# STREAMING TAPE DRIVES

The compatibility of tapes for STUs with floppy disk interface (Irwin and Conner) is based on the recording density and on the type of tape cartridge used (and not by the capacity of the 5.25" or 3.5" drive). The high density drives can actually "slow down" to read the tape cartridges that have been recorded by low density drives.

The following table shows the compatibility between the drives and tapes.

IRWIN MODEL	TAPE	TAPE FEATURES	RECORDING DENSITY	READ COMPATIBLE WITH MODELS:
145/245/ 245EA	3M DC-1000 3M DC-2000	H=0.4 cm L=55 m H=0.6 cm L=62 m	10000 bpi	145/245/245EA
285/287/ 31250A	3M DC-1000 (read only) 3M DC-2000 3M DC-2120	H=0.4 cm L=55 m H=0.6 cm L=62 m H=0.6 cm L=93 m	11600 bpi	145/245/245EA 285/287/31250A
CTM420	Sony QW5122 F (DC2000)	H=0,8 cm L=62 m		285/287/31250A CTM420

The compatibility between the tapes for STUs with QIC36 and SCSI interface (Wangtek, Conner and Tandberg) is based on the recording format and on the type of tape cartridge. The following tabe shows the compatibility between the drives and tapes.

MODEL	TAPE TYPE	RECORDING FORMAT	CAP.	RE	AD-COMPATIBLE
Wangtek 5099 EN24	DC600	QIC-24		QIC-11 QIC-24	Wangtek 5099 EN24
Wantek 5125 EN	DC600A	QIC-120	125 MB	QIC-11 QIC-24 QIC-120	Wangtek 5099 EN24 Wangtek 5125 EN
Wangtek 5150 ES Wangtek 5150 ES-ACA	DC600A DC6150 DC6250	QIC-120 QIC-150 QIC-150	125 MB 150 MB 250 MB	QIC-11 QIC-24 QIC-120 QIC-150	(Wangtek 5099 EN24) (Wangtek 5125 EN) (Wangtek 5150 ES Wangtek 5150ES-ACA)
Wangtek 5525 ES Wangtek 5525 ES-ACA Conner 2525	DC600A DC6150 DC6250 DC6320 DC6525	QIC-120 QIC-150 QIC-150 QIC-525 QIC-525	125 MB 150 MB 250 MB 320 MB 525 MB	QIC-11 QIC-24 QIC-120 QIC-150 QIC-525	(Wangtek 5099 EN24) (Wangtek 5125 EN) (Wangtek 5150 ES Wangtek 5150 ES-ACA) (Wangtek 5525 ES Wangtek 5525 ES-ACA Conner 2525)
Wangtek 51000HT Tandberg TDC4120	DC600A DC6150 DC6250 DC6320 DC6525 DC9100 DC9120	QIC-120 QIC-150 QIC-150 QIC-525 QIC-525 QIC-1000 QIC-1000	125 MB 150 MB 250 MB 320 MB 525 MB 1 GB 1.2 GB	QIC-11 QIC-24 QIC-120 QIC-150 QIC-525 QIC-1000	(Wangtek 5099 EN24) (Wangtek 5125 EN) (Wangtek 5150 ES Wangtek 5150 ES-ACA) (Wangtek 5525 ES Wangtek 5525 ES-ACA Conner 2525) (Wangtek 51000HT Tandberg TDC4120)

Note: The tapes for QIC36 and SCSI STUs are not compatible with those for STUs with floppy interface.



JUMPERS				DRIVE ADDRESS SELECTION	
1	2	3	4		
ON OFF OFF OFF	OFF ON OFF OFF	OFF OFF ON OFF	OFF OFF OFF ON	Drive 1 Drive 2 * Drive 3 Drive 4	

Note: The SIDE SELECT jumper is always ON.

### **TERMINATOR RN1**

Terminator RN1 must be removed when the unit is installed as the second SA450 interface peripheral connected to the system controller; the first one is usually a floppy disk.



Note: Jumper J8 configuration is set at the factory and must not be modified.



JUMPERS J5				DRIVE ADDRESS SELECTION
1	2	3	4	DRIVE ADDRESS SELECTION
ON OFF OFF OFF	OFF ON OFF OFF	OFF OFF ON OFF	OFF OFF OFF ON	Drive 1 Drive 2 * Drive 3 Drive 4

## **TERMINATOR RN1**

Terminator RN1 must be present if this drive is the last SA450 peripheral connected with the floppy ribbon cable connector, otherwise it must be removed. Usually the STU last peripheral with a floppy interface installed.

## **EVOLUTION OF USER DISK STU 26-082**

DATE	REL.	CODE	MODIFICATION
	1.02	3937660E	New User Disk.
9/93	1.03.1	2690224H	The User Disk was updated because on M480-40 systems the pervious version was causing conflicts between the STU and the second FDU drive (this diskette would work only with a single FDU).



JUMPER A



FACTORY DRIVE SELECT

DRIVE SELECT 2 (Default)

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## **KIT STR 50-420 EVOLUTION**

CODE	LEV.	REASON FOR CHANGE	DATE
563332 S	02	Conflict on 3F0h between the SMC FDC37C932 and storage applications. The failure occurs on Romolo A/B with Unix-SCO 5.0 or CBE 2.1f for DOS/Windows 3.XX. Kits with new Unix SCO 5.0 rel 4.0.0p driver and new version 2.51 of Arcada for DOS and Windows 3.XX.	10/96

60 MB STU WANGTEK 5099 EN24 Board 30509 QIC36



JUMPERS	SETTING	DESCRIPTION		
E1	ON *	Connect the logical ground to the chassis ground		
	OFF	Logical ground separated from the chassis		
EN	OFF *	Enables function QIC24 for track research 0		
	ON	Disables the track function on track 0		
MDS-IN	OFF *	Reserved (wired on the board)		
MDS-EX	OFF *	Reserved (wired on the board)		
9/12	OFF *	Standard (wired on the board)		
	ON	Selects track 9 QIC24		
HC/IHC	OFF/ON *	Read/write current gain selected as routine		
	ON/OFF	Read/write current gain selected by interrupt control line		
10/5	ON/OFF *	10 MHz selection clock		
	OFF/ON	Board test		
F1	OFF *	Standard		
	ON	Select handling mode		
W1	OFF *	Reserved (wired on board)		
ADJ	OFF *	Standard		
	ON	Reduces the read gain by 25%		
TNG/TG	ON/OFF *	The counter revolution pulses are transmitted to the form/contr.		
	OFF/ON	The counter revolution pulses are not transmitted to the form/contr.		
HDR1		Drive selection jumpers		
1-8	ON	Daisy chain configuration		
~ -	OFF *	Standard configuration		
2-7	ON *	The unit is selected from line SEL0		
3-6	ON .	The unit is selected from line SEL1		
4 5	OFF *	Standard configuration		
4-5	ON .	Unit always selected		
	OFF *	Standard configuration		
HDR2		Optional jumpers for special functions		
1-20		Standard configurations (Wiring on board)		
0.40		vvEN line lunction read threshold		
2-19		Standard configurations (Wiring on board)		
	UN	THD line function read threshold		

JUMPERS	SETTING	DESCRIPTION
HDR3		Control jumpers for motor starting phase (do not change)
1-16	OFF *	Standard
5-12	OFF *	
	ON	Motor Phase 1 selection
	ON	
2-15	ON *	Motor Phase 2 selection
6-11	ON *	
3-14	OFF *	Standard
7-10	OFF *	
	ON	Motor Phase 3 selection
	ON	
4-13	OFF *	Standard
8-9	OFF *	
	ON	Motor Phase 4 selection
	ON	
	011	

Note: The jumper settings on interface board PC-36-III (GO718 or GO725) are described in the PC Pocket Service Guide.





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JUMPER	SETTING	DESCRIPTION
E1	ON *	Connects the logical ground to the chassis ground
	OFF	Logical ground separate from chassis
EN	OFF "	Positions the head on the centre of the reference string
9/15	OFF *	15 track operating mode
0, 10	ON	9 track operating mode
HC/IHA	OFF/ON *	Routine selection of read/write current gain
10/5	ON/OFF	Int. control line selection of read/write current gain
10/5	ON/OFF	Selection of 10 MHz clock
F1	OFF/ON	Standard
	ON	Selection of self-test mode
W1	ON *	The interface controls the high speed read/write operations
	OFF	The interface controls the high speed mode for search/rewind oper.
FLI		The drive fault status signal is not shown on the I/O bus
	ON/OFF *	The drive fault status signal is transmitted on the I/O bus
	OFF/ON	The revolution counter pulses are not transmitted to the I/O bus
HDR1		Drive selection buses
1-8	ON	Microprocessor selected as a drive select function
0.7	OFF *	Microprocessor always selected
2-7		The unit is selected from line SELU
3-0	OFF *	Standard configuration
4-5	ON	Unit always selected
	OFF *	Standard configuration
HDR2		Jumpers for controlling the read and write threshold levels
20-GND/2-20	ON/OFF *	The write threshold level is 28%, the read threshold level is 0
20-GND/2-20 HDR3	OFF/ON	I ne threshold is determinated by line THD lumper for controlling the motor start phase (do not change)
1-16	OFF *	Standard
5-12	OFF *	
	ON	Motor phase 1 selection
0.45	ON to the total second	
2-15		Standard
0-11	ON *	Motor phase 2 selection
	ON *	
3-14	OFF *	Standard
7-10	OFF *	
	ON	Motor phase 3 selection
4-13	ON *	Motor phase 4 selection
8-9	ON *	

Note: The jumper settings on interface board PC-36-III (GO725) are described in the PC Pocket Service Guide.



JUMPERS HDR1	POSITION	FUNCTION
1	ON	Only used in production
	OFF *	
2	ON	Do not change the position of this jumper
	OFF *	
3	ON	Do not modify the position of this jumper
	OFF *	
4	ON	Only used in production
	OFF *	
5	ON	Selects the 9 track operating mode
	OFF *	Select the 15 or 18 track operating mode
6	ON *	Selects the 90 ips operating mode
	OFF	Selects the 72 ips operating mode

## JUMPERS HDR3

The drive works in buffered mode when powered up.	1 * A		The drive doesn't work in buffered mode when powered up.
Data format after power up QIC 150.	32 * A	32 A C B B	Data format after power up QIC 24.
Data format after power up QIC 120.	<b>32</b> A	32 A C B B	Reserved.
Parity control enabled on SCSI bus.	<b>4</b> * A C B B B B B	<b>4</b> A	Parity control disabled on SCSI bus.

### JUMPERS HDR2

Used to have access to the drive avoiding the SCSI interface controller. To enable HDR2 remove jumper E6. The jumpers are numbered from 1 to 22. Jumpers 15 - 16, 17 - 18 and 19 - 20 must be inserted by default. All the others do not have to be inserted.

JUMPERS J10			
3	2	1	SCOLD SELECTION
OFF	OFF	OFF	0
OFF	OFF	ON	1
OFF	ON	OFF	2
OFF	ON	ON	3
ON	OFF	OFF	4
ON	OFF	ON	5
ON	ON	OFF	6
ON	ON	ON	7

**Notes:** - This drive must be addressed as ID = 2 if installed on AT PCs using the ASC1 board and the SCO operating system. - Jumper K is not used.

JUMPER E1	TERMINATOR POWER SUPPLY
ON	The drive supplies power to the terminators *
OFF	Power is supplied to the terminators by the Terminator Power signal

JUMPER E2	DRIVE GROUND SELECTION
ON	Drive connected to ground *
OFF	Drive connected to ground by means of a capacitance

#### JUMPER E3

Must always be inserted JUMPER E4 Must never be inserted JUMPER E5 Must always be inserted

JUMPER E6	DESCRIPTION
ON	Disabling HDR2 jumpers functions
OFF	Enabling HDR2 jumpers functions

#### JUMPER E7

Must always be inserted JUMPER E8 Must never be inserted JUMPER E9 Must never be inserted in wither of the two positions JUMPER E10

Must always be inserted in position 2 - 3

#### **TERMINATION RESISTANCES RP2, RP3**

Whether the terminators are present or not depends on the configuration of the system SCSI channel. Usually the SCSI channel must always be terminated at its ends (first and last device on the bus), while it must be removed from all the peripherals inbetween. On some systems the termination must be made directly on the drive, on others the termination must be made at the end of the SCSI cable.



JUMPERS J10			SCSLID SELECTION	
3	2	1		
OFF	OFF	OFF	0	
OFF	OFF	ON	1	
OFF	ON	OFF	2	
OFF	ON	ON	3	
ON	OFF	OFF	4	
ON	OFF	ON	5	
ON	ON	OFF	6	
ON	ON	ON	7	
			1	

**Notes:** - This drive must be addressed as ID = 2 if installed on AT PCs using the ASC1 board and SCO operating system. - Jumper K is not used.

- If two drives are installed on the M480-40/60, they must both be Rev. D or later.

JUMPER E1	FUSE F1 (1,5 A)	POWER SUPPLY TO THE TERMINATORS
ON	Present	The drive provides the power supply to the terminators *
OFF	Not present	The terminators are supplied by the Terminator Power signal

JUMPER E2	DRIVE GROUND CONNECTION
ON	Drive connected to ground *
OFF	Drive connected to ground through a capacitance

#### CONNECTOR J32

Must never be present (used only at the factory) **JUMPER E5** 

Must always be present (used only at the factory) **JUMPERS E20** 

Must never be present (used only at the factory)

## **TERMINATION RESISTANCES RP1, RP2, RP3**

Whether the terminators are present or not depends on the configuration of the system SCSI channel.

Usually the SCSI channel must always be terminated at its ends (first and last device on the bus), while it must be removed from all the peripherals inbetween. On some systems the termination must be made directly on the drive, on others the termination must be made at the end of the SCSI cable.

## USER DISK EVOLUTION

DATE	REL.	CODE	MODIFICATION
	2.00	2690124F (1.44 MB) 2690125B (1.2 MB)	New User Disk.
9/93	3.22	2690611K (1.44 MB) 2690612X (1.2 MB)	User Disk update so that it can be used on LSX 5025 E systems.
1/95	3.46	2690983 Z (1.44 MB)	Diagnostic program update so that it becomes aligned with SCSI Library 0.24 with the addition of the management with the DPT and PCI Dagger SCSI controllers. Starting from this release the 1.2 MB diskette will no longer be available in the Starter Kit.





	SCSLID SELECTION	JUMPER JP1		
	SCSID SELECTION	1	2	3
10	0	OFF	OFF	OFF
10	2	OFF	OFF	OFF
	3 4	ON OFF	ON OFF	OFF ON
	5	ON OFF	OFF	ON ON
	7	ON	ON	ON

Notes: - This drive must be addressed as ID = 2 if installed on AT PCs using the ASC1 board and the SCO operating system. - Jumper K is not used.

JUMPER JP2	POSITION	FUNCTION
1	ON OFF	Selects the SCSI-2 interface Selects the SCSI-1 interface*
from 2 to 9	OFF	Reserved

**JUMPERS JP3 PIN 1-4 (diagnostic test)** Used to directly access the microcontroller that controls the motor, bypassing the SCSI interface. This functions is only enabled in diagnostics with jumpers E2 and E3 ON.

JUMPERS		OPERATING MODE SELECTION
E2	E3	
OFF OFF ON ON	OFF ON OFF ON	Normal * Reserved Burn-in Factory diagnostics

FUSE F1	POWER SUPPLY TO TERMINATORS
Present	The drives supplies power to the terminators *
Absent	The terminators are supplied by the Terminator Power signal

### **TERMINATION RESISTANCES RN1, RN2, RN3**

Whether the terminators are present or not depends on the configuration of the system SCSI channel.

Usually the SCSI channel must always be terminated at its ends (first and last device on the bus), while it must be removed from all the peripherals inbetween. On some systems the termination must be made directly on the drive, on others the termination must be made at the end of the SCSI cable.

## 33584 MOTOR DRIVE BOARD



JUMPER JP1	DRIVE GROUND CONNECTION
ON OFF	Connects the logical ground to the chassis ground * Logical ground insulated from physical ground by means a condenser (0.33 $\mu F$ )



J	JUMPERS JP	1	SCSUD SELECTION	
3	2	1		
OFF	OFF	OFF	0	
OFF	OFF	ON	1	10
OFF	ON	OFF	2	
OFF	ON	ON	3	
ON	OFF	OFF	4	
ON	OFF	ON	5	
ON	ON	OFF	6	
ON	ON	ON	7	
		1	1	11

**Notes:** - This drive must be addressed as ID = 2 if installed on AT PCs using the ASC1 board and the SCO operating system. - Jumper K is not used.

FUSE F1	JUMPER E1	POWER SUPPLY TO TERMINATORS
Present	ON	The drive provides the power supply to the terminators *
Not present	OFF	The terminators are powered by the Terminator Power signal

#### JUMPERS E2, E3, JP2, JP3, JP6 AND JP12 (drive diagnostics)

Used to enable the drive resident test mode (used only at the factory). No jumper is present in the default configuration (OFF setting).

#### **CONNECTOR J32 (drive diagnostics)**

Used to directly access the microcontroller that commands the motor, bypassing the SCSI interface (used only at the factory). No jumper is present in its default configuration.

JUMPER E5	OSCILLATOR ENABLE	
ON	Main 48 MHz oscillator enabled *	
OFF	Oscillator disabled	

#### **TERMINATION RESISTANCES RN1, RN2, RN3**

Whether the terminators are present or not depends on the configuration of the system SCSI channel.

Usually the SCSI channel must always be terminated at its ends (first and last device on the bus), while it must be removed from all the peripherals inbetween. On some systems the termination must be made directly on the drive, on others the termination must be made at the end of the SCSI cable.

## MOTOR 33748 DRIVE BOARD



JUMPER W1	DRIVE GROUND CONNECTION	
ON OFF	Connects the logic ground to frame ground * Logic ground isolated from physical ground by an 0.33 $\mu$ F capacitor	

## USER DISK EVOLUTION

DATE	REL. CODE		MODIFICATION	
	2.00	2690124F (1.44 MB) 2690125B (1.2 MB)	New User Disk.	
9/93	3.22	2690611K (1.44 MB) 2690612X (1.2 MB)	User Disk updated so that it could be used on LSX 5025 E systems.	
1/95	3.46	2690983 Z (1.44 MB)	Diagnostic program update so that it becomes aligned with SCSI Library 0.24 with the addition of the management with the DPT and PCI Dagger SCSI controllers. Starting from this release the 1.2 MB diskette will no longer be available in the Starter Kit.	



JUMPERS			SCSUD SELECTION	
JP6	JP7	JP8	SCOLD SELECTION	
OFF	OFF	OFF	0	10
ON	OFF	OFF	1	10
OFF	ON	OFF	2	
ON	ON	OFF	3	
OFF	OFF	ON	4	
ON	OFF	ON	5	
OFF	ON	ON	6	
ON	ON	ON	7	

**Note:** If the drive is used with the SCO operating system, the SCSI ID must be set to 2.

OPTION	JUMPER	ON	OFF
Autodata/Tape type	JP1	At insertion *	At first command
Fixed Block Default (must be installed for compatibility with Sytos Plus)	JP2	1 Kbyte *	512 Kbyte
Not used	JP3		
Not used	JP4		
Terminator power (+5 V on SCSI connector pin 26)	JP12	Enabled	Disabled *
Not used	JP5		
Parity checking	JP9	Enabled *	Disabled

## TERMINATION RESISTANCES

Whether the terminators are present or not depends on the configuration of the system SCSI channel.

Usually the SCSI channel must always be terminated at its ends (first and last device on the bus), while it must be removed from all the peripherals inbetween. On some systems the termination must be made directly on the drive, on others the termination must be made at the end of the SCSI cable.

## USER DISK EVOLUTION

DATE	REL.	CODE	MODIFICATION
9/93	3.22	2690611K (1,44 MB)	New User Disk
1/95	3.46	2690983 Z (1.44 MB)	Diagnostic program update so that it becomes aligned with SCSI Library 0.24 with the addition of the management with the DPT and PCI Dagger SCSI controllers.



## DRIVE CONTROLLER BOARD 33959



	JUMPERS JP	1	SCSUD SELECTION	1
3	2	1		
OFF OFF OFF ON ON ON ON	OFF OFF ON OFF OFF ON ON	OFF ON OFF ON OFF ON	0 1 2 3 4 5 6 7	10

**Notes:** - If the drive is used with the SCO operating system, SCSI ID = 2 must be set. - Jumper K is not used.

FUSE F1	JUMPER E1	TERMINATOR POWER SUPPLY
Present	ON	The drive provides power to the terminators *
Not present	OFF	The terminators are powered by the Terminator Power signal

JUMPER E5	OSCILLATOR ENABLE
ON	Main 48 MHz oscillator enabled *
OFF	Oscillator disabled

## Jumper JP2 (Block Mode 512 Enable)

When inserted, sets the Block Mode to 512. This condition is required in some operations under Novell, UNIX and XENIX. The default configuration is jumper not inserted, Block Mode 1024.

## Jumpers JP7, JP8, JP9, E3 (Reserved)

The default configuration has no jumper installed.

## Jumpers E2, E4, JP3, JP6 and JP12 (Drive Diagnostics)

Used to enable the test mode resident on the drive (used only at the factory). The jumper is not installed in the default configuration.

## **Connector JP32 (Drive Diagnostics)**

Used to directly access the microcontroller that controls the motor, bypassing the SCSI interface (used only at the factory). The jumper is not installed in the default configuration.

## Termination Resistances RN1, RN2, RN3

Whether the terminators are present or not depends on the configuration of the system SCSI channel.

Usually the SCSI channel must always be terminated at its ends (first and last device on the bus), while it must be removed from all the peripherals inbetween. On some systems the termination must be made directly on the drive, on others the termination must be made at the end of the SCSI cable.

## MOTOR CONTROLLER BOARD 33957



JUMPER W1	DRIVE CONNECTION TO GROUND
ON OFF	Connects logic ground to the case ground * Logic ground isolated from physical ground by means of a capacitor (0.33 $\mu F$ )



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JUMPERS			
SEL2	SEL1	SEI0	SCSIID SELECTION
OFF	OFF	OFF	0
OFF	OFF	ON	1
OFF	ON	OFF	2
OFF	ON	ON	3
ON	OFF	OFF	4
ON	OFF	ON	5
ON	ON	OFF	6
ON	ON	ON	7

Note: If the drive is used with the SCO operating system, SCSI ID = 2 must be set.

JUMPER PAR	PARITY CHECKING ENABLE
OFF	Disables parity checking on the SCSI bus
ON *	Enables parity checking on the SCSI bus

JUMPER PWRTERM	TERMINATOR POWER SUPPLY		
OFF ON *	The terminators are powered by the Terminator Power signal The drive provides power to the terminators		

All other jumpers are reserved for testing purposes and must not be used during normal operation. In particular, by connecting SELFTEST to ground, depending on the setting of jumpers SEL0-2, the drive will carry out the following tests at power on:

SELFTEST	SEL2	SEL1	SEL0	TEST PERFORMED
ON to ground ON to ground ON to ground ON to ground ON to ground	OFF OFF OFF OFF ON	OFF OFF ON ON OFF	OFF ON OFF ON OFF	Burn-In Selftest 2 Reserved Reserved Reserved
ON to ground ON to ground ON to ground	ON ON ON	OFF ON ON	OFF ON	WRITE + ERASE FWD/REV WIND/REWIND

### **Termination Resistances RP1, RP2, RP3**

Whether the terminators are present or not depends on the configuration of the system SCSI channel.

Usually the SCSI channel must always be terminated at its ends (first and last device on the bus), while it must be removed from all the peripherals inbetween. On some systems the termination must be made directly on the drive, on others the termination must be made at the end of the SCSI cable.