the status. If there is no number before the slash, it means that the status is less than 10, a 1 before the slash means the status is between 10 and 19, a 2 before the slash means between 20 and 29 etc.
Example:
- VR4567891012 means status 4
- VR3/78901234 means status 37.

Example of LDK number:
LDK 4501/01 means 8926 **450 10101**
LDK 4500/00 means 8926 **450 00001**

Numbers of printed circuit board assy
- 3922 406 xxxxx or 3922 407 xxxxx

Number (screened in PCB layout) of printed circuit board assy: 3922 411xxxxx. (not a sparepart)

Section 1

Safety Instructions

This section outlines the precautions that must be taken into account when using the Camera Head.

Contents

Safety Summary

This informaton is intended as a guide for trained and qualified personnel who are aware of the dangers involved in handling potentially hazardous electrical/electronic equipment. It is not intended to contain a complete list of all safety precautions which should be observed by personnel in using this or other electronic equipment.

The installation, maintenance and service of this equipment involves risks both to personnel and equipment and must be performed only by qualified personnel exercising due care.

Personnel engaged in the installation, operation, maintenance or servicing of this equipment are urged to become familiar with First Aid theory and practises.

During installation and operation of this equipment, local building safety and fire protection standards must be observed.

Before connecting the equipment to the power supply of the installation, the proper functioning of the protective earth lead of the installation needs to be verified.

Whenever it is likely that safe operation is impaired, the apparatus must be made inoperative and secured against any unintended operation. The appropriate servicing authority must then be informed. For example, safety is likely to be impaired if the apparatus fails to perform the intended function or shows visible damage.

This product has been designed and tested according to EN60065.

Cautions and Warnings

When performing service, be sure to read and comply with the warning and caution notices appearing in the manuals. Warnings indicate danger that requires correct procedures or practices to prevent death or injury to personnel. Cautions indicate procedures or practices that should be followed to prevent damage or destruction to equipment or property.

WARNING

THE CURRENT AND VOLTAGES PRESENT IN THIS EQUIPMENT ARE DANGEROUS. ALL PERSONNEL MUST AT ALL TIMES FOLLOW THE SAFETY REGULATIONS.

ALWAYS DISCONNECT POWER BEFORE REMOVING COVERS OR PANELS.

ALWAYS DISCHARGE HIGH VOLTAGE POINTS BEFORE SERVICING.

NEVER MAKE INTERNAL ADJUSTMENTS, PERFORM MAINTENANCE OR SERVICE WHEN ALONE OR WHEN FATIGUED.

IN CASE OF AN EMERGENCY ENSURE THAT THE POWER IS DISCONNECTED.

ANY INTERRUPTION OF THE PROTECTION CONDUCTOR INSIDE OR OUTSIDE THE APPARATUS, OR DISCONNECTION OF THE PROTECTIVE EARTH TERMINAL, IS LIKELY TO MAKE THE APPARATUS DANGEROUS. INTENTIONAL INTERRUPTION IS PROHIBITED.

FOR SAFETY REASONS THE CPU MUST BE MOUNTED IN A 19-inch RACK WHICH HAS SAFETY COVERS ACCORDING TO IEC65.

WHEN TWO CPUs ARE MOUNTED ABOVE EACH OTHER THE MINIMUM DISTANCE BETWEEN THEM MUST BE 50MM OR THE RACK MUST BE FORCE-AIR COOLED.

USE ONLY FUSES OF THE TYPE AND RATING SPECIFIED.

CAUTION

To prevent risk of overheating, ventilate the product correctly.

Connect the product only to a power source with the specified voltage rating.

Only connect a Triax cable from the LDK 6 camera family to an LDK 6 CPU. Never connect it to any other base station.

Never connect the Triax cable from a camera to a CPU of a different family; never connect the LDK family to the TTV family.

Do not allow system ground currents to exceed 1.5A in the outer shield of the triax cable or 0.2A in other cable shields.

It is strickly prohibited to short circuit the inner and outer shields of a triax cable used to connect a camera to a base station.

Earthing

Symbol	Colour	Explanation
	Red	High voltage terminal at which a voltage, with respect to an other terminal, exists or may be adjusted to 1000V or more.
	Yellow/Black	Live part.
	Yellow/Black	This marking indicates that the operator must refer to an explanation in the Instruction Manual, or that a specific component must be replaced by the component specified in the documentation for safety reasons.
	White/Black	Protective earth (ground) terminal.

Cathode ray tubes

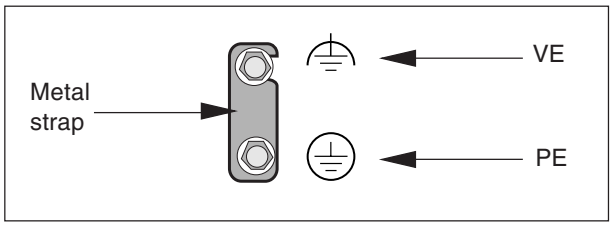
Components marked ⚠ on the circuit diagram are critical for safety and include those specified to comply with X-ray emission standards for units using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

When servicing units that use cathode ray tubes (CRTs), the cathode ray tubes themselves, the high voltage circuits and related circuits are specifically chosen so that they comply with recognized codes pertaining to X-ray emission.

Consequently, when servicing, replace the cathode ray tubes and other parts with specified parts only. Do not attempt to modify these circuits as any unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

Handle the cathode ray tube only when wearing shatterproof goggles and after discharging the high voltage completely.

The rear of a CPU has two separate screw terminals for protective earth ⏚ (PE) and video earth (VE).



These are normally connected by a metal strap. The protective earth terminal is internally connected to the protective earth conductor of the power cable. If required, the central earth connection wire of the studio can be connected to terminal PE.

In normal circumstances the connection between the protective earth and the video earth should not be broken.

The metal strap may be removed only if the studio (or OB van) is equipped with separate protective and video earth systems. Under these circumstances the video earth terminal must be connected to the central functional earth potential (video earth) of the studio. This earth potential should have functional protective and noiseless earth (FPE) qualities as stated in the VDE regulation 0800/part2. A low impedance interconnection of both earth conductors must be provided at the central studio earthing point.

WARNING

THE UNIT MUST ALWAYS BE CONNECTED TO PROTECTIVE EARTH.

Mains Lead Wiring for UK Users

The wires in the mains lead are coloured in accordance with the following code:

GREEN AND YELLOW	-	EARTH
BLUE	-	NEUTRAL
BROWN	-	LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows:

- The wire coloured GREEN AND YELLOW must be connected to the terminal on the plug marked with the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN AND YELLOW.
- The wire coloured BROWN must be connected to the terminal marked with the letter L or coloured RED.
- The wire coloured BLUE must be connected to the terminal marked with the letter N or coloured BLACK.

Ensure that your equipment is connected correctly - if you are in any doubt consult a qualified electrician.

Section 2

Installation

This section provides information which is relevant when the camera is to be used for the first time. Packing and unpacking instructions together with information on the integration of the camera into your studio system are provided. The procedures for the customization of certain hardware functions and connector information is also provided.

Contents

Packing/Unpacking

Inspect the shipping container for evidence of damage immediately after receipt. If the shipping container or cushioning material is damaged, it should be kept until the contents of the shipment have been checked for completeness and the units have been checked mechanically and electrically.
The shipping container should be placed upright and opened from the top. Remove the cushioning material and lift out the contents.
The contents of the shipment should be checked against the packing list. If the contents are incomplete, if there is mechanical damage or defect, or if the units do not perform correctly when unpacked, notify your Thomson Multimedia Broadcast Solutions sales or service centre within eight days. If the shipping container shows signs of damage or stress, notify the carrier as well.

If a unit is being returned to Thomson Multimedia Broadcast Solutions for servicing, try to use the containers and materials of the original packaging. Attach a tag indicating the type of service required, return address, model number, full serial number and the return number which will be supplied by your Thomson Multimedia Broadcast Solutions service centre.

If the original packing can no longer be used, the following general instructions should be used for repacking with commercially available materials:

a. Wrap unit in heavy paper or plastic.
b. Use strong shipping container.
c. Use a layer of shock-absorbing material around all sides of the unit to provide firm cushioning and prevent movement inside container.
d. Seal shipping container securely.
e. Mark shipping container FRAGILE to ensure careful handling.

Attaching an Adapter

The LDK 100 Camera head is a multi-role camera head that can be used with various adapters. To attach an adapter to the camera proceed as follow:

Caution

Be extremely careful with the connectors between the camera head and the adapter. Do not allow the guide pins to damage the pins of the connector.

Caution

Follow these steps in the order given. Tightening the screws in the wrong order could result in mechanical damage to the camera.

a. Using the rail ❶ on the bottom of the camera head as a guide, fit the guide pins ❷ on either side of the connector and the guide pin ❸ at the top rear of the camera head into the corresponding slots of the adapter.
b. First, tighten the two horizontal screws ❹ on the top of camera.
c. Next, tighten the two horizontal screws ❺ at the front of the camera.
d. Lastly, tighten the vertical screw ❻ in the handle of the camera.

Detaching an Adapter

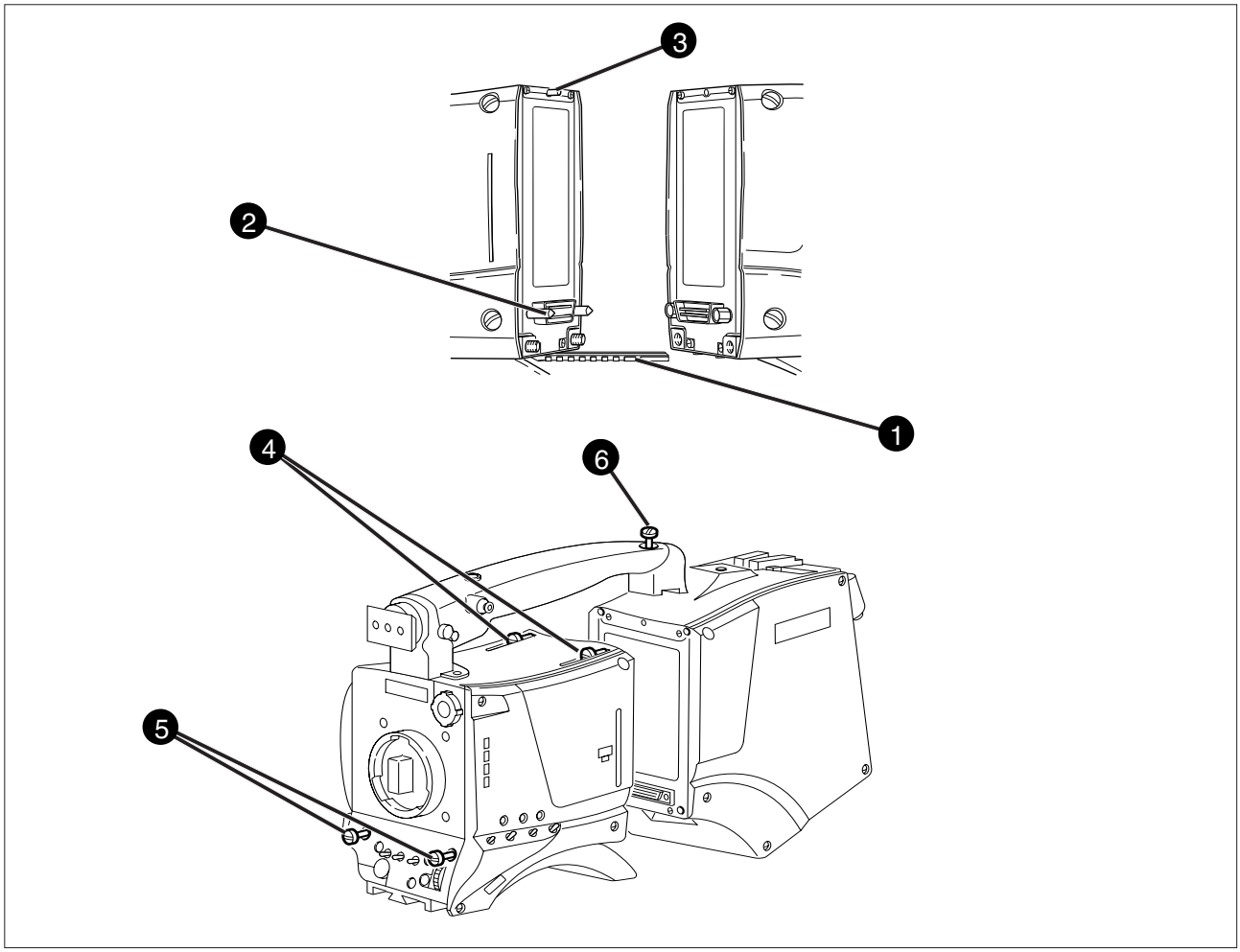
To detach an adapter from the camera head follow the steps for attaching it in the reverse order.

Caution

Loosening the screws in the wrong order could result in mechanical damage to the camera.

Note

The procedure is given for the Triax adapter LDK 5400. Follow the same procedure for the other adapters.

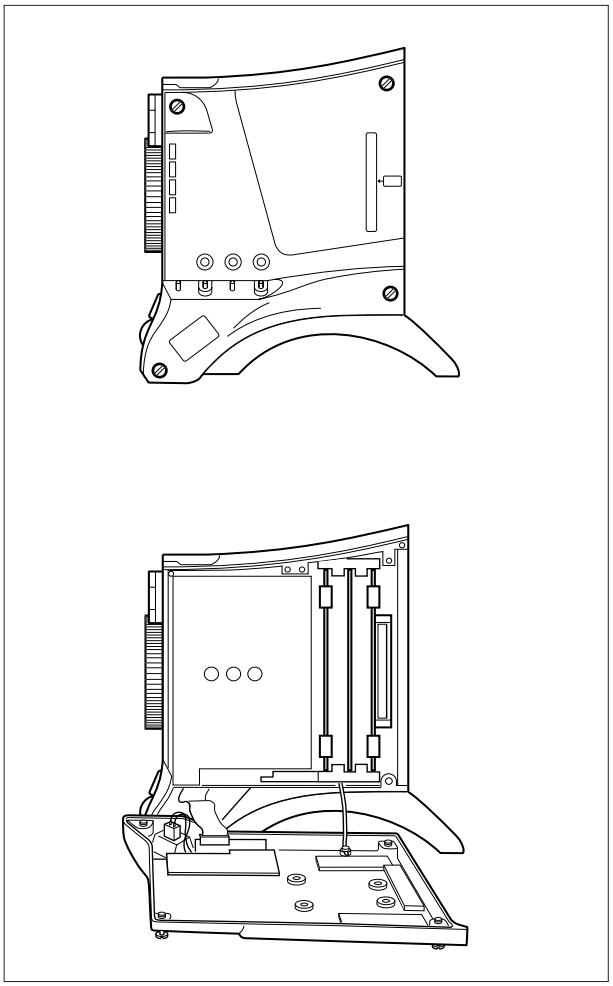


Hardware Customization

The camera head is delivered in a ready-to-use state, however, there are occasions when it might be necessary to re-adjust some functions after, for example, fitting a new lens.
A large number of functions can be set-up using the control facilities of the menu system. In addition to this software set-up there are some functions which can be selected or adjusted internally in the camera.
Refer to the next chapters for instructions.

Location of boards
Unscrew the four screws on the left side panel and swing down the cover.

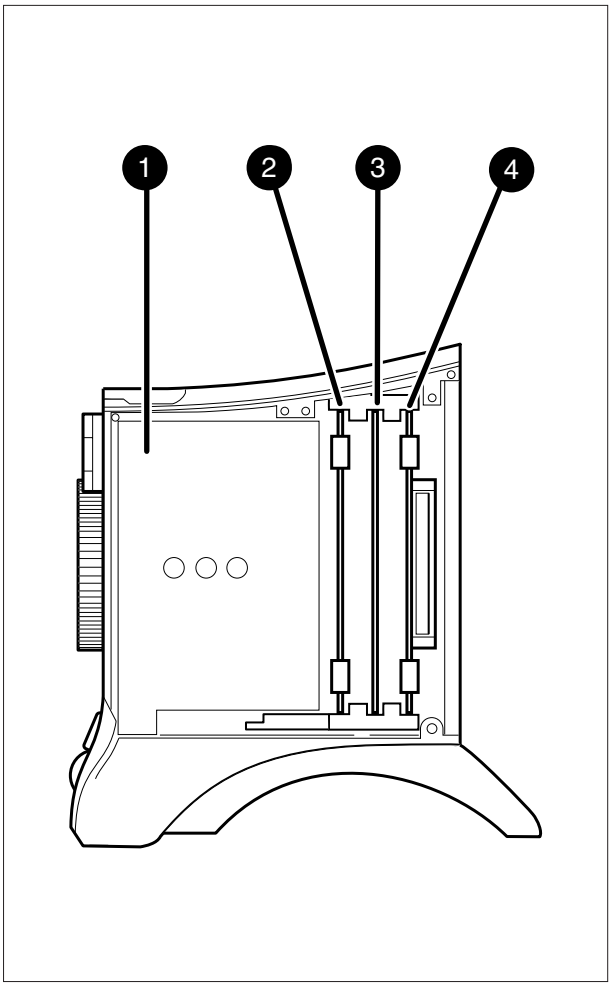
❶ Front module
❷ Sync monitoring board
❸ Data board
❹ Front driver board



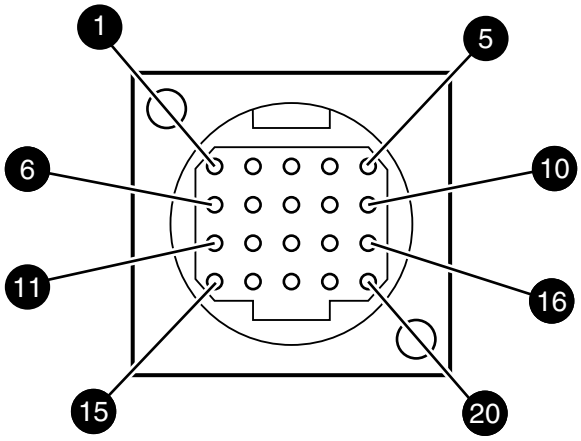
Lens matching

When a camera is supplied with a lens it is not necessary to perform any of the following adjustments as the lens is already matched to the camera. However, if you wish to change to a different type of lens or the lens is not supplied with your camera, back focus, white shading and auto iris adjustment procedures may have to be performed.

- Colour balance.
  If required, perform the gain adjustment of the preprocessor board and/or white shading adjustment procedures, described in section 3.
- Auto Iris Adjustment
  If a different lens either works too slow or overshoots too much with the auto iris control, adjust the potentiometer on the lens to obtain acceptable operation. Refer to the lens documentation.
- Back Focus Adjustment
  To adjust the back focus of the lens refer to the documentation of the lens.



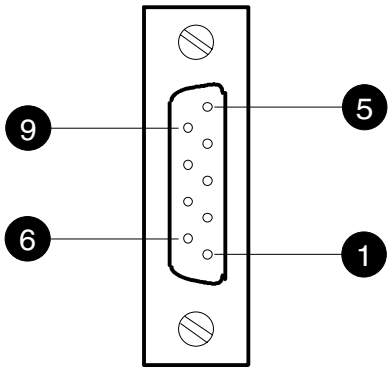
Viewfinder connector



1. -80V
2. n.c.
3. GND
4. INTN-D
5. vf ext video
6. n.c.
7. vf video ret
8. SDA-D
9. SCL-D
10. vf ext video ret
11. GND
12. vf video
13. Pb vf ret
14. Pr vf ret
15. GND
16. +batt
17. +batt
18. Pb vf
19. Pr vf
20. shield

20-pin female; panel view

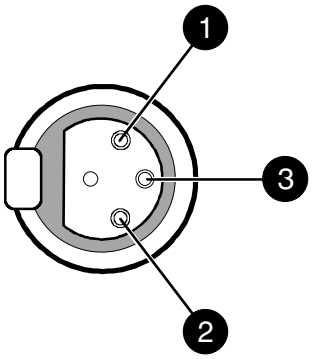
RS232 connector



1. SPARE
2. RS-RXD
3. RS-TXD
4. RS-DTR
5. RS-DGND
6. RS-DSR
7. RS-RTS
8. RS-CTS
9. +12V

9-pin female; panel view

Audio microphone connector

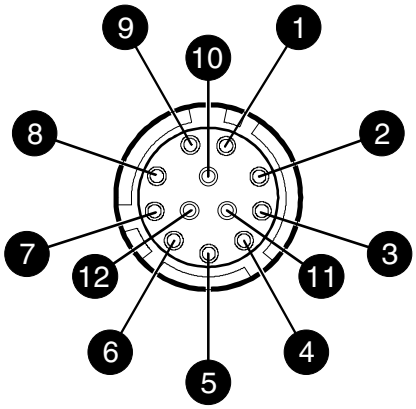


XLR 3-pin female

1. Audio Screen
2. Audio In
3. Audio Return

Microphone impedance >200 ohm
Sensitivity remote controlled via base station:
range: -70 to -28 dBm
Signal at pin 2 of audio input is in phase with signal at pin 2 of audio output on Base station

Lens connector



Hirose 12-pin female; panel view

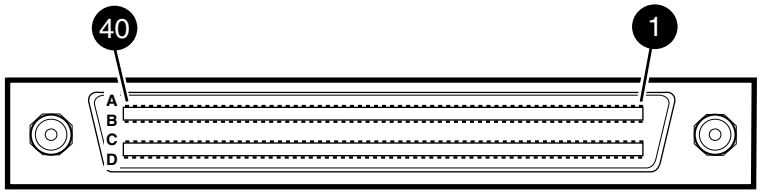
1. Ext. Video On/Off
2. VTR Trigger Switch
3. -batt
4. Momentary Iris
5. IrisControl
6. + batt
7. Iris Follow
8. Lens Servo
9. Range Extender
10. Zoom Follow
11. Focus follow*
12. Spare

* not standard on lens

Panel Connector	Type	Part number	Cable part number
Viewfinder	20-pin Hirose female	5322 214 12544	5322 320 12159 male
Lens	12-pin Hirose female	5322 265 10389	5322 265 41208 male
Audio Mic	3-pin XLR female	5322 267 40523	--
Rs 232	9-pin male	--	--

Docking connector camera

A row	name	B row	name	C row	name	D row	name
1	Ion data	1	Ion data N	1	GND	1	+ batt
2	SDA_C	2	SCL_C	2	GND	2	+ batt
3	INTN_C	3	audio indication	3	GND	3	+ batt
4	AB batt sense	4	batt sense	4	GND	4	+ batt
5	adpt id 0	5	adpt id 1	5	GND	5	+ batt
6	adpt id 2	6	adpt id 3	6	GND	6	+ batt
7	cam id 0	7	cam id 1	7	GND	7	+ batt
8	48 kHz	8	PIP	8	GND	8	+ batt
9	sync	9	blanking	9	GND	9	
10	white pulse 1	10	white pulse 2	10	GND	10	
11	colour framing	11	frame reset	11	GND	11	
12	BS_TDA	12	H lock	12	GND	12	
13	PIP video	13	PIP video ret	13	GND	13	
14	BS_TDV	14	BS_TMS	14	GND	14	
15	adapter vf video	15	adapter vf video ret	15	GND	15	
16	BS_TCK	16	BS_TRSTN	16	GND	16	GND
17	ext video	17	ext video ret	17	GND	17	GND
18	-5V	18	-5V	18	-5V	18	-5V
19	+5V	19	+5V	19	+5V	19	+5V
20	+3.3V	20	+3.3V	20	+3.3V	20	+3.3V
21	+5VD	21	+5VD	21	+5VD	21	+5VD
22	shield	22	shield s	22	GND	22	GND
23	mic X	23	mic Xs	23	GND	23	GND
24	mic Y	24	mic Ys	24	GND	24	
25	audio level	25	audio level ref	25	GND	25	
26	power switch	26	n.c	26	GND	26	
27	R	27	R ret	27	GND	27	
28	YC clock	28	YC clock ret	28	GND	28	
29	G	29	G ret	29	GND	29	
30	YC9	30	YC9 ret	30	GND	30	
31	B	31	B ret	31	GND	31	
32	YC8	32	YC8 ret	32	GND	32	
33	YC7	33	YC7 ret	33	GND	33	
34	YC6	34	YC6 ret	34	GND	34	housing
35	YC5	35	YC5 ret	35	GND	35	housing
36	YC4	36	YC4 ret	36	GND	36	housing
37	YC3	37	YC3 ret	37	n.c	37	
38	YC2	38	YC2 ret	38	n.c	38	
39	YC1	39	YC1 ret	39	-80V	39	
40	YC0	40	YC0 ret	40	-80V	40	



160-pin male; panel view

Specifications LDK 100 FT

General data

Power requirements	12V dc (11.0 to 17.0)
Power consumption	26.5 W (+ VF)

Operating temperatures
0°C to +40°C (32°F to +104°F)
Storage temperatures
-20°C to +60°C (-4°F to +140°F)
Weight (approx.)
4.9 kg (14.1 lb) incl. 1.5-inch VF and triax adaptor

Camera section

Pick-up device
3 x 2/3-inch Philips Frame Transfer Sensors or
3 x 2/3-inch switchable DPM Sensors

Picture elements
NTSC: 1000(h) x 498(v)
PAL: 1000(h) x 594(v)
Digital quantization
12 bits A/d
Digital signal processing
18 MHz and 36 MHz, >20 bits accuracy
Sensitivity
2000 lux (186 ft cd) at F9.0 reflectance 89.9%
Minimum illumination
Approx. 1 lux at F 1.4 and +36 dB gain
Exposure control
Down to 1/1000
Clean scanning
NTSC: between 61.1 and 151.0 Hz
PAL: between 51.0 and 103.0 Hz
Optical system
F1.4 with quartz filter
Optical filters
Clear; 1/4 ND, 1/16 ND, 1/64 ND
Modulation depth
Typical: 70% at 5Mhz
S/N ratio
Typical: 60 dB PAL and 62 dB NTSC
Registration
<25 ns (0.05%) in all zones, without lens
Dynamic range
>600%
Gain
-6dB to +36dB in 3dB steps (user defined presets)

Specifications LDK 100 IT

General data

Power requirements 12V dc (11.0 to 17.0)
Power consumption 26.5 W (+ VF)
Operating temperatures
-20°C to +40°C (-4°F to +113°F)
Storage temperatures
-20°C to +60°C (-4°F to +140°F)
Weight (approx.)
4.9 kg (14.1 lb) incl. 1.5-inch VF and triax adater

Camera section

Pick-up device
3 x 2/3-inch Interline Transfer CCD

Picture elements
NTSC: 813(h) x 503(v)
PAL: 813(h) x 585(v)
Smear
-120 dB typical
Digital quantization
12 bits A/D
Digital signal processing
18 MHz and 36 MHz, >20 bits accuracy
Sensitivity
2000 lux at F11 (typical)
Minimum illumination
Approx. 0.25 lux at F 1.4 and +42 dB gain
Exposure control
Down to 1/2000
Clean scanning
NTSC: between 60.1 and 151.0 Hz
PAL: between 50.1 and 103.0 Hz
Optical system
F1.4 with quartz filter
Optical filters
Clear; 1/4 ND, 1/16 ND, 1/64 ND
Modulation depth
Typical: 50% typical at 5Mhz
S/N ratio
Typical: 60 dB PAL and 62 dB NTSC
Registration
<25 ns (0.05%) in all zones, without lens
Dynamic range
>500%
Gain
-6dB to +42dB in 3dB steps (user defined presets)

Vertical resolution
Pal 450 TV lines (500 TV lines in EVR)
NTSC 400 TV lines (450 TV lines in EVR)
EVR= Extended Vertical Resolution mode

Specifications LDK 100 ITW

General data

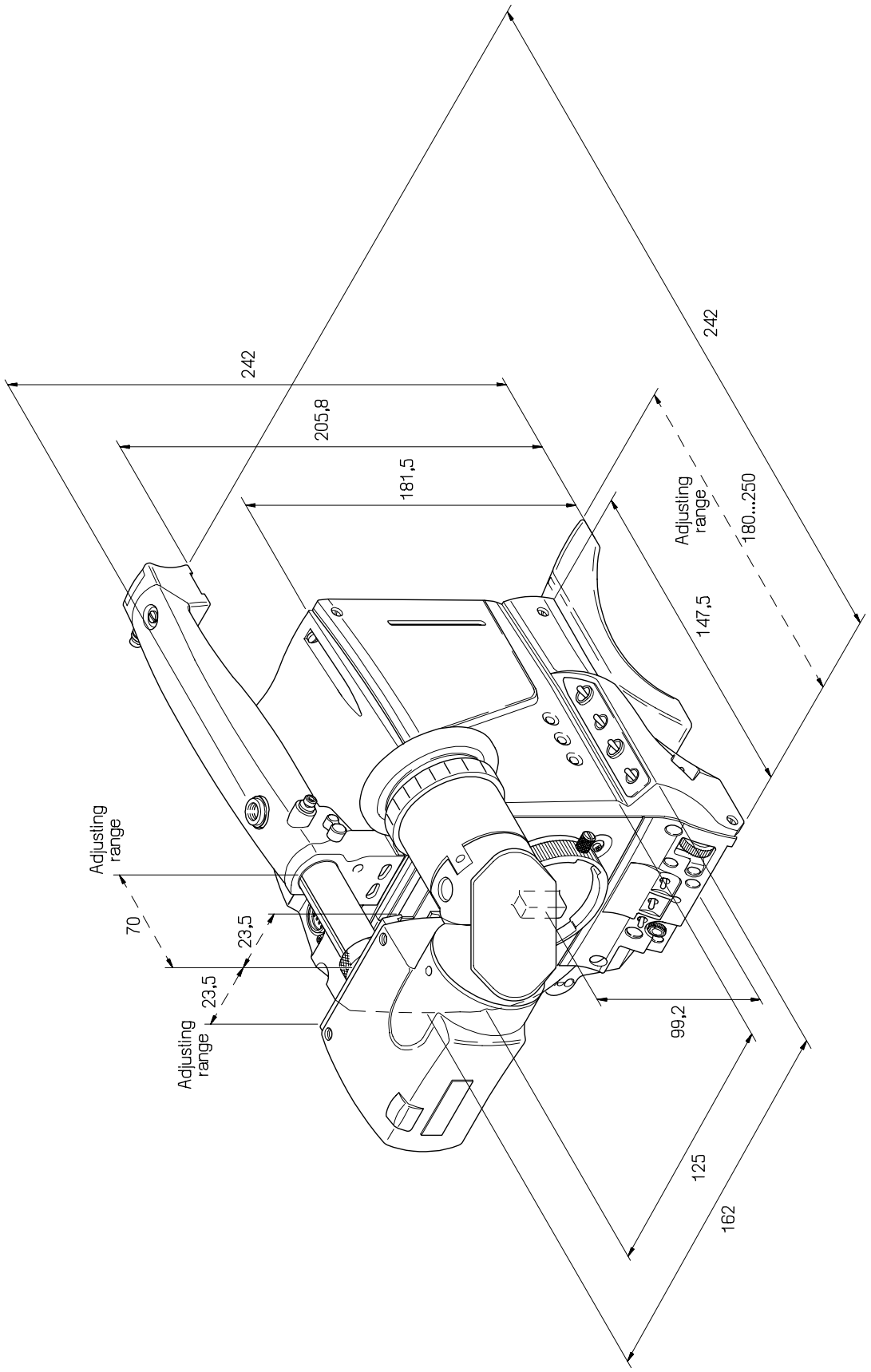
Power requirements 12V dc (11.0 to 17.0)
Power consumption 26.5 W (+ VF)
Operating temperatures
-20°C to +45°C (-4°F to +113°F)
Storage temperatures
-20°C to +60°C (-4°F to +140°F)
Weight (approx.)
4.9 kg (14.1 lb) incl. 1.5-inch VF and triax adapter

Camera section

Pick-up device
3 x 2/3-inch Interline Transfer CCD
Aspect Ratio: switchble 16:9 and 4:3
Picture elements
NTSC: 1038(h) x 504(v)
PAL: 1038(h) x 594(v)
Smear
-120dB (typical)
Digital quantization
12 bits A/D
Digital signal processing
18 MHz and 36 MHz, >20 bits accuracy
Sensitivity
2000 lux at F11 (typical)
Minimum illumination
Approx. 0.25 lux at F 1.4 and +42 dB gain
Exposure control
Down to 1/2000
Clean scanning
NTSC: between 60.1 and 151.0 Hz
PAL: between 50.1 and 103.0 Hz
Optical system
F1.4 with quartz filter
Optical filters
Clear; 1/4 ND, 1/16 ND, 1/64 ND
Modulation depth
Typical: 50% typical at 5Mhz
S/N ratio
Typical: 60 dB PAL and 62 dB NTSC
Registration
<25 ns (0.05%) in all zones, without lens
Dynamic range
>500%
Gain
-6dB to +42dB in 3dB steps (user defined presets)

Vertical resolution
Pal 450 TV lines (500 TV lines in EVR)
NTSC 400 TV lines (450 TV lines in EVR)
EVR= Extended Vertical Resolution mode

Dimensions


242
242
205,8
181,5
Adjusting range
180...250
147,5
Adjusting range
70
23,5
23,5
Adjusting range
99,2
125
162

Section 3

Replacements

This section gives information on the procedures to follow when replacing printed circuit boards and mechanical components at first line level.

Contents

Introduction

The instructions given in this section are restricted to those modules which can be replaced at the first line service level. These modules include:

- The printed circuit boards
- The handgrip
- The front unit

After a printed circuit board has been replaced it is sometimes necessary to carry out adjustments to match the new boards to your camera and so maintain the performance levels. The relevant adjustment procedures are given in Section 3.

The procedures for removing the modules should be followed in reverse order when remounting the units.

Printed circuit boards

Gaining access to the boards

To access the printed circuit boards remove the left side cover of the camera head as follows:

a. Unscrew the four screws on the left side panel.
b. Swing down the cover.

Location of boards

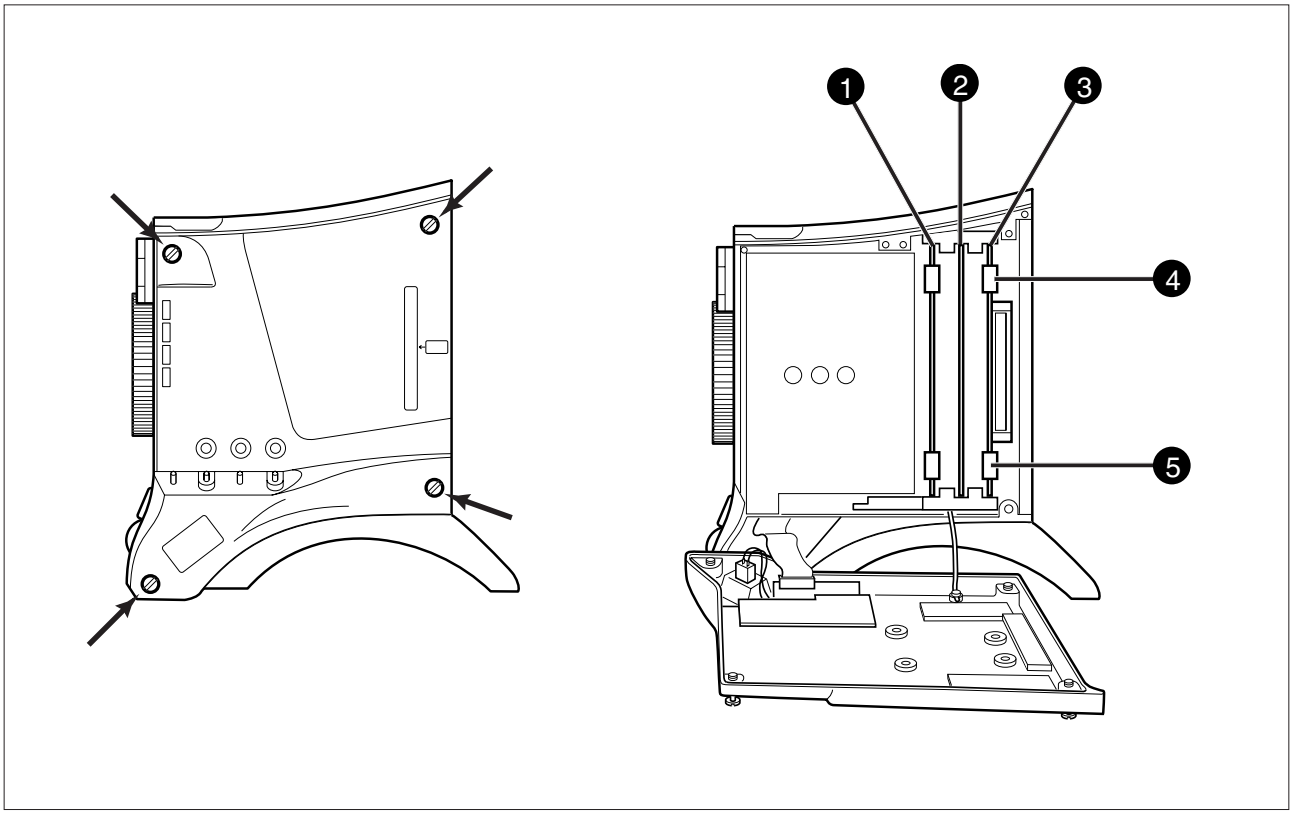
The boards in the camera head are numbered as follows:

❶ Sync monitoring board
❷ Data board
❸ Front driver board

Removing a board

To remove a printed circuit board proceed as follows:

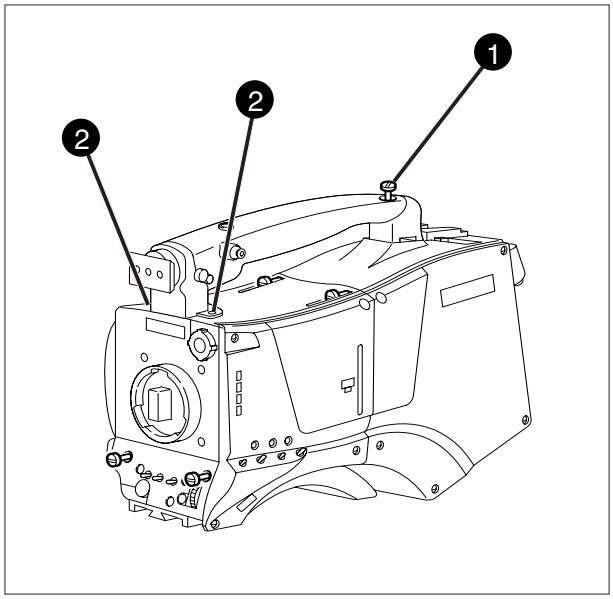
a. Pull up the top print ejector ❹ and pull down the bottom print ejector ❺ to release the printed circuit board from its connector.
b. Pull horizontally on these ejectors to slide the board clear of the camera.



Handgrip

To remove the handgrip proceed as follows:

a. Remove the 1.5 inch viewfinder from its support bracket on the handgrip.
b. Loosen the screw ❶ securing the handgrip to the top of the adapter.
c. Loosen the two socket head screws ❷ securing the handgrip to the front of the camera.



Front unit

To remove the front unit the following steps have to be carried out:

- Remove the handgrip
- Detach the adapter
- Remove the camera left side cover
- Remove the camera right side cover
- Remove DVP board
- Remove the front unit

Removing the handgrip

To detach the handgrip follow the instructions given on the previous page.

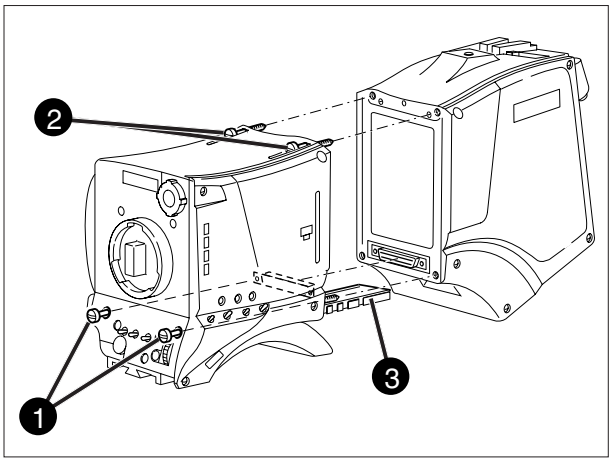
Detaching the adapter

To detach the adapter from the camera proceed as follows:

Caution

Follow these steps in the order given. Loosening the screws in the wrong order could result in mechanical damage to the camera.

a. Loosen the two horizontal screws ❶ at the front of the camera.
b. Loosen the two horizontal screws ❷ on the top of camera.
c. Slide the adapter away from the camera along the rail ❸ at the bottom of the camera.



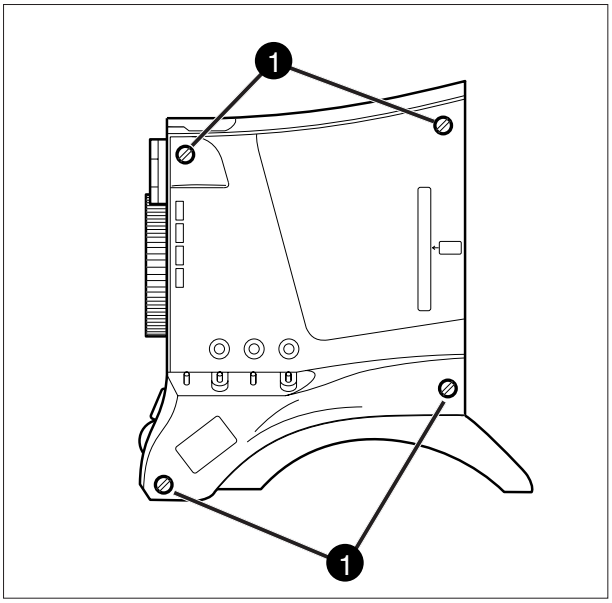
Caution

When reattaching the adapter be extremely careful with the connectors between the camera head and the adapter. Do not allow the guide pins to damage the pins of the connector.

Opening the left side cover

To open the left side cover proceed as follow:

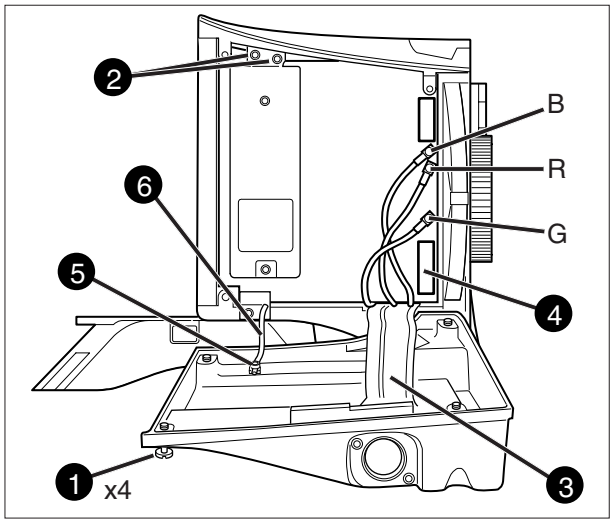
a. Loosen the four screws ❶ at the front of the camera.
b. Swing down the cover



Opening the right side cover

To remove the right front cover proceed as follows:

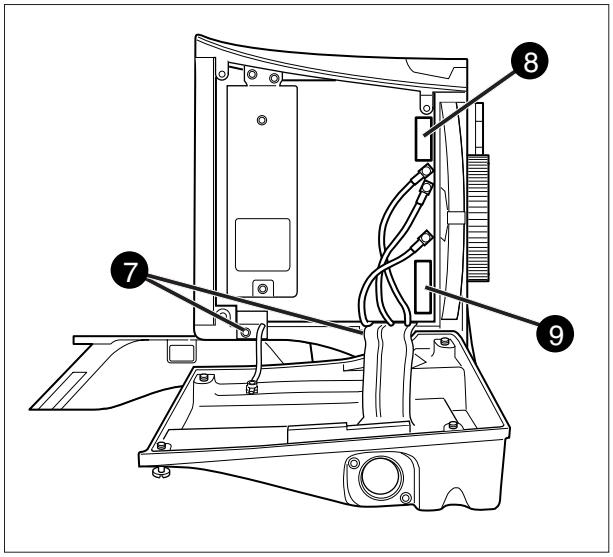
a. Unscrew the four retaining screws ❶ and swing the right front cover down.
b. Disconnect the B, R and G coax cables from the DVP board using the correct tool (part no. 5322 395 10802)
c. Unscrew the two top retaining screws ❷ of the DVP board and swing the board downwards.
d. Reach in behind the board and disconnect the flat cable from the connector at the bottom of the board.
e. Disconnect the flat cable ❸ that comes from the cover, from the motherboard connector ❹.
f. Loosen the screw ❺ and remove the retaining tie ❻that restrains the cover.
g. Remove the cover.



Removing the DVP board

To remove the DVP board proceed as follows:

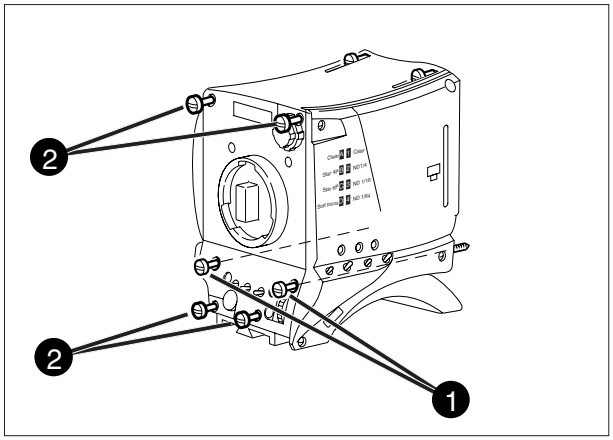
h. Unscrew the two bottom retaining screws ❼ of the DVP board from the plastic clips and remove the board.
i. Unscrew and disconnect the top connector ❽ from the DVP board.
j. Unscrew the bottom connector ❾.



Removing the front unit

To remove the front unit proceed as follows:

a. To ease the removal of the front unit remove the adapter screws ❶ completely.
b. Unscrew the four retaining screws ❷ of the front unit.
c. Move the front unit slightly upwards and forward and disconnect the flat cable that comes from the front from the connector on the connector board of the camera.
d. Remove the front unit.



Section 4

Adjustments

This section contains the adjustment procedures to be followed to obtain the best performance from the camera. These procedures need only be used if, following a module replacement, the camera does not perform according to specifications.

Contents

Introduction

This camera is factory tested and adjusted for operational use. Under normal circumstances, the internal automatic calibration procedures do not need to be started and the internal potentiometers do not need to be adjusted.

There are two situations that might require some realignment of the camera:
a. When a lens is fitted.
b. When a printed circuit board has been replaced.

When a lens is fitted the following alignment procedures should be carried out in the order given:
1. Run the internal 3200K calibration procedure.
2. Adjust the white shading via the menu system.
3. Adjust the flare.
4. Adjust the back focus (see lens manual for this adjustment).

If a printed circuit board is replaced, refer to table 3-1 to see which adjustments must be carried out to realign the camera. For a particular board, carry out the procedures in the order given.

If it is discovered that the camera is misaligned, the following procedures are given as a guide for competent service personnel, who have a thorough knowledge of the camera and have the use of calibrated equipment, to realign the camera.

If no improvement can be achieved or an adjustment is out of range, please contact your local supplier or the nearest Thomson Multimedia Broadcast Solutions Service Centre.

The camera head adjustment procedures are designed as separate units. Within a numbered procedure do not change the position of switches or jumpers unless instructed to do so in the procedure.

These adjustment procedures are for the Camera Head. However, for practical purposes the Triax Adapter is used together with the camera head to facilitate some measurements. Other adapters can be used for these measurements.

Table 3-1 Adjustment procedures on board replacement

Printed Circuit Board	Adjustment Procedure
Digital video board	1. Video ADC automatic calibration (internal) 2. Sawtooth calibration (internal) 3. Video gain adjustment
Pre-processor board	1. Pre-processor calibration (internal)
Lens plate assemble	1. 3200K adjustment 2. White shading adjustment 3. Flare adjustment
Data Board	1. Software download
Sync. / monitoring board	1. Video monitoring adjustment
Viewfinder PCBs	1. Viewfinder alignment

Test Equipment

The following is a list of equipment required to carry out the adjustment procedure:

- Set of board extenders LDK 5820/01
- Oscilloscope (with cursor measurement)
- Spotlight 3200K
- Focus test chart
- Black hole test chart
- White PortaPattern test chart
- White 3200K test chart
- Waveform monitor

Set-up Instructions

Before carrying out any adjustments the following steps are recommended:

- Attach an adapter to the camera.
- Install the camera on a tripod.
- Attach the lens and the necessary cables.
- Allow the camera to warm-up.

CAUTION:
Do not attempt to improve camera performance
by adjusting individual potentiometers, jumpers or switches
as this may lead to complete misalignment of the camera.

CAUTION:
Do not realign individual potentiometers, jumpers or switches
not mentioned in this chapter or earlier in this manual.
These adjustment points are for factory use only.

CAUTION:
Switch off the power supply to the camera
before removing or replacing printed circuit boards.

Video ADC Automatic Calibration

The following is an automatic internal calibration procedure to adjust the analogue-digital convertors.
(There are not pre-conditions for this calibration.)
a. In the menu system select the Service menu.
b. Select Calibrations.
c. Select Video ADC and run the procedure.

Sawtooth Calibration

The following is an automatic internal calibration procedure to adjust the internal gain of the DVP board.
(There are not pre-conditions for this calibration.)
a. In the menu system select the Service menu.
b. Select Calibrations.
c. Select Sawtooth and run the procedure.

Pre-processor Calibration

The following is an automatic internal calibration procedure to adjust the analogue-digital convertors.
(There are not pre-conditions for this calibration.)
a. In the menu system select the Service menu.
b. Select Calibrations.
c. Select PreProc and run the procedure.

White Shading Adjustment

The following is an adjustment procedure to correct the white shading introduced by the lens.
a. Recall the standard factory file.
b. Shoot the white PortaPattern test chart illuminated with a 3200k spotlight (80% video).
c. Set gain to 0 dB, gamma to linear and run the auto white balance process.
d. Defocus.
e. In the menu system select the Video menu.
f. Select Shading.
g. View the waveform monitor and adjust the level, parabolic, and sawtooth adjustments for each colour in turn.

3200K Adjustment

The following is an automatic internal calibration procedure to set the 3200K colour temperature.

a. Recall the standard factory file.
b. Shoot the white test chart illuminated with a 3200k spotlight (nominal video).
c. In the menu system select the Install menu.
d. Select Aspect Ratio
e. Select 4:3 aspect ratio.
c. In the menu system select the Service menu.
d. Select Calibrations.
e. Select 3200K and run the procedure.
f. In the menu system select the Install menu.
g. Select Aspect Ratio
h. Select 16:9 aspect ratio.
i. In the menu system select the Service menu.
j. Select Calibrations.
k. Select 3200K and run the procedure.

Flare Adjustment

The following is an adjustment procedure to correct the flare introduced by the lens.

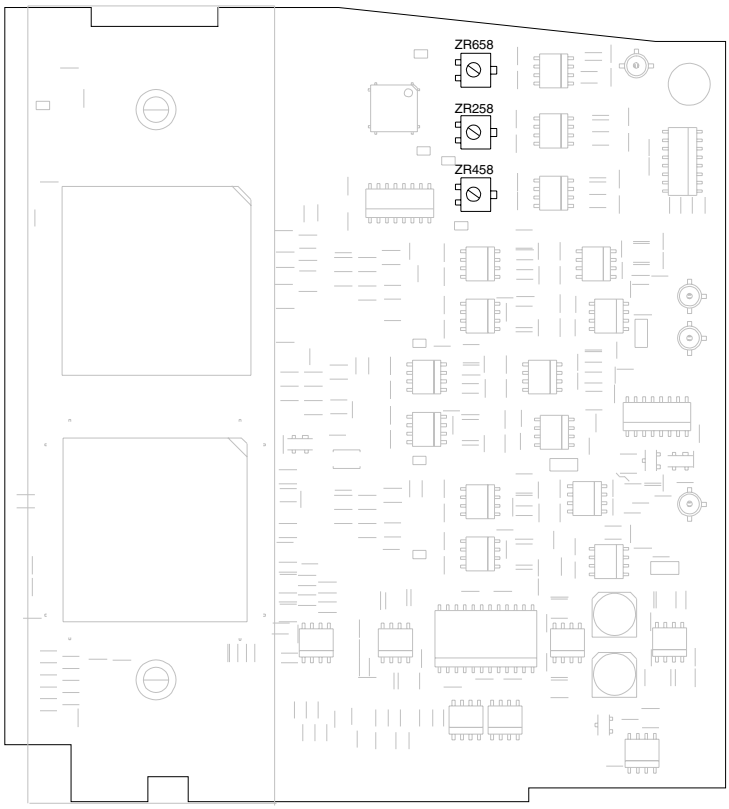
a. Recall the standard factory file.
b. Close the lens and set the black level to approximately 10mV.
c. With the menu system select the green signal.
d. Shoot the black hole test chart (100% video).
e. In the menu system select the Video menu.
f. Select Flare.
g. View the waveform monitor and adjust the green flare so that there is no difference in the black level.
h. Repeat this adjustment for blue and red.

Software Download

The following procedure should be carried out to update the software.

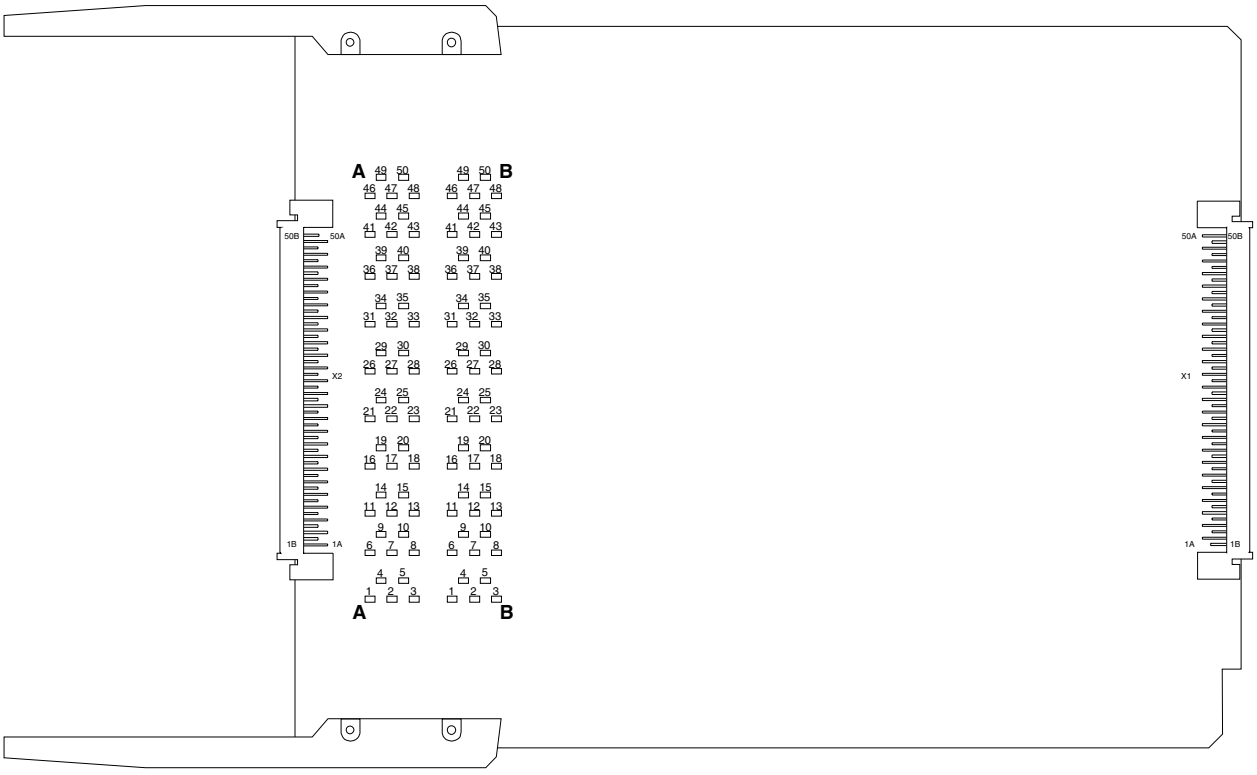
a. Connect the PC to the RS232 connector of the camera.
b. Follow the instruction on the PC to download the software.

Video Gain Adjustment



Digital Video Processor Board

Extender Board



Set-up

1. Switch off power. Place digital video board and video mux. board (Triax adapter) on service extenders. Switch on power.
2. Switch on colour bar.

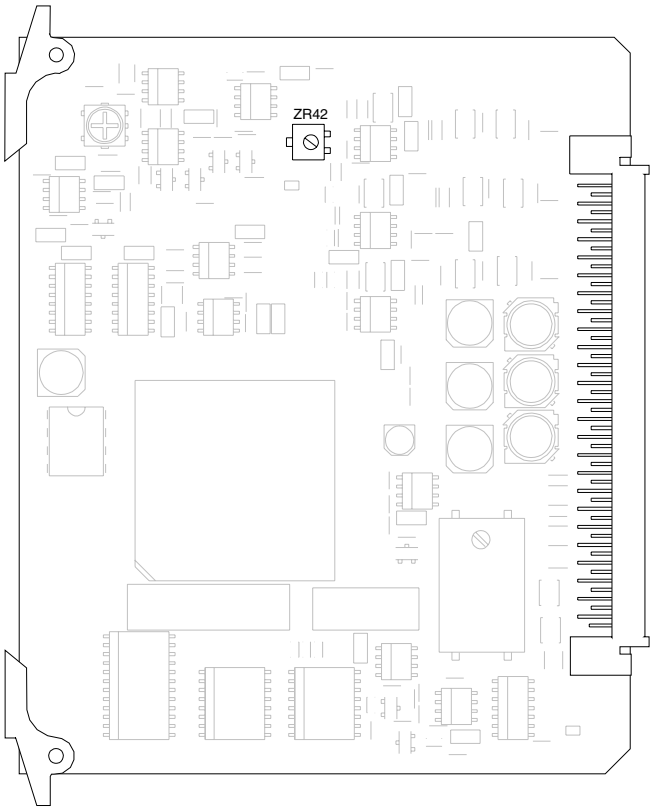
Video output level

3. Adjust the R, G and B potentiometers on the digital video board to obtain the correct output amplitudes.

Measure at:	Adjust with:	Required result:	
Extender X22			
(Video mux.)			
MP B50	ZR258 (R)	1400mV	
MP B42	ZR458 (G)	1400mV	
MP B46	ZR658 (B)	1400mV	

6. Switch off power. Return digital video board and video mux. board (Triax adapter) to their positions in the camera and adapter.

Video Monitoring Adjustment



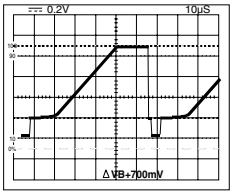
Sync. / Monitoring Board

Set-up

1. Switch off power. Place sync. monitoring board on service extender. Switch on power.
2. Switch on colour bar.

Viewfinder output level

3. Connect oscilloscope terminated with 75 Ohm to the VF output on the back panel.
4. Adjust the potentiometer on the sync. monitoring board to obtain the correct output amplitude VF output signal.

Measure at:	Adjust with:	Required result:	Correct:
VF output	ZR42	PAL 700mV NTSC 714mV (100IRE)	

5. Switch off power. Return sync. monitoring board to its position in the camera.

Section 5

Diagnostics

This section contains an explanation of the internal diagnostic system of the camera. The diagnostic messages and the block diagrams are a useful help when fault finding.

Contents

Diagnostic Messages

The internal system of the camera can carry out a diagnostic test. When the test is started via the menu system, the status of the various units is displayed in the diagnostic menu.

If a test fails then a message is displayed to indicate the module that has not passed the test. At the service level, additional information is given to indicate which particular test has failed.

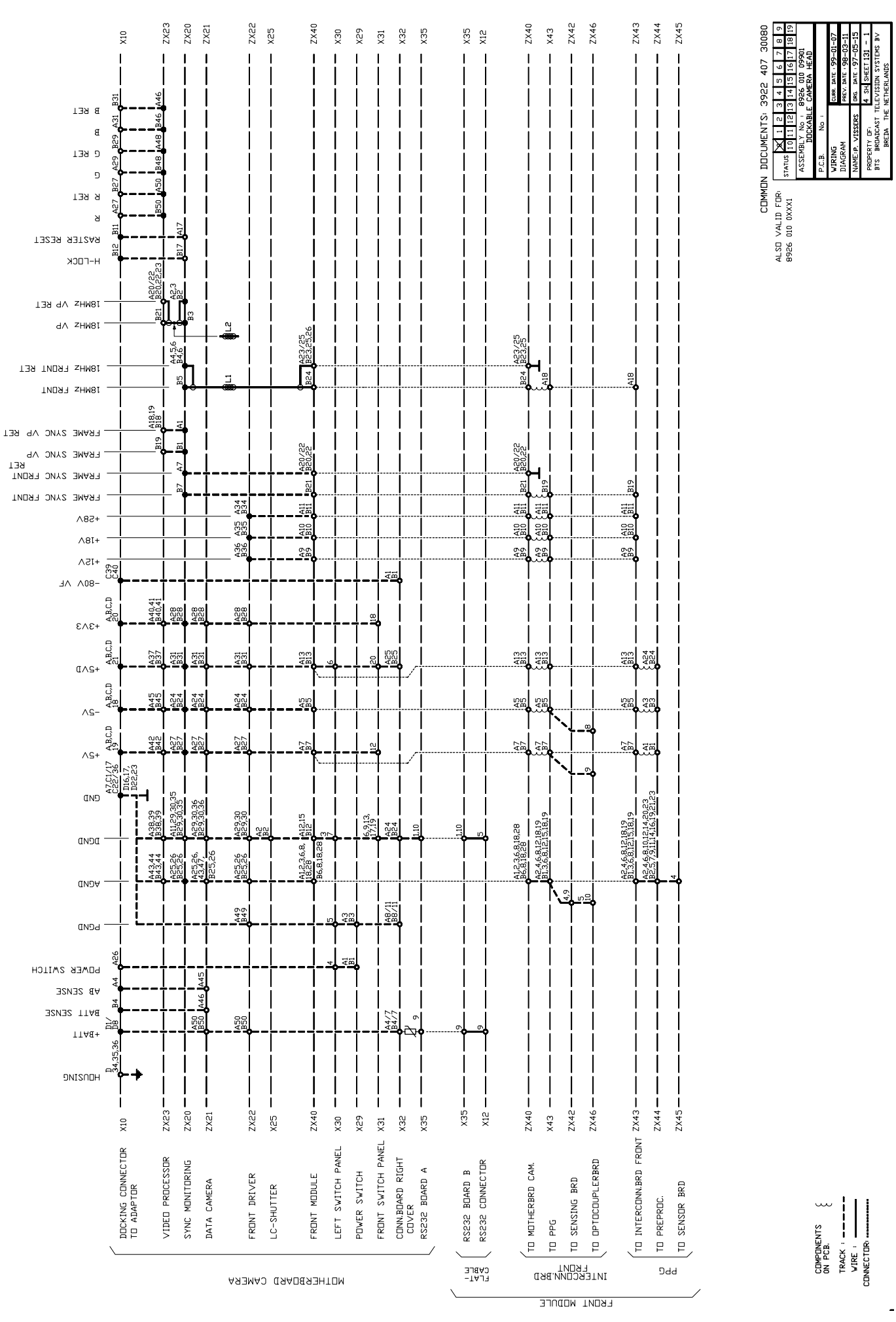
The table below lists the tests in the order in which they are performed. It indicates the action that is taken if the test fails and it lists the messages that are displayed. An indication of the degree of certainty for each test is also given.

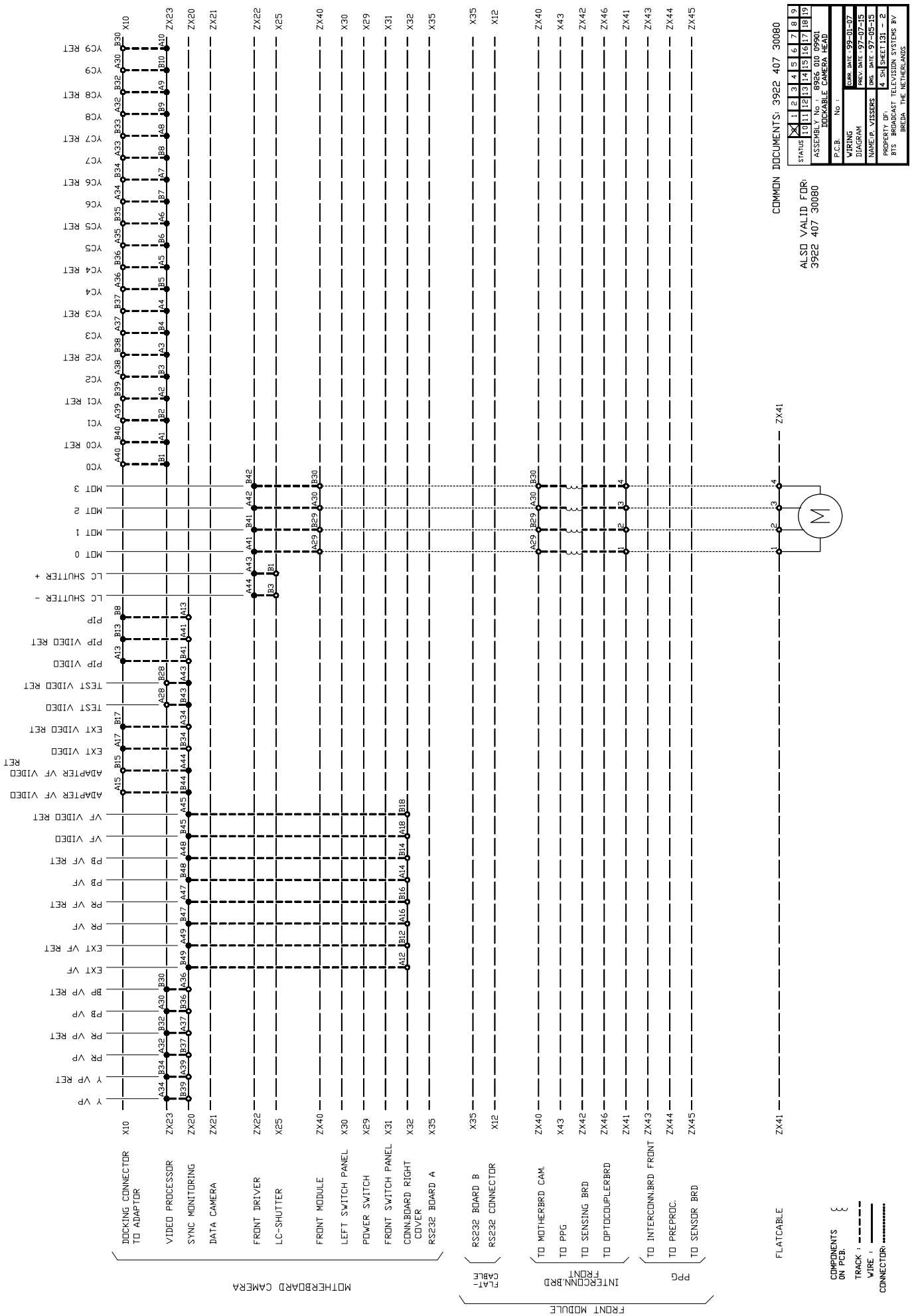
Test Id	Test Fails	Message, User0-3	Message, Service1-2	%
1. ViPr - SPI	Continue	Video Proc Fails	SPI Error	90
2. ViPr - IIC	Continue	Video Proc Fails	IIC Error	90
3. ICB - IIC	Continue	InterCon.B Fails	IIC Error	90
4. PPG - IIC	Continue	Pulse Generator Fails	IIC Error	90
5. PPG - SPI	Continue	Pulse Generator Fails	SPI Error	90
6. PrPr - IIC	Continue	PreProcessor Fails	IIC Error	90
7. FrDr - IICjudge all iic/spi tests	ContinueStop	FrontDriver FailsDataboard Fails	IIC ErrorIIC/SPI Error	90
8. FrDr - Sensor_Supply	Stop	Front Driver Fails	Sensor Supply	
9. FrDr - Shutter	Stop	Front Driver Fails	Shutter not running	
10. ViPr - ASIC_AB	Stop	Video Proc Fails	BST ASIC A->B	90
11. ViPr - FreqLock	Stop	Video Proc Fails	FreqLock	70
12. ViPr - ASIC_B_Adapter	Stop	Video Proc Fails	BST ASIC->buffer	70
13. ViPr - RGB_Out	Stop	Video Proc Fails	I/O Error	80
14. ViPr - Sawtooth	Stop	Video Proc Fails	Sawtooth Fails	80
15. ViPr - VF_Y	Stop	Video Proc Fails	VF signal Fails	80
16. SyMo - VF video	Stop	Sync Monit. Fails	VF signal Fails	80
17. PrPr - Clamp	Stop	PreProcessor Fails	Clamp/WhPulse	
18. PrPr - Gain0	Stop	PreProcessor Fails	Output	
19. PrPr - Gain1	Stop	PreProcessor Fails	AGC Fails	
20. PrPr - Gain2	Stop	PreProcessor Fails	AGC Fails	
21. PrPr - VSawtooth	Stop	PreProcessor Fails	V-Sawtooth Fails	
22. Sensor_Video	Stop	PPG/Front Fails	No Video	
23. FSP - IIC	Warning	Front Switch Fails	IIC Error	90
24. LSP - IIC	Warning	Left Switch Fails	IIC Error	90
25. CBRC - IIC	Warning	Right Cover Fails	IIC Error	90
26. SeDa - Calibrations	Warning	xx Calibrations	xx not performed	

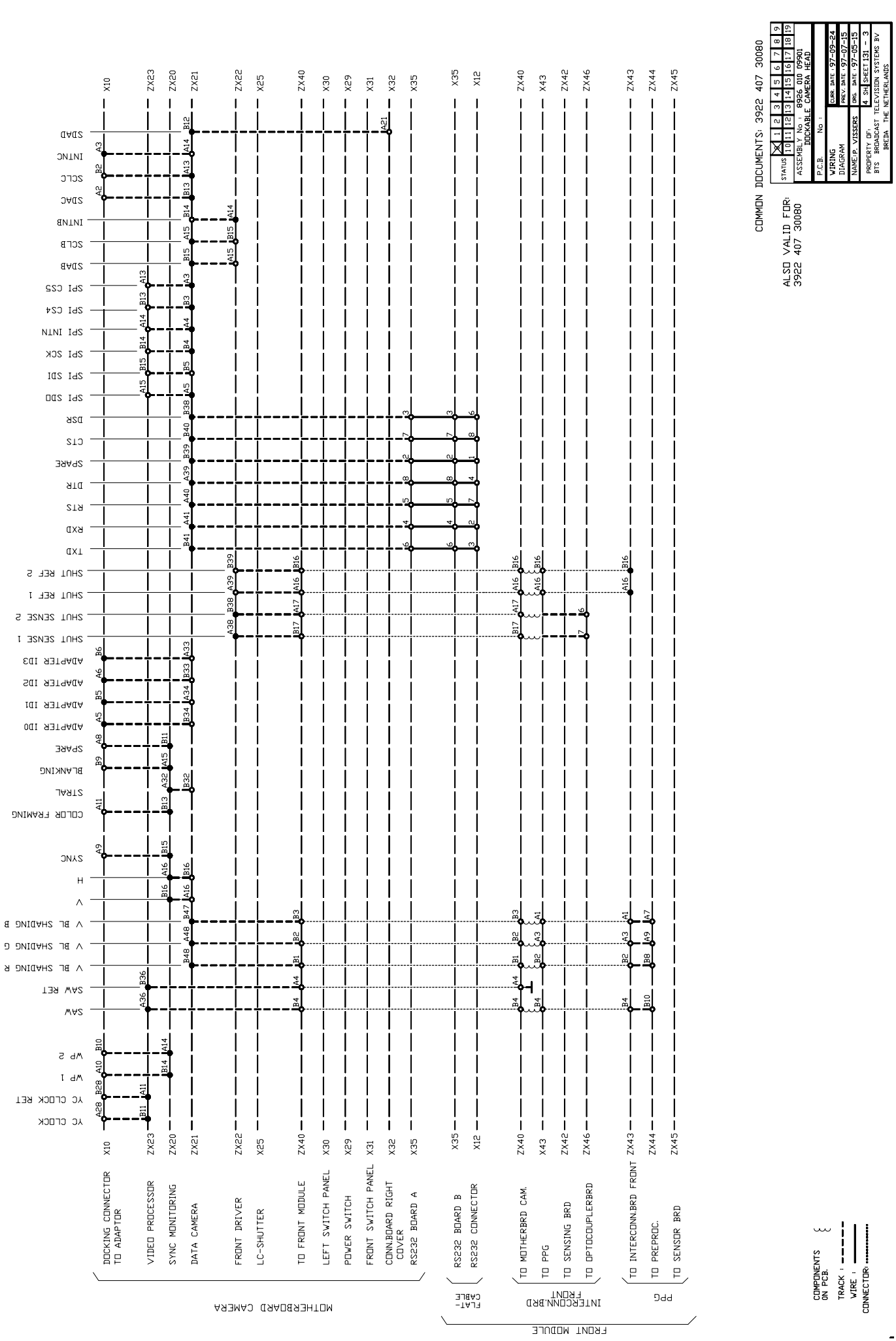
Section 6

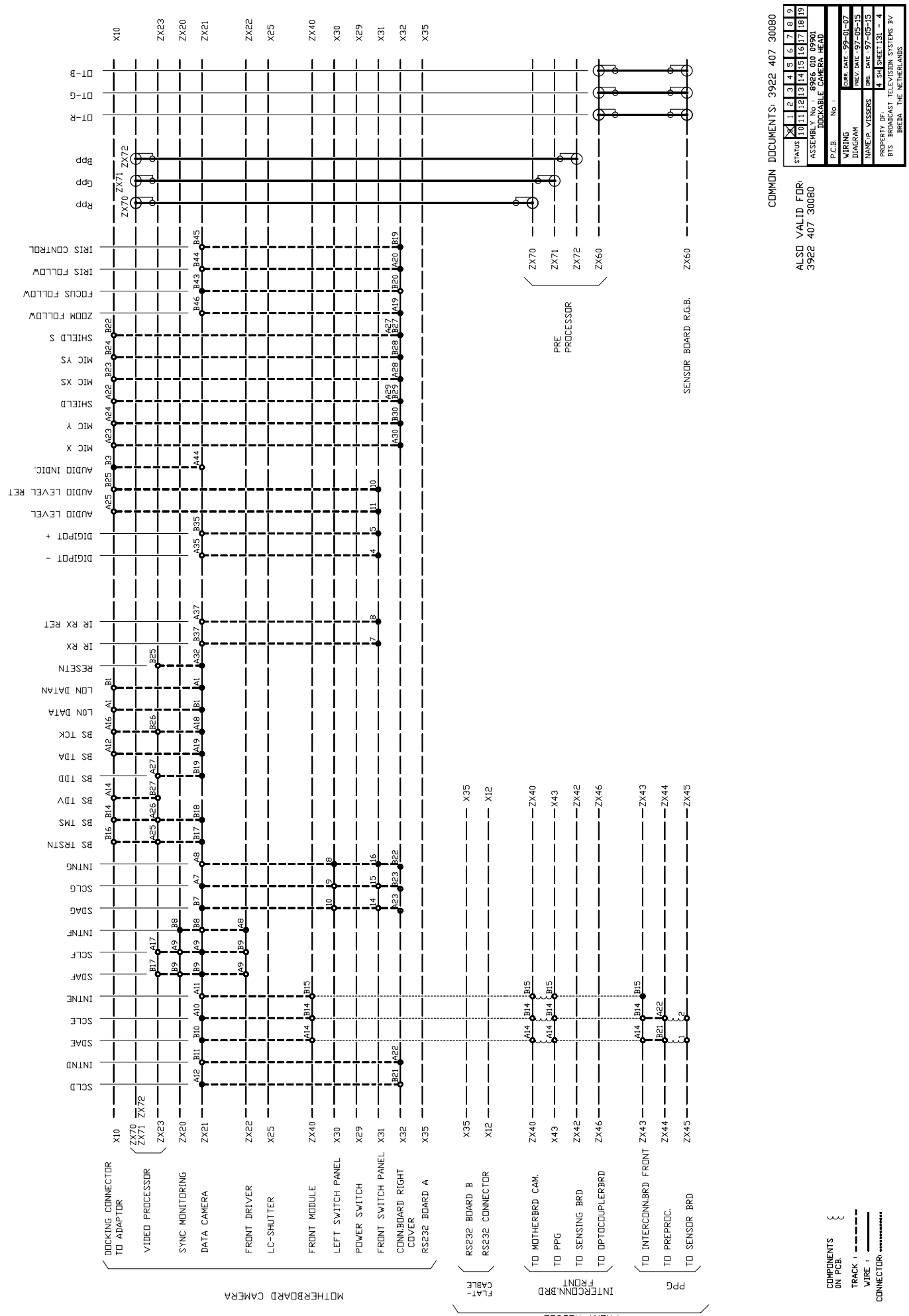
Wiring & Block Diagrams

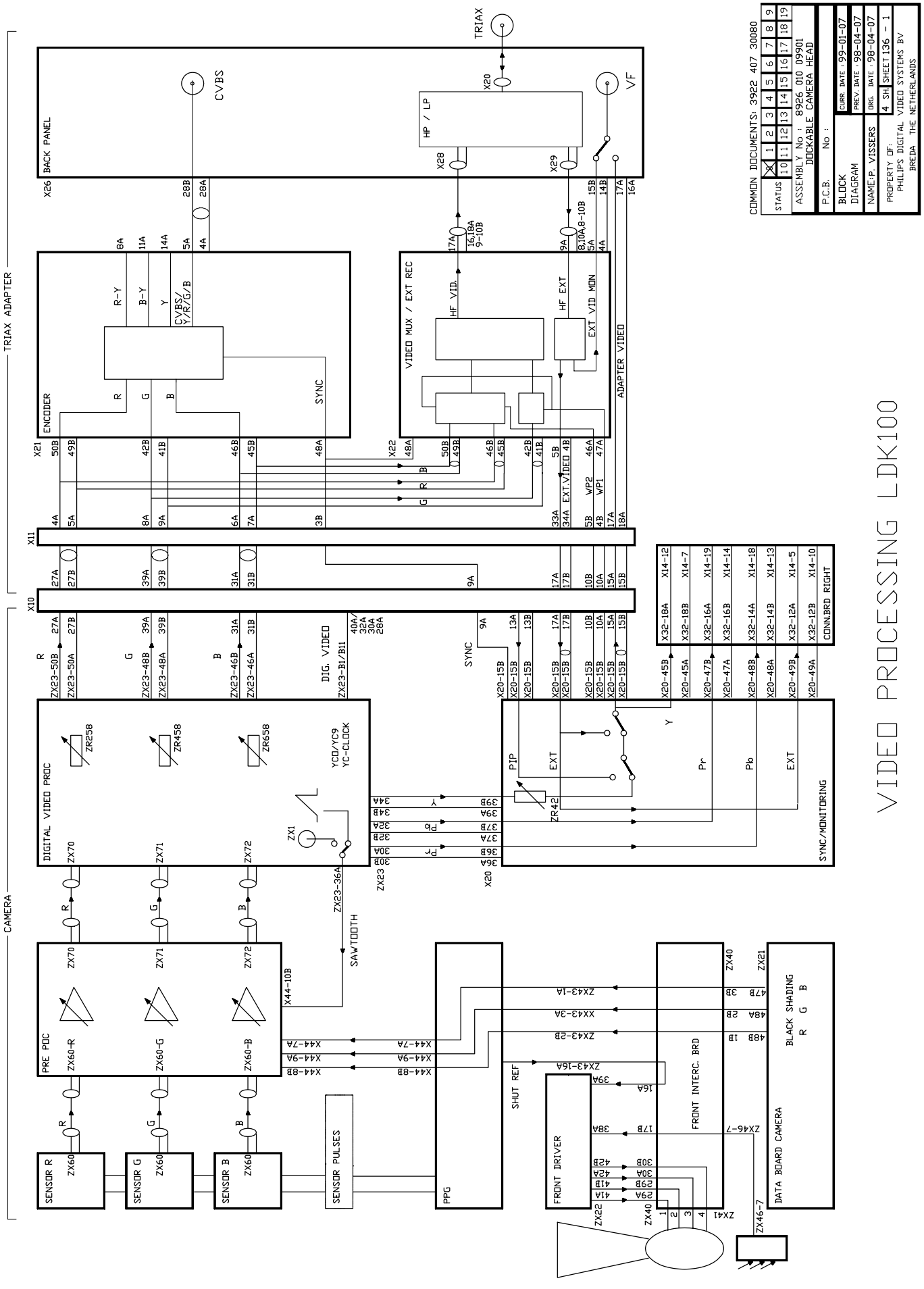
Contents

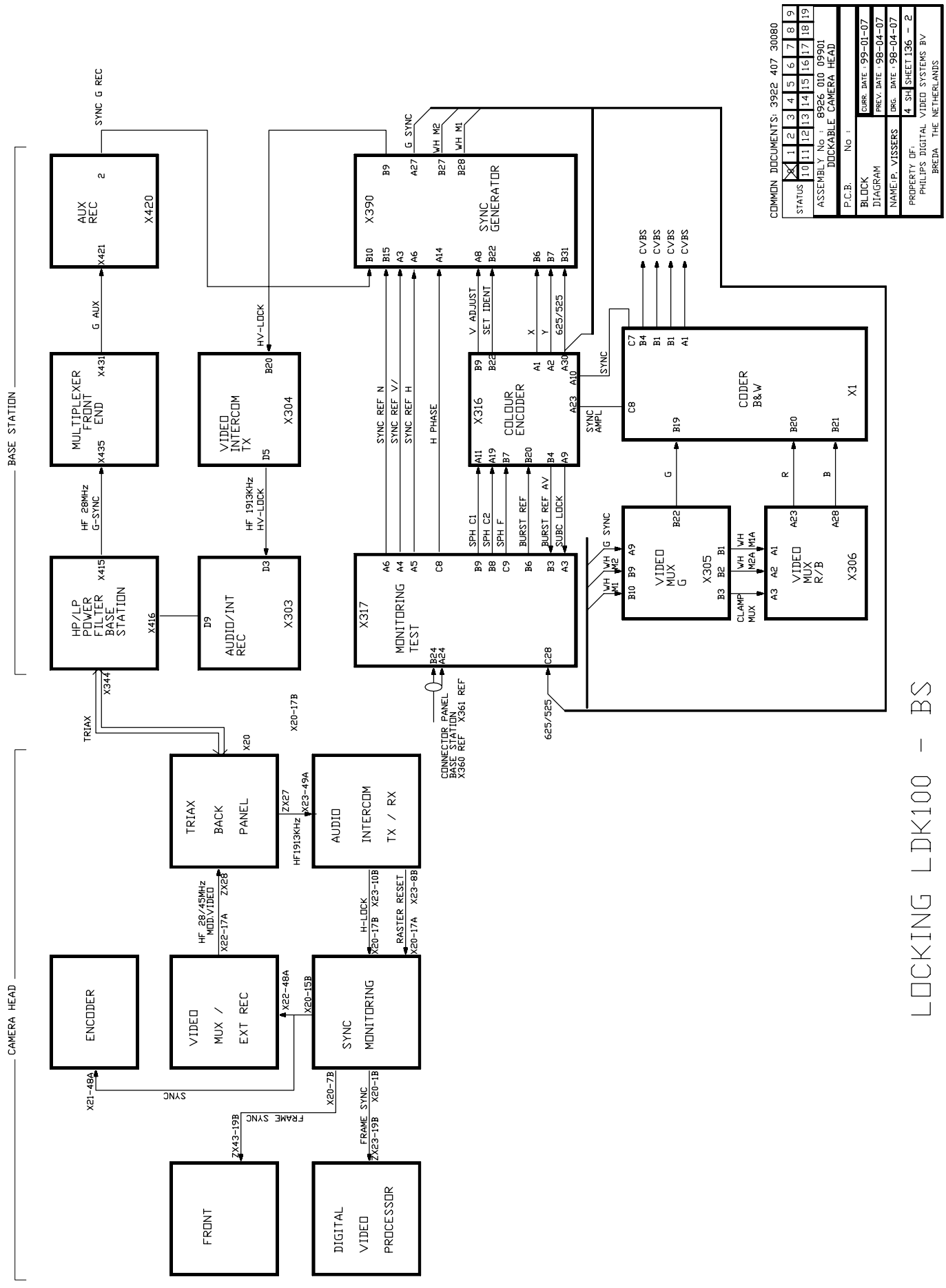

COMMON DOCUMENTS: 3922 407 30080
ALSO VALID FOR: 8926 010 0XXX1
STATUS
ASSEMBLY No : 8926 010 09901
DOCKABLE CAMERA HEAD
P.C.B. No :
WIRING DIAGRAM
NAME: P. VISSERS
DONE DATE: 99-01-07
PREV. DATE: 98-03-11
ORG. DATE: 97-05-15
SHEET 131 - 1
PROPERTY OF BTS BROADCAST TELEVISION SYSTEMS BV BREDA THE NETHERLANDS
COMPONENTS ON PCB.
TRACK :
WIRE :
CONNECTOR:
MOTHERBOARD CAMERA
FLAT-CABLE
INTERCONN.BRD FRONT
PPG
FRONT MODULE
DOCKING CONNECTOR TO ADAPTOR
VIDEO PROCESSOR
SYNC MONITORING
DATA CAMERA
FRONT DRIVER
LC-SHUTTER
FRONT MODULE
LEFT SWITCH PANEL
POWER SWITCH
FRONT SWITCH PANEL
CONN.BOARD RIGHT COVER
RS232 BOARD A
RS232 BOARD B
RS232 CONNECTOR
TO MOTHERBRD CAM.
TO PPG
TO SENSING BRD
TO OPTOCOUPLERBRD
TO INTERCONN.BRD FRONT
TO PREPROC.
TO SENSOR BRD
HOUSING
+BATT
BATT SENSE
AB SENSE
POWER SWITCH
PGND
AGND
DGND
GND
+5V
-5V
+5VD
+3V3
-80V VF
+12V
+18V
+28V
FRAME SYNC FRONT
FRAME SYNC FRONT RET
FRAME SYNC VP
FRAME SYNC VP RET
18MHz FRONT
18MHz FRONT RET
18MHz VP
18MHz VP RET
H-LOCK
RASTER RESET
R
R RET
G
G RET
B
B RET
X10
ZX23
ZX20
ZX21
ZX22
X25
ZX40
X30
X29
X31
X32
X35
X12
X43
ZX42
ZX46
ZX43
ZX44
ZX45

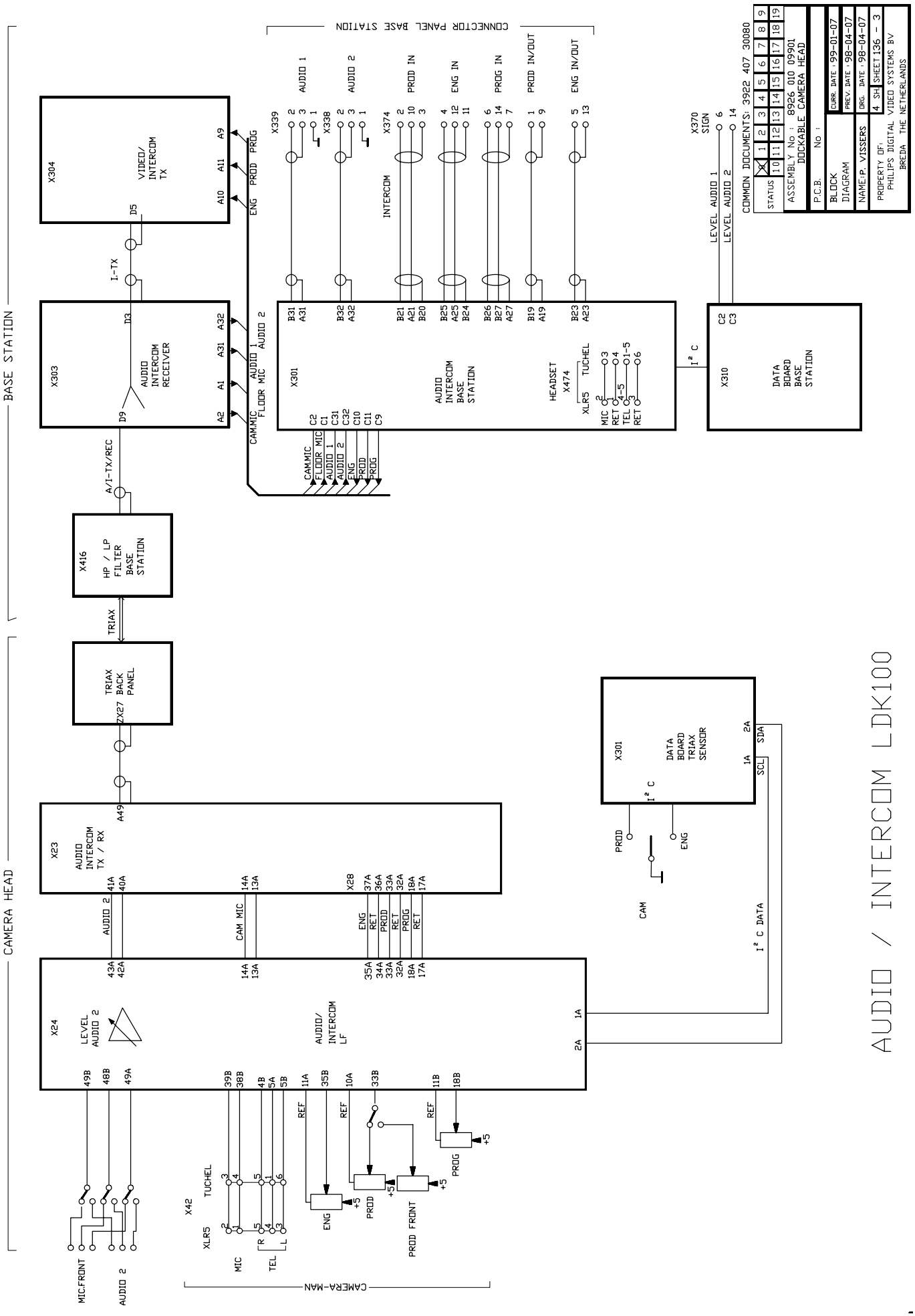

COMMON DOCUMENTS: 3922 407 30080
ALSO VALID FOR: 3922 407 30080
STATUS X
ASSEMBLY No : 8926 010 09901
DOCKABLE CAMERA HEAD
P.C.B. No :
WIRING DIAGRAM
CHK DATE 99-01-07
PREV. DATE 97-07-15
NAME:P. VISSERS
REL. DATE 97-05-15
PROPERTY OF: BTS BROADCAST TELEVISION SYSTEMS BV BREDA THE NETHERLANDS
4 SH SHEET 131 - 2
MOTHERBOARD CAMERA
FRONT MODULE
DOCKING CONNECTOR TO ADAPTOR
VIDEO PROCESSOR
SYNC MONITORING
DATA CAMERA
FRONT DRIVER
LC-SHUTTER
FRONT MODULE
LEFT SWITCH PANEL
POWER SWITCH
FRONT SWITCH PANEL
CONN.BOARD RIGHT COVER
RS232 BOARD A
RS232 BOARD B
RS232 CONNECTOR
TO MOTHERBRD CAM.
TO PPG
TO SENSING BRD
TO OPTOCOUPLERBRD
TO INTERCONN.BRD FRONT
TO PREPROC.
TO SENSOR BRD
FLATCABLE
FLAT-CABLE
INTERCONN.BRD FRONT
PPG
COMPONENTS ON PCB.
TRACK :
WIRE :
CONNECTOR:

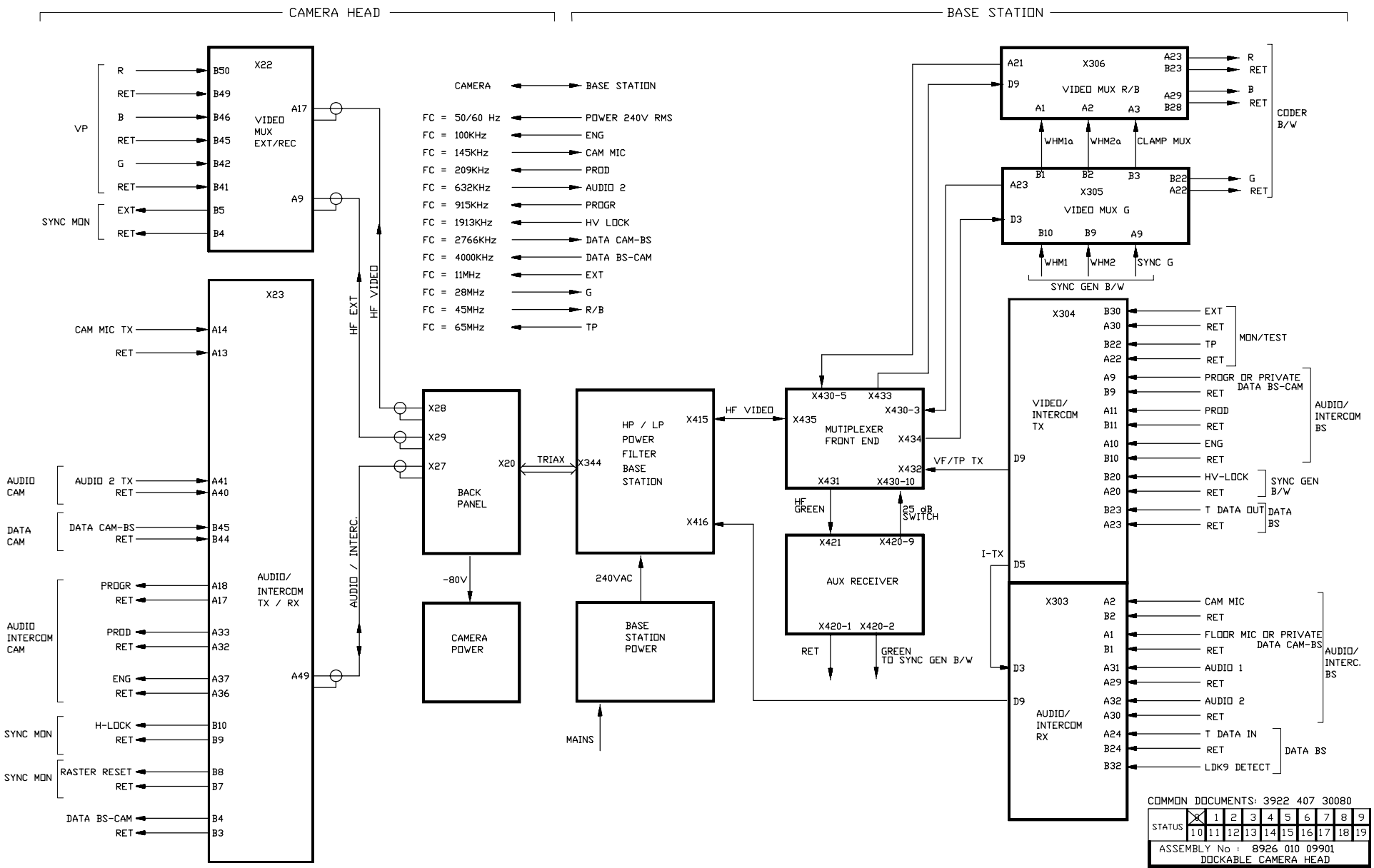

COMMON DOCUMENTS: 3922 407 30080
ALSO VALID FOR: 3922 407 30080
ASSEMBLY No.: 8926 010 09901
DOCKABLE CAMERA HEAD
P.C.B. No.:
WIRING DIAGRAM
DRWR DATE: 97-09-24
PREV. DATE: 97-07-15
ORIG. DATE: 97-05-15
NAME: P. VISSERS
PROPERTY OF: BTS BROADCAST TELEVISION SYSTEMS BV BREDA THE NETHERLANDS
SHEET 131 - 3
4 SH
MOTHERBOARD CAMERA
FLAT-CABLE
INTERCONN.BRD FRONT
PPG
FRONT MODULE
DOCKING CONNECTOR TO ADAPTOR
VIDEO PROCESSOR
SYNC MONITORING
DATA CAMERA
FRONT DRIVER
LC-SHUTTER
TO FRONT MODULE
LEFT SWITCH PANEL
POWER SWITCH
FRONT SWITCH PANEL
CONN.BOARD RIGHT COVER
RS232 BOARD A
RS232 BOARD B
RS232 CONNECTOR
TO MOTHERBRD CAM.
TO PPG
TO SENSING BRD
TO OPTOCOUPLERBRD
TO INTERCONN.BRD FRONT
TO PREPROC.
TO SENSOR BRD
COMPONENTS ON PCB:
TRACK :
WIRE :
CONNECTOR:


COMMON DOCUMENTS: 3922 407 30080
ALSO VALID FOR: 3922 407 30080
STATUS
ASSEMBLY No : 8926 010 09901
DOCKABLE CAMERA HEAD
P.C.B. No :
WIRING DIAGRAM
ERR. DATE : 99-01-07
PREV. DATE : 97-05-15
NAME: P. VISSERS
DRG. DATE : 97-05-15
4 SH SHEET 1 - 4
PROPERTY OF: BTS BROADCAST TELEVISION SYSTEMS BV BREDA THE NETHERLANDS
COMPONENTS ON PCB.
TRACK :
WIRE :
CONNECTOR:
MOTHERBOARD CAMERA
FRONT MODULE
FLAT-CABLE
INTERCONN.BRD FRONT
PPG
PRE PROCESSOR
SENSOR BOARD R.G.B.
DOCKING CONNECTOR TO ADAPTOR
VIDEO PROCESSOR
SYNC MONITORING
DATA CAMERA
FRONT DRIVER
LC-SHUTTER
FRONT MODULE
LEFT SWITCH PANEL
POWER SWITCH
FRONT SWITCH PANEL
CONN.BOARD RIGHT COVER
RS232 BOARD A
RS232 BOARD B
RS232 CONNECTOR
TO MOTHERBRD CAM.
TO PPG
TO SENSING BRD
TO OPTOCOUPLERBRD
TO INTERCONN.BRD FRONT
TO PREPROC.
TO SENSOR BRD
RPP
GPP
BPP
OT-R
OT-G
OT-B
IRIS CONTROL
IRIS FOLLOW
FOCUS FOLLOW
ZOOM FOLLOW
SHIELD S
MIC YS
MIC XS
SHIELD
MIC Y
MIC X
AUDIO INDIC.
AUDIO LEVEL RET
AUDIO LEVEL
DIGIPOT +
DIGIPOT -
IR RX RET
IR RX
RESETN
LON DATAN
LON DATA
BS TCK
BS TDA
BS TDD
BS TDV
BS TMS
BS TRSTN
INTNG
SCLG
SDAG
INTNF
SCLF
SDAF
INTNE
SCLE
SDAE
INTND
SCLD


VIDEO PROCESSING LDK100
TRIAX ADAPTER
CAMERA
BACK PANEL
CVBS
TRIAX
VF
HP / LP
ENCODER
VIDEO MUX / EXT REC
ADAPTER VIDEO
DIGITAL VIDEO PROC
PRE PDC
SENSOR R
SENSOR G
SENSOR B
SENSOR PULSES
PPG
FRONT DRIVER
FRONT INTERC. BRD
DATA BOARD CAMERA
BLACK SHADING
SYNC/MONITORING
CONN.BRD RIGHT
SAWTOOTH
SHUT REF
COMMON DOCUMENTS: 3922 407 30080
ASSEMBLY No : 8926 010 09901
DOCKABLE CAMERA HEAD
P.C.B. No :
BLOCK DIAGRAM
NAME:P. VISSERS
PROPERTY OF: PHILIPS DIGITAL VIDEO SYSTEMS BV BREDA THE NETHERLANDS
CORR. DATE : 99-01-07
PREV. DATE : 98-04-07
DRG. DATE : 98-04-07
4 SH SHEET 136 - 1


LOCKING LDK100 - BS
BASE STATION
CAMERA HEAD
SYNC G REC
AUX REC
X420
X421
G AUX
MULTIPLEXER FRONT END
X431
X435
HF 28MHz G-SYNC
HP/LP POWER FILTER BASE STATION
X415
X416
X344
TRIAX
X20
X20-17B
HV-LOCK
VIDEO INTERCOM TX
X304
D5
B20
HF 1913KHz HV-LOCK
AUDIO/INT REC
X303
D3
D9
G SYNC
WH M2
WH M1
X390
SYNC GENERATOR
B9
A27
B27
B28
B10
B15
A3
A6
A14
A8
B22
B6
B7
B31
V ADJUST
SET IDENT
X
Y
625/525
SYNC REF N
SYNC REF V/
SYNC REF H
H PHASE
X316
COLOUR ENCODER
B9
B22
A1
A2
A30
A10
A23
SYNC AMPL
SYNC
CVBS
CODER B&W
X1
C7
B4
B1
A1
C8
B19
B20
B21
X317
MONITORING TEST
A6
A4
A5
C8
A11
A19
B7
B20
B4
A9
B9
B8
C9
B6
B3
A3
SPH C1
SPH C2
SPH F
BURST REF
BURST REF AV
SUBC LOCK
B24
A24
C28
CONNECTOR PANEL BASE STATION X360 REF X361 REF
625/525
VIDEO MUX G
X305
B22
B1
B2
B3
G
VIDEO MUX R/B
X306
A23
A1
A2
A28
R
B
WH M2A
WH M1A
CLAMP MUX
TRIAX BACK PANEL
ZX27
X23-49A
HF1913KHz
AUDIO INTERCOM TX / RX
HF 28/45MHz MOD.VIDEO
ZX28
X22-17A
H-LOCK
X20-17B
X23-10B
RASTER RESET
X20-17A
X23-8B
ENCODER
VIDEO MUX / EXT REC
X22-48A
X20-15B
SYNC MONITORING
X21-48A
SYNC
X20-7B
FRAME SYNC
X20-1B
ZX43-19B
ZX23-19B
FRONT
DIGITAL VIDEO PROCESSOR
COMMON DOCUMENTS: 3922 407 30080
STATUS
ASSEMBLY No : 8926 010 09901
DOCKABLE CAMERA HEAD
P.C.B. No :
BLOCK DIAGRAM
CURR. DATE : 99-01-07
PREV. DATE : 98-04-07
NAME: P. VISSERS
DRG. DATE : 98-04-07
4 SH SHEET 136 - 2
PROPERTY OF:
PHILIPS DIGITAL VIDEO SYSTEMS BV
BREDA THE NETHERLANDS


AUDIO / INTERCOM LDK100
BASE STATION
CAMERA HEAD
CONNECTOR PANEL BASE STATION
X304
VIDEO/ INTERCOM TX
X303
AUDIO INTERCOM RECEIVER
X301
AUDIO INTERCOM BASE STATION
X310
DATA BOARD BASE STATION
X339
X338
X374
X370
X416
HP / LP FILTER BASE STATION
TRIAX BACK PANEL
X23
AUDIO INTERCOM TX / RX
X24
LEVEL AUDIO 2
AUDIO/ INTERCOM LF
X301
DATA BOARD TRIAX SENSOR
X42
CAMERA-MAN
I-TX
A/I-TX/REC
TRIAX
I² C
I² C DATA
AUDIO 1
AUDIO 2
PROD IN
ENG IN
PROG IN
PROD IN/OUT
ENG IN/OUT
INTERCOM
HEADSET
X474
TUCHEL
XLR5
CAM MIC
FLOOR MIC
ENG
PROD
PROG
PROD FRONT
MIC.FRONT
LEVEL AUDIO 1
LEVEL AUDIO 2
SIGN
COMMON DOCUMENTS: 3922 407 30080
ASSEMBLY No : 8926 010 09901
DOCKABLE CAMERA HEAD
P.C.B. No :
BLOCK DIAGRAM
CORR. DATE : 99-01-07
PREV. DATE : 98-04-07
DRG. DATE : 98-04-07
NAME/P. VISSERS
4 SH SHEET 136 - 3
PROPERTY OF: PHILIPS DIGITAL VIDEO SYSTEMS BV
BREDA THE NETHERLANDS



TRANSMISSION LDK100

COMMON DOCUMENTS: 3922 407 30080

STATUS	0	1	2	3	4	5	6	7	8	9
	10	11	12	13	14	15	16	17	18	19

ASSEMBLY No : 8926 010 09901
DOCKABLE CAMERA HEAD

P.C.B. No :

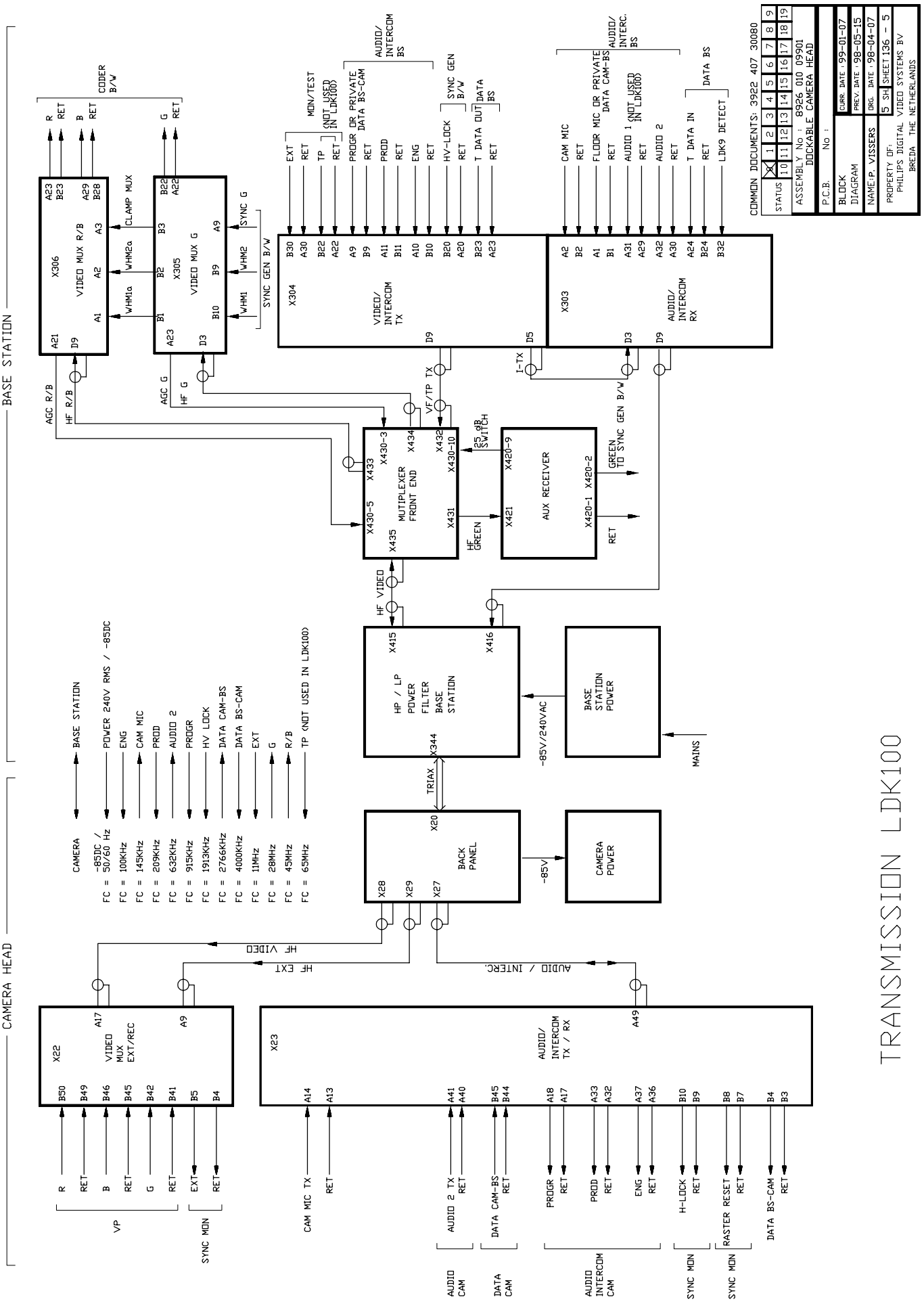
BLOCK DIAGRAM

CURR. DATE : 99-01-07
PREV. DATE : 98-04-07
ORG. DATE : 98-04-07

NAME: P. VISSERS

4 SH. SHEET 136 - 4

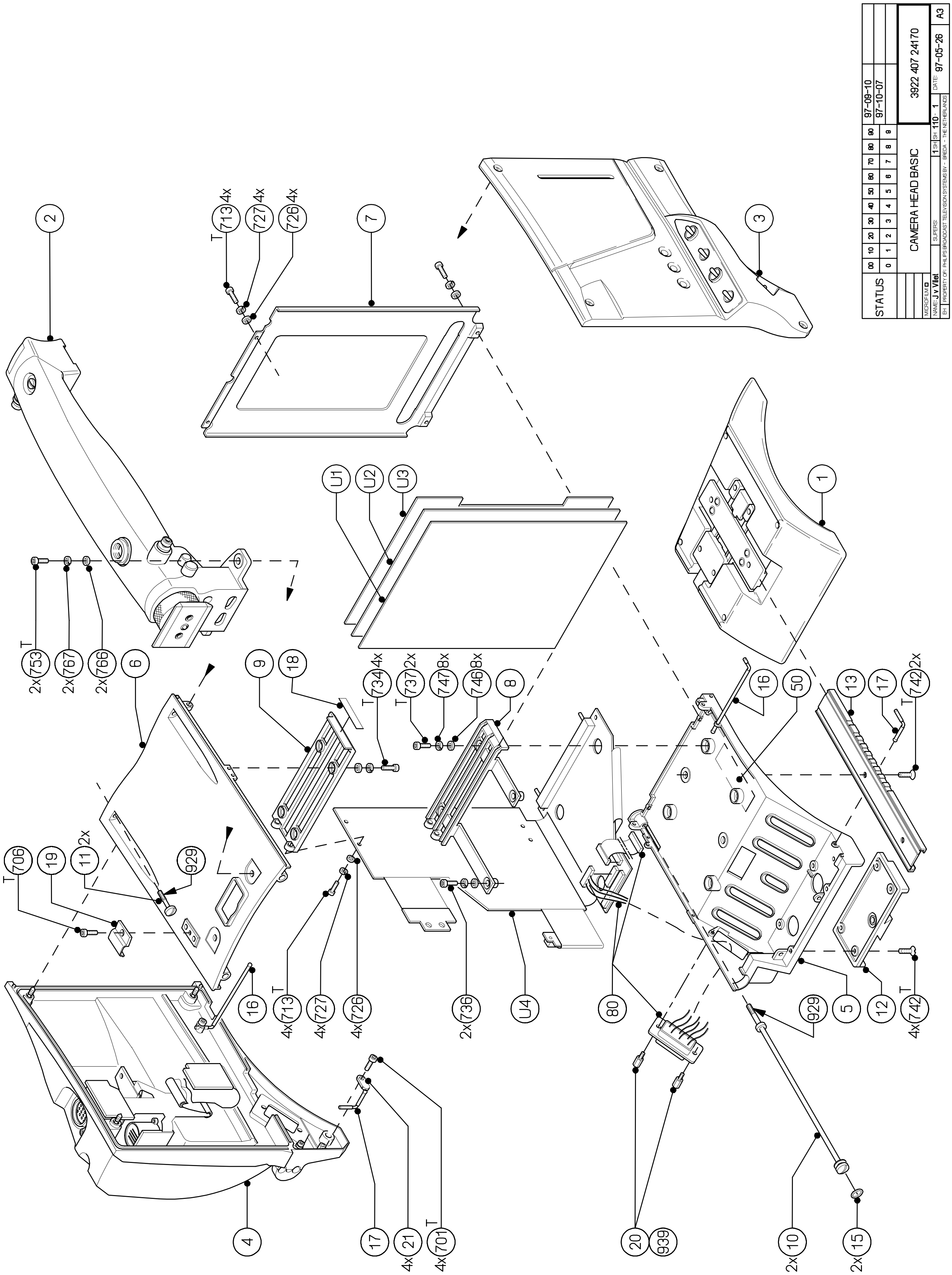
PROPERTY OF:
PHILIPS DIGITAL VIDEO SYSTEMS BV
BREDA THE NETHERLANDS

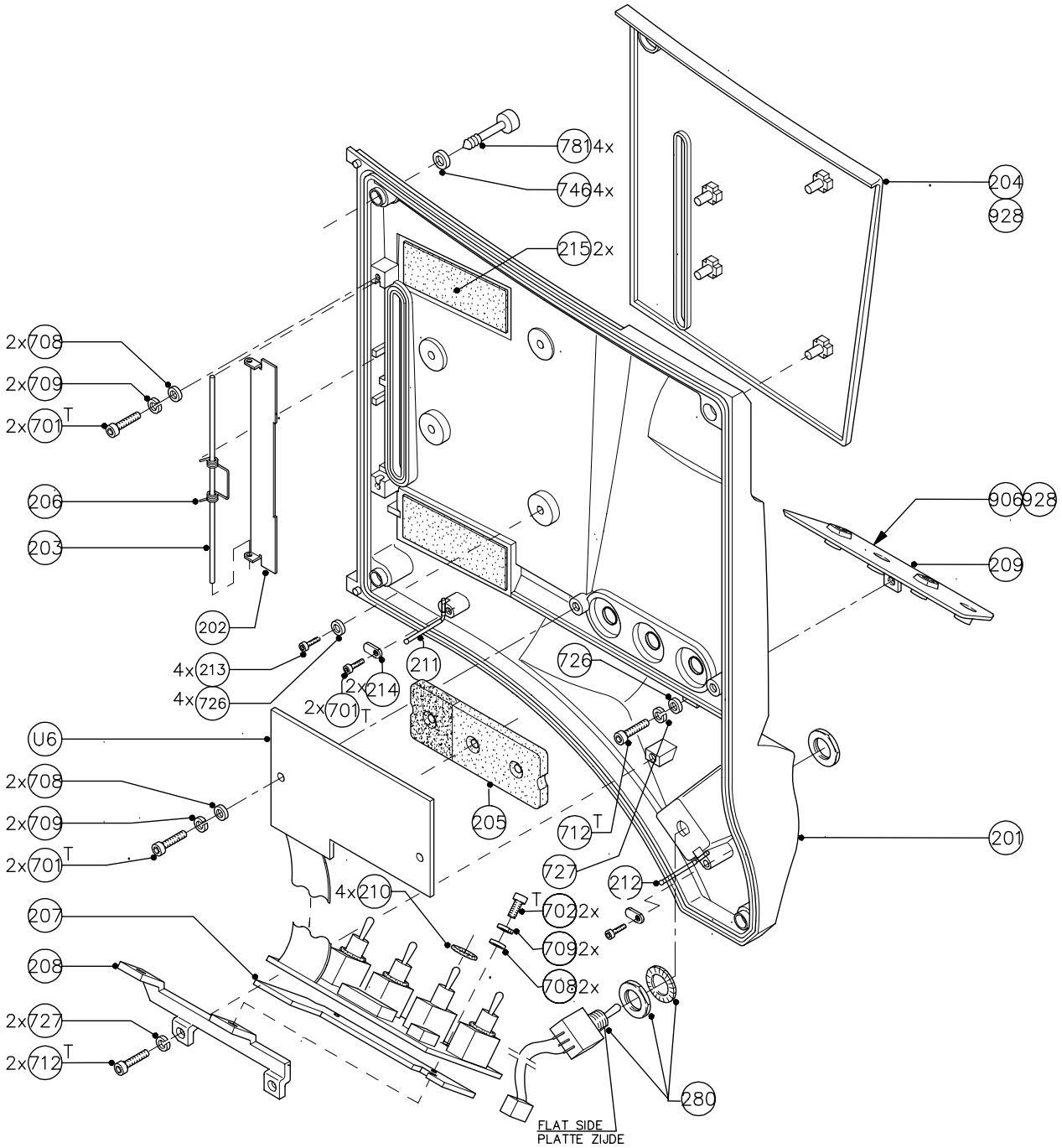

BASE STATION
CAMERA HEAD
TRANSMISSION LDK100
COMMON DOCUMENTS: 3922 407 30080
ASSEMBLY No : 8926 010 09901
DOCKABLE CAMERA HEAD
P.C.B. No :
BLOCK DIAGRAM
NAME: P. VISSERS
CORR. DATE: 99-01-07
PREV. DATE: 98-05-15
DRG. DATE: 98-04-07
SHEET 136 - 5
PROPERTY OF: PHILIPS DIGITAL VIDEO SYSTEMS BV BREDA THE NETHERLANDS
VIDEO MUX R/B
VIDEO MUX G
CLAMP MUX
SYNC G
SYNC GEN B/W
CDDER B/W
VIDEO/ INTERCOM TX
AUDIO/ INTERCOM RX
MON/TEST
PRODR DR PRIVATE DATA BS-CAM
AUDIO/ INTERCOM BS
HV-LOCK
T DATA OUT
SYNC GEN B/W
DATA BS
CAM MIC
FLOOR MIC DR PRIVATE DATA CAM-BS
AUDIO 1 (NOT USED IN LDK100)
AUDIO 2
T DATA IN
LDK9 DETECT
MUTIPLEXER FRONT END
AUX RECEIVER
25 dB SWITCH
GREEN TO SYNC GEN B/W
HF GREEN
HF VIDEO
HP / LP POWER FILTER BASE STATION
BASE STATION POWER
-85V/240VAC
MAINS
TRIAX
BACK PANEL
CAMERA POWER
-85V
VIDEO MUX EXT/REC
AUDIO/ INTERCOM TX / RX
HF VIDEO
HF EXT
AUDIO / INTERC.
CAMERA
BASE STATION
POWER 240V RMS / -85DC
CAM MIC
PROD
AUDIO 2
PRODR
HV LOCK
DATA CAM-BS
DATA BS-CAM
EXT
G
R/B
TP (NOT USED IN LDK100)
-85DC / 50/60 Hz
FC = 100KHz
FC = 145KHz
FC = 209KHz
FC = 632KHz
FC = 915KHz
FC = 1913KHz
FC = 2766KHz
FC = 4000KHz
FC = 11MHz
FC = 28MHz
FC = 45MHz
FC = 65MHz
VP
SYNC MON
CAM MIC TX
AUDIO 2 TX
DATA CAM-BS
PRODR
PROD
ENG
H-LOCK
RASTER RESET
DATA BS-CAM
AUDIO CAM
DATA CAM
AUDIO INTERCOM CAM
SYNC MON
SYNC MON

Section 7

Mechanical Exploded Views

Contents


STATUS
97-09-10
97-10-07
CAMERA HEAD BASIC
3922 407 24170
97-05-26
A3
NAME: J v Vliet
PROPERTY OF: PHILIPS BROADCAST TELEVISION SYSTEMS BV - BREDA - THE NETHERLANDS



ALSO VALID FOR: 3922 407 31350

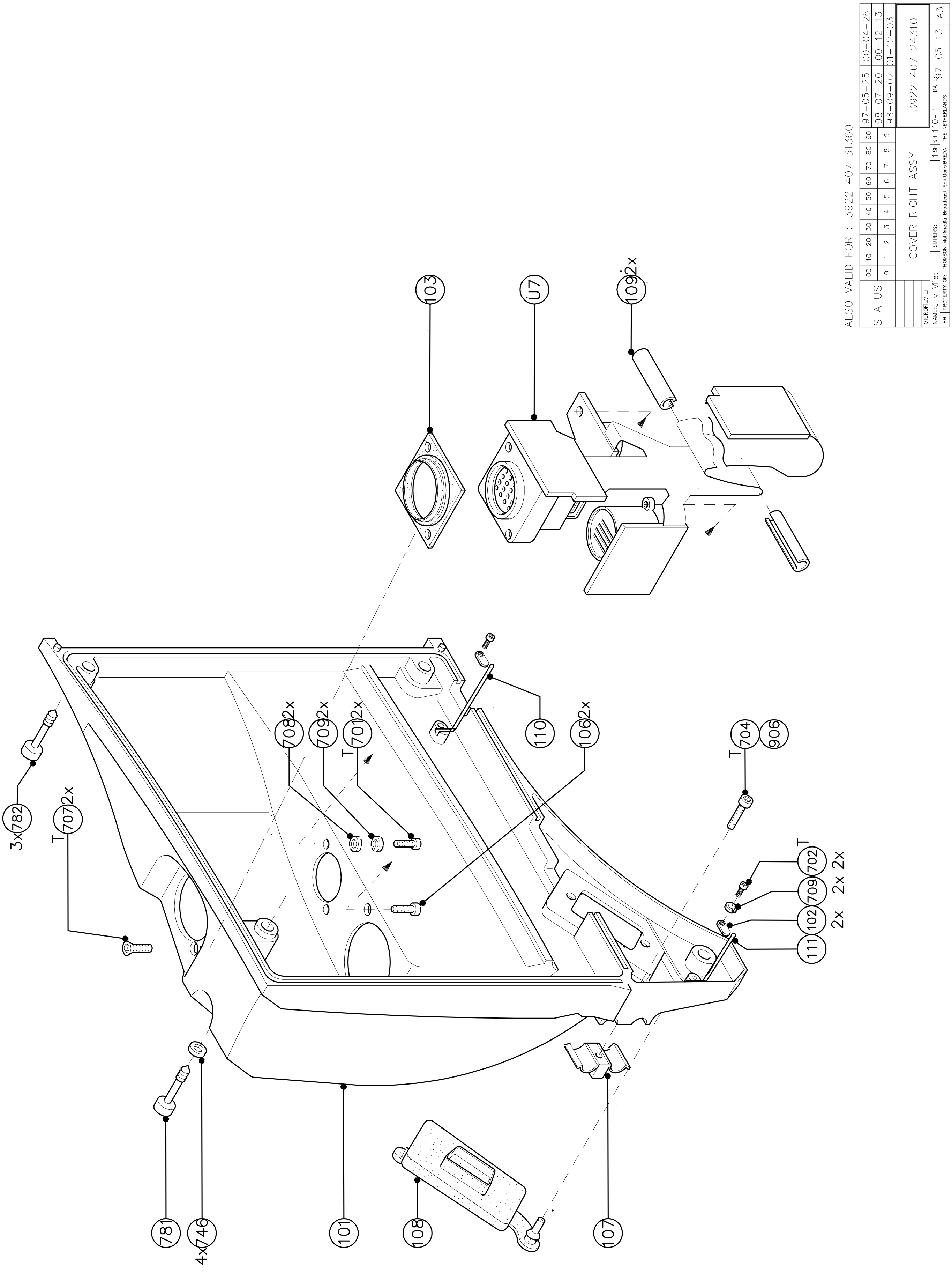
STATUS	00	10	20	30	40	50	60	70	80	90	~~97-08-20~~	98-07-20
											~~97-11-20~~	00-01-11
	0	1	2	3	4	5	6	7	8	9	~~97-11-25~~	00-04-26

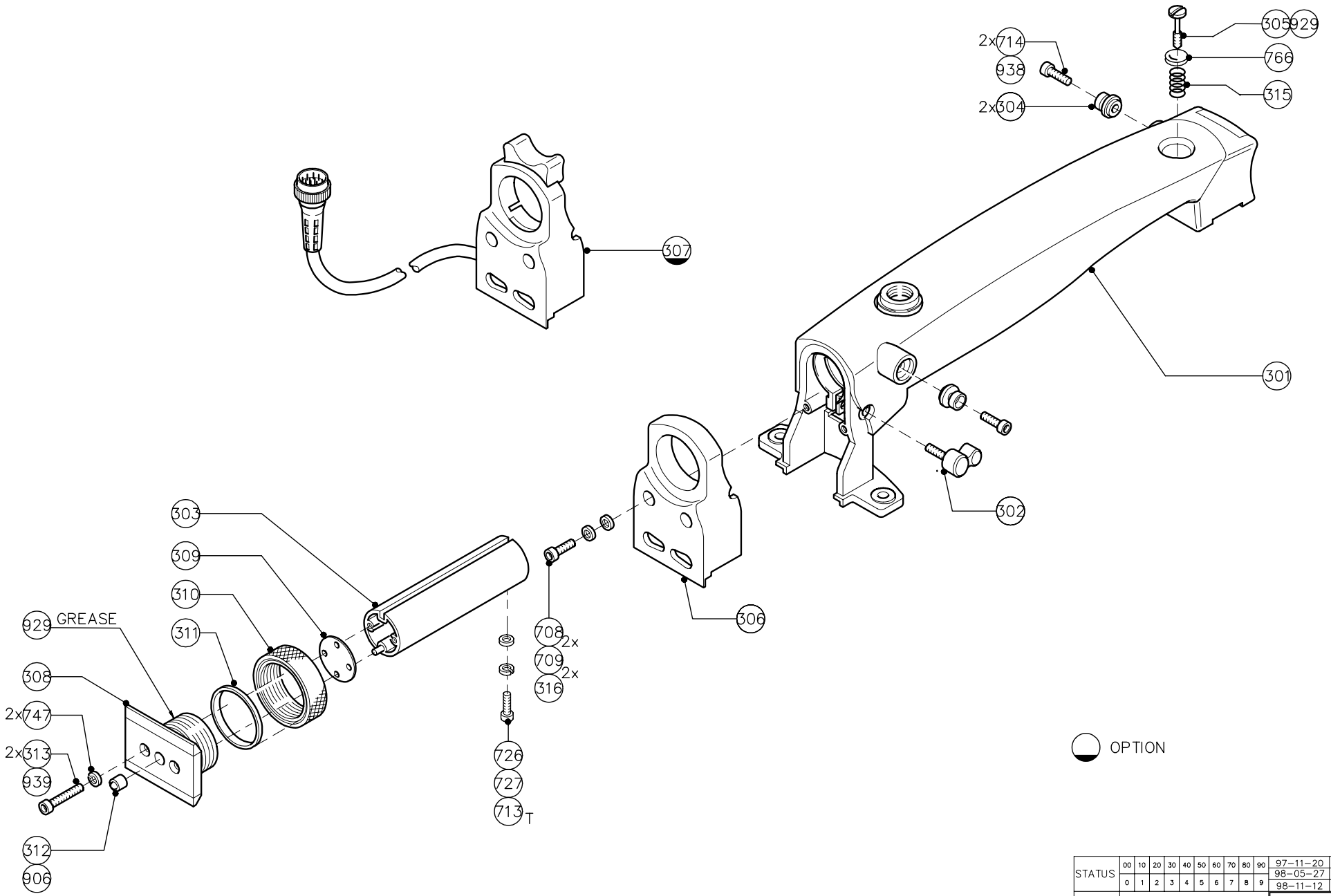
COVER LEFT ASSY — 3922 407 24320

MICROFILM ☐

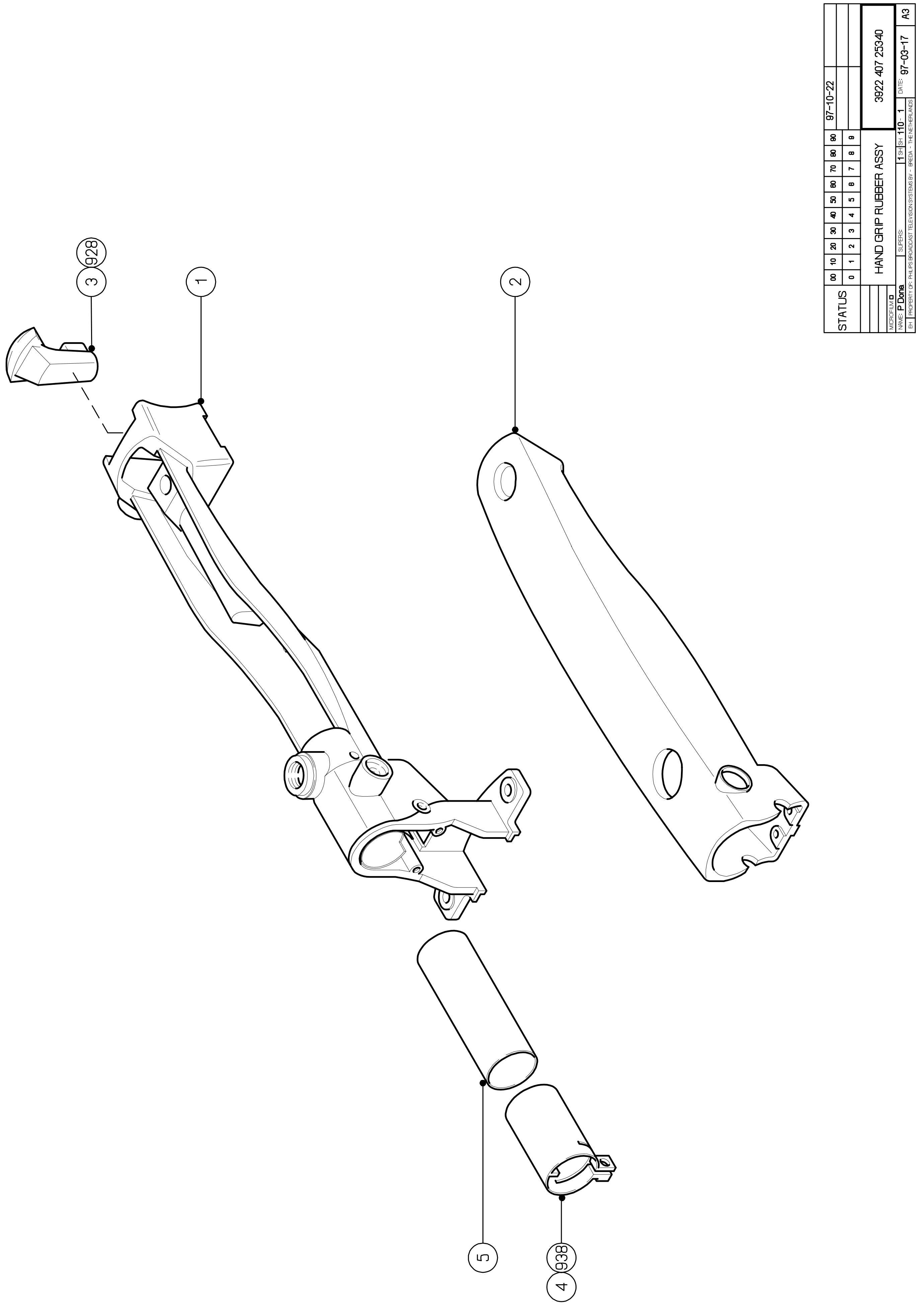
NAME: J v Vliet | SUPERS: | 1 SH | SH 110- 1 | DATE 97-05-16 | A3

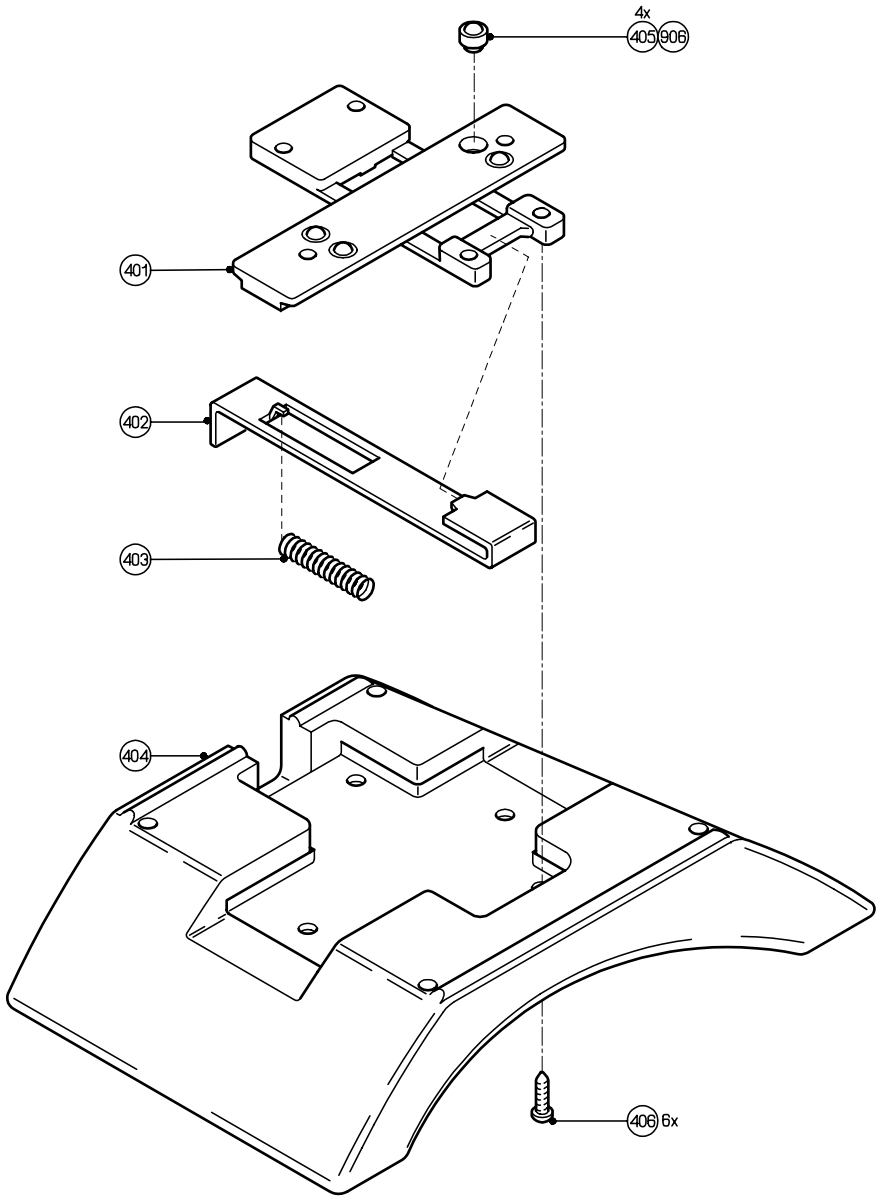
EH | PROPERTY OF: PHILIPS BROADCAST TELEVISION SYSTEMS BU BREDA – THE NETHERLANDS


ALSO VALID FOR : 3922 407 31360
STATUS
97-05-25 00-04-26
98-07-20 00-12-13
98-09-02 01-12-03
COVER RIGHT ASSY
3922 407 24310
NAME: J v Vliet
97-05-13
A3
THOMSON Multimedia Broadcast Solutions BREDA - THE NETHERLANDS
103
U7
109 2x
110
106 2x
708 2x
709 2x
701 2x
704
906
702
709
102
111
3x 782
707 2x
781
4x 746
101
108
107

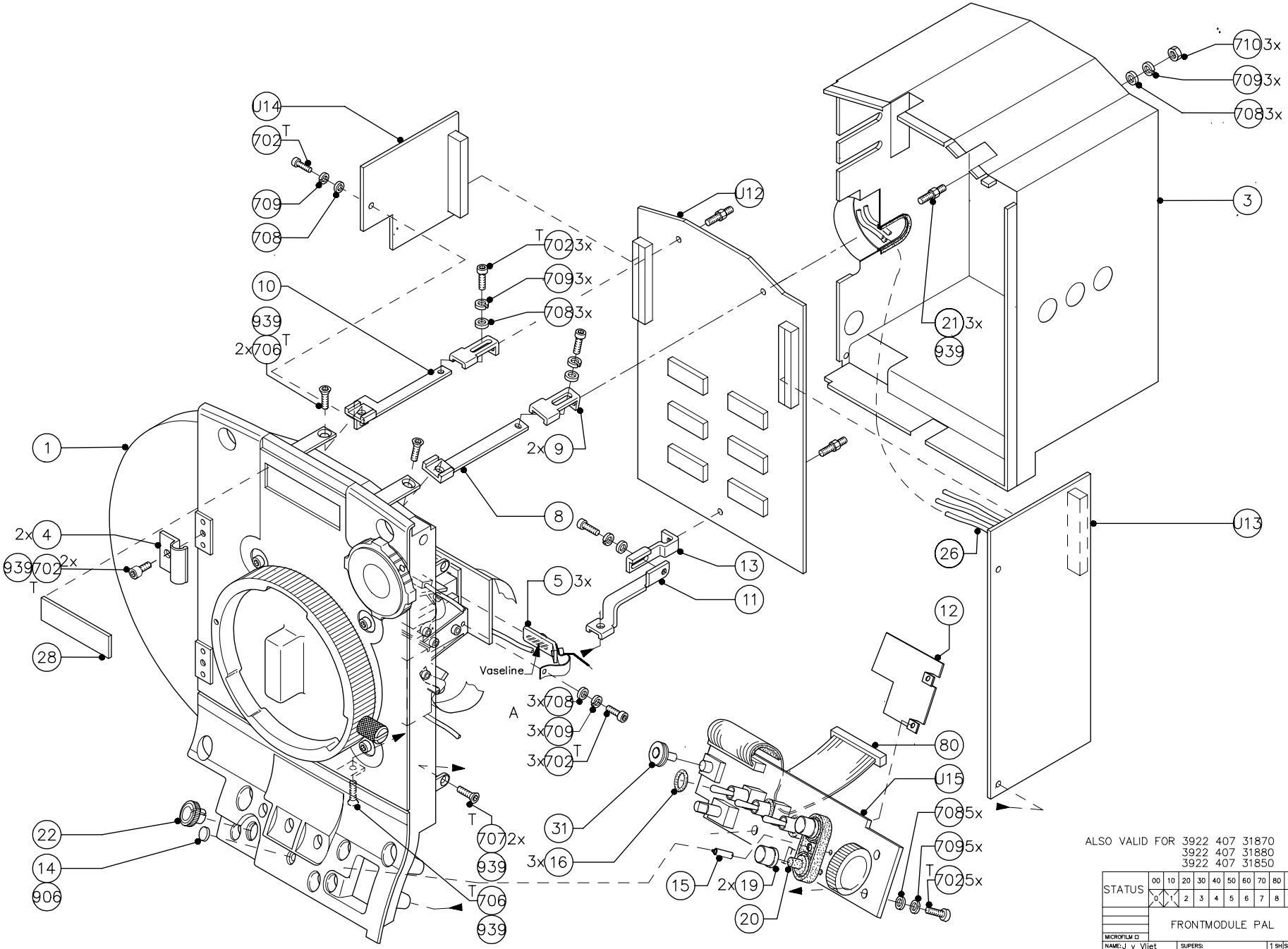


STATUS	00	10	20	30	40	50	60	70	80	90	97-11-20	00-10-11
	0	1	2	3	4	5	6	7	8	9	98-05-27	
											98-11-12	
	HAND GRIP ASSY										3922 407 25350	
MICROFILM ☐												
NAME: P Dona	SUPERS:									1 SH	SH 110- 1	DATE 97-03-17 A3
EH	PROPERTY OF:PHILIPS BROADCAST TELEVISION SYSTEMS-BUREDA – THE NETHERLANDS											


3
928
1
2
5
4
938
STATUS
00 10 20 30 40 50 60 70 80 90
0 1 2 3 4 5 6 7 8 9
97-10-22
HAND GRIP RUBBER ASSY
3922 407 25340
MICROFILM
NAME: P Dona
SUPERS:
1 SH SH 110 - 1
DATE: 97-03-17
A3
EH PROPERTY OF: PHILIPS BROADCAST TELEVISION SYSTEMS BV - BREDA - THE NETHERLANDS

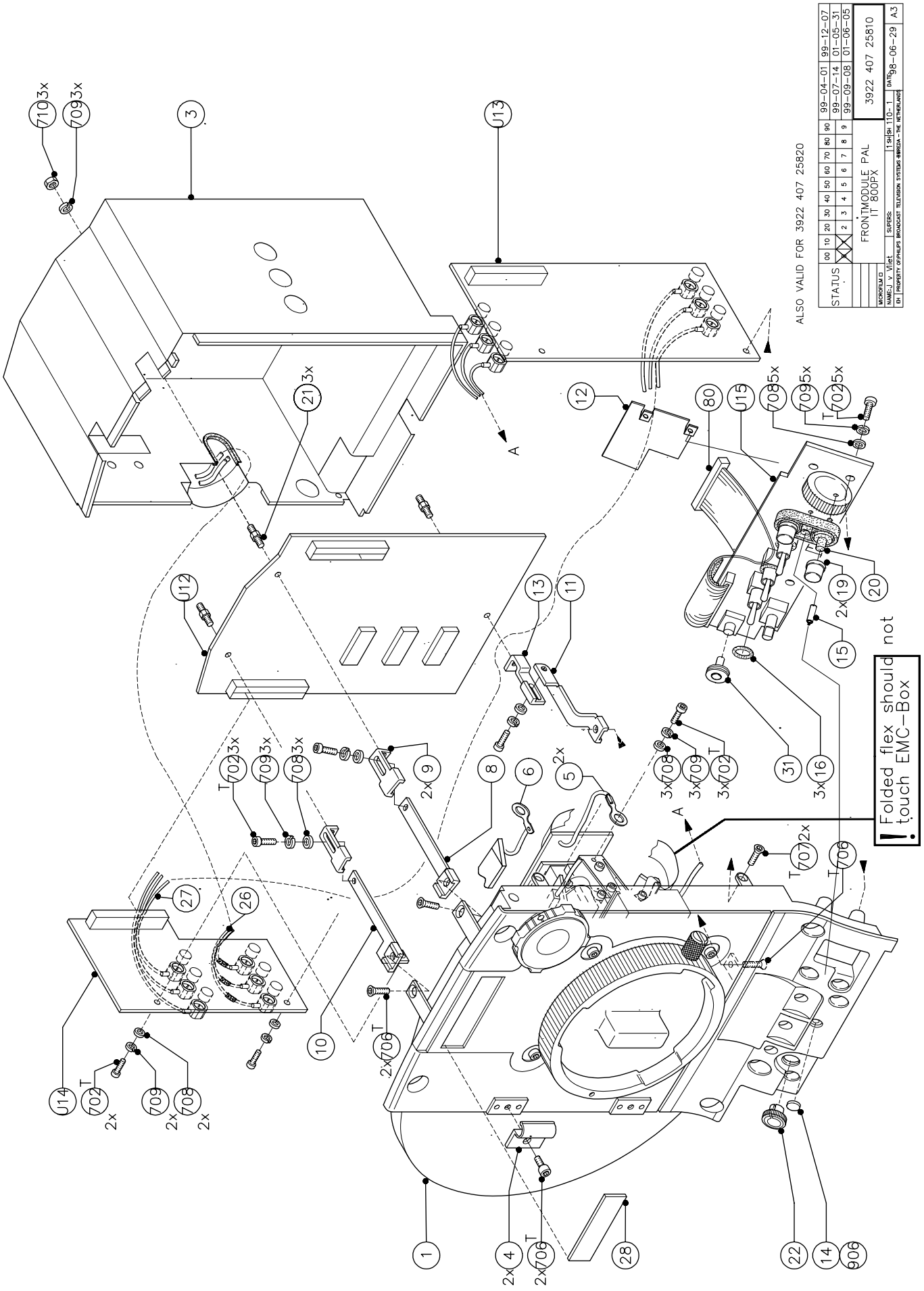


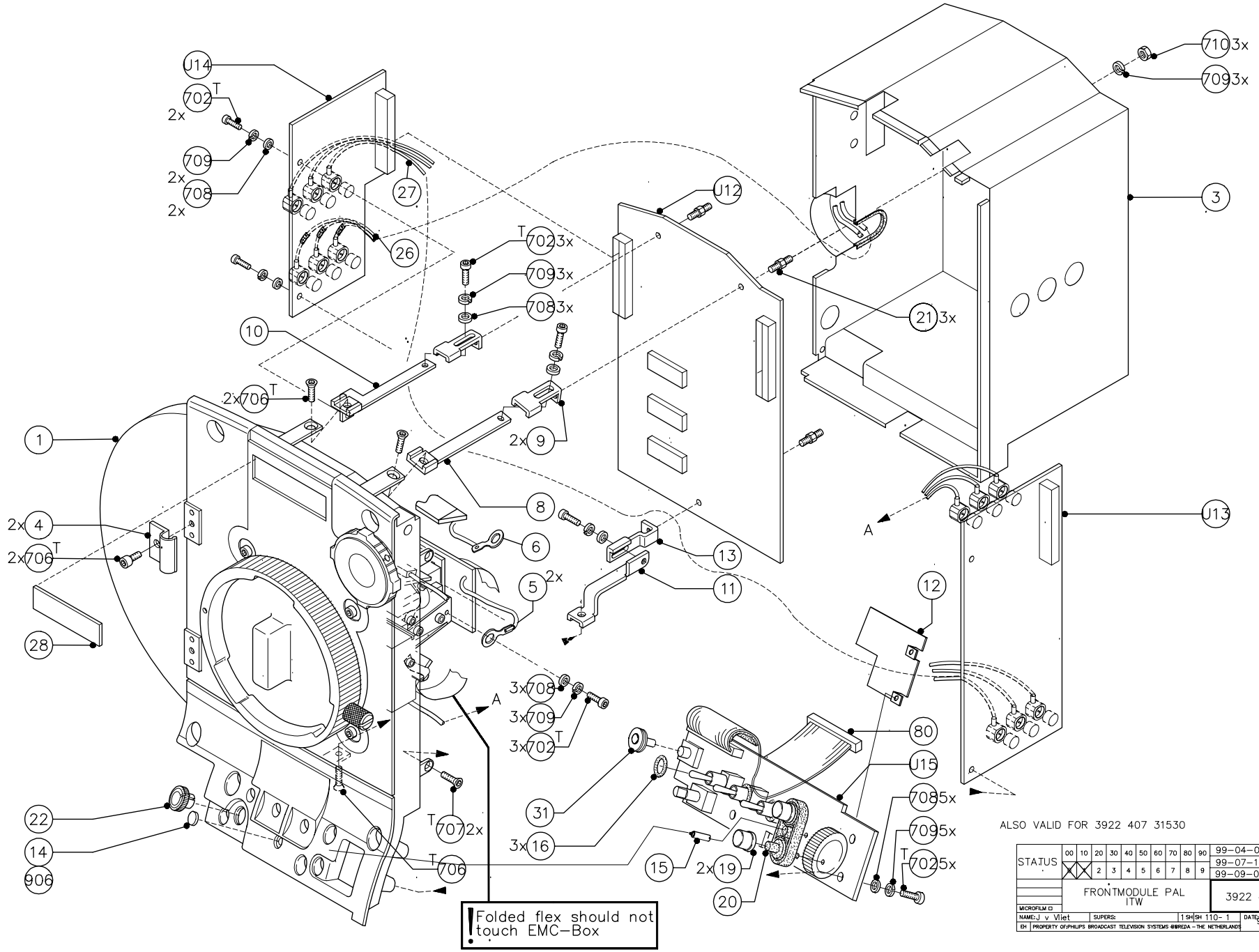
STATUS	00	10	20	30	40	50	60	70	80	90	98-01-21
	0	1	2	3	4	5	6	7	8	9	
	SHOULDERPAD ASSY										3922 407 22220
MICROFILM ☐											
NAME: P de Greeuw	SUPERS:							1 SH	SH 110- 1		DATE: 96-11-13 A3
EH	PROPERTY OF: PHILIPS BROADCAST TELEVISION SYSTEMS BV - BREDA - THE NETHERLANDS										

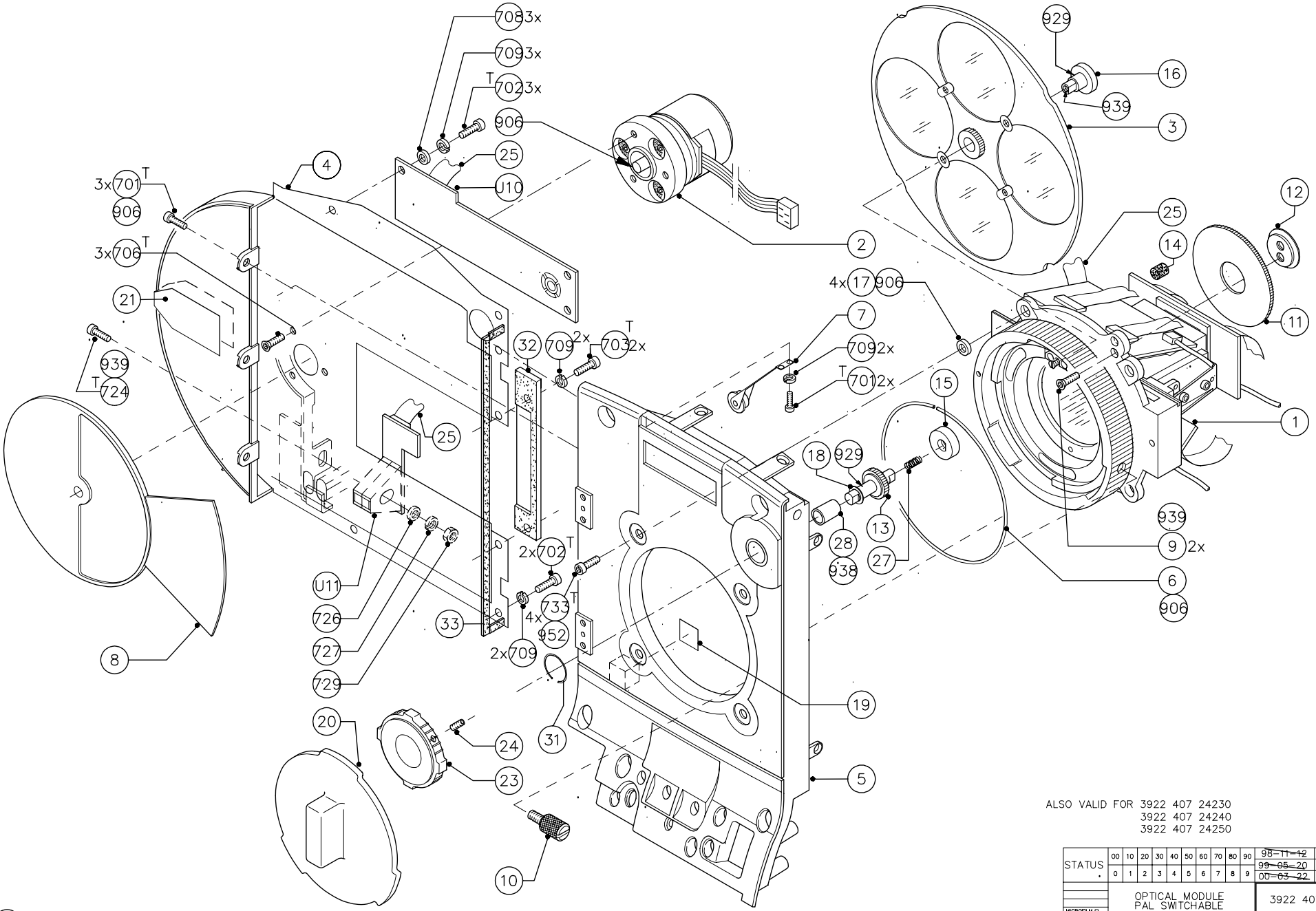


ALSO VALID FOR 3922 407 31870
3922 407 31880
3922 407 31850

STATUS	00	10	20	30	40	50	60	70	80	90	~~99-12-07~~
	0	1	2	3	4	5	6	7	8	9	~~01-05-31~~ 01-06-05
	FRONTMODULE PAL										3922 407 31860
MICROFILM ☐											
NAME: J v Vliet	SUPERS:	1 SH SH 110- 1	DATE 99-07-23	A3
EH	PROPERTY OF:PHILIPS BROADCAST TELEVISION SYSTEMS-BREDA – THE NETHERLANDS			


ALSO VALID FOR 3922 407 25820
FRONTMODULE PAL
IT 800FX
3922 407 25810
Folded flex should not touch EMC-Box


U14
702 T 2x
709 2x
708 2x
27
26
U12
7023x
7093x
7083x
10
2x706 T
2x 9
1
2x 4
2x706 T
28
8
6
5 2x
13
11
3
21 3x
710 3x
7093x
U13
A
12
3x708
3x709
3x702 T
A
80
U15
7085x
7095x
7025x
T
31
3x 16
15
2x 19
20
22
14
906
T 7072x
T 706
Folded flex should not touch EMC–Box
ALSO VALID FOR 3922 407 31530
STATUS
00 10 20 30 40 50 60 70 80 90
X X 2 3 4 5 6 7 8 9
99–04–01 99–12–07
99–07–14 01–05–31
99–09–08 01–06–05
FRONTMODULE PAL ITW
3922 407 31520
MICROFILM
NAME: J v Vliet
SUPERS:
1 SH SH 110– 1
DATE 98–06–29
A3
EH
PROPERTY OF PHILIPS BROADCAST TELEVISION SYSTEMS BV BREDA – THE NETHERLANDS



ALSO VALID FOR 3922 407 24230
3922 407 24240
3922 407 24250

STATUS	00	10	20	30	40	50	60	70	80	90	~~98-11-12~~	00-08-11
.	0	1	2	3	4	5	6	7	8	9	~~99-05-20~~	~~98-04-24~~
											~~00-03-22~~	~~98-08-06~~

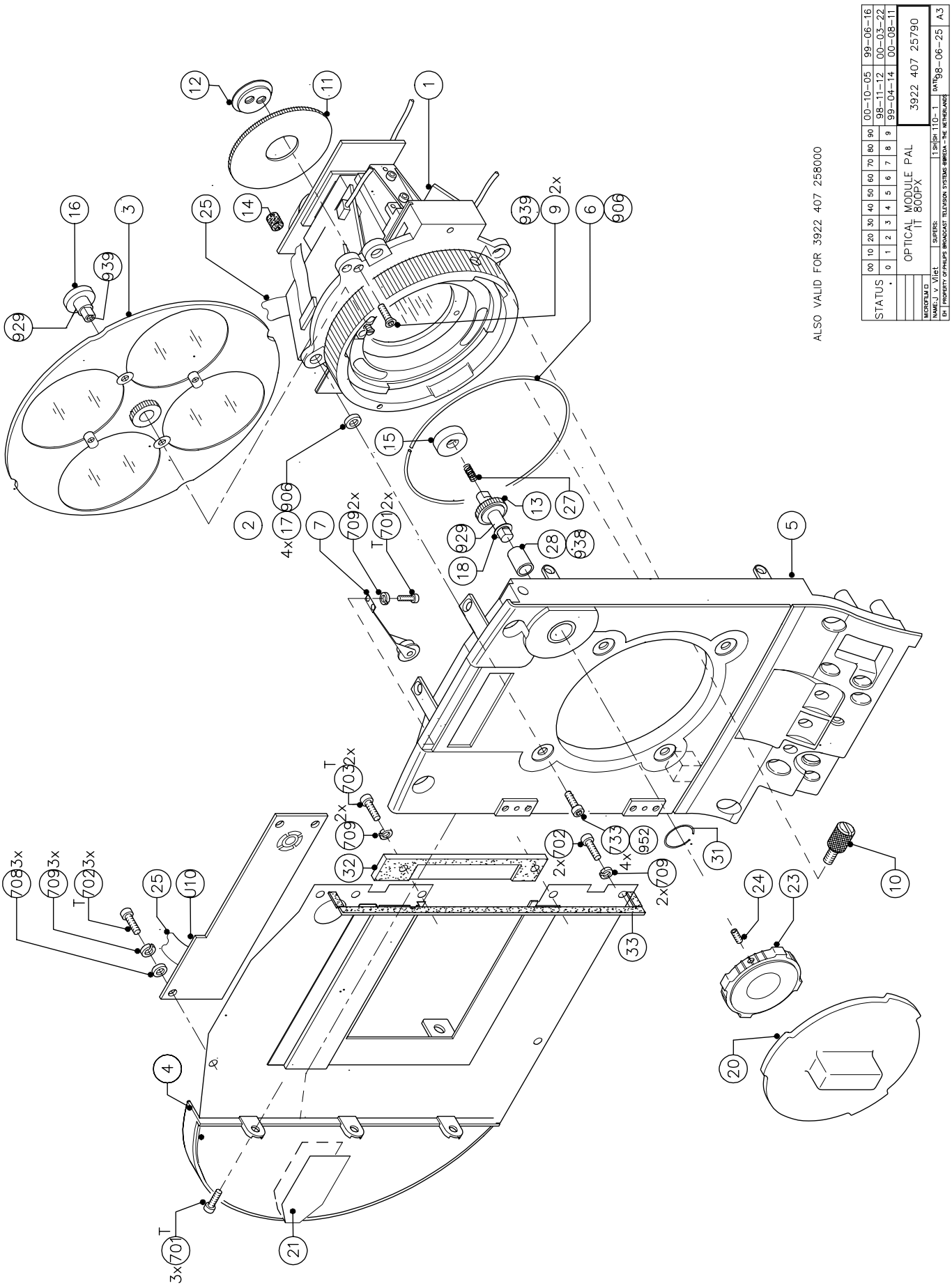
OPTICAL MODULE
PAL SWITCHABLE

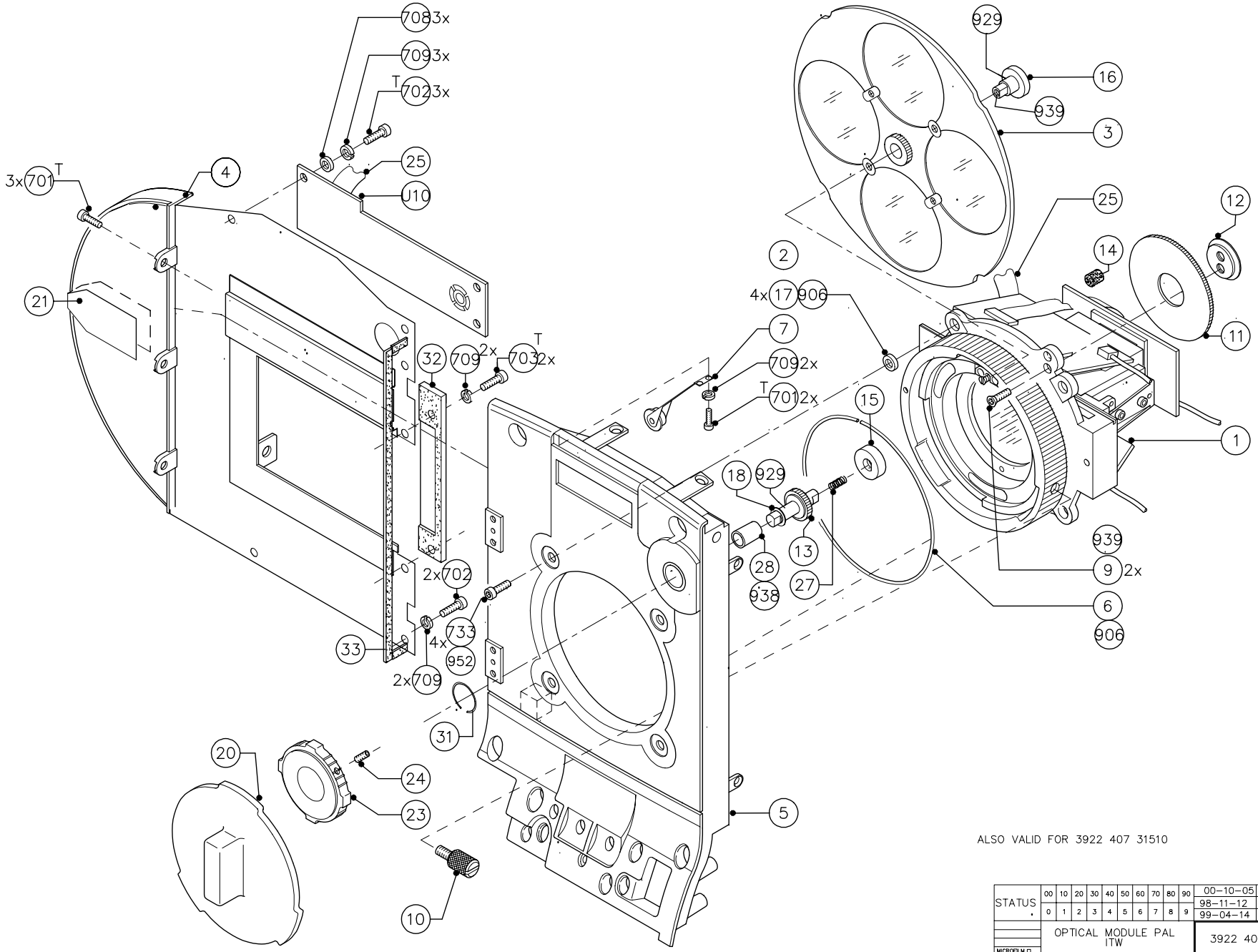
3922 407 24220

MICROFILM ☐
NAME: J v Vliet | SUPERS: | 1 SH SH 110- 1 | DATE 97-04-21 | A3

EH | PROPERTY OF: PHILIPS BROADCAST TELEVISION SYSTEMS BV BREDA - THE NETHERLANDS

30 SERVICE ASSY SHUTTER


ALSO VALID FOR 3922 407 258000
STATUS
OPTICAL MODULE PAL
IT 800PX
3922 407 25790
MICROFILM
NAME: J. v. Vliet
SUPERS:
DATE: 98-06-25
A3
PROPERTY OF PHILIPS BROADCAST TELEVISION SYSTEMS BUSINESS UNIT - THE NETHERLANDS
00-10-05 99-06-16
98-11-12 00-03-22
99-04-14 00-08-11



ALSO VALID FOR 3922 407 31510

STATUS	00	10	20	30	40	50	60	70	80	90	00-10-05 / 99-06-16
	0	1	2	3	4	5	6	7	8	9	98-11-12 / 00-03-23
											99-04-14 / 00-08-11

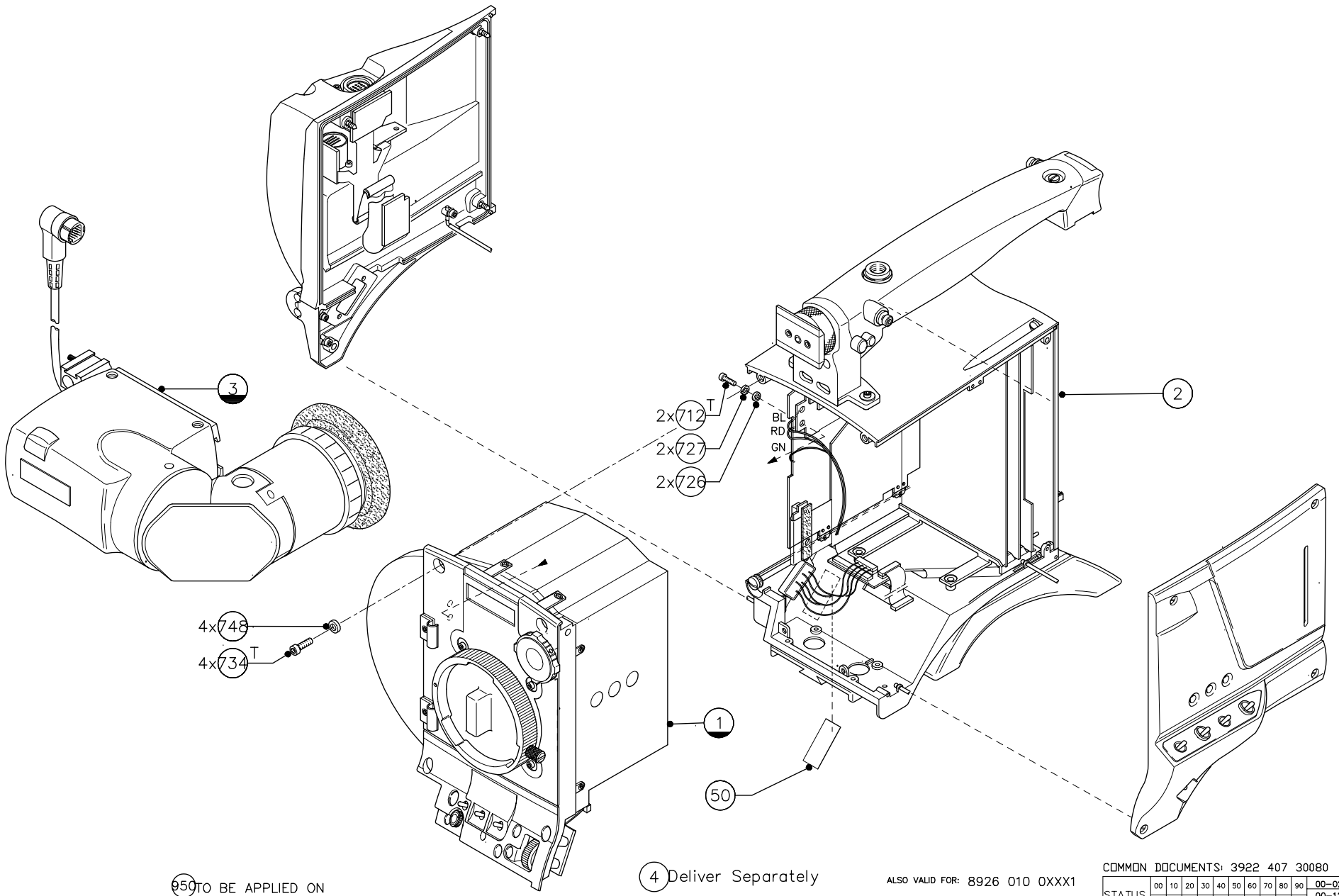
OPTICAL MODULE PAL ITW

3922 407 31500

MICROFILM ☐

NAME: J v Vliet | SUPERS: | 1 SH | SH 110- 1 | DATE: 98-06-25 | A3

EH | PROPERTY OF: PHILIPS BROADCAST TELEVISION SYSTEMS - BREDA - THE NETHERLANDS



ALSO VALID FOR: 8926 010 0XXX1

COMMON DOCUMENTS: 3922 407 30080

STATUS	00	10	20	30	40	50	60	70	80	90	00-02-24	98-11-27
	0	1	2	3	4	5	6	7	8	9	00-12-27	99-01-07
											02-04-04	99-07-14
	DOCKABLE CAMERA HEAD										8926 010 09901	

MICROFILM ☐
NAME: J v Vliet | SUPERS: | 1 SH | SH 110- 1 | DATE: 97-05-27 | A3
EH | PROPERTY OF: THOMSON Multimedia Broadcast solutions- BREDA – THE NETHERLANDS

Section 8

Parts Lists