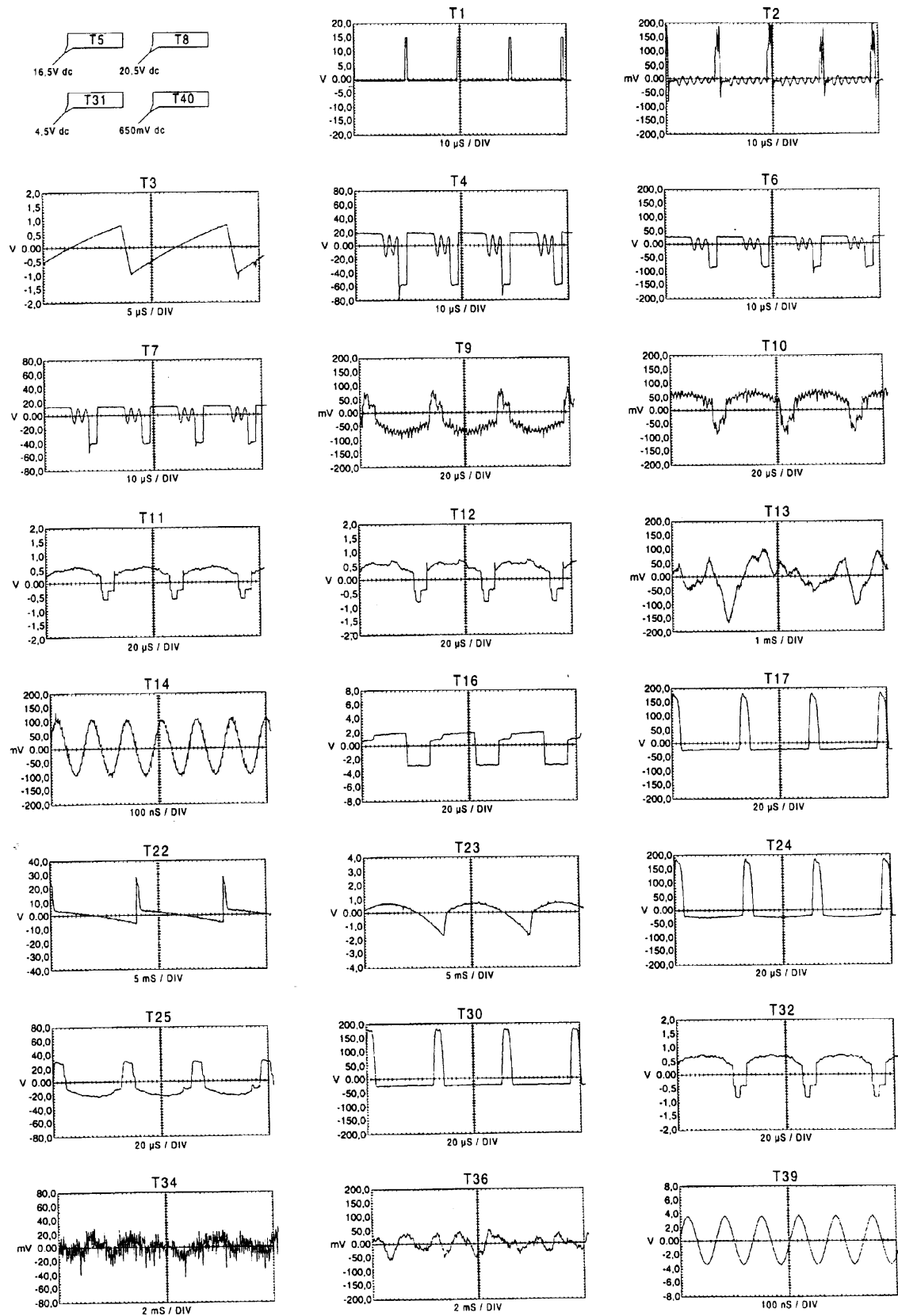




Wave forms

VM6

16



8. Electrical & mechanical adjustments

1. General

- All controls in the minimum position unless otherwise specified.
- Test signal: From pattern generator (PM 5544, circle), applied via capacitor of 4.7nF for DC blocking.
- The monitor should be warmed up for about 2 minutes.

2. Power supply

2.1 Adjustments of the +24V Volt

- Connect a DC voltmeter to TP +24V
- Switch on the monitor.
- Adjust potentiometer 3117 so the voltage reads 24,2 Volt DC ($\pm 0,2$ Volt)

3. Time base

3.1 Frame amplitude

- Apply a "Circle" with a pattern generator on Video-in-VCR and switch to VCR.
- Set all controls in the middle position.
- Adjust potentiometer 3413 until the vertical size of the circle is the same size as in horizontal direction.

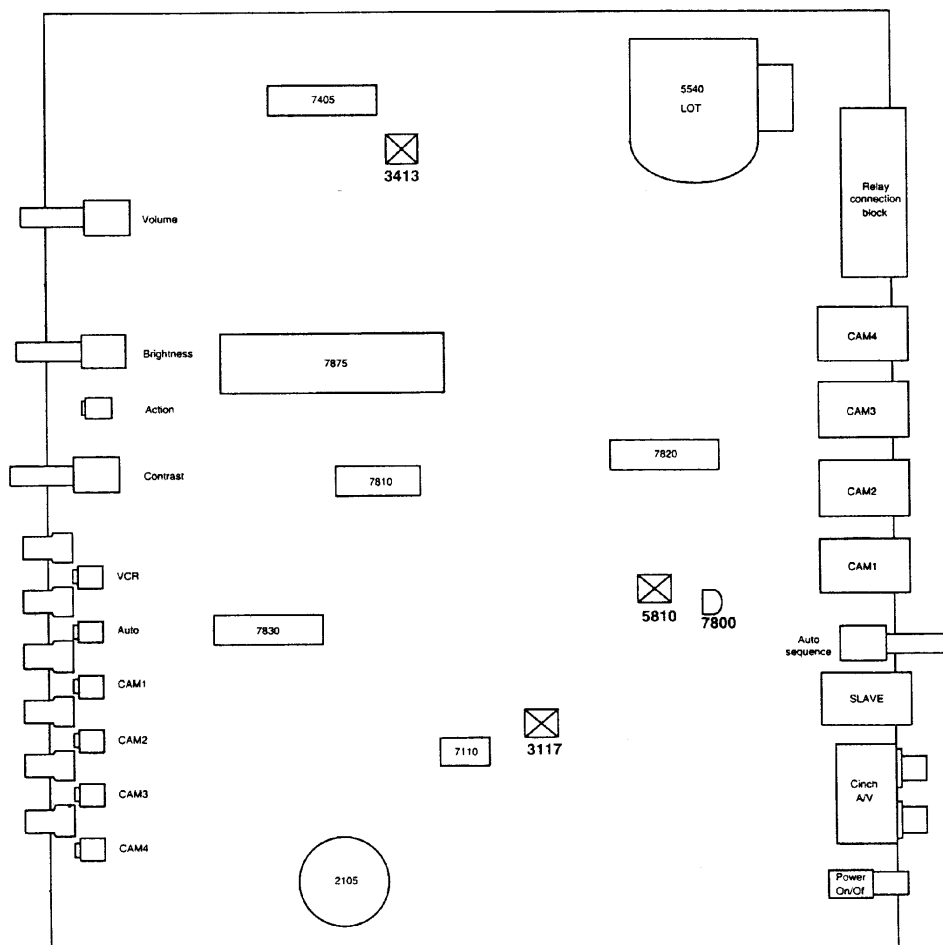
3.2 Picture geometry

- Rotate the deflection coil around the neck of the picture tube until the sides of the picture are in parallel with the mask.
- Adjust the centring magnets until the picture is symmetrical relative to the mask.

4. Carrier wave for intercom functions

4.1 Carrier wave adjustment

- Connect a frequency counter via a capacitor of 1 pF to the emitter of 7800.
- Tune the core of the coil 5810, while pressing the talk button, until the frequency counter measures 6.200.000 Hz ± 5 kHz.



9. Circuit Description

Differences with the VM8 system : In respect to the field calls of the VM8 system (See Training Manual VM8 service code 4822 727 20401), the VM6 system is improved on several points like:

- The use of other components in the camera interface and the deflection part
- An other transformer in the power supply
- Several software improvements
- For the POS monitor an extra Slave twisted pair interface
- The Slave monitor has a Twisted pair input
- The EHT is increased to improve picture quality
- A system on/off switch at the back of the monitor.

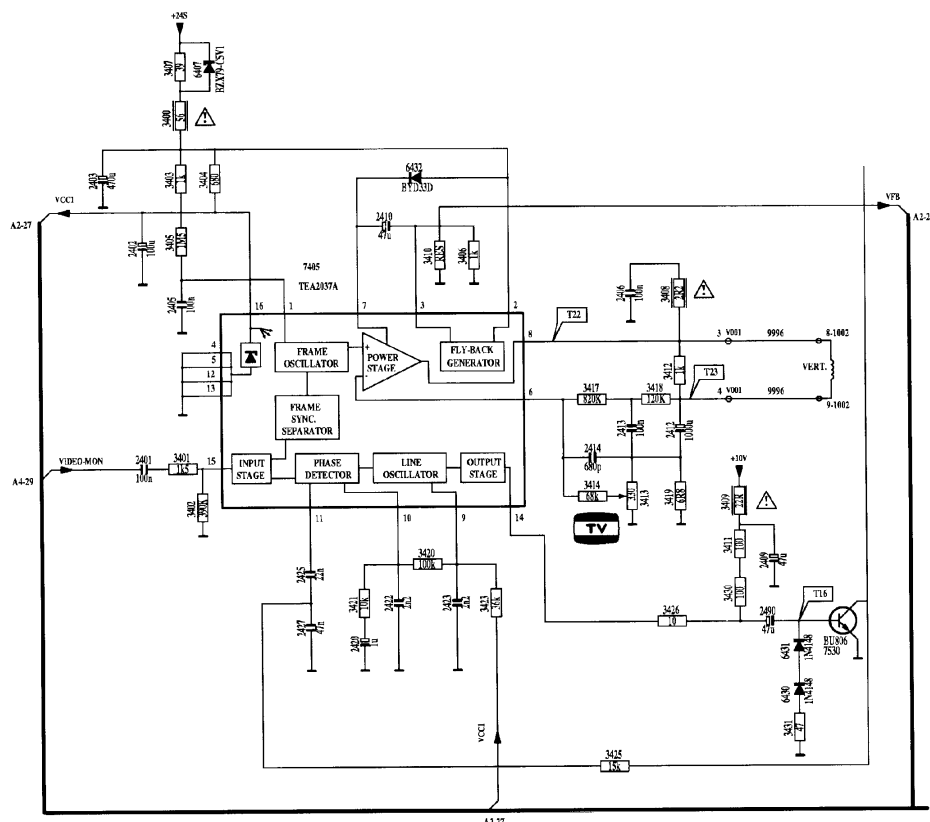
The deflection part differs (electronically) of that of the VM8 system. A new deflection control IC is introduced (TEA 2037A) which generates not only the horizontal and vertical drive but also the Vertical feedback pulses (VFB).

The DC level of the input stage (pin 15, 7405) is determined by 3402. The value of 3402 is chosen in such a way that only the synchronisation pulses of the video signal is fed into the input stage of 7405. After the input stage these pulses are fed in the phase detector and the frame sync. separator. The line oscillator (which is free running at approx. 14,6 kHz) will lock itself (PLL) to the line pulses originating from the incoming video. The line output stage is capable of driving the line output transistor 7530 directly. Via 3425 the phase of the line output stage is monitored. When the line output is getting out of phase, the phase detector will adjust its output, so the line output will get in phase again. As the VCC1 voltage (9,8 Volt) used for the horizontal and vertical oscillators as a reference, (is precise and stable) (using 2423 and 3423 as 1% components) it is not necessary to have a line oscillator adjustment. The line output stage of 7405 has an open collector therefore 3440, 3411 and 3409 are added. 3431, 6430 and 6431 are used to discharge 2490 during the down going flank of pin 14 of 7405.

The frame oscillator is locked to the vertical pulses. These pulses are fed into the vertical power stage, which is capable to drive the vertical deflection coil directly. Via feedback 3414, 3417 and 3413 the amplitude of the vertical drive is obtained. To prevent seeing vertical fly-back lines, the VFB is generated to suppress the video output when fly-back lines are present. Therefore VFB is no feedback but an outgoing signal !! The fly-back generator is essentially a switch which is closed when a Vertical Feed-Back pulse (VFB) is needed.

- During the scan the fly-back generator switch is open so 2410 is charged to approx. +14V via 6432.
- During the fly-back the fly-back generator switch is closed so pin 3 of 7406 is +14V. As 2410 is still charged to +14V, pin 7 of 7406 becomes approx. +28V at the beginning of the fly-back.
- During the fly-back the current through the deflection coil must quickly come to "0". Due to the inductive reaction of the deflection coil more energy is needed (therefor the +28V is used)

Power save circuitry (schematic A1): In the POS and Retail the STAND-BY button is a pulse switch. This pulse is used by the μP to switch off the +10S and +24S using 10S-ENABLE (pin 15, 7875). In this way the line output stage the deflection part and the filament voltage are switched off. In the Slave monitor however no μP is used, therefore 9804 and 9881 are added and a make switch is used for the STAND-BY. In stand-by the switch is open and via 9881 and 7943 the +10S and +24S are switched off. When the Slave is turned off (rear side) the +24V and +24S are switched off. As the +24V is switched off, the +10S is switched off too via 6916 and 9804



10. Direction for use (for the type numbers VSS2360/00T & VS23605T & VS23655T)

Note: Unless otherwise indicated, all drawings are on page 2 & 3 of this manual

Installation



When the configuration is altered, the system must be scanned again. Therefore always switch off the system by means of the rear power switch when a camera or accessory is added or removed. Only operating the power save button is not sufficient.

Remark: Only the inputs to which cameras are connected can be selected or used by the monitor. It is therefore useless to connect an accessory to an input to which no camera is connected.

Monitor

On the back of the monitor the following can be connected:

Cameras

Connect the camera to one of the camera inputs at the back of the monitor (fig. A-2). Correctly directing the camera at the object will be easier when the monitor is temporarily installed at the camera site.

VCR

For the recording and reproducing of pictures and sound a video recorder has to be connected to the input and output (**VCR-audio/video in/out**) on the back of the monitor (fig. A-2).

The VCR output can also be used to connect other peripheral equipment. For example, a video printer for hard copies.

Extra monitor

You can connect an extra monitor to the slave-output (fig. A-2), by using the same twisted pair system cable. The extra monitor gives exactly the same picture and sound as the basic monitor. In VCR mode, the slave monitor shows the image of the last selected camera.

Alarm contact

The alarm contact (make (N.O.) and break (N.C.)) of the monitor (fig. A-2) can, for instance, be used to start up a video recorder, siren or telephone selector.

Cable

A 4-wire system cable (see specifications) is supplied as standard.

For optimum picture and sound quality, a standard dual 'twisted-pair' (telephone) cable should be used.

There is an extensive range of plugs and tools available in the hobby and professional trade to extend the cable. Always ensure that the connection is made as shown in figure D (Page 19).

Caution: The plugs used for the observation system have the same dimensions as standard telephone plugs. Never connect a telephone to the camera or system monitor.

The maximum distance that can be bridged (without a cable extension adapter) between the monitor and the cameras is **300 meters**.

Operation

Monitor

System on/off

By means of the **system** button (fig. A-2) the system can be switched on and off.

When the system is switched off all the camera LED's are off and the auto (sequence) LED flashes periodical.

Remark: Use the **system** button to switch off the system when a camera or accessory is added or removed.

Power save

By pushing the **power save** button (fig. A-1) the image and sound on the monitor can be switched off, thus saving power.

When the system is in power save mode all the camera LED's are off and the auto (sequence) LED is on.

Brightness/contrast

With the **brightness** (fig. A-1) and **contrast** knob (fig. A-1) the picture can be adjusted to your personal preference or to the ambient conditions.

Volume

With the **volume** knob the sound level can be adjusted (fig. A-1).

Talk

By pushing the **talk** button (fig. A-1) the built-in microphone (fig. A-1) in the monitor is switched on. The sound from the microphone can be reproduced by means of an intercom box (optional).

Action

By means of the **action** button (fig. A-1) it is possible to activate an (optional) action box. This can, for instance, be used to open a door remotely. The action box remains active for as long as the button is pressed.

Auto Sequence

The monitor switches slowly between the pictures (image + sound) of the connected cameras.

Remark: The auto button is only functional when:

- camera mode is selected;
- the observation system is enlarged to at least two cameras.

By pushing the **auto** button (fig. A-1) the automatic sequence function is started. The automatic interval sequence time (auto sequence time) can be adjusted between 4 and 60 seconds on the back of the monitor (fig. A-2).

In order to switch back to manual operation, push one of the camera preference buttons or the **auto** button.

Camera selection

A maximum of four cameras can be connected to the monitor. Choosing a camera is done with the camera selection keys **1, 2, 3 and 4** (fig. A-1), the appropriate LED lights up.

VCR

With this button (fig. A-1) the monitor is switched to VCR mode. The VCR-LED will light up. The signal which is supplied at the VCR input on the back of the monitor (fig. A-2) will be shown on the monitor.

Next camera input

When closing the contacts of the next camera input (fig. A-2), the system switches to the next available camera (for future use).

Doorbell

When the **doorbell** button on the optional intercom box is pushed, a buzzer will sound at the monitor, after which the picture will be switched to the corresponding camera. If the automatic camera sequence is active, it will be stopped. If the system operator does not react within 1 minute to the warning signal by pushing any button, the monitor will return to its previous status, or the automatic camera sequence will continue.

Alarm

An alarm will sound if:

- there is a break in the camera line.
- this is detected by a camera alarm input or by an alarm box (optional).

When an alarm sounds:

- 1) The system automatically switches to the corresponding camera input.
- 2) The corresponding camera LED will start to blink.
- 3) The built-in alarm buzzer will be audible for 15 seconds.
- 4) The alarm contact (fig. A-2) is changed over for 3 minutes. The alarm contact can activate a video recorder, siren or telephone selector.

Alarm programming

If required, an alarm box in a particular camera line can be disabled. This may be necessary to disconnect the alarms of a door contact or movement detector during the daytime. However, the cable detection remains active at all times.

Push and hold the **auto** button together with the **VCR** button.

The camera LED's on the monitor, the alarm function of which is active, will light up. The **auto** LED will blink fast. Push the corresponding camera selection button, the alarm of which has to be switched on or off (LED on = alarm on; LED off = alarm off).

If all camera lines are set, programming can be ended by pushing the **auto** button. The monitor will return to the status it had before programming.

Automatic alarm termination

After 3 minutes the monitor returns to the status it was in before the alarm was sounding.

If the automatic camera sequence was active, it will be continued. However, the corresponding camera LED remains flashing for as long as the alarm line is active (alarm detector is still active) or the camera line is still cut.

Premature (within 3 minutes) alarm termination

The alarm output (fig. A-2) will be de-activated by switching off the alarm. See alarm programming above. Pressing any key on the control panel of the monitor within 15 seconds will end the alarm sound only.

Alarm priority

A new alarm always gets priority. The monitor will always switch to the camera of the last-received alarm but the LED(s) of each previously received alarm blink faster.

Tips for maintenance

Ventilation

Avoid overheating the system monitor by ensuring to it that the ventilation openings on the top of the monitor remain uncovered. Do not place the monitor in the immediate vicinity of a source of heating.

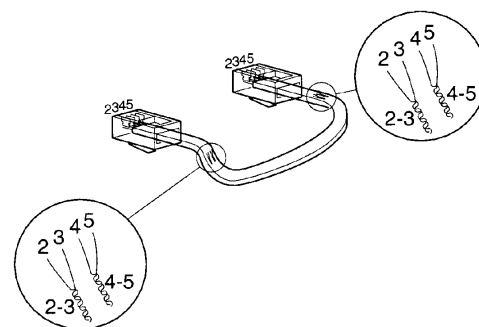
Cleaning

You can clean the system monitor with a moist, fluff-free cloth or chamois leather cloth.

The outside of the camera can be cleaned with a moist, fluff-free cloth or chamois leather cloth.

When cleaning the objective a special lens cleaning cloth should be used. Do NOT use cleaning fluids that contain alcohol, methylated spirit, ammonia, etc..

Avoid direct contact with water.



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Figure D

The technical data of the system cable is as follows :

- system cable (2x2x0,5).
- Basic attenuation, loop resistance 16 Ohm (100 meter).
- Matching impedance 120 Ohm, >10 kHz
- Attenuation (for 100 meter) 5 dB for 5 MHz \pm 20%
2 dB for 1 MHz \pm 20 %
- Signal to noise ratio, 0,1 to 5 MHz >50 dB
- Cross talk in pair: 5 MHz > 46 dB / 100 meter.
50 kHz > 70 dB / 100 meter.

For the type numbers VSS2260/00R & 22MS605R & VS22605R

Installation



When the configuration is altered, the system must be scanned again. Therefore always switch off the system by means of the rear power switch when a camera or accessory is added or removed. Only operating the power save button is not sufficient.

Remark: Only the inputs to which cameras are connected can be selected or used by the monitor. It is therefore useless to connect an accessory to an input to which no camera is connected.

Monitor

On the back of the monitor the following can be connected:

Cameras

Connect the camera to one of the camera inputs on the back of the monitor (fig. B-2). Correctly directing the camera at the object will be easier when the monitor is temporarily installed at the camera site.

VCR

For the recording and reproducing of pictures and sound a video recorder has to be connected to the input and output (VCR-audio/video in/out) on the back of the monitor (fig. B-2).

The VCR output can also be used to connect other peripheral equipment. For example, a video printer for hard copies.

Alarm contact

The alarm contact (make (N.O.) and break (N.C.)) of the monitor (fig. B-2) can, for instance, be used to start up a video recorder, siren or telephone selector.

Cable

A 4-wire system cable (see specifications) is supplied as standard.

For optimum picture and sound quality, a standard dual 'twisted-pair' (telephone) cable should be used.

There is an extensive range of plugs and tools available in the hobby and professional trade to extend the cable. Always ensure that the connection is made as shown in figure D (page 19).

Caution: The plugs used for the observation system have the same dimensions as standard telephone plugs. Never connect a telephone to the camera or system monitor.

The maximum distance that can be bridged between the monitor and the cameras is **50 meters**.

Operation

Monitor

System on/off

By means of the system button (fig. B-2) the system can be switched on and off. When the system is switched off all the camera LED's are off and the auto (sequence) LED flashes periodical.

Remark: Use the system button to switch off the system when a camera or accessory is added or removed.

Power save

By pushing the power save button (fig. B-1) the image and sound on the monitor can be switched off, thus saving power. When the system is in power save mode all the camera LED's are off and the auto (sequence) LED is on.

Brightness/contrast

With the brightness (fig. B-1) and contrast knob (fig. B-1) the picture can be adjusted to your personal preference or to the ambient conditions.

Volume

With the volume knob the sound level can be adjusted (fig. B-1).

Talk

By pushing the talk button (fig. B-1) the built-in microphone (fig. B-1) in the monitor is switched on. The sound from the microphone can be reproduced by means of an intercom box (optional).

Auto sequence

The monitor switches slowly between the pictures (image + sound) of the connected cameras.

Remark: The auto button is only functional when:

- Camera mode is selected
- The observation system is enlarged to at least two cameras.

By pushing the auto button (fig. B-1) the automatic sequence function is started. The automatic interval sequence time (auto sequence time) can be adjusted between 4 and 60 seconds on the back of the monitor (fig. B-2).

In order to switch back to manual operation, push one of the camera preference buttons or the auto button.

Camera selection

A maximum of four cameras can be connected to the monitor. Choosing a camera is done with the camera selection keys 1, 2, 3 and 4 (fig. B-1), the appropriate LED lights up.

VCR

With this button (fig. B-1) the monitor is switched to **VCR** mode. The **VCR-LED** will light up. The signal which is supplied at the VCR input on the back of the monitor (fig. B-2) will be shown on the monitor.

Alarm

Alarm will sound if:

- there is a break in the camera line.
this is detected by a camera alarm input.

When an alarm sounds:

- 1) The system automatically switches to the corresponding camera input.
- 2) The corresponding camera LED will start to blink.
- 3) The built-in alarm buzzer will be audible for 15 seconds.
- 4) The alarm contact (fig. B-2) is changed over for 3 minutes.

The alarm contact can activate a video recorder, siren or telephone selector.

Alarm programming if required, an alarm in a particular camera line can be disabled. This may be necessary to disconnect the alarms of a door contact or movement detector during the daytime. However, the cable detection remains active at all times.

Push and hold the auto button together with the VCR button. The camera LED's on the monitor, the alarm function of which is active, will light up. The auto LED will blink fast. Push the corresponding camera selection button, the alarm of which has to be switched on or off (LED on = alarm on; LED off = alarm off). If all camera lines are set, programming can be ended by pushing the auto button. The monitor will return to the status it had before programming.

Automatic alarm termination

After 3 minutes the monitor returns to the status it was in before the alarm was sounding. If the automatic camera sequence was active, it will be continued. However, the corresponding camera LED remains flashing for as long as the alarm line is active (alarm detector is still active) or the camera line is still cut.

Premature (within 3 minutes) alarm termination The alarm output (fig. B-5) will be de-activated by switching off the alarm. See alarm programming above. Pressing any key on the control panel of the monitor within 15 seconds will end the alarm sound only.

Alarm priority A new alarm always gets priority. The monitor will always switch to the camera of the last-received alarm but the LED(s) of each previously received alarm blink faster.

Tips for maintenance

Ventilation

Avoid overheating the system monitor by ensuring to it that the ventilation openings on the top of the monitor remain uncovered. Do not place the monitor in the immediate vicinity of a source of heating.

Cleaning

You can clean the system monitor with a moist, fluff-free cloth or chamois leather cloth.

The outside of the camera can be cleaned with a moist, fluff-free cloth or chamois leather cloth.

When cleaning the objective a special lens cleaning cloth should be used. Do NOT use cleaning fluids that contain alcohol, methylated spirit, ammonia, etc..

Avoid direct contact with water.

For the type numbers VSS4460/00T & VS44605T

Installation

The following can be connected on the rear of the monitor:

Connection system monitor - slave monitor Connect the slave video/audio output on the system monitor to the audio/video input on the slave monitor using;

- standard cinch connectors (fig. C-2) or
- a system cable (fig. C-2).

Connection slave monitor - slave monitor Connect the video/audio input on the slave monitor with the video/audio output of the previous slave monitor (fig. C-2). Multiple slave monitors can be connected together in a chain.

Connection camera - slave monitor When the slave monitor is not connected to a system monitor you can connect a system camera to the system input (fig. C-2).

Read these instructions, before putting your system in operation.

Operation

Power save

By pressing the power save button (fig. C-1) the monitor picture and sound can be switched on or off.

The monitor continues to feed the sound and picture through to the video/audio output.

System on/off.

By means of the system button (fig. C-2) the system can be switched on and off.

Remark: Use the system on/off button to switch off the system when you change the configuration of the system.

Brightness/contrast

With the brightness and contrast control (fig. C-1) you can adjust the picture to your personal preference or the surrounding conditions.

Volume

With the volume control you can adjust the sound level (fig. C-1).

Tips for maintenance

Ventilation

Avoid overheating the monitor by ensuring to it that the ventilation openings on the top of the monitor remain uncovered. Do not place the monitor in the immediate vicinity of a source of heating.

Cleaning

You can clean the monitor with a moist, fluff-free cloth or chamois leather cloth.

Avoid direct contact with water.

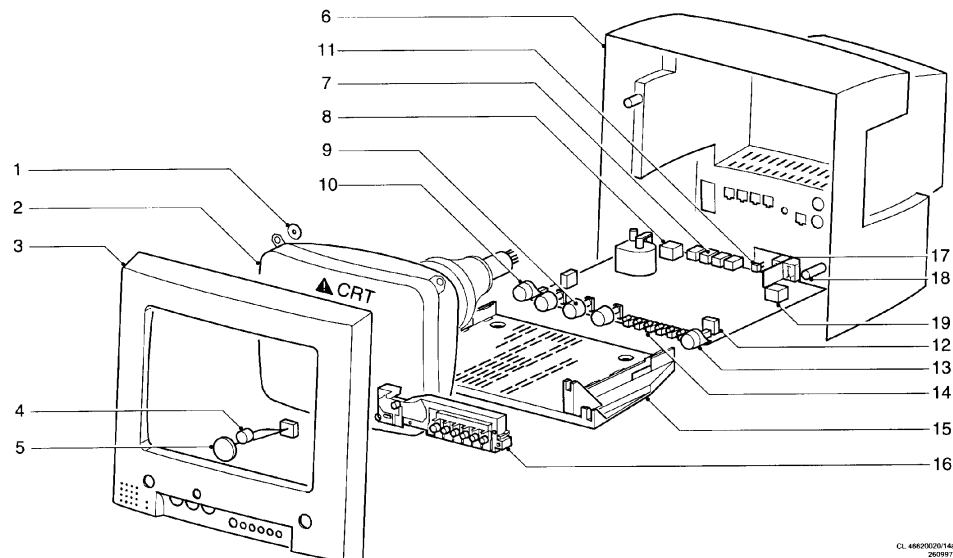
11. Abbreviations

μP	Micro processor	SELECT 0 to SELECT 3	Select camera 1 to 4
10S ENABLE	Enable +10S (for STBY mode)	SLAVE-AUDIO/VIDEO	For slave twisted Pair output
A0/A1	Binary camera selection	SMPS	Switch mode power supply
ACTION-OUT	BEEP to Intercom via TP modulator	STBY	Shut down of deflection and CRT part
ALARM-OUT	Relay alarm output	SYS	System
AUDIO-MUTE	Audio mute	TALK	Communication with intercom
AUDIO-OUT	Audio output for cinch (rear monitor)	TP	Twisted Pair telephone cable
AUDIO-TP	Camera audio from TP input	TWOWAY/CAM	Two way camera audio
BEEP	Beep	V. DEFL	Vertical deflection coil
CAM1 to CAM4	Camera indication LED	VCAM1 to VCAM4	Supply voltage for camera 1 to 4
CRT	Cathode ray tube	VCC1	Reference voltage (9,8V)
EHT	Extra High Tension	VCR	Video cassette recorder
ESD	Electric Static Discharge	VCR/CAM	Input select VCR or Camera
HFB	Horizontal feed-back	VFB	Vertical feedback
HOR	Horizontal deflection	Vg1	Voltage grid 1
INP-SEQ	Next camera input from timer	Vg2	Voltage grid 2
LOT	Line output transformer	VIDEO-MON	Video for CRT
NEG-VIDEO	Negative Video signal	VS2 to VS5	Inserted for Slave functionality
NEXT-CAM	Next camera input (POS only)	+10S	Filament voltage
PLL	Phase Lock Loop	+24V	Camera's and Relay power supply
POS	Philips Observation System	+10V	μP and TP interface power supply
POS-VIDEO	Positive video signal	+24S	Deflection and Line output stage
PTC	Positive Temperature Coefficient		Power supply
RESET-SEQ	Reset camera sequence timer		

12. Spare Parts list

Mechanical

VSS2360/00T & VS23605T & VS23655T (POS)



Pos.	Service Code	Description	Pos.	Service Code	Description	Pos.	Service Code	Description
1	5322 401 11314	CRT ring	8	4822 265 11114	Screw block	17	4822 265 11113	Cinch connector
2	4822 131 20473	Picture tube	9	4822 413 41882	Knob	18	4822 410 63859	On/off knob
3	4822 441 12078	Front assy PAL	10	4822 410 63486	Action button	19	4822 276 13483	On/off switch
3	4822 441 12076	Front assy NTSC	11	4822 100 20887	Potmeter sequence		4822 256 92332	Speaker ring
4	4822 242 10696	Microphone	12	4822 276 13554	Stand-by switch			
5	4822 240 10157	Loudspeaker	13	4822 410 63485	Stand-by knob			
6	4822 426 10551	Rear cover PAL	14	4822 255 41346	Led holder			
6	4822 426 10549	Rear cover NTSC	15	4822 435 60076	Bottom plate			
7	4822 276 41181	Camera inputs	16	4822 410 63484	Knob frame			

Pos.	Service Code	Description	Pos.	Service Code	Description	Pos.	Service Code	Description
1	5322 401 11314	CRT ring	8	4822 267 41179	Screw block	17	4822 265 11113	Cinch connector
2	4822 131 20473	Picture tube	9	4822 413 41886	Knob	18	4822 276 13483	On/off switch
3	4822 441 12074	Front VSS2260/00R	10	4822 410 63489	Action button	19	4822 100 20887	Sequence time potmeter
3	4822 459 04745	Front 22MS605R	11	4822 276 13554	Stand-by switch			
3	4822 459 04134	Front VS22605R	12	4822 410 63488	Stand-by knob			
4	4822 242 10696	Microphone	13	4822 255 41347	Led holder	4822 256 92332	Speaker ring	
5	4822 240 10157	Loudspeaker	14	4822 435 60077	Bottom plate			
6	4822 426 10558	Rear cover	15	4822 410 63487	Knob frame			
7	4822 276 41181	Camera inputs	16	4822 410 63859	On/off knob			

Pos.	Service Code	Description	Pos.	Service Code	Description	Pos.	Service Code	Description
1	5322 401 11314	CRT ring	7	4822 265 11113	Cinch connector	15	4822 435 60076	Bottom plate
2	4822 131 20473	Picture tube	8	4822 255 70167	Socket for CRT	16	4822 276 41181	Slave input
3	4822 441 12077	Front assy PAL	9	4822 413 41882	Knob			
3	4822 441 12075	Front assy NTSC	10	4822 410 63859	On/off knob			
5	4822 240 10157	Loudspeaker	11	4822 276 13483	On/off switch			
6	4822 426 10547	Rear cover PAL	12	4822 276 11237	Stand-by switch			
6	4822 426 10548	Rear cover NTSCT	13	4822 410 63485	Stand-by knob			